

THE THEORY AND PRACTICE OF MRIDANGA



Author : Late Sri Dharmala Rama Murthy
Co-Author : Dharmala Venkateswara Rao



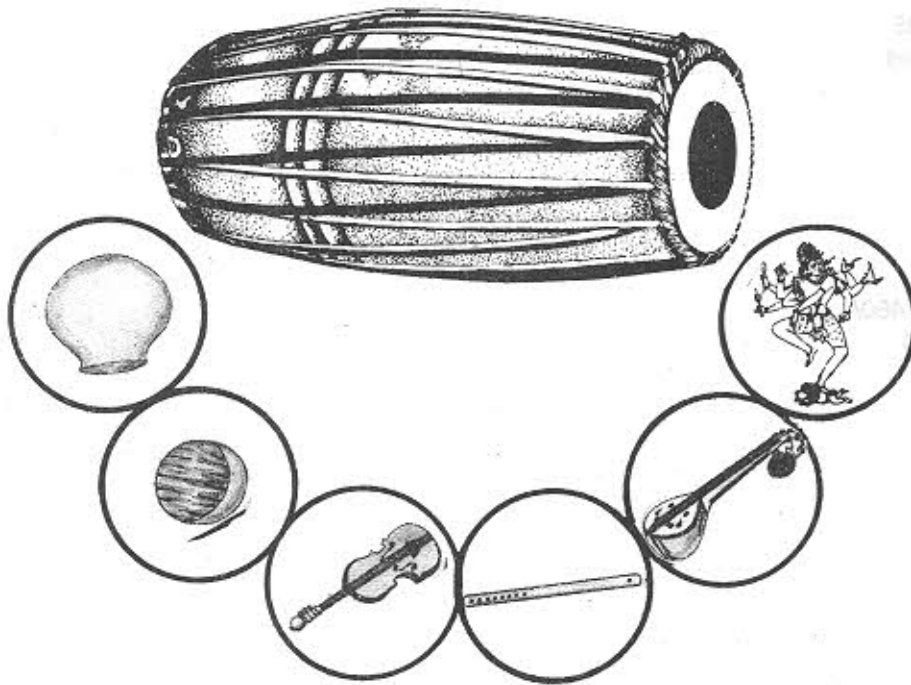
DEDICATED TO
LORD SRI VENKATESWARA SWAMY

Presented with compliments to
Prof. Dr. Sri V. Ramasathan gann
Chennai

With Regards
Ankath Suresh Rao

25/4/07
(DHARMA LA VENKATESWARAN)

THE THEORY AND PRACTICE OF MRIDANGA



AUTHOR : LATE SRI DHARMALA RAMA MURTHY

CO-AUTHOR : DHARMALA VENKATESWARA RAO, M.A.

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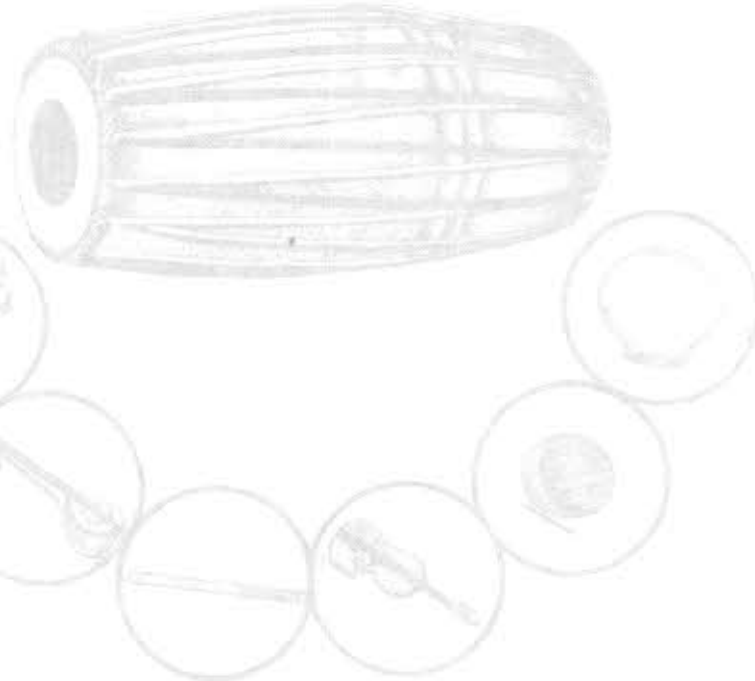
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Co - Author

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OTHER BOOKS WRITTEN BY THE SAME AUTHORS.

1) MRIDANGA THATWAM

(The Theory and practice of Mridanga in Telugu)

2) MUKTAYI SUTRA BHASHYAM

(The Theory and practice of Muktayees & Pallavees in Telugu)

3) SURYOPASANA SARVASWAM

All information of lord Surya Bhagavan in Telugu with
Photos of Namaskaras and Mudras.

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SANGEET NATAK AKADEMI

Ref: No. 34A/31-12/7267/69-71

Shri DHARMALA RAMAMOORTHY,
C/o. Shri D. Venkateswara Rao,
3-6-455, Himayat Nagar,
Hyderabad-29.

Dear Sir,

We are glad to inform you that the Sangeet Natak Akademi has awarded a prize of Rs. 1,500/- for your book "Mridanga Tatva" as a part of its scheme to award prizes for the best books in music in Indian languages and English. A crossed Cheque bearing No. BC 6/687936, dated 12-10-1971 for Rs. 1,500/- is enclosed for which kindly send a stamped receipt.

Congratulating you,

*National Academy of Music
Dance & Drama*

Rabindra Bhavan Feroze
Shah Road,

New Delhi-1.

Phones: 45947-48-49

Grams: "NATAKADEMI"

October 19, 1971.

Yours faithfully,

(Sd/Mohan Khokar)

Assistant Secretary (Dance)

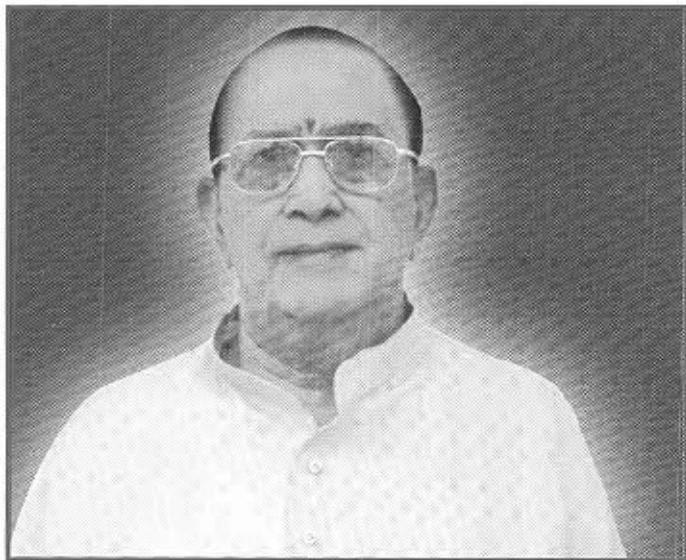


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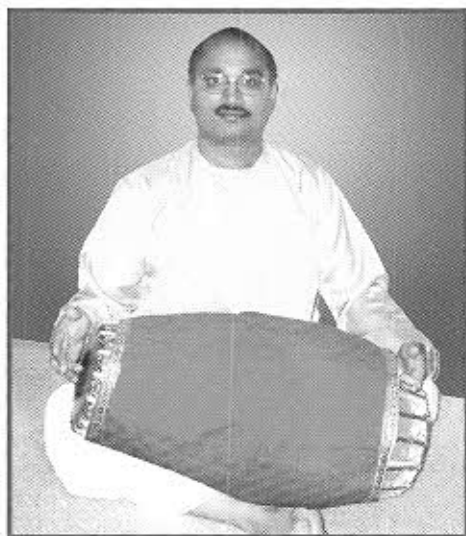
"MRIDANGA VIDWAT SEKHARA"

LATE SRI DHARMALA RAMA MURTHY

MRIDANGA VIDWAN & RESEARCH SCHOLAR



Co-Author
"MRIDANGA RATNAKARA"
SRI DHARMALA VENKATESWARA RAO, M.A
MRIDANGA VIDWAN & RESEARCH SCHOLAR



Chi. DHARMALA VENKATA RAMA MURTHY, M.Tech.
MRIDANGAM ARTIST & SOFTWARE ENGINEER IN U.S.A.
Grand - Son of the Author & Eldest Son of Co-Author.

OM

PREFACE

Dear Readers,

Mridanga, a percussion instrument, is the chief Laya Vaadya accompaniment in Karnatic Music.

Knowledge of laya or rhythm is acquired by a very few people who undergo rigorous training under a Guru and / or by those who have divine grace. The number of those who have perfectly understood the nature of sound or Naada Tatwa and acquired fame after years of playing on Mridanga can be counted on fingers.

There was no complete authoritative text book on the art of playing this wonderful percussion instrument, Mrid'anga. The few fundamental secrets learnt by one from the Guru had to be got by heart and exhibited while playing on the instrument. On account of the want of a proper guiding text book, people who practice are forced to follow almost a dark path and undergo difficulties. So we desire to bring forth a text book giving all the details of the play on the Mridanga, the only Laya Vaadya instrument which can produce a wide range of shades and delicacies of sound. With the grace of the Almighty and the Gurus, we wrote this book "Mridanga Thatwam".

In writing the various lakshanas in Chapter I, ancient standard books like Sangeetha Ratnakaram, Sangeetha Swaraprastara Saagaram. Gaana Bhaskaram and Gaayakalochanam greatly helped us. We are deeply indebted to the authors of all those great standard works. We completed this work in a simple and faultless language explaining all the technical terms and we placed it before readers and learned scholars.

In this chapter I, we explained the relation between Kaala and Maarga and about Jaathi and Gathibheda differences and the Dasapraanas of Thaala. In the same way in the chapter on Lakshya (practice) while writing the Prastara (elaboration) of exercises for beginners, the Hand/finger position to be used have been indicated on the exercises or the series given. On the photos of the right and left side of the instrument, the places and the exact sounds that can be produced there are noted below the figures. The Paatantharas for the thirty five Suladi Thaalas and the duration of laghu, druta, anudruta are also given. A vertical line is indicated to separate laghu, druta and anudruta. A pair of vertical lines are indicated for the completion of one Thaala Jaathis reduction, enhancement, Nada, ending, mohara for each of the five Jaathis and easy calculation for different muktaayis are shown in tabular forms and worked out in detail and illustrated.

Very many details about the technique of the playing have been given for the use of interested students. It is no exaggeration to say that beginners can easily practice by themselves with the aid of this book. Students can acquire in short time a good style of playing on the instrument at higher degrees of speed and also provide good rhythmic effects to compositions when sung.

There are also many details to help advanced students. In the tabular forms calculations for Kriya-Aksharas for Muktaayis with Gathi Bheda are furnished. One can understand the form of the muktaayi, its Jaathi, gathi and Kaala and also learn to use Thaala Kriya Jaathis from a close study of the tables. All necessary explanation with examples has been given for easy understanding.

The various experiences and knowledge acquired by us during our practice from childhood have been presented so that they may be useful to all. We welcome the constructive criticism and suggestions of learned scholars. A few errors might have crept in without our conscious knowledge, which may be brought to our attention. Necessary corrections will be made by us in our next reprint with gratitude.

We are greatly indebted to the eminent scholars who have closely studied our book in its entirety and given their valuable opinions on our work.

This edition is reprinted with the grant - in - aid of the Sangeet Natak Akademi, New Delhi and I am highly thankful to the Akademi and the concerned officials for their financial assistance based on the importance of the book for the public.

The First English edition has been printed in 1973, and this edition is printed in 2004 - 2005.

This book has been referred to Prof. N. Ramanathan by the Sangeet Natak Akademi for his authentic write-up on Mridangam. He has given a scholarly and vivid write-up for which I am highly thankful to him and the same is printed in this book. Some of the eminent scholars have also given their valuable opinions and the same are also printed in this book.

We are greatly indebted to late Sri Varanasi Veerabhadram, M.A., B.Ed., our intimate family friend who has taken pains to render the first edition into English along with me.

I offer my thanks to Sri Akella Mallikarjuna Sharma, a research Scholar in Music, in permitting me to publish some part of his work on prastharam, in this edition along with our prastharam:

I offer my thanks to Late Sri C.V. Raman, K.T.F.R.S.N.L., Noble Prize Winner for publishing his paper "The Indian Musical Drums" in this book as part of his paper published in 1934 for information to the readers.

I have also explained in detail some of the Important topics in the annexure viz. Vishesha Jathi Laghus, Anuloma and Viloma, Maarga, Suddha, Saalaga, Desi, Chaapu, Desaadi, Madhyaadi Talas, Musical Instruments, Maarga Prana Talas and 108 Talas etc. for the benefit of the readers.

My sincere thanks to all those who helped me directly and indirectly in publishing this edition.

I AM DEDICATING THIS BOOK TO LORD VENKATESWARA SWAMY FOR HIS BLESSINGS

DHARMALA VENKATESWARA RAO, M.A.

Co-Author

S/o Late **SRI DHARMALA RAMA MURTHY**

Author



**This Book is Released By
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**A write-up by PROF. N. RAMANATHAN
AND
Other Experts Opinions on This Book
"THE THEORY AND PRACTICE OF MRIDANGA"**

Prof. N. RAMANATHAN

Head of The Dept. of Music. (Retd.) MRDANGAM
Madras University, Chennai.

Mṛdaṅgam is a non-melodic instrument that creates beautiful syllabic structures within the framework of Tāla or time measure. "The Theory and Practice of Mridanga" by Dharmala Ramamurty is one of the earliest books on this subject to be written in English. The author had first written it in Telugu language under the title "Mridanga Tattwamu", and in 1973 it was rendered in English by his friend Sri Varanasi Veerabhadram.

Since the various compositional structures of Mṛdaṅga are organized within the framework of tāla, the author commences his work with the description of the 35 Tala-s and the ten elements of tāla (tāla-daśa-prāṇa), namely, Kāla, Mārga, Kriyā etc. Definitions in Samskrta drawn mainly from early 20th century Telugu works like Saṅgīta-vidyā-darpaṇamu and Saṅgīta-svaraprastāra-sāgaramu are cited and the author gives crisp explanations for the ten prāṇa-s. He also takes care to define terms like akṣara, that he uses in the course of his work. Among the prāṇa-s, 'kaḷa' has a different and interesting interpretation. Giving the different senses that the term conveys, namely, that of akṣara, niḥśabda, saṅgati (?), guru, speaks of two classes of kaḷa, vardhamāna and naṣṭa, not met with in earlier works. It is also interesting to see the author speak of 'trikaḷa' along with dvikaḷa and catuṣkaḷa, which not many scholars explicitly mention. And finally the mridangam syllables based interpretation given to 15 gamaka-s, tiripa, kampita etc., although quoted from Saṅgīta-svaraprastāra-sāgaramu, is something unique and different. The detailed description of the construction of the mṛdaṅga and the basic strokes along with photographs is a very useful and valuable feature of this work. In the art of Mṛdaṅgam there appear to be more syllables than there are strokes. Thus the same stroke expresses a variety of syllables and this has been clearly brought out.

The aspects covered till now, it is implied, belong to 'theory', for the author commences the third chapter with the title 'practice'. Exercises, based on syllabic patterns, are given starting with those that are not bound by tāla while the later ones are presented within the frameworks of 35 tāla-s. Exercises made up of Syllabic groupings representative of 4, 3, 5, 7 and 9 units are then presented with each one being appended with pronounced concluding statements (Muktāyi) based on a phrase repeated thrice ('Tihāyi' being the word in the Hindustani parlance). The chapter concludes with exercises for Mōhrā, being prelude for Muktāyi. The notation for the initial exercises have also indications of what kind of stroke must produce a particular syllable. The fourth chapter is devoted fully to presenting muktāyi-s of different kinds. The final chapter takes up a 'Pallavi' sung by musicians, and describes the mode of accompanying it. It concludes with pallavi constructed out of 'pāṭa-s' or mṛdaṅgam syllables.

What strikes one immediately about the book is that the author bases the lessons on the 35 tala system and one does not come across mention of Misra-cāpu, Khaṇḍa-cāpu tāla and Short-Rūpaka tāla. Perhaps these tāla-s have to be taken as existing under the names of Tryaśra-jāti Tripuṭa, Tryaśra-jāti Rūpaka and Caturaśra-jati Rūpaka tāla-s respectively. We observe that the tradition of writing manuals and textbooks on Mṛdaṅgam is not very old. This present book of Ramamurty itself is an English translation of the original Telugu text published in 1964. The first book on the subject of Mṛdaṅgam seems to be the “Mirudaṅga Svabodhini” by Māṅguḍi Dorairāja Ayyar in 1939 and which was also approved then as a textbook for Government Examinations. On the other hand books on music, containing notations of basic Svara exercises and songs had come to be published from 1860 itself. The number of books on Mṛdaṅgam also do not seem to be many.

Most of the early books on Mṛdaṅgam seem to have a similar textbook like format, containing information on the construction of the instrument and introduction to basic strokes, usually accompanied by photographs and drawings. Then follow the lessons in various tālas. The books also usually give brief instructions on how to accompany a music performance. “Mirudaṅga Pād'amuṛai” of Mylāṭṭūr Sāmi Ayyar was published as a textbook by the Annamalai University in 1946. Besides the details about the instrument, lessons based on various tāla-s and method of playing for music the book also presented brief life sketches of famous Mṛdaṅgam artists. ‘Mirudaṅga Pāṭha Bodhini’ by T.R.Harihara Sarma and T.H.Vinayākaraṁan, (1972) has been a popular book used by many students in Tamilnadu.

The first textbook in English was by Tiṅṅiam Vēṅkaṭarāmayyar and R.Vēṅkaṭaratnam and was published in 1969. R.Vēṅkaṭaratnam also wrote a work in Samskṛta, exclusively on Mṛdaṅgam titled “Mṛdaṅga-Pāṭhādarśa’ and it has remained unpublished although copies of the manuscript were distributed to some libraries in early 1980s. In 1987 “Mṛdaṅga Nādamāñjari’ in Malayalam by E.P. Nārāyaṇa Piśārod'i (1987) was translated into English by E.P.Aravindākṣan and published in 2001. All these books present lessons for the principal four tāla-s ‘Ādi’, ‘Rūpaka’, ‘Miśra-cāpu’ and ‘Khaṇḍa-cāpu’ unlike the book of Ramamurty who chose the 35 tāla-s as the basis for the lessons and was perhaps the first one to do so.

All the writers have been primarily performing artists and teachers of Mṛdaṅgam. This also makes us reflect on the place of Mṛdaṅgam in the educational institutions. Both Mṛdaṅgam and Tavil have been disciplines taught in institutions but only at the diploma level. Until very recently Undergraduate Degree courses in Mṛdaṅgam have not been introduced in Universities. It is perhaps for this reason that we do not come across research articles and books on the art of Mṛdaṅgam and those that have been written have been by foreign scholars. Research work on the acoustical aspects of Drum instruments like Mṛdaṅgam and Tavil and on the behaviour of skins has been done by scientists

starting with C.V. Raman. Robert E. Brown of USA was the first scholar to write a Ph.D. dissertation on the art of Mṛdaṅgam and “The Mṛdaṅga: A Study of Drumming in South India” was the title of the work submitted to the University of California, Los Angeles in 1965. The thesis is in two volumes- Volume I containing the: Text and Volume II containing One hundred and fifty-two Mṛdaṅga Lessons. Since the thesis was addressing readers from an alien culture, meticulous details about all aspects of Mṛdaṅgam, namely, the construction, basic sounds, strokes and notations of lessons have been furnished along with explanations for all technical terms. This was followed by John Russel Hartenburger’s “Mrdngam Manual: A Guidebook to South Indian Rhythm for Western Musicians: vol.I: Rhythmic Theory” submitted for Ph.D. degree to Wesleyan University (USA) in 1974. This work takes up narrow field focusing on a single artist, namely, Ramanathapuram Raghavan and analysing his tradition and style. The notations in both dissertations present the syllables as well as the indication for strokes. David Paul Nelson (Ph.D. Wesleyan University, 1991), in his dissertation titled ‘Mṛdaṅgam Mind: The Tani āvartanam in Karṇāṭak Music, Vol. I-III), compares the ‘Tani Āvartanam’ or Mṛdaṅgam solo playing in music concerts performed by five artists, Vellore Ramabadrān, T.K.Murthy, Kariakkudi R.Mani, Palakkadu R. Raghu and Tiruchi S.Sankaran,. The author gives transcription of the ‘tani’ of each of the artist. Tiruchi Sankaran, who is also a Professor of Mṛdaṅgam in a University in Canada, has written perhaps the first, what could be called, a critical writing by an Indian and the book “The Rhythmic Principles & Practice of South Indian Drumming” was published in 1994.

What is most striking about all the writing on Mṛdaṅgam is that the instrument has been approached chiefly as an accompanying instrument for Music concerts. All works describe the basic lessons and speak about the method of accompanying a music performance. Mṛdaṅgam playing is a limb of Dance (Bharatanāṭyam), Harikathā and Bhajana too. The role of mṛdaṅgam in these arts has practically not been highlighted or even touched in any of these books. It is also true that, as one observes, Mṛdaṅgam has been dependent on and clinging more to Art music performances for its status as an art. Unlike Tabalā, solo performances of Mṛdaṅgam are practically non-existent in music festivals in South India. In Bharatanāṭyam and Harikathā performances there is practically no opportunity provided for the mṛdaṅgam artist to display individual artistry of his instrument. It is only in art music performances that the feature of ‘tani āvartanam’ by mṛdaṅgam has been introduced.

Thus the art of syllabic structures serves as an interesting area of study. It also makes one think of its nature and those of the related arts and the form they attain when they enter arena of public entertainment. The art of ‘vādyā’ in particular denoting the syllabic structures of ‘avanaddha-vādyā’ (membranophone) has existed for centuries in India. Vādyā (syllabic form) along with Gīta (melodic forms) and Nṛtta (visual form created by limbs of the body) has been a component of various kinds of theatrical arts.

Further 'vādyā' has on its own figured in solo performances. In Kerala, avanaddha-vādyā-s like Śuddha-maddalam, Ceṇḍā and Id'akka, usually in groups, have traditionally presented public performances displaying high level of artistry. However independent solo performances of mṛdaṅgam do not seem to have become a common practice. In conferences, Tabalā solo performances too are interspersed between two music presentations in a festival and have figured in National Programmes and Radio Sangeet Sammelans occupying half the duration of a scheduled programme. This has been the position of Mṛdaṅgam too as far as Radio is concerned but in music festivals of private institutions it rarely figures alone.

Dance, although primarily an art structured by beautiful movements of the limbs of the body, also has evolved a composite form including along with it the arts of music and drumming. And for that matter the art of Karṇāṭaka music too, although capable of being performed by itself, has had to incorporate Taval as an accompaniment to Nāgasvaram and mṛdaṅgam for vocal and other instruments to make public performances enjoyable and entertaining. Hindustani too has used Pakhāvaja for Dhrupada and Tabala for Khyāla. In the West, art music has evolved without incorporating the art of syllabic structures as one of the limbs of its presentational form. In Hindustani music, unlike the Pakhāvaja of Dhrupada, Tabalā has played the role of a time-keeper or tāla vādyā in music concerts, a role usually performed by Ghana-vādyas (idiophones) like kāmśyatāla (bronze cymbal). In a Hindustani music performance of khyāla, the tabalā is initially rather passive but as the music proceeds towards faster tempo, it becomes more active in its participation. In contrast, in a Karṇāṭaka music concert the mṛdaṅgam, similar to the Pakhāvaja in Dhrupada, has a very complementary role to play in embellishing the rhythmic aspect of the presentation of melodic structures, and both the skill and imagination of the mṛdaṅgist come into play. And hence it comes as no surprise that the solo performance of the art of mṛdaṅgam is combined with a music concert than with a dance concert. But it also highlights the fact that the art of mṛdaṅgam has evolved more on the lines of the form it has attained in its association with the art of music than as a purely independent art form. This clear from the many commercial recordings of mṛdaṅgam solo that have been published in which the basis for development and elaboration has invariably been 'Pallavi' rendered by a singer or on an instrument. Future might see Mṛdaṅgam develop a pure and independent art form of syllabic structures.

N.Ramanathan

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19 th June 2002

The book 'Mridanga Tatvam' by Shri Dharmala Rama Murthy is being published in English as " Theory and Practice of Mridangam". I imagined in 1963 itself that this book would be very useful and would be acknowledged by one and all, connected to fine arts. Shri Dharmala Rama Murthy, the Author, lived for popularising the Mridanga Tatwa which will be very useful for those who want to know the theory and practical aspects of Mridangam playing. I welcome the new edition of ' The Theory and Practice of Mridanga' in English. As suggested earlier, I will be happy of this is printed in Tamil also I wish Sri Dharmala Venkateswara Rao who has undertaken the Publishing, a very success.

M. Balamurali Krishna

Sangeetha Kalanidhi
"Violin Vadya Samraat"
Padmasree



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M.S. Gopalakrishnan

Date : 20-06-2002

Mridanga Ratnakara Sri Dharmala Venkateswara Rao, son of the renowned Mridangam maestro, the Late Sri Dharmala Rama Murthy is coming out with the reprint Publication of the "Theory and Practice of Mridanga."

I have known him for the last twenty years. The book contains wonderful illustrations (visual, theoretical & Practical) on Mridangam Techniques with full details which would be very useful for all aspiring students of Mridangam worldwide.

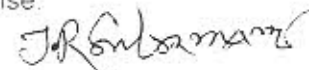
I wish him 'Good Luck' for his efforts and pray for his success in this wonderful endeavour.

M.S. Gopalakrishnan

During many of my concert or Lecture tours abroad I met a lot of young men and women deeply interested in learning Karnatic Music, vocal or instrumental. They had learnt and acquired a humble level of expertise from the local talents available in that foreign land. They have a burning desire to reach the level of full fledged performers but the main handicap is the non availability of eminent gurus to guide them. Expert musicians can never be expected to go and live in a foreign country to fill in the void of absence of gurus. But the youngsters there relentlessly try all possible alternative methods like tele teaching, books, tapes, videos etc. Most of the students are unable to read and write any South Indian language, even their mother tongue!

Only Authentic books written in English can be of use to them. This vital need of the Mrudangam learners living abroad is admirably met by the book "The theory and practice of Mrudangam", written by the veteran Mrudangam vidhvan Sri D. Ramamurthy. It is not an easy task to communicate Mrudangam lessons in written words but Sri D. Ramamurthy has achieved commendable success in this arduous mission. A big number of giants in the field like Palghat Mani Iyer have recorded their appreciation for the book. The book has indeed has a global relevance.

Even within India, most of the famed artites live only in cities and learners who can not afford to go and live in cities are denied the opportunity to improve their knowledge and expertise in music, vocal or instrumental. Time was when most of the Veteran musicians in the field were not English educated. The literacy level has since gone up appreciably and a majority of learners of Music today are College educated. Making this valuable book in English available to the literate learners of today will be a great service in the cause of Music and to society at large. Vocal Musicians too have a lot to pick up from Mrudangam lessons and this book is of great utility value to vocalists also. In fact, this book will be of great interest and educative value to almost every music - minded person, not to speak of academicians and others in the University fraternity. The book has relevant and most enlightening photographs too, adding to its wider utility. The author and promoters of this book deserve richly all encouragement from all quarters. I wish them all success in this laudable enterprise.



T.R. SUBRAMANYAM

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19-06-2002

"Mrudanga Ratnakara" Dharmala Sri Venkateswara Rao, son of the renowned Mridangam Vidwan, Late Dharmala Sri Ram Murthy, has taken up a very good Job of reprinting this wonderful book "The Theory and Practice of Mrudanga" written already by the great mrudangam Vidwan, Sri Rama Murthy garu.

Though a few books on Mrudangam practice as well as theory - have been written already by a few authors, this book deals with all important and salient points of Mrudangam - both practical as well as theory lessons - in an intelligible and easy way, so that the practitioners of mrudangam as well as rasikas can understand the subject very well. This book will fulfil the aspirations of the Mrudangam students all over the globe.

I congratulate Dharmala Sri Venkateswara Rao for his fine efforts to republish this book for the benefit of musical fraternity and the Public.

With best wishes,

Umayalpuram
K. Sivaraman

Sangeetha Kalanidhi
Isai Peraringyar
Dr. N. RAMANI



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Phone : 499 3217

Date : 19-06-2002

Sri Dharmala Venkateswara Rao garu a veteran Mridanga Vidwan Known to me very well and played several concerts in India and abroad. He also accompanied to several stalwards in Carnatic Music and trained many students at home and abroad.

He has translated the Mridanga Thatwam into English named as, "The Theory and Practice of Mridanga" and Published in 1973. Now Sri Venkateshwara Rao Garu is reprinting the book in English by adding some more new ideas. The book covers the theory, design and construction and practical playing including Mukthayees etc. in a very Scholarly manner.

The book will be very useful and immense help not only to the Mridangam players but also for students learning and teaching music.

I wish him every success in reprinting the book for the public.

N. RAMANI

Central Sangeeta Natak Academy Awardee
Mridanga Vidwanmani

V. Kamalakar Rao, B.A.,



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Date : 12-09-2002

To whom so ever it may concern

I have gone through the book " The Theory and Practice of Mridanga" in detail written by Late Sri Dharmala Rama Murthy garu in 1973. The author is a senior Vidwan, whom I know personally, made a through study of the Art so as to make students learn the art by going through it step by step. The original " Mridanga Thatwam" was written by him and published in 1965 and was released by the Great Mridangam Wizard Late Sri Palghat Mani Iyer in 1966.

The author dealt with the theory aspect in detail which is very useful for the students to know the origin and development. Quoting the authentic slokas and their meanings. The Tala dasa Pranas are dealt with care and subtilities of the details.

The construction of Mridangam and the sounds produced are given with diagrams and symbols which is a special feature. He has invented special symbols to make the Mridangam Language simple and clear by this new process. The beginning lessons like Pala Varusas and Pedda Pala Varusas are given in different ways and styles so that any type students can learn easily. The Mathematical aspects like Trikalams (Three speeds) etc., are dealt with care and in detail. Moharas and Mukthayees are written vividly for the sapta talas. The author has added some special Mukthayees for the use of students.

On the whole this book caters to students or anybody who take interest in this art, if reprinted.

Sri Dharmala Venkateswara Rao, the son of the author and a retired Lecturer in Mridangam is suggested to add a few more topics like Vishesha Laghus and the details of 108 Talas which will be greater use for Music lovers and students.

This is my detailed study of the book and I wish Sri Dharmala Venkateswara Rao all success in this endeavour.

V. Kamalakar Rao

APPRECIATIONS

Palghat Mridangam

T. S. MANI

TANJORE,

17 - 8 - 1963.

Though I don't know Telugu, I could go through the substance of the book "MRUDANGA TATWAM" to a certain extent, written by Shri Dharmala Ramamurty with help of one who has a knowledge of Telugu and Tamil. As far as I could go through the book, I find it quite excellent. In this book the art of calculation has been presented in an easy and short - cut manner i. e., things which are ordinarily learnt only after a lot of experience can be learnt much more easily by studying this book. From the beginning of the First Lesson, "MOHARA" and "MUKTAYEE" for all the Five JATHIS and other TALAMS, are all written separately in a distinctive manner. It is impossible to write such a Book without stupendous effort. This Book will be extremely useful to those who practise "MRUDANGAM" and will be very useful in Colleges also.

T. S. Mani

Padmasree, Sangeeta Kalanidhi
Sangeeta Ratnakara, Kalapropurna
Dr. DWARAM VENKATASWAMY NAIDU

"Dwaram House"
B. B. V. Naidu Street,
Triplicane,
Madras - 5,
27th August 1963.

I have heard certain topics in the "Mrudanga Tatwam" written by Shri Dharmala Ramamurty. The author has written the book in such a way as it can be used as a text book in the music colleges. The book is quite useful for the teachers and the taught. Books on music in Telugu have already been found in print but it can be said that no proper book can be found, which serves the need of learning Mrudanga Vadya. The book written by Sri Ramamurty can supply the want and his effort is highly praiseworthy. I pray to God that this book may be printed and published soon and the author may write many more useful books of this kind in future.

Dwaram Venkataswamy Naidu

Akasa Vani
Madras
15-6-63

I have gone through the manuscript copy of "Mrudanga Tatwam" written by Shri Dharmala Ramamurthy. All the details are explained to me by the author.

We do not find books which can fully explain the technic of Mridanga Vadya and I have a great desire from a very long time that a book of this kind should come into existence. I extremely feel glad that my dream has been realised. I have advised the Author to get the book printed in Tamil also. This book is very useful to the students as well as the masters of Mridanga as the "Lakshya Vivarana" is self explanatory and within the reach of understanding. A thorough study of this book helps to acquire good knowledge of the subject... Blessed are those that can realise the importance of this book and thus encourage the author. Sri Ramamurthy, the author of Mridanga Tatwam is worthy of veneration for his endless effort in rendering the matter in so simple a way. I pray to Lord Nandikeswara to bless the author with proper encouragement for his hard labour.

M. Balamurali Krishna

Mridanga Vidwan
THINNIYAM
VENKATA RAMA IYER

Camp : MADRAS - 5
11-12-'64.

I have gone through the book "Mrudanga Thathwam" by Dharmala Rama Murthy of Rajahmundry with the help of my friends knowing Telugu and Tamil. I have heard the contents of the book explained to me orally by him. He has written the various types of lessons in an understandable manner and in a systematic order. Some of the mathematical compositions are presented in a manner intelligible to all.

On the whole he has taken great interest, put forth true hard work and worked devoted zeal to write this book. The book is not only useful to the beginners but those who are having knowledge of 'Mrudangam' in understanding various aspects of laya. I think the book is very helpful to the music college

Thinniyam Venkatarama Iyer

Sangita Kalanidhi Mudikondan
C. VENKATARAMA IYER
Principal
The Teacher's College of Music
Music Academy

MADRAS - 4

18 Jan. 1965

With great pleasure I have gone through the neatly written and print-like manuscript copy of the Mridanga Tatva in Telugu by the Mridanga - Vidwan Dharmala Ramamurti of Rajahmundry. Tala Dasa Prana - Lakshnas, Tala - Lakshnas, Sapta - Tala Lakshanas are all listed and explained here as in the Tala - Shastras. And as a novel departure from the Shastras, or perhaps as an original innovation the author attempts to show that "Gamakas", Janta & Dattu series of Swaras Prasa, Padagar - bhas which have their relevancy & aesthatic significance in Vocal and stringed instrumental music may also be reproduced by Sorkathu that is, tala-syllables, on the topee on the left hand side of the Mridangam. Except for this novelty, the book covers the familiar and usually traversed ground. The "Pata-Series" "Theermanas" "Muktayi" and "Moharas" for the Talas in current vogue, and Prastharas for the Laghu are all described and explained very clearly and fully. The Tha - Thee - gina - thome series coming round to the same "Sama" in Chaturasra and in Trisra, together mixed, is elaborately explained and the total number of Aksharas is also explained with the necessary details of calculation. The Book is complete and exhaustive.

Some two or three Vidvans in Tamilnad have written text books and treatises on the Mridangam in Tamil but I believe this will be the first book on the subject in Telugu, and I congratulate the author and wish him every success. I am sure the book will supply a long felt want and will be of great use to Music students and to those who are particularly interested in the Mridangam.

Mudikondan C. Venkatarāma Iyer

P. SAMBAMURTHY, B. A. B. L. Sri Venkateswara College for Music and Dance
Visiting Professor

TIRUPATI

17-10-64

I had the opportunity of seeing through the manuscript "Mridangam Tatvamu" prepared by Dharmala Ramamurti garu of Rajahmundry. The author has taken considerable pains in preparing the manuscript. The work is done in a scholarly manner. He has presented clearly many intricate problems. The author deserves all encouragement and help in the publication of this book.

P. Sambamurthy

Rajya Seva Nirata
Sangeetha Kalanidhi

Semmangudi R. SRINIVASA IYER

MADRAS - 14
17 - 12 - '65

I have gone through the book "Mridanga Tatwamu" written by Sri Dharmala Rama Murty to some extent and I certify that this book is useful for beginners even without the help of a Guru. The author has done laborious work and is able to write easy ways so that the student can follow even the mathematics part also. The author deserves every encouragement and financial help from the Govt. as well as from the public so as to get the book printed and made use.

R. Srinivasa Iyer

"Sangeetha Kalanidhi"

"Sangeetha Samrat"

CHEMBAI

VAIDYANADHA BHAGAVATAR

MADRAS - 4

Camp : Rajahmundry

29-11-1965

I have gone through the manuscript "Mridanga Thathwam" written by Sri Dharmala Rama Murty of Rajahmundry fully with the help of my disciples knowing Telugu and Tamil. I heard the contents of the book explained to me orally by the author. He has written the various types of lessons in an understandable and systematic order. The art of calculation has been presented in an easy and short-cut manner. It is impossible to write such a book of this type without stupendous effort. This book will be extremely useful for Mrudangam Students and Colleges also.

May God bless him with long life and prosperity.

Chembai Vaidyanadha Bhagavatar

Gana Kala Sevak. Isaimannar
Sangeetha Kalanidhi, Ganarnava
CHITTOR SUBRAHMANYAM,
Principal, Rajah's Music College.

THIRUVAIYARU,
 1-1-'66.

From time immemorial, of all the Sixty four Arts, the art of music is considered to be the chief one to give great delight to man. In this, Sruti and Laya are important. We have in South India plenty of books on Sruti written in many languages like Sanskrit, Telugu and Tamil. We have been frequently hearing the lectures and discussions by eminent scholars on the Science of Sruti. But books on laya (concerning Tala) are very rarely found. There are only very few men who have learnt from their masters this knowledge of laya which requires personal demonstration by the teachers. My friend Sri Dharmala Ramamurti has taken great pains and written in an easy and simple style the book Mridanga Tatwam, so that knowledge about laya may be grasped easily. He has elaborately dealt with the Jati varieties, Mukhtayi, Mohara and Ending for all the thirtyfive talas so that a beginner may become an expert by practising them. It is essential that students of music, teachers of music, patrons of art and Government should recognise his great service and encourage him. This book will be very useful to teachers teaching Mridanga in Music Schools and it will be a very good text book to be prescribed for higher studies in institutions.

Chittor Subrahmanyam

MAHAMAHOPADHYAYA
Vainika Sikhamani
EMANI SANKARA SASTRY, B.A.,
Chief Music Producer and Director
National Orchestra A.I.R. New Delhi.

10-B, HAVELOCK SQUARE
 NEW DELHI-1
 Camp: New Delhi,
 Date: 19-5-73

It gives me great pleasure to write a few words in appreciation of "Mridanga Tatwam" written by Mridanga Vidwan Sri Dharmala Ramamurti who has been doing yomen services to the art of playing on the Mridangam.

The book "Mridanga Tatwam" is very useful to Karnataka Music in general and to the art of playing Mridangam in particular. This is also of immense use to musicians in the art of "Swaraprasthanas". The illustrations given in this book are simple and can be understood easily by students who want to learn Mridangam. Books of this type are an asset to Karnataka Music. Artists may conceive so many things but to put them in writing is a very difficult job and I know how hard it is and I congratulate Sri Ramamurti garu for his great contribution to Karnatak Music. I am confident that this book will receive public appreciation and encouragement.

E. Sankara Sastry

S. PINAKAPANI, M.D.
Prof. of Medicine, Kurnool Medical College.

Camp : RAJAHMUNDRY,
24-10-'65.

Sri Dharmala Rama Murty of Rajahmundry has put forth twenty years of hard labour to produce this volume "Mridanga Tatwam." He has laid down the principles and practice of the science of Mridangam play as clearly and analytically as one could make it. I had this book read out to me by the author page by page and found that this book will be of use to the students of Mridangam as well as to musicians practising the art of Laya Prastharam in Swara Kalpana. No body to my knowledge has produced a book of this type in Telugu. Sri Dharmala Rama Murty has already set out to see it in print through his personal efforts which have produced results far from adequate. I sincerely hope and pray that both individuals and institutions might donate liberally to help him complete the publication of his life time work.

May God bless him.

S. Pinakapani

NEDUNURI KRISHNAMURTY,
Principal, Govt. College of Music and Dance.

VIJAYAWADA
5-11-63

I have carefully gone through the great work 'Mridanga Tatwam' written by Sri Dharmala Ramamurty. It is a matter of great delight that Sri Ramamurty should publish in a book form the great knowledge about Mridanga which can be acquired only by long and strenuous practice.

Till now Lakshana and Lakshya books useful for the Science of Mridanga were not published as was done in the case of Science on Music. That drawback is much more in Telugu language. This book removes that great want. This great work is useful not only to students and teachers but to the whole music world. I wish that the people of Andhra will recognise the value of the book and suitably encourage the author. I pray Lord Parameswara and Parvati Devi, who are the forms of Tala and Laya to bless Sri Ramamurty with long life, health and prosperity and enable him to produce more good books of this sort.

N. Krishnamurty

N. Ch. SATYANARAYANA, B. A.
Vice-Principal, Govt. College of Music.

HYDERABAD (A. P.)
 Date : 20-4-'64

I have gone through your book "Mridanga Tatwam" with great pleasure.

You have taken great pains in writing many intricate aspects of interest in both theory and practical sides of Rythm and Mridanga.

They will be useful not only to the students of Mridangam but also to the students of Vocal and Instrumental Music of South India.

While congratulating you for the services rendered by you to the Karnatak Music, I hope and wish that your book should receive highest attention and demand.

N. Ch. Satyanarayana

G. N. DANTALE,
 M.A. (Nag.) M.Mus. (Lucknow)
Principal, Govt. College of Music.

HYDERABAD-A.P.

Date : 20-7-1964

I have gone through the book "Mridanga Tatwam" written by Shri Dharmala Ramamurty of Rajahmundry.

The contents of the book were explained to me in detail by the author.

The author has dealt in his book the different aspects of Mridangam Training viz., Mukhtayi calculations and obsolete forms of Talas, etc., in a lucid manner.

The book, in my opinion, will be very much useful to Mridangam students and further be a valuable addition to the literature on mridangam training.

I congratulate the author Sri D. Rama Murty for all the efforts he has made in bringing out this valuable book "Mridanga Tatwam."

G. N. Dantale

Vynika Siromani
VASA KRISHNAMURTI

VISAKHAPATNAM

Date : 3-10-'65

I have thoroughly gone through the book 'Mridanga Tatwam' written by Sri Dharmala Ramamurthi. I feel that he has done the greatest service to the world of Mridanga by writing how one varusa can be played in different ways in a very simple style to be useful to students learning mridanga and also to scholars. Till now no one in Andhra Desa has taken so much pains and written such a book as thus on Mridanga Sampradaya and practice. This great book deserves a place in every music institution. I wish that all should encourage this book.

Vasa Krishnamurthi

Mardangika Kesari,
MULLAPUDI LAKSHMANA RAO.

ANAKAPALLI,
5-9-'63.

Sri Dharmala Ramamurti had been my favourite student and the favourite student of Mridanga Samrat Sri Varanasi Ghantayyasastry from whose hand the Divine sound of Mridanga spread over all the Telugu Country. More than what we taught in a short period, Sri Dharmala Ramamurti developed the art to a great extent by constant practice and worship of the Goddess Mridanga Saraswathi. As a small seed grows into a mighty banyan tree, he became a master of the Science of Mridanga. Undergoing great trouble and strain, he has produced a rare work which will be useful to students as well as scholars. From simple "Palavarusas" to complex "Pallavi" he has dealt in his book 'Mridanga Tatwam'. By writing a book which is not found in any other language, he has supplied a long felt want. So the Government, patrons of art and worshippers of this art should encourage and help him.

This book has been written in such a way that it deserves to be prescribed as text book in all music colleges. With great pleasure I have gone through the book from the beginning to the end and I send this opinion with my blessings.

Mullapudi Lakshmana Rao.

Mardangikagresora,
Mardangika Stromani,
KOLANKA VENKATA RAJU.
Professor, Govt. Music College.

HYDERABAD,
9-9-63.

I read with great pleasure the book "Mridanga Tatwam" written by the great Mridanga Vidwan Sri Dharmala Ramamurti. It contains not only the essence of other standard works on this science but also many new facts gained by self experience. Hence it serves as a teacher to the students of Mridanga and also to the scholars who wish to understand the secrets and sampradaya of the science of Mridanga. Lovers of this art and Government should patronise and encourage the writer. May the book see second and third reprints in a short time and may Sri God Ganapathi, the ocean of Mridanga Vidya bless the writer Sri Dharmala Ramamurti!

With Greetings,
Kolanka Venkataraju,
Worshipper of Mridanga Art and Science.

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MRIDANGA TATWAM

MRIDANGA TATWAM
(THE THEORY AND PRACTICE OF MRIDANGA)

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MRIDANGA TATWAM (THE THEORY AND PRACTICE OF MRIDANGA) PRAYER

नाना मार्गैर्ल्लेयो यत्र यतीनांस्यात्कलानिधौ ।

ते दक्षिण शिवम् नौमि चित्तवृत्तिमयं ध्रुवम् ॥

— (Sangeeta Ratnakaram P. 354)

I offer my reverential salutations to God Siva, the eternal, also called Dakshinamurty who is adored in different ways by the wise sages, who is the seat of all arts and in whom the chiththa through different ways merges.

I salute the all bless giving and powerful thāla which has different margas like Dakshina and Vartika, which is the seat for Guru, laghu and other kālas, which has different yatis like Sama, Srotovaha, which has druta, madhya, vilamba layas and which establishes the activity of chiththa.

तकार इशंकरः प्रोक्तो लकारशक्ति रुच्यते ।

शिवशक्ति समायोगात्ताळ नामभिधीयते ।'

— (Sangeeta Vidyadarpanam P. 315)

In the word, Thāla, "Tha" stands for "Sankara" and "La" stands for "Shakti." Thāla is the union of Shiva and Shakti.

इसद्वयस्य संयोगे वियोगेचा ऽपि वर्तते'

व्याप्तिमान्यो दश प्राण रसकालस्ताळसंज्ञिकः ।'

— (Sangeeta Swara Prastar Sagaram P. 549)

The continuous operation of the union and separation of hands based on the principles of Dasaprāna is Thāla.

गीतप्रधानं प्रवदंति नृत्यं नृत्त प्रधानं प्रवदंति वाद्यम् ।

गीतादि वाद्यस्यच यस्प्रधानं तत्ताळमाद्यं प्रणमामि नित्यम् ॥

— (Sangeeta Vidyadarpanam P. 313)

Gita or song is essential for Nritya and Vādyā is essential for Nritya. Thāla is essential for Nritya, Gita and Vādyā.

The origin of Thāla, Nritya, Gita and Vādyā :

वाग्देवी धृत दहकी शरमखो वेणुं दधसद्भज

स्तालोन्निद्रकरो रमा भगवती गेय प्रयोगन्विता ।

विष्णुस्सांद्र मृदंगवादन षडुर्देवास्समंतात् स्थिता

स्सेवंते तमनु प्रदोषसमये देवम् मृडान्नपतिम् ॥

All the Gods adore Parameswara at dawn, (in different ways). Saraswathi plays upon the Veena, Indra plays upon the Flute. Brahma beats the Thāla for Jāya. Lakshmi sings and Vishnu plays upon the Mridanga.

CHAPTER — 1

SECTION I

THE THEORY OF THĀLA

Thāla is a measure of time. Musical compositions, instrumental accompaniments and dance are regulated by thāla. Each accompaniment in a concert must follow the thāla of the principal musician.

THĀLA

मार्ग देशी गतत्वेन ताको ऽ सौ द्विविधोमतः ।

शुद्धसालग सङ्कीर्णास्ताल भेदाः क्रमान्मताः ॥

— Sangeeta Ratnakaram P. 355)

Thāla, the musical measure of time, is of two kinds, Mārga and dēśī, and each of them is again of three kinds, —Suddha, Sāлага and Sankeerna.

कालःक्रियाच्च मानंच संभवंति यदासहा

तदा ताळस्य संभृतिरितिज्ञेयं विचक्षणैः ॥

कालः क्षणादिको ज्ञेयस्ताळयोर्घटनं क्रिया ।

क्रियोरंतरैर्यतु विश्रामो मानमुच्यते ।

— (Gayaka Lochanam P. 104)

Thāla is the product of Kāla (time), Kriya (signal made by the hand) māna (measure) in simultaneous action.

Kāla may be understood in seconds (or parts thereof). Beating with one palm on the other, separating the palms and the counting of fingers are the Kriyas. The exact interval or the time between two successive Kriyas is the māna. This is known as Laya.

(Laya is to be strictly maintained in a musical composition when sung, in the play of Mridanga and in Dance.)

The Seven Principal Thālas.

ध्रुव मटथौ रूपकश्च झंपलिपुट एवच ।

अट तालैक तालौ च सप्तताकाः प्रकीर्तिताः ॥

— (Gana Bhaskaram P. 135)

Dhruva, Matya, Roopaka, Jhampa, Thripata, Ata and Eka (E pronounced as 'ay' in pay) are the seven principal Thālas.

The creators of the seven Principal Thālas.

1. Dhruva Thāla :—Dhruva thāla is the creation of Bharatha, Dattila and Anjaneya.
2. Matya Thāla .—Matya Thāla is the creation of Mathanga, Arjuna and Kohala.
3. Roopaka Thāla :—Roopaka Thāla is the creation of Anjaneya, Agasthya and Yagnavalkya.
4. Jhampa Thāla :—Jhampa Thāla is the creation of Nandikeswara, Bharatha and Shaunaka.
5. Thripata Thāla :—Thripata Thāla is the creation of Rāvana, Brahma and Shankhapāla.
6. Ata Thāla :—Ata Thāla is the creation of King Bali, Devendra, and Kumāraswāmy.
7. Eka Thāla :—Eka Thāla is the creation of all the great scholars.

Kinds (Jāthis)

चतुरश्रश्च मिस्रखण्ड संकीर्णका इत्या ।
पंचधा जातयस्सर्वे तत्स्वरूपं निरूप्यते ॥

— (Sangeeta Vidya Darpanam P. 324)

Each thāla is of five kinds:—Chathurasra, Thrisra, Misra, Khanda and Sankeerna.

This distinction is based on the Laghu in the thāla and it is explained later.

:The Angas (limbs) or parts of the seven Principal Thālas.

लघुद्रुत द्विलघुच ध्रुवताळांगमेवच ।
लघुद्रुत लघुश्चैव मटयताळ इतिस्मृतः ॥
द्रुतमेकं लघुरेको रूपकस्य प्रकीर्तितः ।
लघुचानु द्रुतचैव द्रुतो ति शम्पेति कीर्तितः ।
लघुद्रुतः द्रुतश्चैव त्रिपुटाळगमेवच ।
लघुद्वन्द्वं द्रुतद्वन्द्वं मटताळांगमेवच ॥
एकताले लघुमृतः सप्तताळाः प्रकीर्तिताः ॥

— (Sangeeta Vidya Darpanam P. 28)

Anudrutha, Dṛutha and Laghu are the angas of these seven principal Thālas. Anudrutha is a beat (Ghātha) with the palm, and it is 1 Kriya. Drutha is a beat and a waving of the palm (Usi). Each is a kriya and the amount is 2 kriyas. Laghu is a beat followed by counting of fingers. The number of kriyas in a laghu is the total of the beat and the number of fingers counted. The kind of Thāla derives its name only from the kind of Laghu used in it. Anudrutha and Drutha are constant whereas Laghu is variable.

The symbol for Laghu is a vertical line, as | that for Drutha is a small circle o, and that for Anudrutha is a semicircle, ◌.

The order of angas in the seven thālas.

1. Dhruva Thāla has a laghu, a drutha and two laghus.	1011
2. Matya Thāla has a laghu, a drutha and a laghu.	101
3. Roopaka Thāla has a drutha and a laghu.	01
4. Jhampa Thāla has a laghu, an anudrutha and a drutha.	1U0
5. Thripata Thāla has a laghu and two druthas.	100
6. Ata Thāla has two laghus and two druthas	1100
7. Eka Thāla has only one laghu	1

Each of the above 7 symbols stands for the respective thāla and it shows the order of the angas.

The beats for the 7 Thālas

ध्रुवताले चतुर्घाता मठिकायां त्रैधामता : ।

रूपकेचद्वयं प्रादुः शंपालिपुटयोस्तयम् ॥

अटतालेतु चत्वार एक ताकेतथः करः ।

— (Sangeeta Swara Prastara Sagaram P. 36)

Dhruva thāla has four beats, Matya three, Roopaka two, Jhampa three, Thripata three, Ata four and Eka one.

Each anga begins with a beat. Beat is the only Sashabda Kriya (Kriya with shabda or sound and so audible). The other Kriyas are Nisubda Kriyas (Kriyas with no sound but only visible.)

Each thāla has as many beats as the angas (parts) it has. No anga has more than one shabda kriya.

Kinds of Laghu

There are five kinds of Laghus : This distinction is based upon the number of kriyas in a laghu.

1. A laghu having 3 kriyas is a Thrisra jāthi laghu.
2. A laghu having 4 kriyas is a Chaturasra jāthi laghu.
3. A laghu having 5 kriyas is a Khanda jāthi laghu.
4. A laghu having 7 kriyas is a Misra jāthi laghu.
5. A laghu having 9 kriyas is a Sankeerna jāthi laghu.

It is customary to put these jāthis or kinds in the following order :-

- | | | |
|---------------|--------------|---------------------|
| 1. Chaturasra | 2. Thrisra. | 3. Misra. |
| 4. Khanda | 5. Sankeerna | (4 ; 3 ; 7 ; 5 ; 9) |

The sum of the first two is equal to the third. The sum of the first three is equal to the sum of the last two or twice the middle. This relationship is useful in the practical, in interchanging jāthis in a thāla.

The kind of thāla is the kind of laghu in it. For example, if Thriputa thāla has the Khanda jāthi laghu, or simply Khanda laghu, the thāla is called Khanda jāthi Thriputa thāla. This jāthi refers only to the laghu and not the anudrutha or drutha.

THE 35 THĀLAS

As each of the 7 Thālas contains at least a laghu, and as a laghu is of 5 kinds, the 7 thālas give rise to 35 thālas. The laghus in a thāla must be of the same kind.

(In the practical, the kind of laghu in the thāla is indicated by the corresponding number at the foot of the symbol for laghu.)

Eg :- Chaturasra jāthi Dhruva Thāla :-

$$|_4 \circ |_4 |_4$$

Misra jāthi Jhampa Thāla :-
and so on for the rest.)

$$|_7 \circ \circ$$
How to count the number of Kriyas in a thāla

Anudrutha is 1 kriya and drutha is 2 kriyas. Taking for example Misra jāthi Jhampa thāla, $|_7 \circ \circ$, the laghu has 7 kriyas, anudrutha one and drutha 2 and the total number of kriyas is equal to 10.

Table showing the names of the 35 Thālas and the number of Kriyas in each

Serial No.	Thāla	Angas (Parts)	Chaturasra 14	Thrisra 15	Misra 17	Khanda 15	Sankeerna 19
1.	DHRUVA	1011	Sreevara 14	Mani 11	Poḍḍina 23	Pramāna 17	Bhuvana 29
2.	MĀTĪYA	101	Sama 10	Sāra 8	Udeerna 16	Udaya 12	Rāva 20
3.	ROOPAKA	01	Patthi 6	Chakra 5	Kula 9	Rāja 7	Bādu 11
4.	JHAMPA	100	Madhu- kara 7	Kadamba 6	Sura 10	Chana 8	Kara 12
5.	THRIPUTA	100	Ādi 8	Sankha 7	Leela 11	Dushkara 9	Bhōga 13
	ATA	1100	Lōkha 12	Guptha 10	Lōya 18	Vidala 14	Dheera 22
7.	EKA		Māna 4	Sudha 3	Rāga 7	Rathi 5	Vasu 9

NOTE :- The individual names of the 35 Thālas are not in vogue. They are known in terms of the Principal thālas with their corresponding jāthis.

SECTION II

THĀLA DASA PRĀNĀS

(The Ten Elements of Thāla)

Thāla is the process of the union (संयोग) and separation (वियोग) of the two palms, in accordance with the ten elements of the unit of the musical time. Thāla is the unit of time for the song and Kriya is the unit of time for the thāla.

The ten elements are the ten conditions that govern thāla and they are known as Dasa Prānas.

कालोमार्ग क्रियां गानि महजाति कळालया : ।
यति प्रस्तारकेचैव ताळ प्राण दशास्मृता : ॥

— (Gana Bhaskaram P. 116)

Kāla, Mārga, Kriya, Anga, Graha, Jāthi, Kala, Laya, Yathi, and Prasthāra are the ten elements of Thāla. (This order is a little altered in their detailed explanation for sequence.)

1. KĀLA

This is the first Prāna or the element of Thāla. It is the duration of the angas of the thāla. There is what is known as Thrikāla which is explained in the 3rd item, Mārga.

2. KRIYA

It is a measure to count time. The counting of time is carried on by Ghātha (beat), usi (separation or waving of the hand) and counting of fingers. Ghāta, usi and finger counts are the three kinds of kriyas. The kriyas indicate the constituent angas or parts of the Thāla.

Eg :-	Anudrutha	-	a Ghātha
	Drutha	-	a Ghātha and an usi.
	Laghu	-	a Ghātha and finger counts.

The Kinds of Kriyas

मार्ग देशी गतत्वेन तत्राद्यस्य क्रियाद्विधा ।

निशब्दाशब्दा युक्ताच, निशब्दानु कळोच्यते ॥

— (Sangeeta Ratnakaram P: 355)

Kriyas are of two kinds - mārṅa kriyas and dēsi kriyas. Each kind has shabda kriyas (having sound) and nishabda kriyas (without sound)

- A -

(a) Mārṅa shabda kriyas

ध्रुवशाम्यश्च ताळश्च सन्निपात इतीरितः ।
इतिशब्देन संयुक्तो विज्ञेयश्च चतुर्विधम् ॥

— (Sangeeta Swara Prastara Sagaram P. 557)

Dhruva, Shamyā, Thāla and Sannipatha are the four Mārṅa shabda kriyas. They are explained below:

ध्रुवोहस्तस्य पातस्या च्छोटिकाशब्द पूर्वकः ।
शम्यादक्षिण हस्तस्य ताळो वामकरस्यच,
उभयोस्सन्निपातरस्यात्तासां मार्गवशादिति ॥

— (Sangeeta Uidya Darpanam P. 319)

Dhruva :- Producing sound by the thumb and the middle finger.

Shamyā :- beating the right palm with the left.

Thāla :- beating the left palm with the right.

Sannipātha :- Keeping both the fore-arms vertical and beating both the palms against each other.

(b) Mārṅa Nishabda Kriyas.

स्यादावापो ऽ घनिष्कामो विज्ञेयश्च प्रवेशकः ।
चतुर्विधाश्च विज्ञेया निशब्दाश्च क्रियाबुधैः ॥

— (Sangeeta Saramrutam P. 160)

Āvāpa, Nishkrāma, Vikshēpa and Pravēsa are the four mārṅa nishabda kriyas

आवापस्तल हस्तस्योत्तान स्यांगुळिकुंचनम्,
निष्क्रामोदस्तलस्यस्यादगुळीनां प्रसारणम् ।
क्षेपोदक्षिणपार्श्वत्योत्तानस्य प्रसृतांगुळे : ;
विक्षेपोरधस्तलस्यास्य प्रवेशोङ्गुळिकुंचनम् ॥

— (Sangeeta Ratnakaram P. 356)

Āvāpa – closing the fingers of the raised arm.

Nishkrāma – unfolding the fingers of Āvāpa.

Vikshēpa – waving the arm to the right with extended fingers.

Pravēsa – folding the fingers and bringing the palm to the front.

Note: – These mārṅa kriyas are not now in vogue.

– B –

Dēsi Kriyas

ध्रुवका सर्पिणी कृष्या पद्मिनी च विसर्जिता ।
विक्षिप्ता च पताकास्या पतिताष्टौ क्रियास्तथा ॥

— (Sangeeta Saramrutam P.160)

Dēsi Kriyas are eight in number. They are

1. Dhruvaka, 2. Sarpini, 3. Krishya, 4. Padmini,
5. Visarjitha, 6. Vikshiptha, 7. Pathāka, and 8. Pathitha.

सशब्दाल ध्रुवज्ञेया सर्पिणी वामगामिनी,
कृष्या दक्षिणतो गन्धी पद्मिनी स्यादथोगता ।
विसर्जिता बहिर्याता विक्षिप्ता कुंचनात्मिका,
पताकातूर्वगमनात्पतिता करपातनात्
ध्रुवपाते प्रयोज्यास्ताना ऽ वापादौ कदाचन ॥

— (Sangeeta Ratnakaram P. 356)

1. Dhruvaka:- Beat on the left palm with the right.
2. Sarpini:- Waving the right palm to the left.
3. Krishya:- Waving the right palm from the above left to the right.
4. Padmini:- Extending the right palm pointing vertically downwards
5. Visarjitha:- Waving the right palm of padmini upside down.
6. Vikshiptha:- Folding the fingers of the right palm.
7. Pathāka: Raising the right palm vertically up.
8. Pathitha:- Bringing pathāka position back to the horizontal.

Note:- Out of these 8 Dēśikriyas, only Dhruvaka is the shabda kriya and all the rest are nishabda kriyas. These are the principles set by Bharatha and these are now in vogue.

3. MĀRGA

(The term Mārga in this section which denotes a condition, should not be confounded with the previously mentioned word mārga which is only a name.)

Mārga means way or method. It indicates the duration of a Kriya in Aksharakālas, or simply Aksharas, in Thāla. It shows the way in which the kriyas progress with respect to the units of time known as Aksharakālas. *Akshara is a syllable with short vowel.*

दक्षिणोवार्तिकश्चित्तस्तल चिततर स्मृतः ।

तथा चित्त तमश्चस्यादतिचित्त तमोमतः ॥

— (Sangeeta Swara Prastara Sagaram P. 554)

The mārgas are six in number. 1. Dakshina, 2. Vārthika, 3. Chithra, Chithrathara, 5. Chithrathama, and 5. Athichithrathama.

There are many more mārgas but only the above six are in vogue now.

तत्र दक्षिण मार्गस्य मात्राष्टकमुदाहृतम् ।

वार्तिकेतु चतुर्मात्राश्चित्रमार्गो द्विमात्रकः ॥

एकमात्रश्चित्रतरो दुत्तश्चित्रतमोमतः ।

अतिचित्र तमे मार्गे ऽ नुदतः परिकीर्तितः ॥

— (Sangeeta Vidya Darpanam P. 317)

1. Dakshina mārga :-	Duration of	8	mathras	=	32	letters	per Kriya
2. Vārthika mārga :-	„	4	„	=	16	„	„
3. Chithra mārga :-	„	2	„	=	8	„	„
4. Chithrathara mārga :-	„	1	mathra	=	4	„	„
5. Chithrathama mārga :-	„	$\frac{1}{2}$	„	=	2	„	„
6. Athichitrathama mārga :-	„	$\frac{1}{4}$	„	=	1	„	„

(The above calculation is in accordance with Chaturasra jāthi)

These six mārgas are to be understood in the ratio of the aksharas because the duration of a kriya in the number of aksharas varies with jāthi bhēda (variation in jāthi which is the sixth element.) Each mārga contains twice the number of mathras or aksharas of the succeeding mārga in the above order.

If 32 aksharas occupy the duration of a kriya, it is said to be of Dakshina mārga and so with the rest.

It is to be noted that all the kriyas of a thāla should be of the same mārga, i.e., of the same duration in the number of aksharas.

OTE: The duration of a letter is the time taken by a letter with short vowel when spoken. A letter with a long vowel has twice the duration of the letter with short vowel. Units of time are also reckoned in letters. *A letter is to be understood as a spoken syllable with a short vowel* and it is one unit time which is also called Akshara.

THRIKĀLA or the three degrees of speed.

There are three kalās or degrees speed with which the letters in a kriya succeed another.

1. Prathama Kāla or the first degree of speed.
2. Dwiteeya Kāla or the second degree of speed.
3. Thritheeya Kāla or the third degree of speed.

In addition to these, there are the IV, V and VI degrees of speed in practice also. These six are Called Shatkālas. These kālas are relative.

When a mārga, say, Chithrathara mārga is chosen for a Kriya and when it is supposed to be in the prathama kāla, the same kriya in the Chithra mārga will be in the Dwitheeya kāla and in the vārthika mārga it will be in the Thritheeyakāla.

Any convenient mārga may be chosen for a kriya in the prathama kāla and each kriya in the higher degree will have twice as many letters as the kriya in the preceeding degree. Thus if a kriya in the prathama kāla has 1 letter, it must have 2 letters in the dwitheeya kāla and 4 letters in the thritheeya kāla, 8 letters in the IV kāla and so on. The total number of letters for the six kālas, taking 1 letter for the prathama kāla per kriya is $1 + 2 + 4 + 8 + 16 + 32 = 63$.

Jāthi (or a series of letters) in a certain kāla has half its duration in the higher degree and twice its duration in the lower degree,

4. ANGA

Anga means part (limb). Thāla is of different parts and each part is called an Anga. The thāla is known by its constituent angas.

अनुदतोदत श्रैव लघुर्गुरु प्लुतौ तथा ।

काकपादम् तथा प्रोक्तम् तालांगानिच षड्विधम् ॥

— (Sangeeta Swara Prastara Sagaram P. 558)

Anudrutha, Drutha, Laghu, Guru, Plutha, and Kākapāda are the six angas or the parts of Thāla.

<i>Anga</i>	<i>Symbol</i>
1. Anudrutha	U
2. Drutha	O
3. Laghu	I
4. Guru	e
5. Plutha	é
6. Kākapāda	+

1. Anudrutha :- This is indicated by a beat only. (Shabdakriya). This is used only in the Jhampa thāla. This is also called Virāma.

2. **Drutha :-** It is indicated by 2 kriyas, Ghatha and Usi—a beat followed by a waving of the hand. The first is then shabda kriya. It has twice the duration of Anudrutha.
3. **Laghu :-** It is indicated by a beat followed by the counting of fingers starting from the little finger. The number of kriyas in a laghu depends upon the kind of laghu used. Laghu is variable in kriyas whereas drutha and Anudrutha are not variable. If a laghu has four kriyas, the first kriya must be a beat and the remaining three kriyas are to be shown as being counted, the 2nd on the little finger, the 3rd on the ring finger and the 4th on the middle finger in order.
4. **Guru :-** It has twice the duration of a laghu.
It is 2 laghus distinctly shown.
5. **Plutha :-** It has thrice the duration of a laghu.
It is 3 laghus distinctly shown.
6. **Kākapāda :-** It is 4 laghus distinctly shown.

Guru has the kriyas Dhruvaka and Pathitha in order, Dhruvaka is a shabda kriya. Pathitha is a nishabda kriya. As Guru contains 2 laghus, for the first laghu, there is a beat and counting of fingers according to its kind, and then for the second laghu, beating in the air which is to be reckoned as a kriya and the remaining kriyas counted as before.

Plutha has Dhruvaka, Sarpini and krishya in order. It contains 3 laghus. The first laghu is a beat and finger counts. The second laghu is waving the hand to the left which is in itself a kriya corresponding to the beat and then the finger counts as before. The third laghu is waving the hand to the right which is again a kriya corresponding to the beat and then the finger counts as before.

Kākapāda has Sarpini, krishya, pathāka and pathitha in order. It has four laghus. Wave the hand to the left and count the fingers. This is the first laghu. Then wave the hand to the right and count the fingers. This is the second laghu. Again keep the palm vertical pointing upwards, and count the fingers, This is the third laghu. Lastly bring the palm to the horizontal and count the figures, This is the fourth laghu.

Guru, Plutha and kākapāda are used in the thālas numbering 101, other than the 35 thālas mentioned before. They are very rarely used.

These 6 angas in combination with themselves give rise to 16 angas (Shōdasāngas.)

Table showing the 16 angas with their symbols and the number of aksharas (letters) they have, Anudrutha being understood to have the duration of 1 letter.

Serial No.	Shodasāngas	Symbols	Letters or Aksharas Kālas
1.	Anudrutha (Virāma)	○	1
2.	Drutha	o	2
3.	Drutha Virāma	○○	3
4.	Laghu (Chaturasra jāthi)		4
5.	Laghu Virāma	○	5
6.	Laghu Drutha	o	6
7.	Laghu Drutha Virāma	○○	7
8.	Guru	2	8
9.	Guru Virāma	○2	9
10.	Guru Drutha	o2	10
11.	Guru Drutha Virāma	○○2	11
12.	Plūtha	$\frac{1}{2}$	12
13.	Plūtha Virāma	○ $\frac{1}{2}$	13
14.	Plūtha Drutha	o $\frac{1}{2}$	14
15.	Plūtha Drutha Virāma	○○ $\frac{1}{2}$	15
16.	Kākapāda	+	16

The number of letters in the last column for the last 13 angās, is in accordance with the Chaturasra laghu only. For other kinds of laghu the numbers vary accordingly.

Table showing the number of letters for each of the 13 angas in relation to jāthi (kind) of the laghu.

Serial No.	The name of Anga	Symbols	No. of letters for each jāthi				
			Chaturasra	Thrisra	Misra	Khanda	Sankeerna
1.	Kākapāda	+	16	12	28	20	36
2.	Plutha drutha virāma	U O ε	15	12	24	18	30
3.	Plutha drutha	Ö ε	14	11	23	17	29
4.	Plutha virāma	Ü ε	13	10	22	16	28
5.	Plutha	ε	12	9	21	15	27
6.	Guru drutha virāma	U O ε	11	9	17	13	21
7.	Guru drutha	O ε	10	8	16	12	20
8.	Guru virāma	U ε	9	7	15	11	19
9.	Guru	ε	8	6	14	10	18
10.	Laghu drutha virāma	U O I	7	6	10	8	12
11.	Laghu drutha	O I	6	5	9	7	11
12.	Laghu virāma	U I	5	4	8	6	10
13.	Laghu	I	4	3	7	5	9

5. JĀTHI

Jāthi means kind. The anga, Laghu, changes in its magnitude according to its jāthi, i.e., the number of kriyas in a Laghu varies according to its jāthi.

Jāthis of Laghu

चतुश्च ल्यश्च मिश्रं च संकीर्णकालं च ।
पञ्चधा ज्ञातयसर्वे तत्स्वरूपम् निरूप्यते ॥

— (Sangeeta Vidya Darpanam P. 324)

There are five kinds of laghus— Chaturasra, Thrisra, Misra, Khanda and Sankeerna.

1. Chaturasra jāthi laghu has 4 kriyas.
2. Thrisra jāthi laghu has 3 „
3. Misra jāthi laghu has 7 „
4. Khanda jāthi laghu has 5 „
5. Sankeerna jāthi laghu has 9 „

When one akshara (letter) is spoken for one kriya, Chaturasra jāthi laghu has 4 aksharas and as the duration of an akshara is called one aksharakāla, its duration is 4 aksharakālas. Similarly for the other kinds of laghus reckoned in aksharas.

When no jāthi is indicated for the laghu, the laghu is to be understood as chaturasra jāthi laghu.

Jāthis of Laghu.

A laghu begins with a beat which is itself a kriya. The remaining kriyas with respect to jāthi are to be counted on the fingers beginning from the little finger.

- a. Thrisra jāthi laghu: First kriya - beat. Second kriya - little finger. Third kriya - ring finger.
- b. Chaturasra jāthi laghu:- 1—beat. 2—little finger. 3—ring finger. 4—middle finger.
- c. Khanda jāthi laghu:- 1 - beat. 2 - little finger. 3—ring finger. 4 - middle finger. 5 - fore finger.

- d. Misra jāthi laghu:- 1—beat. 2—little finger. 3—ring finger. 4—middle finger. 5—fore finger. 6—thumb. 7—again little finger.
- e. Sankeerna jāthi laghu:- 1 - beat. 2 little finger. 3 - ring finger, 4 - middle finger. 5 - forefinger. 6 - thumb. 7 - again little finger. 8 - ring finger. 9 - middle finger

Manushya laghu, swarga laghu, Hamsa laghu, Dēśya laghu, and Chithra laghu are synonyms for Chaturasra laghu, Thrisra laghu, Misra laghu, Khanda laghu, and Sankeerna laghu respectively. These synonyms are not in vogue-

There are other laghus also. They are :- 1, Divya laghu having 6 kriyas, 2. Simhalaghu having 8 kriyas, 3. Varṇa laghu having 10 kriyas, 4. Vādyā laghu having 12 kriyas and 5. Karṇāta laghu having 16 kriyas. These are also not in vogue.

6. LAYA

Laya is the interval between two successive kriyas. The kriyas are sometimes called aksharas. So, the interval of time between two aksharas is also called Laya.

क्रियान्तर विश्रांति लयस्यात्रिविधोमतः ।

द्वितीयं विद्वंश्च दृढतश्चीघ्रं तमोमतः ;

द्विगुणं द्विगुणं ज्ञेयौ तस्मान्मध्यं विलंबितौ ॥

— (Sangeeta Ratnakaram P. 365)

Kinds of Laya

Laya should be of uniform duration. It is of three kinds. Drutha laya, Madhya laya, and Vilamba laya. The kriyas in drutha laya have twice the speed of those in madhya laya and the kriyas in vilamba laya have half the speed of those in madhya laya.

Laya is also understood as speed or Kāla pramāna. Vilamba means slow, madhya means medium and drutha means fast

7. GRAHA

अतीतो ऽ नागतश्चै व- समश्चविषमो ऽ पिच ।

अहाश्च चतुर्विधा प्रोक्ता - सत्स्वरूपम् निरूप्यते ॥

— (Sangeeta Vidya Darpanam P. 323)

Graha is the place or the point in the thāla where the song commences. It also means the act of commencement of the song with respect to the thāla.

Kinds of Graha

Graha is of two kinds :- 1. Sama graha and 2. Vishama graha. Vishama graha is again of two kinds—1. Atheetha graha and 2. Anāgatha graha.

If a song begins before the commencement of the thāla, it is Atheetha graha. If a song begins after the beginning of the thāla, it is Angatha graha. If both the song and the thāla begin at the same moment, it is Sama graha.

8. KAḶA (Ḷ is hard.)

वर्धमानाच नष्टाच तत्कला द्विविधा पुनः.

यः कलाकाल मारुष्य गुरुपर्यंत वृद्धिकः

आद्या तद्विपरीतेतु बुधैर्नष्टरुको च्यते ॥

(Gana Bhaṣkaram P 132)

KaḶa is differently understood in different contexts as akshara, nishabda sangathi, guru, etc. The kaḶas are four, Eka kaḶa or Yadhākshara kaḶa, Dwi kaḶa Thri kaḶa and Chatush kaḶa.

KaḶas are of two kinds—Vardhamāna kaḶa and Nashta kaḶa. Vardhamāna kaḶa increases in its magnitude as 1, 2, 3, 4 and Nashta kaḶa decreases in its magnitude.

These kaḶas are used in the chachatputa tālas.

If a kriya has the duration of two kriyas it is dwikaḶa. If it has the duration of three kriyas, it is thrikaḶa. If it has the duration of four kriyas, it is chathush kaḶa.

Eka kaḶa is no other than a kriya.

9. YATHI

लयप्रवृत्ति नियमोयतिरित्यभिधीयते ।

सम स्तोत्रोवहः स्यात्ता गोपुच्छक पिपीलिके,

मृदंगा स्याच्च विषमो षड्विधायति रुच्यते ।

— (Sangeeta Ratnakaram P. 366)

This element shows how the different angas in a thāla can be differently arranged. It is the rhythmical design of the order of the angas of the thāla.

Kinds of Yathi

Yathi is of six kinds:- i. Sama yathi. ii. Srōthōvaha yathi, iii. Gōpucha yathi, iv. Pi peelika yathi, v. Mridanga yathi, vi. Vishama yathi.

i. *Sama yathi*

In this pattern of thāla, all the angas are of the same character.

A thāla which has all its angas of the same kind is said to be of Sama yathi.

Eg:- 1. o o o o. 2. ^ o o o. 3. | | | | 4. z z z z

1. θ - R - K - T

2. θK_a - θR - KT

3. KTθK_a - θRKT - θK_a DM - θK_a DN

Eka thāla is of Sama yathi.

ii. *Srōthovaha yathi*

It is a series of the angas, gradually increasing in magnitude. The whole series of the angas is of diverging nature like a river. (Srothovaha = river. It is narrow at the source and wider and wider as it flows.)

Eg:- o o | z

θ - θK_a - KTθK_a θK_aθRKTθK_a

iii. *Gōpucha yathi*

Gōpucha means the tail of a cow which, broad at the beginning, narrows down to the end.

In this case the angas gradually diminish in magnitude. The resulting series of the angas is of a converging nature.

Eg:- z | o o

NK_aθ DMθDM - θK_aJN_a - θK_a - θ

iv. *Pipeelika yathi*

Pipeelika means ant. It is broad at the extremities and narrow in the middle. This yathi is of the following nature.

Eg:- | o u o | (or) | o |

θRKT - θK_a - D - K₁ - θK_a DN

(or) θK_a Jn_a - KT - θKDM (This is Matyathāla.)

v. *Mridanga yathi.*

In this case, the angas gradually increase and then decrease in magnitude, like the shape of mridanga which is wider in the middle than at the ends. This yathi contains in itself srōthōvahayathi and Gōpuccha yathi. The series of the angas is divergent and then convergent.

vi. *Vishama yathi*

In this case the angas obey no definite order.

Ex :-

θRKT - KTθK_a θRKT - θ - θK_a DN - θK_a.

Srōthōvaha yathi and Gōpucha yathi - one is opposed to the other. So are Pipeelika yathi and Mridanga yathi. Besides the yathis mentioned above, by their permutations and combinations, a compound yathis can be formed. For example, Dhruvathāla has a compound yathi of Gōpucha yathi and Samayathi. | o | is the symbol for Druva thāla. | o is of Gōpucha yathi and the remaining two laghus, | | are of Sama yathi.

10. Prasthāra

प्रस्तार संख्ये नष्टम् चोद्दिष्टम् पातालकम् स्मृतम् ।

हतमेरु लघुमेरुगुरु मेरुः प्लुतस्य च ॥

मेरुसंयोग मेरुश्चखंड प्रस्तारक स्मृतः ।

इति प्रस्तारकश्चैव लक्षणम् कथितो वृत्तैः ॥

— (Sangeeta Vidya Darpanam - P. 327)

Prasthāra means Permutation.

Prasthāra is of ten kinds:- 1. Sankhya, 2. Nasta 3. Uddishta, 4. Pathala, 5. Drutha mēra, 6. Laghu mēru, 7. Guru mēru, 8. Plutha mēru, 9. Samyōga, and 10. Khanda Prasthāra.

This Prasthāra is purely of academic interest. This is useful only for calculation of the number of letters in each combination of the angas in each prasthāra. In a prasthāra, the totals of the number of letters at each step form different series which are known by Anga Shrēni, Pathāla Shrēni and Mahā Pāthāla Shrēni. Shrēni means series.

The method of Prāsthāra

For example, laghu prasthāra is explained. A laghu of a kind is taken as the fundamental thing to start with. Its symbol is a small vertical line. This is to be

written first. In the next step, different angas whose total number of letters (kriyas) is equal to that of the laghu taken are to be placed one over the other such that the anga of lesser magnitude finds its place above that of the greater magnitude.

Taking Mīśra laghu, the second step is

$$\begin{array}{c} \circ \\ \circ \\ | \end{array}$$

In the third step, the anudrutha is to be removed from the symbol in the second step, and placed on the left hand side as $\circ |$. In this way, at every step, an anudrutha is to be removed from the extreme right symbol and placed on the left. This method is to be followed until finally, all the anudruthās (= letters) of the laghu form a line. All possible permutations are to be made.

The prasthāra for the five kinds of laghu is given below in detail :-

Note :- In the following prasthāras, the symbol, $|$ without any numerical indication of its kind at its foot, is to be understood as $|_4$, i. e. Chaturasrajāthi laghu.

The magnitude (in aksharas) of the angas taken together in each prasthāra is the same as that of the particular kind of laghu, under which the different prasthāras are shown.

\circ There is no prasthāra for anudrutha

Drutha prasthāra.

1. \circ 2. $\circ \circ$

Drutha virāma prasthāra.

1. \circ 2. $\circ \circ$ 3. $\circ \circ$ 4. $\circ \circ \circ$

Laghu prasthāra.

1. Chaturasra laghu prasthāra.

1. $|_4$ 2. $\circ \circ$ 3. $\circ \circ \circ$ 4. $\circ \circ \circ$ 5. $\circ \circ \circ$ 6. $\circ \circ \circ \circ$

2. Thrisra laghu prasthāra

1. $|_3$ 2. \circ 3. $\circ \circ$ 4. $\circ \circ$ 5. $\circ \circ \circ$

3. Misra laghu prasthāra.

- | | | | | | |
|----|--------------|-----|---------------|-----|-------------|
| 1. | ₇ | 10. | o o u o | 19. | u o o u u |
| 2. | o
o
 | 11. | o o o u | 20. | u u o o u |
| 3. | o | 12. | u u u o o | 21. | u o u o u |
| 4. | o | 13. | u u o u o | 22. | u u u u u o |
| 5. | u o | 14. | u o u u o | 23. | u u u u o u |
| 6. | o u | 15. | o u u u o | 24. | u u u o u u |
| 7. | u u u | 16. | o u u o u | 25. | u u o u u u |
| 8. | u o o o | 17. | o u o u u | 26. | u o u u u u |
| 9. | o u o o | 18. | o o u u u | 27. | o u u u u u |
| | | 28. | u u u u u u u | | |

4. Khanda laghu prasthāra

- | | | | | | |
|----|--------------|----|---------|-----|---------|
| 1. | ₅ | 4. | u o o | 8. | u u o u |
| 2. | | 5. | o u o | 9. | u o o u |
| 3. | u | 6. | o o u | 10. | o u u u |
| | | 7. | u u u o | 11. | u u u u |

5. Samkeerna laghu prasthāra.

- | | | | | | |
|----|--------------|----|-----------|----|-------|
| 1. | ₉ | 4. | o o
 | 7. | o o |
| 2. | o
o
 | 5. | u o o
 | 8. | u u o |
| 3. | u o
o | 6. | o u o
 | 9. | u o u |

10.	o o u y	31.	o o o o o o	52.	o o o o o o o
11.	o o o o y	32.	o o o o o o	53.	o o o o o o o
12.	o o o	33.	o o o o o	54.	o o o o o o o
13.	o o o	34.	o o o o o o	55.	o o o o o o o
14.	o o o	35.	o o o o o o	56.	o o o o o o o
15.	o o o o	36.	o o o o o o	57.	o o o o o o o
16.	o o o o	37.	o o o o o o	58.	o o o o o o o
17.	o o o o o	38.	o o o o o o	59.	o o o o o o o
18.	o o o o o	39.	o o o o o o	60.	o o o o o o o
19.	o o o o o	40.	o o o o o o	61.	o o o o o o o
20.	o o o o o	41.	o o o o o o	62.	o o o o o o o
21.	o o o o o	42.	o o o o o o	63.	o o o o o o o
22.	o o o o o	43.	o o o o o o o	64.	o o o o o o o o
23.	o o o o o o	44.	o o o o o o o	65.	o o o o o o o o
24.	o o o o o o	45.	o o o o o o o	66.	o o o o o o o o
25.	o o o o o o	46.	o o o o o o o	67.	o o o o o o o o
26.	o o o o o o	47.	o o o o o o o	68.	o o o o o o o o
27.	o o o o o o	48.	o o o o o o o	69.	o o o o o o o o
28.	o o o o o o	49.	o o o o o o o	70.	o o o o o o o o
29.	o o o o o o	50.	o o o o o o o	71.	o o o o o o o o
30.	o o o o o o	51.	o o o o o o o	72.	o o o o o o o o

The 15 gamakas in the play.

तस्य भेदास्तु तिरिपः स्फुरितं कंपितस्तथा ।
 लीनमांदोलित वलि-स्त्रिभञ्जकुरूप्यद्वयताः ॥
 रल्लासितः प्लावितश्च-गुम्फितो मुद्रितस्तथा ।
 नामितो मिश्रितः पञ्च-दशैते, परिकीर्तिताः ॥

— (Sangeeta Swara Prastaara Sagaram P. 133)

Gamaka means a variation in sounds for the beauty of the play. This is of fifteen kinds.

1. Thiripa:- Stressing the sound.

Eg:- $\theta DM - DKT - \bar{\theta}!KT - N!KT$ etc,

2. Sphuritha:- Producing sounds speedily.

Eg:- $J! \underline{\theta R} - J! \underline{\theta RKT} - J! \underline{\theta RKT}$ - etc.

3. Kampitha : Vibrating the sound at the same place.

Eg:- $N, D!, N, D!, - N\theta D!, - D!, D!,$ etc.

4. Leena : Making a sound and producing another similar sound in its shade.

Eg:- $\theta \bar{\theta}!, \theta!, - \theta \bar{\theta}!, \bar{\theta}!, - \theta \bar{\theta}!'$ etc.

5. Āndālitha :- Making a sound moving like a cradle.

Eg- $D!, D!, D!, \theta!, D!, D!, D!, \theta!,$ etc.

6. Vali :- Making the sound like that of a bee after a sound.

Eg:- $J! \underline{KT\theta R} - \theta!, \underline{KT\theta R} - J! \theta!, \underline{KT\theta R} - \underline{KT\theta R}$ etc.

7. Thribhinna :- To produce three kinds of sounds at a time.

Eg :- $\theta, \theta!, \underline{KT\theta K_a} - D, \theta!, \underline{KT\theta K_a} - \theta, \theta!$
 $D, \theta!, \underline{\theta K_a \theta RKT\theta K_a}$ etc.

8. Kurula :- Making a similar sound at the place where a sound is made.

Eg :- $\underline{KT\theta R} - \underline{KT\theta R} - \underline{KT\theta R} - \underline{KT\theta R}$ etc.

9. Āhatha :- This is called Rava jāthi.

Eg :- KTθR θ!, — KTθR D!, — KTθR $\bar{\theta}$!, — KTθR N!,

10. Ullasitha :- This is also called jāru or uttunga. The sound moves up and down.

Eg :- $\bar{\theta}$!, DR_n θ $\bar{\theta}$!, — DR_nθ $\bar{\theta}$!, — DR_nθ $\bar{\theta}$!, — DR_nDR_nKTK_n.

11. Plāvitha :- Stopping at one sound for some maṭras, and making another sound at that place.

Eg:- θ, θ₁!, θ₁!, θ₁, — θ, θ₁!, θ₁!, θ₁!

12. Gumphitha :- It is also called humphitha. It is making sounds so that their duration is the same as that of Hum when uttered.
13. Mudritha :- Making mumbling sounds
14. Nāmitha :- Producing light sounds
15. Misritha :- Mixing the above two gamakas.

THE DESIGN AND CONSTRUCTION OF THE MRIDANGA

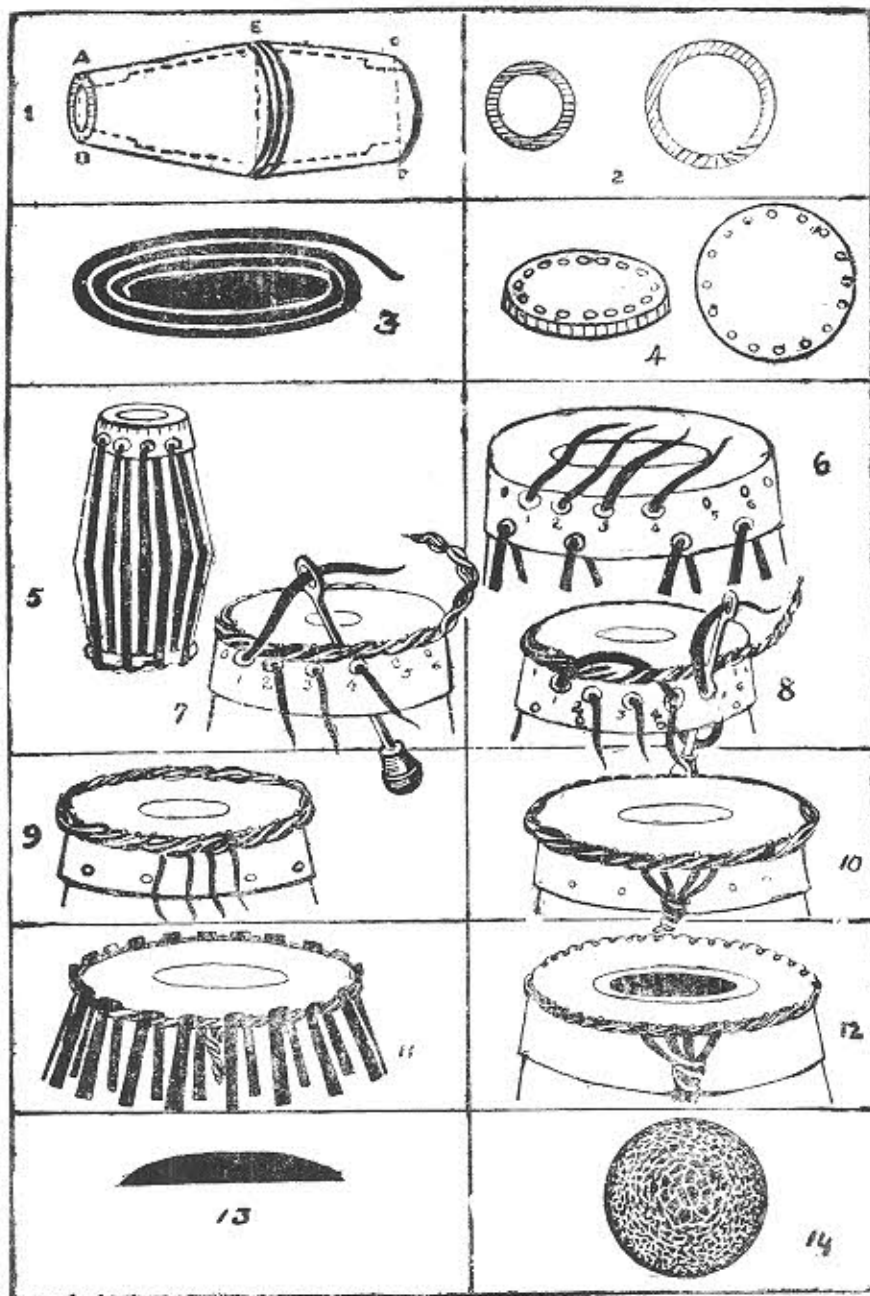


Fig 1. The body of the mridanga.

- (i) A B is the Diameter of the Right face.
 (ii) C D " " " Left face.

2. The left and right faces of the body.
(Front view.)
3. Strap cutting from a sheet of leather.
4. The circular wooden plank with holes.
(Two views.)
5. Making the right cover - I Stage.
6. Cover with stitching straps.

7. Stitching - I Stage
8. Stitching - II Stage
9. Finished view after stitching around.
10. Left with the she-goat leather stitched to the vertical side in position.
11. The rim with the strap running through equidistant points.
12. Right finished cover with Karini
13. Karini - cross section.
14. Karini - front view with the splits enlarged.



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CHAPTER - II

THE DESIGN AND CONSTRUCTION OF THE MRIDANGA

The Mridanga is a percussion instrument with a hollow wooden body the ends of which are covered with leather caps. These leather caps or coverings on which the different sounds are made, are kept tight and stretched by means of a long leather strap fastening both of them at many equidistant points.

The materials required for the construction:

1. Wood, 2. A long thick leather strap (24 yards long and $\frac{1}{2}$ inch wide), 3. Dried and untanned hides, 4. Dross iron, finely powdered, 5. Grease, 6. Paste of boiled flour, preferably of rice, 7. Eight laces, $\frac{2}{3}$ inch wide and each 2 yards long of the leather of a young buffalo, or ox.

The instruments required.

1. Lacing awl, 2. Knife. 3. Pliers, 4. A small chisel with $\frac{1}{2}$ inch edge. 5. A hard round object 1 to $1\frac{1}{2}$ inches diameter, either of stone or metal with a fine soft surface. There should not be even pin point depressions on its surface,

1. THE BODY OF THE MRIDANGA

This looks like two frusta of hollow cones, with the same bases exactly coinciding with each other. It is not in fact two separate pieces joined together but a whole made out of a single log of wood. The cross-section of the two ends or faces is annular (like a ring), the width of the ring being $\frac{1}{2}$ inch. The diameter of one face is slightly greater than that of the other. The face with lesser diameter is called the Right (of the mridanga) as the right palm generally operates upon it. The other face is called the left as the left palm operates upon it.

Kinds of Wood

The following kinds of wood are suitable for the mridanga and they are given in the order of preference. Their names are given in different languages.

(E) - English. (S) - Sanskrit (T) - Telugu

(H) - Hindi. (B) - Botanical name.

1. (E) Jack. (S) Panasa. (T) Panasa.

(H) Phanās. (B) Artocarpus Integrifolia

2. (E) The Indian Kino. (S) Mahārasa or Sarjaka.
(T) Vēgisa. (H) Bija. (B) Pterocarpus Marsupium.
3. (E) Red Sandal. (S) Raktha Chandana. (T) Raktha Chandana
(H) Lāl Chandan, (B) Pterocarpus Santalinum.
4. (E) Margosā. (S) Nimba. (T) Vēpa, (H) Neem.
(B) Azadirachta Indica.
5. (E)- ——— (S) Brahmādāru. (T) Ganga Rāvi.
(H) Thutri Sāhad. (B) Thespesia Populnea.

Dimensions

1. To keep in unison with the notes between 1 and $2\frac{1}{2}$ of the Harmonium or between the frequencies 256 and 300.

AB is the right face, EF the left and CD, the middle of the wooden body.

Length : AC (i.e. from the right face to the middle) = 13 inches.

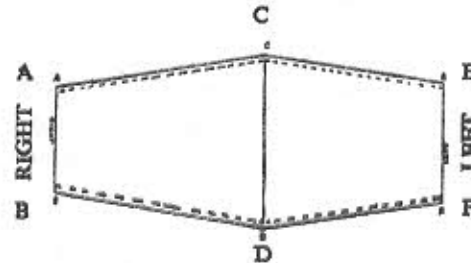
CE (i. e. from the middle to the left face) = 11 inches

Total length = 24 inches.

Diameter : AB (Right) = $6\frac{1}{2}$ inches.

EF (Left) = $7\frac{1}{2}$ „

CD (Middle) = $11\frac{1}{2}$ „ (circumference = 36 inches)



Central Longitudinal Section

2. For notes from $2\frac{1}{2}$ to $4\frac{1}{2}$
(Frequencies from 300 to 350)

Length : AC = 13 Inches

CE = 11 „

Diameter : AB = $6\frac{1}{2}$ Inches

EF = $7\frac{1}{2}$ „

CD = $11\frac{1}{2}$ „

3. For notes from 5 to $6\frac{1}{2}$

(Frequencies from 354 to 450).

Length : AC = 12 inches

CE = $10\frac{1}{2}$ „

Total length = $22\frac{1}{2}$ inches

Diameter: AB = $6\frac{1}{4}$ inches

EF = $7\frac{1}{2}$ „

CD = 10.9 „ (Circumference = 34 inches.)

The width of the facial ring (or the thickness of the wall) of the body = $\frac{1}{2}$ inch in all the above cases. The wood is to be turned into shape and then hollowed.

2. LEATHER STRAP

The part of the hide on the hinder portion on either side of the spine of the body of a buffalo or an ox is most suitable for the purpose. It may be cut into two halves for convenience. It should be soaked well in water for a considerable time until it becomes soft for cutting. The angular edges may be cut into a round shape or the whole piece may be cut into a circular shape. It is then cut continuously along the edge in a spiral manner like the spring of a watch, such that the liberated strap is always $\frac{1}{2}$ inch wide. It should then be wound round any cylindrical or drum-like object, stretching it well. While winding, the raw and curved strap should be stretched well only until the curve just straightens. The strap, after thus being wound, should not unwind or unfasten itself and care should be taken in this respect. Then it must be left to dry up for a day. After it becomes perfectly dry, it is unwound. By now, it is straight. The two sides of the strap must be made free of hair or rough layers. Grease, or castor oil is then well applied to it to keep it soft. The strap of 24 yards may be in two pieces, as the whole of it cannot be obtained from a single sheet. The strap thus got serves well to fasten the facial caps of leather.

Other mechanical means may be substituted for the fastening purpose, but the strap is the most convenient one.

3. DRIED AND UNTANNED HIDES

The right and left faces of the mridanga are covered with hides which look like caps after finish. Different kinds of hides are used for the two faces. The hairs on the upper side and loose layers if any on the inner side must be removed.

Hides for the Right Face:-

The right face is covered with three sheets of leather. The central sheet is the one which produces the sound and to its centre is adhered what is known as KARINI (explained later). The sheets above and below it are annular.

1. Central sheet of leather—The leather of a she-goat (Fore part of the body.)
2. The leather above the central one—The leather of a Calf.
3. The leather below — the leather of a shegoat.

Each sheet of leather is circular and of 10 inches diameter.

Hides for the Left Face:-

- 2 Sheets of buffalo leather.
- 1 Sheet of she-goat leather.

All the three sheets are circular and of 10 inches diameter.

Making the leather Covers (Stitching):-

Any leather strap (This is not mentioned in the list.) 2/10 inches wide and 20 yards long must be got ready before hand for the preliminary fastening for the shaping of the Covers. Two or three straps of 1/2 inch width and 25 inches length should be dipped in water to make them soft. They are then placed side by side without twists and are uniformly and jointly twisted well. This twine is a little stretched to keep the

twist uniform. The ends are tied to pegs apart, so that the twine is straight and does not unwind. It is left to dry up for a time and is made use of in making leather covers. This twine forms a rim to the cover.

A circular wooden plank, $\frac{1}{2}$ inch thick and 8 inches in diameter with 16 holes all around, at equal distances and $\frac{1}{2}$ inch from the circumference, to admit the above strap to pass through, must also be provided in the absence of an old cover for the right.

A. THE LEFT COVER

Take 2 circular sheets of buffalo leather 10 inches in diameter. At the centre of each cut off a circular part of 2 inches diameter. Soak them well in water for 4 hours. Keep these exactly one over the other and place them on the left of the mridanga, so that their central opening is exactly at the centre of the face. The right of the mridanga is placed above the circular plank of wood and the left face looks up. Make 4 fine perforations at equal distances around the sheets so that when the free part of the sheets is bent in position along the body of the mridanga, the perforations are all just $\frac{1}{2}$ inch below the edge of the face. Pass a leather lace through each of these perforations and fasten them tightly by degrees to the circular plank below taking care to see that the strain at each perforation is the same. During the gradual fastening, the circular opening in the two sheets increases. If in the final state the opening is again circular and concentric with the face of the mridanga, it is a good test to assure oneself of the uniform strain applied to the two sheets around. This can be best accomplished if the pairs of diametrically opposite perforations are worked upon simultaneously. 2 inches opening may increase up to $2\frac{1}{2}$ inches.

The next step is, make 3 such perforations in each of the intervals between two successive aforesaid perforations in a line with them. The total number of perforations now is 16, including the first four and all of them must have equal distances between them. Take the 20 yards strap and tie one end to the wooden plank below. Pass the other end, the leading end, through each perforation, bring it back to the wooden plank, pass through its hole, bring it up again and repeat the process until all the perforations have the strap passing through them. Now tighten the strap around by slow degrees, each time testing for uniform strain at all the 16 points around as indicated before. By now the circular opening may be of about 3 inches. Then the leading end of the strap must be firmly tied to the wooden plank, each of the initial laces can be removed when its purpose is over in this process.

Mark 32 points on the face edge of the leather sheet exactly at equal distances. Make Slits $\frac{1}{4}$ inch long with the $\frac{1}{4}$ inch chisel at those marked points. The cuts should begin at the face and point towards the other face of the mridanga. At no point they should be slant or across.

Take two laces of leather and make their both ends fine and pointed, to go into the eye of the lacing awl. Insert the lacing awl between the jointed leather sheet and the wooden body and push it up through one of the 16 slits. Pass the end of one lace through the eye of the awl, draw the awl back and again push it up as before through the next Slit. Liberate the fine end of the lace from the awl. Take away the awl and draw out the end of the lace in the second Slit such that the centre of the whole lace lies exactly between the two Slits. Proceed with the other lace as before for the next two Slits. The laces, under no circumstances, should have any twist in the process. They look like 4 separate laces.

Now there is the occasion for the dried leather twine already made. Keep the twine just on the edge of the face and above the laces always, with one of its free ends an inch or so beyond the first lace towards our left side. As before, push the awl up through the 4th Slit, and with its help bring the first lace from above the twine, down below and take it out through the next Slit. Tighten the lace hard. Repeat this process each time passing the next lace through its fourth Slit and bringing it out through the next, until the starting point is very nearly reached. At the 32nd Slit let the two ends of the leather twine coincide by cutting the ends. When the 32nd Slit is over, pass the extreme left lace as usual through the first Slit and draw it and take it out through the next. Pass the next lace in the same way through the next Slit. Take out the next two laces directly from under the twine through the next successive Slits. The laces must be tightened hard and all the four ends are to be twisted. It is to be dried up in the sun for a day. The next day, the long leather strap of $\frac{1}{2}$ inch thickness is passed through one of the 32 openings between the leather twine and the cover. It is again passed through the wooden plank and brought up. In this way it is made to pass through the alternate openings of the left cover, 16 in number. The strap should be tightened until the leather twine is brought down to the same plane of the cover. The cover sheets are to be cut to form a ring of 1 inch width. The whole is to be dismantled then. The free edge of the cap should be cut round to a height of 1 inch.

The she-goat leather is to be soaked in water for 2 hours. It is then placed up side down on the inverted cap. This is stitched to the vertical part of the cap at 12 points at equal distances, with a fine leather lace. At present the she-goat leather

does not touch the cover ring. Press this cover against the corresponding face of the mridanga and pass and tighten the strap as before. The wet leather extends and gaining its required shape inside, is now in contact with the cover rings, Allow it to dry up in shade for a day, Now the left cover is made.

B. THE RIGHT COVER

The three sheets of leather in circular form, mentioned under item 3 for this, are to be kept ready. Two circular holes of 2 inches diameter are to be made in leathers 1 and 3. The she-goat leather, no. 2 is placed in the middle. These are soaked in water for 4 hours. Then they are stitched up at different places on the circumference only to keep them in tact. Keep them on the right face so that their outer surfaces are all upwards. As before for the left cover, make 16 perforations around them $\frac{1}{2}$ below the edge of the face. Pass the preliminary leather strap of 20 yards, through these perforations as before. The wooden circular plank can be dispensed with as the left cover is ready for the strap purpose. Follow the other instructions given for the left and finish fastening the leather twine to the cover. The whole process is the same for the right cover. But the only difference is, 48 cuts are to be made and the leather strap is to be passed through the openings 1, 4, 7, 10etc. between the twine and the cover, thus making 16 passes. The outer ring should be so cut inside round that it is $1\frac{1}{2}$ inches wide. This is dried in the sun for a day. The twine is brought to the level of the cover as in the case of the left cover. It is kept thus for a day. It is to be dismantled the next day. The inner ring should be cut so that it is $\frac{3}{4}$ inches wide. The vertical part should be cut round 1 inch high, Finally the right and left covers are fastened tight to the faces of the mridanga by means of the strap.

Plastering the Right Cover.

Karini is the name given to the plaster of an iron compound adhering to the outer surface of the central sheet of leather of the right cover. It is circular in shape, slightly and gradually bulging up all around towards the centre. This controls the sound made by percussion and keeps steady the required range of the frequencies of sound.

Very old dross iron in a fine powdery state is used for the purpose. There is another iron compound Māndoorā (Sanskrit) which looks like a black stone. It is

found at some places under the earth. This stone is heated well in fire and in its hot state is immediately dropped in cold water. Due to the sudden fall in temperature, the stone separates itself into its tiny crystals. This method is much easier to break the stone into small pieces. These tiny crystals are now finely powdered and sieved through a fine cloth. The sieved powder is used for Karini.

The mridanga is now with its covers fastened tight against the faces. Find the centre point of the right cover. With that centre and with radius equal to half the radius of the face, draw a circle on the central sheet of leather. Scrape all the space within the circle carefully with blade of knife so that the surface loses its smoothness and has a fine rough surface. This is essential for the plaster to hold well.

Apply a very thin layer of the paste of boiled flour on the surface within the limits of the circle. Tap it with finger gently at all places, when fine and small projections result. Keep it in the sun to dry up well for about half an hour.

Meanwhile, mix the sieved powder for karini with the boiled flour paste. The paste should not be thin or watery. There is no fixed ratio for the mixture. It depends upon the nature of the paste. The mixture is to be well ground until it becomes a whole mass. The paste should be applied so much that the resulting mass after grinding is neither too gummy or otherwise. A ball of this mass of about $1\frac{1}{2}$ inches will be enough for the purpose. This should be kept in wet cloth. This is the plaster for the purpose.

Apply carefully a small part, about the size of a pea to the surface within the circle. Spread it uniformly on the whole surface within the circle. It should not exceed the limit of the circle. Pass the straight edge of any thing upon it across to level it. Take the round stone mentioned under instruments under item 3 and begin to rub across the levelled surface. The rubbing should be done uniformly with uniform light pressure until the surface becomes dry. The surface by now splits up into minute parts, not visible to the naked eye. Then apply as much paste as before and repeat the process as before. When it again dries up, the splits are visible. Continue this process each time, making the central part gradually bulging up, till the thickness at the centre is about $\frac{1}{4}$ inch. Care should be taken that fine splitting always exists. The absence of this splitting or splitting in bigger parts mars the sound. The round edge can be made regular by rubbing with a piece of wood dipped in water. Now the karini is set.

For sound of lower frequencies, the karini should be a little thicker and with higher frequencies it should be a little thinner. The quantity of paste to be applied should be so determined as to produce the required note on percussion. No definite quantity can be suggested.

Chātu and meetu should be in the same note. If the note on chātu is higher than that on meetu, the centre of the karini should be slightly wetted with water and a little plaster is to be scraped out with a knife and the spot is dried by rubbing the stone against it. If the note on the meetu is higher, apply a little required quantity of paste and rub it. Thus chātu and meetu should be adjusted to the same note.

Now the mridanga is ready for play. Its body may be covered with a fine sheet of cloth.

In spite of all that has been written, the construction is a difficult one and it should be practically learnt and put into practice. Long practice brings perfection.

How to accompany.

Key-note :- (Shruthi) The song is sung based on a particular note called the key-note. The mridanga sound i.e. the chātu or meetu, both of which are always in the same note, must be in the same key-note. This note should be the same at all places on the ring of the right cover. If the note is lower than the key-note at a place or point on the right, a small wooden peg with flat ends, $\frac{3}{8}$ inch in diameter about $2\frac{1}{2}$ inches length, is placed upon and against the rim (formed with the leather twine) at that point and a downward stroke is applied to the peg with a stone or hammer. This stroke increases the note. If the note is higher than the key-note, place the peg below and against the rim at that point and an upward stroke is given. The upward stroke diminishes the note. Thus the right of the mridanga is to be set in tune with the key-note, at all points around.

Varna:- There is a particular kind of musical composition called the Varna with which the musical entertainment usually begins. The Varna has different Kālas, gamakas and mukthayis. The mridanga player can perfectly accompany the varna provided he has learnt the varna by heart. The thāla to which the varna is set must first be ascertained. Then the varna can be accompanied easily.

Song:- The thāla as usual must first be ascertained. Its Kāla and gamana also must be understood. The initial pause should be noted and borne in mind. A nada

satisfying the conditions of the thāla should be played along, keeping the initial pause in view. The nada is to be ended with the necessary ending, at the end of the āvritha.

Nada—Example

1. $\theta K T D !, D !, - \theta K T D !, D !, \dots \dots \dots$ etc.
2. $N K_u \theta D N_u \theta D N_u \dots \dots \dots$ etc.

The above is for pallavi in the song.

As for Anupallavi, the nada can be changed,

Eg: $\underline{\theta \theta_i ! \theta_i ! \theta_i !} - \underline{\theta \theta \theta \bar{\theta} !}$ etc.

Change of nada is essential for the charana. If the song is in higher Kāla, the play must be in the higher Kāla, and the thirugudu varasas are to be made use of

When swara is sung, the mridang sounds should correspond to it.

Eg:- Garreesanida:- $\theta D !, G N \bar{\theta} !$ etc.

The mridnga player should be noting all particulars like thaggimpu, mukthāyi, thrikāla swaras, pauses and the like and follow the music accordingly. Mukthāyis should not often or unnecessarily be played during the course of the song.

The nadas, varasas, jāthis, complimentary series, higher Kāla varusas (thirugudu varusas) are to be made judicial use of while accompanying a song.

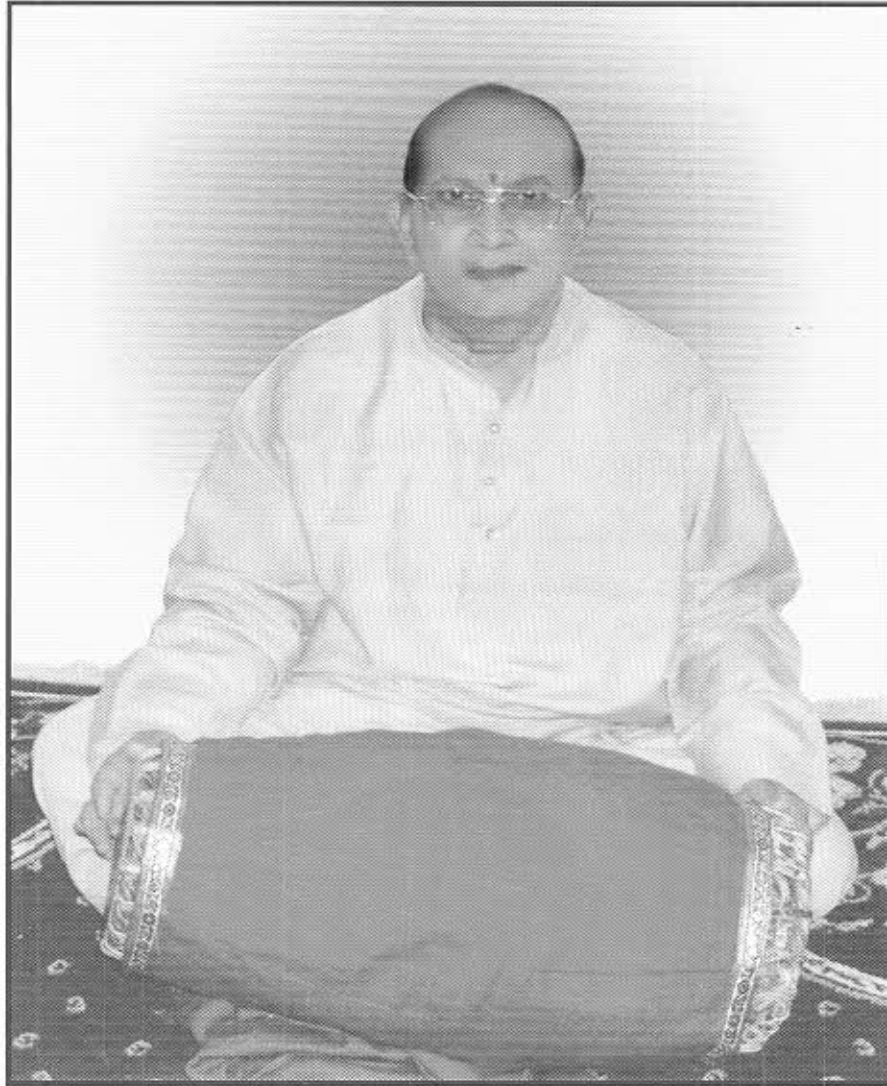


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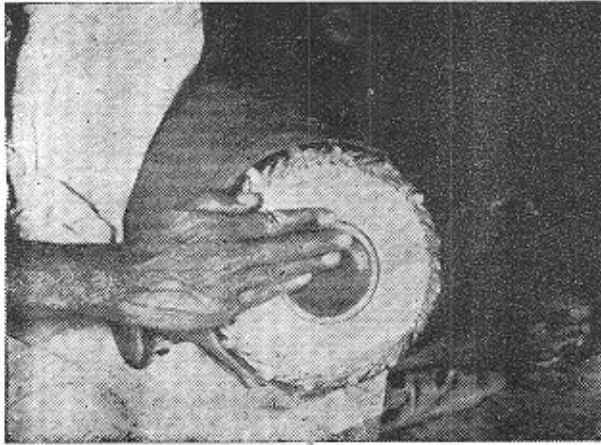
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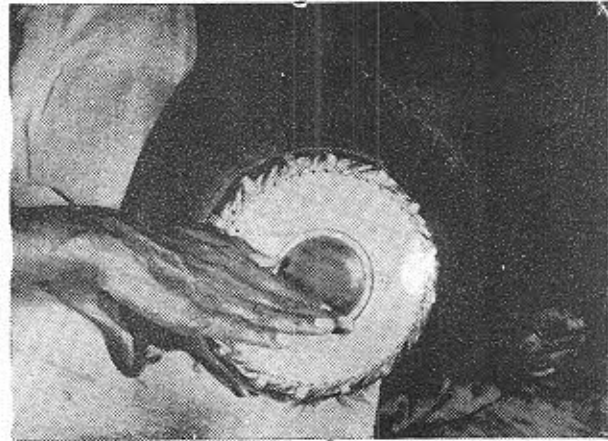
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POSITIONS ON THE MRIDANGA



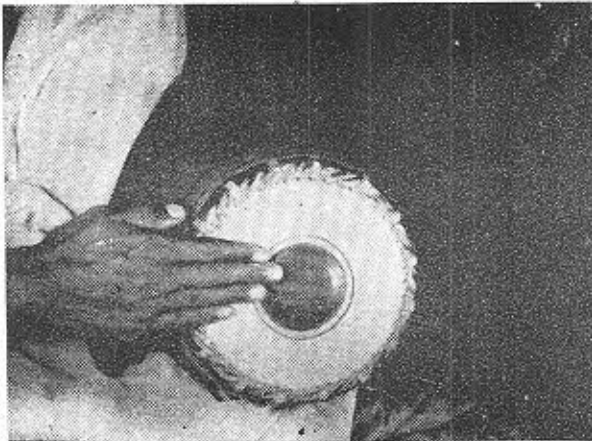
1. Chātu (c)

The sounds of $\theta!$, and $L!$, are produced in this position.



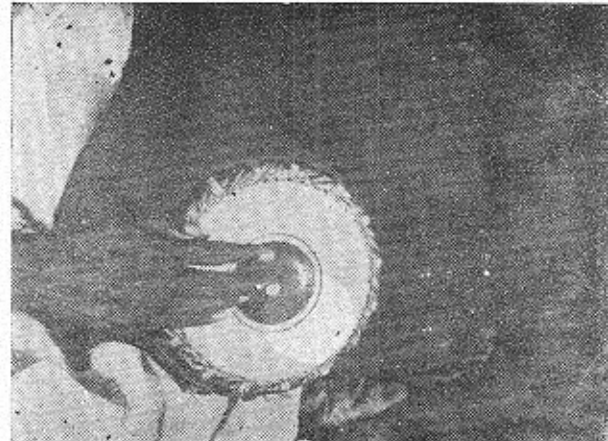
2. Chātu (c2)

Striking against the Karini in the manner shown with the forefinger strengthened by the thumb and the other three fingers raised apart. The sound T is produced.



3. Back Chātu (bc)

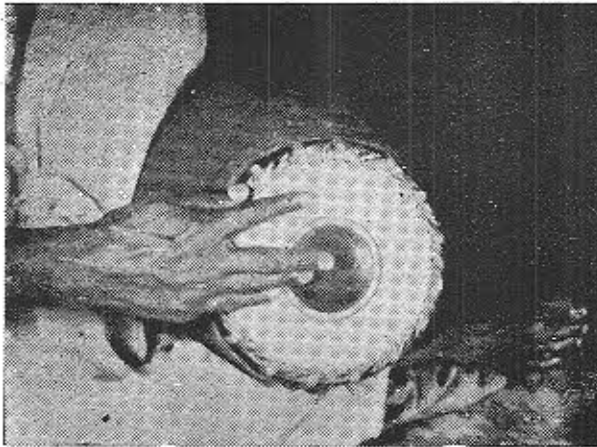
The sound $D!$, is produced by striking against the Karini keeping all the fingers close together and immediately drawing them back to the position shown.



4. Nādam (n)

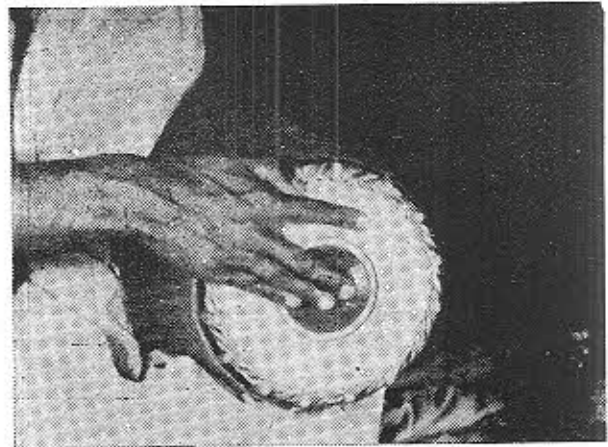
$\overline{\theta!}$, $J!$ and D are produced.

NOTE :- Photos 1 - 13 are of the right side of the mridanga and 14 - 22 of the left.



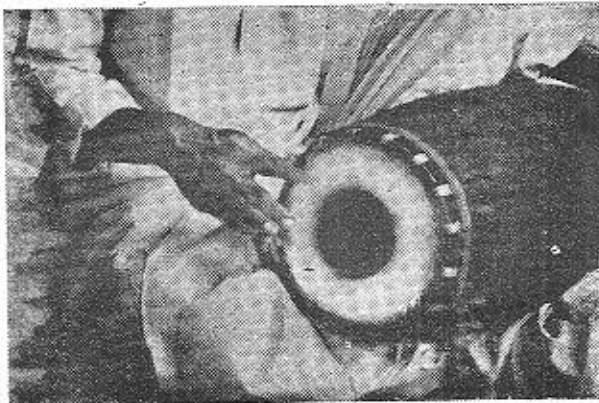
5. Meetu (m)

The sounds, N!, θ , T, N are produced.



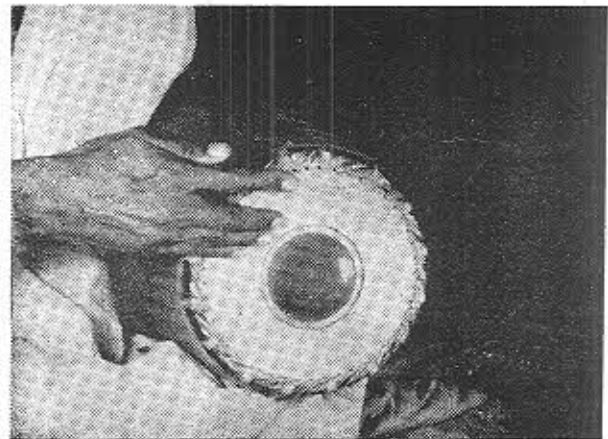
6. Front Meetu (fm)

The first letter θ in θ Ka DN in the combination of $\theta!$, Ku θ Ka DN is sounded.



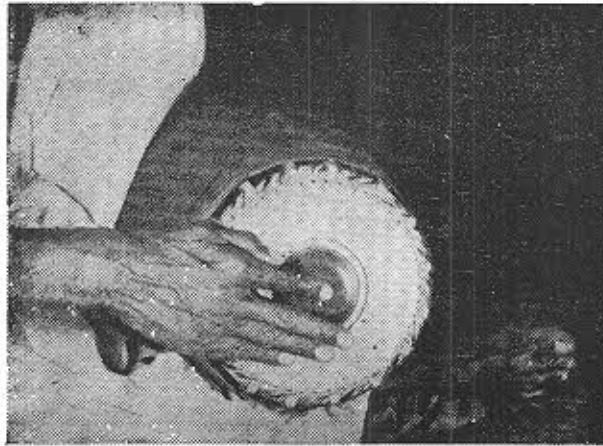
7. Meetu 2 (m_2)

This is made use of when θ is to be sounded in θ Ka.

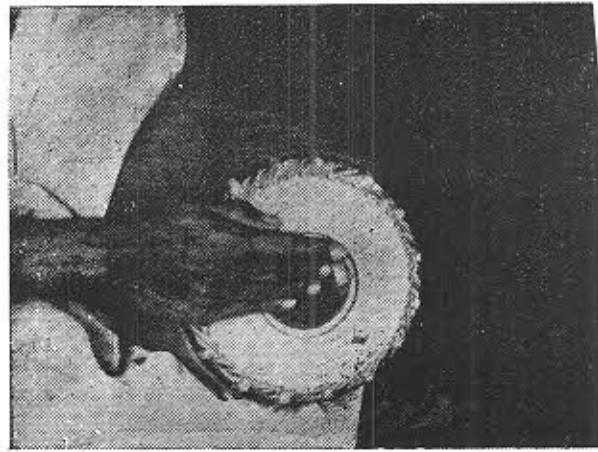


8. Meetu 3 (m_3)

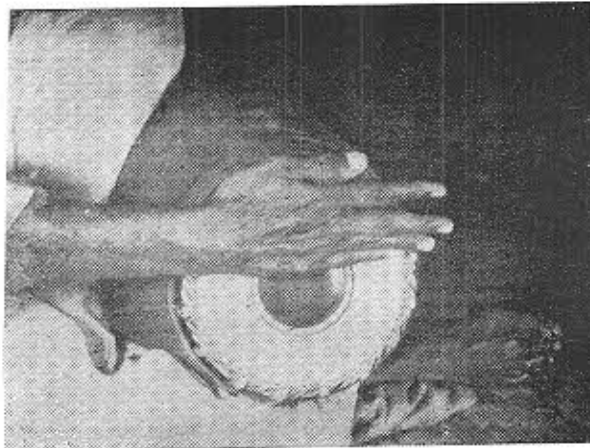
To sound T, θ , Ka.



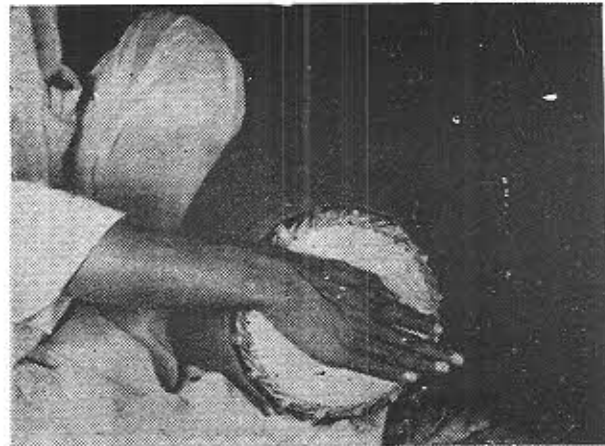
9. Nātu - 2 (2)
Centre of the Karini
To sound D, T, θ , Ka.



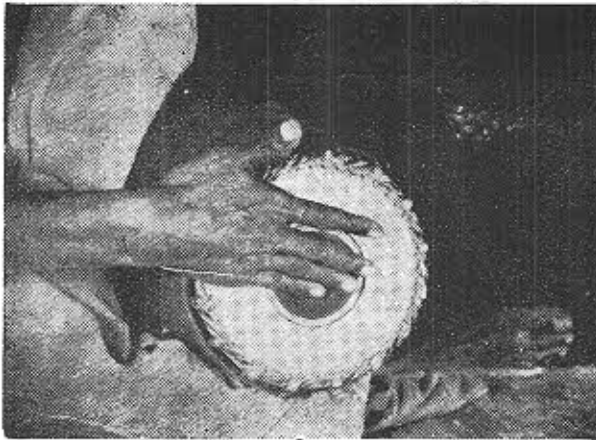
10. Nātu - 3 (3)
Keeping the palm arched and striking with the ends
of the three fingers close together.
- To sound θ , D, Ka, Gu, \tilde{N} , T, R with stress.



11. Ara Chgtu (c $\frac{1}{2}$)
- To sound θ , L!, J!.

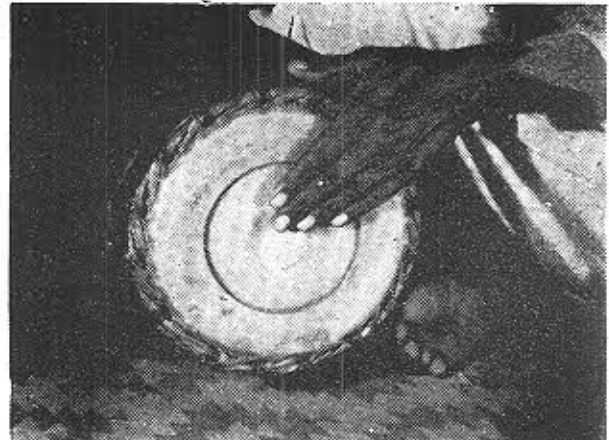


12. Ara Chātu - 2 (c $\frac{1}{2}$ 2)
- To sound K, T, etc. while playing the five Jāthis.



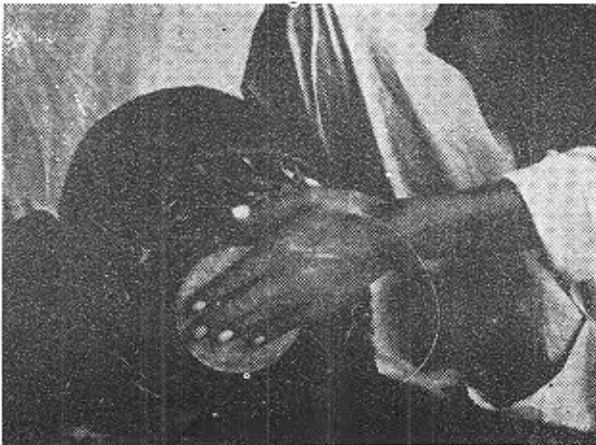
13. Chellu (cl)

- To sound N, $\bar{\theta}$, Ka, Gu
Keeping the fingers straight.

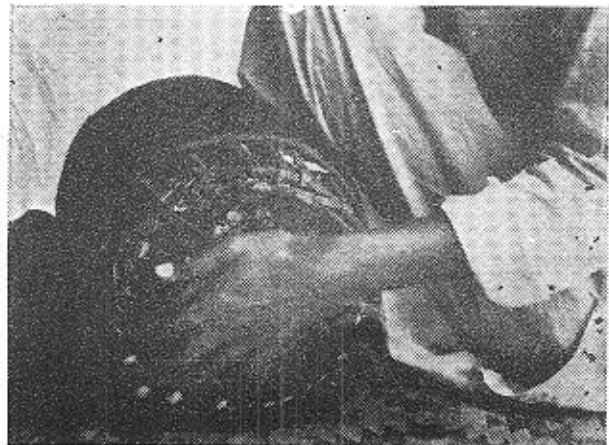


14. Left (up) (l)

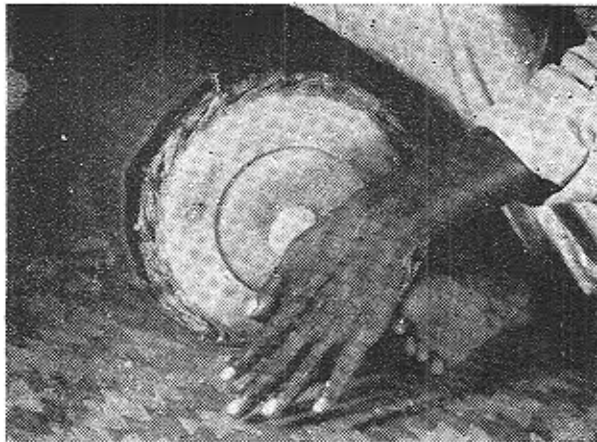
- To sound D, $\bar{\theta}$, Ka, $\bar{\theta}^!$,
- and also J! with the simultaneous
action on both the sides, the right hand
being as in fig. 11.



15. Left (centre) (lc)
- As in Fig. 14.



16. Left (down) (ld)
- Useful for pairing with the right hand
for playing Jathi.



17. Left (Down) – 2 (ld 2)

Left forefinger with the thumb pressed against it
beating on the lower part of the left ring.
This is for producing θ Ka – θ Ka in combination
with the right fingering, as

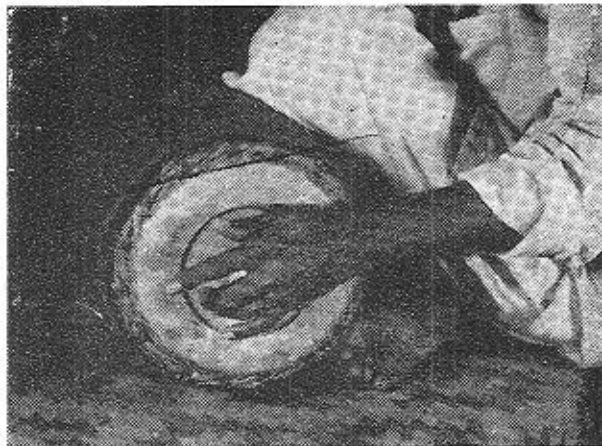
$\overset{ld2}{\theta}$ $\overset{3}{Ka}$ $\overset{ld3}{\theta}$ $\overset{2}{Ka}$



18. Left (down) – 3 (ld3)

Left middle, ring, little fingers close together
on the left side with the other two fingers
raised above.

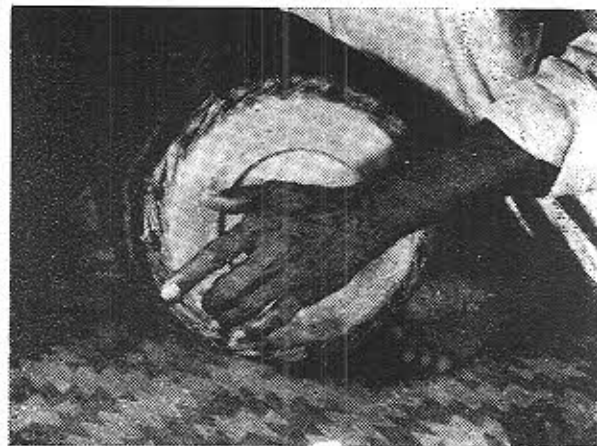
Action explained in the example in No. 17.



19. Hrasva (Pōtu)

Resting the root of the thumb of the left arched palm and
beating below the centre with the middle and ring
fingers jointed, and the forefinger and the
little finger raised above.

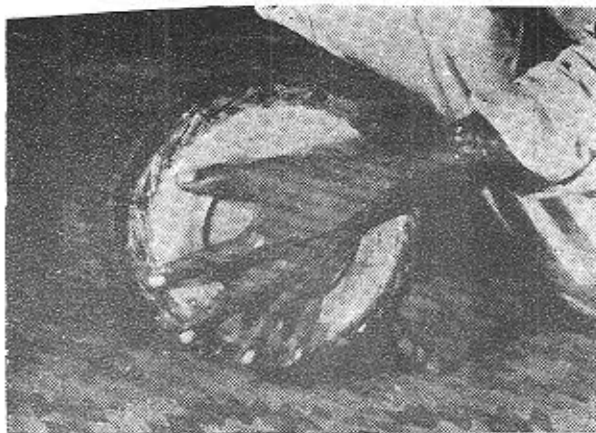
- To sound θ – Gu



20. Deergha (Pātu)

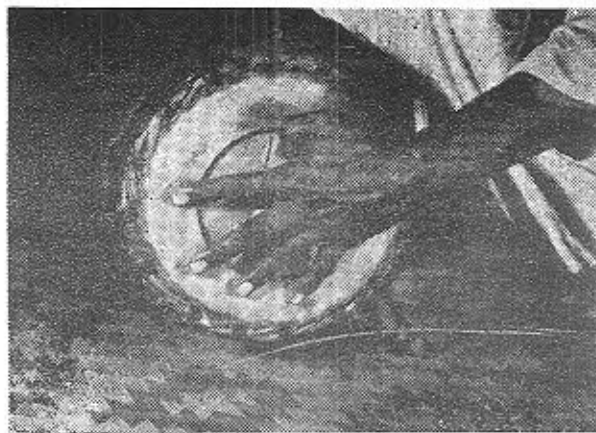
This is a continued action of No. 19. The two active
fingers are to be raised and along with that the
root of the thumb is moved down with its
touch towards the centre.

- To sound Gu ! , D ! ,



21. Left palm with fingers separated

The palm is placed in touch with the left side to curb the volume of the sound produced while playing only on the right side.



22. Left thumb

Striking the left with the tip of the thumb, the palm being arched and the other four fingers resting apart on the lower side of the ring.

Explanation of the Symbols

Placed above the notation in the lessons.

Photo No.	Symbol	Name	Manner of Play.
1.	c	Chātu.	Striking the right of the mridanga such that the thumb and the little finger rest lightly on the ring and the edge of the Karini respectively and the three middle fingers give the impulse.
2.	c 2	Chātu-2.	Striking against the lower edge of the Karini with the fore finger strengthened by the thumb. the other three fingers raised apart.
3.	bc	Back chātu,	Striking against the centre with the four fingers and in Continuation) drawing them back, keeping them in light touch with the Karini to sound D ₁ .
4.	n	Nādam.	Striking with the forefinger and the middle finger individually keeping the ring finger on the edge of the Karini
5.	m	Meetu.	Keeping the ring finger on the edge of the Karini and beating the ring with the forefinger.
6.	fm	Front Meetu.	Beating the ring with the forefinger keeping the other three fingers on the Karini.
7.	m 2	Meetu-2.	Only the forefinger on the ring.
8.	m 3	Meetu-3.	Forefinger acting while the other three fingers rest on the Karini.
9.	2	Nātu-2.	Beating with forefinger strengthened by the thumb.
10.	3	Nātu-3.	Beating against the Karini with the last three fingers with an arched palm.
11.	c $\frac{1}{2}$	Ara chātu.	Striking against the upper part of the karini with the lower edge of the palm.
12.	c $\frac{1}{2}$ 2	Ara chātu-2	Same as above but with the forefinger strengthened by the thumb.
13.	cl	Chellu.	Striking with the last three fingers across the Karini.
14.	l	Left (up).	Striking against the upper part of the left of the mridanga,
15.	lc	Left (centre).	Striking against the centre, ie. on the starch paste.
16.	ld	Left (down).	Striking against the ring below.
17.	ld 2	Left (down)-2.	Same as above but with the forefinger strengthened by thumb
18.	ld 3	Left (down)-3.	Same as above but with the other three fingers together.
19.	ls	Left short (Potu)	with the root of the thumb. Pressing the inner edge of the ring and striking with the middle and ring fingers the palm being arched.
20.	lg	Left long. (Pātu)	Striking as above and moving the pressed palm towards the centre.
21.	lds	Left down with fingers separated.	This is only a touch.
22.	lt	Left, thumb.	Striking the left, with the tip of the thumb the palm being arched and the other four fingers resting apart on the lower side of the ring.

Note:- The numbers 2 and 3 in the second column denote the number of fingers in joint action. 2 stands for the two fingers, the thumb and the forefinger and 3 stands for the other three fingers.

Double letters, such as mm. cc, ce $\frac{1}{2}$ or double nos. such as 22 indicate that left also is to be simultaneously sounded. The first indicates the left and the next the right.

The same positions are used to produce different sounds in some cases and their distinction is to be understood in their particular combinations as indicated in the practice combinations. (Varusa Prasthāra), which should be practised in Thrikāla (The three degrees of speed) for the free play of the fingers and the development of the rhythm sense.

Technical Terms

1. Pāla Varusa — The primary series (of sound letters.)
2. Peda Pāla Varusa — „ (advanced.)
3. Janta Varusa — Series in pairs of sounds.
4. Dātu Varusa — Series in which the groups skip.
5. Varusa Prasthāra
वरुस प्रस्तार — Playing the same group or combinations of letters in different ways.
6. Thirugudu Varusa — Series of letters played in Higher Kāla.
7. Kalipedi Varusa — The complimentary series of letters to make up the āvritha.
8. Āvritha — The space occupied by the unit of thāla.
9. Gathi or gamana — Rate of movement.
10. Jāthi — Kind.
11. Jathi — A series of letters in different degrees of speed and gamana variations.
12. Nada — A recurring series of sounds.
13. Nishabda — The interval in the play where no sound is made. This is also known as vinyāsa, Kāruva, or Kāpu, (gap).
14. Mukthāyi — Repetition of a series for three times.
15. Moharā — A mridanga solo, exhibiting a variety of play ending in mukthāyi.
16. Theermānam — Mohara mukthāyi combined.
17. Thani — Solo.
18. Thatthakāra — Producing sounds similar to the sahitya letters.
19. Konugōlu — The spoken sounds of the mridanga play.
20. 5-4-3 duration — Playing the sound first in 5 times its duration, next in 4 times duration, and in 3 times duration.
21. Thrikāla — Playing series consecutively in I, II and III Kāla.

THE MRIDANGA NOTATION

The sounds produced on the Mridanga are known by

Tha - Dhi - Na - Jham - Ki - Ta - Ri - Ha - Mi - Na - La - Gu

Telugu :- త - ధి - న - ఝం - కి - ట - రి - హ - మి - న - ల - గు

Sanskrit :- त - धि - न - झं - कि - ट - रि - ह - मि - न - ल - गु

Tamil :- த - தி - ன - ஐங் - கி - ட - ரீ - ஹ - மீ - ன - வ - கு

These have a few vowel variations. The different positions on the mridanga, where the corresponding sounds are produced in different combinations, are indicated in the photos.

Tha — as in Thumb

Ri — as in Rill

Dhi — as The

Ha — as in Hut

Na — as in Nut

Mi — as Me

Jham — as in Jump

Na — N̄ is hard.

Ki — as in Kid

La — as in Lung

Ta — as in Tub

Gu — as in Good

ABBREVIATIONS

1. Each abbreviation represents the corresponding sound in short vowel and each is of one aksharakāla or unit time.
2. Abbreviations in thick type represent sounds with the stress of double letters.
Eg :- **N** — as in Runner.
θ — Ththa.
3. A comma placed after an abbreviation represents the sound in long vowel.
Eg :- N, — as in not. (2 aksharakālas)
4. An Exclamation mark after an abbreviation represents the additional final sound of m or n.
Eg :- N! — Num as in Number.

θ — Tha	K — Ki	M — Mi
D — Dhi	T — Ta	Ṇ — Ṇa
N — Na	R — Ri	L — La
J! — Jham	H — Ha	G — Gi (give)
	Gu — G _u	

Vowel Variations

The following are the vowel variations.

θ _i — Thi (as in Tbin)	K _a — as in cut
θ̄ — Tho (as in cathode, O being short.)	K _a — as in put
θ! — as in Thumb	θ!, — Thām (long vowel)
θ;! — as Thim	θ;! , — Theem (, ,)
θ̄! — Thome (short)	θ̄! , — Thome (, ,)

Each of θ! — θ;! — θ̄! — K_a — K_a — represents only one akshara Kāla or unit time.

Model:—

Series —

The way to read

1. θ K T θ R K T — Tha Kki Ta Tha Ri Ki Ta.
2. θ D !, G Ṇ θ̄! — Tha Ddheem Gi Ṇa Thome (Short)
3. K T θ R — θ L !, G_a — D Ṇ θ̄! , — Ki Ta Tha Ri Tha Lān G_a
Dhi Nna Thhome (long).

Symbols used in the Practical.

In the 35 Thālas, only the three elements, Anudrutha, Drutha and Laghu are used.

	Symbol,
1. A vertical line to show the end of Anudrutha, Drutha, or Laghu.	
2. Two vertical lines to show the end of Avritha	
3. Underline to indicate II Kāla (the second degree of speed.)	_____
4. Double underline to indicate III Kāla (the third degree of speed.)	=====
5. A comma to indicate 1 Akshara Kāla or unit time... ..	,
6. A semicolon to indicate 2 Akshara Kālas	;

Note:- All the symbols, in letters, used throughout this book are in short vowels and each is of 1 Aksharakāla. A comma placed immediately after a letter, lengthens the vowel and then the duration of the letter is 2 Akshara kālas.

θ , , — Here the first comma, always goes with its preceding letter to indicate the long vowel and only the next comma indicates a pause of 1 Akshara kāla.

The letter in thick or bold type has the double tsress of that letter. The adjoining small letters a, i, u indicate the corresponding vowel only, but they are not to be individually reckoned in Akshara kālas.

The letter followed by another in thick type is to be the letter in 2 Akshara kālas while the other, though in thick type is only of 1 Akshara kāla.

Eg: θ **K** T — θ is of 2 Akshara kālas while **K** is only of 1 Akshara kāla just as T, the total being 4 Akshara kālas.

θ, **K** T — 4 Akshara kālas.

θ **D** **K** T — θ, 2 units; D is also of 2 units because it is followed by **K**; **K** and T each of 1 unit; The total is 6 units.

θ ; ; , D — The pause between θ and D is of 5 units.

$\emptyset K_a \emptyset R K T \emptyset K_a$:- Prathama or I Kāla (The first degree of speed.) 8 units.

$\emptyset K_a \emptyset R K T \emptyset K_a$:- Dwithiya or II Kāla. (Second degree of speed.) 4 units.

$\emptyset K_a \emptyset R K T \emptyset K_a$:- Thrithiya or III Kāla (Third degree of speed.) 2 units.

In addition to these three kālas, there are other kālas also – IV kāla, V kāla and the VI kāla. Each kāla contains twice the number of letters of the preceding kāla in the order I, II, III, IV, V and VI, for the same duration of time.

For example, if a kriya has 2 letters in the I kāla, the same kriya will have 4 letters in the II kāla, 8 letters in the III kāla, 16 letters in the IV kāla and so on.

There is also Ara kāla or $\frac{1}{2}$ Degree of speed, 1 letter in the $\frac{1}{2}$ Degree of speed occupies 2 kriyas when 1 letter in the I degree occupies 1 kriya.

(Aksharakālas or the units of time and all degrees of speed are not absolute. They are only relative.)

All the calculations are made in the units of the Aksharas (letters).

Important Note :

It is to be noted that for a given hand / finger position, the spoken syllable need not necessarily be the same. The reason for this is to maintain the beauty of the spoken phrase. Let us take the example

of $\overset{1}{K}i \overset{3}{T}a \overset{2}{T}ha \overset{3}{R}i$ wherein the hand / finger positions for Ta and Ri are the same. If the spoken syllable has to be the same for each hand/ finger position, this phrase would have been called as Ki Ta Tha Ta or Ki Ri Tha Ri which are definitely not as euphonous as Ki Ta Tha Ri.

The reader / student is required to bear this important fact in mind which is followed by all Mridangam schools in India.

CHAPTER III
PRACTICE
THE PRIMARY SERIES

(Pāla Varusas)

1.	$\overset{3}{\theta}$	$\overset{lc}{D}$	$\overset{nn}{\theta!}$	$\overset{m}{N!}$
2.	$\overset{3}{\theta}\overset{3}{\theta}$,	$\overset{lc}{D}\overset{lc}{D}$,	$\overset{nn}{\theta!}, \overset{nn}{\theta!}$	$\overset{m}{N!}, \overset{m}{N!}$
3.	$\overset{3}{\theta}\overset{3}{\theta}\overset{3}{\theta}$,	$\overset{lc}{D}\overset{lc}{D}\overset{lc}{D}$,	$\overset{nn}{\theta!}, \overset{nn}{\theta!}, \overset{nn}{\theta!}$,	$\overset{m}{N!}, \overset{m}{N!}, \overset{m}{N!}$,
4.	$\overset{3}{\theta}\overset{3}{\theta}\overset{3}{\theta}\overset{3}{\theta}$,	$\overset{lc}{D}\overset{lc}{D}\overset{lc}{D}\overset{lc}{D}$,	$\overset{nn}{\theta!}, \overset{nn}{\theta!}, \overset{nn}{\theta!}, \overset{nn}{\theta!}$,	$\overset{m}{N!}, \overset{m}{N!}, \overset{m}{N!}, \overset{m}{N!}$,

1.	$\overset{3}{\theta}\overset{lc}{K_a}\overset{lc}{K}T$	$\overset{lc}{D}\overset{lc}{K}\overset{lc}{K}T$	$\overset{nn}{\theta}\overset{lc}{K_a}\overset{lc}{K}T$	$\overset{m}{N}\overset{lc}{K_a}\overset{lc}{K}T$
2.	$\overset{3}{\theta}, \overset{lc}{K}T$	$\overset{lc}{D}, \overset{lc}{K}T$	$\overset{nn}{\theta!}, \overset{lc}{K}T$	$\overset{m}{N!}, \overset{lc}{K}T$
3.	$\overset{3}{\theta}\overset{3}{\theta}\overset{1}{K}T$	$\overset{1}{D}\overset{1}{D}\overset{3}{K}T$	$\overset{nn}{\theta!}\overset{nn}{\theta!}\overset{1}{K}T$	$\overset{m}{N!}\overset{m}{N!}\overset{1}{K}T$
4.	$\overset{3}{\theta}\overset{1}{K_a}\overset{3}{\theta}\overset{1}{K_a}$	$\overset{1}{D}\overset{3}{K}\overset{1}{D}\overset{3}{K}$	$\overset{nn}{\theta!}\overset{3}{K_a}\overset{nn}{\theta!}\overset{3}{K_a}$	$\overset{m}{N}\overset{3}{K_a}\overset{m}{N}\overset{3}{K_a}$
5.	$\overset{3}{\theta}\overset{1}{K_a}\overset{3}{\theta}R$	$\overset{1}{D}\overset{1}{K}\overset{3}{\theta}R$	$\overset{nn}{\theta!}\overset{1}{K_a}\overset{3}{\theta}R$	$\overset{m}{N}\overset{1}{K_a}\overset{3}{\theta}R$
6.	$\overset{3}{\theta}R\overset{1}{K}T$	$\overset{1}{D}R\overset{1}{K}T$	$\overset{nn}{\theta!}\overset{m}{N}\overset{1}{K}T$	$\overset{m}{N}\overset{m}{N}\overset{1}{K}T$

1.	$\overset{3}{\theta}\overset{1}{K_a}\overset{1}{K}T\overset{1}{K}T\overset{3}{\theta}\overset{1}{K_a} - \overset{1}{D}\overset{1}{K}\overset{1}{K}T\overset{3}{\theta}\overset{1}{K_a} - \overset{nn}{\theta!}\overset{1}{K_a}\overset{1}{K}T\overset{1}{K}T\overset{3}{\theta}\overset{1}{K_a} - \overset{m}{N}\overset{1}{K}\overset{1}{K}T\overset{3}{\theta}\overset{1}{K_a}$			
2.	$\overset{3}{\theta}, \overset{1}{K}T\overset{1}{K}T\overset{3}{\theta}\overset{1}{K_a} - \overset{1}{D}, \overset{1}{K}T\overset{1}{K}T\overset{3}{\theta}\overset{1}{K_a} - \overset{nn}{\theta!}, \overset{1}{K}T\overset{1}{K}T\overset{3}{\theta}\overset{1}{K_a} - \overset{m}{N!}, \overset{1}{K}T\overset{1}{K}T\overset{3}{\theta}\overset{1}{K_a}$			
3.	$\overset{3}{\theta}\overset{3}{\theta}\overset{1}{K}T\overset{1}{K}T\overset{3}{\theta}\overset{1}{K_a} - \overset{1}{D}\overset{1}{D}\overset{3}{K}T\overset{1}{K}T\overset{3}{\theta}\overset{1}{K_a} - \overset{nn}{\theta!}\overset{nn}{\theta!}\overset{1}{K}T\overset{1}{K}T\overset{3}{\theta}\overset{1}{K_a} - \overset{m}{N!}\overset{m}{N!}\overset{1}{K}T\overset{1}{K}T\overset{3}{\theta}\overset{1}{K_a}$			
4.	$\overset{3}{\theta}\overset{1}{K}T\overset{1}{K}T\overset{3}{\theta}\overset{1}{K_a} - \overset{1}{D}\overset{1}{K}T\overset{1}{K}T\overset{3}{\theta}\overset{1}{K_a} - \overset{nn}{\theta!}, \overset{1}{K}T\overset{1}{K}T\overset{3}{\theta}\overset{1}{K_a} - \overset{m}{N!}, \overset{1}{K}T\overset{1}{K}T\overset{3}{\theta}\overset{1}{K_a}$			
5.	$\overset{3}{\theta}, \overset{1}{K}T\overset{1}{K}T\overset{3}{\theta}R - \overset{1}{D}, \overset{1}{K}T\overset{1}{K}T\overset{3}{\theta}R - \overset{nn}{\theta!}, \overset{1}{K}T\overset{1}{K}T\overset{3}{\theta}R - \overset{m}{N!}, \overset{1}{K}T\overset{1}{K}T\overset{3}{\theta}R$			
6.	$\overset{3}{\theta}, \overset{1}{K}T\overset{3}{\theta}R\overset{1}{K}T - \overset{1}{D}, \overset{1}{K}T\overset{3}{\theta}R\overset{1}{K}T - \overset{nn}{\theta!}, \overset{1}{K}T\overset{3}{\theta}R\overset{1}{K}T - \overset{m}{N!}, \overset{1}{K}T\overset{3}{\theta}R\overset{1}{K}T_a$			
7.	$\overset{3}{\theta}, \overset{1}{K}T\overset{3}{\theta}\overset{1}{K}T - \overset{1}{D}, \overset{1}{K}T\overset{3}{\theta}\overset{1}{K}T - \overset{nn}{\theta!}, \overset{1}{K}T\overset{3}{\theta}\overset{1}{K}T - \overset{m}{N!}, \overset{1}{K}T\overset{3}{\theta}\overset{1}{K}T_a$			
8.	$\overset{3}{\theta}, \overset{1}{K}T\overset{3}{\theta}\overset{1}{K}T - \overset{1}{D}, \overset{1}{K}T\overset{3}{\theta}\overset{1}{K}T - \overset{nn}{\theta!}, \overset{1}{K}T\overset{3}{\theta}\overset{1}{K}T - \overset{m}{N!}, \overset{1}{K}T\overset{3}{\theta}\overset{1}{K}T$			

	$\overset{nn}{\theta}!,;$	-	$\frac{3\ 1\ 3\ 3\ 3}{\theta.KT\theta\theta.}$	-	$\frac{3\ 1\ 3\ 3\ 3}{\theta.KT\theta\theta.}$	-	$\frac{1\ 3\ 2\ 1}{KT\theta K_a}$
	$\overset{m}{N}!,\overset{m}{N}!$	-	$\frac{3\ 1\ 3\ 3\ 3}{\theta.KT\theta\theta.}$	-	$\frac{3\ 1\ 3\ 3\ 3}{\theta.KT\theta\theta.}$	-	$\frac{1\ 3\ 2\ 1}{KT\theta K_a}$
	$\overset{m}{N}!,;$	-	$\frac{3\ 1\ 3\ 3\ 3}{\theta.KT\theta\theta.}$	-	$\frac{3\ 1\ 3\ 3\ 3}{\theta.KT\theta\theta.}$	-	$\frac{1\ 3\ 2\ 1}{KT\theta K_a}$
2.	$\overset{3\ 3\ 1\ 3\ 3\ 2}{\theta\theta}KT\theta R$	-	$\frac{1\ 3\ 3\ 2}{KT\theta R}$	-	$\frac{1\ 3\ 3\ 2}{KT\theta R}$		
	$\overset{1\ 1\ 1\ 3\ 3\ 2}{DD}KT\theta R$	-	$\frac{1\ 3\ 3\ 2}{KT\theta R}$	-	$\frac{1\ 3\ 3\ 2}{KT\theta R}$		
	$\overset{nn}{\theta}!,\overset{nn}{\theta}!,\overset{1\ 3\ 3\ 2}{KT\theta R}$	-	$\frac{1\ 3\ 3\ 2}{KT\theta R}$	-	$\frac{1\ 3\ 3\ 2}{KT\theta R}$		
	$\overset{m}{N}!,\overset{m}{N}!,\overset{1\ 3\ 3\ 2}{KT\theta R}$	-	$\frac{1\ 3\ 3\ 2}{KT\theta R}$	-	$\frac{1\ 3\ 3\ 2}{KT\theta R}$		
3.	$\overset{3\ 3\ 1\ 3\ 3\ 2}{\theta\theta}KT\theta R$	-	$\frac{1\ 1\ m\ m}{K_u K_u NN}$	-	$\frac{1\ 3\ 3\ 2}{KT\theta R}$		
	$\overset{1\ 1\ 1\ 3\ 3\ 2}{DD}KT\theta R$	-	$\frac{1\ 1\ m\ m}{K_u K_u NN}$	-	$\frac{1\ 3\ 3\ 2}{KT\theta R}$		
	$\overset{nn}{\theta}!,\overset{nn}{\theta}!,\overset{1\ 3\ 3\ 2}{KT\theta R}$	-	$\frac{1\ 1\ m\ m}{K_u K_u NN}$	-	$\frac{1\ 3\ 3\ 2}{KT\theta R}$		
	$\overset{m}{N}!,\overset{m}{N}!,\overset{1\ 3\ 3\ 2}{KT\theta R}$	-	$\frac{1\ 1\ m\ m}{K_u K_u NN}$	-	$\frac{1\ 3\ 3\ 2}{KT\theta R}$		
4.	$\overset{3\ 3\ 3\ 1\ 1\ 3}{\theta\theta\theta}K_u DN$	-	$\frac{3\ 1\ 3}{\theta KT}$	-	$\frac{1\ 3\ 2\ 1\ 3\ 2\ 1\ 3\ 2\ 1}{KT\theta K_a \theta R K T \theta K_a}$		
	$\overset{1\ 1\ 3\ 1\ 1\ 3}{DD\theta}K_u DN$	-	$\frac{3\ 1\ 3}{\theta KT}$	-	$\frac{1\ 3\ 2\ 1\ 3\ 2\ 1\ 3\ 2\ 1}{KT\theta K_a \theta R K T \theta K_a}$		
	$\overset{nn}{\theta}!,\overset{nn}{\theta}!,\overset{3\ 1\ 1\ 3}{\theta}K_u DN$	-	$\frac{3\ 1\ 3}{\theta KT}$	-	$\frac{1\ 3\ 2\ 1\ 3\ 2\ 1\ 3\ 2\ 1}{KT\theta K_a \theta R K T \theta K_a}$		
	$\overset{m}{N}!,\overset{m}{N}!,\overset{3\ 1\ 1\ 3}{\theta}K_u DN$	-	$\frac{3\ 1\ 3}{\theta KT}$	-	$\frac{1\ 3\ 2\ 1\ 3\ 2\ 1\ 3\ 2\ 1}{KT\theta K_a \theta R K T \theta K_a}$		
5.	$\overset{3\ 3\ 3\ 1\ 1\ 3}{\theta\theta\theta}K_u DN$	-	$\frac{3\ 1\ 3\ 1\ 3}{\theta K_u ! \theta ! K T}$	-	$\frac{3\ 1\ 3\ 2\ 1\ 3\ 3\ 1}{\theta K_a \theta R K T \theta K_a}$		
	$\overset{1\ 1\ 3\ 1\ 1\ 3}{DD\theta}K_u DN$	-	$\frac{3\ 1\ 3\ 1\ 3}{\theta K_u ! \theta ! K T}$	-	$\frac{3\ 1\ 3\ 2\ 1\ 3\ 3\ 1}{\theta K_a \theta R K T \theta K_a}$		
	$\overset{nn}{\theta}!,\overset{nn}{\theta}!,\overset{3\ 1\ 1\ 3}{\theta}K_u DN$	-	$\frac{3\ 1\ 3\ 1\ 3}{\theta K_u ! \theta ! K T}$	-	$\frac{3\ 1\ 3\ 2\ 1\ 3\ 3\ 1}{\theta K_a \theta R K T \theta K_a}$		
	$\overset{m}{N}!,\overset{m}{N}!,\overset{3\ 1\ 1\ 3}{\theta}K_u DN$	-	$\frac{3\ 1\ 3\ 1\ 3}{\theta K_u ! \theta ! K T}$	-	$\frac{3\ 1\ 3\ 2\ 1\ 3\ 3\ 1}{\theta K_a \theta R K T \theta K_a}$		
6.	$\overset{3\ 1\ 3\ 3\ 1\ 1\ 3}{\theta}KT\theta K_u DN$	-	$\frac{3\ 1\ 3\ 1\ 3}{\theta K_u ! \theta ! K T}$	-	$\frac{3\ 1\ 3\ 2\ 1\ 3\ 3\ 1}{\theta K_a \theta R K T \theta K_a}$		
	$\overset{1\ 1\ 3\ 3\ 1\ 1\ 3}{DKT\theta}K_u DN$	-	$\frac{3\ 1\ 3\ 1\ 3}{\theta K_u ! \theta ! K T}$	-	$\frac{3\ 1\ 3\ 2\ 1\ 3\ 3\ 1}{\theta K_a \theta R K T \theta K_a}$		

	$\frac{nn}{0!}, K T \theta K_u D N$	-	$\frac{3 1 3 1 3}{\theta K_u ! \theta ! K T}$	-	$\frac{3 1 3 2 1 3 3 1}{\theta K_a \theta R K T \theta K_a}$			
	$\frac{m}{N!}, K T \theta K_u D N$	-	$\frac{3 1 3 1 3}{\theta K_u ! \theta ! K T}$	-	$\frac{3 1 3 2 1 3 3 1}{\theta K_a \theta R K T \theta K_a}$			
7.	$\frac{3}{\theta!},$	-	$\frac{1 3}{K, T},$	-	$\frac{3 1 1 3}{\theta K_u D N}$	-	$\frac{c\frac{1}{2} 1 3 2 1 3 2 1}{\theta K_a \theta R K T \theta K_a}$	I
	$\frac{1}{D!},$	-	$\frac{1 3}{K, T},$	-	$\frac{3 1 1 3}{\theta K_u D N}$	-	$\frac{c\frac{1}{2} 1 3 2 1 3 2 1}{\theta K_a \theta R K T \theta K_a}$	II
	$\frac{nn}{\theta!},$	-	$\frac{1 3}{K, T},$	-	$\frac{3 1 1 3}{\theta K_u D N}$	-	$\frac{c\frac{1}{2} 1 3 2 1 3 2 1}{\theta K_a \theta R K T \theta K_a}$	I
	$\frac{m}{N!},$	-	$\frac{1 3}{K, T},$	-	$\frac{3 1 1 3}{\theta K_u D N}$	-	$\frac{c\frac{1}{2} 1 3 2 1 3 2 1}{\theta K_a \theta R K T \theta K_a}$	II
8.	$\frac{3 3}{\theta \theta},$	$\frac{c}{\theta!}, K T$	$\frac{2 1 3 2 1 3 2 1}{\theta K_a \theta R K T \theta K_a}$	-	$\frac{1 3}{D N \theta!},$	$\frac{nn}{\theta!},$	I	
		$\frac{3 1 3}{\theta D N \theta!},$	$\frac{nn}{\theta D N \theta!},$	$\frac{3 1 3}{\theta D N}$			II	
	$\frac{1 1}{D D},$	$\frac{c}{\theta!}, K T$	$\frac{2 1 3 2 1 3 2 1}{\theta K_a \theta R K T \theta K_a}$	-	$\frac{1 3}{D N \theta!},$	$\frac{nn}{\theta!},$	I	
		$\frac{3 1 3}{\theta D N \theta!},$	$\frac{nn}{\theta D N \theta!},$	$\frac{3 1 3}{\theta D N}$			II	
	$\frac{nn}{\theta!}, \frac{nn}{\theta!}$	$\frac{c}{\theta!}, K T$	$\frac{2 1 3 2 1 3 2 1}{\theta K_a \theta R K T \theta K_a}$	-	$\frac{1 3}{D N \theta!},$	$\frac{nn}{\theta!},$	I	
		$\frac{3 1 3}{\theta D N \theta!},$	$\frac{nn}{\theta D N \theta!},$	$\frac{3 1 3}{\theta D N}$			II	
	$\frac{m}{N!}, \frac{m}{N!}$	$\frac{c}{\theta!}, K T$	$\frac{2 1 3 2 1 3 2 1}{\theta K_a \theta R K T \theta K_a}$	-	$\frac{1 3}{D N \theta!},$	$\frac{nn}{\theta!},$	I	
		$\frac{3 1 3}{\theta D N \theta!},$	$\frac{nn}{\theta D N \theta!},$	$\frac{3 1 3}{\theta D N}$			II	

SERIES IN PAIRS

(Janta Varusas)

1.	$\frac{3 3}{\theta!}, \theta!$	-	$\frac{1 1}{D, D},$	-	$\frac{nn}{\theta!}, \frac{nn}{\theta!},$	-	$\frac{m}{N!}, \frac{m}{N!},$		
2.	$\frac{3 3 3 3}{\theta \theta \theta \theta}$	-	$\frac{1 1 1 1}{D D D D}$	-	$\frac{nn}{\theta!}, \frac{nn}{\theta!}, \frac{nn}{\theta!}, \frac{nn}{\theta!}$	-	$\frac{m}{N!}, \frac{m}{N!}, \frac{m}{N!}, \frac{m}{N!}$		
3.	$\frac{3 3 3 3}{\theta \theta \theta \theta}$	-	$\frac{3 3 3 3}{\theta \theta \theta \theta}$	-	$\frac{1 1 1 1}{D D D D}$	-	$\frac{1 1 1 1}{D D D D}$		
	$\frac{nn}{\theta!}, \frac{nn}{\theta!}, \frac{nn}{\theta!}, \frac{nn}{\theta!}$	-	$\frac{nn}{\theta!}, \frac{nn}{\theta!}, \frac{nn}{\theta!}, \frac{nn}{\theta!}$	-	$\frac{m}{N!}, \frac{m}{N!}, \frac{m}{N!}, \frac{m}{N!}$	-	$\frac{m}{N!}, \frac{m}{N!}, \frac{m}{N!}, \frac{m}{N!}$		
1.	$\frac{3 3}{\theta!}, \theta!$	$\frac{1 1}{D, D},$	$\frac{3 3}{\theta!}, \theta!$	$\frac{1 1}{D, D},$	-	$\frac{nn}{\theta!}, \frac{nn}{\theta!},$	$\frac{m}{N!}, \frac{m}{N!},$	$\frac{nn}{\theta!}, \frac{nn}{\theta!},$	$\frac{m}{N!}, \frac{m}{N!},$
2.	$\frac{3 3}{\theta \theta}$	$\frac{1 1}{D D}$	-	$\frac{1 1 3 3}{D D \theta \theta}$	-	$\frac{nn}{\theta!}, \frac{nn}{\theta!},$	$\frac{m}{N!}, \frac{m}{N!},$	-	$\frac{m}{N!}, \frac{m}{N!}, \frac{nn}{\theta!}, \frac{nn}{\theta!}$
3.	$\frac{3 3 3 3}{\theta \theta \theta \theta}$	$\frac{1 1 1 1}{D D D D}$	-	$\frac{1 1 1 1 3 3 3 3}{D D D D \theta \theta \theta \theta}$	-	$\frac{nn}{\theta!}, \frac{nn}{\theta!}, \frac{nn}{\theta!}, \frac{nn}{\theta!}$	$\frac{m}{N!}, \frac{m}{N!}, \frac{m}{N!}, \frac{m}{N!}$	-	$\frac{m}{N!}, \frac{m}{N!}, \frac{nn}{\theta!}, \frac{nn}{\theta!}, \frac{nn}{\theta!}, \frac{nn}{\theta!}$

(Dātu Varusas)

1. $\begin{matrix} m & m \\ 3 & 2 & 3 & 2 & 3 & m & n \\ \theta & D & M & \theta & K_a & \theta & J! \end{matrix}$ - $\begin{matrix} m & m \\ 3 & 2 & 3 & 2 & 3 & m & n \\ \theta & D & M & \theta & K_a & \theta & J! \end{matrix}$ - $\begin{matrix} m & m \\ 3 & 2 & 3 & 2 & 3 & m & n \\ \theta & D & M & \theta & K_a & \theta & J! \end{matrix}$ II
2. $\begin{matrix} m \\ 3 & 1 & 3 & nn & 3 \\ \theta & D & M & \theta & !, \theta \end{matrix}$ - $\begin{matrix} m \\ 2 & 3 & nn & 3 \\ D & M & \theta & !, \theta \end{matrix}$ - $\begin{matrix} m \\ 2 & 3 & nn & 3 \\ D & M & \theta & !, \theta \end{matrix}$ - $\begin{matrix} m \\ 3 & 1 & 3 & nn & 3 \\ \theta & D & M & \theta & !, \theta & J! \end{matrix}$ II
3. $\begin{matrix} 3 & 1 & 3 \\ \theta & D & M \end{matrix}$ $\begin{matrix} 2 & 1 & 3 & 2 & 1 \\ \theta & K & T & \theta & K_a \end{matrix}$ - $\begin{matrix} 1 & 3 \\ D & M \end{matrix}$ $\begin{matrix} 2 & 1 & 3 & 2 & 1 \\ \theta & K & T & \theta & K_a \end{matrix}$ - $\begin{matrix} 1 & 3 \\ D & M \end{matrix}$ $\begin{matrix} 2 & 1 & 3 & 2 & 1 \\ \theta & K & T & \theta & K_a \end{matrix}$ II
4. $\begin{matrix} 3 & 1 & 3 & nn \\ \theta & K_a & \theta & J! \end{matrix}$ - $\begin{matrix} 3 & 1 & 3 & nn \\ \theta & K_a & \theta & J! \end{matrix}$ - $\begin{matrix} 3 & 1 & 3 & nn \\ \theta & K_a & \theta & J! \end{matrix}$ II
5. $\begin{matrix} 3 & 3 & 1 & 3 & 1 & 3 & 3 & 1 & 3 & 3 & 1 \\ \theta & !, \theta & D & !, \theta & D & !, \theta & \theta & D & !, \theta & \theta & D & !, \theta \end{matrix}$ - $\begin{matrix} 3 & 2 & 3 & m & 1 \\ \theta & - & \theta & D & G & N & \theta & ! \end{matrix}$ - $\begin{matrix} 3 & 2 & 3 & m & 1 \\ \theta & - & \theta & D & G & N & \theta & ! \end{matrix}$ II
6. $\begin{matrix} 3 & 1 & 3 & nn \\ \theta & K_a & \theta & J! \end{matrix}$ - $\begin{matrix} 3 & 1 \\ \theta & D & !, \theta \end{matrix}$ - $\begin{matrix} 3 & 1 \\ \theta & D & !, \theta \end{matrix}$ - $\begin{matrix} 3 & 1 \\ \theta & K_a \end{matrix}$ $\begin{matrix} 1 & 3 \\ D & !, \theta \end{matrix}$ $\begin{matrix} 1 & 3 \\ D & !, \theta \end{matrix}$ - $\begin{matrix} 3 & 1 \\ \theta & D & !, \theta \end{matrix}$ II

Note: According to our style of playing Mridanga we have written the symbols for the primary series and series in pairs. Those who wants to play any other style, they may adopt their own symbols.

VARUSA PRASTHARA

EXERCISES

Certain groups or combinations of sound letters produce different sounds at different positions on the mridanga. The different positions and the manner of striking are indicated by the symbols placed above the sound letters. They can be understood with the help of the index and the photos of the play technique. The exercises are of great importance and advantage in developing the sound sence and training the hand to a free play in the advanced series and in the higher degrees of speed. The primary series are placed first for the order of contents. But if this exercise is practised before hand, it proves more advantageous.

1. $\begin{matrix} 1 \\ \theta \end{matrix}$ $\begin{matrix} n \\ K_a \end{matrix}$ $\begin{matrix} 1 \\ \theta \end{matrix}$ $\begin{matrix} n \\ K_a \end{matrix}$
2. $\begin{matrix} 1 \\ \theta \end{matrix}$ $\begin{matrix} m \\ K_a \end{matrix}$ $\begin{matrix} 1 \\ \theta \end{matrix}$ $\begin{matrix} m \\ K_a \end{matrix}$
3. $\begin{matrix} 1 \\ \theta \end{matrix}$ $\begin{matrix} 2 \\ K_a \end{matrix}$ $\begin{matrix} 1 \\ \theta \end{matrix}$ $\begin{matrix} 2 \\ K_a \end{matrix}$
4. $\begin{matrix} 1 \\ \theta \end{matrix}$ $\begin{matrix} m^2 \\ K_a \end{matrix}$ $\begin{matrix} 1 \\ \theta \end{matrix}$ $\begin{matrix} m^3 \\ K_a \end{matrix}$
5. $\begin{matrix} 1 \\ \theta \end{matrix}$ $\begin{matrix} c/2 \\ K_a \end{matrix}$ θ $\begin{matrix} c/2 \\ K_a \end{matrix}$
6. $\begin{matrix} 1 \\ \theta \end{matrix}$ $\begin{matrix} c \\ K_a \end{matrix}$ $\begin{matrix} 1 \\ \theta \end{matrix}$ $\begin{matrix} c \\ K_a \end{matrix}$
7. $\begin{matrix} 2,2 \\ \theta \end{matrix}$ $\begin{matrix} 3 \\ K_a \end{matrix}$ $\begin{matrix} 2,2 \\ \theta \end{matrix}$ $\begin{matrix} 3 \\ K_a \end{matrix}$
8. $\begin{matrix} mm \\ \theta \end{matrix}$ $\begin{matrix} m^3 \\ K_a \end{matrix}$ $\begin{matrix} mm \\ \theta \end{matrix}$ $\begin{matrix} m^3 \\ K_a \end{matrix}$

9.	θ	$\overset{n}{K_a}$	$\overset{n}{\theta}$	$\overset{1}{K_a}$
10.	θ	$\overset{m}{K_a}$	$\overset{m}{\theta}$	$\overset{1}{K_a}$
11.	θ	$\overset{2}{K_a}$	$\overset{2}{\theta}$	$\overset{1}{K_a}$
12.	θ	$\overset{m^2}{K_a}$	$\overset{m^3}{\theta}$	$\overset{1}{K_a}$

13.	θ	$\overset{c^{\frac{1}{2}}}{K_a}$	$\overset{c^{\frac{1}{2}}}{\theta}$	$\overset{1}{K_a}$
14.	θ	$\overset{o}{K_a}$	$\overset{o}{\theta}$	$\overset{1}{K_a}$
15.	θ	$\overset{1a}{K_a}$	$\overset{1}{\theta}$	$\overset{m}{K_a}$
16.	θ	$\overset{n}{K_a}$	$\overset{1a}{\theta}$	$\overset{1}{K_a}$

2

1.	θ	$\overset{n}{K_a^2}$	$\overset{1}{\theta}$	$\overset{2}{K_a}$	θ	$\overset{3}{K_a}$	5.	θ	$\overset{n}{K_a}$	$\overset{1}{\theta}$	$\overset{2}{K_a}$	$\overset{1}{\theta}$	$\overset{3}{K_a}$	$\overset{1}{K_a}$
2.	θ	$\overset{c^{\frac{1}{2}}}{K_a}$	$\overset{1}{\theta}$	$\overset{2}{K_a}$	θ	$\overset{3}{K_a}$	6.	θ	$\overset{c^{\frac{1}{2}}}{K_a}$	$\overset{1}{\theta}$	$\overset{2}{K_a}$	$\overset{1}{K_a}$	$\overset{3}{\theta}$	$\overset{1}{K_a}$
3.	θ	$\overset{o}{K_a}$	$\overset{1}{\theta}$	$\overset{2}{K_a}$	θ	$\overset{3}{K_a}$	7.	θ	$\overset{m}{K_a}$	$\overset{1}{\theta}$	$\overset{2}{K_a}$	$\overset{1}{K_a}$	$\overset{3}{\theta}$	$\overset{1}{K_a}$
4.	θ	$\overset{m}{K_a}$	$\overset{1}{\theta}$	$\overset{2}{K_a}$	θ	$\overset{3}{K_a}$	8.	θ	$\overset{c}{K_a}$	$\overset{1}{\theta}$	$\overset{2}{K_a}$	$\overset{1}{K_a}$	$\overset{3}{\theta}$	$\overset{1}{K_a}$

3

1.	θ	$\overset{1}{K}$	$\overset{3}{T}$	$\overset{2}{T}$	13.	θ	$\overset{m}{K}$	$\overset{3}{T}$	$\overset{1}{T}$
2.	θ	$\overset{3}{K}$	$\overset{2}{T}$	$\overset{1}{T}$	14.	θ	$\overset{n}{K}$	$\overset{1}{T}$	$\overset{n}{T}$
3.	θ	$\overset{2}{K}$	$\overset{1a}{T}$	$\overset{3}{T}$	15.	θ	$\overset{mm}{K}$	$\overset{1}{T}$	$\overset{3}{T}$
4.	θ	$\overset{m^2}{K}$	$\overset{1}{T}$	$\overset{m^3}{T}$	16.	θ	$\overset{cc^{\frac{1}{2}}}{K}$	$\overset{1}{T}$	$\overset{3}{T}$
5.	θ	$\overset{c^{\frac{1}{2}, 2}}{K}$	$\overset{1}{T}$	$\overset{m^3}{T}$	17.	θ	$\overset{o^{\frac{1}{2}}}{K}$	$\overset{1}{T}$	$\overset{3}{T}$
6.	θ	$\overset{m}{K}$	$\overset{m^3}{T}$	$\overset{m}{T}$	18.	θ	$\overset{c}{K}$	$\overset{c^2}{T}$	$\overset{c}{T}$
7.	θ	$\overset{3}{K}$	$\overset{2}{T}$	$\overset{3}{T}$	19.	θ	$\overset{c^{\frac{1}{2}}}{K}$	$\overset{2}{T}$	$\overset{3}{T}$
8.	θ	$\overset{2}{K}$	$\overset{3}{T}$	$\overset{1}{T}$	20.	θ	$\overset{2}{K}$	$\overset{3}{T}$	$\overset{m}{T}$
9.	θ	$\overset{n}{K}$	$\overset{m}{T}$	$\overset{m}{T}$	21.	θ	$\overset{m}{K}$	$\overset{n}{T}$	$\overset{m}{T}$
10.	θ	$\overset{m}{K}$	$\overset{o}{T}$	$\overset{n}{T}$	22.	θ	$\overset{m}{K}$	$\overset{m^3}{T}$	$\overset{n}{T}$
11.	θ	$\overset{m}{K}$	$\overset{1}{T}$	$\overset{n}{T}$	23.	θ	$\overset{c^{\frac{1}{2}}}{K}$	$\overset{c^{\frac{1}{2}, 2}}{T}$	$\overset{c^{\frac{1}{2}}}{T}$
12.	θ	$\overset{m}{K}$	$\overset{1}{T}$	$\overset{3}{T}$	24.	θ	$\overset{n}{K}$	$\overset{1}{T}$	$\overset{m}{T}$

PRACTICE

4

1. $\overset{1}{K} \overset{3}{T} \overset{2}{\theta} \overset{1}{Ka}$
2. $\overset{1}{K} \overset{3}{T} \overset{m}{\theta} \overset{1}{Ka}$
3. $\overset{1}{K} \overset{m3}{T} \overset{m}{\theta} \overset{1}{Ka}$
4. $\overset{c}{K} \overset{2}{T} \overset{c}{\theta} \overset{c}{Ka}$

5. $\overset{3}{K} \overset{2}{T} \overset{3}{\theta} \overset{1}{Ka}$
6. $\overset{c\frac{1}{2}}{K} \overset{2}{T} \overset{c\frac{1}{2}}{\theta} \overset{c\frac{1}{2}}{Ka}$
7. $\overset{m}{K} \overset{m3}{T} \overset{m}{\theta} \overset{m}{Ka}$
8. $\overset{1}{K} \overset{2}{T} \overset{3}{\theta} \overset{1}{Ka}$

5

1. $\overset{3}{\theta} \overset{2}{R} \overset{1}{K} \overset{3}{T}$
2. $\overset{3}{\theta} \overset{2}{R} \overset{3}{K} \overset{1}{T}$
3. $\overset{m}{\theta} \overset{m3}{R} \overset{1}{K} \overset{m3}{T}$

4. $\overset{m3}{\theta} \overset{m}{R} \overset{m3}{K} \overset{1}{T}$
5. $\overset{3}{\theta} \overset{2}{R} \overset{1}{K} \overset{c\frac{1}{2}}{T}$
6. $\overset{m}{\theta} \overset{m3}{R} \overset{1}{K} \overset{n}{T}$

6

1. $\overset{mn}{\theta} \overset{1}{Ka} \overset{1}{D} \overset{3}{N}$
2. $\overset{m}{\theta} \overset{1}{Ka} \overset{1}{D} \overset{3}{N}$
3. $\overset{m}{\theta} \overset{1}{Ka} \overset{1}{D} \overset{m3}{N}$
4. $\overset{mn}{\theta} \overset{1}{Ka} \overset{1}{D} \overset{n}{N}$
5. $\overset{n}{\theta} \overset{1}{Ka} \overset{1}{D} \overset{n}{N}$
6. $\overset{cc\frac{1}{2}}{\theta} \overset{1}{Ka} \overset{1}{D} \overset{3}{N}$

7. $\overset{c\frac{1}{2}}{\theta} \overset{1}{Ka} \overset{1}{D} \overset{3}{N}$
8. $\overset{m}{\theta} \overset{1}{Ka} \overset{1}{D} \overset{3}{N}$
9. $\overset{2}{\theta} \overset{1}{Ka} \overset{1}{D} \overset{3}{N}$
10. $\overset{3}{\theta} \overset{1}{Ka} \overset{1}{D} \overset{2}{N}$
11. $\overset{m3}{\theta} \overset{1}{Ka} \overset{1}{D} \overset{m}{N}$
12. $\overset{m}{\theta} \overset{m3}{Ka} \overset{n}{D} \overset{m}{N}$

7

1. $\overset{1}{K} \overset{3}{T} \overset{2}{\theta} \overset{3}{R}$
2. $\overset{1}{K} \overset{2}{T} \overset{3}{\theta} \overset{2}{R}$
3. $\overset{1}{K} \overset{m3}{T} \overset{m}{\theta} \overset{m3}{R}$

4. $\overset{1}{K} \overset{m}{T} \overset{m3}{\theta} \overset{m}{R}$
5. $\overset{1}{K} \overset{m}{T} \overset{m3}{\theta} \overset{n}{R}$
6. $\overset{1}{K} \overset{c\frac{1}{2}}{T} \overset{2}{\theta} \overset{3}{R}$

7

8

1.	$\overset{1}{G}_u$	$\overset{1}{G}_u$	$\overset{n}{D}$	$\overset{n}{N}$
2.	$\overset{1}{G}_u$	$\overset{1}{G}_u$	$\overset{3}{D}$	$\overset{3}{N}$
3.	$\overset{1}{G}_u$	$\overset{1}{G}_u$	$\overset{3}{D}$	$\overset{m}{N}$

4.	$\overset{1}{G}_u$	$\overset{1}{G}_u$	$\overset{m3}{D}$	$\overset{m1}{N}$
5.	$\overset{1}{G}_u$	$\overset{1}{G}_u$	$\overset{m3}{D}$	$\overset{n}{N}$
6.	$\overset{1}{G}_u$	$\overset{1}{G}_u$	$\overset{3}{D}$	$\overset{n}{N}$

9

1.	$\overset{1}{D}$	$\overset{m}{N}$	$\overset{m}{N}$	$\overset{1}{K}_u$
2.	$\overset{1}{D}$	$\overset{3}{N}$	$\overset{3}{N}$	$\overset{1}{K}_u$
3.	$\overset{1}{D}$	$\overset{3}{N}$	$\overset{m}{N}$	$\overset{1}{K}_u$

4.	$\overset{1}{D}$	$\overset{u}{N}$	$\overset{n}{N}$	$\overset{1}{K}_u$
5.	$\overset{1}{D}$	$\overset{3}{N}$	$\overset{n}{N}$	$\overset{1}{K}_u$
6.	$\overset{1}{D}$	$\overset{m}{N}$	$\overset{n}{N}$	$\overset{1}{K}_u$

10

1.	$\overset{1}{K}_u$	$\overset{m}{N}$	$\overset{m}{N}$	$\overset{m}{N}$
2.	$\overset{1}{K}_u$	$\overset{n}{N}$	$\overset{n}{N}$	$\overset{n}{N}$
3.	$\overset{1}{K}_u$	$\overset{c3}{N}$	$\overset{c3}{N}$	$\overset{c3}{N}$
4.	$\overset{1}{K}_u$	$\overset{m3}{N}$	$\overset{m3}{N}$	$\overset{m3}{N}$
5.	$\overset{1}{K}_u$	$\overset{3}{N}$	$\overset{3}{N}$	$\overset{3}{N}$

1.	$\overset{m3}{N}$	$\overset{m1}{N}$	$\overset{1}{K}$	$\overset{m3}{T}$
2.	$\overset{m}{N}$	$\overset{m}{N}$	$\overset{1}{K}$	$\overset{m3}{T}$
3.	$\overset{m3}{N}$	$\overset{m1}{N}$	$\overset{1}{K}$	$\overset{m3}{T}$
4.	$\overset{n}{N}$	$\overset{m}{N}$	$\overset{1}{K}$	$\overset{m3}{T}$
5.	$\overset{m}{N}$	$\overset{3}{N}$	$\overset{3}{K}$	$\overset{3}{T}$

11

1.	$\overset{33}{D}_u$	$\overset{3}{N}_1$	$\overset{3}{K}$	$\overset{1d}{T}$
2.	$\overset{m33}{N}$	$\overset{m}{D}$	$\overset{m3}{K}$	$\overset{1d}{T}$
3.	$\overset{m3}{N}$	$\overset{m}{D}$	$\overset{m3}{K}$	$\overset{1}{T}$
4.	$\overset{3}{D}_u$	$\overset{3}{N}_1$	$\overset{3}{K}$	$\overset{1}{T}$
5.	$\overset{1}{D}$	$\overset{3}{N}$	$\overset{\theta}{\theta}$	
6.	$\overset{1}{D}$	$\overset{m}{N}$	$\overset{\theta}{\theta}$	
7.	$\overset{1}{D}$	$\overset{n}{N}$	$\overset{\theta}{\theta}$	

8.	$\overset{1}{D}$	$\overset{m3}{N}$	$\overset{m}{\theta}$	
9.	$\overset{1}{D}$	$\overset{3}{N}$	$\overset{\theta}{\theta}$	
10.	$\overset{1}{D}$	$\overset{m3}{N}$	$\overset{\theta}{\theta}$	
11.	$\overset{1}{\theta}$	$\overset{c3}{L}$	$\overset{1}{G}_u$	
12.	$\overset{1}{\theta}$	$\overset{n}{L}$	$\overset{n}{G}_u$	
13.	$\overset{1}{\theta}$	$\overset{m}{L}$	$\overset{m}{G}_u$	
14.	$\overset{m}{\theta}$	$\overset{m3}{L}$	$\overset{m3}{G}_u$	

12

- | | | |
|---|-----------------------------------|-----------------------------------|
| 1. $G_a^1, T^m T^m$ | 7. $G_a^1, T^s T^s$ | 13. $G_a^1, T^m T^{c\frac{1}{2}}$ |
| 2. $G_a^1, T^n T^n$ | 8. $G_a^1, T^s T^s$ | 14. $G_a^1, T^c T^c$ |
| 3. $G_a^1, T^{m3} T^{m3}$ | 9. $G_a^1, T^s T^n$ | 15. $G_a^1, T^n T^s$ |
| 4. $G_a^1, T^{c\frac{1}{2}} T^{c\frac{1}{2}}$ | 10. $G_a^1, T^s T^{c\frac{1}{2}}$ | 16. $G_a^1, T^m T^s$ |
| 5. $G_a^1, T^s T^s$ | 11. $G_a^1, T^{m3} T^n$ | 17. $G_a^1, T^c T^c$ |
| 6. $G_a^1, T^{m3} T^m$ | 12. $G_a^1, T^s T^m$ | 18. $G_a^1, T^m T^n$ |

13

- | | |
|------------------------------|-----------------------------------|
| 1. θ^m, N^m, K_a^{m3} | 1. $\theta^1, N^n, N^m, K_a^{m3}$ |
| 2. θ^n, N^m, K_a^{m3} | 2. $\theta^1, N^m, N^m, K_a^{m3}$ |

14

- | | | |
|----------------------------|--------------------------------------|-------------------------|
| 1. θ^m, K^m, T^m | 3. θ^m, K^{m3}, T^n | 5. θ^m, K^1, T^s |
| 2. θ^n, K^m, T^{m3} | 4. $\theta^{c\frac{1}{2}}, K^1, T^s$ | 6. θ^m, K^1, T^n |

15

- | | | |
|-----------------------------------|---|--------------------------------|
| 1. $\theta^m, K_a^1, \theta^m$ | 3. $\theta^m, K_a^1, \theta^s$ | 5. $\theta^n, K_a^1, \theta^s$ |
| 2. $\theta^m, K_a^1, \theta^n$ | 4. $\theta^{c\frac{1}{2}}, K_a^1, \theta^s$ | 6. $\theta^m, K_a^1, \theta^m$ |
| 1. $\theta^m, \theta^m, K_a^{m3}$ | 2. $\theta^n, \theta^m, K_a^{m3}$ | 3. $\theta^s, \theta^n, K_a^c$ |

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- | | | |
|----------------------------|--------------------------------------|----------------------------|
| 1. θ^{m3}, K^1, T^s | 3. $\theta^{c\frac{1}{2}}, K^1, T^s$ | 5. θ^m, K^{m3}, T^n |
| 2. θ^m, K^1, T^s | 4. θ^s, K^1, T^s | 6. θ^n, K^1, T^{m3} |

17

1.	$\overset{m}{\theta}$	$\overset{m}{\theta}$	$\overset{1}{K}$	$\overset{2}{T}$	5.	$\overset{n}{\theta}$	$\overset{n}{\theta}$	$\overset{1}{K}$	$\overset{3}{T}$
2.	$\overset{2}{\theta}$	$\overset{2}{\theta}$	$\overset{1}{K}$	$\overset{1}{T}$	6.	$\overset{m}{\theta}$	$\overset{n}{\theta}$	$\overset{1}{K}$	$\overset{3}{T}$
3.	$\overset{m,m}{\theta}$	$\overset{m}{\theta}$	$\overset{1}{K}$	$\overset{2}{T}$	7.	$\overset{n}{\theta}$	$\overset{m}{\theta}$	$\overset{1}{K}$	$\overset{2}{T}$
4.	$\overset{c\frac{1}{2}}{\theta}$	$\overset{c\frac{1}{2}}{\theta}$	$\overset{1}{K}$	$\overset{2}{T}$	8.	$\overset{2,2}{\theta}$	$\overset{2}{\theta}$	$\overset{1}{K}$	$\overset{3}{T}$

18

1.	$\overset{m,m}{\theta}$	$\overset{2}{K}$	$\overset{2}{T}$	$\overset{1}{\theta}$	$\overset{3}{K_a}$	5.	$\overset{2}{\theta}$	$\overset{2}{K}$	$\overset{2}{T}$	$\overset{1}{\theta}$	$\overset{3}{K_a}$
2.	$\overset{m}{\theta}$	$\overset{2}{K}$	$\overset{2}{T}$	$\overset{1}{\theta}$	$\overset{3}{K_a}$	6.	$\overset{n}{\theta}$	$\overset{n}{K}$	$\overset{2}{T}$	$\overset{1}{\theta}$	$\overset{3}{K_a}$
3.	$\overset{cc\frac{1}{2}}{\theta}$	$\overset{2}{K}$	$\overset{2}{T}$	$\overset{1}{\theta}$	$\overset{3}{K_a}$	7.	$\overset{m}{\theta}$	$\overset{m,2}{K}$	$\overset{m}{T}$	$\overset{1}{\theta}$	$\overset{m,3}{K_a}$
4.	$\overset{c\frac{1}{2}}{\theta}$	$\overset{2}{K}$	$\overset{2}{T}$	$\overset{1}{\theta}$	$\overset{3}{K_a}$	8.	$\overset{m}{\theta}$	$\overset{1}{K}$	$\overset{2}{T}$	$\overset{2}{\theta}$	$\overset{1}{K_a}$

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1.	$\overset{m,m}{\theta}$	$\overset{m}{\theta}$	$\overset{2}{K}$	$\overset{2}{T}$	$\overset{1}{\theta}$	$\overset{3}{K_a}$	4.	$\overset{n}{\theta}$	$\overset{m}{\theta}$	$\overset{2}{K}$	$\overset{2}{T}$	$\overset{1}{\theta}$	$\overset{1}{K_a}$
2.	$\overset{m}{\theta}$	$\overset{m}{\theta}$	$\overset{2}{K}$	$\overset{2}{T}$	$\overset{1}{\theta}$	$\overset{3}{K_a}$	5.	$\overset{n}{\theta}$	$\overset{n}{\theta}$	$\overset{2}{K}$	$\overset{2}{T}$	$\overset{1}{\theta}$	$\overset{3}{K_a}$
3.	$\overset{c\frac{1}{2}}{\theta}$	$\overset{c\frac{1}{2}}{\theta}$	$\overset{2}{K}$	$\overset{2}{T}$	$\overset{1}{\theta}$	$\overset{3}{K_a}$	6.	$\overset{m}{\theta}$	$\overset{m}{\theta}$	$\overset{1}{K}$	$\overset{2}{T}$	$\overset{2}{\theta}$	$\overset{1}{K_a}$

20

1.	$\overset{m,m}{\theta}$	$\overset{1}{K}$	$\overset{n}{T}$	$\overset{1}{\theta}$	$\overset{n}{\theta}!$	6.	$\overset{c\frac{1}{2}}{\theta}$	$\overset{1}{K}$	$\overset{2}{T}$	$\overset{1}{\theta}$	$\overset{2}{\theta}!$
2.	$\overset{m}{\theta}$	$\overset{1}{K}$	$\overset{n}{T}$	$\overset{1}{\theta}$	$\overset{n}{\theta}!$	7.	$\overset{m,m}{\theta}$	$\overset{1}{K}$	$\overset{m,3}{T}$	$\overset{m}{\theta}$	$\overset{n}{\theta}!$
3.	$\overset{m,m}{\theta}$	$\overset{1}{K}$	$\overset{2}{T}$	$\overset{m,2}{\theta}$	$\overset{m}{\theta}!$	8.	$\overset{m}{\theta}$	$\overset{1,2}{K}$	$\overset{m,3}{T}$	$\overset{m}{\theta}$	$\overset{n}{\theta}!$
4.	$\overset{m}{\theta}$	$\overset{1}{K}$	$\overset{2}{T}$	$\overset{m,m}{\theta}$	$\overset{m}{\theta}!$	9.	$\overset{m}{\theta}$	$\overset{m,3}{K}$	$\overset{m}{T}$	$\overset{m}{\theta}$	$\overset{n}{\theta}!$
5.	$\overset{cc\frac{1}{2}}{\theta}$	$\overset{1}{K}$	$\overset{2}{T}$	$\overset{1}{\theta}$	$\overset{2}{\theta}!$	10.	$\overset{2}{\theta}$	$\overset{1}{K}$	$\overset{2}{T}$	$\overset{m}{\theta}$	$\overset{n}{\theta}!$

21

1. $\overset{m}{\theta} \overset{3}{K} \overset{2}{T} \overset{3}{K} \overset{3}{T} \overset{n}{\theta!},$ 4. $\overset{r}{\theta} \overset{3}{K} \overset{2}{T} \overset{1}{K} \overset{3}{T} \overset{n}{\theta!},$
 2. $\overset{2}{\theta} \overset{3}{K} \overset{2}{T} \overset{1}{K} \overset{3}{T} \overset{n}{\theta!},$ 5. $\overset{m}{\theta} \overset{m3}{K} \overset{m}{T} \overset{1}{K} \overset{m3}{T} \overset{n}{\theta!},$
 3. $\overset{n}{\theta} \overset{3}{K} \overset{2}{T} \overset{1}{K} \overset{3}{T} \overset{n}{\theta!},$ 6. $\overset{1}{\theta} \overset{3}{K} \overset{2}{T} \overset{1}{K} \overset{3}{T} \overset{n}{\theta!},$

22

1. $\overset{mm}{D} \overset{2}{N} \overset{1}{K_u} \overset{1}{K_u} \overset{m}{N} \overset{3}{\theta} \overset{1}{K} \overset{3}{T}$ 4. $\overset{m}{N} \overset{m3}{\theta} \overset{1}{K_u} \overset{2}{\theta} \overset{2}{R} \overset{1}{K} \overset{3}{T}$
 2. $\overset{m}{N} \overset{3}{\theta} \overset{1}{K_u} \overset{1}{K_u} \overset{m}{N} \overset{3}{\theta} \overset{1}{K} \overset{3}{T}$ 5. $\overset{mm}{D} \overset{m3}{N} \overset{1}{K_u} \overset{1}{K_u} \overset{3}{\theta} \overset{2}{R} \overset{m}{K} \overset{3}{T}$
 3. $\overset{mm}{D} \overset{m3}{N} \overset{1}{K_u} \overset{2}{\theta} \overset{2}{R} \overset{m}{K} \overset{3}{T}$ 6. $\overset{m}{N} \overset{m3}{\theta} \overset{1}{K_u} \overset{1}{K_u} \overset{3}{\theta} \overset{2}{R} \overset{1}{K} \overset{3}{T}$

23

1. $\overset{1}{D} \overset{3}{N} \overset{3}{\theta} \overset{1}{\theta} \overset{e}{L!}, \overset{3}{G_u}$ 1. $\overset{1}{K} \overset{3}{T} \overset{2}{\theta} \overset{3}{R} \overset{1}{\theta} \overset{e}{L!}, \overset{3}{G_u}$
 2. $\overset{1}{D} \overset{3}{N} \overset{3}{\theta} \overset{1}{\theta} \overset{n}{L!}, \overset{n}{G_u}$ 2. $\overset{1}{K} \overset{m3}{T} \overset{m}{\theta} \overset{m3}{R} \overset{1}{\theta} \overset{n}{L!}, \overset{n}{G_u}$
 3. $\overset{1}{D} \overset{m}{N} \overset{m}{\theta} \overset{1}{\theta} \overset{n}{L!}, \overset{n}{G_u}$ 3. $\overset{1}{K} \overset{m3}{T} \overset{m}{\theta} \overset{m3}{R} \overset{m}{\theta} \overset{n}{L!}, \overset{m3}{G_u}$
 4. $\overset{1}{D} \overset{m}{N} \overset{m}{\theta} \overset{m}{\theta} \overset{m3}{L!}, \overset{m3}{G_u}$

24

1. $\overset{1}{G_u!}, \overset{m}{T} \overset{m}{T} \overset{1}{G_u} \overset{1}{G_u} \overset{m}{D} \overset{m}{N}$ 4. $\overset{1}{G_u!}, \overset{3}{T} \overset{2}{T} \overset{1}{G_u} \overset{1}{G_u} \overset{3}{D} \overset{m}{N}$
 2. $\overset{1}{G_u!}, \overset{n}{T} \overset{n}{T} \overset{1}{G_u} \overset{1}{G_u} \overset{n}{D} \overset{n}{N}$ 5. $\overset{1}{G_u!}, \overset{m}{T} \overset{m3}{T} \overset{1}{G_u} \overset{1}{G_u} \overset{m3}{D} \overset{m}{N}$
 3. $\overset{1}{G_u!}, \overset{2}{T} \overset{3}{T} \overset{1}{G_u} \overset{1}{G_u} \overset{3}{D} \overset{3}{N}$ 6. $\overset{1}{G_u!}, \overset{m}{T} \overset{m3}{T} \overset{1}{G_u} \overset{1}{G_u} \overset{m3}{D} \overset{n}{N}$

25

1. $\overset{1}{G_a!}, \overset{m}{T} \overset{m}{T} \overset{m}{K_a} \overset{m}{N} \overset{m}{N} \overset{m}{N}$ 2. $\overset{1}{G_a!}, \overset{n}{T} \overset{n}{T} \overset{n}{K_a} \overset{n}{N} \overset{n}{N} \overset{n}{N}$ 3. $\overset{1}{G_a!}, \overset{m^3}{T} \overset{m^3}{T} \overset{1}{K_a} \overset{c^{\frac{1}{2}}}{N} \overset{c^{\frac{1}{2}}}{N} \overset{c^{\frac{1}{2}}}{N}$

26

1. $\overset{1}{K} \overset{3}{T} \overset{2}{\theta} \overset{3}{R} \overset{3}{D} \overset{1}{N} \overset{c^{\frac{1}{2}}}{\theta} \overset{3}{L!}, G_a$ 4. $\overset{m}{\theta} \overset{3}{K} \overset{2}{T} \overset{3}{K} \overset{3}{T} \overset{3}{K} \overset{3}{T} \overset{1}{\theta} \overset{3}{L!}, G_a \overset{3}{\theta} \overset{n}{\theta!}$ 2. $\overset{m}{N} \overset{1}{G_a} \overset{1}{K} \overset{3}{T} \overset{2}{\theta} \overset{3}{R} \overset{3}{D} \overset{1}{N} \overset{c^{\frac{1}{2}}}{\theta} \overset{3}{L!}, G_a$ 5. $\overset{c}{\theta!}, G_a \overset{1}{K} \overset{3}{T} \overset{3}{\theta} \overset{3}{R} \quad \overset{m}{N} \overset{1}{K_a} \overset{m^3}{\theta} \overset{m^3}{\theta}$ 3. $\overset{m^3}{\theta} \overset{3}{K} \overset{2}{T} \overset{3}{K} \overset{3}{T} \overset{3}{K} \overset{3}{T} \overset{1}{\theta} \overset{3}{L!}, G_a \overset{3}{\theta} \overset{n}{\theta!}$ 6. $\overset{c}{\theta!}, G_a \overset{1}{K} \overset{3}{T} \overset{3}{\theta} \overset{3}{R} \quad \overset{m}{N} \overset{1}{K_a} \overset{m^3}{\theta} \overset{m^3}{\theta}$

27

1. $\overset{3}{K} \overset{2}{T} \overset{1}{D!},$ 4. $\overset{3}{\theta} \overset{2}{R}, \overset{1}{K} \overset{3}{T} \overset{nn}{D!},$ 2. $\overset{m}{N}, \overset{3}{K} \overset{2}{T} \overset{1}{D!},$ 5. $\overset{m}{N}, \overset{3}{\theta} \overset{2}{R} \overset{1}{K} \overset{3}{T} \overset{nn}{D!},$ 3. $\overset{1}{D} \overset{m}{N}, \overset{3}{K} \overset{2}{T} \overset{1}{D!},$ 6. $\overset{1}{D} \overset{m}{N}, \overset{3}{\theta} \overset{2}{R} \overset{1}{K} \overset{3}{T} \overset{nn}{D!},$

28

1. $\overset{mm}{G_a!}, \overset{3}{\theta} \overset{2}{R} \overset{1}{K} \overset{3}{T}$ 3. $\overset{m}{N} \overset{1}{K_a} \overset{1}{G_a!} \overset{3}{\theta} \overset{2}{R} \overset{1}{K} \overset{3}{T}$ 2. $\overset{m}{N} \overset{1}{G_a!}, \overset{3}{\theta} \overset{2}{R} \overset{1}{K} \overset{3}{T}$ 4. $\overset{m}{N} \overset{1}{K_a} \overset{1}{G_a} \overset{1}{G_a!} \overset{3}{\theta} \overset{2}{R} \overset{1}{K} \overset{3}{T}$

29

1. $\overset{3}{\theta} \overset{2}{R} \overset{1}{K} \overset{3}{T} \overset{c^{\frac{1}{2}}}{\theta},$ 2. $\overset{3}{\theta} \overset{2}{R} \overset{1}{K} \overset{3}{T} \overset{2}{\theta},$

3. $\overset{1}{\theta}$ $\overset{2}{R}$ $\overset{1}{K}$ $\overset{3}{T}$ $\overset{2}{\theta}$!

4. $\overset{3}{\theta}$ $\overset{2}{R}$ $\overset{1}{K}$ $\overset{3}{T}$ $\overset{m}{N}$!

5. $\overset{c\frac{1}{2}}{\theta}$, $\overset{3}{\theta}$ $\overset{2}{R}$ $\overset{1}{K}$ $\overset{3}{T}$

6. $\overset{1}{D}$, $\overset{3}{\theta}$ $\overset{2}{R}$ $\overset{1}{K}$ $\overset{3}{T}$

7. $\overset{n}{\theta}$!, $\overset{3}{\theta}$ $\overset{2}{R}$ $\overset{1}{K}$ $\overset{3}{T}$

8. $\overset{m}{N}$!, $\overset{3}{\theta}$ $\overset{2}{R}$ $\overset{1}{K}$ $\overset{3}{T}$

9. $\overset{1}{K}$ $\overset{3}{T}$ $\overset{2}{\theta}$ $\overset{1}{K_a}$ $\overset{c\frac{1}{2}}{\theta}$,

10. $\overset{1}{K}$ $\overset{3}{T}$ $\overset{2}{\theta}$ $\overset{3}{K_a}$ $\overset{2}{D}$,

11. $\overset{1}{K}$ $\overset{3}{T}$ $\overset{2}{\theta}$ $\overset{3}{K_a}$ $\overset{n}{\theta}$!

12. $\overset{1}{K}$ $\overset{3}{T}$ $\overset{2}{\theta}$ $\overset{3}{K_a}$ $\overset{m}{N}$!

13. $\overset{c\frac{1}{2}}{\theta}$, $\overset{1}{K}$ $\overset{3}{T}$ $\overset{2}{\theta}$ $\overset{1}{K_a}$

14. $\overset{1}{D}$, $\overset{1}{K}$ $\overset{3}{T}$ $\overset{2}{\theta}$ $\overset{1}{K_a}$

15. $\overset{n}{\theta}$!, $\overset{1}{K}$ $\overset{3}{T}$ $\overset{2}{\theta}$ $\overset{1}{K_a}$

16. $\overset{m}{N}$!, $\overset{1}{K}$ $\overset{3}{T}$ $\overset{2}{\theta}$ $\overset{1}{K_a}$

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1. $\overset{mn}{\theta}$ $\overset{l}{K_a}$ $\overset{in}{J}$ $\overset{dn}{N_a}$ $\overset{m}{\theta}$ $\overset{l}{K_a}$ $\overset{l}{K}$ $\overset{n}{T}$

2. $\overset{mn}{\theta}$ $\overset{n}{K_a}$ $\overset{n}{J}$ $\overset{in}{N_a}$ $\overset{m}{\theta}$ $\overset{l}{K_a}$ $\overset{l}{K}$ $\overset{n}{T}$

3. $\overset{mn}{\theta}$ $\overset{n}{K_a}$ $\overset{n}{J}$ $\overset{in}{N_a}$ $\overset{m}{\theta}$ $\overset{l}{K_a}$ $\overset{l}{K}$ $\overset{n}{T}$

4. $\overset{mn}{\theta}$ $\overset{l}{K_a}$ $\overset{l}{J}$ $\overset{3}{N_a}$ $\overset{m}{\theta}$ $\overset{l}{K_a}$ $\overset{l}{K}$ $\overset{3}{T}$

5. $\overset{mn}{\theta}$ $\overset{n}{\theta}$ $\overset{l}{K_a}$ $\overset{m}{\theta}$ $\overset{in}{J}$!

6. $\overset{m}{\theta}$ $\overset{n}{\theta}$ $\overset{l}{K_a}$ $\overset{3}{\theta}$ $\overset{in}{J}$!

7. $\overset{m}{D}$ $\overset{3}{M}$ $\overset{m}{K}$ $\overset{l}{N}$ $\overset{eh}{K_a}$ $\overset{l}{D}$ $\overset{l}{N}$ $\overset{l}{L_n}$

8. $\overset{2,2}{D}$ $\overset{3}{M}$ $\overset{m}{N}$ $\overset{l}{K_a}$ $\overset{l}{D}$ $\overset{n}{N}$ $\overset{l}{K_a}$

9. $\overset{2,2}{D}$ $\overset{3}{M}$ $\overset{m}{N}$ $\overset{l}{K_a}$ $\overset{l}{D}$ $\overset{m}{N}$ $\overset{l}{K_a}$

10. $\overset{2,2}{D}$ $\overset{3}{M}$ $\overset{m}{N}$ $\overset{l}{K_a}$ $\overset{l}{D}$ $\overset{c\frac{1}{2}}{N}$ $\overset{l}{K_a}$

11. $\overset{2,2}{D}$ $\overset{3}{M}$ $\overset{m}{N}$ $\overset{l}{K_a}$ $\overset{3}{D}$ $\overset{eh}{N}$ $\overset{l}{K_a}$

12. $\overset{2,2}{D}$ $\overset{3}{M}$ $\overset{m}{N}$ $\overset{l}{K_a}$ $\overset{3}{D}$ $\overset{n}{N}$ $\overset{l}{K_a}$

13. $\overset{2,2}{D}$ $\overset{3}{M}$ $\overset{m}{N}$ $\overset{l}{K_a}$ $\overset{m}{D}$ $\overset{m}{N}$ $\overset{l}{K_a}$

14. $\overset{2,2}{D}$ $\overset{3}{M}$ $\overset{m}{N}$ $\overset{l}{K_a}$ $\overset{3}{D}$ $\overset{eh}{N}$ $\overset{l}{K_a}$

(THIRUGUDU VARUSAS)

Series of Sounds for Higher Degrees of speed.

I

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|-----|----------------------------------|-------------------------------|----------------------------------|-------------------------------|-----------------------|--------------------|--------------------------|-----------------------|--|--|--|--|--|--|--|--|--|--|--|
| 1. | $\overset{3}{\theta}$ | $\overset{2}{R}$ | $\overset{1}{K}$ | $\overset{3}{T}$ | $\overset{m}{\theta}$ | $\overset{1}{K_a}$ | | | | | | | | | | | | | |
| 2. | $\overset{3}{\theta}$ | $\overset{2}{R}$ | $\overset{1}{K}$ | $\overset{3}{T}$ | $\overset{2}{\theta}$ | $\overset{1}{K_a}$ | | | | | | | | | | | | | |
| 3. | $\overset{m3}{\theta}$ | $\overset{m}{R}$ | $\overset{1}{K}$ | $\overset{m3}{T}$ | $\overset{m}{\theta}$ | $\overset{1}{K_a}$ | | | | | | | | | | | | | |
| 4. | $\overset{m}{\theta}$ | $\overset{1}{R}$ | $\overset{3}{K}$ | $\overset{2}{T}$ | $\overset{1}{\theta}$ | $\overset{3}{K_a}$ | | | | | | | | | | | | | |
| 5. | $\overset{2}{\theta}$ | $\overset{1}{K_a}$ | $\overset{c\frac{1}{2}}{\theta}$ | $\overset{1}{R}$ | $\overset{3}{K}$ | $\overset{2}{T}$ | $\overset{1}{\theta}$ | $\overset{3}{K_a}$ | | | | | | | | | | | |
| 6. | $\overset{c\frac{1}{2}}{\theta}$ | $\overset{1}{K_a}$ | $\overset{3}{\theta}$ | $\overset{2}{R}$ | $\overset{1}{K}$ | $\overset{3}{T}$ | $\overset{3}{\theta}$ | $\overset{1}{K_a}$ | | | | | | | | | | | |
| 7. | $\overset{m}{\theta}$ | $\overset{1}{K_a}$ | $\overset{3}{\theta}$ | $\overset{2}{R}$ | $\overset{1}{K}$ | $\overset{3}{T}$ | $\overset{2}{\theta}$ | $\overset{1}{K_a}$ | | | | | | | | | | | |
| 8. | $\overset{m}{\theta}$ | $\overset{1}{K_a}$ | $\overset{3}{\theta}$ | $\overset{2}{R}$ | $\overset{1}{K}$ | $\overset{3}{T}$ | $\overset{1}{\theta}$ | $\overset{3}{K_a}$ | | | | | | | | | | | |
| 9. | $\overset{2}{\theta}$ | $\overset{1}{K_a}$ | $\overset{3}{\theta}$ | $\overset{2}{R}$ | $\overset{1}{K}$ | $\overset{3}{T}$ | $\overset{2}{\theta}$ | $\overset{1}{K_a}$ | | | | | | | | | | | |
| 10. | $\overset{m}{\theta}$ | $\overset{1}{K_a}$ | $\overset{3}{\theta}$ | $\overset{2}{R}$ | $\overset{1}{K}$ | $\overset{3}{T}$ | $\overset{2}{\theta}$ | $\overset{1}{K_a}$ | | | | | | | | | | | |
| 11. | $\overset{1}{K}$ | $\overset{3}{T}$ | $\overset{2}{\theta}$ | $\overset{1}{K_a}$ | $\overset{3}{\theta}$ | $\overset{2}{R}$ | $\overset{1}{K}$ | $\overset{3}{T}$ | | | | | | | | | | | |
| 12. | $\overset{1}{K}$ | $\overset{m3}{T}$ | $\overset{m}{\theta}$ | $\overset{1}{K_a}$ | $\overset{3}{\theta}$ | $\overset{2}{R}$ | $\overset{1}{K}$ | $\overset{3}{T}$ | | | | | | | | | | | |
| 13. | $\overset{3}{\theta}$ | $\overset{2}{R}$ | $\overset{1}{K}$ | $\overset{3}{T}$ | $\overset{3}{K}$ | $\overset{2}{T}$ | $\overset{3}{\theta}$ | $\overset{2}{K_a}$ | | | | | | | | | | | |
| 14. | $\overset{3}{\theta}$ | $\overset{2}{R}$ | $\overset{1}{K}$ | $\overset{3}{T}$ | $\overset{3}{K}$ | $\overset{1}{T}$ | $\overset{3}{\theta}$ | $\overset{m}{1}{K_a}$ | | | | | | | | | | | |
| 15. | $\overset{3}{D}$ | $\overset{2}{R_2}$ | $\overset{3}{D}$ | $\overset{2}{R_2}$ | $\overset{1}{K}$ | $\overset{3}{T}$ | $\overset{2}{\theta}$ | $\overset{1}{K_a}$ | | | | | | | | | | | |
| 16. | $\overset{m3}{D}$ | $\overset{2}{R_u}$ | $\overset{3}{D}$ | $\overset{2}{R_u}$ | $\overset{1}{K}$ | $\overset{m3}{T}$ | $\overset{m}{1}{\theta}$ | $\overset{1}{K_a}$ | | | | | | | | | | | |
| 17. | $\overset{c\frac{1}{2}}{D}$ | $\overset{c\frac{1}{2}}{R_u}$ | $\overset{c\frac{1}{2}}{D}$ | $\overset{c\frac{1}{2}}{R_u}$ | $\overset{1d}{K}$ | $\overset{m3}{T}$ | $\overset{m}{1}{\theta}$ | $\overset{1}{K_a}$ | | | | | | | | | | | |

II

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|----|-----------------------------------|-----------------------------|--------------------|------------------------|-----------------------|--------------------|-----------------------|-----------------------|-----------------------|-------------------------------|------------------|------------------|-----------------------|-----------------------|------------------------|--|--|--|--|
| 1. | $\overset{cc\frac{1}{2}}{D_a}$ | $\overset{c\frac{1}{2}}{R}$ | $\overset{1}{K}$ | $\overset{3}{T}$ | $\overset{2}{\theta}$ | $\overset{1}{K}$ | $\overset{3}{T}$ | $\overset{m}{\theta}$ | $\overset{1}{K_a}$ | | | | | | | | | | |
| 2. | $\overset{c\frac{1}{2}}{D_a}$ | $\overset{c\frac{1}{2}}{R}$ | $\overset{1}{K}$ | $\overset{3}{T}$ | $\overset{2}{\theta}$ | $\overset{1}{K}$ | $\overset{3}{T}$ | $\overset{m}{\theta}$ | $\overset{1}{K_a}$ | | | | | | | | | | |
| 3. | $\overset{2}{\theta}$ | $\overset{3}{R}$ | $\overset{1}{K}$ | $\overset{3}{T}$ | $\overset{2}{\theta}$ | $\overset{1}{K_a}$ | $\overset{1}{D}$ | $\overset{3}{N}$ | $\overset{m}{\theta}$ | $\overset{1}{K_p}$ | | | | | | | | | |
| 4. | $\overset{cc\frac{1}{2}}{\theta}$ | $\overset{3}{K}$ | $\overset{2}{T}$ | $\overset{1d}{\theta}$ | $\overset{3}{K_a}$ | $\overset{1}{K}$ | $\overset{3}{T}$ | $\overset{2}{\theta}$ | $\overset{1d}{K_a}$ | | | | | | | | | | |
| 5. | $\overset{1}{D}$ | $\overset{1}{R_u}$ | $\overset{1}{G_u}$ | $\overset{3}{D_u}$ | $\overset{m}{\theta}$ | $\overset{1}{K}$ | $\overset{3}{T}$ | $\overset{2}{\theta}$ | $\overset{1}{K_a}$ | $\overset{c\frac{1}{2}}{D_a}$ | $\overset{1}{R}$ | $\overset{3}{K}$ | $\overset{2}{T}$ | $\overset{1}{\theta}$ | $\overset{3}{K_a}$ | | | | |
| 6. | $\overset{2}{\theta}$ | $\overset{3}{K}$ | $\overset{2}{T}$ | $\overset{1}{\theta}$ | $\overset{3}{K_a}$ | $\overset{2}{-}$ | $\overset{1}{\theta}$ | $\overset{3}{K_a}$ | $\overset{2}{\theta}$ | $\overset{3}{R}$ | $\overset{2}{K}$ | $\overset{1}{T}$ | $\overset{3}{\theta}$ | $\overset{1}{K_a}$ | $\overset{n}{\theta!}$ | | | | |

III

1. $\overset{1}{K} \overset{3}{T} \overset{2}{\theta} \overset{3}{R} \overset{m}{\theta} \overset{1}{K} \overset{3}{T} - \overset{2}{\theta} \overset{1}{K_a} \overset{3}{\theta} \overset{1}{R} \overset{3}{K} \overset{2}{T} \overset{1}{\theta} \overset{3}{K_a}$
2. $\overset{1}{\theta} \overset{3}{L!}, \overset{1}{K} \overset{3}{T} \overset{2}{\theta} \overset{3}{R} - \overset{2}{\theta} \overset{1}{K_a} \overset{3}{\theta} \overset{1}{R} \overset{3}{K} \overset{2}{T} \overset{1}{\theta} \overset{3}{K_a}$
3. $\overset{3}{D} \overset{1d}{G} \overset{m}{N} \overset{1}{K} \overset{3}{T} \overset{2}{\theta} \overset{3}{R} - \overset{2}{\theta} \overset{1}{K_a} \overset{3}{\theta} \overset{1}{R} \overset{3}{K} \overset{2}{T} \overset{1}{\theta} \overset{3}{K_a}$
4. $\overset{2}{\theta} \overset{1}{G_u!}, \overset{3}{\theta} \overset{2}{R} \overset{1d}{K} \overset{3}{T} - \overset{2}{\theta} \overset{1}{K_a} \overset{3}{\theta} \overset{1}{R} \overset{3}{K} \overset{2}{T} \overset{1}{\theta} \overset{3}{K_a}$
5. $\overset{1}{G_u} \overset{1}{G_u} \overset{3}{D} \overset{m}{N} \overset{1}{K} \overset{3}{T} \overset{2}{\theta} \overset{3}{R} - \overset{2}{\theta} \overset{1}{K_a} \overset{3}{\theta} \overset{1}{R} \overset{3}{K} \overset{2}{T} \overset{1}{\theta} \overset{3}{K_a}$
6. $\overset{m}{N} \overset{1d}{K_u} \overset{3.3}{\theta} \overset{3}{\theta!}, \overset{1d}{K} \overset{3}{T} - \overset{2}{\theta} \overset{1}{K_a} \overset{3}{\theta} \overset{1}{R} \overset{3}{K} \overset{2}{T} \overset{1}{\theta} \overset{3}{K_a}$
7. $\overset{2}{D} \overset{3}{M} \overset{1d}{K} \overset{m}{N} \overset{1}{K} \overset{3}{T} \overset{2}{\theta} \overset{3}{R} - \overset{2}{\theta} \overset{1}{K_a} \overset{3}{\theta} \overset{1}{R} \overset{3}{K} \overset{2}{T} \overset{1}{\theta} \overset{3}{K_a}$
8. $\overset{3}{\theta} \overset{2}{R} \overset{3}{G} \overset{m}{N} \overset{1}{K} \overset{3}{T} \overset{2}{\theta} \overset{3}{R} - \overset{2}{\theta} \overset{1}{K_a} \overset{3}{\theta} \overset{1}{R} \overset{3}{K} \overset{2}{T} \overset{1}{\theta} \overset{3}{K_a}$
9. $\overset{nn}{D!}, \overset{1}{D} \overset{m}{N} \overset{1}{K} \overset{3}{T} \overset{2}{\theta} \overset{3}{R} - \overset{2}{\theta} \overset{1}{K_a} \overset{3}{\theta} \overset{1}{R} \overset{3}{K} \overset{2}{T} \overset{1}{\theta} \overset{3}{K_a}$
10. $\overset{3}{\theta} \overset{2}{R} \overset{1d}{K} \overset{3}{T} \overset{mm}{\theta!}, \overset{1d}{K} \overset{3}{T} - \overset{2}{\theta} \overset{1}{K_a} \overset{3}{\theta} \overset{1}{R} \overset{3}{K} \overset{2}{T} \overset{1}{\theta} \overset{3}{K_a}$
11. $\overset{3.3}{\theta} \overset{3}{\theta} \overset{3}{\theta!}, \overset{1}{K} \overset{3}{T} - \overset{2}{\theta} \overset{1}{K_a} \overset{3}{\theta} \overset{1}{R} \overset{3}{K} \overset{2}{T} \overset{1}{\theta} \overset{3}{K_a}$

THE COMPLEMENTARY SERIES

(Kalipedi Varusas.)

1. $\frac{\overset{3}{D_a} \overset{2}{R} \overset{3}{K} \overset{2}{T} \overset{3}{K_u} \overset{n}{K_a} \overset{n}{\theta!}}{\quad}$
2. $\frac{\overset{3}{D_a} \overset{2}{R} \overset{3}{K} \overset{2}{T} \overset{3}{K_u} \overset{m}{N} \overset{m}{N}}{\quad}$
3. $\frac{\overset{m}{\theta!}, \overset{m3}{K} \overset{m}{T} \overset{m}{\theta!}, \overset{m3}{K_u} \overset{n}{\theta!}, \overset{m}{N} \overset{m'}{K_a} \overset{n}{D} \overset{3}{M}}{\quad}$
4. $\frac{\overset{m}{\theta} \overset{1}{K_a} \overset{3}{D} \overset{m}{N} \overset{m}{\theta} \overset{m3}{K_u} \overset{n}{\theta!}}{\quad}$
5. $\frac{\overset{mm}{\theta} \overset{m3}{K_a} \overset{mm}{\theta} \overset{m3}{K_a} \overset{mm}{\theta} \overset{m3}{K_a} \overset{mm}{\theta} \overset{m3}{K_a}}{\quad}$

6. $\theta \overset{m}{\theta} \overset{m}{K_u} \overset{m^3}{\theta} \overset{m}{\theta} \overset{n}{\theta}!$,
7. $\theta \overset{m}{\theta} \overset{m^3}{K_u}$
8. $\theta \overset{m}{\theta} \overset{m^3}{K_u} \overset{m}{\theta} \overset{m^3}{\theta} \overset{m}{K} \overset{m}{T}$
9. $\theta \overset{m^3}{K_u}!, \theta \overset{m^3}{\theta} \overset{m^3}{K} \overset{n}{\theta}!$,
10. $\theta \overset{mm}{K_a} \overset{J}{\theta} \overset{mm^3}{K_u}!, \theta \overset{m^3}{\theta} \overset{m}{K_a} \overset{m^3}{K_a}$
11. $\theta \overset{m}{K} \overset{3}{T} \overset{2}{K} \overset{3}{T} \overset{m}{\theta} \overset{m^3}{K_a}$
12. $\theta \overset{m^3}{K} \overset{m}{T} \overset{m^3}{K} \overset{m}{T} \overset{m^3}{\theta} \overset{m^3}{K_a}$
13. $\theta \overset{m}{\theta} \overset{m^3}{K_u} \overset{m}{\theta} \overset{m^3}{\theta} \overset{m}{K} \overset{m}{T} - \theta \overset{mm^3}{K_a} \overset{m^3}{\theta} \overset{mm^3}{K_a} \overset{m}{\theta} \overset{m}{\theta} \overset{m}{K} \overset{m^3}{T}$
14. $\theta \overset{m}{K} \overset{3}{T} \overset{2}{K} \overset{3}{T} \overset{2}{\theta} \overset{3}{K_a} - \theta \overset{3}{K_a} \overset{J}{\theta} \overset{2}{K_a} \overset{3}{K} \overset{2}{T} \overset{3}{\theta} \overset{3}{K_a}$
15. $N \overset{m}{G_u} \overset{1}{G_u}!, \overset{J}{T} \overset{2}{T} - \theta \overset{3}{K_a} \overset{3}{D} \overset{m}{N} \overset{m}{\theta} \overset{m^3}{K_u} \overset{n}{\theta}!$,
16. $N \overset{m}{G_u} \overset{1}{G_u}!, \overset{1}{T} \overset{m^3}{T} - \theta \overset{m^3}{K_a} \overset{1}{D} \overset{m^3}{N} \overset{m}{\theta} \overset{m^3}{K_u} \overset{n}{\theta}!$,
17. $\theta \overset{1}{D}!, \overset{1}{K} \overset{3}{T} \overset{3}{\theta} \overset{3}{K} \overset{3}{T} \overset{m}{\theta} \overset{m}{\theta} \overset{m^3}{K_u} \overset{n}{\theta}!$
18. $\theta \overset{1}{D}!, \overset{1}{K} \overset{m^3}{T} \overset{3}{\theta} \overset{3}{K} \overset{3}{T} \overset{3}{\theta} \overset{3}{\theta} \overset{m^3}{K_u} \overset{n}{\theta}!$,
19. $D! \overset{3}{K} \overset{3}{T} \overset{3}{\theta} \overset{3}{K_a} \overset{3}{\theta} \overset{3}{K_a} \overset{3}{\theta} \overset{3}{K} \overset{3}{T} \overset{m}{\theta} \overset{m}{\theta} \overset{m^3}{K_u} \overset{n}{\theta}!$,
20. $\theta \overset{1}{D}!, \overset{1}{K} \overset{3}{T} \overset{3}{D_a} \overset{3}{R} \overset{3}{K} \overset{3}{T} \overset{3}{K_u} \overset{3}{K_a} \overset{n}{\theta}!$,
21. $\theta \overset{1}{D}! \overset{3}{K} \overset{3}{T} \overset{3}{D_a} \overset{3}{R} \overset{3}{K} \overset{3}{T} \overset{3}{K_u} \overset{m}{N} \overset{m}{N}$
22. $\theta \overset{mm}{D} \overset{3}{R} \overset{2}{D} \overset{3}{R} \overset{2}{K} \overset{1}{T} \overset{3}{\theta} \overset{2}{K_a} \overset{3}{D} \overset{3}{R} \overset{3}{D} \overset{3}{R} \overset{1}{K} \overset{3}{T}$
23. $\overset{1}{K} \overset{3}{T} \overset{3}{\theta} \overset{3}{R} \overset{3}{\theta} \overset{3}{K_a} \overset{1}{D} \overset{1}{N} \overset{3}{\theta} \overset{m}{K} \overset{1}{T} \overset{m^3}{\theta} \overset{mm}{\theta} \overset{mm^3}{D} \overset{m^3}{N}$

24. $\overset{1}{\theta} \overset{c\frac{1}{2}}{\theta} \overset{1}{K_a} \overset{1}{D} \overset{m3}{N} \overset{m}{\theta} \overset{1}{K_a} \overset{m}{\theta} \overset{1}{K_a} \overset{c\frac{1}{2}}{\theta} \overset{1}{K_a} \overset{3}{D} \overset{m}{N} \overset{m}{\theta} \overset{1}{K_a}$

25. $\overset{mm}{\theta} \overset{3}{K} \overset{2}{T} \overset{1}{\theta} \overset{3}{K_a} \overset{1}{K} \overset{3}{T} \overset{2}{\theta} \overset{1}{K_a} \overset{ch}{\theta} \overset{1}{R} \overset{3}{K} \overset{2}{T} \overset{1}{\theta} \overset{3}{K_a}$

26. $\overset{3}{\theta} \overset{2}{R} \overset{1}{K} \overset{3}{T} \overset{1}{\theta} \overset{3}{K_a} \overset{1}{\theta} \overset{3}{K_a} \overset{1}{\theta}!$

27. $\overset{1}{\theta} \overset{c\frac{1}{2}}{L!}, \overset{3}{\theta} \overset{3}{R} \overset{1}{K} \overset{3}{T} \overset{1}{\theta} \overset{2}{K^a} \overset{1}{\theta} \overset{3}{K^a} \overset{1}{\theta}!$

28. $\overset{3}{\theta} \overset{2}{R} \overset{3}{K} \overset{3}{T} \overset{1}{K} \overset{2}{T} \overset{1}{\theta} \overset{3}{K_a} \overset{1}{\theta} \overset{c\frac{1}{2}}{L!}, \overset{3}{G_a} \overset{1}{\theta}!$

29. $\overset{1}{\theta} \overset{3}{L} \overset{1}{\theta} \overset{c\frac{1}{2}}{L!}, \overset{3}{\theta} \overset{2}{R} \overset{1}{K} \overset{3}{T} \overset{1}{\theta} \overset{2}{K_a} \overset{1}{\theta} \overset{3}{K_a} \overset{1}{\theta}!$

30. $\overset{mm}{\theta} \overset{1}{K^a} \overset{3}{\theta} \overset{2}{K} \overset{3}{T} \overset{m}{\theta} \overset{1}{K^a} \overset{c\frac{1}{2}}{\theta} \overset{1}{\theta} \overset{1}{K} \overset{3}{T}$

The Series beginning with $\theta - D - \bar{\theta}! - N!$ and each sound increasing by Two.

1. $\overset{2}{\theta}, \overset{1}{D}, \overset{mm}{\bar{\theta}}!, \overset{m}{N}!$
2. $\overset{2}{\theta} \overset{3}{K} \overset{2}{T} \overset{1}{D} \overset{3}{K} \overset{2}{T} \overset{mm}{\bar{\theta}}!, \overset{3}{K} \overset{m}{T} \overset{m}{N}!, \overset{3}{K} \overset{2}{T}$
3. $\overset{2}{\theta} \overset{3}{K} \overset{2}{T} \overset{1}{K} \overset{3}{T} - \overset{1}{D} \overset{3}{K} \overset{2}{T} \overset{1}{K} \overset{3}{T} - \overset{mm}{\bar{\theta}}!, \overset{3}{K} \overset{2}{T} \overset{1}{K} \overset{3}{T} - \overset{m}{N}!, \overset{3}{K} \overset{2}{T} \overset{1}{K} \overset{3}{T}$
4. $\overset{2}{\theta} \overset{3}{K} \overset{2}{T} \overset{1}{K} \overset{3}{T} \overset{1}{\theta} \overset{3}{K_a}$
 $\overset{1}{D} \overset{3}{K} \overset{2}{T} \overset{1}{K} \overset{3}{T} \overset{1}{\theta} \overset{3}{K_a}$
 $\overset{mm}{\bar{\theta}}!, \overset{3}{K} \overset{2}{T} \overset{1}{K} \overset{3}{T} \overset{1}{\theta} \overset{3}{K_a}$
 $\overset{m}{N}!, \overset{3}{K} \overset{2}{T} \overset{1}{K} \overset{3}{T} \overset{1}{\theta} \overset{3}{K_a}$
5. $\overset{2}{\theta} \overset{3}{K} \overset{2}{T} \overset{1}{K} \overset{3}{T} \overset{1}{\theta} \overset{3}{K_a} \overset{1}{K} \overset{3}{T}$
 $\overset{1}{D} \overset{3}{K} \overset{2}{T} \overset{1}{K} \overset{3}{T} \overset{1}{\theta} \overset{3}{K_a} \overset{1}{K} \overset{3}{T}$

$\frac{nn}{\theta!}$, $\overset{3}{\theta}$, $\overset{2}{K}$ $\overset{1}{T}$ $\overset{3}{K}$ $\overset{1}{T}$ $\overset{3}{\theta}$ $\overset{1}{K_a}$ $\overset{3}{K}$ $\overset{1}{T}$

$\frac{m}{N!}$, $\overset{3}{N}$, $\overset{2}{K}$ $\overset{1}{T}$ $\overset{3}{K}$ $\overset{1}{T}$ $\overset{3}{\theta}$ $\overset{1}{K^a}$ $\overset{3}{K}$ $\overset{1}{T}$

$\overset{2}{\theta}$ $\overset{3}{K}$ $\overset{2}{T}$ $\overset{1}{K}$ $\overset{3}{T}$ $\overset{1}{\theta}$ $\overset{3}{K_a}$ $\overset{1}{\theta}$ $\overset{c\frac{1}{2}}{L!}$, $\overset{3}{G_u}$

$\overset{1}{D}$ $\overset{3}{K}$ $\overset{2}{T}$ $\overset{1}{K}$ $\overset{3}{T}$ $\overset{1}{\theta}$ $\overset{3}{K_a}$ $\overset{1}{\theta}$ $\overset{c\frac{1}{2}}{L!}$, $\overset{3}{G_u}$

$\frac{nn}{\theta!}$, $\overset{3}{\theta}$, $\overset{2}{K}$ $\overset{1}{T}$ $\overset{3}{K}$ $\overset{1}{T}$ $\overset{3}{\theta}$ $\overset{1}{K_a}$ $\overset{3}{\theta}$ $\overset{c\frac{1}{2}}{L!}$, $\overset{3}{G_u}$

$\frac{m}{N!}$, $\overset{3}{N}$, $\overset{2}{K}$ $\overset{1}{T}$ $\overset{3}{K}$ $\overset{1}{T}$ $\overset{3}{\theta}$ $\overset{1}{K_a}$ $\overset{3}{\theta}$ $\overset{c\frac{1}{2}}{L!}$, $\overset{3}{G_u}$

7. $\overset{2}{\theta}$ $\overset{3}{K}$ $\overset{2}{T}$ $\overset{1}{K}$ $\overset{3}{T}$ $\overset{1}{\theta}$ $\overset{3}{K_a}$ $\overset{1}{\theta}$ $\overset{3}{L}$ $\overset{1}{\theta}$ $\overset{c\frac{1}{2}}{L!}$, $\overset{3}{G_u}$

$\overset{1}{D}$ $\overset{3}{K}$ $\overset{2}{T}$ $\overset{1}{K}$ $\overset{3}{T}$ $\overset{1}{\theta}$ $\overset{3}{K_a}$ $\overset{1}{\theta}$ $\overset{3}{L}$ $\overset{1}{\theta}$ $\overset{c\frac{1}{2}}{L!}$, $\overset{3}{G_u}$

$\frac{nn}{\theta!}$, $\overset{3}{\theta}$, $\overset{2}{K}$ $\overset{1}{T}$ $\overset{3}{K}$ $\overset{1}{T}$ $\overset{3}{\theta}$ $\overset{1}{K_a}$ $\overset{3}{\theta}$ $\overset{3}{L}$ $\overset{1}{\theta}$ $\overset{c\frac{1}{2}}{L!}$, $\overset{3}{G_u}$

$\frac{m}{N!}$, $\overset{3}{N}$, $\overset{2}{K}$ $\overset{1}{T}$ $\overset{3}{K}$ $\overset{1}{T}$ $\overset{3}{\theta}$ $\overset{1}{K_a}$ $\overset{3}{\theta}$ $\overset{3}{L}$ $\overset{1}{\theta}$ $\overset{c\frac{1}{2}}{L!}$, $\overset{3}{G_u}$

8. $\overset{2}{\theta}$ $\overset{3}{K}$ $\overset{2}{T}$ $\overset{1}{K}$ $\overset{3}{T}$ $\overset{1}{\theta}$ $\overset{3}{K_a}$ $\overset{1}{\theta}$ $\overset{c\frac{1}{2}}{L!}$, $\overset{3}{G_u}$ $\overset{1}{D}$ $\overset{3}{N}$,

$\overset{1}{D}$ $\overset{3}{K}$ $\overset{2}{T}$ $\overset{1}{K}$ $\overset{3}{T}$ $\overset{1}{\theta}$ $\overset{3}{K_a}$ $\overset{1}{\theta}$ $\overset{c\frac{1}{2}}{L!}$, $\overset{3}{G_u}$ $\overset{1}{D}$ $\overset{3}{N}$,

$\frac{nn}{\theta!}$, $\overset{3}{\theta}$, $\overset{2}{K}$ $\overset{1}{T}$ $\overset{3}{K}$ $\overset{1}{T}$ $\overset{3}{\theta}$ $\overset{1}{K_a}$ $\overset{3}{\theta}$ $\overset{c\frac{1}{2}}{L!}$, $\overset{3}{G_u}$ $\overset{1}{D}$ $\overset{3}{N}$,

$\frac{m}{N!}$, $\overset{3}{N}$, $\overset{2}{K}$ $\overset{1}{T}$ $\overset{3}{K}$ $\overset{1}{T}$ $\overset{3}{\theta}$ $\overset{1}{K_a}$ $\overset{3}{\theta}$ $\overset{c\frac{1}{2}}{L!}$, $\overset{3}{G_u}$ $\overset{1}{D}$ $\overset{3}{N}$,

The Series - Decreasing by Two.

8. θ K T K T θ K_a θ $L!$, G_u D N ,

D K T K T θ K_a θ $L!$, G_u D N ,

$\theta!$, K T K T θ K_a θ $L!$, G_u D N ,

$N!$, K T K T θ K_a θ $L!$, G_u D N ,

7. θ \mathbf{K} \mathbf{T} \mathbf{K} \mathbf{T} θ \mathbf{K}_a θ \mathbf{L} θ $\mathbf{L}!$, G_u
 \mathbf{D} \mathbf{K} \mathbf{T} \mathbf{K} \mathbf{T} θ \mathbf{K}_a θ \mathbf{L} θ $\mathbf{L}!$, G_u
 $\overline{\theta}!$, \mathbf{K} \mathbf{T} \mathbf{K} \mathbf{T} θ \mathbf{K}_a θ \mathbf{L} θ $\mathbf{L}!$, G_u
 $\mathbf{N}!$, \mathbf{K} \mathbf{T} \mathbf{K} \mathbf{T} θ \mathbf{K}_a θ \mathbf{L} θ $\mathbf{L}!$, G_u
6. θ \mathbf{K} \mathbf{T} \mathbf{K} \mathbf{T} θ \mathbf{K}_a θ $\mathbf{L}!$, G_u
 \mathbf{D} \mathbf{K} \mathbf{T} \mathbf{K} \mathbf{T} θ \mathbf{K}_a θ $\mathbf{L}!$, G_u
 $\overline{\theta}!$, \mathbf{K} \mathbf{T} \mathbf{K} \mathbf{T} θ \mathbf{K}_a θ $\mathbf{L}!$, G_u
 $\mathbf{N}!$, \mathbf{K} \mathbf{T} \mathbf{K} \mathbf{T} θ \mathbf{K}_a θ $\mathbf{L}!$, G_u
5. θ \mathbf{K} \mathbf{T} \mathbf{K} \mathbf{T} θ \mathbf{K}_a \mathbf{K} \mathbf{T}
 \mathbf{D} \mathbf{K} \mathbf{T} \mathbf{K} \mathbf{T} θ \mathbf{K}_a \mathbf{K} \mathbf{T}
 $\overline{\theta}!$, \mathbf{K} \mathbf{T} \mathbf{K} \mathbf{T} θ \mathbf{K}_a \mathbf{K} \mathbf{T}
 $\mathbf{N}!$, \mathbf{K} \mathbf{T} \mathbf{K} \mathbf{T} θ \mathbf{K}_a \mathbf{K} \mathbf{T}
4. θ \mathbf{K} \mathbf{T} \mathbf{K} \mathbf{T} θ \mathbf{K}_a
 \mathbf{D} \mathbf{K} \mathbf{T} \mathbf{K} \mathbf{T} θ \mathbf{K}_a
 $\overline{\theta}!$, \mathbf{K} \mathbf{T} \mathbf{K} \mathbf{T} θ \mathbf{K}_a
 $\mathbf{N}!$, \mathbf{K} \mathbf{T} \mathbf{K} \mathbf{T} θ \mathbf{K}_a
3. $\theta \mathbf{K} \mathbf{T} \mathbf{K} \mathbf{T} - \mathbf{D} \mathbf{K} \mathbf{T} \mathbf{K} \mathbf{T} - \overline{\theta}!$, $\mathbf{K} \mathbf{T} \mathbf{K} \mathbf{T} - \mathbf{N}!$, $\mathbf{K} \mathbf{T} \mathbf{K} \mathbf{T}$
2. $\theta \mathbf{K} \mathbf{T}$ $-\mathbf{D} \mathbf{K} \mathbf{T}$ $-\overline{\theta}!$, $\mathbf{K} \mathbf{T}$ $-\mathbf{N}!$, $\mathbf{K} \mathbf{T}$
1. θ , $-\mathbf{D}$, $-\overline{\theta}!$, $-\mathbf{N}!$,
-

The series ending in $\theta D \theta! N!$ and increasing by Two.

1. $\theta,$ $D,$ $\bar{\theta}!,$ $N!,$
 2. $KT\theta,$ $KT D,$ $KT\bar{\theta}!,$ $KT N!,$
 3. $KT\theta K_a\theta,$ $KT\theta K_a D,$ $KT\bar{\theta} K_a\theta!,$ $KT\theta K_a N!,$
 4. $KT\theta K_a KT\theta,$
 $KT\theta K_a KT D,$
 $KT\theta K_a KT\bar{\theta}!,$
 $KT\theta K_a KT N!,$
 5. $KT\theta K_a \theta R KT\theta,$
 $KT\theta K_a \theta R KT D,$
 $KT\theta K_a \theta R KT\bar{\theta}!,$
 $KT\theta K_a \theta R KT N!,$
 6. $KT\theta K_a KT\theta L!, G_u\theta,$
 $KT\theta K_a KT\theta L!, G_u D,$
 $KT\theta K_a KT\theta L!, G_u\bar{\theta}!,$
 $KT\theta K_a KT\theta L!, G_u N!,$
 7. $KT\theta K_a KT\theta L\theta L!, G_u\theta,$
 $KT\theta K_a KT\theta L\theta L!, G_u D,$
 $KT\theta K_a KT\theta L\theta L!, G_u\bar{\theta}!,$
 $KT\theta K_a KT\theta L\theta L!, G_u N!;$
 8. $KT\theta K_a KT\theta L!, G_u D N, \theta,$
 $KT\theta K_a KT\theta L!, G_u D N, D,$
 $KT\theta K_a KT\theta L!, G_u D N, \bar{\theta}!,$
 $KT\theta K_a KT\theta L!, G_u D N, N!,$
-

The Series decreasing by Two.

8. $KT\theta K_a KT\theta L!$, $G_a DN, \theta$,
 $KT\theta K_a KT\theta L!$, $G_a DN, D$,
 $KT\theta K_a KT\theta L!$, $G_a DN, \bar{\theta}!$,
 $KT\theta K_a KT\theta L!$, $G_a DN, N!$,
7. $KT\theta K_a KT\theta L\theta L!$, $G_a \theta$,
 $KT\theta K_a KT\theta L\theta L!$, $G_a D$,
 $KT\theta K_a KT\theta L\theta L!$, $G_a \bar{\theta}!$,
 $KT\theta K_a KT\theta L\theta L!$, $G_a N!$,
6. $KT\theta K_a KT\theta L!$, $G_a \theta$,
 $KT\theta K_a KT\theta L!$, $G_a D$,
 $KT\theta K_a KT\theta L!$, $G_a \bar{\theta}!$,
 $KT\theta K_a KT\theta L!$, $G_a N!$,
5. $KT\theta K_a \theta RKT\theta$,
 $KT\theta K_a \theta RKT D$,
 $KT\theta K_a \theta RKT\theta l$,
 $KT\theta K_a \theta RKT N!$,
4. $KT\theta K_a KT\theta$,
 $KT\theta K_a KT D$,
 $KT\theta K_a KT \bar{\theta}!$,
 $KT\theta K_a KT N N!$,
3. $KT\theta K_a \theta$, - $KT\theta K_a D$, - $KT\theta K \bar{\theta}!$, - $KT\theta K_a N!$,
2. $KT\theta$, - $KT D$, - $KT \bar{\theta}!$, - $KT N!$,
1. θ , - D , - $\bar{\theta}!$, - $N!$,
-

The Series beginning with $\theta\theta - DD - \bar{\theta}!\bar{\theta}! - N!N!$ and increasing by Two.

1. $\theta\theta,$ $DD,$ $\bar{\theta}!, \bar{\theta}!,$ $N!, N!,$
2. $\theta\theta KT$ $DDKT$ $\bar{\theta}!, \bar{\theta}!, KT$ $N!, N!, KT$
3. $\theta\theta KT KT$ $DDKT KT$ $\bar{\theta}!, \bar{\theta}!, KT KT$ $N!, N!, KT KT$
4. $\theta\theta KT KT \theta K_a$
 $DDKT KT \theta K_a$
 $\bar{\theta}!, \bar{\theta}!, KT KT \theta K_a$
 $N!, N!, KT KT \theta K_a$
5. $\theta\theta KT KT \theta K_a KT$
 $DDKT KT \theta K_a KT$
 $\bar{\theta}!, \bar{\theta}!, KT KT \theta K_a KT$
 $N!, N!, KT KT \theta K_a KT$
6. $\theta\theta KT KT \theta K_a \theta L!, G_a$
 $DDKT KT \theta K_a \theta L!, G_a$
 $\bar{\theta}!, \bar{\theta}!, KT KT \theta K_a \theta L!, G_a$
 $N!, N!, KT KT \theta K_a \theta L!, G_a$
7. $\theta\theta KT KT \theta K_a \theta L \theta L!, G_a$
 $DDKT KT \theta K_a \theta L \theta L!, G_a$
 $\bar{\theta}!, \bar{\theta}!, KT KT \theta K_a \theta L \theta L!, G_a$
 $N!, N!, KT KT \theta K_a \theta L \theta L!, G_a$
8. $\theta\theta KT KT \theta K_a \theta L!, G_a DN,$
 $DDKT KT \theta K_a \theta L!, G_a DN,$
 $\bar{\theta}!, \bar{\theta}!, KT KT \theta K_a \theta L!, G_a DN,$
 $N!, N!, KT KT \theta K_a \theta L!, G_a DN,$

The Series decreasing by two

8. $\theta \theta \mathbf{K T K T} \theta \mathbf{K}_n \theta \mathbf{L!}, G_n \mathbf{D N},$
 $\mathbf{D D K T K T} \theta \mathbf{K}_n \theta \mathbf{L!}, G_n \mathbf{D N},$
 $\bar{\theta}!, \bar{\theta}!, \mathbf{K T K T} \theta \mathbf{K}_n \theta \mathbf{L!}, G_n \mathbf{D N},$
 $\mathbf{N!}, \mathbf{N!}, \mathbf{K T K T} \theta \mathbf{K}_n \theta \mathbf{L!}, G_n \mathbf{D N},$
7. $\theta \theta \mathbf{K T K T} \theta \mathbf{K}_n \theta \mathbf{L} \theta \mathbf{L!}, G_n$
 $\mathbf{D D K T K T} \theta \mathbf{K}_n \theta \mathbf{L} \theta \mathbf{L!}, G_n$
 $\bar{\theta}!, \bar{\theta}!, \mathbf{K T K T} \theta \mathbf{K}_n \theta \mathbf{L} \theta \mathbf{L!}, G_n$
 $\mathbf{N!}, \mathbf{N!}, \mathbf{K T K T} \theta \mathbf{K}_n \theta \mathbf{L} \theta \mathbf{L!}, G_n$
6. $\theta \theta \mathbf{K T K T} \theta \mathbf{K}_n \theta \mathbf{L!}, G_n$
 $\mathbf{D D K T K T} \theta \mathbf{K}_n \theta \mathbf{L!}, G_n$
 $\bar{\theta}!, \bar{\theta}!, \mathbf{K T K T} \theta \mathbf{K}_n \theta \mathbf{L!}, G_n$
 $\mathbf{N!}, \mathbf{N!}, \mathbf{K T K T} \theta \mathbf{K}_n \theta \mathbf{L!}, G_n$
5. $\theta \theta \mathbf{K T K T} \theta \mathbf{K}_n \mathbf{K T}$
 $\mathbf{D D K T K T} \theta \mathbf{K}_n \mathbf{K T}$
 $\bar{\theta}!, \bar{\theta}!, \mathbf{K T K T} \theta \mathbf{K}_n \mathbf{K T}$
 $\mathbf{N!}, \mathbf{N!}, \mathbf{K T K T} \theta \mathbf{K}_n \mathbf{K T}$
4. $\theta \theta \mathbf{K T K T} \theta \mathbf{K}_n$
 $\mathbf{D D K T K T} \theta \mathbf{K}_n$
 $\theta!, \bar{\theta}!, \mathbf{K T K T} \theta \mathbf{K}_n$
 $\mathbf{N!}, \mathbf{N!}, \mathbf{K T K T} \theta \mathbf{K}_n$
3. $\theta \theta \mathbf{K T K T} - \mathbf{D D K T K T} - \theta!, \bar{\theta}!, \mathbf{K T K T} - \mathbf{N!}, \mathbf{N!}, \mathbf{K T K T}$
2. $\theta \theta \mathbf{K T} - \mathbf{D D K T} - \theta!, \bar{\theta}!, \mathbf{K T} - \mathbf{N!}, \mathbf{N!}, \mathbf{K T}$
1. $\theta \theta, - \mathbf{D D}, - \bar{\theta}!, \bar{\theta}!, - \mathbf{N!}, \mathbf{N!},$

The Series ending in $\theta\theta - DD - \bar{\theta}!\bar{\theta}! - N!N!$ and increasing by two

1. $\theta\theta,$ $DD,$ $\bar{\theta}!\bar{\theta}!,$ $N!N!,$
2. $KT\theta\theta,$ $KTDD,$ $KT\bar{\theta}!\bar{\theta}!,$ $KTN!N!,$
3. $KT\theta K_a\theta\theta,$ $-KT\theta K_aDD;$ $-KT\theta K_a\bar{\theta}!\bar{\theta}!,$ $-KT\theta K_aN!N!,$
4. $KT\theta K_aKT\theta\theta,$
 $KT\theta K_aKTDD,$
 $KT\theta K_aKT\bar{\theta}!\bar{\theta}!,$
 $KT\theta K_aKTN!N!,$
5. $KT\theta K_a\theta RKT\theta\theta,$
 $KT\theta K_a\theta RKTDD,$
 $KT\theta K_a\theta RKT\bar{\theta}!\bar{\theta}!,$
 $KT\theta K_a\theta RKTN!N!,$
6. $KT\theta K_aKT\theta L!, G_u\theta\theta,$
 $KT\theta K_aKT\theta L!, G_uDD,$
 $KT\theta K_aKT\theta L!, G_u\bar{\theta}!\bar{\theta}!,$
 $KT\theta K_aKT\theta L!, G_uN!N!,$
7. $KT\theta K_aKT\theta L\theta L!, G_u\theta!,$
 $KT\theta K_aKT\theta L\theta L!, G_uD,$
 $KT\theta K_aKT\theta L\theta L!, G_u\bar{\theta}!\bar{\theta}!,$
 $KT\theta K_aKT\theta L\theta L!, G_uN!N!,$
8. $KT\theta K_aKT\theta L!, G_uDN, \theta\theta,$
 $KT\theta K_aKT\theta L!, G_uDN, DD,$
 $KT\theta K_aKT\theta L!, G_uDN, \bar{\theta}!\bar{\theta}!,$
 $KT\theta K_aKT\theta L!, G_uDN, N!N!,$

The Series decreasing by two

8. $K T \theta K_n K T \theta L L!, G_n D N, \theta \theta,$
 $K T \theta K_n K T \theta L!, G_n D N, D D,$
 $K T \theta K_n K T \theta L!, G_n D N, \theta!, \bar{\theta}!,$
 $K T \theta K_n K T \theta L!, G_n D N, N!, N!,$
7. $K T \theta K_n K T \theta L \theta L!, G_n \theta \theta,$
 $K T \theta K_n K T \theta L \theta L!, G_n D D,$
 $K T \theta K_n K T \theta L \theta L!, G_n \bar{\theta}!, \bar{\theta}!,$
 $K T \theta K_n K T \theta L \theta L!, G_n N!, N!,$
6. $K T \theta K_n K T \theta L!, G_n \theta \theta,$
 $K T \theta K_n K T \theta L!, G_n D D,$
 $K T \theta K_n K T \theta L!, G_n \bar{\theta}!, \bar{\theta}!,$
 $K T \theta K_n K T \theta L!, G_n N!, N!,$
5. $K T \theta K_n \theta R K T \theta \theta,$
 $K T \theta K_n \theta R K T D D,$
 $K T \theta K_n \theta R K T \bar{\theta}!, \bar{\theta}!,$
 $K T \theta K_n \theta R K T N!, N!,$
4. $K T \theta K_n K T \theta \theta,$
 $K T \theta K_n K T D D,$
 $K T \theta K_n K T \bar{\theta}!, \bar{\theta}!,$
 $K T \theta K_n K T N!, N!,$
3. $K T \theta K_n \theta \theta, - K T \theta K_n D D, - K T \theta K_n \bar{\theta}!, \bar{\theta}!, - K T \theta K_n N!, N!,$
2. $K T \theta \theta, - K T D D, - K T \bar{\theta}!, \bar{\theta}!, - K T N!, N!,$
1. $\theta \theta, - D D, - \bar{\theta}!, \bar{\theta}!, - N!, N!,$

Table showing how a series of sounds can be played in different ways

Number of letters in each Jāthi or (variety) kind	Letters in Short vowels	Short and long vowels		Short and long vowels in Higher Degree
	1	2	3	3
5.	^{3 3 1 m 1} θ D G N θ!	^{3,3 be 1 3} θ D!, K T	^{3 3 2 3 2 1} θ, <u>θ R θ R G_n!</u>	^{m m 1 3 2 1 3} θ <u>θ K T θ K T</u>
6.	^{3 1 3 1 m 1} θ θ D G N θ!	^{3,3 be 3 m 1} θ D!, G N θ!	^{2 3} θ θ, <u>θ R θ R G_n!</u>	^{m m 1 3 2 3 2 1 3} θ <u>θ K T θ K T K T</u>
7.	^{m 1 3} θ K _a θ D G N θ!	^{mm be} θ D!, G N θ!	^{3 2,2} θ D, <u>θ R θ R G_n!</u>	^{m 1 3 2 2 1 3 2 1 3} θ <u>K T θ θ K T θ K T</u>
8.	^{m 1 2} θ K T θ D G N θ!	θ D!, G, N, θ!	^{2 3 2,2} θ θ D, <u>θ R θ R G_n!</u>	^{m 1 3 2 2 1 3 2 3 2 1 3} θ <u>K T θ θ K T θ K T K T</u>
9.	^{3 1 2 1} θ K _a D G _n θ D G N θ!	θ D!, G, N, θ!	^{3 mm 3} θ, D θ θ <u>θ R θ R G_n!</u>	^{m 3 2 1 3 2 1 3 2 3 2 1 3} θ <u>K T K T θ θ K T θ K T K T</u>

in the same Jāthi or kind, maintaining its particular Aksharakala

With pauses 4	Pause and three degrees (D) 5	Higher degree 6
$\theta \theta, K_u$	$\frac{1}{2}D \quad 1D \quad 11D$ $\theta, - \theta - K T \theta K_a$	$\frac{1}{2} \quad 1 \quad 3 \quad 2 \quad 1 \quad 3 \quad 2 \quad 1 \quad 3 \quad m \quad 1$ $K T \theta K_a \theta R K T \theta K_a$
$T \theta \theta, K_u$	$\frac{1}{2}D \quad 1 \quad 11$ $\theta, - \theta K_a - K T \theta K_a$	$m \quad 1 \quad 3 \quad 2 \quad 1 \quad 3 \quad 2 \quad 1 \quad 3$ $\theta!, K T \theta K_a \theta R K T \theta K_a$
$K T \theta \theta, K_u$	$\frac{1}{2} \quad 1 \quad 11$ $\theta, - \theta K_a - \theta D!, G N \theta!$	$3, 3 \quad m$ $D \theta!, K T \theta K_a \theta R K T \theta K_a$
$\theta K T \theta \theta, K_u$	$\frac{1}{2} \quad 1 \quad 11$ $\theta, - \theta K T - \theta D! G, N \theta!$	$1 \quad 3, 3 \quad m$ $\theta D \theta!, K T \theta K_a \theta R K T \theta K_a$
$K T \theta R \theta \theta, K_u$	$\frac{1}{2} \quad 1 \quad 11$ $\theta, - \theta K T - \theta D! G, N, \theta!$	$m \quad 1 \quad 3 \quad 1 \quad m$ $\theta K_a \theta D \theta!, K T \theta K_a \theta R K T \theta K_a$

$\frac{1}{2}$ Degree means 1 letter for 2 Kriyas when
1 letter for 1 Kriya is taken in 1 degree.

NADAS

1. $\theta D !, D N, -\theta K_a D !, D N,$
2. $N, D,, N, -N, D,, N,$
3. $\theta \theta_i !, K T \theta_i !, -\theta \theta_i !, K T \theta_i !,$
4. $\theta_i N, K_u - \theta_i N, K_u$
5. $\theta \theta_i !, \theta \theta_i !, -, \theta_i !, , \theta \theta_i !,$
6. $\theta !, , K_u \theta \theta_i !, -\theta !, K_u \theta \theta_i !,$
7. $D N D !, , D !, -D N D !, , D !,$
8. $\theta \theta_i !, \theta \theta_i !, , \theta_i !, , \theta \theta_i !,$
9. $\theta \theta, \theta \theta_i !, -\theta \theta, \theta \theta_i !,$
10. $. N K_u \theta D N_u \theta D N_u$
11. $\theta K_a J N_u - \theta K_a K T$
12. $\theta !, G_u D_u D !, G_u D_u - \theta K_a D N D !, G_u D_u$
13. $\theta !, K T \theta D !, K_u D !, D_a$
14. $D_a N_i K T - N D K T$
15. $K T \theta K_a - K T \theta K_a - K T \theta K_a - K T \theta !,$
16. $\theta^{m} K_a^{m^3} D_i !, ; D_i !, - \theta K_a D_i !, ; D_i !,$
17. $\theta^{m} K_a^{m^3} D !, D N^{m^3}, - \theta K_a D !, D N,$
18. $\theta^{m} K_a^{m^3} \theta !, ; \theta K_a \theta K_a \theta !, ; \theta K_a \theta K_a$
19. $\theta^{m} K_a^{m^3} D N !, K_u^{m^3} - \theta K_a D N !, K_u - D N !, K_u$
20. $D^1 N^2 K_u^3 \theta !, \theta^{m^m} K T D N K T D N K T$
21. $\theta K_u D !, - \theta \theta K_u D !, -\theta K_a \theta \theta K_u D !,$

The Jathis in the 35 Thālas

The Jathi, set to a Thāla, is a series of sounds which begins with a Nada, repeated if necessary, and ends the Avritha with another series of sounds of a degree higher than that of the Nada and concludes the following Avritha with the same higher degree series repeated three times for the Mukthāyi. The Nada running before Mukthāyi in this Avritha should be so adjusted by reducing it to maintain the limit of the Avritha.

The higher degree series may also be included in the Laghu for the beauty of variety,

The following example serves well to illustrate the Jathi.

Suppose the Jathi begins with a Nada, say θ K T D !, D !, and the Avritha ends in a particular series of sounds of the higher degree, say K T θ K_n, θ R K T θ K_n

Setting the Jathi to Adi Thāla (Chaturasra Thripata thāla) for example, the Avritha is as

(symbol) $\quad \quad \quad 1, \quad \quad \quad 0 \quad \quad \quad 0$
 θ K T D !, D !, - θ K T D !, D !, | θ K T D !, D !, | θ K T - K T θ K_n θ R K T θ K_n ||

The whole series runs at the rate of 4 letters (sounds) per kriya. The Laghu has 15 letters and each Drutha, 8 letters.

K T θ K_n θ R K T θ K_n by virtue of its second degree it equivalent to 5 letters of the first degree. So 3 more letters are to be added before it to make up the 8 letters of the Drutha. These 3 letters are taken from the Nada by reducing it to θ K T. Thus the Drutha is restored.

After the whole Avritha is played or repeated the Mukthayi or conclusion is to be given. Generally the same higher degree series is repeated for the Mukthāyi which should be arranged as to conclude with the Avritha. There may be variations in forming the Mukthāyi with the talent of the artist.

The higher degree series may also be included in the Laghu.

1. θ K T D !, D !, - θ K T D !, D !, | θ K T D !, D !, | θ K T - K T θ K_n θ R K T θ K_n ||
2. θ K T D !, D !, - θ K T - K T θ K θ R K T θ K_n | θ K T D !, D !, | θ K T - K T θ K_n θ R K T θ K_n ||
3. θ K T D !, D !, - θ K T - K T θ K_n θ R K T θ K_n | θ !, - } Mukthāyi
K T θ K_n θ R K T θ K_n | θ !, - }
K T θ K_n θ R K T θ K_n || θ ! }

Chaturasra Jāthi

DHURVA THĀLA

Angas :— 1₄ 0 1₄ 1₄ Number of Kriyas = 14

1. $\theta K_a D N | \theta K_a | \theta K_a J N_u | \theta K_a K T |$ (Gathi)
2. $\theta, K_a, -\theta D G N \bar{\theta} | -\theta K T \theta D |, G N \bar{\theta} |$ ॥
 $\frac{1}{2}$ Kala Kala ॥ Kala
3. $\theta D |, D N, ; D |, D N, | \theta K_a D |, D N, | ; D |, D N, -$
 $\theta L |, \theta R K T \theta K_a \theta K_a \theta K_a \theta K_a | ; D |, D, N -$
 $\theta L |, \theta R K T \theta K_a \theta K_a \theta K_a \theta K_a ||$

Mukthāyi.— ; D |, D N, $\theta L |, \theta R K T \theta K_a \theta K_a \theta K_a \theta K_a | \bar{\theta} |$;
 ; D |, | D N, $\theta L |, \theta R K T \theta K_a \theta K_a \theta K_a \theta K_a \theta |$; |
 ; D |, D N, $\theta L |, \theta R K T \theta K_a \theta K_a \theta K_a \theta K_a || \bar{\theta} |$

4. $\theta K_a ! \theta \theta \bar{\theta} |, -\theta K_a ! \theta K_a ! \theta \theta \bar{\theta} |, \theta K_a ! | \theta \theta \bar{\theta} |, -\theta K T \theta K_a |$
 $\theta K_a \theta R K T \theta K_a -\theta K_a ! \theta \theta \bar{\theta} |, -\theta K_a ! \theta K_a ! \theta \theta |$
 $\bar{\theta} |, -\theta K_a ! \theta \theta \bar{\theta} |, \theta K T \theta K_a \theta K_a \theta R K T \theta K_a ||$
 $\theta K_a ! \theta \theta \theta |, \theta K T \theta K_a \theta K_a \theta R K T \theta K_a$
 $\theta K_a ! | \theta \theta \bar{\theta} |, \theta K T \theta K_a | \theta K_a \theta R K T \theta K_a$

Mukthāyi :— $\theta K T \theta K_a \theta K_a \theta R K T \theta K_a \bar{\theta} |$,
 $\theta | K T \theta K_a \theta K_a \theta R K T \theta K_a \bar{\theta} |$,
 $\theta K T \theta K_a \theta K_a \theta R K T \theta K_a || \bar{\theta} |$

Thrisra Jāthi

DHURVA THĀLA

Angas :— 1₃ 0 1₃ 1₃ Number of Kriyas = 11

1. $\theta K T | \theta K_a | \theta D |, | G N \bar{\theta} |$ (Gathi)
2. $\theta, K T \theta K_a | D |, D | N, K T \theta K_a | D |, D N, ||$

3. $\theta \kappa_a \theta D!, G, N, \bar{\theta}! ||$
4. $\theta \kappa T \theta D!, G, N, \bar{\theta}! ||$
5. $\kappa T \theta \kappa_a \theta D!, G N \bar{\theta}! ||$
6. $\theta \kappa_a \theta \kappa T \theta D!, G N \bar{\theta}! ||$
7. $\frac{1}{2}^D \theta, -\bar{\theta} D G N \bar{\theta}! - \theta D!, G, N, \bar{\theta}! ||$
8. $\theta \kappa T D!, D!, -\theta \kappa T D! |, D!, -\theta \kappa T D! |, D!;, \theta D!, G |$
 $, N, \bar{\theta}! - \theta \kappa T D!, D!, || \theta \kappa T D!, D!, -\theta \kappa T D! |, D!;, \theta |$
 $, D!, G, N, \bar{\theta}! - \theta \kappa T D! |, D!, -\theta \kappa T D!, D!, ||;, \theta D!, G, N, \bar{\theta}! |$
 $\theta \kappa T D!, D!, | \theta \kappa T D!, D!;, \theta |, D!, G, N, \bar{\theta}! - \theta \kappa T D! ||$
 $, D!;, \theta D!, G |, N, \bar{\theta}!$

Mukthāyi .— $, \theta D! |, G N \bar{\theta}!$

$\theta \kappa_a \theta D!, G N | \bar{\theta}!$

$\theta \kappa_a D G_a \theta D!, G N \bar{\theta}! ||$

Misra Jāthi

DHRUVA THĀLA

Angas :— $1_7 \ 0 \ 1_7 \ 1_7$ No. of Kriyas = 23

1. $\theta \kappa_a D G_a \theta D G | N \theta! | \theta \kappa_a \theta D G N \theta! | | \theta \kappa_a \theta D G N \theta! ||$ (Gathi)
2. $\frac{1}{2}^D \theta, \kappa, T, -\theta \kappa T - \theta \kappa \theta D!, G N \theta! | \theta \kappa T \theta D!, G N \bar{\theta}! | \theta \kappa_a \theta \kappa T$
 $\theta D!, G N \bar{\theta}! ||$
3. $\theta |, \theta \theta D!, -\theta |, \theta \theta D!, -\theta |, \theta |, \theta \theta D!, -\theta |, \theta \theta D!,, \theta | \underline{\kappa T \kappa T -}$
 $\underline{\theta \theta \kappa T \theta \kappa T \kappa T |}$
 $\theta |, \theta \theta D!, -\theta |, \theta |, \theta \theta D!, -\theta |, \theta \theta D!, -\theta |, \theta \theta D!, - \underline{DN, \theta R \kappa T |}$
 $\theta |, \theta \theta D!, -\theta |, \theta |, \theta \theta D!, -\theta |, \theta \theta - \theta |, \theta \theta D!, - \underline{DN, \theta R \kappa T DN, \theta R \kappa T |}$
 $\theta |, \theta \theta D!, -\theta |, \theta \theta D!, - \underline{DN, \theta R \kappa T} - \theta |, \theta \theta D!, - \theta |, \theta \theta D!, -$
 $\underline{DN, \theta R \kappa T |} \theta |, \theta \theta D!, - \underline{DN, \theta R \kappa T |}$

$\theta !, \theta \theta - \underline{D N, \theta R K T} - \theta !, \theta \theta - \underline{D N, \theta R K T D N, \theta R K T} -$
 $\theta !, \underline{D N, \theta R K T D N, \theta R K T} - \theta !, \theta !, \underline{D N, \theta R K T} - \underline{D N, \theta R K T} |$

Mukthāyi :— $\theta !, \theta \theta \underline{D N, \theta R K T D N, \theta R K T} \bar{\theta} !,$

$\theta !, \theta \theta - \underline{D N, \theta R K T D N, \theta R K T} \bar{\theta} !$

$\theta \theta !, \theta \theta - \underline{D N, \theta R K T D N, \theta R K T} || \bar{\theta} !$

Khanda jāthi

DHRUVA THĀLA

Angas :— $1_5 \ 0 \ 1_5 \ 1_5$ No. of Kriyas = 17

1. $\theta K_a \theta D G | N \bar{\theta} ! | \theta K_a \theta K T | \theta K_a \theta K T ||$ (Gathi)
2. $\theta, \overset{\frac{1}{2} D}{K}, T, - \overset{ID}{\theta} K T - \overset{ID}{\theta} K T \theta D G N \bar{\theta} ! \theta D !, G, N, \bar{\theta} ! ||$
3. $, \theta \theta \bar{\theta} !, - \theta \theta \theta \theta \theta \bar{\theta} !, - \theta \theta \bar{\theta} !, \theta \theta \theta ! |, \underline{\theta D !, K T \theta K T \theta \theta K_a \bar{\theta} !} |$
 $, \theta \theta \bar{\theta} !, - \theta \theta \bar{\theta} !, - \theta \theta \theta \theta \theta \theta \bar{\theta} !, - \theta \theta \bar{\theta} ! |$
 $, \theta \theta \theta \theta \bar{\theta} !, - \theta \theta \theta \theta \bar{\theta} !, - \underline{\theta D !, K T \theta K T \theta \theta K_a \bar{\theta} !} ||$
 $, \theta \theta \theta \theta \bar{\theta} !, - \underline{\theta D !, K T \theta K T \theta \theta K_a \bar{\theta} !} - , \theta \theta \theta \theta \bar{\theta} ! |$
 $, \underline{\theta D !, K T \theta K T \theta \theta K_a \bar{\theta} !} |$

Mukthāyi :— $, \theta \theta \bar{\theta} !, - \underline{\theta D !, K_a \theta K T \theta \theta K_a \bar{\theta} !} \theta ,,$

$\theta \theta \bar{\theta} !, - \underline{\theta D !, K T \theta K T \theta \theta K_a \bar{\theta} !} \theta ,,$

$\theta \theta \bar{\theta} !, - \underline{\theta D !, K T \theta K T \theta \theta K_a \bar{\theta} !} || \theta$

Samkeerna jāthi

DHRUVA THĀLA

Angas :— $1_9 \ 0 \ 1_9 \ 1_9$ No. of Kriyas = 28

1. $\theta K_a \theta K T \theta D !, G | N \bar{\theta} ! | \theta K_a \theta G L \theta D G N \bar{\theta} ! | \theta K_a \theta G L \theta D G N \bar{\theta} !$

2. $\overset{1a}{\text{K}}, \overset{1a}{\text{T}}, \overset{1a}{\theta}, \overset{1a}{\text{Ka}}, -\overset{1a}{\theta} \mid \overset{1a}{\text{KT}} \mid -\overset{1a}{\theta} \overset{1a}{\text{Ka}} \overset{1a}{\theta} \overset{1a}{\text{D}} \mid, \overset{1a}{\text{G}}, \overset{1a}{\text{N}}, \overset{1a}{\theta} \mid$
 $\theta \text{KT} \theta \text{D} \mid, \mid \text{G}, \text{N}, \theta \mid$
 $\theta \text{Ka} \text{D} \text{G} \theta \text{D} \mid, \text{G}, \text{N}, \theta \mid \parallel$ }
3. $\theta \text{KT} \theta \text{Ka} \text{D} \mid, \text{DN}, -\theta, \text{KT} \theta \text{Ka} \text{D} \mid, \text{DN}, -; \text{KT} \theta \text{Ka} \text{D} \mid, \text{DN}, \mid$
 $\text{KT} \theta \text{R} \theta \text{Ka} \text{DN} \theta \text{KT} \theta \text{DN} \mid$
 $\theta \text{KT} \theta \text{Ka} \text{D} \mid, \text{DN}, -; \text{KT} \theta \text{Ka} \text{D} \mid, \text{DN}, \theta, \text{KT} \theta \text{Ka} \text{D} \mid, \text{DN}, \mid$
 $; \text{KT} \theta \text{Ka} - \text{KT} \theta \text{Ka} \text{D} \mid, \text{DN}, -\theta, \text{KT} \theta \text{Ka} \text{D} \mid, \text{DN},$
 $\text{KT} \theta \text{R} \theta \text{Ka} \text{DN} \theta \text{KT} \theta \text{DN} \parallel$
 $\theta \text{KT} \theta \text{Ka} \text{D} \mid, \text{DN}, -; \text{KT} \theta \text{Ka} \text{D} \mid, \text{DN}, ; -$
 $\text{KT} \theta \text{R} \theta \text{Ka} \text{DN} \theta \text{KT} \theta \text{DN} \theta, \mid$
 $\text{KT} \theta \text{Ka} \text{D} \mid, \text{D}, \mid \text{N}, -\theta, \text{KT} \theta \text{Ka} \text{D} \mid, \text{DN}, ;$
- Mukthāyi :— $; \text{KT} \text{D} \mid, \text{KT} - \text{KT} \theta \text{R} \theta \text{Ka} \text{DN} \theta \text{KT} \theta \text{DN} \theta \mid, ; \mid$
 $; \text{KT} \text{D} \mid, \text{KT} - \text{KT} \theta \text{R} \theta \text{Ka} \text{DN} \theta \text{KT} \theta \text{DN} \theta \mid, ;$
 $; \text{KT} \text{D} \mid, \text{KT} - \text{KT} \theta \text{R} \theta \text{Ka} \text{DN} \theta \text{KT} \theta \text{DN} \parallel \theta \mid$

Chaturasra iāthi

MATYA THĀLA

Angas :— $\mid_4 \ 0 \ \mid_4$ No. of Kriyas = 10

1. $\theta \text{Ka} \theta \text{K} \mid \text{T} - \theta \mid \text{Ka} \theta \text{KT} \parallel$ (Gathi)
2. $\overset{1a}{\theta}, -\overset{1a}{\theta} \text{D} \text{G} \text{N} \theta \mid - \overset{1a}{\theta} \text{D} \mid, \text{G} \text{N} \theta \mid \parallel$
3. $\text{NKu} \theta \text{DM} \theta \text{DM} - \text{NKu} \theta \text{DM} \theta \text{DM} \mid \text{NKu} \theta \text{DM} \theta \text{DM} \mid$
 $\theta \text{KT} \text{KT} \theta \text{Ka} - \theta \text{Ka} \theta \text{R} \text{KT} \theta \text{Ka} \text{NKu} \theta \text{DM} \theta \text{DM} \parallel$
 $\theta \text{KT} \text{KT} \theta \text{Ka} - \theta \text{Ka} \theta \text{R} \text{KT} \theta \text{Ka}$

Mukthāyi :— $\theta \text{KT} \text{KT} \theta \text{Ka} - \theta \text{Ka} \theta \text{R} \text{KT} \theta \text{Ka} \mid \theta \mid, ;$
 $\theta \text{KT} \text{KT} \theta \text{Ka} \mid \theta \text{Ka} \theta \text{R} \text{KT} \theta \text{Ka} \theta \mid, ;$
 $\theta \text{KT} \text{KT} \theta \text{Ka} \cdot \theta \text{Ka} \theta \text{R} \text{KT} \theta \text{Ka} \parallel \theta \mid$

4. , $\theta\theta\bar{\theta}$!, - $\theta\theta\bar{\theta}$!, - $\theta\theta\theta\theta\theta\theta\bar{\theta}$! | , $\theta\theta\bar{\theta}$!, - $\theta\theta\bar{\theta}$! |
 , $\theta\theta\theta\theta\theta\theta\bar{\theta}$! -, $\theta D!$, $\theta K T$ $\theta K T$ $\theta\theta K_u \bar{\theta}$! ||
 , $\theta\theta\bar{\theta}$!, $\theta\theta\bar{\theta}$!, | $\theta\theta\theta\theta\theta\theta\bar{\theta}$! | , $\theta\theta\bar{\theta}$!, - $\theta\theta\theta$! |
 , $\theta\theta\theta\theta\theta\theta\bar{\theta}$! - . $\theta D!$, $\theta K T$ $\theta K T$ $\theta\theta K_u \bar{\theta}$! ||
 , $\theta\theta\bar{\theta}$!, - $\theta\theta\theta\theta\theta\theta\bar{\theta}$! -, $\theta D!$, $\theta K T$ | $\theta K T$ $\theta\theta K_u \bar{\theta}$! -, $\theta\theta\theta\bar{\theta}$! |
 , $\theta\theta\theta\theta\theta\theta\bar{\theta}$! -, $\theta D!$, $\theta K T$ $\theta K T$ $\theta\theta K_u \bar{\theta}$! ||

Mukthayi :-

, $\theta\theta\bar{\theta}$! -, $\theta D!$, $\theta K T$ $\theta K T$ $\theta\theta K_u \bar{\theta}$! θ , ,
 θ | $\theta\bar{\theta}$! -, $\theta D!$, $\theta K T$ $\theta K T$ θ | $\theta K_u \bar{\theta}$! θ , ,
 $\theta\theta\bar{\theta}$! -, $\theta D!$, $\theta K T$ $\theta K T$ $\theta\theta K_u \bar{\theta}$! || θ

Thrisra jāthi

MATYA THĀLA

Angas :- |₃ 0 |₃ No. of Kriyas = 8

1. $\theta K T$ | θK_u | $\theta K T$ || (Gathi)

2. θ , - $\theta K \uparrow$ - $\theta D!$, $G N \bar{\theta}$! ||

3. $\theta\theta_i!$ $\theta_i!$ $\theta_i!$ - $\theta\theta_i!$ $\theta_i!$ $\theta_i!$ - $\theta\theta_i!$ $\theta_i!$ $\theta_i!$ | $\theta\theta_i!$ $\theta_i!$ $\theta_i!$

- θ, θ | $\theta\theta - \theta D!$, $G, N, \bar{\theta}$! ||

DO - DO - DO | DO - θ, θ | $\theta, \theta - \theta D!$, $G, N, \bar{\theta}$! ||

DO - DO - DO | DO - θ, θ | $\theta D G N \bar{\theta}$! - $\theta D!$, $G N \bar{\theta}$! ||

DO - DO - DO | DO - θ, θ | $\theta, \theta\theta - \theta D!$, $G N \bar{\theta}$! ||

DO - DO - DO | DO - θ, θ | $\theta, \theta\theta\theta - \theta D G N \bar{\theta}$! ||

4. $\theta D!$, $D N$, - $\theta K_u D!$, | $D N$, $\theta\theta K_u D!$, | $D N$, - $\theta L!$, $\theta R K T \theta K_u \theta K_u \bar{\theta}$!, ||

$\theta D!$, $D N$, - $\theta K_u D!$, | $D N$, $\theta\theta K_u D!$, | $D N$, - $\theta L!$, $\theta R K T \theta K_u \theta K_u \bar{\theta}$!, ||

$\theta \theta K_a D!$, $D N$, $\theta L \theta L!$, $\theta R | K T \theta K_a \theta K_a \theta K_a \theta K_a - N, D!$ |

$D N, \theta R K T \theta K_a \theta K_a \theta L!$, $G_a \theta L!$, G_a ||

Mukthāyi:— $\theta R K T \theta K_a \theta K_a \theta L \theta L!$, $G_a \bar{\theta}!$ θ , ; |

$\theta R K T \theta K_a \theta K_a \theta L \theta L!$, $G_a \bar{\theta}!$ | θ , ,

$\theta \theta R K T \theta K_a \theta K_a \theta L \theta L!$, $G_a \bar{\theta}!$ || θ

Misra jāthi

MATYA THĀLA

Angas :— $l_7 \quad 0 \quad l_7$ No. of Kriyas = 16

1. $\theta K_a D G_a \theta D G | N \bar{\theta}!$ | $\theta K_a \theta D G N \bar{\theta}!$ || (Gathi)
2. $\frac{1}{2}^a$ θ , D , θ , - θ $\overset{1a}{K T}$ - θ $\overset{3a}{D!}$, $G N \bar{\theta}!$ $\theta D!$, $G, N, \bar{\theta}!$ ||
3. $\theta D!$, $D N$, $\theta K_a D!$, $D N$, - $\theta \theta K_a D!$, $D N$, -
 $\theta L!$, $\theta R K T | \theta K_a \theta K_a \bar{\theta}!$, - $N, D!$, |
 $D N$, - $\theta K_a D!$, $D N$, - $\theta \theta K_a D!$, $D N$, - $\theta L!$, $\theta R K T \theta K_a \theta K_a \theta!$, ||
 $\theta \theta K_a D!$, $D N$, - $\theta L \theta L!$, $\theta R K T \theta K_a \theta K_a \theta K_a - N, D!$, $D N$, -
 $\theta R K T \theta K_a \theta K_a | \theta L \theta L!$, $G_a \bar{\theta}!$,

Mukthāyi:— $\theta R K T \theta K_a \theta K_a | \theta L \theta L!$, $G_a \bar{\theta}!$, θ , ;
 $\theta R K T \theta K_a \theta K_a \theta L \theta L!$, $G_a \bar{\theta}!$, θ , ;
 $\theta R K T \theta K_a \theta K_a \theta L \theta L!$, $G_a \bar{\theta}!$, || θ

Khanda jāthi

MATYA THĀLA

Angas :— $l_3 \quad \vee \quad l_5$ No. of Kriyas = 12

1. $\theta K_a \theta K T | \theta K_a | \theta K_a \theta K T$ || (Gathi)
2. $\frac{1}{2}^a$ θ , - θ $\overset{1a}{D G N \bar{\theta}!}$ - $\overset{2a}{K T} \theta K_a \theta D!$, $G N \bar{\theta}!$ ||
3. $\theta K T \theta K_a D!$, $D N$, - θ , $K T \theta K_a D!$, | $D N$, - $\theta K T |$
 $\theta K_a D!$, $D N$, - θ , $K T \theta K_a D!$, $D N$, ||

; K T θ K_a D !, D N, - θ K T θ K_a D !, | D N, - ; K T |
 θ K_a D !, D N, - θ , K T θ K_a D !, D N, ||
 θ K T θ K_a D !, D N, - θ D !, G N $\bar{\theta}$! - θ , | K T θ K_a D !, D | N,

Mukthāyi :— θ D !, G N $\bar{\theta}$!

θ D !, G N $\bar{\theta}$!

θ D !, G N $\bar{\theta}$. ||

4. N K_a θ D M θ D M - N K_a θ D M θ D M - N K_a θ D | M θ D M - θ K T K T θ K_a |
 θ K_a θ R K T θ K_a - N K_a θ D M θ D M - N K_a θ D M θ D M ||
N K_a θ D M θ D M - θ K T K T θ K_a - θ K_a θ R K T θ K_a - N K_a θ D |
M θ D M - θ K T K T θ K_a | θ K_a θ R K T θ K_a - N K_a θ D M θ D M -
 θ K T K T θ K_a - θ K_a θ R K T θ K_a ||

θ K T K T θ K_a - θ K_a θ R K T θ K_a - θ K T K T θ K_a - θ K_a θ R K T θ K_a

Mukthāyi :— θ K T K T θ K_a | θ K θ R K T θ K_a $\bar{\theta}$!, ; |

θ K T K T θ K_a - θ K θ R K T θ K_a $\bar{\theta}$!, ,

θ θ K T K T θ K_a - θ K θ R K T θ K_a || $\bar{\theta}$!

5: θ θ !, θ - θ θ !, θ - θ θ !, θ K_a D !, θ - K T θ R θ K_a D N | θ K T θ D N
 θ θ !, θ | θ θ !, θ - θ θ !, θ K_a D !, θ - K T θ R θ K_a D N θ K T θ D N ||
 θ θ !, θ - θ θ !, θ - θ θ !, θ K_a D !, θ - θ θ ! K T | θ K^a θ R K T $\bar{\theta}$!,
 θ θ !, θ | θ θ !, θ - θ θ !, θ K_a D !, θ - θ θ !, K T θ K_a θ R K T $\bar{\theta}$!, ||

θ θ !, θ - θ θ !, K T θ K^a θ R K T $\bar{\theta}$!,

θ θ !, θ - θ !, K T | θ K_a θ R K T $\bar{\theta}$!,

Mukthāyi :- $\theta \theta_i !, - |, \underline{\text{KT} \theta \text{K}_a - \theta \text{RKT} \theta !}, -$ Thrisra gamana.

$\theta \theta_i !, \underline{\text{KT} \theta \text{K}_a \theta \text{RKT} \theta !},$ Chaturasra gamana.

$\underline{\theta \theta_i !}, \underline{\text{KT} \theta \text{K}_a \theta \text{RKT} \theta !}, \parallel$ -Do- Higher degree.

Note :- The first line of the Mukthāyi is fixed to 3 kriyas, separated by hyphens.

Sankeerna jāthi

MATYA THĀLA

Angas :— $|_0 \ 0 \ |_0$ No. of Kriyas = 20

1. $\theta \text{RKT} \theta \text{K}_a \theta \text{DG} | \text{N} \theta ! | \theta \text{K}_a \text{DG} \theta \text{DGN} \theta ! \parallel$ (Gathi)

2. $\theta, \text{D}, \text{G}, \text{N}, \theta !, - \theta \text{DGN} \theta ! - \text{KT} \theta \text{K}_a \theta \text{D}, \text{GN} \theta ! \parallel$

3. $\text{NK}_a \theta \text{DM} \theta \text{DM} - \text{NK}_a \theta \text{DM} \theta \text{DM} - \text{NK}_a \theta \text{DM} \theta \text{DM} - \underline{\theta \text{KT} \text{KT} \theta \text{K}_a}$
 $\underline{\theta \text{K}_a \theta \text{RKT} \theta \text{K}_a \text{NK}_a \theta \text{D} | \text{M} \theta \text{DM} - \theta \text{KT} \text{KT} \theta \text{K}_a | \theta \text{K}_a \theta \text{RKT} \theta \text{K}_a}$

Mukthāyi :- $\underline{\theta \text{KT} \text{KT} \theta \text{K}_a} \quad \underline{\theta \text{K}_a \theta \text{RKT} \theta \text{K}_a} \quad \theta !, ;$

$\underline{\theta \text{KT} \text{KT} \theta \text{K}_a} \quad \underline{\theta \text{K}_a \theta \text{RKT} \theta \text{K}_a} \quad \theta !, ;$

$\underline{\theta \text{KT} \text{KT} \theta \text{K}_a} \quad \underline{\theta \text{K}_a \theta \text{RKT} \theta \text{K}_a} \quad \parallel \theta !$

4. $, \theta \theta \theta !, - \theta \theta \theta !, - \theta \theta \theta \theta \theta \theta !, - \theta \theta \theta !, - \theta \theta \theta !, - \theta \theta \theta$

$\theta \theta \theta \theta ! - , \underline{\theta \text{D} !, \text{KT} | \theta \text{KT} \theta \theta \text{K}_a \theta !} - \theta \theta \theta !, |$

$, \theta \theta \theta !, - \theta \theta \theta \theta \theta \theta !, - \theta \theta \theta !, - \theta \theta \theta !, - \theta \theta \theta$

$\theta \theta \theta \theta ! - , \underline{\theta \text{D} !, \text{KT} \theta \text{KT} \theta \theta \text{K}_a \theta !} \parallel$

$, \theta \theta \theta !, - \theta \theta \theta \theta \theta \theta ! - , \underline{\theta \text{D} !, \text{KT} \theta \text{KT} \theta \theta \text{K}_a \theta !}$

$, \theta \theta \theta !, - \theta \theta \theta \theta \theta \theta ! - , \underline{\theta \text{D} !, \text{KT} | \theta \text{KT} \theta \theta \text{K}_a \theta !}$

Mukthāyi :- $\theta \theta \theta !, | , \underline{\theta \text{D} !, \text{KT} \theta \text{KT} \theta \theta \text{K}_a \theta !} \theta , ,$

$\theta \theta \theta ! - , \underline{\theta \text{D} !, \text{KT} \theta \text{KT} \theta \theta \text{K}_a \theta !} \theta , ,$

$\theta \theta \theta ! - , \underline{\theta \text{D} !, \text{KT} \theta \text{KT} \theta \theta \text{K}_a \theta !} \parallel \theta$

Chaturasra jāthi

ROOPAKA THĀLA

Angas :— 0 | 4 No. of Kriyas = 6

1. θ K_a | θ R K T || (Gathi)
2. θ , | K T θ K_a ||
3. $\frac{1}{2}^a$ θ , - θ K_a - K T θ K_a ||
4. θ D!, D N, | θ K_a D!, D N, - θ K_a D N K_a D N K_a ||
 θ D!, D N, | θ K_a D!, D N, - θ K_a D N K_a D N K_a ||
 θ D!, D N, | θ K_a D N K_a D N K_a θ !, ;
 θ K_a D!, || D N, θ K_a D N | K_a D N K_a θ !, ;
 Mukthāyi :— θ K_a D N K_a D N K_a || θ !, ;
 θ K_a D N | K_a D N K_a θ !, ;
 θ K_a D N K_a D N K_a || θ !
5. θ K T D N, | θ R K T D!, D N, - θ D, G, N, θ ! ||
 θ K T - θ D, N | , θ R K T D!, D N - θ D, G N θ ! ||
 θ !, K T θ K_a D | N, θ R K T D!, D N, - θ D!, G N θ ! ||
 θ !, K T θ K_a D | N, θ R K T D!, D N, - θ D G N θ ! ||
6. θ K T θ K_a D!, | D N, - θ , K T θ K_a D!, D N, ||
 θ K T θ K_a D!, | D N, - θ , K T θ K_a D!, D N, ||
 ; K T θ K_a D!, | D N, - θ K T θ K_a D!, D N, ||
 ; K T θ K_a D!, | D N, - θ , K T θ K_a D!, D N, ||
 θ K T θ K_a D!, | D N, - θ D!, G N θ ! θ , K T θ K_a ||
 D!, D N.

Mukthāyi :— θ D! | , G N θ !

θ D!, G N θ !

θ D!, G N θ ! || θ

7. , KTθK₃D, , KTθK₃D, | D!, KTθK₃D, , KTθK₃D, , KTθK₃D,
D!, KTθKD, ||
 , KTθK₃D, , KTθK₃D, | D!, KTθK₃D, , KTθK₃D, , KTθK₃D,
D!, KTθKD, ||
 , KTθK₃D, D!, KTθK₃D, | , KTθK₃D, D!, KTθK₃D, , KTθKD,
D!, KTθKD, ||
 , KTθK₃D, D!, KTθK₃D, | D!, KTθK-D!, K₃D₃θ!, K₃D₃-
D!, K₃D₃θ!, G₃D₃-D!, G₃D₃θ!, G₃D₃θ ||

Mukthāyi:—

θθ!, - KTθ!, - | θKTθ!, - θDG Nθ! - θD!, GNθ! || (Chaturasra
 Gamana)

θθ!, - KT | θ!, - θKTθ!, - θDG Nθ! || θD!, GNθ! | (Thrisra)

θθ!, - KTθ!, - θKTθ!, - θDG Nθ! - θD!, GNθ! || (Thrisra Higher
 degree)

8. θθ!, θ!, θ!, θ! - θθ!, θ!, θ! | θ, θθθθD!, G, N, θ! ||

Do - Do | θ, θθθθD!, G, N, θ! ||

Do - Do | θ, θθθDG Nθ! - θD!, GNθ! ||

Do - Do | θ, θθθθθD!, GNθ! ||

Do - Do | θ, θθθθθθDG Nθ! ||

9. θθ!, θ-θθ!, θ | θθ!, θK₃D!, θ-KTθRθK₃DN-θKTθDN ||

θθ!, θ-θθ!, θ | θθ!, θK₃D!, θ-KTθRθK₃DN-θKTθDN ||

θθ!, θ-θθ!, θ | θθ!, θK₃D!, θ-θθ!, KTθK₃θRKTθ!, ||

θθ!, θ-θθ!, θ | θθ!, θK₃D!, θ-θθ!, KTθK₃θRKTθ!, ||

θθ!, θ-θθ!, KT | θK₃θRKTθ!, - θθ!, θ-θθ!, KTθK₃θRKTθ!, ||

Mukthāyi:— , θθ!, KTθK₃ | θRKTθ!, (Thrisra Gamana)

θθ!, KTθK₃θRKTθ!, (Chaturasra Gamana)

θθ!, KTθK₃θRKTθ!, || (Chaturasra Higher degree)

Thrisra jāthi

ROOPAKA THĀLA

Angas:— 0 |₃ No. of Kriyas = 5

1. θ κ_a | θ κ T || (Gathi)
2. $\overset{1}{\theta}$ - $\overset{1}{\theta}$ - $\overset{H}{D}$ G N $\bar{\theta}$! ||
3. $\theta\theta!$ $\theta!$ $\theta!$ - θ, θ | $\theta\theta\theta D!$, G , N , $\bar{\theta}$! ||
- DO - θ, θ | $\theta, \theta\theta D!$, G , N , $\theta!$ ||
- DO - θ, θ | $\theta D G N \bar{\theta}$! - $\theta D!$, $G N \theta!$ ||
- DO - θ, θ | $\theta, \theta\theta\theta D!$, $G N \bar{\theta}$! ||
- DO - θ, θ | $\theta, \theta\theta\theta\theta D G N \bar{\theta}$! ||
4. $N \kappa_a \theta D M \theta D M$ | $N \kappa_a \theta D M \theta D M - N \kappa_a \theta D || M \theta D M - \theta \underline{\kappa T \kappa T \theta \kappa_a}$
 $\theta \kappa_a \theta R \kappa T \theta \kappa_a - N \kappa_a \theta D M \theta D M || \theta \underline{\kappa T \kappa T \theta \kappa_a} - \theta \kappa_a \theta R \kappa T \theta \kappa_a$
- Mukthāyi :— $\theta \underline{\kappa T \kappa T \theta \kappa_a} - \theta \kappa_a \theta R \kappa T \theta \kappa_a \bar{\theta}$! ;
 $\theta \underline{\kappa T \kappa T \theta \kappa_a} - \theta \kappa_a \theta R \kappa T \theta \kappa_a \bar{\theta}$! ,,
 $\theta \theta \underline{\kappa T \kappa T \theta \kappa_a} - \theta \kappa_a \theta R \kappa T \theta \kappa_a || \bar{\theta}$!
5. $, \theta\theta\bar{\theta}!$, - $\theta\theta\bar{\theta}$! | $, - \theta\theta\theta \theta\theta\theta\bar{\theta}!$, - $\theta\theta\bar{\theta}$! ||
- $, \theta\theta\bar{\theta}!$, - $\theta\theta\theta$ | $\theta\theta\theta\bar{\theta}$! , - $, \theta D!$, $\underline{\kappa T \theta \kappa T \theta \theta \kappa_a \bar{\theta}}$! ||
- $, \theta\theta\bar{\theta}$! , - $\theta\theta\bar{\theta}$! | $, - \theta\theta\theta \theta\theta\theta\bar{\theta}$! , - $\theta\theta\bar{\theta}$! ||
- $, \theta\theta\bar{\theta}$! , - $\theta\theta\theta$ | $\theta\theta\theta\bar{\theta}$! - $, \theta D!$, $\underline{\kappa T \theta \kappa T \theta \theta \kappa_a \bar{\theta}}$! ||
- $, \theta\theta\bar{\theta}$! , - $\theta\theta\theta$ | $\theta\theta\theta\bar{\theta}$! - $, \theta D!$, $\underline{\kappa T \theta \kappa T \theta \theta \kappa_a \bar{\theta}}$! ||
- $, \theta\theta\bar{\theta}$! , - $\theta\theta\theta$ | $\theta\theta\theta\bar{\theta}$! - $, \theta D!$, $\underline{\kappa T \theta \kappa T \theta \theta \kappa_a \bar{\theta}}$! ||
- Mukthāyi :— $, \theta\theta\bar{\theta}$! - $, \theta D!$, $\underline{\kappa T | \theta \kappa T \theta \theta \kappa_a \bar{\theta}}$! $\theta,$
 $, \theta\theta\bar{\theta}$! - $\theta || D!$, $\underline{\kappa T \theta \kappa T \theta \theta \kappa_a \bar{\theta}}$! $\theta,$ |
 $, \theta\theta\bar{\theta}$! - $, \theta D!$, $\underline{\kappa T \theta \kappa T \theta \theta \kappa_a \bar{\theta}}$! || θ

Misra jāthi

ROOPAKA THĀLA

Angas :— 0 1, No. of Kriyas = 9

1. $\text{KT} \mid \theta \text{Ka} \theta \text{DGN} \overline{\theta} \mid \parallel$ (Gathi)
2. $\overset{1a}{\theta}, - \overset{1a}{\text{KT}} \overset{1a}{\theta} \overset{1a}{\text{Ka}} - \overset{1a}{\theta} \text{D!}, \text{GN} \overline{\theta} \mid \parallel$
3. $\overset{1a}{\theta}, - \overset{1a}{\theta} \overset{1a}{\text{KT}} - \overset{1a}{\theta} \text{D!}, \text{G, N, } \overline{\theta} \mid \parallel$
4. $\overset{1a}{\theta}, - \overset{1a}{\theta} \overset{1a}{\text{Ka}} - \overset{1a}{\theta} \text{J!}, \theta \text{D!}, \text{KT} \parallel$
5. $\theta \text{KT} \theta \text{KT D!}, \text{N, } \underline{\theta \text{RKT D!}}, \text{DN, -DKT} \theta \text{Ka DN, -} \theta \text{D!}, \text{GN} \overline{\theta} \mid \parallel$
 $\theta \text{KT} \theta \text{Ka D} \mid \text{N, } \underline{\theta \text{RKT D!}}, \text{DN, -DKT} \theta \text{Ka DN, -} \theta \text{D!}, \text{G, N, } \overline{\theta} \mid \parallel$
 $\theta \text{KT} \theta \text{DN} \mid, \underline{\theta \text{RKT D!}}, \text{DN, -DKT} \theta \text{Ka DN, -} \theta \text{D!}, \text{G, N, } \overline{\theta} \mid \parallel$
 $\theta \text{KT DN, } \mid \underline{\theta \text{RKT D!}}, \text{DN, -DKT} \theta \text{Ka DN, -} \theta \text{J!}, \theta \text{D!}, \text{KT} \parallel$
6. $\theta \text{KT} \theta \text{DN} \mid, -\theta \text{Ka DN, -} \underline{\theta \text{RKT DN}} - \text{DKT} - \text{DN, } \theta \text{J!}, \theta \text{D!}, \text{KT} \parallel$
 $\text{do} \mid \text{do} - \text{do} - \text{do} - \theta \text{DN, } \theta \text{D!}, \text{G, N, } \overline{\theta} \mid \parallel$
 $\text{do} \mid \text{do} - \text{do} - \text{do} - \theta \text{Ka DN, } \theta \text{D!}, \text{G, N, } \overline{\theta} \mid \parallel$
 $\text{do} \mid \text{do} - \text{do} - \text{do} - \theta \text{KT DN, } \theta \text{D!}, \text{GN} \overline{\theta} \mid \parallel$
7. $\underline{\theta \theta_1!}, \text{KT} \theta_1! - \underline{\theta \theta_1!}, \text{KT} \theta_1! \mid \underline{\theta \theta_1!}, \text{KT} \theta_1! - \theta \theta_1!}, \text{DNKaKa N Ka D!},$
 $\underline{\text{KT} \theta_1!} - \theta \theta \theta \theta \theta \text{D!}, \text{G, N, } \overline{\theta} \mid \parallel$
 $\text{do} - \text{do} \mid \text{do} - \text{do} - \theta \theta \theta \theta \theta \text{D!}, \text{G, N, } \overline{\theta} \mid \parallel$
 $\text{do} - \text{do} \mid \text{do} - \text{do} - \theta \theta \theta \text{DGN} \overline{\theta} \mid - \theta \text{D!}, \text{GN} \overline{\theta} \mid \parallel$
 $\text{do} - \text{do} \mid \text{do} - \text{do} - \theta \theta \theta \theta \theta - \theta \text{D!}, \text{GN} \overline{\theta} \mid \parallel$
 $\text{do} - \text{do} \mid \text{do} - \text{do} - \theta \theta \theta \theta \theta \theta - \theta \text{DGN} \overline{\theta} \mid \parallel$

8. $N K_a \theta D M \theta D M - N K_a \theta D M \theta D M - N K_a \theta D M \theta D M - \theta \underline{K T K T \theta K_a} -$
 $\theta K_a \theta R K T \theta K_a$

(The whole line to be repeated 3 times) and add

$N K_a \theta D M \theta D M - \theta \underline{K T K T \theta K_a} - \theta K_a \theta R K T \theta K_a$

Mukthāyi :- $\theta \underline{K T K T \theta K_a} - \theta K_a \theta R K T \theta K_a \theta \bar{!}, ;$

$\theta \underline{K T K T \theta K_a} - \theta K_a \theta R K T \theta K_a \theta \bar{!}, ,$

$\theta \theta \underline{K T K T \theta K_a} - \theta K_a \theta R K T \theta K_a \parallel \theta \bar{!}$

Khanda jāthi
ROOPAKA THĀLA

Angas :- 0 |₅ No. of Kriyas = 7

1. $\theta K_a | \theta D G N \theta \bar{!} \parallel$ (Gathi)

2. $\theta, - \theta K_a - \theta D \bar{!}, G N \theta \bar{!} \parallel$

3. $\theta, - \theta - \theta D \bar{!}, G, N, \theta \bar{!} \parallel$

4. $\theta D \bar{N}, - \theta | D \bar{!}, D \bar{N}, - \theta K_a D \bar{N}, - \theta K_a D \bar{!}, D \bar{N}, \parallel$

$\theta K_a D \bar{N}, - \theta K_a | D \bar{!}, D \bar{!}, \theta R K T - \theta K_a D \bar{N}, \theta K_a D \bar{!}, \underline{K T \theta R \theta L \bar{!}}, G_u \parallel$

$\theta K_a D \bar{N}, - \theta K_a | D \bar{!}, \theta \underline{K T K T \theta K_a} - \theta K_a D \bar{N}, \theta K_a$

$\theta \underline{K T K T \theta K_a \theta L \bar{!}}, G_u \parallel$

Mukthāyi :- $\theta K_a \theta \underline{K T K T \theta K_a \theta L \bar{!}}, G_u \theta \bar{!}$

$\theta K_a \theta \underline{K T K T \theta K_a \theta L \bar{!}}, G_u \theta \bar{!}$

$\theta K_a \theta \underline{K T K T \theta K_a \theta L \bar{!}}, G_u \theta \bar{!} \parallel \theta$

5. $\theta \bar{!}, \theta \theta D \bar{!}, - \theta \bar{!}, | \theta \bar{!}, \theta \theta D \bar{!}, - \theta \bar{!}, \theta \theta D \bar{!}, \theta \bar{!}, \theta \bar{!}, \theta \theta D \bar{!} \underline{\theta R K T} \parallel$

$\theta \bar{!}, \theta \theta D \bar{!}, - \theta \bar{!}, | \theta \bar{!}, \theta \theta D \bar{!}, - \theta \bar{!}, \theta \theta D \bar{!}, - \theta \bar{!}, \theta \bar{!}, \theta \theta D \bar{!} \underline{\theta R K T} \parallel$

$\theta \bar{!}, \theta \theta D \bar{!}, - \theta \bar{!}, | \theta \theta D \bar{!}, \underline{D \bar{N}}, \theta R K T - \theta \bar{!}, \theta \theta D \bar{!}, - \theta \bar{!}, \theta \theta D \bar{!},$

$\underline{D \bar{N}}, \theta R K T \parallel$

$\theta \bar{!}, \theta \theta D \bar{N}, \theta R K T - \theta \bar{!}, | \theta \theta D \bar{N}, \theta R K T \underline{D \bar{N}}, \theta R K T$

Mukthāyi :— D N, θ R K T D N, θ R K T $\bar{\theta}$!
D N, θ R K T D N, θ R K T $\bar{\theta}$!
D N, θ R K T D N, θ R K T ॥ $\bar{\theta}$!

6. $\theta \theta_i ! \theta_i ! \theta_i ! - \theta \theta_i ! \theta_i ! \theta_i !$ | $\theta \theta_i ! \theta_i ! \theta_i ! - \theta \theta \theta \theta \theta D !, G, N, \bar{\theta} !$ १
do - do | do - $\theta \theta \theta \theta \theta D !, G, N, \bar{\theta} !$ १
do - do | do - $\theta \theta \theta D G N \bar{\theta} ! - \theta D !, G N \bar{\theta} !$ ॥
do - do | do - $\theta \theta \theta \theta \theta \theta D !, G N \bar{\theta} !$ १
do - do | do - $\theta \theta \theta \theta \theta \theta \theta D G N \bar{\theta} !$ १

Samkeerna jāthi

ROOPAKA THĀLA

Angas :— 0 |, No. of Kriyas = 11

1. K T | θ K_a D M θ D G N $\bar{\theta}$! ॥
2. θ K_a - θ D !, G, N, $\bar{\theta}$! ॥
θ K T - θ D !, G, N, $\bar{\theta}$! ॥
K T θ K_a - θ D !, G N $\bar{\theta}$! ॥
θ K_a θ K T - θ D !, G N $\bar{\theta}$! ॥
3. $\frac{1}{2} \theta$ - $\frac{1}{2} \theta$ D G N $\bar{\theta}$! - $\frac{1}{2} \theta$ D !, G, N, $\bar{\theta}$! ॥
4. θ K T D !, D !, | θ K T D !, D !, - θ K T D !, D !, θ D !, G, N, $\bar{\theta}$! -
 θ K T D !, D !, ॥
 θ K T D !, D !, | θ K T D !, D !, - ;, θ D !, G, N, $\bar{\theta}$! - θ K T D !, D !, -
 θ K T D !, D !, ॥
; , θ D !, G | , N, $\bar{\theta}$! - θ K T D !, D !, - θ K T D !, D !, - ; ,
 θ D !, G, N, $\bar{\theta}$! - θ K T D ! ॥
, D !, ; , θ |, D !, G, N, $\bar{\theta}$! -

Mukthāyi :- , θ D !, G N $\bar{\theta}$!
θ K_a θ D !, G N $\bar{\theta}$!
θ K_a D G_a θ D !, G N $\bar{\theta}$! ॥ θ

Chaturasra jāthi

JHAMPA THĀLA

Angas :- 1, 0 0 No. of Kriyas - 7

1. θ K. θ K | T | θ K, || (Gathi)
2. θ , - | T | K T θ K, ||
3. θ , - θ K, | θ D! |, G N θ ! ||
4. θ , - θ - θ D! |, G, N, θ ! ||
5. NK, θ DM θ DM - NK, θ DM θ DM | NK, θ D | M θ DM - θ K T K T θ K, ||
 θ K, θ R K T θ K, - NK, θ DM θ DM - NK, θ D | M θ DM | NK, θ DM θ DM ||
 θ K T K T θ K, - θ K, θ R K T θ K, - NK, θ DM θ DM |
 θ K T K T θ K, - | θ K, θ R K T θ K,

Mukthāyi :- θ K T K T θ K, || θ K θ R K T θ K, θ ! ;
 θ K T K T θ K, - θ K, θ R K T θ K, | θ ! ;
 θ | θ K T K T θ K, - θ K, θ R K T θ K, || θ !

6. θ θ ! θ ! θ ! - θ θ ! θ ! θ ! - θ θ ! θ ! θ ! - θ θ | θ θ |, D!, G, N, θ ! ||
do - do - do - θ θ | θ , θ | θ D!, G, N, θ ! ||
do - do - do - θ θ | θ D G N | θ ! θ D!, G N θ ! ||
do - do - do - θ θ | θ θ | θ θ D!, G N θ ! ||
do - do - do - θ θ | θ θ | θ θ θ D! G N θ ! ||
7. θ D N, - θ D!, D N, - θ K, | D N, | θ K, D!, D N, ||
 θ K, D N, - θ K, D!, D!, θ R K T - θ K, | D N, | θ K, D!, K T θ R θ L!, G, ||
 θ K, D N, - θ K, D!, θ K T K T θ K, - θ K, | D N, | θ K, θ K T K T θ K, θ L!, G, ||

Mukthāyi :- , $\theta K_3 \theta \underline{K T K T \theta K_3 \theta L!}, G_u \bar{\theta}!$ -

$\theta K_3 \theta \underline{K T K T \theta K_3} | \theta L!, G_u \bar{\theta}!$ -

$\theta | K_3 \theta \underline{K T K T \theta K_3 \theta L!}, G_u \theta! || \theta$

Thrisra-jāthi

JHAMPA THĀLA

Angas :- $\frac{1}{2} \cup \theta$ No. of Kriyas = 6

1. $G N \bar{\theta}! | \theta | K T ||$ (Gathi)

2. $\theta, - \theta | K_3 | K T \theta K_3 ||$

3. $N K_3 \theta D M \theta D M - N K_3 \theta D | M \theta D M | N K_3 \theta D M \theta D M ||$

$\theta \underline{K T K T \theta K_3} - \theta K_3 \theta R K T \theta K_3 - N K_3 \theta D | M \theta D M | N K_3 \theta D M \theta D M ||$

$N K_3 \theta D M \theta D M - \theta \underline{K T K T \theta K_3} | \theta K_3 \theta R K T \theta K_3 | N K_3 \theta D M \theta D M ||$

$\theta \underline{K T K T \theta K_3} - \theta K_3 \theta R K T \theta K_3 - N K_3 \theta D | M \theta D M | \theta \underline{K T K T \theta K_3}$

$- \theta K_3 \theta R K T \theta K_3 || N K_3 \theta D M \theta D M - \theta \underline{K T K T \theta K_3} | \theta K \theta R K T \theta K_3 |$

Mukthāyi :- $\theta \underline{K T K T \theta K_3} - \theta K_3 \theta R K T \theta K_3 || \bar{\theta}!, ;$

$\theta \underline{K T K T \theta K_3} - \theta K_3 \theta R K T \theta K_3 | \bar{\theta}!, ; |$

$\theta \underline{K T K T \theta K_3} - \theta K_3 \theta R K T \theta K_3 || \bar{\theta}!$

4. $\theta \theta, | \theta, | \theta, | - \theta \theta, | \theta, | \theta, | - \theta \theta | \theta \theta \theta |, D!, G, N, \bar{\theta}! ||$

do - do - $\theta \theta | \theta \theta | \theta D!, G, N, \bar{\theta}! ||$

do - do - $\theta \theta | \theta D G N | \bar{\theta}! - \theta D!, G, N, \bar{\theta}! ||$

- do - $\theta \theta | \theta \theta | \theta - \theta \theta D!, G, N, \bar{\theta}! ||$

do - do - $\theta \theta | \theta \theta | \theta \theta \theta D G N \bar{\theta}! ||$

5. $\theta \theta_i !, \theta - \theta \theta_i !, \theta - \theta \theta_i ! - \theta | K_2 D !, \theta | \underline{KT \theta R \theta K_2 D N} - \theta \underline{KT \theta D N} \parallel$
do - do - do - $\theta | K_2 D !, \theta | \underline{KT \theta R \theta K_2 D N} - \theta \underline{KT \theta D N} \parallel$
do - do - do - $\theta | K_2 D !, \theta | \theta \theta_i !, \underline{KT \theta K_2 \theta R KT \bar{\theta} !}, \parallel$
do - do - do - $\theta | K_2 D !, \theta | \theta \theta_i !, \underline{KT \theta K_2 \theta R KT \bar{\theta} !}, \parallel$
 $\theta \theta_i !, \theta - \theta \theta_i !, - \underline{KT \theta K_2 \theta R KT \bar{\theta} !}, | \theta \theta_i !, \theta | \theta \theta_i !, \underline{KT \theta K_2 \theta R KT \bar{\theta} !}, \parallel$

Mukthāyi:— $\theta \theta_i !, - \underline{KT \theta K_2 \theta R KT \bar{\theta} !}, |$ (Thrisra Gamana)

$\theta \theta_i !, - \underline{KT | \theta K_2 \theta R KT \bar{\theta} !},$ (Chaturasra Gamana)

$\theta \theta_i !, - \underline{KT \theta K_2 \theta R KT \bar{\theta} !}, \parallel$ (Chaturasra Higher Degree)

6. $\theta \underline{KT \theta K_2 D !}, D N, | \theta, \underline{KT | \theta K_2 D !}, D N, \parallel$
do | do | do \parallel
; $\underline{KT \theta K_2 D ! D N}, | \theta \underline{KT | \theta K_2 D !}, D N, \parallel$
do | $\theta, \underline{KT |}$ do \parallel

$\theta \underline{KT \theta K_2 D !}, D N, | \theta D !, G | N \bar{\theta} ! - \theta, \underline{KT \theta K_2 \parallel D !}, D N,$

Mukthāyi:— $\theta D !, G N \bar{\theta} ! |$

$\theta D !, G | N \bar{\theta} !$

$\theta D !, G N \bar{\theta} ! \parallel \theta$

Misra jāthi

JHAMPA THĀLA

Angas:— $1, \cup 0$ No. of Kriyas = 10

1. $\theta K_2 \theta \underline{KT \theta D | G | N \bar{\theta} !} \parallel$ (Gathi)
2. $\theta, - \theta D G N \bar{\theta} ! | \theta D ! | , G N \bar{\theta} ! \parallel$
3. $N K_2 \theta D M \theta D M - N K_2 \theta D M \theta D M - N K_2 \theta D M \theta D M - \theta \underline{KT KT \theta K_2 |}$
 $\theta K_2 \theta R \underline{KT \theta K_2 |} N K_2 \theta D M \theta D M \parallel \theta \underline{KT KT \theta K_2 - \theta K_2 \theta R KT \theta K_2}$
- Mukthāyi:— $\underline{\theta KT KT \theta K_2 - \theta K_2 \theta R KT \theta K_2} \bar{\theta} !, ;$
 $\underline{\theta KT KT \theta K_2 - \theta K_2 \theta R KT \theta K_2} | \bar{\theta} !, ; |$
 $\underline{\theta KT KT \theta K_2 - \theta K_2 \theta R KT \theta K_2} \parallel \bar{\theta} !$

4. , θ θ θ̄ | , - θ θ θ ! - θ θ θ θ θ θ θ̄ | , - θ θ θ ! , - θ θ θ̄ | , - θ θ θ |
 θ θ θ θ̄ | . θ D ! , κ T θ κ T θ θ K_a θ̄ ||

do | do | do ||

, θ θ θ̄ | , - θ θ θ θ θ θ θ̄ | - . θ D ! , κ T θ κ T θ θ K_a θ̄ | , - θ θ θ̄ | , θ θ θ |
 θ θ θ θ̄ | . θ D ! , κ T θ κ T θ θ K_a θ̄ ||

Mukthāyi :-- , θ θ θ̄ | - . θ D ! , κ T θ κ T θ θ K_a θ̄ | θ ,
 , θ θ θ̄ | - . θ D ! , κ T θ κ T θ θ K_a θ̄ | θ , |
 , θ θ θ̄ | - | . θ D ! , κ T θ κ T θ θ K_a θ̄ | θ

Khanda jāthi

JHAMPA THĀLA

Angas :-- | ॐ ॐ No. of Kriyas - 8

1. θ κ T θ D | G | N θ̄ | || (Gathi)

¹/₂ do I ॐ II do
 2. θ , - θ κ T | θ D ! | , G N θ̄ | ||

3. θ D ! , D N , - θ K_a D ! , D N , - θ θ K_a D ! , | D N , | θ L ! , , θ R K T - θ K_a θ K_a θ̄ | , ||
θ D ! , D N , - θ K_a D ! , D N , - θ θ K_a D ! , | D N , | θ L ! , θ R K T - θ K_a θ K_a θ̄ | , ||
θ θ K_a D ! , D N , - θ L θ L ! , , θ R K T - θ K_a θ K_a θ K_a - N , D ! , | D N , |
θ R K T κ T θ K_a - θ L θ L ! , G_a θ̄ | , ||

Mukthāyi : θ R K T θ K_a θ K_a - θ L θ L ! , G_a θ̄ | , θ , ;
θ R K T θ K_a θ K_a - θ L θ L ! , G_a θ̄ | , | θ , ;
θ R K T θ K_a θ K_a - θ L θ L ! , G_a θ̄ | , || θ

4. θ θ ! θ_i ! θ_i ! - θ θ_i ! θ_i ! θ_i ! - θ θ_i ! θ_i ! θ_i ! - θ θ_i ! θ_i ! θ_i ! -
 - θ θ ! θ θ θ | . D ! , G , N , θ̄ | ||
 do - do - do - do - θ θ | θ θ | θ D ! , G , N , θ̄ | ||
 do - do - do - do - θ θ | θ D G N | θ̄ | θ D ! , G N θ̄ | ||
 do - do - do - do - θ θ | θ θ | θ θ D ! , G N θ̄ | ||
 do - do - do - do - θ θ | θ θ | θ θ θ D G N θ̄ | ||

Samkeerna jāthi
JHAMPA THĀLA

Angas :— 1, 0 0 No. of Kriyas = 12

1. $\theta K_2 \rightarrow G_u \theta D G N \bar{\theta} ! | \theta | K T \parallel$ (Gathi)
2. $\theta, - \theta D G N \bar{\theta} ! - K T \theta K_2 | \theta D ! |, G N \bar{\theta} ! \parallel$
3. $N K_u \theta D M \theta D M - N K_u \theta D M \theta D M - N K_u \theta D M \theta D M - \theta K T K T \theta K_2 -$
 $\theta K_2 \theta R K T \theta K_2 - N K_u \theta D | M \theta D M - | N K_u \theta D M \theta D M \parallel$
 $N K_u \theta D M \theta D M - \theta K T K T \theta K_2 - \theta K_2 \theta R K T \theta K_2$

Mukthāyi :— $\theta K T K T \theta K_2 - \theta K_2 \theta R K T \theta K_2 \bar{\theta} !, ;$

$\theta K T K T \theta K_2 - \theta K_2 \theta R K T \theta K_2 | \bar{\theta} !, ; |$

$\theta K T K T \theta K_2 - \theta K_2 \theta R K T \theta K_2 \parallel \bar{\theta} !$

4. $\theta \theta_i !, \theta - \theta \theta_i !, \theta - \theta \theta_i !, - \theta K_2 D ! \theta - K T \theta R - \theta K_2 D N - \theta K T \theta D N -$
 $\theta \theta_i !, \theta - \theta \theta_i !, \theta - \theta \theta_i !, - \theta | K_2 D ! \theta | - K T \theta R - \theta K_2 D N - \theta K T \theta D N \parallel$
 $\theta \theta_i !, \theta - \theta \theta_i !, \theta - \theta \theta_i !, - \theta K_2 D ! \theta - \theta \theta_i !, - K T \theta K_2 - \theta R K T \theta !, -$
 $\theta \theta_i !, \theta - \theta \theta_i !, \theta - \theta \theta_i !, - \theta | K_2 D ! \theta | \theta \theta_i !, - K T \theta K_2 - \theta R K T \bar{\theta} !, \parallel$
 $\theta \theta_i !, \theta - \theta \theta_i !, - K T \theta K_2 \theta R K T \bar{\theta} !, - \theta \theta_i !, \theta - \theta \theta_i !, K T \theta K_2 - \theta R K T \bar{\theta} !,$

Mukthāyi :— $\theta \theta_i !, - K T \theta K_2 - \theta R K T \bar{\theta} !, |$ (Thrisra gamana)

$\theta \theta_i !, - K T \theta K_2 - \theta R K T \bar{\theta} !, |$ (Chaturasra gamana)

$\theta \theta_i !, - K T \theta K_2 - \theta R K T \bar{\theta} !, \parallel$ (Chaturasra Higher degree)

5. $\theta K T \theta K_2 D !, D N, - \theta, K T \theta K_2 D !, D N, - \theta K T \theta K_2 D !, D N, |$
 $\theta, K T | \theta K_2 D !, D N, \parallel$
 $; K T \theta K_2 D !, D N, - \theta K T \theta K_2 D !, D N, - ; K T \theta K_2 D !, D N, |$
 $\theta, K T | \theta K_2 D !, D N, \parallel$
 $\theta K T \theta K_2 D !, D N, - \theta D !, G N \bar{\theta} ! - \theta, K T \theta K_2 D !, D N, -$

Mukthāyi :— $\theta D !, G N \bar{\theta} ! |$

$\theta D !, G | N \bar{\theta} !$

$\theta D !, G N \bar{\theta} ! \parallel \theta$

Chaturasra jāthi

THRIPUTA THĀLA

Angas :— 1, 0 0 No. of Kriyas = 8

This Thāla is known as Adi Thāla. It admits of a number of variations in Gathi and Jāthi.

1. $\theta \text{ K T } \theta \mid \text{ D G } \mid \text{ N } \bar{\theta} ! \parallel$ (Gathi)2. $\overset{\text{Ia}}{\theta}, - \overset{\text{Ia}}{\theta} \text{ K } \mid \text{ T } - \overset{\text{IIa}}{\theta} \text{ D } ! \mid, \text{ G N } \bar{\theta} ! \parallel$ 3. $\theta \text{ D } !, \text{ D N}, - \theta \text{ K}_a \text{ D } !, \text{ D N}, \mid \theta \text{ D } !, \text{ D N}, \mid \theta \text{ K}_a \text{ D N K}_a \text{ D N K}_a \parallel$ (2 times)
 $\theta \text{ D } !, \text{ D N}, - \theta \text{ K}_a \text{ D N K}_a \text{ D N K}_a \mid \theta \text{ K}_a \text{ D } !, \text{ D N}, \mid \theta \text{ K}_a \text{ D N K}_a \text{ D N K}_a \parallel$ Mukthāyi :— $\theta \text{ K}_a \text{ D N K}_a - \text{D N K}_a \bar{\theta} !, ;$ $\theta \text{ K}_a \text{ D N } \mid \text{ K}_a - \text{D N K}_a \bar{\theta} !, ; \mid$ $\theta \text{ K}_a \text{ D N K}_a - \text{D N K}_a \parallel \bar{\theta} !$ 4. $\text{N, D}, ; \text{N}, - \text{N, D}, ; \text{N}, \mid \text{N, D } !, \text{ D N}, \mid \theta \text{ K}_a \text{ D } !, \text{ D N}, \parallel$ $\text{N, D}, ; \text{N}, - \theta \text{ K}_a \text{ D } !, \text{ D N}, \mid \theta \text{ K}_a \text{ D}, ; \text{N}, \mid \theta \text{ K}_a \text{ D } !, \text{ D N}, \parallel$ $\text{N, D}, ; \text{N}, - \underline{\theta \text{ R K T D } !}, \text{ D N}, \mid \theta \text{ K}_a \text{ D}, ; \text{N}, \mid \underline{\theta \text{ L } !}, \underline{\theta \text{ R K T } -}$ $\underline{\theta \text{ K}_a \theta \text{ K}_a \theta \text{ K}_a \theta \text{ K}_a} \parallel$ $\text{N, D}, ; \text{N}, - \underline{\theta \text{ R K T D } !}, \text{ D N}, \mid \theta \text{ K}_a \text{ D}, ; \text{N}, \mid \underline{\theta \text{ L } !}, \underline{\theta \text{ R T K } -}$ $\underline{\theta \text{ K}_a \theta \text{ K}_a \theta \text{ K}_a \theta \text{ K}_a} \parallel$ $\text{N, D } !, \text{ D N}, - \underline{\theta \text{ L } !}, \underline{\theta \text{ R K T } - \theta \text{ K}_a \theta \text{ K}_a \theta \text{ K}_a \theta \text{ K}_a} \mid$ $\theta \text{ K}_a \text{ D } !, \text{ D N}, \mid - \underline{\theta \text{ L } !}, \underline{\theta \text{ R K T } - \theta \text{ K}_a \theta \text{ K}_a \theta \text{ K}_a \theta \text{ K}_a} \parallel$ Mukthāyi :— $\underline{\theta \text{ L } !}, \underline{\theta \text{ R K T } - \theta \text{ K}_a \theta \text{ K}_a \theta \text{ K}_a \theta \text{ K}_a} \bar{\theta} !, ;$ $\underline{\theta \text{ L } !}, \underline{\theta \text{ R K T } \mid \theta \text{ K}_a \theta \text{ K}_a \theta \text{ K}_a \theta \text{ K}_a} \bar{\theta} !, ;$ $\underline{\theta \text{ L } \mid \theta \text{ L } !}, \underline{\theta \text{ R K T } - \theta \text{ K}_a \theta \text{ K}_a \theta \text{ K}_a \theta \text{ K}_a} \parallel \bar{\theta} !$ 5. $\overset{m}{\theta} \overset{m^3}{\text{K}_a} \overset{n}{\text{D } !}, \overset{m^3}{\text{D } !}, - \overset{m}{\theta} \overset{m^3}{\text{K}_a} \overset{n}{\text{D } !}, \overset{m^3}{\text{D } !}, \mid \overset{m}{\theta} \overset{m^3}{\text{K}_a} \overset{n}{\text{D } !}, \text{ D N}, \mid \overset{m}{\theta} \overset{m^3}{\text{K}_a} \overset{n}{\text{D } !}, \text{ D N}, \parallel$ • $\overset{m}{\theta} \overset{m^3}{\text{K}_a} \overset{n}{\text{D } !}, \overset{m^3}{\text{D } !}, - \overset{m}{\theta} \overset{m^3}{\text{K}_a} \overset{n}{\text{D } !}, ; \overset{m}{\theta} \overset{m^3}{\text{K}_a} \overset{n}{\text{D } !}, \mid \overset{m}{\theta} \overset{m^3}{\text{K}_a} \overset{n}{\text{D } !}, \text{ D N}, \mid \overset{m}{\theta} \overset{m^3}{\text{K}_a} \overset{n}{\text{D } !},$ $\underline{\theta \theta \text{ K}_a \theta \theta \text{ K}_a} \parallel \theta \text{ K}_a \text{ D } !, ; \underline{\theta \theta \text{ K}_a} - \theta \text{ K}_a \text{ D } !, \underline{\theta \theta \text{ K}_a \theta \theta \text{ K}_a} \mid$ Mukthāyi :— $\underline{\theta \theta \text{ K}_a \theta \theta \text{ K}_a} \bar{\theta} !, - \underline{\theta \theta \text{ K}_a} \mid \underline{\theta \theta \text{ K}_a} \bar{\theta} !, - \underline{\theta \theta \text{ K}_a \theta \theta \text{ K}_a} \parallel \bar{\theta} !$

6. $\theta K_a D!, D!, -\theta K_a D!; \theta RKT | \theta K_a D!, DN, | \theta K_a D!,$

$\underline{KT \theta K_a \theta RKT} \parallel$ (2 times)

$\theta K_a D!, D!, -\theta K_a D!; \underline{KT \theta K_a \theta RKT} | \theta K_a D!, DN, | \theta K_a D!,$

$\underline{KT \theta K_a \theta RKT} - \underline{\theta K_a \theta RKT \theta K_a} \parallel$

$\theta K_a D!; - \underline{KT \theta K_a \theta RKT} - \theta K_a D!, \underline{KT \theta K_a \theta RKT} - \underline{\theta K_a \theta RKT \theta K_a} |$

Mukthāyi :— $\underline{KT \theta K_a \theta RKT} - \underline{\theta K_a \theta RKT \theta K_a} \bar{\theta}!$,

$\underline{KT \theta K_a \theta RKT} - | \underline{\theta K_a \theta RKT \theta K_a} \bar{\theta}!$,

$\underline{KT \theta K_a \theta RKT} - \underline{\theta K_a \theta RKT \theta K_a} \parallel \theta!$

7. $\theta K_a D!, D!, -\theta K_a D!; \underline{DN, \theta RKT} | \theta K_a D!, DN, -\theta K_a D!, -$

$\underline{DN, \theta RKT} - \underline{DN, \theta RKT} \parallel$

$\theta K_a D!; \underline{DN, \theta RKT} - \theta K_a D!, - \underline{DN, \theta RKT} - \underline{DN, \theta RKT}$

Mukthāyi :— $\underline{DN, \theta RKT} - \underline{DN, \theta RKT} \bar{\theta}!$,

$\underline{DN, \theta RKT} | - \underline{DN, \theta RKT} \theta!$,

$\theta \underline{DN, \theta RKT} - \underline{DN, \theta RKT} \parallel \bar{\theta}!$

8. $\theta \theta_i!, KT \theta_i!, -\theta \theta_i!, KT \theta_i!, -\theta \theta_i!, DN K_a K_a N K_a D!, KT \theta_i!,$

$\theta \theta_i!, KT \theta_i!, -\theta \theta_i!, KT \theta_i!, | \theta \theta_i!, KT \theta_i!, -\theta \overset{5}{KT \theta KT \theta KT} \theta_i! \parallel$
(2 times)

$\theta \theta_i!, KT \theta_i!, -\theta \theta_i!, DN K_a K_a N K_a D!, KT \theta_i!, -\theta \overset{5}{KT \theta KT \theta KT} \bar{\theta}! \parallel$

$\theta \theta_i!, KT \theta_i!, -\theta \theta_i!, DN K_a K_a | N K_a D!, KT \theta_i!, -\theta \overset{5}{KT \theta KT \theta KT} \bar{\theta}! \parallel$

Mukthāyi :— $\underline{DN K_a K_a N K_a D!}, -\theta \overset{5}{KT \theta KT \theta KT} \bar{\theta}! \theta;$

$\underline{DN K_a K_a N K_a D!}, -\theta \overset{5}{KT \theta KT \theta KT} \bar{\theta}! \theta;$

$\theta | \underline{DN K_a K_a N K_a D!}, -\theta \overset{5}{KT \theta KT \theta KT} \bar{\theta}! \parallel \theta$

Note :— The last bits of the last five lines marked 5 indicate that that Kriya moves in Khanda Gathi.

9. $\overset{m\ 3}{N\ K_u}\ \overset{m\ n\ 3}{\theta\ D\ N_u}\ \overset{m\ n\ 3}{\theta\ D\ N_u} - N\ K_u\ \theta\ D\ N_u\ \theta\ D\ N_u \mid N\ K_u\ \theta\ D\ N_u\ \theta\ D\ N_u \mid$
 $\underline{N\ G_u\ K\ T\ \theta\ R\ D\ N\ \theta\ \theta\ L!\ G_u} \parallel$
do - do do do ||
 $N\ K_u\ \theta\ D\ N_u\ \theta\ D\ N_u - N\ K_u\ \overset{3\ 3\ 3\ 3}{\theta\ D\ N_u\ K\ T\ \theta\ \theta} \mid$ do do ||
 $N\ K_u\ \theta\ D\ N_u\ \theta\ D\ N_u - N\ G_u\ K\ T\ \theta\ R\ D\ N\ \theta\ \theta\ L!\ G_u \mid N\ K_u\ \theta\ D\ N_u\ \theta\ D\ N_u \mid$
 $\underline{N\ G_u\ K\ T\ \theta\ R\ D\ N\ \theta\ \theta\ L!\ G_u} \parallel$

Mukthāyi :— $\underline{N\ G_u\ K\ T\ \theta\ R - D\ N\ \theta\ \theta\ L!\ G_u\ \bar{\theta}!}$; (3 Times) ||

10. $\overset{n\ m^2\ m^3}{\theta_i\ N,\ K_u} - \theta_i\ N,\ K_u - \theta_i\ N,\ K_u - \overset{n\ m\ 1\ m^3}{\theta_i\ N\ K\ T} \mid \theta_i\ N,\ K_u - \theta_i\ N,\ K_u - \theta_i\ N,\ K_u$
 $\overset{n\ m\ 1\ m^3\ m\ m\ 1\ m^3}{\theta_i\ N\ K\ T\ N\ N\ K\ T} \parallel$
 $\theta_i\ N,\ K_u - \theta_i\ N,\ K_u - \theta_i\ N,\ K_u - \theta_i\ N\ K\ T \mid \theta_i\ N,\ K_u - \theta_i\ N,\ K_u \mid \theta_i\ N,\ K_u -$
 $\underline{\theta_i\ N\ K\ T\ N\ N\ K\ T} \parallel$
 $\theta_i\ N,\ K_u - \theta_i\ N\ K\ T - \theta_i\ N\ K_u - \underline{\theta_i\ N\ K\ T - N\ N\ K\ T} \mid \theta_i\ N,\ K_u - \theta_i\ N\ K\ T \mid$
 $\underline{\theta_i\ N,\ K_u - \theta_i\ N\ K\ T - N\ N\ K\ T} \parallel$
 $\theta_i\ N,\ K_u - \theta_i\ N\ K\ T - \theta_i\ N,\ K_u - \underline{\theta_i\ N\ K\ T - N\ N\ K\ T} \mid$

Mukthāyi :— $\underline{\theta_i\ N\ K\ T - N\ N\ K\ T\ \bar{\theta}!}$, (3 times) ||

11. $\theta! K_u\ \theta\ \theta_i! - \theta! K_u\ \theta\ \theta_i! - \theta! K_u\ \theta\ \theta_i! - \overset{m\ 1\ n}{N\ K_u\ D!}, N\ K_u\ D!, \mid$
do - do do $\overset{1\ m\ 1\ 1\ m\ 1\ n}{- D\ N\ K_u\ K_u\ N\ K_u\ D!}, \parallel$
do - do - po $\overset{m\ m\ m^3}{- \theta\ K_u\ \theta\ K_u\ \theta\ \theta_i!},$
do - do do $\overset{m\ m\ m^3\ m\ n}{- \theta\ \theta\ K_u\ \theta\ \theta_i!}, \parallel$
do - do - do $\overset{m\ m^3\ m^3\ m\ n}{- \theta\ L!, G_u\ \theta\ \theta_i!},$
do - do | $\underline{N\ K_u\ D!}, - N\ K_u\ D!, - D\ N\ K_u\ K_u\ N\ K_u\ D!}, \parallel$
do - do - do - do |
do - do | do ||

Mukthāyi :— $\underline{N K_a D!}, - \underline{N K_a D!}, - \underline{D N K_a K_a N K_a D!}, \theta \bar{!};$
 $\underline{N K_a D!}, - \underline{N K_a D!}, | - \underline{D N K_a K_a N K_a D!}, \bar{!},$
 $\theta | \underline{N K_a D!}, - \underline{N K_a D!}, - \underline{D N K_a K_a N K_a D!}, || \theta \bar{!}$

12. $\theta \theta_i!, \theta \theta_i!; - \theta_i!, \theta \theta_i!, | \theta \theta_i!, \theta \theta_i!, |; \theta_i!, \theta \theta_{RKT} ||$
 $\theta \theta_i!, \theta \theta_i!; - \theta_i!, \theta \underline{K T \theta R} | \theta \theta_i!, \theta \theta_i!, |; \theta \underline{K T \theta K_a} - \theta \underline{K T \theta K_a} ||$
 $\theta \theta_i!, \theta \theta_i!; - \theta \underline{K T \theta K_a} \theta \underline{K T \theta K_a} | \theta \theta_i!, \theta \theta_i!, |;$
 $\theta \underline{K T \theta K_a} - \theta \underline{K T \theta K_a} ||$

Mukthāyi :— : $\theta \underline{K T \theta K_a} - \theta \underline{K T \theta K_a} \bar{!};$
: $\theta \underline{K T \theta K_a} - \theta \underline{K T \theta K_a} \bar{!};$
: $\theta \underline{K T \theta K_a} - \theta \underline{K T \theta K_a} || \bar{!}$

13. $\overset{1}{K T D!}; - \overset{nn}{D!}, \overset{nn}{K T D!}; D!, | \overset{nn}{K T D!}; D!, | \overset{nn}{K T D!}, \overset{nn}{K T \theta \theta K_a} ||$
 $\overset{nn}{K T D!}; D!, \overset{nn}{K T D!}, \overset{nn}{K T \theta \theta K_a} | \overset{nn}{K T D!}; D!, | \overset{nn}{K T D!}, \overset{nn}{K T D N}, \theta \underline{RKT} ||$
 $\overset{nn}{K T D!}, \overset{nn}{K T \theta \theta K_a} - \overset{nn}{K T D!}, \overset{nn}{K T D N}, \theta \underline{RKT} |$
 $\overset{nn}{K T D!}, \overset{nn}{K T \theta \theta K_a} - | \overset{nn}{K T D!}, \underline{D N}, \theta \underline{RKT} - \underline{D N}, \theta \underline{RKT} ||$
 $\overset{nn}{K T D!}, \overset{nn}{K T \theta \theta K_a} - \overset{nn}{K T D!}, \underline{D N}, \theta \underline{RKT} - \underline{D N}, \theta \underline{RKT} |$

Mukthāyi :— $\overset{m m m^3}{\theta \theta K_a} \underline{D N}, \theta \underline{RKT}$
 $\overset{m m m^3}{\theta, \theta \theta K_a} \underline{D N}, \theta \underline{RKT}$
 $\theta K_a D \theta \overset{m m m^3}{\theta \theta K_a} \underline{D N}, \theta \underline{RKT} || \theta \bar{!}$ } Sankeerna Gamana
4 Kriyas, equivalent
to 36 units in the
11 degree

14. $\theta D M \theta!, \theta D!, |, \theta K_a \theta \underline{KT} | \theta D M \theta!, \theta - \theta K_a | \theta \underline{KT} - \theta K_a \theta \underline{KT} ||$
 $\theta D M \theta!, \theta D!, |, \theta \underline{K T \theta K_a} - \underline{K T \theta K_a} | \theta D M \theta!, \theta - \theta \underline{K T \theta K_a}$
 $- \underline{K T \theta K_a} - \theta \underline{K T \theta K_a} - \underline{K T \theta K_a} ||$
 $\theta D M \theta!, \theta - D M \theta!, \theta - D M \theta!, \theta |$
 $\theta D M \theta \underline{K T \theta K_a} \theta!, |, \theta \underline{K T \theta K_a} \theta \underline{K_a} D R D R K T ||$
 $\theta D M \theta!, \theta - D M \theta!, \theta - D M \theta!, \theta |$

$\theta D M \theta !, \theta - \theta D | M \theta !, \theta - \overset{5}{K T \theta K_a D R D R K T}$ || (Last bit Khanda Gathi

$\theta D M \theta !, \theta - \theta D M \theta !, \theta - \overset{5}{K T \theta K_a D R D R K T}$ | do.

$\theta D M \theta D M - \theta K_a \theta D M - \theta K_a \theta D M - \overset{5}{K T \theta K_a \theta R K T}$ || (This whole in Khanda gathi)

Mukthāyī.— $\theta D \theta,, \theta D G N \bar{\theta} !$ } This is of Khanda Gamana
 $D \theta,, \theta D G N \bar{\theta} !$ } with 40 units for 8 Kriyas
 $\theta,, \theta D G N \bar{\theta} !$ }
 $\theta D G N \bar{\theta} !$ }
 $\theta D G N \bar{\theta} ! ||$ }

15. $\theta D !, \theta \theta D !, - \theta D !, - \overset{Thrisra}{\theta K T | \theta D !}, - \theta \theta D !, - \theta D !, - \overset{Thrisra}{\theta K T \theta K T}$ ||
 $\theta D !, \theta \theta D !, - \theta D !, \underline{D N !, K_a D N !, K_u | \theta D !}, \theta \theta D !, - \theta D !, -$
 $\underline{G_u !, T T G_u G_u D N}$ ||

$\theta D !, \theta \theta D !, - \theta D !, - \theta K_u ! \theta K_u ! | \theta D !, - \theta \theta D !, - \theta D !, -$
 $\underline{\theta K_u !, \theta \theta K_u !, \theta}$ ||

$\theta D !, \theta \theta D !, - \theta D !, - \underline{D N, K T \theta R - D N, K T \theta R}$ |

$\theta \bar{\theta} !, - \theta K_a \bar{\theta} !, - \theta K T \bar{\theta} !, - \theta D G N \bar{\theta} ! - \theta D !, G N \bar{\theta} !$ || (Thrisra gamana)

; $\theta D \theta K_a D N \theta !, K_u; D \theta K_a D N \theta !, K_u; \theta K | D N \theta !, K_u;$ (Misra gamana)

Mukthāyī.— $\theta D !, G N \bar{\theta} !$ } (Samkeerna Gamana)
 $\theta K_a \theta D !, G N \bar{\theta} !$ }
 $\theta K_a \theta G_u \theta D !, G N \bar{\theta} ! || \theta$ }

16. ; $\theta !, -; \theta !, -; \theta !, -; \theta !, | D \theta !, -; \theta !, | -; \theta !, -; \overset{5}{K T \theta K_a}$ || (2 Times)

$\theta !, \theta !, -; \theta !, -; \theta !, \underline{D N, K T \theta R - D N, K T \theta R} | \theta !, \theta !, -; \theta !, | ;$
 $\underline{\theta D !, K T \theta K T \theta \theta K_a}$ ||

- $\theta !, \theta !, \theta !, ; - \theta !, \theta !, ; - \theta !, ; | ; \theta !, - \theta !, \theta !, ; - \theta !, \theta !, \theta !, ||$

$\theta !, \theta !, \theta !, ; - \theta !, \theta !, ; - \theta !, ; | ; \theta !, - \theta !, \theta !, ; - \theta !, \theta !, \theta !, ||$

Mukthāyī :— $\theta K T, \theta K T, \theta K T - \theta !, \theta R \theta R G_u !, ,$ } 3 times
 $\theta , \theta R \theta R G_u !, ,$ }
 $\theta , \theta R \theta R G_u !, ||$ }

Note :— In this 16th lesson, in the 4th and the 5th Avrithas, each Kriya has $4\frac{1}{2}$ letters, i. e. 2 Kriyas for 1 Samkeerna Gamana (9 letters for 2 Kriyas) in descending and ascending order as indicated.

In the Mukthāyī, the first half of the Avritha, i. e. the Lag'u has Thrisra Gamana and the remaining half, i. e. the two Druthas have the Chaturasra Gamana.

19. $\theta \theta_i !, \theta - \theta \theta_i !, \theta - \theta \theta_i !, - \theta K_a D !, \theta \quad |$
 $\theta \theta_i !, \theta - \theta \theta_i !, \theta - \theta \theta_i !, - \underline{D_a R K T D N D N K_u} \quad ||$ (2 times)
 $\theta \theta_i !, \theta K_a D !, \theta - \theta \theta_i !, - \underline{D_a R K T D N D N K_u} \quad |$
 $\theta \theta_i !, \theta K_a D !, \theta - \theta \theta_i !, - \underline{D_a R K T D N D N K_u} \quad ||$
 $\theta \theta_i ! \theta K_a D !, \theta - \theta \theta_i !, \theta K_a D !, \theta \quad |$
 Mukthāyi :— $\underline{D_a R K T D N D N K_u}$
 $\underline{D_a R K T D N D N K_u}$
 $\underline{D_a R K T D N D N K_u} \quad || \theta$
20. $^{m2 m3 n} N G_u G_u ! - , N G_u G_u ! - , N G_u G_u ! - D N G_u G_u ! \quad |$ (2 times) $||$
 $^{i m m m m^3 n n} N G_u G_u ! - , N G_u G_u ! - D N G_u G_u ! - , N G_u G_u ! | , N G_u G_u ! - D N G_u G_u ! |$
 $^{i m m m m^3 n n} N G_u G_u ! - D N G_u G_u ! - D N G_u G_u ! - D N G_u G_u ! - D N G_u G_u ! | , N G_u G_u ! -$
 $^{i m m m m^3 n n} D N G_u G_u ! - , N G_u G_u ! - \underline{K T \theta R K T G_u G_u !} \quad ||$
 $^{i m m m m^3 n n} N G_u G_u \underline{D N, K T \theta R} G_u G_u ! - , N G_u G_u ! - \underline{D N, K T \theta R} G_u G_u ! |$
 Mukthāyi :— $\underline{D N, K T \theta R} - \underline{D N, K T \theta R} - D !,$
 $\underline{D N, K T \theta R} - | \underline{D N, K T \theta R} - D !$
 $\theta \underline{D N, K T \theta R} - \underline{D N, K T \theta R} \quad || D !$
21. $N K_u \theta D M \theta D M$ (3 times) - $\theta \underline{K T \theta K} - \underline{K T \theta K_a} - \theta \underline{R K T \theta K_a} \quad ||$
 do (1 time) - do (1 time) $|$
 do (do) - do (do) $||$
 $\theta \underline{K T \theta K_a} - \underline{K T \theta K_a} - \theta \underline{R K T \theta K_a}$ (4 times) $||$
 Mukthāyi :— $\theta D, \theta K_a D N \theta !, - \theta D G N \theta !$
 $\underline{D \theta K_a D N \theta !, - \theta D G N \theta !}$
 $\underline{\theta K_a | D N \theta !, - \theta D !, G, N, \theta !}$
 $\underline{\theta D !, G, N, \theta !}$
 $\underline{\theta D !, G, N, \theta !} \quad || \theta$

22. $DND!, DN, -N, D!, DN, | -DND!, DN, -\theta!$, - $\overset{c}{\theta} \overset{m}{\theta} \overset{1}{\theta} \overset{3}{\theta} \overset{2}{\theta} \overset{2}{\theta} \overset{1}{\theta} \overset{3}{\theta}$ $\theta K T \theta \theta K T$ || (2 Times)

$DND!, DN, \theta!$, - $\theta K T \theta \theta K T$ | (2 Times) ||

$\theta!$, $\theta K T \theta \theta K T - \theta!$, $\theta K T \theta \theta K T$ |

Mukthāyi :— $\theta K T \theta \theta K T$

$\theta K T \theta \theta K T$

$\theta K T \theta \theta K T$ || $\bar{\theta}!$

23. $DND!, DN, -N, D!, DN, | DND!, DN, | \theta!$, $\overset{c}{\theta} \overset{m}{\theta} \overset{1}{\theta} \overset{3}{\theta} \overset{2}{\theta} \overset{2}{\theta} \overset{1}{\theta} \overset{3}{\theta}$ $\theta \theta K T \theta K T K T$ ||

$DND!, DN, -\theta!$, $\theta \theta K T \theta K T K T$ | (2 times) ||

$\theta!$, $\theta \theta K T \theta K T K T \theta!$, $\theta!$,

Mukthāyi :— $\theta \theta | K T \theta K T K T$

$\theta \theta K T \theta | K T K T$

$\theta \theta K T \theta K T K T$ || $\bar{\theta}!$

24. $DND!, DN, -N, D!, DN, | DND!, DN, -\overset{m}{\theta} \overset{1}{\theta} \overset{3}{\theta} \overset{2}{\theta} \overset{2}{\theta} \overset{1}{\theta} \overset{3}{\theta} \overset{2}{\theta} \overset{1}{\theta} \overset{3}{\theta}$ $\theta K T \theta \theta K T \theta K T$ ||

$DND!, DN, -\theta K T \theta \theta K T \theta K T$ (2 times) ||

, $\theta K T \theta \theta K T \theta \theta T K$ $\theta!$,

Mukthāyi :— $\theta K T \theta \theta K T | \theta K T$

$\theta K T \theta \theta K T \theta | K T$

$\theta K T \theta \theta K T \theta K T$ || θ

25. $DND!, DN, -N, D!, DN, | DND!, DN, -\overset{m}{\theta} \overset{1}{\theta} \overset{3}{\theta} \overset{2}{\theta} \overset{2}{\theta} \overset{1}{\theta} \overset{3}{\theta} \overset{2}{\theta} \overset{3}{\theta} \overset{2}{\theta} \overset{1}{\theta} \overset{3}{\theta}$ $\theta K T \theta \theta K T \theta K T K T$ ||

$DND!, DN, -\theta K T \theta \theta K T \theta K T K T$ | (2 times) ||

Mukthāyi :— $\theta K T \theta \theta K T \theta K T K T$ $\bar{\theta}!$;

$\theta K T \theta \theta | K T \theta K T K T$ $\bar{\theta}!$;

$\theta K T \theta \theta K T \theta K T K T$ || $\bar{\theta}!$

26. $DND!, D\bar{N}, -N, D!, D\bar{N}, |DND!, \theta!, -\theta \overset{m}{K} \overset{3}{T} \overset{2}{K} \overset{1}{T} \overset{3}{\theta} \overset{2}{\theta} \overset{2}{K} \overset{3}{T} \overset{3}{\theta} \overset{1}{K} \overset{2}{T} \overset{1}{K} \overset{3}{T} ||$
 $DND!, \theta!, -\theta \overset{m}{K} \overset{3}{T} \overset{2}{K} \overset{1}{T} \overset{3}{\theta} \overset{2}{\theta} \overset{2}{K} \overset{3}{T} \overset{3}{\theta} \overset{1}{K} \overset{2}{T} \overset{1}{K} \overset{3}{T} |$ (2 times) ||
 $, \theta \overset{m}{K} \overset{3}{T} \overset{2}{K} \overset{1}{T} \overset{3}{\theta} \overset{2}{\theta} \overset{2}{K} \overset{3}{T} \overset{3}{\theta} \overset{1}{K} \overset{2}{T} \overset{1}{K} \overset{3}{T} \theta!$, (3 times)

Mukthāyi :— $, \theta \overset{m}{K} \overset{3}{T} \overset{2}{K} \overset{1}{T} \overset{3}{\theta} \overset{2}{\theta} \overset{2}{K} \overset{3}{T} \overset{3}{\theta} \overset{1}{K} \overset{2}{T} \overset{1}{K} \overset{3}{T}$
 $\theta \overset{m}{K} \overset{3}{T} \overset{2}{K} \overset{1}{T} \overset{3}{\theta} \overset{2}{\theta} \overset{2}{K} \overset{3}{T} \overset{3}{\theta} \overset{1}{K} \overset{2}{T} \overset{1}{K} \overset{3}{T}$
 $\theta \overset{m}{K} \overset{3}{T} \overset{2}{K} \overset{1}{T} \overset{3}{\theta} \overset{2}{\theta} \overset{2}{K} \overset{3}{T} \overset{3}{\theta} \overset{1}{K} \overset{2}{T} \overset{1}{K} \overset{3}{T} ||$

27. $\theta \theta! \theta! \theta! - \theta \theta! \theta! \theta! - \theta \theta! \theta! \theta! - \theta \theta! \theta! \theta! |$
 $\theta \theta \theta \theta D!, G, N, \bar{\theta}! ||$
do - do - do - do |
 $\theta \theta \theta \theta D!, G, N, \bar{\theta}! ||$
do - do - do - do |
 $\theta \theta \theta \theta \overset{m}{K} \overset{3}{T} \overset{2}{K} \overset{1}{T} - \theta D!, G, N, \bar{\theta}! ||$
do - do - do - do |
 $\theta \theta \theta \theta \theta \theta D!, G, N, \bar{\theta}! ||$
do - do - do - do |
 $\theta \theta \theta \theta \theta \theta \theta D, G, N, \bar{\theta}! ||$

28. $\theta \theta \overset{m}{K}_u \bar{\theta}!, ; - \theta \theta \overset{m}{K}_u \bar{\theta}!, ; - \theta \theta \overset{m}{K}_u \bar{\theta}!, \overset{m}{K} \overset{3}{T} - \theta \theta \overset{m}{K}_u \bar{\theta}!, ; |$
do - do - $-\theta \theta \overset{m}{K}_u \bar{\theta}!, - \overset{m}{K} \overset{3}{T} \overset{2}{K} \overset{1}{T} - \theta \theta \overset{m}{K}_u \bar{\theta}! ||$ (2 times)
do - do - $-\theta \theta \overset{m}{K}_u \bar{\theta}!, ; - \overset{1}{K} \overset{3}{T} \overset{m}{\theta} \overset{3}{R} \overset{m}{K} \overset{1}{T} \bar{\theta}!, - \overset{1}{K} \overset{3}{T} \overset{m}{\theta} \overset{3}{R} \overset{m}{K} \overset{1}{T} \bar{\theta}!, |$

..... Misra Gamana Chaturasra Gamana
 $\theta \overset{m}{K}_u \bar{\theta}!, - \theta \theta \overset{m}{K}_u \bar{\theta}!, \theta \theta \overset{m}{K}_u \bar{\theta}!, - \theta \theta \overset{m}{K}_u \bar{\theta}!, - D \overset{m}{N} \overset{m}{K} \overset{3}{T} \overset{m}{\theta} \overset{3}{R} - D \overset{m}{N} \overset{m}{K} \overset{3}{T} \overset{m}{\theta} \overset{3}{R} ||$
do - do - do - do - do - do |

Mukthāyi :— $, \theta \overset{m}{K}_u \bar{\theta}!, ;$
 $\theta \theta \overset{m}{K}_u \bar{\theta}!, ;$
 $\theta \overset{m}{K}_u D G_u \theta \theta \overset{m}{K}_u || \bar{\theta}!$ } Thrisra Gamana.

29. $D!, D!, D\bar{N}, - ; D!, D\bar{N}, |D!, D!, D\bar{N}, | ; D!, D!, \theta \overset{m}{R} \overset{m}{K} \overset{3}{T} ||$ (2 times)
do - : $D!, D!, \theta \overset{m}{R} \overset{m}{K} \overset{3}{T} |$ do | - : $D!, ; \overset{m}{K} \overset{3}{T} \overset{m}{\theta} \overset{3}{R} \overset{m}{K} \overset{3}{T} ||$
do - : $D!, D!, \overset{m}{K} \overset{3}{T} \overset{m}{\theta} \overset{3}{R} \overset{m}{K} \overset{3}{T} |$ do | - : $D!, \overset{m}{K} \overset{3}{T} \overset{m}{\theta} \overset{3}{R} \overset{m}{K} \overset{3}{T} -$
 $\theta \overset{m}{K}_u \overset{m}{\theta} \overset{3}{R} \overset{m}{K} \overset{3}{T} \theta \overset{m}{K}_u ||$
do - : $D!, D!, \overset{m}{K} \overset{3}{T} \overset{m}{\theta} \overset{3}{R} \overset{m}{K} \overset{3}{T} |$

Mukthāyi :— , θ, K, T, - θ | K T - θ K T - θ D!, G, N, θ! ||

, θ, K, T, - θ K T - θ K T - θ D!, G, N, θ! |

, θ, K, T, - θ | K T - θ K T - θ D!, G, N, θ! ||

30. θ θ J!, - θ θ J!, - θ J!, - θ J!, |
θ θ J!, - θ θ J!, - θ θ J!, - θ R K T || (2 times.)

do - do |
θ θ J!, - θ θ J!, - θ J!, - N, θ R K T (2 times) ||

do - do |
θ θ J!, - θ J!, - N, θ R K T - D N, θ R K T || (2 times)

θ θ J!, - N, θ R K T - θ J!, - N, θ R K T - D N, θ R K T |
do - do ||

Mukthāyi :— , N, θ R K T - D N, θ R K T θ!.,

J!, - N, θ R K T | - D N, θ R K T θ!.,

θ J! - N, θ R K T - D N, θ R K T || θ!

31. ^{1 1 c} , θ θ θ!, - ^{1 1 c} θ θ θ!, - ^{1 1 3} θ θ θ - ^{1 1 1 c} θ θ θ θ! |

, θ θ θ!, - θ θ θ!, - ^{1 1 3 3 3 1 3 m m m 2 n} θ D!, K T θ K T θ θ K_u θ! || (2 times)

, θ θ θ!, - θ θ θ!, - θ D!, K T θ K T θ θ K_u θ! || (2 times) ||

, θ θ θ!, - θ D!, K T θ K T θ θ K_u θ! θ θ θ! |

, θ D!, K T θ K T θ θ K_u θ! - , θ θ θ!, - θ D!, K T || θ K T θ θ K_u θ!

Mukthāyi :— , θ D!, K T θ K T θ θ K_u θ! θ.,

θ | D!, K T θ K T θ θ K_u θ! θ.,

θ D!, K T θ K T θ θ K_u θ! || θ

Note :— In this lesson the Nada can be played in two ways as below :—

I Model :— ^{1 1 c} θ θ θ!, - ^{1 1 c} θ θ θ!, - ^{1 1 3} θ θ θ - ^{1 1 1 c} θ θ θ θ!

II Model :— ^{m m n} θ θ θ!, - ^{m m n} θ θ θ!, - ^{m m m 3} θ θ θ - ^{m m m n} θ θ θ θ!

II Kāla :— D, ; θ !, ; θ K_a D N - $\overline{\theta}$!, ; |
 θ !, ; θ K_a D N - $\overline{\theta}$!, ;
 θ K_a D N || $\overline{\theta}$!,
 θ, , D, , G, , N, , $\overline{\theta}$!, |
 , θ, D, G, N, $\overline{\theta}$!,
 θ D G N $\overline{\theta}$! || θ

III Kāla :— D, θ !, - $\overline{\theta}$ K_a D N $\overline{\theta}$!, ;
 θ !, - $\overline{\theta}$ K_a D N $\overline{\theta}$!, ;
 θ K_a D N | $\overline{\theta}$!,
 θ, , D, , G, , N, , $\overline{\theta}$!, .
 θ, D, G, N, $\overline{\theta}$!, .
 θ D G N $\overline{\theta}$! || θ

ĀDI THĀLA

(Thrisra Gamana)

1. θ D !, D N, - θ D !, D N, - θ D !, D N, : θ K_a D !, D N, - θ D !, D N, -
 θ K_a D N K_a D N K_a ||
 θ D !, D N, - θ K_a D !, D N, - θ D !, D N, | θ K_a D N K_a D N K_a
 θ D !, D N, - θ K_a D !, D N, || θ D !, D N, - θ K_a D N K_a D N K_a
 θ D !, D N, | θ K_a D !, D N, - θ D !, D N, . θ K_a D N K_a D N K_a ||

Mukthāyi :— θ, ; D, ; θ,, - θ D G N $\overline{\theta}$!
 θ, ; D, ; ! θ,, - θ D G N $\overline{\theta}$!
 θ, ; D, ; θ,, - θ D G N $\overline{\theta}$! || θ

2. θ θ θ, D !, - θ K_a θ θ, D !, - θ θ θ, D !, | θ K_a D N K_a D N K_a
 θ θ θ, D !, - θ K T θ θ, D !, || θ θ θ, D !, - θ K_a D N K_a D N K_a
 θ θ θ, D !, | θ K θ θ, D !, - θ θ θ, D !, - θ K_a D N K_a D N K_a ||

Mukthāyi :— θ D θ K_a D N $\overline{\theta}$!, θ D G N $\overline{\theta}$!
 θ D θ K_a D N | $\overline{\theta}$!,, θ D G N $\overline{\theta}$!
 θ D θ K_a D N $\overline{\theta}$!,, θ D G N $\overline{\theta}$! || θ

3. $\theta \theta \bar{\theta}!$, $-\theta \theta \bar{\theta}!$, $-\theta \theta \bar{\theta}!$ $\underline{\kappa T}$ | $\theta \theta \bar{\theta}!$, $-\theta \theta \bar{\theta}!$, $-\theta \theta \bar{\theta}!$ $\underline{\theta \theta \kappa_a - \theta \theta \kappa_a}$ ||
do - do - $\underline{DN!}, \underline{\kappa_a DN!}, \underline{\kappa_a}$ | do - do - $\underline{\theta L!}, \underline{G_a - \theta L!}, \underline{G_a}$ ||
do - do - $\underline{DNN \kappa_a DNN \kappa_a}$ | do $\underline{G_a!}, \underline{TT G_a G_a DN -}$
 $\underline{DNN \kappa_a DNN \kappa_a}$ ||
do - do - do |
D! $\underline{\theta RKT - N G_a!}, \underline{\theta RKT - D!}$ | $\underline{\theta RKT - N G_a!}, \underline{\theta RKT - D!}$
 $\underline{\theta RKT N G_a!}, \underline{\theta RKT}$ ||

Mukthāyi :— $\underline{\theta D \theta \kappa_a DN \bar{\theta}!}, -$
 $\underline{D \theta \kappa_a DN \bar{\theta}!},$
 $\underline{\theta \kappa_a DN \bar{\theta}!}, |$
 $\underline{\theta D!, G N \bar{\theta}!}$
 $\underline{\theta \kappa_a \theta D!, G N \bar{\theta}!}$
 $\underline{\theta \kappa_a D G_a \theta D!, G N \bar{\theta}!} || \theta$

4. $\theta!$, $\theta D! D_a \theta - \theta!$, $\theta D! D_a \theta \kappa_a | \theta!$, $\theta D! D_a \theta!$, $-\theta \kappa_a DN \theta \kappa_a DN \theta \kappa_a$ ||
(2 times)

$\theta!$, $\theta D! D_a \theta!$, $-\theta \kappa_a DN \theta \kappa_a DN \theta \kappa_a$, $- | \theta!$, $\theta D! D_a \theta!$, $-$
 $\underline{\theta \kappa_a DN \theta \kappa_a DN \theta \kappa_a}$ ||

$\theta \theta \kappa_a D!$, $D_a \theta!$, $-\theta \theta \kappa_a D! D_a \theta!$, $-\theta!$, $-\theta, \kappa_a, D!$, $D_a, \theta, \kappa_a D! D_a, ||$

$\theta \kappa_a \theta; \theta \kappa_a DN \theta!$, $-\theta \theta!$, $-\theta \theta, \kappa_a - D!$ | $D_a \theta \kappa_a!$, $\theta, \kappa T \theta \kappa_a \theta RKT \theta \kappa_a$
 $\underline{\theta \kappa T \theta \kappa_a} || J!, J!, \theta J!, -$

Mukthāyi :— $\underline{\theta D \theta}, - \underline{\theta DG N \bar{\theta}!}$
 $\underline{D \theta, l}, - \underline{\theta DG N \bar{\theta}!}$
 $\underline{\theta}, - \underline{\theta DG N \bar{\theta}!}$
 $\underline{\theta DG N \bar{\theta}!}$
 $\underline{\theta DG N \bar{\theta}!} || \theta$

$$5. \theta \bar{\theta}!, \bar{\theta}!, -\theta K_a \bar{\theta}!, \bar{\theta}!, -K_T \bar{\theta}!, \bar{\theta}!, -D R_u G_u D_u \bar{\theta}!, \bar{\theta}!, |$$

$$\theta!, , K_u \theta K_a D N - \theta!, , K_u \theta K_a D N - \theta!, , K_u \theta K_a D N ||$$

$$\theta G_a N!, K_u - \theta R \theta \theta K_T - \theta K_T J N K_u - \theta R \theta \theta K_T |$$

$$\theta G_a N!, K_u - \theta R \theta \theta K_T - \theta G_a N!, K_u - \theta G_a \theta, ||$$

$$\text{Mukthāyi:—} \theta K_T J!, K_T - \theta K_a \theta K_u! - \theta R K_T \theta L!, G_u - \theta K_u! \theta K_D N \bar{\theta}$$

$$, \theta \theta K_T J!, K_T - \theta K_a \theta K_u! - \theta R || K_T \theta L!, G_u - \theta K_u!, \theta K_D N \bar{\theta}!,$$

$$, \theta \theta K_T | J!, K_T - \theta K_a \theta K_u! - \theta R K_T \theta L!, G_u - \theta K_u!, \theta K_D N || \theta!$$

$$6. \theta K_a - \theta K_T - \theta K_a D!, \theta K_T - \theta K_a | \theta K_T - \theta D!, G, N, \bar{\theta}! || (2 \text{ times})$$

$$\theta K_a \theta K_T - \theta D!, G N \bar{\theta}! | \theta K_a \theta K_T - \theta D!, G N \bar{\theta}! ||$$

$$\theta K_a \theta K_T - \theta D!, G N \bar{\theta}! |$$

$$\text{Mukthāyi:} \quad \theta D!, G N \bar{\theta}!$$

$$\theta K_a \theta D!, G N \bar{\theta}!$$

$$\theta K_a D G_u \theta D!, G N \bar{\theta}! || \theta$$

ĀDI THĀLA

(Thrisra Chouka Kāla Gamana)

Chouka Kāla is understood as the Kāla or the degree of speed, which is half the I Kāla. Consequently, if three letters are taken for a Kriya, the Kriya in the chouka Kāla takes six letters of the same speed.

$$1. \theta!, \theta \theta D!, -\theta!, \theta \theta D!, -\theta!, \theta \theta D!, -\theta D!, G N \bar{\theta}! -$$

$$\theta!, \theta \theta D!, -\theta!, \theta \theta D!, -\theta D G N \bar{\theta}! - \theta D!, G N \bar{\theta}! || (2 \text{ times}) ||$$

$$\theta!, \theta \theta D!, -\theta D!, G N \bar{\theta}! - \theta D G N \bar{\theta}! - \theta D!, G N \bar{\theta}! || (2 \text{ times}) |$$

$$\theta!, \theta \theta D!, -\theta D!, G N \bar{\theta}! - \theta D G N \bar{\theta}! - \theta D!, G N \bar{\theta}!$$

$$\text{Mukthāyi:—} \quad \theta D!, G N \bar{\theta}!$$

$$\theta K_a \theta D!, G N \bar{\theta}!$$

$$\theta K_a D G_u \theta D!, G N \bar{\theta}! ||$$

2. $\theta!$, $\theta\theta D!$, $-\theta!$, $\theta\theta D!$, $-\theta!$, $\theta\theta D!$, $-\theta D!$, $G N \bar{\theta}!$ -
 $\theta!$, $\theta\theta D!$, $-\theta!$, $\theta\theta D!$, $-\text{KT}\theta K_a - \theta D!$, $G, N, \bar{\theta}!$ | (2 times) ||

$\theta!$, $\theta\theta D!$, $-\theta D!$, $G N \bar{\theta}!$ - $\text{KT}\theta K_a - \theta D!$, $G, N, \bar{\theta}!$ | (2 times) |
 $\theta!$, $\theta\theta D!$, $-\theta D!$, $G N \bar{\theta}!$ - $\theta!$, $\theta\theta D!$,

Mukthāyi:— $\theta D!$, $G, N, \bar{\theta}!$
 $\theta K_a \theta D!$, $G, N, \bar{\theta}!$
 $\theta K_a D G_a \theta D!$, $G, N, \bar{\theta}!$ || θ

3. $\theta\theta K_a \bar{\theta}!$, $-\theta\theta K_a \bar{\theta}!$, $-\theta\theta K_a \bar{\theta}!$, $-\theta K_a \theta R K T \theta K_a D N \theta K_a$
 $\theta\theta K_a \bar{\theta}!$, $-\theta\theta K_a \bar{\theta}!$, $-\theta K T \theta K_a - \theta K T K T - \theta\theta K T - \theta K T K T$ |
 (2 times) ||
 $\theta\theta K_a \bar{\theta}!$, $-\theta\theta K_a \bar{\theta}!$, $-\theta K T \theta K_a - \theta K T K T - \theta\theta K T - \theta K T K T$
 (2 times) |
 $\theta\theta K_a \bar{\theta}!$, $-\theta K_a \theta R K T \theta K_a D N \theta K_a - \theta K_a$

Mukthāyi:— $\theta D!$, $G, N, \bar{\theta}!$
 $\theta K_a \theta D!$, $G, N, \bar{\theta}!$
 $\theta K_a D G_a \theta D!$, $G, N, \bar{\theta}!$ || θ

ĀDI THĀLA

(Misra Gamana Chauka Kāla)

1. $\theta R K \theta G_a!$, $-\theta R K \theta G_a!$, $-\theta R K \theta G_a!$, $-\theta K_a \theta D G N \bar{\theta}!$
 do - do - do - $\theta D!$, $G N \bar{\theta}!$ |
 do - do - do - $\theta R K \theta \theta$,
 do - do - do - $\theta R K D D$, ||
 do - do - dh - $\theta R K \bar{\theta}!$, $\bar{\theta}!$,
 do - do - do - $\theta R K N!$, $N!$, |
 $\theta R K \theta G_a!$, $-\theta R K \theta \theta$, $-\theta R K \theta G_a!$, $-\theta R K \theta D$, -
 $\theta R K \theta G_a!$, $-\theta R K \theta \bar{\theta}!$, $-\theta R K \theta G_a!$, $-\theta R K \theta N!$ ||
 $\theta R K \theta \theta$, $-\theta R K \theta D$, $-\theta R K \theta \bar{\theta}!$, $-\theta R K \theta N!$,
 $\theta R K \theta$, $-\theta R K D$, $-\theta R K \bar{\theta}!$, $-\theta R K N!$, |

Mukthāyi:— , $\theta D \theta !, K_u - \theta D !, G, N, \bar{\theta} !$

$D \theta !, K_u - \theta D !, G, N, \bar{\theta} !$

$\theta !, K_u - \theta D !, G, N, \bar{\theta} !$

$\theta D !, G, N, \bar{\theta} !$

$\theta D !, G, N, \bar{\theta} ! \parallel \theta$

2. $\theta D M \theta \theta D M - \theta D M \theta \theta D M - \theta D M \theta \theta D M - \theta D !, G N \bar{\theta} !$

$\theta D M \theta \theta D M - \theta D M \theta \theta D M - K T \theta K_a - \theta R K T \theta K_a D N \theta K_a ! (2 \text{ times}) \parallel$

$\theta D M \theta \theta D M - \theta D !, G N \bar{\theta} ! - K T \theta K_a - \theta R K T \theta K_a D N \theta K_a (2 \text{ times}) \mid$

$\theta D M \theta \theta D M - \theta D !, G N \bar{\theta} ! - \theta !, \theta \theta D M$

Mukthāyi :— $\theta K T \theta D !, G N \bar{\theta} !$

$\theta K_a \theta K T \theta D !, G N \bar{\theta} !$

$\theta K_a D G_u \theta K T \theta D !, G N \bar{\theta} ! \parallel \theta$

3. $\theta D M \theta \theta D M (3 \text{ times}) - \theta D !, G N \bar{\theta} !$

do (2 times) - $\theta D G N \bar{\theta} ! - \theta D !, G, N, \bar{\theta} ! (2 \text{ times}) \parallel$

do (1 time) - $\theta D !, G N \bar{\theta} ! - \theta D G N \bar{\theta} ! - \theta D !, G, N, \bar{\theta} !$
(2 times) \mid

do (1 time) - $\theta D !, G N \bar{\theta} ! - \theta D M \theta \theta D M - \bar{\theta} !,$

Mukthāyi :— $\theta D !, G, N, \bar{\theta} !$

$\theta K_a \theta D !, G, N, \bar{\theta} !$

$\theta K_a D G_u \theta D !, G, N, \bar{\theta} ! \parallel \theta$

4. $\theta D M \theta \theta D M (3 \text{ times}) - \theta D !, G, N, \bar{\theta} !$

do (2 times) - $\theta D !, G N \bar{\theta} ! - \theta D !, G, N, \bar{\theta} ! (2 \text{ times}) \parallel$

do (1 time) - $\theta D !, G N \bar{\theta} ! - \theta D !, G N \bar{\theta} ! - \theta D !, G, N, \bar{\theta} !$
(2 times)

do (1 time) - $\theta D !, G N \bar{\theta} ! - \theta D M \theta \theta D M - \theta D G N \bar{\theta} !$

Mukthāyi :— $\theta D !, G, N, \bar{\theta} !$

$\theta K_a \theta D !, G, N, \bar{\theta} !$

$\theta K_a D G_u \theta D !, G, N, \bar{\theta} ! \parallel \theta$

ĀDI THĀLA

(Khanda Gamana)

1. $\theta \overset{m}{K}_a \overset{m^3}{\theta} \overset{n}{\theta} \bar{!}, - \theta \overset{m}{K}_a \overset{m^3}{\theta} \bar{!}, - \theta \overset{m}{K}_a \overset{m^3}{\theta} \bar{!}, - \theta \overset{m}{K}_a \overset{m^3}{\theta} \theta, |$
do - do - do - $\theta \overset{1}{K}_a D, ||$
do - do - do - $\theta \overset{n}{K}_a \overset{n}{\theta} \bar{!}, |$
do - do - do - $\theta \overset{m}{K}_a N \bar{!}, ||$
do - $\theta \overset{m}{K}_a \theta, - \theta \overset{m}{K}_a \bar{\theta} \bar{!}, - \theta \overset{m}{K}_a D, |$
do - $\theta \overset{m}{K}_a \bar{\theta} \bar{!}, - \theta \overset{m}{K}_a \bar{\theta} \bar{!}, - \theta \overset{m}{K}_a N, ||$
 $\theta \overset{m}{K}_a \theta, - \theta \overset{m}{K}_a D, - \theta \overset{m}{K}_a \bar{\theta} \bar{!}, - \theta \overset{m}{K}_a N, |$

Mukthāyi:— $\theta D \theta, \theta D G N \bar{\theta} \bar{!}$ $D \theta, \theta D G N \bar{\theta} \bar{!}$ $\theta, \theta D G N \bar{\theta} \bar{!}$ $\theta D G N \bar{\theta} \bar{!}$ $\theta D G N \bar{\theta} \bar{!} || \theta$

2. $\theta \overset{m}{K}_a \bar{\theta} \bar{!}, - \theta \overset{m}{K}_a \bar{\theta} \bar{!}, - \theta \overset{m}{K}_a \bar{\theta} \bar{!}, - \theta \overset{m}{K}_a \overset{m^3}{\theta} \overset{m^3}{K} \overset{m}{T} \bar{!}$
do - do - do - $\theta \overset{m}{R} \overset{m^3}{K} \overset{m^3}{T} \theta \overset{m}{K}_a D N \theta \overset{m}{K}_a ||$ (2 times)
do - do - do - $\overset{m}{N}, \overset{m}{D} \overset{m}{R} \overset{m}{D} \overset{m}{R} \overset{m}{K} \overset{m}{T} \theta \overset{m}{R} |$
do - do $\theta \overset{m}{K}_a \theta, - \overset{m}{N}, \overset{m}{D} \overset{m}{R} \overset{m}{D} \overset{m}{R} \overset{m}{K} \overset{m}{T} \theta \overset{m}{R} ||$ (2 times)
do - $\theta \overset{m}{K}_a \theta, - \overset{m}{N}, \overset{m}{D} \overset{m}{R} \overset{m}{D} \overset{m}{R} \overset{m}{K} \overset{m}{T} \theta \overset{m}{R}$ (2 times)
 $\theta \overset{m}{K}_a \theta, - \overset{m}{N}, \overset{m}{D} \overset{m}{R} \overset{m}{D} \overset{m}{R} \overset{m}{K} \overset{m}{T} \theta \overset{m}{R} ||$
 $\theta \overset{m}{K}_a \theta, - \overset{m}{N}, \overset{m}{D} \overset{m}{R} \overset{m}{D} \overset{m}{R} \overset{m}{K} \overset{m}{T} \theta \overset{m}{R}$
 $\theta, - \overset{m}{N}, \overset{m}{D} \overset{m}{R} \overset{m}{D} \overset{m}{R} \overset{m}{K} \overset{m}{T} \theta \overset{m}{R}$
 $\overset{m}{D} \overset{m}{R} \overset{m}{D} \overset{m}{R} \overset{m}{K} \overset{m}{T} \theta \overset{m}{R} |$

Mukthāyi :—

; DRDRKTθR;;N, DRDRKTθR;;θN, DRDRKTθR || θ!

ĀDI THĀLĀ

(Khanda Gamana Chouka Kāla)

1. $\theta K_a \bar{\theta}!$, $-\theta K_a \bar{\theta}!$, $-\theta K_a \bar{\theta}!$, $-\overset{m}{\theta} \overset{m^3}{K_a} \overset{m}{\theta} \overset{m^3}{KT}$
 $\theta K_a \bar{\theta}!$, $-\theta K_a \bar{\theta}!$, $-\theta KT - \theta D!$, $G N \bar{\theta}!$ | (2 times) ||
 $\theta K_a \bar{\theta}!$, $-\theta K_a \theta KT - \theta KT - \theta D!$, $G N \bar{\theta}!$ | (2 times) |
 $\theta K_a \bar{\theta}!$, $-\theta K_a \theta KT - \theta KT - \theta D!$, $G N \bar{\theta}!$ - $\theta \theta K_a \bar{\theta}!$,

Mukthāyi :—

, θD!, GNθ!θK_a θD!, GNθ!θK_a DG_u θD!, GNθ! || θ

2. $\theta K_a \bar{\theta}!$, $-\theta K_a \bar{\theta}!$, $-\theta K_a \bar{\theta}!$, $-\theta K_a \theta KT$
do - do - $KT \theta K_a - \theta D!$, $G N \bar{\theta}!$ | (2 times) ||
 $\theta K_a \bar{\theta}!$, $-\theta K_a \theta KT - KT \theta K_a - \theta D!$, $G N \bar{\theta}!$ | (2 times) |
 $\theta K_a \bar{\theta}!$, $-\theta K_a \theta KT - KT \theta K_a - \theta D!$, $G N \bar{\theta}!$ - $\theta K_a \bar{\theta}!$, θ , .

Mukthāyi :—

θD!, GNθ!θK_a θD!, GNθ!θK_a DG_u θD!, GNθ! || θ

ĀDI THĀLĀ

(Sankeerna Gamana Chouka Kāla)

1. $\theta K_a \theta RK \theta G_u!$, $-\theta K_a \theta RK \theta G_u!$, $-\theta K_a \theta RK \theta G_u!$, $-\overset{3}{\theta} \overset{2}{K_a} \overset{3}{DG_u} \overset{2}{\theta} \overset{3}{DG} \overset{m}{N} \bar{\theta}!$
 $\theta K_a \theta RK \theta G_u!$, $-\theta K_a \theta RK \theta G_u!$, $-\theta D!$, $G, N, \bar{\theta}!$ - $KT \theta K_a \theta DG N \bar{\theta}!$ |
(2times) ||

$\theta K_a \theta R K \theta G_u!$, - $\theta K_a D G_u \theta D G N \bar{\theta}!$ - $\theta D!$, G, N, $\bar{\theta}!$ -
 K T $\theta K_a \theta D!$, G N $\bar{\theta}!$ (2 times) |

$\theta K_a \theta R K \theta G_u!$, - $\theta K_a D G_u \theta D G N \bar{\theta}!$ - $\theta D!$, G, N, $\bar{\theta}!$ - K T $\theta K_a \theta D!$, G N $\bar{\theta}!$

Mukthāyi :—

K T θK_a - $\theta D!$, G N $\bar{\theta}!$

θK_a K T θK_a - $\theta D!$, G N $\bar{\theta}!$

$\theta K_a D G_u$ K T θK_a - $\theta D!$, G N $\bar{\theta}!$ || θ

2. $\theta D M \theta!$, $\theta \theta D M$ - $\theta D M \theta!$, $\theta \theta D M$ - $\theta D M \theta!$, $\theta \theta D M$ - $\theta D!$, G, N, $\bar{\theta}!$

$\theta D M \theta!$, $\theta \theta D M$ - $\theta D M \theta!$, $\theta \theta D M$ - $\theta D!$, G N $\bar{\theta}!$ - $\theta D!$, G N $\bar{\theta}!$
 $\theta D G N \bar{\theta}!$ | (2 times) ||

do - $\theta D!$, G, N, $\bar{\theta}!$ - $\theta D!$, G N $\bar{\theta}!$ - do - do (2 times) |

do - do - do - do do

Mukthāyi :—

K T θR - $\theta D!$, G N $\bar{\theta}!$

θK_a K T θR - $\theta D!$, G N $\bar{\theta}!$

$\theta K_a D G_u$ K T θR - $\theta D!$, G N $\bar{\theta}!$ || θ

3. $\theta K_a D G_u \theta K_a \theta J!$, - $\theta K_a D G_u \theta K_a \theta J!$, - $\theta K_a D G_u \theta K_a \theta J!$, -
 $\theta D!$, G, N, $\bar{\theta}!$ -

$\theta K_a D G_u \theta K_a \theta J!$, - $\theta K_a D G_u \theta K_a \theta J!$, -

$\theta D!$, G N $\bar{\theta}!$ - K T θR - $\theta D!$, G, N, $\bar{\theta}!$ | (2 times) ||

$\theta K_a D G_u \theta K_a \theta J!$, - $\theta D!$, G, N, $\bar{\theta}!$ -

$\theta D!$, G N $\bar{\theta}!$ - K T θR - $\theta D!$, G, N, $\bar{\theta}!$ (2 times) |

$\theta K_a D G_u \theta K_a \theta J!$, - $\theta D!$, G, N, $\bar{\theta}!$

$\theta K_a D G_u \theta K_a \theta J!$, - θK_a -

Mukthāyi :—

K T θR , - $\theta D!$, G, N, $\bar{\theta}!$

θK_a K T θR - $\theta D!$, G, N, $\bar{\theta}!$

$\theta K_a D G_u$ K T θR - $\theta D!$, G, N, $\bar{\theta}!$ || θ

Thrisra Jāthi

THRIPUTA THĀLA

Angas :— 1₃ 0 0 No. of Kriyas — 7

1. θ K T | θ K_a | D M || (gathi)
2. $\frac{1}{2}^d \theta, - \theta$ ^{I_d} K T - ^{II_d} K T θ K_a ||
3. $\frac{1}{2}^d \theta, - \theta$ ^{I_d} K_a - ^{II_d} θ D!, G N $\bar{\theta}$! ||
4. $\frac{1}{2}^d \theta, - \theta$ - θ ^{I_d} D!, G, N, $\bar{\theta}$! ||
5. $\frac{1}{2}^d \theta, - \theta$; - θ ^{II_d} D!, G N $\bar{\theta}$! ||
6. θ ^{I_d} K T | θ ^{II_d} K T - θ ^{III_d} K T - N, θ ^{IV_d} K T D N, θ R K T ||
7. J!, - θ J!, - θ K_a J!, - θ K T J!, ||
8. N, D, N, | N, D!, | D N, || θ K_a D N, | θ K_a D!, | D N, || (2 times)
 θ K_a D N, | θ K_a D!, | D!, θ R K T || θ K_a D N, | θ K_a D!, |
 θ K_a D D, | θ K_a D!, | θ K T K T θ K_a || θ K_a D D, | θ K_a -
 θ K T | K T θ K_a θ L!, G_u || (2 times)

Mukthāyi:— , θ K_a θ K T K T θ K_a θ L!, G_u $\bar{\theta}$!, θ K_a θ K T || K T θ K_a θ L!, G_u $\bar{\theta}$!, θ K_a θ K T K T θ K_a θ L!, G_u $\bar{\theta}$!, || θ

9. θ K T | - θ K | K T θ R ||, K T | θ K_a | - K T θ R || (2 times)

 θ K_a - θ | K T | - K T θ R || θ K_a - θ | K T | - θ L!, G_u || θ K_a θ K T - θ | K_a θ K T | K T θ R K T θ R || θ K_a θ K T - θ | K_a θ K T |
K T θ R θ L!, G_u ||do | do | G_u!, T T G_u G_u N N || θ D!, G, N |, $\bar{\theta}$! -G_u!, T T G_u G_u N N θ L!, G_u ||

Mukthāyi :—
$$\left. \begin{array}{l} \theta \mathbf{D} \theta \mathbf{K}_a \mathbf{D} \mathbf{N} \bar{\theta}!, \\ \mathbf{D} \theta \mathbf{K}_a \mathbf{D} \mathbf{N} \bar{\theta}!, \\ \theta \mathbf{K}_a \mathbf{D} \mathbf{N} \bar{\theta}!, \\ \mathbf{K} \mathbf{T} \theta \mathbf{K}_a \theta \mathbf{R} \mathbf{K} \mathbf{T} \parallel \theta \end{array} \right\} (3 \text{ times})$$

10. $\theta \mathbf{K}_u! \theta \theta \theta \bar{\theta}!, \mid - \theta \mathbf{K}_u! - \theta \mathbf{K}_u! - \theta \theta \bar{\theta}!, \parallel$
do $\mid - \text{do} - \text{do} - \theta \theta \mathbf{K}_u - \theta \theta \mathbf{K}_u \parallel$
do $\mid - \text{do} - \text{do} - \theta!, \mathbf{K} \mathbf{T} - \theta!, \mathbf{K} \mathbf{T} \parallel$
do $\mid - \text{do} - \text{do} - \theta \mathbf{K} \mathbf{T} \theta \mathbf{K} \mathbf{T} \theta \mathbf{K} \mathbf{T} \theta \mathbf{K} \mathbf{T} \bar{\theta}! \parallel$
do $\mid - \text{do} - \text{do} - \mathbf{D} \mathbf{N} \mathbf{K}_u \mathbf{K}_u \mathbf{N} \mathbf{K}_a \mathbf{D}!, \parallel$

$\theta \mathbf{K}_u! \theta \theta \bar{\theta}!, \mid \mathbf{D} \mathbf{N} \mathbf{K}_u \mathbf{K}_u \mathbf{N} \mathbf{K}_a \mathbf{D}!, - \theta \mathbf{K} \mathbf{T} \theta \mathbf{K} \mathbf{T} \theta \mathbf{K} \mathbf{T} \theta \mathbf{K} \mathbf{T} \bar{\theta}! \parallel$

Mukthāyi :— $\mathbf{D} \mathbf{N} \mathbf{K}_u \mathbf{K}_u \mathbf{N} \mathbf{K}_a \mathbf{D}!, - \theta \mathbf{K} \mathbf{T} \theta \mathbf{K} \mathbf{T} \theta \mathbf{K} \mathbf{T} \theta \mathbf{K} \mathbf{T} \bar{\theta}! \theta,$
 $\mathbf{D} \mathbf{N} \mathbf{K}_u \mathbf{K}_u \mathbf{N} \mathbf{K}_a \mathbf{D}!, - \theta \mathbf{K} \mathbf{T} \theta \mathbf{K} \mathbf{T} \theta \mathbf{K} \mathbf{T} \theta \mathbf{K} \mathbf{T} \bar{\theta}! \theta,$
 $\mathbf{D} \mathbf{N} \mathbf{K}_u \mathbf{K}_u \mathbf{N} \mathbf{K}_a \mathbf{D}!, - \theta \mathbf{K} \mathbf{T} \theta \mathbf{K} \mathbf{T} \theta \mathbf{K} \mathbf{T} \theta \mathbf{K} \mathbf{T} \bar{\theta}! \parallel \theta$

11. $\theta \theta \theta, \mathbf{D}!, - \theta \mathbf{K}_a \theta \mid \theta, \mathbf{D}!, - \theta \theta \theta, \mathbf{D}!, - \theta \mathbf{K}_a \mathbf{D} \mathbf{N} \parallel \mathbf{K}_u - \mathbf{D} \mathbf{N} \mathbf{K}_u$
 $\theta \theta \theta, \mathbf{D}!, \mid \theta \mathbf{K}_a \theta \theta, \mathbf{D}!, - \theta \theta \theta, \mathbf{D}!, \parallel \theta \mathbf{K}_a \mathbf{D} \mathbf{N} \mathbf{K}_u - \mathbf{D} \mathbf{N} \mathbf{K}_u$

Mukthāyi :— $\theta,; \mid \mathbf{D},; \theta, \theta \mathbf{D} \mathbf{G} \mathbf{N} \bar{\theta}!$
 $\theta,; \parallel \mathbf{D},; \theta, \theta \mathbf{D} \mathbf{G} \mathbf{N} \bar{\theta}! \mid$
 $\theta,; \mathbf{D},; \theta, \theta \mathbf{D} \mathbf{G} \mathbf{N} \bar{\theta}! \parallel \theta$

12. The first two lines of the above are to be taken again.

Mukthāyi :— $\theta \mathbf{D} \theta \mathbf{K}_a \mathbf{D} \mathbf{N} \bar{\theta}!, - \theta \mathbf{D} \mathbf{G} \mathbf{N} \bar{\theta}! (3 \text{ times}) \parallel$

13. The first two lines of No. 11 are to be taken.

Mukthāyi :— $\theta \mathbf{D} \mathbf{G} \mathbf{N} \bar{\theta}! - \theta \mathbf{D} \mathbf{G} \mathbf{N} \bar{\theta}! - \theta \mathbf{D} \mathbf{G} \mathbf{N} \bar{\theta}! (3 \text{ times}) \parallel$

14. $\theta K_u ! \theta \theta \bar{\theta} !, | \theta K_u ! \theta K_u ! | \theta \theta \bar{\theta} !, ||$
 $\theta K_u ! \theta \theta \bar{\theta} !, | , \theta \underline{K T \theta K_a} | \theta K_a \theta R K T \theta K_a ||$ } (2 times)
 $\theta K_u ! \theta \theta \bar{\theta} !, | , \theta \underline{K T \theta K_a} | \theta K_a \theta R K T \theta K_a ||$ (2 times)

Mukthāyi :— , $\theta \underline{K T \theta K_a \theta K_a \theta R K T \theta K_a \bar{\theta} !},,$
 $\theta \underline{K T \theta K_a \theta K_a \theta R K T \theta K_a \bar{\theta} !},,$
 $\theta \underline{K T \theta K_a \theta K_a \theta R K T \theta K_a || \bar{\theta} !}$

15. , $\theta \theta \bar{\theta} !, - \theta \theta \theta \theta \theta \theta \bar{\theta} !, - \theta ||$
 $\theta \bar{\theta} !, \theta \theta \bar{\theta} !, | , \theta \underline{D !}, \underline{K T \theta K T \theta \theta K_u \bar{\theta} !} ||$ } (2 times)
 $, \theta \theta \theta \theta \bar{\theta} !, | , \theta \underline{D !}, \underline{K T \theta K T \theta \theta K_u \bar{\theta} !} ||$

Mukthāyi :— , $\theta \underline{D !}, \underline{K T \theta K T \theta \theta K_u \bar{\theta} !} \theta,,$
 $\theta \underline{D !}, \underline{K T \theta K T \theta \theta K_u \bar{\theta} !} \theta,,$
 $\theta \underline{D !}, \underline{K T \theta K T \theta \theta K_u \bar{\theta} !} || \theta$

16. $\theta \theta \theta \theta_i ! - \theta \theta \theta \theta_i ! - \theta \theta \theta \theta_i ! - \theta \underline{K T \theta} ||$ (2 times)
 $\theta \theta \theta \theta_i ! - \theta \theta \theta \theta_i ! - \theta \theta_i ! - \theta \underline{K T \theta} - \theta \underline{K T \theta} ||$ (2 times)
 $\theta \theta \theta \theta_i ! \underline{\theta K T \theta} | \theta \theta \theta \theta_i ! \underline{\theta K T \theta} - \theta \underline{K T \theta} ||$

Mukthāyi :— $\theta \theta \theta \theta_i ! - \underline{\theta K T \theta \theta K T \theta \bar{\theta} !},$
 $\theta \theta \theta \theta_i ! - \underline{\theta K T \theta \theta K T \theta \bar{\theta} !},$
 $\theta \theta \theta \theta_i ! - \underline{\theta K T \theta \theta K T \theta || \bar{\theta} !}$

17. $\theta !, \theta \theta D !, | \theta !, \theta !, | \theta \theta D !, ||$
 $\theta !, \theta \theta D !, | \theta !, \theta !, | \theta \theta D ! \underline{\theta R K T} ||$ } (2 times)
 $\theta !, \theta \theta D !, | \theta !, \theta \theta | D !, \underline{D N}, \underline{\theta R K T} ||$ (2 times)
 $\theta !, \theta \theta \underline{D N}, \underline{\theta R K T} | \theta !, \theta \theta | \underline{D N}, \underline{\theta R K T D N}, \underline{\theta R K T} ||$
 $\theta !, \underline{D N}, \underline{\theta R K T - D N}, \underline{\theta R K T} | \theta !, \theta !, | \underline{D N}, \underline{\theta R K T - D N}, \underline{\theta R K T} ||$

Mukthayi.— $\theta!$, $\theta!$, $D N$, $\theta R K T$ - $D N$, $\theta R K T$ $\bar{\theta}!$,

$\theta!$, $\theta!$, $D N$, $\theta R K T$ - $D N$, $\theta R K T$ $\bar{\theta}!$,

$\theta!$, $\theta!$, $D N$, $\theta R K T$ - $D N$, $\theta R K T$ || $\bar{\theta}!$

18. $\theta \theta!$, $\theta!$, $\theta!$, $\theta!$ - $\theta \theta!$, $\theta!$, $\theta!$, $\theta!$ - $\theta \theta!$, $\theta!$, $\theta!$, $\theta!$ - θ || $\theta \theta \theta \theta D!$, $G N$, $\bar{\theta}!$ ||

do - do - do - θ || $\theta \theta \theta \theta D!$, $G N$, $\bar{\theta}!$ ||

do - do - do - θ || $\theta \theta K_s \theta K T - \theta D!$, $G N$ $\bar{\theta}!$ ||

do - do - do - θ || $\theta \theta \theta \theta \theta D!$, $G N$ $\bar{\theta}!$ ||

do - do - do - θ || $\theta \theta \theta \theta \theta \theta D G N$ $\bar{\theta}!$ ||

19. $\theta K_s \theta K T \theta!$, - $\theta K_s \theta K T \theta!$, - $\theta K_s \theta K T \theta!$, - $\theta K_s \theta D G N \bar{\theta}!$ || (3 times)

$\theta K_s \theta K T \theta!$, - $\theta K_s \theta D G N \bar{\theta}!$ (4 times) ||

Mukthayi :—

	<u>$\theta D G N \bar{\theta}!$</u>	}	
	<u>$\theta K_s \theta D G N \bar{\theta}!$</u>	}	Thrisra Gamana
	<u>$\theta K_s D G_s \theta D G N \bar{\theta}!$</u>	}	(3 times)

20. $\theta K T \theta \bar{\theta}!$, - $\theta K T \theta \bar{\theta}!$, - $\theta K T \theta \bar{\theta}!$, - $\theta D!$, $G N \bar{\theta}!$ ||

$\theta K T \theta \bar{\theta}!$, - $\theta K T \theta \bar{\theta}!$, - $\theta D!$, $G N \bar{\theta}!$ - $\theta D!$, $G N \bar{\theta}!$ ||

$\theta K T \theta \bar{\theta}!$, - $\theta D!$, $G N \bar{\theta}!$ - $\theta D!$, $G N \bar{\theta}!$ - $\theta D!$, $G N \bar{\theta}!$ ||

Mukthāyi :—

	<u>$\theta D!$, $G N \bar{\theta}!$</u>	}	
	<u>$\theta K_s \theta D!$, $G N \bar{\theta}!$</u>	}	(3 times)
	<u>$\theta K_s D G_s \theta D!$, $G N \bar{\theta}!$</u>	}	

Misra jāthi

THRIPUTA THĀLA

Angas :— 17 0 0 No. of Kriyas = 11

1. $\theta \kappa_a \theta D G N \bar{\theta} | \theta \kappa_a | D N ||$ (Gathi)
2. $\theta \kappa_a \theta D!, G, N, \bar{\theta} | ||$
 $\theta \kappa T \theta D!, G, N, \bar{\theta} | ||$
 $\kappa T \theta \kappa, \theta D!, G N \bar{\theta} | ||$
 $\theta \kappa \theta \kappa T \theta D!, G N \bar{\theta} | ||$
3. $\frac{1}{2} \theta^d, - \theta D G N \theta! - \theta D!, G, N, \bar{\theta} | ||$
4. $\theta \kappa T D!, , D!, - \theta \kappa T D!, , D!, - \theta \kappa T D!, , D!, ; , \theta |$
 $, D!, G, N, \bar{\theta} | | \theta \kappa T D!, , D!, ||$
 $\theta \kappa T D!, , D!, - \theta \kappa T D!, , D!, ; , \theta D!, G, N, \bar{\theta} | |$
 $\theta \kappa T D!, , D!, | \theta \kappa T D!, , D!, ||$
 $; , \theta D!, G, N, \bar{\theta} | - \theta \kappa T D!, , D!, - \theta \kappa T D!, , D!, |$
 $; , \theta D!, G | , N, \bar{\theta} | - \theta \kappa T D! ||$
 $, , D!, ; , \theta D!, G, N, \bar{\theta} |$

Mukthāyi.— $, \theta D!, G N \bar{\theta} | -$ $\theta \kappa_a \theta | D!, G N \bar{\theta} | -$ $\theta \kappa_a D | G_a \theta D!, G N \bar{\theta} | ||$

Khanda jāthi

THRIPUTA THĀLA

Angas :— 15 0 0 No. of Kriyas = 9

1. $\theta \kappa_a \theta \kappa T | \kappa T | \theta \kappa_a ||$ (Gathi)
2. $\frac{1}{2} \theta^d, - \kappa T \theta \kappa_a - \theta D!, G N \bar{\theta} | ||$

3. $\frac{1}{2}^d \theta, -\theta^1_{KT} - \theta^1_{D!}, G, N, \bar{\theta}^1 \parallel$
4. $\frac{1}{2}^d \theta, -\theta^1_{K_2} - \theta^1_{J!}, \theta^1_{D!}, KT \parallel$
5. $\theta^1_{KT} \theta^1_{KTDN}, \theta^1_{RKTD!}, DN, DK^1_{T\theta K_2 DN}, \theta^1_{D!}, GN, \bar{\theta}^1 \parallel$
 $\theta^1_{KT} \theta^1_{KDN}, \theta^1_{RKTD!}, DN, D^1_{KT\theta K_2 DN}, \theta^1_{D!}, G, N, \bar{\theta}^1 \parallel$
 $\theta^1_{KT} \theta^1_{DN}, \theta^1_{RKTD!}, DN, DK^1_{T\theta K_2 DN}, \theta^1_{D!}, G, N, \bar{\theta}^1 \parallel$
 $\theta^1_{KTDN}, \theta^1_{RKTD!}, DN, DK^1_{T\theta K_2 DN}, \theta^1_{J!}, \theta^1_{D!}, KT \parallel$
6. $\theta^1_{KT} - \theta^1_{DN}, -\theta^1_{K_2 DN}, -\theta^1_{RKTDN} - D^1_{KTDN}, \theta^1_{J!}, \theta^1_{D!}, KT \parallel$
 $\theta^1_{KT} - \theta^1_{DN}, -\theta^1_{K_2 DN}, -\theta^1_{RKTDN} - D^1_{KT - \theta^1_{KDN}}, \theta^1_{D!}, G, N, \bar{\theta}^1 \parallel$
 $\theta^1_{KT} - \theta^1_{DN}, -\theta^1_{K_2 DN}, -\theta^1_{RKTDN} - D^1_{KT - \theta^1_{KDN}}, \theta^1_{D!}, G, N, \bar{\theta}^1 \parallel$
 $\theta^1_{KT} - \theta^1_{DN}, -\theta^1_{K_2 DN}, -\theta^1_{RKTDN} - D^1_{KT - \theta^1_{KTDN}}, \theta^1_{D!}, GN, \bar{\theta}^1 \parallel$
7. $\theta^1_{\theta!} \theta^1_{KT\theta!}, -\theta^1_{\theta!} \theta^1_{KT\theta!}, -\theta^1_{\theta!} \theta^1_{KT\theta!}, \theta^1_{\theta!} DNK_2 K_2$
 $\theta^1_{K_2 D!}, KTD!, | \theta \theta \theta \theta \theta D!, G, N, \bar{\theta}^1 \parallel$
do - do - do - do - do | $\theta \theta \theta \theta \theta D!, G, N, \bar{\theta}^1 \parallel$
do - do - do - do - do | $\theta \theta \theta K_2 \theta KT \theta D!, GN, \bar{\theta}^1 \parallel$
do - do - do - do - do | $\theta \theta \theta \theta \theta \theta D!, GN, \bar{\theta}^1 \parallel$
do - do - do - do - do | $\theta \theta \theta \theta \theta \theta \theta DGN, \bar{\theta}^1 \parallel$
8. $NK_2 \theta^1_{DM} \theta^1_{DM} - NK_2 \theta^1_{DM} \theta^1_{DM} - NK_2 \theta^1_{D|M} \theta^1_{DM} -$
 $\theta^1_{KT} \theta^1_{KT} \theta^1_{K_2} - \theta^1_{K_2} \theta^1_{RK} \theta^1_{KT} \theta^1_{K_2}$ (3 times)
 $NK_2 \theta^1_{DM} \theta^1_{DM} - \theta^1_{KT} \theta^1_{KT} \theta^1_{K_2} - \theta^1_{K_2} \theta^1_{RK} \theta^1_{KT} \theta^1_{K_2}$ (1 time)
- Mukthāyi :— $\theta^1_{KT} \theta^1_{KT} \theta^1_{K_2} - \theta^1_{K_2} \theta^1_{RK} \theta^1_{KT} \theta^1_{K_2} \bar{\theta}^1$; (3 times)
(Total no. of Avrithas = 4)

9. $\theta \mathbf{K} \mathbf{T} \theta \mathbf{D} \mathbf{N}, \theta \mathbf{R} \mathbf{K} \mathbf{T} \mathbf{D}!, \mathbf{D} \mathbf{N}, -\mathbf{D} \mathbf{K} | \mathbf{T} \theta \mathbf{K}_a \mathbf{D} \mathbf{N}, -\theta \mathbf{D}!, \mathbf{G}, \mathbf{N}, \bar{\theta}!$ || (2 times)

$\theta \mathbf{K} \mathbf{T} \theta \mathbf{D} \mathbf{N}, -\theta \mathbf{D}!, \mathbf{G}, \mathbf{N}, \bar{\theta}! - \mathbf{D} | \mathbf{K} \mathbf{T} \theta \mathbf{D} \mathbf{N}, -\theta \mathbf{D}!, \mathbf{G}, \mathbf{N}, \bar{\theta}!$ ||

$\bar{\theta}!, \mathbf{K} \mathbf{T} \theta \mathbf{K}_a \mathbf{D} \mathbf{N}, -\theta \mathbf{D}!, \mathbf{G}, \mathbf{N}, \theta! -$

Mukthāyi :- $\theta \mathbf{D}!, \mathbf{G}, \mathbf{N}, \bar{\theta}!$

$\theta \mathbf{K}_a \theta \mathbf{D}!, \mathbf{G}, \mathbf{N}, \bar{\theta}!$

$\theta \mathbf{K}_a \mathbf{D} \mathbf{G} \theta \mathbf{D}!, \mathbf{G}, \mathbf{N}, \bar{\theta}!$ ||

Samkeerna Jāthi

THRIPUTA THĀLA.

Angas:— |₉ 0 0 No. of Kriyas = 13

1. $\theta \mathbf{K}_a \mathbf{D} \mathbf{G} \theta \mathbf{D} \mathbf{G} \mathbf{N} \bar{\theta}! | \theta \mathbf{K}_a | \mathbf{D} \mathbf{N}$ || (Gathi)

2. $\overset{3a}{\theta}, -\overset{1a}{\theta} \mathbf{D} \mathbf{G} \mathbf{N} \bar{\theta}! - \overset{11a}{\theta} \mathbf{K} \mathbf{T} - \theta \mathbf{D}!, \mathbf{G}, \mathbf{N}, \bar{\theta}!$ ||

3. $\overset{1a}{\theta}, \mathbf{D}, \theta, -\overset{1a}{\theta} \mathbf{K} \mathbf{T} - \overset{11a}{\theta} \mathbf{D}!, \mathbf{G}, \mathbf{N}, \bar{\theta}!$ ||

4. $\mathbf{K} \mathbf{T} \mathbf{D}!, ; \mathbf{D}!, \mathbf{K} \mathbf{T} \mathbf{D}!, ; \mathbf{K} \mathbf{T} \theta \mathbf{R} - \mathbf{K} \mathbf{T} \mathbf{D}!, ; \mathbf{D}!, \mathbf{K} \mathbf{T} \mathbf{D}!, - \mathbf{K} \mathbf{T} \theta \mathbf{R} \mathbf{K} \mathbf{T} \theta \mathbf{R}$

$\theta \mathbf{K}_a \theta \mathbf{R} \mathbf{K} \mathbf{T} \theta \mathbf{K}_a | \mathbf{K} \mathbf{T} \mathbf{D}!, ; \mathbf{D}!, | \mathbf{K} \mathbf{T} \mathbf{D}!, ; \mathbf{K} \mathbf{T} \theta \mathbf{R}$ ||

$\mathbf{K}_a \mathbf{T} \mathbf{D}!, ; - \mathbf{D}!, \mathbf{K} \mathbf{T} \mathbf{D}!, \mathbf{K} \mathbf{T} \theta \mathbf{R} \mathbf{K} \mathbf{T} \theta \mathbf{R} \theta \mathbf{K}_a \theta \mathbf{R} \mathbf{K} \mathbf{T} \theta \mathbf{K}_a - \mathbf{K} \mathbf{T} \mathbf{D}!, ; \mathbf{D}!,$

$\mathbf{K} \mathbf{T} \mathbf{D}!, ; \mathbf{K} \mathbf{T} \theta \mathbf{R} | - \mathbf{K} \mathbf{T} \mathbf{D}!, ; \mathbf{D}!, | \mathbf{K} \mathbf{T} \mathbf{D}!, \mathbf{K} \mathbf{T} \theta \mathbf{R} \mathbf{K} \mathbf{T} \theta \mathbf{R}$ ||

$\theta \mathbf{K}_a \theta \mathbf{R} \mathbf{K} \mathbf{T} \theta \mathbf{K}_a - \mathbf{K} \mathbf{T} \mathbf{D}!, ; \mathbf{K} \mathbf{T} \theta \mathbf{R} - \mathbf{K} \mathbf{T} \mathbf{D}!, \mathbf{K} \mathbf{T} \theta \mathbf{R} \mathbf{K} \mathbf{T} \theta \mathbf{R} -$

$\theta \mathbf{K}_a \theta \mathbf{R} \mathbf{K} \mathbf{T} \theta \mathbf{K}_a -$

$\mathbf{K} \mathbf{T} \mathbf{D}!, ; \mathbf{K} \mathbf{T} \theta \mathbf{R} - \mathbf{K} \mathbf{T} \mathbf{D}!, | \mathbf{K} \mathbf{T} \theta \mathbf{R} \mathbf{K} \mathbf{T} \theta \mathbf{R} \theta \mathbf{K}_a \theta$

$\mathbf{T} \theta \mathbf{K}_a | \mathbf{K} \mathbf{T} \mathbf{D}!,$
 $\mathbf{K} \mathbf{T} \theta \mathbf{R} \mathbf{K} \mathbf{T} \theta \mathbf{R}$ ||

Mukthāyi :- $\theta \mathbf{D} \theta \mathbf{K}_a \mathbf{N} \mathbf{K}_a, -\theta \mathbf{D} \mathbf{G} \mathbf{N} \bar{\theta}!$

$\mathbf{D} \theta \mathbf{K}_a \mathbf{N} \mathbf{K}_a, -\theta \mathbf{D} \mathbf{G} \mathbf{N} \bar{\theta}!$

$\theta \mathbf{K}_a \mathbf{N} \mathbf{K}_a, -\theta \mathbf{D} \mathbf{G} \mathbf{N} \bar{\theta}!$ |

$\theta \mathbf{K}_a, -\theta \mathbf{D} \mathbf{G} \mathbf{N} \bar{\theta}!$

$\theta | \mathbf{K}_a \mathbf{D} \mathbf{G} - \theta \mathbf{D} \mathbf{G} \mathbf{N} \bar{\theta}!$ ||

5. $\theta \mathbf{K T} \theta \mathbf{K}_a \mathbf{D}!$, $\mathbf{D N}$, - θ , $\mathbf{K T} \theta \mathbf{K}_a \mathbf{D}!$, $\mathbf{D N}$, - $\theta \mathbf{K T} \theta \mathbf{K}_a \mathbf{D}!$, $\mathbf{D N}$, |
 ; $\mathbf{K T} \theta \mathbf{K}_a \mathbf{D}!$, | $\mathbf{D N}$, - $\theta \mathbf{K}_a \theta \mathbf{R K T} \theta \mathbf{K}_a$ ||
- $\theta \mathbf{K T} \theta \mathbf{K}_a \mathbf{D}!$, $\mathbf{D N}$, - θ , $\mathbf{K T} \theta \mathbf{K}_a \mathbf{D}!$, $\mathbf{D N}$, - $\theta \mathbf{K T} \theta \mathbf{K}_a \mathbf{D}!$, $\mathbf{D N}$, |
 ; $\mathbf{K T} \theta \mathbf{K}_a \mathbf{D}!$, | $\mathbf{D N}$, - $\theta \mathbf{K}_a \theta \mathbf{R K T} \theta \mathbf{K}_a$ ||
- $\theta \mathbf{K T} \theta \mathbf{K}_a \mathbf{D}!$, $\mathbf{D N}$, - θ , $\mathbf{K T} \theta \mathbf{K}_a \mathbf{D}!$, θ , $\theta \mathbf{K}_a \theta \mathbf{R K T} \theta \mathbf{K}_a$
 θ , $\mathbf{K T} \theta \mathbf{K}_a \mathbf{D}!$, $\mathbf{D N}$, - $\theta \mathbf{K T} \theta \mathbf{K}_a$ | $\mathbf{D}!$, θ , $\theta \mathbf{K}_a \theta \mathbf{R K T} \theta \mathbf{K}_a$ ||
- $\theta \mathbf{K T} \theta \mathbf{K}_a \mathbf{D}!$, $\mathbf{D N}$, - $\theta \mathbf{K}_a \theta \mathbf{R K T} \theta \mathbf{K}_a$
 θ , $\mathbf{K T} \theta \mathbf{K}_a \mathbf{D}!$, $\mathbf{D N}$, -

Mukthāyi :—

θ , $\theta \mathbf{K}_a \theta \mathbf{R K T} \theta \mathbf{K}_a$
 $\theta \mathbf{K}_a$ | θ , $\theta \mathbf{K}_a \theta \mathbf{R K T} \theta \mathbf{K}_a$
 $\theta \mathbf{K}_a$ | $\mathbf{D G}$, θ , $\theta \mathbf{K}_a \theta \mathbf{R K T} \theta \mathbf{K}_a$ || θ

Chaturasra jāthi

ATA THĀLA

Angas :— 1₄ | 4 0 0 No. of Kriyas = 12

1. $\theta \mathbf{K}_a \mathbf{D G}$, | $\theta \mathbf{K T} \theta$ | $\mathbf{D G}$ | $\mathbf{N} \bar{\theta}$ | || (Gathi)
 2. θ , - $\theta \mathbf{D G} \mathbf{N} \bar{\theta}$ | - $\mathbf{K T} \theta \mathbf{K}_a \theta \mathbf{D}$ |, $\mathbf{G N} \bar{\theta}$ | ||
 3. $\theta \mathbf{K T} \theta \mathbf{K}_a \mathbf{D}!$, $\mathbf{D N}$, - θ , $\mathbf{K T}$ | θ , $\mathbf{K}_a \mathbf{D}!$, $\mathbf{D N}$, - $\theta \mathbf{K T} \theta \mathbf{K}_a \mathbf{D}!$, |
 $\mathbf{D N}$, - θ , $\mathbf{K T}$ | $\theta \mathbf{K}_a \mathbf{D}!$, $\mathbf{D N}$, ||
 ; $\mathbf{K T} \theta \mathbf{K}_a \mathbf{D}!$, $\mathbf{D N}$, - $\theta \mathbf{K T}$ | $\theta \mathbf{K}_a \mathbf{D}!$, $\mathbf{D N}$, - ; $\mathbf{K T} \theta \mathbf{K}_a \mathbf{D}!$, |
 $\mathbf{D N}$, - θ , $\mathbf{K T}$ | $\theta \mathbf{K}_a \mathbf{D}!$, $\mathbf{D N}$, ||
- $\theta \mathbf{K T} \theta \mathbf{K}_a \mathbf{D}!$, $\mathbf{D N}$, - $\theta \mathbf{D}$ |, \mathbf{G} | $\mathbf{N} \bar{\theta}$ | - θ , $\mathbf{K T} \theta \mathbf{K}_a \mathbf{D}!$, $\mathbf{D N}$,

Mukthāyi :— $\theta \mathbf{D}$ | \mathbf{G} |, $\mathbf{N} \bar{\theta}$ | $\theta \mathbf{D}$ |, \mathbf{G} | $\mathbf{N} \bar{\theta}$ | $\theta \mathbf{D}$ |, $\mathbf{G N} \bar{\theta}$ | ||

4. $N K_u \theta D M \theta D M - N K_u \theta D M \theta D M \mid N K_u \theta D M \theta D M -$
 $\theta \underline{K T K T \theta K_a \theta K_a \theta R K T \theta K_a} \mid$

do | - do || do - do

Mukthāyi :— $\theta \underline{K T K T \theta K_a - \theta K_a \theta R K T \theta K_a} \theta^! ;$

$\theta \underline{K T K T \theta K_a - \theta K_a \theta R K T \theta K_a} \bar{\theta}^! ;$

$\theta \underline{K T K T \theta K_a - \theta K_a \theta R K T \theta K_a} \parallel \bar{\theta}^!$

5. $\theta \theta_i^! , \theta - \theta \theta_i^! , \theta - \theta \theta_i^! , \theta K D^! , \theta \mid \underline{K T \theta R \theta K_a D N - \theta K T \theta D N}$ (2 times) ||

$\theta \theta_i^! , \theta - \theta \theta_i^! , \theta - \theta \theta_i^! , \theta K D^! , \theta \mid \theta \theta_i^! , - \underline{K T \theta K_a \theta R K T \bar{\theta}^!}$, (2 times)

$\theta \theta_i^! , \theta \theta \theta_i^! , - \underline{K T \theta K_a \theta R K T \bar{\theta}^!}$, (2 times)

Mukthāyi :— $\theta \theta_i^! , - \underline{K T \theta K_a \theta R K T \theta^!}$ Thrisra (Gamana)

$\theta \theta_i^! , - \underline{K T \theta K_a \theta R K T \bar{\theta}^!}$, (Chaturasra Gamana)

$\theta \theta_i^! , - \underline{K T \theta K_a \theta R K T \bar{\theta}^!}$, || (Chaturasra higher degree)

} (3 times)

Thrisra jāthi

ATA THĀLA

'Angas :— $l_3 \ l_3 \ () \ 0$ No. of Kriyas = 10

1. $\theta K T \mid \theta K_a - \theta \mid D G N \bar{\theta}^! \parallel$ (Gathi)

2. $\theta^{\frac{1}{2}d} , - \theta^{\frac{1}{2}d} D G N \bar{\theta}^! - \theta^{\frac{1}{2}d} D^! , G N \bar{\theta}^! \parallel$

3. $N K_u \theta D M \theta D M - N K_u \theta D \mid M \theta D M - N K_u \theta D M \theta^{\frac{1}{2}d} D M \mid$
 $\theta \underline{K T K T \theta K_a - \theta K_a \theta R K T \theta K_a} \mid N \theta D M \theta D M \parallel$

$\theta \underline{K T K T \theta K_a - \theta K_a \theta R K T \theta K_a} -$

Mukthāyi :— $\theta \underline{K T K T \theta K_a \mid \theta K_a \theta R K T \theta K_a} \bar{\theta}^! ;$

$\theta \underline{K T K T \theta K_a \mid \theta K_a \theta R K T \theta K_a} \bar{\theta}^! ; \mid$

$\theta \underline{K T K T \theta K_a - \theta K_a \theta R K T \theta K_a} \parallel \bar{\theta}^!$

4. , $\theta \theta \bar{\theta}!$, - $\theta \theta \bar{\theta}!$, - $\theta \theta \theta \theta \bar{\theta}!$, - $\theta \theta \bar{\theta}!$, - $\theta \theta \bar{\theta}!$ |
 , $\theta \theta \theta \theta \bar{\theta}!$ | , - $\theta D!$, $\kappa T \theta \kappa T \theta \theta K_u \bar{\theta}!$ ||
 , $\theta \theta \bar{\theta}!$, - $\theta \theta \bar{\theta}!$, - $\theta \theta \theta \theta \bar{\theta}!$, - $\theta \theta \bar{\theta}!$, - $\theta \theta \bar{\theta}!$ |
 , $\theta \theta \theta \theta \bar{\theta}!$ | , - $\theta D!$, $\kappa T \theta \kappa T \theta \theta K_u \bar{\theta}!$ ||
 , $\theta \theta \bar{\theta}!$, - $\theta \theta \theta \theta \bar{\theta}!$ | , - $\theta D!$, $\kappa T \theta \kappa T \theta \theta K_u \bar{\theta}!$ |
 , $\theta \theta \bar{\theta}!$ | , $\theta \theta \theta \theta \bar{\theta}!$ | , - $\theta D!$, $\kappa T \theta \kappa T \theta \theta K_u \bar{\theta}!$ ||

Mukthayi — , $\theta \theta \bar{\theta}!$ - , $\theta D!$, $\kappa T \theta \kappa T \theta \theta K_u \bar{\theta}!$ |
 θ , - $\theta \theta \bar{\theta}!$ - , $\theta D!$, $\kappa T \theta \kappa T \theta \theta K_u \bar{\theta}!$ |
 θ , - $\theta \theta \bar{\theta}!$ - | , $\theta D!$, $\kappa T \theta \kappa T \theta \theta K_u \bar{\theta}!$ || θ

Misra jāthi

ATA THĀLA

Angas :— |₇ |₇ 0 0 No. of Kriyas = 18

1. $\theta K_a \theta D G N \bar{\theta}!$ | $\theta D!$, $G N \bar{\theta}!$ - θ | $D G | N \bar{\theta}!$ || (Gathi)
2. $\frac{1}{2}^a$ K, T, θ, K_a , - $\frac{1}{2}^a$ $\kappa T \theta K_a$ - $\frac{1}{2}^a$ $\kappa T \theta K_a \theta D!$, $G, N, \bar{\theta}!$ ||
3. $N K_1 \theta D N_u \theta D N_u$ - $N K_2 \theta D N_u \theta D N_u$ - $N K_3 \theta D N_u \theta D N_u$ -
 $\theta K T K T \theta K_a$ | $\theta K \theta R \kappa T \theta K_a$
 do - do - do | - do - do |
 do || - do - do - do - do
- $N K_1 \theta D | N_u \theta D N_u$ - $\theta K T K T \theta K_a$ - $\theta K_1 \theta R \kappa T \theta K_a$

Mukthāyi :— $\theta K T K T \theta K_a$ - $\theta K_a \theta R \kappa T \theta K_a \bar{\theta}!$, ;
 $\theta K T K T \theta K_a$ | - $\theta K_a \theta R \kappa T \theta K_a \bar{\theta}!$, ; |
 $\theta K T K T \theta K_a$ | $\theta K_a \theta R \kappa T \theta K_a$ || $\bar{\theta}!$

4. $\theta \text{ K T } \theta \text{ K}_a \text{ D!}, \text{ D N}, - \theta, \text{ K T } \theta \text{ K}_a \text{ D!}, \text{ D N}, - \theta \text{ K T}$
 $\theta \text{ K}_a \text{ D!}, \text{ D N}, - \theta, \text{ K T } \theta \text{ K}_a \text{ D!}, \text{ D N}, - \theta \text{ D!}, \text{ G, N}, \theta!$
 $\theta \text{ K T } \theta \text{ K}_a \text{ D!}, | - \text{ K T } \theta \text{ R } \theta \text{ K}_a \text{ D N} - \theta \text{ K T } \theta \text{ D N} \parallel (2 \text{ times})$
 $\theta \text{ K T } \theta \text{ K}_a \text{ D!}, \text{ D N}, - \theta, \text{ K T } \theta \text{ K}_a \text{ D!}, \text{ D N},$
 $\theta \text{ K T} | \text{ K T } \theta \text{ R } \theta \text{ K}_a \text{ D N } \theta \text{ K T } \theta \text{ D N}$
 $\theta, \text{ K T } \theta \text{ K}_a \text{ D!}, \text{ D N}, - \theta \text{ K T } \theta \text{ K}_a \text{ D!} | \text{ D N},$
 $\theta \text{ K T} | \text{ K T } \theta \text{ R } \theta \text{ K}_a \text{ D N } \theta \text{ K T } \theta \text{ D N} \parallel$
 $\theta \text{ K T } \theta \text{ K}_a \text{ D!}, \text{ D N}, - \text{ K T } \theta \text{ R } \theta \text{ K}_a \text{ D N } \theta \text{ K T } \theta \text{ D N}$
 $\theta, \text{ K T } \theta \text{ K}_a \text{ D!}, | \text{ D N}, - \text{ K T } \theta \text{ R } \theta \text{ K}_a \text{ D N } \theta \text{ K T } \theta \text{ D N}$

Mukthāyi :— K T θ R θ K_a D N θ K T θ D N $\bar{\theta}!$;

K T θ R θ K_a D N θ K T θ D N $\bar{\theta}!$,

$\theta | \text{ K T } \theta \text{ R } \theta \text{ K}_a \text{ D N } \theta \text{ K T } \theta \text{ D N} \parallel \bar{\theta}!$

Khanda jāthi

ATA THĀLA

Angas .— |₅ |₅ 0 0 No. of Kriyas = 14

1. $\theta \text{ K}_a \theta \text{ K T} | \theta \text{ K}_a \text{ D G}_u - \theta | \text{ D G} | \text{ N } \bar{\theta}!$ || (Gathi)
2. $\overset{\frac{1}{2}d}{\theta}, \text{ K}_a, - \overset{1d}{\theta} \text{ D G N } \bar{\theta}! - \overset{1d}{\theta} \text{ K T } \theta \text{ D!}, \text{ G N } \bar{\theta}!$ ||
3. $\overset{\frac{1}{2}d}{\theta}, \text{ D}, \theta, - \overset{1d}{\text{K T } \theta \text{ K}_a} - \overset{1d}{\theta} \text{ D}, \text{ G, N}, \bar{\theta}!$ ||
4. $\text{N K}_u \theta \text{ D M } \theta \text{ D M} - \text{N K}_u \theta \text{ D M } \theta \text{ D M} - \text{N K}_u \theta \text{ D} | \text{ M } \theta \text{ D M} -$
 $\theta \text{ K T K T } \theta \text{ K}_a \theta \text{ K}_a \theta \text{ R K T } \theta \text{ K}_a$

do - | do | - do - || do

$\text{N K}_u \theta \text{ D M } \theta \text{ D M } \theta \text{ K T K T } \theta \text{ K}_a | \theta \text{ K}_a \theta \text{ R K T } \theta \text{ K}_a$

Mukthāyi :— $\theta \text{ K T K T } \theta \text{ K}_a \theta \text{ K}_a \theta \text{ R K T } \theta \text{ K}_a$ $\bar{\theta}!$;

$\theta \text{ K T K T } \theta \text{ K}_a \theta \text{ K}_a \theta \text{ R K T } \theta \text{ K}_a$ $\bar{\theta}!$; |

$\theta \text{ K T K T } \theta \text{ K}_a \theta \text{ K } \theta \text{ R K T } \theta \text{ K}_a$ || $\bar{\theta}!$

5. $\theta D!$, $D N$, ; - $D!$, $D N$, - $\theta K_a D!$, | $D N$, ; - $D!$, $D N$,
 $\theta L!$,, $\theta R K T \theta K_a \theta K_a \theta K_a \theta K_a$ |
 ; $D!$, $D N$, | $\theta L!$,, $\theta R K T \theta K_a \theta K_a \theta K_a \theta K_a$ ||

Mukthāyi :— ; $D!$, $D N$, $\theta L!$,, $\theta R K T \theta K_a \theta K_a \theta K_a \theta K_a \theta \bar{!}$, ; |
 ; $D!$, $D N$, $\theta L!$,, $\theta R K T \theta K_a \theta K_a \theta K_a \theta K_a \theta \bar{!}$, ; |
 ; $D!$, $D N$, | $\theta L!$,, $\theta R K T \theta K_a \theta K_a \theta K_a \theta K_a$ || $\bar{\theta}!$

6. $\theta K_u!$ $\theta \theta \theta \bar{!}$, - $\theta K_u!$ $\theta K_u!$ $\theta \theta \theta \bar{!}$, - $\theta K_u!$ $\theta \theta \theta \bar{!}$, |
 , $\theta K T \theta K_a$ - $\theta K_a \theta R K T \theta K_a$ - $\theta K_u!$ $\theta \theta \theta \bar{!}$, - $\theta K_u!$ $\theta K_u!$ $\theta \theta \theta \bar{!}$,
 $\bar{\theta}!$, - $\theta K_u!$ $\theta \theta \theta \bar{!}$, | , $\theta K T \theta K_a \theta K_a \theta R K T \theta K_a$ ||
 $\theta K_u!$ $\theta \theta \theta \bar{!}$, - $\theta K T \theta K_a \theta K_a \theta R K T \theta K_a$ - $\theta K_u!$ $\theta \theta \theta \bar{!}$, |
 , $\theta K T \theta K_a \theta K_a \theta R K T \theta K_a$

Mukthāyi :— , $\theta K T \theta K_a \theta K_a \theta R K T \theta K_a \theta \bar{!}$,
 , $\theta | K T \theta K_a \theta K_a \theta R K T \theta K_a \theta \bar{!}$, |
 , $\theta K T \theta K_a \theta K_a \theta R K T \theta K_a$ || $\bar{\theta}!$

Sankeerna. jāthi

ATA THĀLA

Angas :— |₉ |₉ 0 0 No. of Kriyas = 22

1. $\theta K_a D G_u \theta D G N \theta \bar{!}$ | $\theta D!$, G , N , $\theta \bar{!}$ | $K T$ | θK_a || (Gathi)
 2. $\frac{1}{2}^a$ K , T , θ , K_a , - $\frac{1}{2}^a$ $K T \theta K_a$ - $\frac{1}{2}^a$ $K T \theta K_a \theta \theta!$, $G N \theta \bar{!}$ - $\theta K T \theta D!$, $G N \theta \bar{!}$ ||
 3. $\theta K T D!$, , $D!$, - $\theta K T D!$, , $D!$, - $\theta K T D!$, , $D!$, ; , - $\theta D!$, G , N , $\theta \bar{!}$ |
 do - do - do - do |
 $\theta K T D!$, , $D!$, | $\theta K T D!$, , $D!$, || ; , , $\theta D!$, G , N , $\theta \bar{!}$
 $\theta K T D!$, , $D!$, - $\theta K T D!$, , $D!$, ; , - $\theta D!$, G , N , $\theta \bar{!}$
 $\theta K T D!$, , $D!$, ; , - $\theta D!$, G , N , $\theta \bar{!}$

Mukthāyi :— , $\theta D!$, $G N \bar{\theta}!$
 $\theta K_a \theta | D!$, $G N \bar{\theta}!$
 $\theta K_a D | G_u \theta D!$, $G N \bar{\theta}! || \theta$

4. , $\theta \theta \bar{\theta}!$, $-\theta \theta \bar{\theta}!$, $-\theta \theta \bar{\theta}!$, $-\theta \theta \theta \theta \theta \theta \bar{\theta}!$, -
 $\theta \theta \bar{\theta}!$, $-\theta \theta \bar{\theta}!$, $-\theta D!$, $K T \theta K T \theta \theta K_u \bar{\theta}!$ | (2 times) |
 $, \theta \theta \bar{\theta}!$, $-\theta \theta \bar{\theta}!$ | , $-\theta D!$, $K T \theta K T \theta \theta K_u \bar{\theta}!$ ||
 $, \theta \theta \bar{\theta}!$, $-\theta \theta \bar{\theta}!$ - , $\theta D!$, $K T \theta K T \theta \theta K_u \bar{\theta}!$ (3 times)
 $, \theta \theta \bar{\theta}!$ - , $\theta D!$, $K T \theta K T \theta \theta K_u \bar{\theta}!$

Mukthāyi :— , $\theta D!$, $K T \theta K T \theta \theta K_u \bar{\theta}!$ θ ,,
 $\theta D!$, $K T \theta K T \theta \theta K_u \bar{\theta}!$ θ ,,
 $\theta D!$, $K T \theta K T \theta \theta K_u \bar{\theta}!$ || θ

Chaturasra Jāthi

EKA THĀLA

Anga :— 1_4 No. of Kriyas = 4

1. $K T \theta K_a ||$ (Gathi)
2. $\frac{1}{2} \overset{1d}{K}, -T - \overset{1d}{\theta} K_a ||$
3. $N, D,, N,, -N, D,, N,, || N, D!, D N, -\theta K_a D!, D N, ||$
 $N, D,, N,, -N, D!, D N, || \theta K_a D,, N,, -\theta K_a D!, D N, ||$
 $N, D!, D N, -\theta L!,, \theta R K T \theta K_a \theta K_a \theta K_a \theta K_a ||$
 $\theta K_a D!, D N, -\theta L!,, \theta R K T \theta K_a \theta K_a \theta K_a \theta K_a ||$

Mukthāyi :— $\theta L!,, \theta R K T \theta K_a \theta K_a \theta K_a \theta K_a \bar{\theta}!$, ;
 $\theta L!,, \theta R K T \theta K_a \theta K_a \theta K_a \theta K_a \bar{\theta}!$,,
 $\theta L \theta L!,, \theta R K T \theta K_a \theta K_a \theta K_a \theta K_a || \bar{\theta}!$

4. $N K_a \theta D M \theta D M - N K_a \theta D M \theta D M \parallel$
 $N K_a \theta D M \theta D M - \theta \underline{K T K T \theta K_a \theta K_a \theta R K T \theta K_a} \parallel$ } (2 times)

$N K_a \theta D M \theta D M - \theta \underline{K T K T \theta K_a \theta K_a \theta R K T \theta K_a} \parallel$
do - do \parallel

Mukthāyi :— $\theta \underline{K T K T \theta K_a \theta K_a \theta R K T \theta K_a} \bar{\theta}!$;
 $\theta \underline{K T K T \theta K_a \theta K_a \theta R K T \theta K_a} \theta!$;
 $\theta \theta \underline{K T K T \theta K_a \theta K_a \theta R K T \theta K_a} \parallel \bar{\theta}!$

Thrisra Jāthi

EKA THĀLA

Anga :— 1_3 No. of Kriyas = 3

1. $\theta K T \parallel$ (Gathi)

2. $\theta - \underline{K T - K T \theta K_a} \parallel$

3. $N K_a \theta D M \theta D M - N K_a \theta D M \theta D M - N K_a \theta D M \theta D M \parallel$
 $\theta \underline{K T K T \theta K_a \theta K_a \theta R K T \theta K_a}$

$N K_a \theta D \parallel M \theta D M -$ do - \parallel do - do \parallel

Mukthāyi :— $\theta \underline{K T K T \theta K_a \theta K_a \theta R K T \theta K_a} \bar{\theta}!$;
 $\theta \underline{K T K T \theta K_a \theta K_a \theta R K T \theta K_a} \theta!$;
 $\theta \underline{K T K T \theta K_a \theta K_a \theta R K T \theta K_a} \bar{\theta}!$; \parallel

4. $\theta \theta_i!, \theta - \theta \theta_i!, \theta - \theta \theta_i!, - \theta \parallel K D!, \theta - \underline{K T \theta R \theta K_a D N \theta K T \theta D N} \parallel$
(2 times)

$\theta \theta_i!, \theta - \theta \theta_i!, \theta - \theta \theta_i!, - \theta \parallel K D!, \theta - \theta \theta_i!, - \underline{K T \theta K_a \theta R K T \theta} \bar{\theta}!, \parallel$ (2 times)

$\theta \theta_i!, \theta - \theta \theta_i!, - \underline{K T \theta K_a \theta R K T \theta} \bar{\theta}!, \parallel$ (2 times)

Mukthāyi :— $\theta \theta_i!, - \underline{K T \theta K_a \theta R K T \theta} \bar{\theta}!$, (Thrisra)
 $\theta \theta_i!, - \underline{K T \theta K_a \theta R K T \theta} \bar{\theta}!$, (Chaturasra)
 $\theta \theta_i!, - \underline{K T \theta K_a \theta R K T \theta} \bar{\theta}!$,
(Chaturasra Higherdegree) } (3 times)

Misra Jāthi

EKA THĀLA

Anga :— |₇ No. of Kriyas = 7

1. $\theta \text{ K T } \theta \text{ K}_a \text{ D M } \parallel$ (Gathi)
2. $\frac{1}{2} \overset{d}{\theta}, - \overset{1d}{\theta} \text{ K T} - \overset{11d}{\text{K T}} \theta \text{ K}_a \parallel$
3. $\frac{1}{2} \overset{d}{\theta}, - \overset{1d}{\theta} \text{ K}_a - \overset{11d}{\theta} \text{ D!}, \text{ G N } \overline{\theta!} \parallel$
4. $\frac{1}{2} \overset{d}{\theta}, - \overset{1d}{\theta} - \overset{11d}{\theta} \text{ D!}, \text{ G, N, } \overline{\theta!} \parallel$
5. $\frac{1}{2} \overset{d}{\theta}, - \overset{1d}{\theta}, , \overset{11d}{\theta} \text{ D!}, \text{ G N } \overline{\theta!} \parallel$
6. $\text{N, D } \overline{\text{N}}, - \text{N, D!}, \text{ D } \overline{\text{N}}, - \theta \text{ K}_a \text{ D } \overline{\text{N}}, - \theta \text{ K}_a \text{ D!}, \text{ D } \overline{\text{N}}, \parallel$
 $\theta \text{ K}_a \text{ D } \overline{\text{N}}, - \theta \text{ K}_a \text{ D!}, \text{ D!}, \underline{\theta \text{ R K T}} - \theta \text{ K}_a \text{ D } \overline{\text{N}}, - \theta \text{ K}_a \text{ D!}, \underline{\text{K T } \theta \text{ R } \theta \text{ L!}}, \text{ G}_a \parallel$
 $\theta \text{ K}_a \text{ D } \overline{\text{N}}, - \theta \text{ K}_a \text{ D!}, \underline{\theta \text{ K T K T } \theta \text{ K}_a} - \theta \text{ K}_a \text{ D } \overline{\text{N}}, - \theta \text{ K}_a$
 $\underline{\theta \text{ K T K T } \theta \text{ K}_a \theta \text{ L!}}, \text{ G}_a \parallel$

Mukthāyi :— $\theta \text{ K}_a \theta \underline{\text{K T K T } \theta \text{ K}_a \theta \text{ L!}}, \text{ G}_a \overline{\theta!},$
 $\theta \text{ K}_a \theta \underline{\text{K T K T } \theta \text{ K}_a \theta \text{ L!}}, \text{ G}_a \overline{\theta!},$
 $\theta \text{ K}_a \theta \underline{\text{K T K T } \theta \text{ K}_a \theta \text{ L!}}, \text{ G}_a \parallel \overline{\theta!}$

7. $\text{N K}_a \theta \text{ D M } \theta \text{ D M} - \text{N K}_a \theta \text{ D M } \theta \text{ D M} - \text{N K}_a \theta \text{ D M } \theta \text{ D M} -$
 $\text{do} \quad - \quad \text{do} \quad - \quad \frac{\theta \text{ K T K T } \theta \text{ K}_a \parallel \theta \text{ K}_a \theta \text{ R K T } \theta \text{ K}_a -}{\text{do} \quad \parallel - \quad \text{do}}$
 $\text{N K}_a \theta \text{ D M } \theta \text{ D M} - \underline{\theta \text{ K T K T } \theta \text{ K}_a} - \underline{\theta \text{ K}_a \theta \text{ R K T } \theta \text{ K}_a}$

Mukthāyi :— $\underline{\theta \text{ K T K T } \theta \text{ K}_a \parallel \theta \text{ K}_a \theta \text{ R K T } \theta \text{ K}_a \overline{\theta!}}, ;$
 $\underline{\theta \text{ K T K T } \theta \text{ K}_a \theta \text{ K}_a \theta \text{ R K T } \theta \text{ K}_a \overline{\theta!}}, ;$
 $\underline{\theta \text{ K T K T } \theta \text{ K}_a \theta \text{ K}_a \theta \text{ R K T } \theta \text{ K}_a \parallel \overline{\theta!}}$

8. $\theta \theta_1! \theta_1! \theta_1! - \theta \theta_1! \theta_1! \theta_1! - \theta \theta_1! \theta_1! \theta_1! - \theta \theta \theta \theta \theta \text{ D!}, \text{ G, N, } \overline{\theta!} \parallel$
 $\text{do} \quad - \quad \text{do} \quad - \quad \text{do} \quad - \quad \theta \theta \theta \theta \theta \text{ D!}, \text{ G, N, } \overline{\theta!} \parallel$
 $\text{do} \quad - \quad \text{do} \quad - \quad \text{do} \quad - \quad \theta \theta \theta \text{ D G N } \overline{\theta!} \theta \text{ D!}, \text{ G N } \overline{\theta!} \parallel$
 $\text{do} \quad - \quad \text{do} \quad - \quad \text{do} \quad - \quad \theta \theta \theta \theta \theta \theta \text{ D!}, \text{ G N } \overline{\theta!} \parallel$
 $\text{do} \quad - \quad \text{do} \quad - \quad \text{do} \quad - \quad \theta \theta \theta \theta \theta \theta \text{ D G N } \overline{\theta!} \parallel$

Khanda Jathi

EKA THALA

Anga :— 15 No. of Kriyas = 5

1. $\theta \text{ K}_a \theta \text{ K} \theta \parallel$ (Gathi)2. $\frac{1}{2} \text{d} \text{ - } \theta \text{ - } \text{D G N} \overline{\theta} \parallel$ 3. $\theta \text{ K}_a \theta \text{ K T} - \theta \text{ K}_a \text{ D}!, \theta \text{ K T} \parallel \theta \text{ K}_a \theta \text{ K T} - \theta \text{ D G N} \overline{\theta} \parallel$ do - do \parallel do - do \parallel $\theta \text{ K}_a \theta \text{ K T} - \theta \text{ D G N} \overline{\theta} \parallel$ do - do \parallel $\theta \text{ K}_a \theta \text{ K T}$

Mukthāyi :—

 $\text{K T} \theta \text{ K T}$ $\theta \parallel \text{D G N} \overline{\theta} \parallel$ $\theta \text{ D}!, \text{G N} \overline{\theta} \parallel \theta$ 4. $\text{N K}_a \theta \text{ D M} \theta \text{ D M} - \text{N K}_a \theta \text{ D M} \theta \text{ D M} - \text{N K}_a \theta \text{ D} \mid \text{M} \overline{\theta} \text{ D M} -$ $\theta \text{ K T K T} \theta \text{ K}_a \theta \text{ K}_a \theta \text{ R K T} \theta \text{ K}_a$ $\text{N K}_a \theta \text{ D M} \theta \text{ D M} \parallel \theta \text{ K T K T} \theta \text{ K}_a \theta \text{ K}_a \theta \text{ R K T} \theta \text{ K}_a$

Mukthāyi :—

 $\theta \text{ K T K T} \theta \text{ K}_a \theta \text{ K}_a \theta \text{ R K T} \theta \text{ K}_a \overline{\theta}!, ; (3 \text{ times}) \parallel$ 5. $\theta \theta_i! \theta_i! \theta_i! - \theta \theta \theta \theta \theta \text{ D}!, \text{G, N,} \overline{\theta} \parallel$ do - $\theta \theta \theta \theta \theta \text{ D}!, \text{G, N,} \overline{\theta} \parallel$ do - $\theta \theta \theta \text{ D G N} \overline{\theta}! \theta \text{ D}!, \text{G N} \overline{\theta} \parallel$ do - $\theta \theta \theta \theta \theta \text{ D}!, \text{G N} \overline{\theta} \parallel$ do - $\theta \theta \theta \theta \theta \theta \text{ D G N} \overline{\theta} \parallel$ 6. $, \theta \theta \overline{\theta}!, - \theta \theta \overline{\theta}!, - \theta \theta \theta \theta \theta \theta \overline{\theta}!, - \theta \theta \overline{\theta}! \parallel$ $, \theta \theta \overline{\theta}!, - \theta \theta \theta \theta \theta \theta \overline{\theta}! - , \theta \text{ D}!, \text{K T} \theta \text{ K T} \theta \theta \text{ K}_a \overline{\theta} \parallel$ $, \theta \theta \overline{\theta}!, - \theta \theta \overline{\theta}!, \theta \theta \theta \theta \theta \theta \overline{\theta}!, - \theta \theta \overline{\theta}! \parallel$ $, \theta \theta \overline{\theta}!, - \theta \theta \theta \theta \theta \theta \overline{\theta}! - , \theta \text{ D}!, \text{K T} \theta \text{ K T} \theta \theta \text{ K}_a \overline{\theta} \parallel$ $, \theta \theta \overline{\theta}!, - \theta \theta \theta \theta \theta \theta \overline{\theta}! - , \theta \text{ D}!, \text{K T} \theta \text{ K T} \theta \theta \text{ K}_a \overline{\theta} \parallel$ do - do - do \parallel

Mukthāyi:— , $\theta \theta \bar{\theta}!$ - , $\theta \underline{D!}$, $\underline{KT \theta KT \theta \theta K_u \bar{\theta}!}$ θ , ,
 $\theta \theta \bar{\theta}!$ - , $\theta \underline{D!}$, $\underline{KT \theta KT \theta \theta K_u \bar{\theta}!}$ θ , ,
 $\theta \theta \bar{\theta}!$ - , $\theta \underline{D!}$, $\underline{KT \theta KT \theta \theta K_u \bar{\theta}!}$ $\theta \theta$

Sankeerna Jathi

EKA THĀLA

Anga:— 1, No. of Kriyas = 9

1. $\theta K_a - \theta KT - KT \theta K_a$ || (Gathi)
2. $\theta DG \bar{N} \bar{\theta}!$ - $\theta D!$, $G \bar{N} \bar{\theta}!$ - $\theta D!$, $G \bar{N} \bar{\theta}!$ || (Drutha Kāla Gathi)
3. $\frac{1}{2}^a \theta$, - $\overset{1a}{KT} \theta K_a - \overset{1a}{\theta} \underline{D!}$, $G \bar{N} \bar{\theta}!$ ||
4. $\frac{1}{2}^a \theta$, - $\overset{1a}{\theta} \underline{KT} - \overset{1a}{\theta} \underline{D!}$, $G, \bar{N}, \bar{\theta}!$ ||
5. $\frac{1}{2}^a \theta$, - $\overset{1a}{\theta} K_a - \overset{1a}{\theta} \underline{J!}$, , $\theta D!$, KT ||
6. $\theta \underline{KT} \theta \underline{KT} D \underline{N}$, - $\theta \underline{RKT} D!$, $D \underline{N}$, - $D \underline{KT} \theta K_a D \underline{N}$, - $\theta D!$, $G \bar{N} \bar{\theta}!$ ||
 $\theta \underline{KT} \theta K_a D \underline{N}$, - $\theta \underline{RKT} D!$, $D \underline{N}$, - $D \underline{KT} \theta K_a D \underline{N}$, - $\theta D!$, $G, \bar{N}, \bar{\theta}!$ ||
 $\theta \underline{KT} \theta D \underline{N}$, - $\theta \underline{RKT} D!$, $D \underline{N}$, - $D \underline{KT} \theta K_a D \underline{N}$, - $\theta D!$, $G, \bar{N}, \bar{\theta}!$ ||
 $\theta \underline{KT} D \underline{N}$, - $\theta \underline{RKT} D!$, $D \underline{N}$, - $D \underline{KT} \theta K_a D \underline{N}$, - $\theta J!$, , $\theta DG \bar{N} \bar{\theta}!$ ||
7. $\theta \underline{KT} - \theta D \underline{N}$, - $\theta K_a D \underline{N}$, - $\theta \underline{RKT} D \underline{N} - D \underline{KT} \theta D \underline{N}$, - $\theta D!$, $G, \bar{N}, \bar{\theta}!$ ||
do - do - do - do - do - do - $\theta D!$, $G, \bar{N}, \bar{\theta}!$ ||
do - do - do - do - do - do - $\theta D!$, $G \bar{N} \bar{\theta}!$ ||
do - do - do - do do - $\theta J!$, , $\theta DG \bar{N} \bar{\theta}!$ ||
8. $N K_u \theta D M \theta D M - N K_u \theta D M \theta D M - N K_u \theta D M \theta D M -$
 $\theta \underline{KT} \underline{KT} \theta K_a - \theta K_a \theta \underline{RKT} \theta K_a$ (3 times)
 $N K_u \theta D M \theta D M - \theta \underline{KT} \underline{KT} \theta K_a - \theta K_a \theta \underline{RKT} \theta K_a$

Mukthāyi:— $\theta \underline{KT} \underline{KT} \theta K_a - \theta K_a \theta \underline{RKT} \theta K_a \bar{\theta}!$, ;
 $\theta \underline{KT} \underline{KT} \theta K_a - \theta K_a \theta \underline{RKT} \theta K_a \bar{\theta}!$, ;
 $\theta \underline{KT} \underline{KT} \theta K_a - \theta K_a \theta \underline{RKT} \theta K_a || \bar{\theta}!$

9. $\theta \theta_i !, \kappa T \theta_i !, - \theta \theta_i !, \kappa T \theta_i !, - \theta \theta_i !, \kappa T \theta_i !, -$
 $\theta \theta_i !, D N K_a K_a N K_a D !, \kappa T \theta_i !, -$
 $\theta \theta \theta \theta \theta D !, G, N, \bar{\theta} ! \parallel$
do - do - do - do -
 $\theta \theta \theta \theta \theta D !, G, N, \bar{\theta} ! \parallel$
do - do - do - do -
 $\theta \theta \theta D G N \bar{\theta} ! \theta D !, G N \bar{\theta} ! \parallel$
do - do - do - do -
 $\theta \theta \theta \theta \theta \theta D !, G N \bar{\theta} ! \parallel$
do - do - do - do -
 $\theta \theta \theta \theta \theta \theta D G N \bar{\theta} ! \parallel$

JĀTHI & DIFFERENT COMBINATIONS THEREIN.

18 Letters Series in Sankeerna

1. $\theta \kappa T - \theta \kappa T - \theta \kappa T - \kappa T \theta K_a - \theta D G N \bar{\theta} ! \parallel$
 $\theta \kappa T - \theta \kappa T - \kappa T \theta K_a - \theta D G N \bar{\theta} ! - \theta \kappa T \parallel$
 $\theta \kappa T - \kappa T \theta K_a - \theta D G N \bar{\theta} ! - \theta \kappa T - \theta \kappa T \parallel$
 $\kappa T \theta K_a - \theta D G N \bar{\theta} ! - \theta \kappa T - \theta \kappa T - \theta \kappa T \parallel$
 $\theta D G N \bar{\theta} ! - \kappa T \theta K_a - \theta \kappa T - \theta \kappa T - \theta \kappa T \parallel$
2. $\kappa T \theta K_a - \theta K_a \theta \kappa T - \theta D !, G, N, \bar{\theta} ! \parallel$
 $\theta K_a \theta \kappa T - \theta D !, G, N, \bar{\theta} ! - \kappa T \theta K_a \parallel$
 $\theta D !, G, N, \bar{\theta} ! - \theta K_a \theta \kappa T - \kappa T \theta K_a \parallel$
3. $\theta K_a \theta \kappa T - \theta K_a \theta \kappa T - \theta D !, G, N, \bar{\theta} ! \parallel$
 $\theta K_a \theta \kappa T - \theta D !, G, N, \bar{\theta} ! - \theta K_a \theta \kappa T \parallel$
 $\theta D !, G, N, \bar{\theta} ! - \theta K_a \theta \kappa T - \theta K_a \theta \kappa T \parallel$

The following groups show how a series can be played in different ways in that particular Jāthi.

18 Letters Series (with long and short vowels)
in different combinations in Sankeerna

1. $\theta \text{ K T } \theta \text{ K}_a, - \theta \text{ K T } \theta \text{ K}_a, - \theta \text{ D!}, \text{G N } \bar{\theta}!$ ||
 $\theta \text{ K T } \theta \text{ K}_a, - \theta \text{ D!}, \text{G N } \bar{\theta}! - \theta \text{ K T } \theta \text{ K}_a,$ ||
 $\theta \text{ D!}, \text{G N } \bar{\theta}! - \theta \text{ K T } \theta \text{ K}_a, - \theta \text{ K T } \theta \text{ K}_a,$ ||
2. $\text{K T } \theta \text{ K}_a, - \text{K T } \theta \text{ K}_a, - \text{K T } \theta \text{ K}_a, - \theta \text{ K T}$ ||
 $\text{K T } \theta \text{ K}_a, - \text{K T } \theta \text{ K}_a, - \theta \text{ K T} - \text{K T } \theta \text{ K}_a,$ ||
 $\text{K T } \theta \text{ K}_a, - \theta \text{ K T} - \text{K T } \theta \text{ K}_a, - \text{K T } \theta \text{ K}_a,$ ||
 $\theta \text{ K T} - \text{K T } \theta \text{ K}_a, - \text{K T } \theta \text{ K}_a, - \text{K T } \theta \text{ K}_a,$ ||
3. $\theta \text{ K}_a, - \theta \text{ K T}, - \text{K T } \theta \text{ K}_a, - \theta \text{ K T } \theta \text{ K}_a,$ ||
 $\theta \text{ K}_a, - \theta \text{ K T}, - \theta \text{ K T } \theta \text{ K}_a, - \text{K T } \theta \text{ K}_a,$ ||
 $\theta \text{ K}_a, - \theta \text{ K T } \theta \text{ K}_a, - \theta \text{ K T}, - \text{K T } \theta \text{ K}_a,$ ||
 $\theta \text{ K T } \theta \text{ K}_a, - \text{K T } \theta \text{ K}_a, - \theta \text{ K T}, - \theta \text{ K}_a,$ ||

16 Letters Series Chaturasra

1. $\theta \text{ K T} - \theta \text{ K T} - \theta \text{ K T} - \theta \text{ K T} - \text{K T } \theta \text{ K}_a$ ||
 $\theta \text{ K T} - \theta \text{ K T} - \theta \text{ K T} - \text{K T } \theta \text{ K}_a - \theta \text{ K T}$ ||
 $\theta \text{ K T} - \theta \text{ K T} - \text{K T } \theta \text{ K}_a - \theta \text{ K T} - \theta \text{ K T}$ ||
 $\theta \text{ K T} - \text{K T } \theta \text{ K}_a - \theta \text{ K T} - \theta \text{ K T} - \theta \text{ K T}$ ||
 $\text{K T } \theta \text{ K}_a - \theta \text{ K T} - \theta \text{ K T} - \theta \text{ K T} - \theta \text{ K T}$ ||
2. $\theta \text{ K}_a \theta \text{ K T} - \theta \text{ K}_a \theta \text{ K T} - \theta \text{ D!}, \text{G N } \bar{\theta}!$ ||
 $\theta \text{ K}_a \theta \text{ K T} - \theta \text{ D!}, \text{G N } \bar{\theta}! - \theta \text{ K}_a \theta \text{ K T}$ ||
 $\theta \text{ D!}, \text{G N } \bar{\theta}! - \theta \text{ K}_a \theta \text{ K T} - \theta \text{ K}_a \theta \text{ K T}$ ||
3. $\text{K T } \theta \text{ K}_a - \theta \text{ K}_a \theta \text{ K T} - \theta \text{ D!}, \text{G N } \bar{\theta}!$ ||
 $\text{K T } \theta \text{ K}_a - \theta \text{ D!}, \text{G N } \bar{\theta}! - \theta \text{ K}_a \theta \text{ K T}$ ||
 $\theta \text{ D!}, \text{G N } \bar{\theta}! - \theta \text{ K}_a \theta \text{ K T} - \text{K T } \theta \text{ K}_a$ ||

16 Letters Series with short and long vowels

Chaturasra

1. $\theta \text{ K T } \theta \text{ K}_a, - \theta \text{ K T } \theta \text{ K}_a, - \text{K T } \theta \text{ K}_a \parallel$
 $\theta \text{ K}_a, \theta \text{ K T} - \theta \text{ K}_a, \theta \text{ K T} - \text{K T } \theta \text{ K}_a \parallel$
 $\theta \text{ K T } \theta \text{ K}_a, - \theta \text{ K}_a, \theta \text{ K T} - \text{K T } \theta \text{ K}_a \parallel$
 $\theta \text{ K}_a, \theta \text{ K T} - \theta \text{ K T } \theta \text{ K}_a, - \text{K T } \theta \text{ K}_a \parallel$
 $\text{K T } \theta \text{ K}_a - \theta \text{ K}_a, \theta \text{ K T} - \theta \text{ K}_a, \theta \text{ K T} \parallel$
2. $\text{K T } \theta \text{ K}_a, - \theta \text{ K}_a \theta \text{ K T} - \theta \text{ D}!, \text{G N } \bar{\theta}! \parallel$
 $\theta \text{ K}_a \theta \text{ K T} - \text{K T } \theta \text{ K}_a, - \theta \text{ D}!, \text{G N } \bar{\theta}! \parallel$
 $\text{K T } \theta \text{ K}_a, - \text{K T } \theta \text{ K}_a, - \theta \text{ D}!, \text{G N } \bar{\theta}! \parallel$
 $\theta \text{ K}_a \theta \text{ K T} - \theta \text{ D}!, \text{G N } \bar{\theta}! - \text{K T } \theta \text{ K}_a, \parallel$
 $\text{K T } \theta \text{ K}_a, - \theta \text{ D}!, \text{G N } \bar{\theta}! - \theta \text{ K}_a \theta \text{ K T} \parallel$
 $\theta \text{ D}!, \text{G N } \bar{\theta}! - \text{K T } \theta \text{ K}_a, - \text{K T } \theta \text{ K}_a, \parallel$

14 Letters Series

Misra

1. $\theta \text{ K T} - \theta \text{ K T} - \theta \text{ K T} - \theta \text{ K}_a \theta \text{ K T} \parallel$
 $\theta \text{ K T} - \theta \text{ K T} - \theta \text{ K}_a \theta \text{ K T} - \theta \text{ K T} \parallel$
 $\theta \text{ K T} - \theta \text{ K}_a \theta \text{ K T} - \theta \text{ K T} - \theta \text{ K T} \parallel$
 $\theta \text{ K}_a \theta \text{ K T} - \theta \text{ K T} - \theta \text{ K T} - \theta \text{ K T} \parallel$
2. $\theta \text{ K}_a \theta \text{ K T} - \theta \text{ K}_a \theta \text{ K T} - \text{K T } \theta \text{ K}_a \parallel$
 $\theta \text{ K}_a \theta \text{ K T} - \text{K T } \theta \text{ K}_a - \theta \text{ K}_a \theta \text{ K T} \parallel$
 $\text{K T } \theta \text{ K}_a - \theta \text{ K}_a \theta \text{ K T} - \theta \text{ K}_a \theta \text{ K T} \parallel$

14 Letters Series (Long or short vowels)

Misra

1. $\theta \text{ K}_a, - \theta \text{ K}_a, - \theta \text{ K}_a, - \text{K T } \theta \text{ K}_a, \parallel$
 $\theta \text{ K}_a, - \theta \text{ K}_a, - \text{K T } \theta \text{ K}_a, - \theta \text{ K}_a, \parallel$
 $\theta \text{ K}_a, - \text{K T } \theta \text{ K}_a, - \theta \text{ K}_a, - \theta \text{ K}_a, \parallel$
 $\text{K T } \theta \text{ K}_a, - \theta \text{ K}_a, - \theta \text{ K}_a, - \theta \text{ K}_a, \parallel$

2. $\theta \text{ K T}, - \theta \text{ K T}, - \theta \text{ K T } \theta \text{ K}_a, \quad \parallel$
 $\theta \text{ K T}, - \theta \text{ K T } \theta \text{ K}_a, - \theta \text{ K T}, \quad \parallel$
 $\theta \text{ K T } \theta \text{ K}_a, - \theta \text{ K T}, - \theta \text{ K T}, \quad \parallel$
3. $\text{K T } \theta \text{ K}_a, - \text{K T } \theta \text{ K}_a, - \theta \text{ K T}, \quad \parallel$
 $\text{K T } \theta \text{ K}_a, - \theta \text{ K T}, - \text{K T } \theta \text{ K}_a, \quad \parallel$
 $\theta \text{ K T}, - \text{K T } \theta \text{ K}_a, - \text{K T } \theta \text{ K}_a, \quad \parallel$
4. $\theta \text{ K T } \theta \text{ K}_a, - \text{K T } \theta \text{ K}_a, - \theta \text{ K}_a, \quad \parallel$
 $\theta \text{ K T } \theta \text{ K}_a, - \theta \text{ K}_a, - \text{K T } \theta \text{ K}_a, \quad \parallel$
 $\theta \text{ K}_a, - \text{K T } \theta \text{ K}_a, - \theta \text{ K T } \theta \text{ K}_a, \quad \parallel$

12 Letters Series

Thrisra

1. $\theta \text{ K T} - \text{K T } \theta \text{ K}_a - \theta \text{ K}_a \theta \text{ K T} \quad \parallel$
 $\theta \text{ K T} - \theta \text{ K}_a \theta \text{ K T} - \text{K T } \theta \text{ K}_a \quad \parallel$
 $\theta \text{ K}_a \theta \text{ K T} - \text{K T } \theta \text{ K}_a - \theta \text{ K T} \quad \parallel$
2. $\theta \text{ K}_a \theta \text{ K T} - \theta \text{ K}_a \theta \text{ K T} - \theta \text{ K}_a \quad \parallel$
 $\theta \text{ K}_a \theta \text{ K T} - \theta \text{ K}_a - \theta \text{ K}_a \theta \text{ K T} \quad \parallel$
 $\theta \text{ K}_a - \theta \text{ K}_a \theta \text{ K T} - \theta \text{ K}_a \theta \text{ K T} \quad \parallel$

12 Letters Series (Long and short vowels)

Thrisra

1. $\theta \text{ K}_a, - \theta \text{ K T}, - \text{K T } \theta \text{ K}_a, \quad \parallel$
 $\theta \text{ K}_a, - \text{K T } \theta \text{ K}_a, - \theta \text{ K T}, \quad \parallel$
 $\text{K T } \theta \text{ K}_a, - \theta \text{ K T}, - \theta \text{ K}_a, \quad \parallel$
2. $\text{K T } \theta \text{ K}_a, - \text{K T } \theta \text{ K}_a, - \theta, \quad \parallel$
 $\text{K T } \theta \text{ K}_a, - \theta, - \text{K T } \theta \text{ K}_a, \quad \parallel$
 $\theta, - \text{K T } \theta \text{ K}_a, - \text{K T } \theta \text{ K}_a, \quad \parallel$
3. $\theta, - \theta \text{ K T}, - \theta \text{ K T } \theta \text{ K}_a \quad \parallel$
 $\theta, - \theta \text{ K T } \theta \text{ K}_a, - \theta \text{ K T}, \quad \parallel$
 $\theta \text{ K T } \theta \text{ K}_a, - \theta \text{ K T}, - \theta, \quad \parallel$

10 Letters Series

Khanda

1. $\theta \text{ K T} - \theta \text{ K T} - \text{K T } \theta \text{ K}_a \parallel$
 $\theta \text{ K T} - \text{K T } \theta \text{ K}_a - \theta \text{ K T} \parallel$
 $\text{K T } \theta \text{ K}_a - \theta \text{ K T} - \theta \text{ K T} \parallel$
2. $\theta - \theta \text{ K}_a - \theta \text{ K T} - \text{K T } \theta \text{ K}_a \parallel$
 $\theta - \theta \text{ K}_a - \text{K T } \theta \text{ K}_a - \theta \text{ K T} \parallel$
 $\theta - \text{K T } \theta \text{ K}_a - \theta \text{ K}_a - \theta \text{ K T} \parallel$
 $\text{K T } \theta \text{ K}_a - \theta \text{ K T} - \theta \text{ K}_a - \theta \parallel$

10 Letters Series (Long and short vowels)

Khanda

1. $\theta, - \theta \text{ K}_a, - \text{K T } \theta \text{ K a}, \parallel$
 $\theta, - \text{K T } \theta \text{ K}_a, - \theta \text{ K}_a, \parallel$
 $\text{K T } \theta \text{ K}_a, - \theta \text{ K}_a, - \theta, \parallel$
2. $\theta \text{ K T}, - \theta \text{ K T } \theta \text{ K}_a, \parallel$
 $\theta \text{ K T } \theta \text{ K}_a, - \theta \text{ K T}, \parallel$

DIFFERENT FORMS OF THE JĀTHI

SECTION-I

KHANDA JĀTHI

- | | |
|--|---|
| 1. $\theta \text{ K}_a \theta \text{ K T}$ | 9. $\theta \text{ K T } \theta !,$ |
| 2. $\theta \text{ K T } \theta \text{ K}_a$ | 10. $\theta !, \theta \text{ K T}$ |
| 3. $\theta \text{ K}_a \theta \text{ D M}$ | 11. $\theta \text{ D !, K T}$ |
| 4. $\theta \text{ D G N } \overline{\theta !}$ | 12. $\theta, \theta \text{ R } \theta \text{ R G}_a !,$ |
| 5. $\text{D M } \theta !, \theta$ | 13. $\theta \text{ R } \theta \text{ R G}_a !, \theta,$ |
| 6. $\theta !, \theta \text{ D M}$ | 14. $\theta \text{ K T } \theta \theta \text{ K T}$ |
| 7. $\theta \text{ K}_a \theta \text{ J !,}$ | 15. $\text{K T } \theta \text{ R N K}_a \text{ D N K}_a$ |
| 8. $\theta \text{ K T J !,}$ | 16. $\text{K T } \theta \text{ K}_a \theta \text{ R K T } \overline{\theta !,}$ |

THRISRA JĀTHI

- | | |
|--|--|
| 1. $\theta R K T \theta K_a$ | 9. $T \theta \theta R \theta R G_u!$, |
| 2. $\theta K_a \theta R K T$ | 10. $\theta \theta K T N K_a D N K_u$ |
| 3. $\theta R \theta \theta K T$ | 11. $N K_a D N K_u \theta D N$, |
| 4. $\theta \theta D G N \bar{\theta}!$ | 12. $\theta \theta K T - \theta K T K T$ |
| 5. $\theta D M \theta!, \theta$ | 13. $\theta L!, \theta K_a - \theta R K T \theta K_a$ |
| 6. $\theta!, \theta \theta J!$ | 14. $\theta K T - \theta K_a \theta R K T \theta K_a$ |
| 7. $\theta D!, G N \bar{\theta}!$ | 15. $\theta K_a - \theta K T \theta K_a - \theta \theta K T$ |
| 8. $T \theta \theta, K_u$ | 16. $\theta!, K T - \theta K_a \theta R K T \theta K_a$ |

MISRA JĀTHI

- | | |
|--|--|
| 1. $\theta K T \theta K_a D M$ | 9. $\theta \theta K_u D!, D!$, |
| 2. $\theta K_a \theta D G N \bar{\theta}!$ | 10. $K T \theta R K T \theta K T$ |
| 3. $\theta \theta D!, G N \bar{\theta}!$ | 11. $\theta D \theta R \theta R G_u!$, |
| 4. $\theta D!, G N \bar{\theta}!$ | 12. $\theta D \theta R K T \bar{\theta}!$, |
| 5. $\theta J N_u \theta J N_u$ | 13. $\theta K T - \theta \theta K T - \theta K T$ |
| 6. $D!, \theta \theta K_a J N_u$ | 14. $K T \theta R - \theta K T - \theta K_a \theta D N$ |
| 7. $\theta D M \theta \theta D M$ | 15. $D \theta!, K T - \theta K_a \theta R K T \theta K_a$ |
| 8. $\theta J N_u \theta K_a J N_u$ | 16. $\theta K T \theta K_a - \theta K_a \theta R K T \theta K_a$ |

CHATURASRA JĀTHI

- | | |
|--|---|
| 1. $\theta K T \theta D G N \bar{\theta}!$ | 9. $D!, \theta K T N K_a D N K_u$ |
| 2. $\theta K_a \theta D!, G N \bar{\theta}!$ | 10. $J!, \theta R K T \theta K_a$ |
| 3. $\theta \theta D!, G N \bar{\theta}!$ | 11. $\theta K T - \theta \theta K T - \theta K T K T$ |
| 4. $\theta K_a J N_u - \theta K_a K T$ | 12. $\theta L!, \theta R K T - \theta K_a \theta K_a \theta K_a \theta K_a$ |
| 5. $\theta D!, G, N, \bar{\theta}!$ | 13. $\theta D R_u K T \theta K_a - \theta K_a D R_u K T \theta K_a$ |
| 6. $\theta \theta D \theta R \theta R G_u!$ | 14. $K T \theta R - \theta K_a D N - \theta K T - \theta D N$ |
| 7. $\theta K T \theta \theta, K_u$ | 15. $N K_u \theta \theta!, K T - \theta K_a \theta R K T \theta K_a$ |
| 8. $K T \theta K_a - \theta R K T$ | 16. $K T \theta R - N K_a D N K_u - N K_a D N K_u$ |

SANKEERNA JĀTHI

- | | |
|--|--|
| 1. $\theta K_a \theta K T K T \theta K_a$ | 9. $\theta D \theta \theta K T$ |
| 2. $\theta K_a D G_u \theta D G N \bar{\theta}!$ | 10. $\theta D \theta \theta R \theta R G_u!$ |
| 3. $\theta D M \theta!, \theta \theta D M$ | 11. $D_a R K T - \theta K T \theta K_a$ |
| 4. $\theta K_a D G_u \theta!, \theta K T$ | 12. $N K_a D N K_u - N K_a D N K_u \theta D N$ |
| 5. $D!, \theta!, \theta! \theta K T$ | 13. $K T \theta R \theta \theta, K_u$ |
| 6. $\theta D!, G, N, \bar{\theta}!$ | 14. $\theta L \theta L!, \theta R K T - \theta K_a \theta K_a \theta K_a \theta K_a$ |
| 7. $\theta K_a \theta D!, G N \bar{\theta}!$ | 15. $\theta K_a \theta D \theta!, K T - \theta K_a \theta R K T \theta K_a$ |
| 8. $\theta K T \theta D!, G N \bar{\theta}!$ | 16. $\theta K T K T - \theta \theta K T - \theta K T K T$ |

SECTION-II

KHANDA JĀTHI

1. $\theta K_a, \theta K_a \theta D G N \bar{\theta}!$
2. $K T \theta K_a \theta D!, G N \bar{\theta}!$
3. $\theta K T \theta D!, G N \bar{\theta}!$
4. $\theta K_a \theta D!, G, N, \bar{\theta}!$
5. $\theta \theta D!, G, N, \bar{\theta}!$

THRISRA JĀTHI

1. $\theta K T \theta K_a D M \theta D G N \bar{\theta}!$
2. $\theta K_a, \theta K T \theta D!, G N \bar{\theta}!$
3. $\theta K_a \theta K T \theta D!, G N \bar{\theta}!$
4. $K T \theta K_a \theta D!, G, N, \bar{\theta}!$
5. $\theta K T \theta D!, G, N, \bar{\theta}!$

MISRA JĀTHI

1. $\theta K_a \theta K T \theta D!, G, N, \bar{\theta}!$
2. $K T \theta K_a \theta D!, G, N, \bar{\theta}! \theta K_a$
3. $\theta K T \theta D!, G N \bar{\theta}! K T \theta K_a$
4. $\theta K_a \theta D!, G N \bar{\theta}! \theta K_a, \theta K T$
5. $\theta \theta D G N \bar{\theta}! \theta K_a \theta K_a, \theta K T$

CHATURASRA JĀTHI

1. $K T \theta K_a \theta K T \theta D!, G, N, \bar{\theta}!$
2. $\theta K T \theta K_a \theta D!, G, N, \bar{\theta}! \theta R \theta$
3. $\theta K_a \theta \theta D!, G N \bar{\theta}! \theta K_a, \theta K T$
4. $\theta, \theta D!, G N \bar{\theta}! \theta D!, G N \bar{\theta}!$
5. $\theta \theta D G N \bar{\theta}! \theta K_a, \theta K, T \theta K T$

SANKEERNA JĀTHI

1. $\theta K_a \theta K T - \theta D!, G, N, \bar{\theta}! - K T \theta K_a$
2. $K T \theta K_a - \theta D!, G, N, \bar{\theta}! - \theta K_a, \theta K T$
3. $\theta K T - \theta D!, G N \bar{\theta}! - \theta K_a \theta K_a, \theta K T$
4. $\theta K_a - \theta D!, G N \bar{\theta}! - \theta K T \theta D!, G N \bar{\theta}!$
5. $\theta - \theta D G N \bar{\theta}! - \theta K T \theta D!, G, N, \bar{\theta}!$

Note :— In this second part, each line contains twice the number of letters of that particular Jāthi.

JATHIS FOR KRIYAS

Five different types of Jathis each in relation to 4, 5, 7, 8 and 9 Kriyas, are given below. Each Avritha in a type begins with the same bit and ends in each of the five Jathis, the central part diminishing successively.

5 Jathis in 4 Kriyas (Chaturasra Gamana)

- , J !, θ θ, - K T θ K_a - θ D G N $\overline{\theta}$! ||
 , J !, θ θ, - θ K T - θ D !, G N $\overline{\theta}$! ||
 , J !, θ θ, - θ K_a - θ D !, G N $\overline{\theta}$! ||
 , J !, θ θ, - θ - θ D !, G, N, $\overline{\theta}$! ||
 , J !, θ θ, - θ D !, G, N, $\overline{\theta}$! ||

5 Jathis in 5 Kriyas (Chaturasra Gamana)

- , J !, θ θ, - θ K_a D G_a θ K_a D N - θ D G N $\overline{\theta}$! ||
 , J !, θ θ, - θ K T θ K_a D N - θ D !, G N $\overline{\theta}$! ||
 , J !, θ θ, - θ K T θ K T - θ D !, G N $\overline{\theta}$! ||
 , J !, θ θ, - θ K_a θ K T - θ D !, G, N, $\overline{\theta}$! ||
 , J !, θ θ, - K T θ K_a - θ D !, G, N, $\overline{\theta}$! ||

5 Jathis in 7 Kriyas (Chaturasra Gamana)

- , J !, θ θ, - θ K_a J N_a θ K_a K T θ K_a J N_a θ K_a K T - θ D G N $\overline{\theta}$! ||
 , J !, θ θ, - θ K_a J N_a θ K_a K T θ K T θ K_a D M - θ D !, G N $\overline{\theta}$! ||
 , J !, θ θ, - θ K_a J N_a θ K_a K T θ K T θ K T - θ D !, G N $\overline{\theta}$! ||
 , J !, θ θ, - θ K_a J N_a θ K_a K T θ K_a θ K T - θ D !, G, N, $\overline{\theta}$! ||
 , J !, θ θ, - θ K_a J N_a θ K_a K T θ K_a D N - θ D !, G, N, $\overline{\theta}$! ||

5 Jathis in 8 Kriyas (Chaturasra Gamana)

- , J !, θ θ, - θ K_a D N J !, θ, θ K_a D N J !, θ, θ K_a D N - θ D G N $\overline{\theta}$! ||
 , J !, θ θ, - θ K_a D N J !, θ, θ K_a D N J !, θ, θ K T - θ D !, G N $\overline{\theta}$! ||
 , J !, θ θ, - θ K_a D N J !, θ, θ K_a D N J !, θ, θ K_a - θ D !, G N $\overline{\theta}$! ||
 , J !, θ θ, - θ K_a D N J !, θ, θ K_a D N J !, θ, θ - θ D !, G, N, $\overline{\theta}$! ||
 , J !, θ θ, - θ K_a D N J !, θ, θ K_a D N J !, θ, - θ D !, G, N, $\overline{\theta}$! ||

5 Jathis in 9 Kriyas (Chaturasra Gamana)

- , J !, θ θ, - θ K T θ K_a θ K T θ K_a J N_a θ K_a K T θ K_a J N_a θ K_a K T - θ D G N $\overline{\theta}$! ||
 , J !, θ θ, - θ K T θ K_a D M θ K_a J N_a θ K_a K T θ K_a J N_a θ K_a K T - θ D !, G N $\overline{\theta}$! ||
 , J !, θ θ, - θ K T θ K T θ K_a J N_a θ K_a K T θ K_a J N_a θ K_a K T - θ D !, G N $\overline{\theta}$! ||
 , J !, θ θ, - θ K_a θ K T θ K_a J N_a θ K_a K T θ K_a J N_a θ K_a K T - θ D !, G, N, $\overline{\theta}$! ||
 , J !, θ θ, - K T θ K_a θ K_a J N_a θ K_a K T θ K_a J N_a θ K_a K T - θ D !, G, N, $\overline{\theta}$! ||

Terminal JĀTHI Diminishing each time by 2 letters

Name of the terminal Jāthi	Jāthi in its form	No. of letters used	Total No. of letters
Thrisra (3)	$\theta D!$, θKT	7	15
	$D!$, θKT	5	
	θKT	3	
Chaturasra (4)	$\theta D!$, $KT\theta R$	8	18
	$D!$, $KT\theta R$	6	
	$KT\theta R$	4	
Khanda (5)	$\theta D!$, $\theta K_a \theta KT$	9	21
	$D!$, $\theta K_a \theta KT$	7	
	$\theta K_a \theta KT$	5	
Thrisra Drutha Kāla (6)	$\theta D!$, $\theta K_a KT\theta R$	10	24
	$D!$, $\theta K_a KT\theta R$	8	
	$\theta K_c KT\theta R$	6	
Misra (7)	$\theta D!$, $\theta KTKT\theta R$	11	27
	$D!$, $\theta KTKT\theta R$	9	
	$\theta KTKT\theta R$	7	
Chaturasra Drutha Kāla (8)	$\theta D!$, $\theta KT\theta DG\bar{N}\theta!$	12	30
	$D!$, $\theta KT\theta DG\bar{N}\theta!$	10	
	$\theta KT\theta DG\bar{N}\theta!$	8	
Sankeerna (9)	$\theta D!$, $\theta K_a DG_a \theta DG\bar{N}\theta!$	13	33
	$D!$, $\theta K_a DG_a \theta DG\bar{N}\theta!$	11	
	$\theta K_a DG_a \theta DG\bar{N}\theta!$	9	

JĀTHI in diminishing Series, with Mukthāyi

A Jāthi repeats itself forming a series. The whole series thus formed is diminished in magnitude, step by step as shown below. Then it is followed by a Mukthāyi.

SECTION - I

1. CHATURASRA GAMANA KHANDA JĀTHI DIMINISHING SERIES

	No. of unit letters	Total
1. $\theta K_a \theta J!$, $-\theta K_a \theta J!$, $-\theta K_a \theta J!$, $-\theta D G N \bar{\theta}!$	20	
$\theta K_a \theta J!$, $-\theta D G N \bar{\theta}!$	10	
$\theta K_a \theta J!$,	5	
Mukthāyi :—		
$\theta K_a D G_u$	} (3 times)	45
$\theta D G N \bar{\theta}!$		
$\theta D!, G N \bar{\theta}!$		
	—	80
2. $\theta K_a \theta J!$, $-\theta K_a \theta J!$, $-\theta K_a \theta J!$, $-\theta D G N \bar{\theta}!$	20	
$\theta K_a \theta J!$, $-\theta K_a \theta J!$, $-\theta D G N \bar{\theta}!$	15	
$\theta K_a \theta J!$, $-\theta D G N \bar{\theta}!$	10	
$\theta K_a \theta J!$, θ, \dots	10	
$\theta K_a \theta J!$, θ, \dots	10	
Mukthāyi.— $\theta D G N \bar{\theta}! - \theta D G N \bar{\theta}! - \theta D G N \bar{\theta}!$	15	
	—	80
3. $\theta K_a \theta J!$, $-\theta K_a \theta J!$, $-\theta K_a \theta J!$, $-\theta D G N \bar{\theta}!$	20	
$\theta, \dots, D, \dots, G, \dots, N, \dots, \bar{\theta}!, \dots$	} (3 times)	35
$\theta, D, G, N, \bar{\theta}!$		
$\theta D G N; \bar{\theta}!$		
$\theta K_a \theta J!$, θ, \dots	10	
Mukthāyi :— $\theta D!; K T - \theta D!, K T - \theta D!, K T$	15	
	—	80

4. $\left. \begin{array}{l} \theta, , , D, , , G, , , N, , , \bar{\theta}!, , , \\ \theta, D, G, N, \bar{\theta}!, \\ \theta D G N \bar{\theta}! \end{array} \right\} 35$
- $\theta K_a \theta J!, \theta, , , - \theta K_a \theta J!, \theta, , , - \theta K_a \theta J!, \theta, , ,$ 30
- Mukthāyi :— $\theta, \theta R \theta R G_u!, - \theta, \theta R \theta R G_u!, -$
 $\theta, \theta R \theta R G_u!,$ 15
5. $\theta K_a \theta J!, - \theta K_a \theta J!, - \theta K_a \theta J!,$ 15
- $\left. \begin{array}{l} \theta, , , D, , , G, , , N, , , \bar{\theta}!, , , \\ \theta, D, G, N, \bar{\theta}!, \\ \theta D G N \bar{\theta}! \end{array} \right\} 35$
- $\theta, , , , - \theta D G N \bar{\theta}! - \theta, , , ,$ 15
- Mukthāyi :— $\theta K_T \theta \theta K_T - \theta K_T \theta \theta K_T - \theta K_T \theta \theta K_T$ 15
6. $\theta K_a \theta J!, - \theta K_a \theta J!, - \theta K_a \theta J!, - \theta D G N \bar{\theta}!$ 20
- $\left. \begin{array}{l} \theta, , , D, , , G, , , N, , , \bar{\theta}!, , , \\ \theta, D, G, N, \bar{\theta}!, \\ \theta D G N \bar{\theta}! \end{array} \right\} 35$
- $\theta K_a \theta J!,$ 5
- Mukthāyi :— (Thrisra Gamana) $\theta D G N \bar{\theta}! - \theta D G N \bar{\theta}! -$
 $\theta D G N \bar{\theta}!$ 20
7. $\theta K_a \theta J!, - \theta K_a \theta J!, - \theta K_a \theta J!,$ 15
- $\left. \begin{array}{l} \theta, , , D, , , G, , , N, , , \bar{\theta}!, , , \\ \theta, D, G, N, \bar{\theta}!, \\ \theta D G N \bar{\theta}! \end{array} \right\} 35$
- Mukthāyi :— $\theta, , , D, , , G, , , N, , , \bar{\theta}!, , ,$
 $\theta, D, G, N, \bar{\theta}!,$
 $\theta D G N \bar{\theta}!$ 30

80

80

80

80

8.	$\theta \text{ K}_a \theta \text{ J}!, - \theta \text{ K}_a \theta \text{ J}!, - \theta \text{ K}_a \theta \text{ J}!, - \theta \text{ D G N } \bar{\theta}!$	20	
	$\theta, \dots, - \theta \text{ D G N } \bar{\theta}! - \theta, \dots,$	15	
	Mukthāyi :— $\theta \text{ K}_a \text{ D G}_u$	} (3 times) 45	80
	$\theta \text{ D G N } \bar{\theta}!$		
	$\theta \text{ D}!, \text{ G N } \bar{\theta}!$		
9.	Mohara :—	128	
	Mukthāyi :— $\text{D } \theta!, \theta \text{ K}_a \text{ D N } \bar{\theta}!,$	} 192	320
	$\theta!, \theta \text{ K}_a \text{ D N } \bar{\theta}!,$		
	$\theta \text{ K}_a \text{ D N } \bar{\theta}!,$		
	$\theta \text{ K}_a \text{ D G}_u \theta \text{ D}!, \text{ G N } \bar{\theta}!$		
	$\theta \text{ K}_a \text{ D G}_u \theta \text{ D}!, \text{ G N } \bar{\theta}!$		
	$\theta \text{ K}_a \text{ D G}_u \theta \text{ D}!, \text{ G N } \bar{\theta}!$		

Note :— Mohara Mukthāyi letters 320. Khanda Kriyas 32.

2. CHATURASRA GAMANA THIRISRA JĀTHI DIMINISHING SERIES

1.	$\theta!, \theta \theta \text{ J}!, - \theta!, \theta \theta \text{ J}!, - \theta!, \theta \theta \text{ J}!, - \theta \text{ D}!, \text{ G N } \bar{\theta}!$	24	
	$\theta!, \theta \theta \text{ J}!, - \theta \text{ D}!, \text{ G N } \bar{\theta}!$	12	
	$\theta!, \theta \theta \text{ J}!,$	6	
	Mukthāyi :— $\theta \text{ D G N } \bar{\theta}!$	} (3 times) 54	96
	$\theta \text{ D}!, \text{ G N } \bar{\theta}!$		
	$\theta \text{ D}!, \text{ G N } \bar{\theta}!$		
2.	$\theta!, \theta \theta \text{ J}!, - \theta!, \theta \theta \text{ J}!, - \theta!, \theta \theta \text{ J}!, - \theta \text{ D}!, \text{ G N } \bar{\theta}!$	24	
	$\theta, \dots, \text{D}!, \dots, \text{G}, \dots, \text{N}, \dots, \bar{\theta}!, \dots,$	} 42	
	$\theta, \text{D}!, \dots, \text{G}, \text{N}, \bar{\theta}!,$		
	$\theta \text{ D}!, \text{ G N } \bar{\theta}!$		
	$\theta!, \theta \theta \text{ J}!, - \theta, \dots,$	12	
	Mukthāyi :— $\theta \theta \text{ K}_T \theta \text{ K}_T \text{ K}_T$ (3 times)	18	96

3. $\theta!, \theta\theta J!, -\theta!, \theta\theta J!, -\theta!, \theta\theta J!, -\theta D!, G N \bar{\theta}!$ 24
 $\theta!, \theta\theta J!, -\theta!, \theta\theta J!, -\theta D!, G N \bar{\theta}!$ 18
 $\theta!, \theta\theta J!, -\theta D!, G N \bar{\theta}!$ 12
 $\theta!, \theta\theta J!, -\theta;;,$ 12
 $\theta!, \theta\theta J!, -\theta;;,$ 12
 Mukthāyi:— $\theta D!, G N \bar{\theta}! - \theta D!, G N \bar{\theta}! - \theta D!, G N \bar{\theta}!$ 18
 — 96
4. $\theta;;, D!;;;, G;;, N;;, \bar{\theta}!;;,$ }
 $\theta, D!,,, G, N, \bar{\theta}!,$ } 42
 $\theta D!, G N \bar{\theta}!$ }
 $\theta!, \theta\theta J!, -\theta;;, -\theta!, \theta\theta J!, -\theta;;,$ 24
 $\theta!, \theta\theta J!, -\theta;;,$ 12
 Mukthāyi:— $T \theta, \theta R \theta R G_u!$, (3 times) 18
 — 96
5. $\theta!, \theta\theta J!, -\theta!, \theta\theta J!, -\theta!, \theta\theta J!,$ 18
 $\theta;;, D!;;;, G;;, N;;, \bar{\theta}!;;,$ }
 $\theta, D!;;, G, N, \bar{\theta}!,$ } 42
 $\theta D!, G N \bar{\theta}!$ }
 $\theta;;, -\theta D!, G N \bar{\theta}! - \theta!;;,$ 18
 Mukthāyi:— $\frac{1}{2}^a \quad 1^a \quad 11^a$
 $\theta, -\theta k_a - K T \theta K_a$ (3 times) 18
 — 96
6. $\theta!, \theta\theta J!, -\theta!, \theta\theta J!, -\theta!, \theta\theta J!, -\theta D!, G N \bar{\theta}!$ 24
 $\theta;;, D!;;;, G;;, N;;, \bar{\theta}!;;,$ }
 $\theta, D!;;, G, N, \bar{\theta}!,$ } 42
 $\theta D!, G N \bar{\theta}!$ }
 $\theta!, \theta\theta J!,$ 6
 Mukthāyi:— (Thrisra Gamana) $\theta D!, G N \bar{\theta}!$ (3 times) 24
 — 96

7: $\theta !, \theta \theta J!, -\theta !, \theta \theta J!, -\theta !, \theta \theta J!,$	18	
$\theta ;, D! ; ;, G ;, N ;, \bar{\theta} ! ;,$	}	42
$\theta, D! ;, G, N, \bar{\theta} !,$		
$\theta D!, G N \bar{\theta} !$		
Mukthāyi:— $\theta ;, D! ; ;, G ;, N ;, \bar{\theta} ! ;$	}	36
$\theta, D! ;, G, N, \bar{\theta} !,$		
$\theta D!, G N \bar{\theta} !$		
	—	96
8. $\theta !, \theta \theta J!, -\theta !, \theta \theta J!, -\theta !, \theta \theta J!, -\theta D!, G N \bar{\theta} !$	24	
$\theta ; ;, -\theta D!, G N \bar{\theta} ! -\theta ; ;, -$	18	
Mukthāyi:— $\theta D G N \bar{\theta} !$	}	(3 times) 54
$\theta D!, G N \bar{\theta} !$		
$\theta D!, G N \bar{\theta} !$		
	—	96
9. Mohara:—	128	
Mukthāyi:—	160	
	—	288
Note:— Thrisra Kriyas 48 (Explained in Sankeerna)		

3. CHATURASRA GAMANA MISRA JĀTHI DIMINISHING SERIES

1. $\theta D M \theta \theta D M - \theta D M \theta \theta D M - \theta D M \theta \theta D M -$		
$\theta K_a \theta D G N \bar{\theta} !$	28	
$\theta D M \theta \theta D M - \theta K_a \theta D G N \bar{\theta} !$	14	
$\theta D M \theta \theta D M$	7	
Mukthāyi:— $\theta D G N \bar{\theta} !$	}	(3 times) 63
$\theta K_a \theta D G N \bar{\theta} !$		
$\theta K_a D G_a \theta D G N \bar{\theta} !$		
	—	112
2. $\theta D M \theta \theta D M - \theta D M \theta \theta D M - \theta D M \theta \theta D M - \theta D!, G N \bar{\theta} !$	28	
$\theta D M \theta \theta D M - \theta D M \theta \theta D M - \theta D!, G N \bar{\theta} !$	21	
$\theta D M \theta \theta D M - \theta D!, G N \bar{\theta} !$	14	

	$\theta D M \theta \theta D M - \theta ; ; ;$	14	
	$\theta D M \theta \theta D M - \theta ; ; ;$	14	
Mukthāyi :—	$\theta D !, G N \bar{\theta} !$ (3 times)	21	
		—	112
3.	$\theta D M \theta \theta D M - \theta D M \theta \theta D M - \theta D M \theta \theta D M - \theta K_a \theta D G N \bar{\theta} !$	28	
	$\theta ;, K_a ;, \theta ;, D ;, G ;, N ;, \bar{\theta} ! ;,$	}	49
	$\theta, K_a, \theta, D, G, N, \bar{\theta} !,$		
	$\theta K_a \theta D G N \bar{\theta} !$		
	$\theta D M \theta \theta D M - \theta ; ; ;$	14	
Mukthāyi :—	$\theta K T - \theta \theta K T - \theta K T$ (3 times)	21	
		—	112
4.	$\theta D M \theta \theta D M - \theta D !, G N \bar{\theta} !$	14	
	$\theta ;, K_a ;, \theta ;, D ;, G ;, N ;, \bar{\theta} ! ;,$	}	49
	$\theta, K_a, \theta, D, G, N, \bar{\theta} !,$		
	$\theta K_a \theta D G N \bar{\theta} !$		
	$\theta D M \theta \theta D M - \theta ; ; ; - \theta D M \theta \theta D M - \theta ; ; ;$	28	
Mukthāyi :—	$\frac{1}{2}^d \theta, - \theta K_a - \theta D !, G N \bar{\theta} !$ (3 times)	21	
		—	112
5.	$\theta D M \theta \theta D M - \theta D M \theta \theta D M - \theta D M \theta \theta D M$	21	
	$\theta ;, K_a ;, \theta ;, D ;, G ;, N ;, \bar{\theta} ! ;,$	}	49
	$\theta, K_a, \theta, D, G, N, \bar{\theta} !,$		
	$\theta K_a \theta D G N \bar{\theta} !$		
	$\theta ; ; ; - \theta K_a \theta D G N \bar{\theta} ! - \theta ; ; ;$	21	
Mukthāyi :—	$\theta, D, \theta R \theta R G_a !$, (3 times)	21	
		—	112
6.	$\theta D M \theta \theta D M - \theta D M \theta \theta D M - \theta D M \theta \theta D M - \theta K_a \theta D G N \bar{\theta} !$	28	
	$\theta ;, K_a ;, \theta ;, D ;, G ;, N ;, \bar{\theta} ! ;,$	}	49
	$\theta, K_a, \theta, D, G, N, \bar{\theta} !,$		
	$\theta K_a \theta D G N \bar{\theta} !$		
	$\theta D M \theta \theta D M$	7	
Mukthāyi :—	(Thrisra Gamana) $\theta D !, G N \bar{\theta} !$ (3 times)	28	
		—	112

7.	$\theta D M \theta \theta D M - \theta D M \theta \theta D M - \theta D M \theta \theta D M$	21	
	$\left. \begin{array}{l} \theta ;, K_a ;, \theta ;, D ;, G ;, N ;, \bar{\theta} ! ;, \\ \theta, K_a, \theta, D, G, N, \theta !, \\ \theta K_a \theta D G N \bar{\theta} ! \end{array} \right\}$	49	
	$\left. \begin{array}{l} \text{Mukthāyi :— } \theta ; K_a ; \theta ; D ; G ; N ; \bar{\theta} ! ; \\ \theta, K_a, \theta, D, G, N, \theta !, \\ \theta K_a \theta D G N \bar{\theta} ! \end{array} \right\}$	42	112
8.	$\theta D M \theta \theta D M - \theta D M \theta \theta D M - \theta D M \theta \theta D M - \theta K_a \theta D G N \bar{\theta} !$	28	
	$\theta ; ; ; - \theta K_a \theta D G N \bar{\theta} ! - \theta ; ; ;$	21	
	$\left. \begin{array}{l} \text{Mukthāyi :— } \theta D G N \bar{\theta} ! \\ \theta K_a \theta D G N \bar{\theta} ! \\ \theta K_a D G_a \theta D G N \bar{\theta} ! \end{array} \right\} \text{ (3 times)}$	63	112
9.	$\left. \begin{array}{l} \theta ;, K_a ;, \theta ;, D ;, G ;, N ;, \bar{\theta} ! ;, \\ \theta, K_a, \theta, D, G, N, \bar{\theta} !, \\ \theta K_a \theta D G N \bar{\theta} ! \end{array} \right\}$	49	
	$\left. \begin{array}{l} \text{Mukthāyi :— } \theta D G N \bar{\theta} ! \\ \theta K_a \theta D G N \bar{\theta} ! \\ \theta K_a D G_a \theta D G N \bar{\theta} ! \end{array} \right\} \text{ (3 times)}$	63	112
10.	Mohara :—	128	
	$\left. \begin{array}{l} \text{Mukthāyi :— } \theta \theta \bar{\theta} !, - \theta \theta \bar{\theta} !, - \theta \theta \bar{\theta} !, \\ \theta D G N \bar{\theta} !, \theta D G N \bar{\theta} !, \theta D G N \bar{\theta} ! \end{array} \right\} \text{ (3 times)}$	96	224

Note :— 16 Avrithas in Thrisra Jāthi Thripata Thāla.

4. CHATURASRA GAMANA CHATURASRA JĀTHI DIMINISHING SERIES

1.	$N K_u \theta D M \theta D M - N K_u \theta D M \theta D M - N K_u \theta D M \theta D M -$	
	$\theta D !, G, N, \bar{\theta} !$	32
	$N K_u \theta D M \theta D M - \theta D !, G, N, \bar{\theta} !$	16
	$N K_u \theta D M \theta D M$	8

Mukthāyi :—	$\theta D!, G N \bar{\theta}!$	} (3 times)	72	—	128
	$\theta K_u \theta D!, G N \bar{\theta}!$				
	$\theta K_u D G_u \theta D!, G N \bar{\theta}!$				

2. $N K_u \theta D M \theta D M - N K_u \theta D M \theta D M - N K_u \theta D M \theta D M -$

	$\theta D!, G, N, \bar{\theta}!$	32
$N K_u \theta D M \theta D M - N K_u \theta D M \theta D M -$	$\theta D!, G, N, \bar{\theta}!$	24
$N K_u \theta D M \theta D M -$	$\theta D!, G, N, \bar{\theta}!$	16
$\theta D!, G, N, \bar{\theta}! - \theta ; ; ; ,$		16
$\theta D!, G, N, \bar{\theta}! - \theta ; ; ; ,$		16

Mukthāyi :—	$\theta D!, G N \bar{\theta}!$	}	24	—	128
	$\theta D!, G, N, \bar{\theta}!$				
	$\theta D!, G, N, \bar{\theta}!$				

3. $N K_u \theta D M \theta D M - N K_u \theta D M \theta D M - N K_u \theta D M \theta D M -$

	$\theta D!, G, N, \bar{\theta}!$	32
$\theta ; , D! ; ; ; G ; ; ; N ; ; ; \bar{\theta}! ; ,$	}	56
$\theta , D! ; ; G ; ; N ; ; \bar{\theta}! ,$		
$\theta D! , G , N , \bar{\theta}!$		
$\theta D! , G , N , \bar{\theta}! - \theta ; ; ; ,$		16

Mukthāyi :—	$\theta , , \theta D G N \bar{\theta}!$	}	24	—	128
	$\theta , , \theta D G N \bar{\theta}!$				
	$\theta , , \theta D G N \bar{\theta}!$				

4. $\theta, ; D!, ; ; ; G, ; ; ; N, ; ; ; \bar{\theta}!, ;$
 $\theta, D!, ; G, ; N, ; \bar{\theta}!,$
 $\theta D!, G, N, \bar{\theta}!$ } 56
- $\theta D!, G, N, \theta! \theta ; ; ; , - \theta D!, G, N, \bar{\theta}! \theta ; ; ; , -$
 $\theta D!, G, N, \bar{\theta}! \theta ; ; ; ,$ 48
- Mukthāyi :— $\theta K T - \theta \theta K T - \theta K T K T$ (3 times) 24
- 128
5. $N K_u \theta D N_u \theta D N_u - N K_u \theta D N_u \theta D N_u - N K_u \theta D N_u \theta D N_u$ 24
- $\theta, ; D!, ; ; ; G, ; ; ; N, ; ; ; \bar{\theta}!, ;$
 $\theta, D!, ; G, ; N, ; \bar{\theta}!,$
 $\theta D!, G, N, \bar{\theta}!$ } 56
- $\theta, ; ; ; - \theta D!, G, N, \bar{\theta}! - \theta, ; ; ;$ 24
- Mukthāyi :— $\overset{3a}{\theta}, - \overset{1a}{\theta} K T - \overset{11a}{\theta} D!, G N \bar{\theta}!$ (3 times) 24
- 128
6. $N K_u \theta D N_u \theta D N_u - N K_u \theta D N_u \theta D N_u - N K_u \theta D N_u \theta D N_u -$
 $\theta D!, G, N, \bar{\theta}!$ 32
- $\theta, ; D!, ; ; ; G, ; ; ; N, ; ; ; \bar{\theta}!, ;$
 $\theta, D!, ; G, ; N, ; \bar{\theta}!,$
 $\theta D!, G, N, \bar{\theta}!$ } 56
- $N K_u \theta D M \theta D M$ 8
- Mukthāyi :— (Thrisra Gamana) $\theta D!, G, N, \theta!$ (3 times) 32
- 128
7. $N K_u \theta D M \theta D M - N K_u \theta D M \theta D M - N K_u \theta D M \theta D M$ 24
- $\theta, ; D!, ; ; ; G, ; ; ; N, ; ; ; \bar{\theta}!, ;$
 $\theta, D!, ; G, ; N, ; \bar{\theta}!,$
 $\theta D!, G, N, \bar{\theta}!$ } 56
- Mukthāyi :— $\theta, ; D!, ; ; ; G, ; ; ; N, ; ; ; \bar{\theta}!$
 $\theta, D!, ; G, ; N, ; \bar{\theta}!,$
 $\theta D!, G, N, \bar{\theta}!$ } 48
- 128

8. N K_u θ D M θ D M - N K_u θ D M θ D M - N K_u θ D M θ D M -
θ D!, G, N, θ!

32

θ, ; ; ; - θ D!, G, N, θ! - θ, ; ; ;

24

Mukthāyi :—

θ D!, G N θ!

θ K_a θ D!, G N θ!

θ K_a D G_u θ D!, G N θ!

(3 times)

72

128

9. Mohara :—

128

Mukthāyi :—

θ D θ K_a D N θ!,

D θ K_a D N θ!,

θ K_a D N θ!,

θ D!, G N θ! - θ D!, G N θ! - θ D!, G N θ!

(3 times)

126

254

64 kriyas with an initial pause of 2 letters.

5. CHATURASRA GAMANA SANKEERNA JĀTHI DIMINISHING SERIES

1. θ θ D M θ!, θ D M - θ θ D M θ!, θ D M - θ θ D M θ!, θ D M -
θ D!, G, N, θ!

36

θ θ D M θ!, θ D M - θ D!, G, N, θ!

18

θ θ D M θ!, θ D M

9

Mukthāyi :—

θ D!, G N θ!

θ K_a θ D!, G N θ!

θ K_a D G_u θ D!, G N θ!

(3 times)

81

144

2. θ θ D M θ!, θ D M - θ θ D M θ!, θ D M - θ θ D M θ!, θ D M -
θ D!, G, N, θ!

36

θ θ D M θ!, θ D M - θ θ D M θ!, θ D M - θ D!, G, N, θ!

27

θ θ D M θ!, θ D M - θ D!, G, N, θ!

18

θ θ D M θ!, θ D M - θ ; ; ;

18

θ θ D M θ!, θ D M - θ ; ; ;

18

Mukthāyi :— θ D!, G, N, θ! - θ D!, G, N, θ! - θ D!, G, N, θ!

27

144

3. $\theta \theta D M \theta !, \theta D M - \theta \theta D M \theta !, \theta D M - \theta \theta D M \theta !, \theta D M -$
 $\theta D !, G, N, \bar{\theta} !$ 36

$\theta, ; ; ; D !, ; ; ; G, ; ; ; N, ; ; ; \bar{\theta} !, ;$ }
 $\theta, ; D !, ; G, ; N, ; \bar{\theta} !,$ } 63
 $\theta D !, G, N, \bar{\theta} !$ }

$\theta \theta D M \theta !, \theta D M - \theta ; ; ; ;$ 18

Mukthāyi:— $\theta D !, G, N, \bar{\theta} !$ }
 $\theta D !, G, N, \bar{\theta} !$ } 27
 $\theta J ! ; \theta D G N \bar{\theta} !$ } — 144

4. $\theta, ; ; ; D !, ; ; ; G, ; ; ; N, ; ; ; \theta !, ;$ }
 $\theta, ; D !, ; G, ; N, ; \bar{\theta} !,$ } 63
 $\theta D !, G, N, \bar{\theta} !$ }

$\theta K_a D G_u \theta K_a \theta J !, - \theta ; ; ; ; - \theta K_a D G_u \theta K_a \theta J !, -$ }
 $\theta ; ; ; ;$ } 54
 $\theta K_a D G_u \theta K \theta J !, \theta ; ; ; ;$ }

Mukthāyi:— $\frac{1}{2} a \quad 1a \quad 11a$
 $\theta, - \theta K T - \theta D !, G, N, \bar{\theta} !$ (3 times) 27
 — 144

5. $\theta K_a D G_u \theta K_a \theta J !, - \theta K_a D G_u \theta K_a \theta J !, - \theta K_a D G_u \theta K_a \theta J !,$ 27

$\theta, ; ; ; D !, ; ; ; G, ; ; ; N, ; ; ; \bar{\theta} !, ;$ }
 $\theta, ; D !, ; G, ; N, ; \bar{\theta} !,$ } 63
 $\theta D !, G, N, \bar{\theta} !$ }

$\theta ; ; ; ; - \theta K_a D G_u \theta K_a \theta J !, - \theta ; ; ; ;$ 27

Mukthāyi:— $\theta K T K T - \theta \theta K T - \theta K T K T$ (3 times) 27
 — 144

6. $\theta K_a D G_u \theta K_a \theta J!$, $-\theta K_a D G_u \theta K_a \theta J!$, $-\theta K_a D G_u \theta K_a \theta J!$, $-\theta D!, G, N, \bar{\theta}!$ 36

$\theta, ; ; ; D!, ; ; ; G, ; ; ; N, ; ; ; \bar{\theta}!, ;$ }
 $\theta, ; D!, ; G, ; N, ; \bar{\theta}!,$ } 63
 $\theta D!, G, N, \bar{\theta}!$ }

$\theta K_a D G_u \theta K_a \theta J!$, — 9

Mukthāyi:— (Thrisra Gamana) $\theta D!, G, N, \bar{\theta}!$ (3 times) 36

— 144

7. $\theta K_a D G_u \theta K_a \theta J!$, $-\theta K_a D G_u \theta K_a \theta J!$, $-\theta K_a D G_u \theta K_a \theta J!$, 27

$\theta, ; ; ; D!, ; ; ; G, ; ; ; N, ; ; ; \bar{\theta}!, ;$ }
 $\theta, ; D!, ; G, ; N, ; \bar{\theta}!,$ } 63
 $\theta D!, G, N, \bar{\theta}!$ }

Mukthāyi:— $\theta, ; ; ; D!, ; ; ; G, ; ; ; N, ; ; ; \bar{\theta}!, ;$ }
 $\theta, ; D!, ; G, ; N, ; \bar{\theta}!,$ } 54
 $\theta D!, G, N, \bar{\theta}!$ } — 144

8. $\theta K_a D G_u \theta K_a \theta J!$, $-\theta K_a D G_u \theta K_a \theta J!$, $-\theta K_a D G_u \theta K_a \theta J!$, $-\theta D!, G, N, \bar{\theta}!$ 36

$\theta, ; ; ; -\theta K_a D G_u \theta K_a \theta J!$, $-\theta, ; ; ;$ 27

Mukthāyi:— $\theta D!, G, N, \bar{\theta}!$ }
 $\theta K_a \theta D!, G, N, \bar{\theta}!$ } (3 times) 81
 $\theta K_a D G_u \theta D!, G, N, \bar{\theta}!$ } — 144

9. Mohara :—		128	
Mukthāyi :—			
$\theta \theta \bar{J}!, - \theta \theta \bar{J}!, - \theta \theta \bar{J}!, - \theta D G N \bar{\theta}!$	(3 times)	}	160
$\theta \theta \bar{J}!, - \theta D G N \bar{\theta}!$	(3 times)		
$, \theta D!, G N \bar{\theta}! - \theta D!, G N \bar{\theta}! - \theta D!, G N \bar{\theta}! - \theta , ,$		}	288
$\theta D!, G N \bar{\theta}! - \theta D!, G N \bar{\theta}! - \theta D!, G N \bar{\theta}! - \theta , ,$			
$\theta D!, G N \bar{\theta}! - \theta D!, G N \bar{\theta}! - \theta D!, G N \bar{\theta}!$			

JĀTHI in diminishing series in Chaturasra Gamana with Mukthāyis

SECTION — II

1. Khanda jāthi (5)

$\theta!, \theta \bar{J}!, - \theta!, \theta \bar{J}!, - \theta!, \theta \bar{J}!, - \theta D G N \bar{\theta}!$	(4 times)	80	
$\theta!, \theta \bar{J}!, - \theta D G N \bar{\theta}!$	(3 times)	30	
$\theta!, \theta \bar{J}!,$		5	

Mukthāyi :—

$\theta K_a D G_u$	}	(3 times)	45	160
$\theta D G N \bar{\theta}!$				
$\theta D!, G N \bar{\theta}!$				

2. Thrisra jāthi (6)

$\theta!, \theta \theta \bar{J}!, - \theta!, \theta \theta \bar{J}!, - \theta!, \theta \theta \bar{J}!, - \theta D!, G N \bar{\theta}!$	(4 times)	96	
$\theta!, \theta \theta \bar{J}!, - \theta D!, G N \bar{\theta}!$	(3 times)	36	
$\theta!, \theta \theta \bar{J}!,$		6	

Mukthāyi :—

$\theta D G N \bar{\theta}!$	}	(3 times)	54	192
$\theta D!, G N \bar{\theta}!$				
$\theta D!, G N \bar{\theta}!$				

3. Misra jāthi (7)

$\theta !, K_u \theta J !, - \theta !, K_u \theta J !, - \theta !, K_u \theta J !, -$	
$\theta K T \theta K_a D M$ (4 times)	112
$\theta !, K_u \theta J !, - \theta K T \theta K_a D M$ (3 times)	42
$\theta !, K_u \theta J !,$	7

Mukthāyi :—

$\theta D G N \bar{\theta} !$	} (3 times)	63
$\theta K_a \theta D G N \bar{\theta} !$		
$\theta K_a D G_u \theta D G N \bar{\theta} !$		
	—	224

4. Chaturasra jāthi (8)

$\theta !, K_u \theta K_a \theta J !, - \theta !, K_u \theta K_a \theta J !, - \theta !, K_u \theta K_a \theta J !, -$	
$\theta D !, G, N, \bar{\theta} !$ (4 times)	128
$\theta !, K_u \theta K_a \theta J !, - \theta D !, G, N, \bar{\theta} !$ (3 times)	48
$\theta !, K_u \theta K_a \theta J !,$	8

Mukthāyi :—

$\theta D !, G N \bar{\theta} !$	} (3 times)	72
$\theta K_a \theta D !, G N \bar{\theta} !$		
$\theta K_a D G_u \theta D !, G N \bar{\theta} !$		
	—	256

5. Sankeerna jāthi (9)

$\theta !, K_u \theta K T \theta J !, - \theta !, K_u \theta K T \theta J !, - \theta !, K_u \theta K T \theta J !, -$	
$\theta D !, G, N, \bar{\theta} !$ (4 times)	144
$\theta !, K_u \theta K T \theta J !, - \theta D !, G, N, \bar{\theta} !$ (3 times)	54
$\theta !, K_u \theta K T \theta J !,$	9

Mukthāyi :—

$\theta D !, G N \bar{\theta} !$	} (3 times)	81
$\theta K_a \theta D !, G N \bar{\theta} !$		
$\theta K_a D G_u \theta D !, G N \bar{\theta} !$		
	—	288

JĀTHI in diminishing series with Mukthāyi

(27 Kriyas each)

SECTION III

1. Khanda Gamana (5)

$\theta \text{ K T } \theta !, -\theta \text{ K T } \theta !, -\theta \text{ K T } \theta !, -\theta \text{ D G N } \bar{\theta} !$ (3 times)

$\theta \text{ K T } \theta !, -\theta \text{ D G N } \bar{\theta} !$ (3 times)

Mukthāyi :—

$\text{K T } \theta \text{ K}_a$	}	(3 times)
$\theta \text{ D G N } \bar{\theta} !$		
$\theta \text{ D} !, \text{G N } \bar{\theta} !$		

2. Thrisra Gamana (6)

$\theta !, \theta \theta \text{ D} !, -\theta !, \theta \theta \text{ D} !, -\theta !, \theta \theta \text{ D} !, -\theta \text{ D} !, \text{G N } \bar{\theta} !$ (3 times)

$\theta !, \theta \theta \text{ D} !, \theta \text{ D} !, \text{G N } \bar{\theta} !$ (3 times)

Mukthāyi :—

$\theta \text{ D G N } \bar{\theta} !$	}	(3 times)
$\theta \text{ D} !, \text{G N } \bar{\theta} !$		
$\theta \text{ D} !, \text{G N } \bar{\theta} !$		

3. Misra Gamana (7)

$\theta \text{ K}_a \theta \text{ K T } \theta !, -\theta \text{ K}_a \theta \text{ K T } \theta !, -\theta \text{ K}_a \theta \text{ K T } \theta !, -\theta \text{ K}_a \theta \text{ D G N } \bar{\theta} !$ (3 times)

$\theta \text{ K}_a \theta \text{ K T } \theta !, -\theta \text{ K}_a \theta \text{ D G N } \bar{\theta} !$ (3 times)

Mukthāyi :—

$\theta \text{ D G N } \bar{\theta} !$	}	(3 times)
$\theta \text{ K}_a \theta \text{ D G N } \bar{\theta} !$		
$\theta \text{ K}_a \text{ D G}_u \theta \text{ D G N } \bar{\theta} !$		

4. Chaturasra Gamana (8)

$\theta \text{ K T } \theta \text{ D G N } \bar{\theta} ! - \theta \text{ K T } \theta \text{ D G N } \bar{\theta} ! - \theta \text{ K T } \theta \text{ D G N } \bar{\theta} ! -$

$\theta \text{ D G N } \bar{\theta} ! \theta \text{ K}_u !, (3 \text{ times})$

$\theta \text{ K T } \theta \text{ D G N } \bar{\theta} ! - \theta \text{ D G N } \bar{\theta} ! \theta \text{ K}_u !, (3 \text{ times})$

Mukthayi :—

$$\left. \begin{array}{l} \theta D!, G N \bar{\theta}! \\ \theta K_a \theta D!, G N \bar{\theta}! \\ \theta K_a D G_u \theta D!, G N \bar{\theta}! \end{array} \right\} (3 \text{ times})$$

5. Sankeerna Gamana (9)

$$\begin{aligned} &\theta K_a D G_u \theta K T \theta!, - \theta K_a D G_u \theta K T \theta!, - \theta K_a D G_u \theta K T \theta!, - \\ &\quad - \theta K_a D G_u \theta D G N \bar{\theta}! (3 \text{ times}) \\ &\theta K_a D G_u \theta K T \theta!, - \theta K_a D G_u \theta D G N \bar{\theta}! (3 \text{ times}) \end{aligned}$$

Mukthāyi :—

$$\left. \begin{array}{l} \theta D!, G N \bar{\theta}! \\ \theta K_a \theta D!, G N \bar{\theta}! \\ \theta K_a D G_u \theta D!, G N \bar{\theta}! \end{array} \right\} (3 \text{ times})$$

JĀTHI in diminishing series with Mukthayi

SECTION IV

1. Chaturasra Gamana Khanda jāthi

$$\begin{aligned} &\theta K_a \theta K T - \underline{\theta K_a D!}, \theta K T - \theta K_a \theta K T - \theta D G N \bar{\theta}! (3 \text{ times}) \\ &\quad \theta K_a \theta K T - \theta D G N \bar{\theta}! (3 \text{ times}) \end{aligned}$$
Mukthāyi :— , $\theta D G N \bar{\theta}! - \theta D G N \bar{\theta}! - \theta D G N \bar{\theta}!$ (3 times) 138. 34½

2. Chaturasra Gamana Thrisra jāthi

$$\begin{aligned} &\theta K T \theta K_a D!, D N, - \theta, K T \theta K_a D!, D N, - \\ &\quad - \theta K T \theta K_a D!, D N, - \theta D!, G N \bar{\theta}! (3 \text{ times}) \\ &\quad \theta K T \theta K_a D!, D N, - \theta D!, G N \bar{\theta}! (3 \text{ times}) \end{aligned}$$
Mukthāyi:— ; $\theta D!, G N \bar{\theta}! - \theta D!, G N \bar{\theta}! - \theta D!, G N \bar{\theta}!$ (3 times) 240 60

3. Chaturasra Gamana Misra jāthi

$\theta D M \theta \theta D M - \theta D M \theta \theta D M - \theta D M \theta \theta D M - \theta K_a \theta D G N \bar{\theta}!$ (3 times)

$\theta D M \theta \theta D M - \theta K_a \theta D G N \bar{\theta}!$ (3 times)

Mukthāyi:—, $\theta K_a \theta D G N \bar{\theta}!$ - $\theta K_a \theta D G N \bar{\theta}!$ -

$\theta K_a \theta D G N \bar{\theta}!$ (3 times) 192 48

4. Chaturasra Gamana Misra jāthi

$\theta D M \theta!, \theta D M - \theta D M \theta!, \theta D M - \theta D M \theta!, \theta D M -$

$-\theta K_u!, \theta D G N \bar{\theta}!$ (3 times)

$\theta D M \theta!, \theta D M - \theta K_u!, \theta D G N \bar{\theta}!$ (3 times)

Mukthāyi:—; $\theta K_u!, \theta D G N \bar{\theta}!$ - $\theta K_u!, \theta D G N \bar{\theta}!$ -

$\theta K_u!, \theta D G N \bar{\theta}!$ (3 times) 222 55½

5. Chaturasra Gamana Sankeerna jāthi

$\theta \theta D M \theta!, \theta D M - \theta \theta D M \theta!, \theta D M - \theta \theta D M \theta!, \theta D M -$

$\theta K_a D G_u \theta D G N \bar{\theta}!$ (3 times)

$\theta \theta D M \theta!, \theta D M - \theta K_a D G_u \theta D G N \bar{\theta}!$ (3 times)

Mukthāyi:—, $\theta K_a D G_u \theta D G N \bar{\theta}!$ - $\theta K_a D G_u \theta D G N \bar{\theta}!$ -

$-\theta K_a D G_u \theta D G N \bar{\theta}!$ (3 times) 246 61½

JĀTHI in diminishing Series with Mukthāyi, set to Ādi Mhāla

SECTION V.

1. Chaturasra Gamana Thrisra jāthi

$\theta K T \theta K_a D!, D N, -; K T \theta K_a \theta K_a D!, D N, -$

$-\theta K T \theta K_a D!, D N, - \theta D!, G N \bar{\theta}!$ (3 times) 126

$\theta K \theta K_a D!, D N, - \theta D!, G N \bar{\theta}!$ (3 times) 54

Mukthāyi—

$\theta D G N \bar{\theta}!$
 $\theta D!, G N \bar{\theta}!$
 $\theta D!, G N \bar{\theta}!$ } (3 times) 60

— 240

2. Chaturasra gamana Misra jāthi

 $\theta K_a D G_u \theta^J!$, $-\theta K_a D G_u \theta^J!$, $-\theta K_a D G_u \theta^J!$,

 $-\theta D!$, $G N \bar{\theta}!$ (3 times) 84

 $\theta K_a D G_u \theta^J!$, $-\theta D!$, $G N \bar{\theta}!$ (3 times) 42

Mukthāyi :—

, $\theta D G N \bar{\theta}!$ $\theta K_a \theta D G N \bar{\theta}!$ $\theta K_a D G_u \theta D G N \bar{\theta}!$

} (3 times) 66

— 192

3. Chaturasra gamana Khanda jāthi

 $\theta K_a \theta^J!$, $-\theta K_a \theta^J!$, $-\theta K_a \theta^J!$, $-\theta D G N \bar{\theta}!$ (3 times) 60

 $\theta K_a \theta^J!$, $-\theta D G N \bar{\theta}!$ (3 times) 30

Mukthāyi :—

, $\theta K_a D G_u$ $\theta D G N \bar{\theta}!$ $\theta D!$, $G N \bar{\theta}!$

} (3 times) 48

— 138

4. Chaturasra gamana - Sankeerna jāthi

 $\theta K_a D G_u N K_a \theta^J!$, $-\theta K_a D G_u N K_a \theta^J!$,

 $\theta K_a D G_u N K_a \theta^J!$, $-\theta D!$, $G, N, \bar{\theta}!$ (3 times) 108

 $\theta K_a D G_u N K_a \theta^J!$, $-\theta D!$, $G, N, \bar{\theta}!$ (3 times) 54

Mukthāyi :—

, $\theta D!$, $G N \bar{\theta}!$ $\theta K_a \theta D!$, $G N \bar{\theta}!$ $\theta K_a D G_u \theta D!$, $G N \bar{\theta}!$

} (3 times) 84

— 246

DEVELOPMENT OF THE NUMBER OF KRIYA'S & LETTERS

IN CHATURASRA GAMANA

(The base is θ , D, $\bar{\theta}$!, N!)				Letters Kriyas
θ !, -	D!, -	$\bar{\theta}$!, -	N!, -	8 2
$\theta \theta$!, -	θD !, -	$\theta \bar{\theta}$!, -	θN !,	12 3
$\theta K_a \theta$!, -	$\theta K_a D$!, -	$\theta K_a \bar{\theta}$!, -	$\theta K_a N$!,	16 4
$\theta K T \theta$!, -	$\theta K T D$!, -	$\theta K T \bar{\theta}$!, -	$\theta K T N$!,	20 5
$K T \theta K_a \theta$!, -	$K T \theta K_a D$!, -	$K T \theta K_a \bar{\theta}$!, -	$K T \theta K_a N$!,	24 6
$\theta K_a \theta K T \theta$!, -	$\theta K_a \theta K T D$!, -	$\theta K_a \theta K T \bar{\theta}$!, -	$\theta K_a \theta K T N$!,	28 7
$K T \theta R \theta K_a \theta$!, -	$K T \theta R \theta K_a D$!, -	$K T \theta R \theta K_a \bar{\theta}$!, -	$K T \theta R \theta K_a N$!,	32 8
$\theta K T \theta K_a D M \theta$!, -	$\theta K T \theta K_a D M D$!, -	$\theta K T \theta K_a D M \bar{\theta}$!, -	$\theta K T \theta K_a D M N$!,	36 9

Reduction to 8 kriyas

 $\theta K T \theta K_a \theta D N, \bar{\theta}$! $K T \theta K_a \theta D N, \bar{\theta}$! $\theta K_a \theta D N, \bar{\theta}$! $\theta D N, \bar{\theta}$! $D N, \bar{\theta}$! $\theta \parallel \bar{\theta}$!

Reduction to 4 kriyas

 $\theta K_a D N \bar{\theta}$! $K_a D N \bar{\theta}$! $\bar{D} N \bar{\theta}$! $N \parallel \bar{\theta}$!

THE CONVERGENCE OF JĀTHI FOR AVRITHA

The Converging series of Jāthi, each of its steps forming an Avritha with $\theta D G N \bar{\theta}!$ in the end

Each of the following Jāthis, when reduced step by step as shown below, makes an avritha. Each step is again a jāthi by itself. The following arrangement shows how to complete an avritha in the 5 different Jāthis in 5, 6, 7, 8, 9 Kriyas. This is very useful for musicians in Swara Kalpana. Each jāthi is marked above and necessary pauses are shown.

KHANDA JĀTHI

20 letters in 5 Kriyas

$\theta K T \theta K_a,$	6	}	20		
$K T \theta K_a,$	5				
$T \theta K_a,$	4				
$\theta K_a,$	3				
$K_a,$	2				
}					
$\theta K T \theta K_a,$	⁶	$-\theta K T \theta K_a,$	⁶	$-\theta D!, G N \bar{\theta}!$	20
$, K T \theta K_a,$	⁵	$-\ K T \theta K_a,$	⁵	$-\theta D!, G N \bar{\theta}!$	20
$, , T \theta K_a,$	⁴	$-, , T \theta K_a,$	⁴	$-\theta D!, G, N, \bar{\theta}!$	20
$, , , \theta K_a,$	³	$-, , , \theta K_a,$	³	$-\theta D G N \bar{\theta}!$	20
$, , , , \theta,$	²	$-, , , , \theta,$	²	$-\theta D!, G, N, \bar{\theta}!$	20

THRISRA JATHI

24 letters for 6 Kriyas

$\theta K T \theta K_a,$	7	}	24
$K T \theta K_a,$	6		
$T \theta K_a,$	5		
$\theta K_a,$	4		
$K_a,$	2		

θ $\overset{6}{\text{K T } \theta}$ $\overset{6}{\text{K}_a}$, , - θ $\overset{6}{\text{K T } \theta}$ $\overset{6}{\text{K}_a}$, , - θ $\overset{6}{\text{K T } \theta}$ $\overset{6}{\text{K}_a}$, , - θ $\overset{3}{\text{K T}}$	24
, $\overset{5}{\text{K T } \theta}$ $\overset{5}{\text{K}_a}$, , - $\overset{5}{\text{K T } \theta}$ $\overset{5}{\text{K}_a}$, , - $\overset{5}{\text{K T } \theta}$ $\overset{5}{\text{K}_a}$, , - θ $\overset{5}{\text{D G N } \theta}$!	24
, , $\overset{4}{\text{T } \theta}$ $\overset{4}{\text{K}_a}$, , - $\overset{4}{\text{T } \theta}$ $\overset{4}{\text{K}_a}$, , - $\overset{4}{\text{T } \theta}$ $\overset{4}{\text{K}_a}$, , - θ $\overset{6}{\text{D !, G N } \theta}$!	24
, , , $\overset{3}{\theta}$ $\overset{3}{\text{K}_a}$, , , - $\overset{3}{\theta}$ $\overset{3}{\text{K}_a}$, , , - $\overset{3}{\theta}$ $\overset{3}{\text{K}_a}$, , , - θ $\overset{7}{\text{D !, G N } \theta}$!	24
, , , , $\overset{2}{\theta}$, , , , - $\overset{2}{\theta}$, , , , - $\overset{2}{\theta}$, , , , - θ $\overset{9}{\text{D !, G, N, } \theta}$!	24

MISRA JĀTHI

28 letters for 7 kriyas

θ $\text{K T } \theta$ K_a , ;	8	}	28
$\text{K T } \theta$ K_a , ;	7		
$\text{T } \theta$ K_a , ;	6		
θ K_a , ;	5		
K_a , ;	2		

θ $\overset{6}{\text{K T } \theta}$ $\overset{6}{\text{K}_a}$, , - θ $\overset{6}{\text{K T } \theta}$ $\overset{6}{\text{K}_a}$, , - θ $\overset{6}{\text{K T } \theta}$ $\overset{6}{\text{K}_a}$, , - θ $\overset{7}{\text{D !, G N } \theta}$!	28
, $\overset{5}{\text{K T } \theta}$ $\overset{5}{\text{K}_a}$, , - $\overset{5}{\text{K T } \theta}$ $\overset{5}{\text{K}_a}$, , - $\overset{5}{\text{K T } \theta}$ $\overset{5}{\text{K}_a}$, , - θ $\overset{8}{\text{D !, G, N, } \theta}$!	28
, , $\overset{4}{\text{T } \theta}$ $\overset{4}{\text{K}_a}$, ; - $\overset{4}{\text{T } \theta}$ $\overset{4}{\text{K}_a}$, ; - $\overset{4}{\text{T } \theta}$ $\overset{4}{\text{K}_a}$, ; - θ $\overset{9}{\text{D !, G, N, } \theta}$!	28
, ; $\overset{3}{\theta}$ $\overset{3}{\text{K}_a}$, , ; - $\overset{3}{\theta}$ $\overset{3}{\text{K}_a}$, , ; - $\overset{3}{\theta}$ $\overset{3}{\text{K}_a}$, , ; - θ $\overset{10}{\text{D !, G N } \theta}$!	28
, $\overset{2}{\theta}$, ; ; - $\overset{2}{\theta}$, ; ; - $\overset{2}{\theta}$, ; ; - $\overset{2}{\theta}$, ; ; - θ $\overset{11}{\text{D G N } \theta}$!	28

CHATURASRA JĀTHI

32 letters for 8 kriyas

, , θ $\text{K T } \theta$ K_a , , ,	10	}	32
$\text{K T } \theta$ K_a , , ,	7		
$\text{T } \theta$ K_a , , ,	6		
θ K_a , , ,	5		
K_a , , ,	4		

$\theta \text{ K T } \overset{6}{\theta} \text{ K}_a, , - \theta \text{ K T } \overset{6}{\theta} \text{ K}_a, , - \theta \text{ K T } \overset{6}{\theta} \text{ K}_a, , - \theta \text{ K T } \overset{6}{\theta} \text{ K}_a, , - \theta \text{ D G N } \overline{\theta} ! \quad 32$
 $, \text{ K T } \overset{5}{\theta} \text{ K}_a, , - \text{ K T } \overset{5}{\theta} \text{ K}_a, , - \text{ K T } \overset{5}{\theta} \text{ K}_a, , - \text{ K T } \overset{5}{\theta} \text{ K}_a, , - \theta \text{ D} !, \text{ G N } \overline{\theta} ! \quad 32$
 $, , \text{ T } \overset{4}{\theta} \text{ K}_a, , - \text{ T } \overset{4}{\theta} \text{ K}_a, , - \text{ T } \overset{4}{\theta} \text{ K}_a, , - \text{ T } \overset{4}{\theta} \text{ K}_a, , , - \theta \text{ D} !, \text{ G, N, } \overline{\theta} ! \quad 32$
 $, , , \overset{3}{\theta} \text{ K}_a, , - \overset{3}{\theta} \text{ K}_a, , - \overset{3}{\theta} \text{ K}_a, , - \overset{3}{\theta} \text{ K}_a, , - \overset{3}{\theta} \text{ K}_a, , - \overset{3}{\theta} \text{ K}_a, , - \overset{3}{\theta} \text{ D} !, \text{ G N } \overline{\theta} ! \quad 32$
 $, \overset{2}{\theta}, , , , - \overset{2}{\theta}, , , , - \overset{2}{\theta}, , , , - \overset{2}{\theta}, , , , - \overset{2}{\theta}, - \theta \text{ D} !, \text{ G, N, } \overline{\theta} ! \quad 32$

SANKEERNA JĀTHI

36 letters for 9 kriyas

$\theta \text{ K T } \theta \text{ K}_a, , ,$	10	}	36
$\text{ K T } \theta \text{ K}_a, , ,$	8		
$\text{ T } \theta \text{ K}_a, , ,$	7		
$\theta \text{ K}_a, , ,$	6		
$\text{ K}_a, , ,$	5		

$\theta \text{ K T } \overset{6}{\theta} \text{ K}_a, , - \theta \text{ K T } \overset{6}{\theta} \text{ K}_a, , - \overset{6}{\theta} \text{ K T } \theta \text{ K}_a, , - \overset{6}{\theta} \text{ K T } \theta \text{ K}_a, , - \theta \text{ D} !, \text{ G, N, } \overline{\theta} ! \quad 36$
 $, \text{ K T } \overset{5}{\theta} \text{ K}_a, , , - \text{ K T } \overset{5}{\theta} \text{ K}_a, , , - \text{ K T } \overset{5}{\theta} \text{ K}_a, , , - \text{ K T } \overset{5}{\theta} \text{ K}_a, , , , - \theta \text{ D} !, \text{ G, N, } \overline{\theta} ! \quad 36$
 $, , \text{ T } \overset{4}{\theta} \text{ K}_a, , , - \text{ T } \overset{4}{\theta} \text{ K}_a, , , - \text{ T } \overset{4}{\theta} \text{ K}_a, , , - \text{ T } \overset{4}{\theta} \text{ K}_a, , , , - \theta \text{ D} !, \text{ G N } \overline{\theta} ! \quad 36$
 $, , , \overset{3}{\theta} \text{ K}_a, , , , - \overset{3}{\theta} \text{ K}_a, , , , - \overset{3}{\theta} \text{ K}_a, , , , - \overset{3}{\theta} \text{ K}_a, , , , - \overset{3}{\theta} \text{ K}_a, - \overset{6}{\theta} \text{ D} !, \text{ G N } \overline{\theta} ! \quad 36$
 $, \overset{2}{\theta}, , , , - \overset{2}{\theta}, , , , - \overset{2}{\theta}, , , , - \overset{2}{\theta}, , , , - \overset{2}{\theta}, , , , - \overset{5}{\theta} \text{ D G N } \overline{\theta} ! \quad 36$

Jāthi reduction from 7 to 1 and its ending in Ādi Thāla and Chaturasra gamana

1. Thrisra jāthi (3) $\theta \text{ K T}$

$\overset{7}{\theta}, , , - , , , \text{ K} - , , , - , , , \text{ T}, | , , , - , \overset{6}{\theta}, - , , , \text{ K} - , , , ||$
 $, \text{ T}, , - , , , \overset{5}{\theta} - , , , - \text{ K}, , , | , \text{ T}, , - , , \overset{4}{\theta}, - , , \text{ K}, - , , \text{ T}, ||$

, $\overset{3}{\theta}$, -, K, -, T, $\overset{2}{\theta}$ -, K, T, |

- Ending :— , $\overset{1}{\theta}$ K T - $\overline{\theta}$!, , θ - K T $\overline{\theta}$!, -, θ K T || $\overline{\theta}$!

2. Chaturasra jāthi. (4) K T θ K_a

$\overset{7}{K}$, , -, , , T -, , , -, , θ , | , , , -, K_a, , -, , , - $\overset{6}{K}$, , , ||

, , T, -, , , - θ , , -, , K_a, | , , , - $\overset{5}{K}$, , , -, T, -, , θ , ||

, , K_a -, , , - $\overset{4}{K}$, , -, T, , | θ , , -, K_a, , - $\overset{3}{K}$, T -, , θ , ||

, K_a, , - $\overset{2}{K}$, T, - θ , K_a, - $\overset{1}{K}$ T θ K_a |

Ending :— K T θ K_a - $\overline{\theta}$!, K T - θ K_a $\overline{\theta}$!, K T θ K_a || $\overline{\theta}$!

3. Khanda gathi (5) θ D G N $\overline{\theta}$!

$\overset{7}{\theta}$, , -, , , D -, , , -, , G, | , , , -, N, , -, , , - $\overline{\theta}$!, , , ||

, , $\overset{6}{\theta}$ -, , , -, , D, , -, , G | , , , -, N, , -, , , $\overline{\theta}$! -, , , , ||

, $\overset{5}{\theta}$, , -, , D, -, , G -, , , | N, , -, , $\overline{\theta}$!, , -, , $\overset{4}{\theta}$, -, , D, ||

, , G, -, , N, -, , $\overline{\theta}$!, -, , $\overset{3}{\theta}$, | , D, -, G, , N -, , $\overline{\theta}$!, -, , $\overset{2}{\theta}$, D ||

, G, N -, , $\overline{\theta}$!, $\overset{1}{\theta}$ - D G N $\overline{\theta}$! -

Ending :— , θ K_a θ | K T $\overline{\theta}$!, - θ K_a θ K - T $\overline{\theta}$!, θ - K_a θ K T || $\overline{\theta}$!

Note :— Each jāthi is to be reduced in its duration as shown above, with the pauses from 7 to 1 and the ending is to be given by repeating the jāthi three times.

In each case, the number of Avrithas so formed is equal to the number of the letters in the jāthi.

ENDINGS. (Mugimpu)

1. Endings for 4 Kriyas

1. , θ K_a!, θ , , - θ K_a!, θ , , - θ K_a!, || θ

2. , θ K T - θ K T - θ K T - θ K T - θ D N || $\overline{\theta}$!

3. , θ DN $\bar{\theta}$!, , - θ DN $\bar{\theta}$!, , - θ DN $\parallel \bar{\theta}$!
4. θ K_a DN $\bar{\theta}$!, - θ K_a DN $\bar{\theta}$!, - θ K_a DN θ K_a DN $\parallel \bar{\theta}$!
5. , θ L!, G_u $\bar{\theta}$!, θ , , - θ L!, G_u $\bar{\theta}$!, θ , , - θ L!, G_u $\bar{\theta}$!, $\parallel \theta$
6. , D!, D N, D!, KT - N K_a D!, D N, D!, KT - N K_a D!, D N, $\parallel \bar{\theta}$!
7. , , , θ $\bar{\theta}$!, - θ $\bar{\theta}$!, - θ $\bar{\theta}$!, θ $\parallel \bar{\theta}$!
8. N K_a DN K_u - DMN K_a DN K_u - DMN K_a DN K_u - DMN K_a DN K_u - D $\parallel \theta$!
9. , , , J!, θ K_T θ K_a - J!, θ K_T θ K_a - J!, θ K_T θ K_a - J!, $\parallel \theta$
10. , θ L!, G_u $\bar{\theta}$!, θ , KT θ R - θ L!, G_u $\bar{\theta}$!, θ , KT θ R - θ L!, G_u $\bar{\theta}$!, $\parallel \theta$
11. , θ L!, G_u $\bar{\theta}$!, θ DN - θ L!, G_u $\bar{\theta}$!, θ DN - θ L!, G_u $\bar{\theta}$!, $\parallel \theta$
12. , θ , - D N!, K_u θ K T θ R - θ K_a D N!, K_u - θ K T θ R -
 θ K_a DN!, K_u $\parallel \bar{\theta}$!
13. G_u!, TT, K_u - G_u!, TT, K_u - G_u!, TT, K_u - DNDNDNDN, K_u D!, DN $\parallel \bar{\theta}$!
14. N K_a DN, K_u θ $\bar{\theta}$!, , - θ K_a N K_a DN, K_u θ $\bar{\theta}$!, , - θ K_a DG_u NK, DN, K_u $\parallel \bar{\theta}$!

2. Endings for 8 Kriyas

1. , , DNK_uDNK_uDN $\bar{\theta}$!, - θ DNK_uDNK_uDN $\bar{\theta}$!, - θ DNK_uDNK_uDN $\parallel \bar{\theta}$!
2. , , J!, θ , K_u J!, θ ; ; , J!, θ , K_u J!, θ ; ; , - J!, θ , K_u J!, $\parallel \theta$
3. J!, J!, θ , K_u J!, θ ; , - J!, J!, θ , K_u J!, θ ; , - J!, J!, θ , K_u J!, $\parallel \theta$
4. , , J! θ K_u K_u J!, θ ; , - θ RKTJ! θ K_u K_u J!, θ , - θ RKTKT θ K_a
J! θ K_u K_u J!, $\parallel \theta$
5. J! θ K_u J!, θ , K_u J! θ , - θ RKTJ! θ K_u J!, θ , K_u J! θ , -
KT θ K θ RKT J! θ K_u J!, θ , K_u J! $\parallel \theta$

6. , , $\theta L!$, $G_u \bar{\theta}!$, $\theta D N \bar{\theta}!$, - $K T \theta R$ $\theta L!$, $G_u \bar{\theta}!$, $\theta D N \bar{\theta}!$, - $K T \theta R K T \theta R$
 $\theta L!$, $G_u \bar{\theta}!$, $\theta D N \parallel \bar{\theta}!$
7. $\theta K_a D N \theta K_a D N \bar{\theta}!$, ; - $\theta K_a D N \theta K_a D N \bar{\theta}!$ - $\theta K_a D N \overset{G3}{\theta K_a D N} \parallel \bar{\theta}!$
8. $\theta!$, , $\theta \theta K_a D N \bar{\theta}!$, ; - $\theta!$, , $\theta \theta K_a D N \bar{\theta}!$ - $\theta!$, , $\overset{G3}{\theta \theta K_a D N} \parallel \bar{\theta}!$
9. $\theta!$, , $\overset{G3}{\theta \theta K_a D N} \bar{\theta}!$, ; - $\theta!$, , $\overset{G3}{\theta \theta K_a D N} \bar{\theta}!$ - $\theta!$, , $\overset{G4}{\theta \theta K_a D N} \parallel \bar{\theta}!$
10. $\theta K_a \theta K T \theta K_a \theta K_a D N \bar{\theta}!$, ; - $\theta K_a \theta K T \theta K_a \theta K_a D N \bar{\theta}!$, -
 $\theta K_a D N \bar{\theta}!$, - $\theta K_a D N \bar{\theta}!$, - $\theta K_a D N \parallel \bar{\theta}!$

Note :— The whole of the above is of Thrisragamana

11. , , , θ , K , T , $\bar{\theta}!$, ; ; - $\theta K T \theta K T \bar{\theta}!$, ; ; - $\theta K T \theta K T \theta K T \parallel \bar{\theta}!$
12. , θ , K_a , D , N , $\bar{\theta}!$, ; - $\theta K_a D N \theta K_a D N \bar{\theta}!$, ; , - $\theta K_a D N$ - $\theta K_a D N$ - $\theta K_a D N \parallel \bar{\theta}!$
13. $\theta K_u!$, - $\theta \theta K_u!$, - $\theta \theta \theta K_u!$, - $\theta!$, K_a , D , N , $\bar{\theta}!$, - $\theta K_a D N \bar{\theta}!$, - $\theta K_a D N \parallel \bar{\theta}!$
14. ; ; ; $\overset{m m}{J}!$; ; $\overset{m m}{\theta} \overset{m m}{\theta}$, $\overset{1}{K_u} - J!$; ; $\theta \theta$, $K_u - J!$; ; $\theta \theta$, $K_u - \overset{m m}{J}!$, $\overset{c}{\parallel \theta}$

3. Khanda gamana Endings for Thrisra jāthi Roopaka Thāla

1. , $\theta K_u!$, θ , , - $\theta K_u!$, $\parallel \theta$
2. , $\theta K T$ - $\theta K T$ - $\theta K T \parallel \theta$
3. , $D \theta!$, - $D \theta!$, - $D \parallel \theta!$,
4. , θ , $\theta!$, - $K T \theta K_a$ - θ , $\theta!$, - $K T \theta K_a$ $\theta \parallel \theta!$,
5. $J!$, $J!$ $\theta K_u J!$ θ , $K_u J!$ $\parallel \theta$
6. $D N!$, $K_u - D N!$, $K_u - D D N!$, $K_u - D!$, $D N$, $\parallel \bar{\theta}!$

7. , KTθR - KTθR - D DN!, K_u - D!, DN, || θ!

8. θ L!, , KTθK_aθRKT - D DN!, K_u - D!, DN, || θ!

4. Ending for Chathurasra jāthi Roopaka Thāla

1. DN, DN, DN, θ DN || θ!

2. θ!, , θ!, , θ!, , θ DN || θ!

3. θ KT θ KT θ KT θ DN || θ!

4. θ KT KT θ K_a - θ K_a θ R KT θ K_n - θ L θ L!, G_a θ!, || θ

5. θ KT θ K_a - θ KT θ K_a - θ KT θ K_a - θ DN || θ!

6. θ D θ L!, G_a θ!,

D θ L!, G_n θ!,

θ L!, G_a θ!, || θ

7. θ R KT θ!,

θ K_a θ R KT θ!,

θ K_a D G_a θ R KT θ!, || θ

8. , , J!, θ KT θ K_a - J!, θ KT θ K_a - J! || θ

9. θ!, K_u θ!, K_u - J!, K_u θ!, K_u ||

θ!, K_u J!, K_u - θ!, K_u - θ DN || θ!

5. Endings for Thrisra jāthi Thriputa Thāla

1. , θ K_u!, θ, - θ K_u!, θ, - θ K_u!, || θ

2. , θ, θ!, - θ, θ!, - θ, θ!, - θ || θ!

3. , D θ!, KT θ K_a - D θ!, KT θ K_a - D θ!, KT θ K_a - D || θ!,

Kriyas

7

7

7

4. , $\theta L!$, $G_u \bar{\theta}!$, θ , - $\theta L!$, $G_u \bar{\theta}!$, θ , - $\theta L!$, $G_u \bar{\theta}!$, || θ 7
5. , $D N, K T D!$; - $D N, K T D!$; - $D N, K T$ || $D!$ 7
6. , , $\theta K T \theta K_a$ $\theta R K T \theta K_a$ - $\theta L!$, $G_u \bar{\theta}!$, - $\theta L!$, $G_u \bar{\theta}!$, || θ 7
1. $\theta \theta K_u D N K_u D N \bar{\theta}!$, - $\theta \theta K_u D N K_u D N \bar{\theta}!$, - $\theta \theta K_u D N K_u D N$ || $\bar{\theta}!$ 14
2. $\theta!$, , $\theta \theta K_u D N \bar{\theta}!$; - $\theta!$, , $\theta \theta K_u D N \bar{\theta}!$; - $\theta!$, , $\theta \theta K_u D N$ || $\bar{\theta}!$ 14
3. $\theta \theta J!$, - $\theta \theta J!$, - $\theta \theta J!$, - $\theta \theta J!$, - $\theta \theta J!$, - $\theta \theta$ || $J!$ 14

6. (a) Endings for the 5 Jathis

Method I

Jāthi	Series of Jāthi	Letters	Kriyas
Khanda.	$\theta K_u!$, $\theta D G N \bar{\theta}! \theta$; ; - $\theta \theta K_u!$, $\theta D G N \bar{\theta}! \theta$; ; - $\theta \theta \theta K_u!$, $\theta D G N \bar{\theta}!$ θ	40	10
Thrisra.	$\theta K_u!$, $\theta D!$, $G N \bar{\theta}! \theta$; ; , - $\theta \theta K_u!$, $\theta D!$, $G N \bar{\theta}! \theta$; ; , - $\theta \theta \theta K_u!$, $\theta D!$, $G N \bar{\theta}!$ θ	45	11½
Misra.	$\theta K_u!$, $\theta D!$, $G N \bar{\theta}! \theta$; ; ; - $\theta \theta K_u!$, $\theta D!$, $G N \bar{\theta}! \theta$; ; ; - $\theta \theta \theta K_u!$, $\theta D!$, $G N \bar{\theta}!$ θ	50	12½
Chathurasra.	$\theta K_u!$, $\theta D!$, $G, N, \bar{\theta}! \theta$; ; ; , - $\theta \theta K_u!$, $\theta D!$, $G, N, \bar{\theta}! \theta$; ; ; , - $\theta \theta \theta K_u!$, $\theta D!$, $G, N, \bar{\theta}!$ θ	55	13¾
Sankeerna.	$\theta K_u!$, $\theta D!$, $G, N, \bar{\theta}! \theta$; ; ; ; - $\theta \theta K_u!$, $\theta D!$, $G, N, \bar{\theta}! \theta$; ; ; ; - $\theta \theta \theta K_u!$, $\theta D!$, $G, N, \bar{\theta}!$ θ	60	15

(b) Method II.

Khanda.	$\theta K_u!$, $\theta D G N \bar{\theta}! \theta$; ; - $\theta \theta K_u!$, $\theta D G N \bar{\theta}! \theta$; ; - $\theta \theta K_u!$, - $\theta \theta K_u!$, - $\theta D G N \bar{\theta}!$ θ	43	10¾
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Thrisra.	$\theta K_u!, \theta D!, G N \bar{\theta}! \theta; ;, -\theta \theta K_u!, \theta D!, G N \bar{\theta}! \theta; ;,$		
	$-\theta \theta K_u!, -\theta \theta K_u!, -\theta D!, G N \bar{\theta}! \parallel \theta$	48	12
Misra.	$\theta K_u!, \theta D!, G N \bar{\theta}! \theta; ;, -\theta \theta K_u!, \theta D!, G N \bar{\theta}! \theta; ;,$		
	$-\theta \theta K_u!, -\theta \theta K_u!, -\theta D!, G N \bar{\theta}! \parallel \theta$	53	13½
Chaturasra.	$\theta K_u!, \theta D!, G, N, \bar{\theta}! \theta; ;, -\theta \theta K_u!, \theta, D!, G, N, \bar{\theta}! \theta; ;,$		
	$-\theta \theta K_u!, -\theta \theta K_u!, -\theta D!, G, N, \bar{\theta}! \parallel \theta$	58	14½
Sankeerna.	$\theta K_u!, \theta D!, G, N, \bar{\theta}! \theta; ;, -\theta \theta K_u!, \theta D!, G, N, \bar{\theta}! \theta; ;,$		
	$-\theta \theta K_u!, -\theta \theta K_u!, -\theta D!, G, N, \bar{\theta}! \parallel \theta$	63	15¾

MOHARAS

1. Ādi Thāla Moharās

1. $\bar{\theta}!, \theta \underline{K T \theta K_a} - \theta \underline{R K T \theta K_a} - \theta K_u! \theta \underline{K T \theta K_a} - \theta \underline{R K T \theta K_a} |$
 $\bar{\theta}!, \theta \underline{K T \theta K_a} - \theta \underline{R K T \theta K_a} - \theta \bar{\theta}!, \theta K_a D N \bar{\theta}!, \parallel (2 \text{ times}) \parallel$
 $\bar{\theta}!, \theta \underline{K T \theta K_a} - \theta \underline{R K T \theta K_a} - \theta K_u! \theta \underline{K T \theta K_a} - \theta \underline{R K T \theta K_a} |$
 $\bar{\theta}!, \theta \underline{K T \theta K_a} - \theta \underline{R K T \theta K_a} - \theta K_a D N \bar{\theta}!, ;$
 $\theta K_u! \theta \underline{K T \theta K_a} - \theta \underline{R K T \theta K_a} - \theta K_a D N \bar{\theta}!, ;$
 $\theta K_u! \theta \underline{K T \theta K_a} - \theta \underline{R K T \theta K_a} |$
 $\theta K_a \theta \underline{R K T \theta K_a} - \theta \underline{K T \theta K_a} \theta \underline{R K T \theta K_a} - \theta \underline{K T \theta K_a} \theta \underline{R K T \theta K_a} \parallel$
2. $\theta K_a D N \theta!, \underline{K T} - \theta K_a \theta \underline{R K T \theta K_a} - \theta \underline{K T \theta K_a} \theta \underline{K T \theta K_a} - \underline{K T \theta K_a} |$
 $\theta K_a D N \theta!, \underline{K T} - \theta K_a \theta \underline{R K T \theta K_a} - \theta K_a D N \bar{\theta}!, ; - \theta K_a D N \bar{\theta}!, ; \parallel$

(2 times) \parallel

 $\theta K_a D N \theta!, \underline{K T} - \theta K_a \theta \underline{R K T \theta K_a} - \theta \underline{K T \theta K_a} - \theta \underline{K T \theta K_a} - \underline{K T \theta K_a} |$

$\theta K_a D N \theta!$, $K T - \theta K_a \theta R K T \theta K_a - \theta K_a D N \theta!$; $-\theta K_a D N \theta!$, $K T$ ||

$\theta K_a \theta R K T \theta K_a - \theta K_a D N \theta!$; $-\theta K_a D N \theta!$, $K T - \theta K_a \theta R K T \theta K_a$ |

$\theta K_a \theta R K T \theta K_a - \theta K T \theta K_a \theta R K T \theta K_a - \theta K T \theta K_a \theta R K T \theta K_a$ ||

3. $D N!$, $K T \theta K_a \theta R K T \theta K_a$ $\theta L \theta L \theta L!$, $K T \theta K_a$

$\theta K_a \theta R K T \theta K_a$ $\theta, | D N!$, $K T \theta K_a \theta R K T \theta K_a$

$D N!$, $K T \theta K_a$ $D N!$, $K T \theta K_a$ || (2 times) ||

$D N!$, $K T - \theta K_a \theta R K T \theta K_a$

$\theta L \theta L \theta L!$; $K T \theta K_a$ $\theta K_a \theta R K T \theta K_a$

$\theta, | D N!$, $K T$ $\theta K_a \theta R K T \theta K_a - D N \theta \theta!$;

, $D N!$, $K T$ || $\theta K_a \theta R K T \theta K_a$ $D N \theta \theta!$,

, $D N!$, $K T$ $\theta K_a \theta R K T \theta K_a$ |

$\theta K_a \theta R K T \theta K_a - \theta K T \theta K_a \theta R K T \theta K_a - \theta K T \theta K_a \theta R K T \theta K_a$ ||

4. , $D N!$, $K T - \theta K_a \theta R K T \theta K_a - \theta K T \theta K_a \theta K T \theta K_a$ $K T \theta K_a$ |

$\theta, D N!$, $K T - \theta K_a \theta R K T \theta K_a$ $\theta K T \theta K_a J!$, $\theta K T \theta K_a J!$, || (2 times) ||

, $D N!$, $K T - \theta K_a \theta R K T \theta K_a - \theta K T \theta K_a - \theta K T \theta K_a - K T \theta K_a$ |

$\theta, D N!$, $K T - \theta K_a \theta R K T \theta K_a - \theta K T \theta K_a J!$,

, $D N!$, $K T$ || $\theta K_a \theta R K T \theta K_a - \theta K T \theta K_a J!$,

, $D, N!$, $K T$ $\theta K_a \theta R K T \theta K_a$ |

$\theta K_a \theta R K T \theta K_a$ $\theta K T \theta K_a \theta R K T \theta K_a - \theta K T \theta K_a \theta R K T \theta K_a$ ||

5.

N, D_a R K T K T D N, ;D N, D_a R K T K T D N, ;θ | D N, D_a R K T K T D N, ; - θ L!, G_u D N D N D! ; || (2 times) ||N, D_a R K T K T D N, ;D N, D_a R K T K T D N, ;θ | D N, D_a R K T K T D N, ; - θ L!, G_u θ̄!,θ D N, D_a R || K T K T D N, - θ L!, G_u θ̄!,θ D N, D_a R K T K T D N, - θ L!, G_u D N θ̄!,θ L!, G_u D N θ̄!,θ L!, G_u D N || θ̄!6. θ L!, G_u D N, , θ R θ R K T - θ G_u!, θ R K T - θ K_a θ R K T θ K_a |θ L!, G_u D N, , θ R θ R K T θ L!, G_u D N D N θ̄!, || (2 times) ||θ L!, G_u D N, , θ R θ R K T - θ G_u!, θ R K T - θ K_a θ R K T θ K_a |θ L!, G_u D N, , θ R θ R K T θ L!, G_u θ̄!,θ L!, G_u D N, ||, θ R θ R K T θ L!, G_u θ̄!,θ L!, G_u D N, , θ R θ R K T | θ L!, G_u D N θ̄!,θ L!, G_u D N θ̄!,θ L!, G_u D N || θ̄!

2. Thrisra jāthi Thriputa Thāla Moharas

1. θ D θ!, K T θ K_a θ R | K T θ K_a θ̄!;

D θ!, K T θ K_a || θ R K T θ K_a θ̄!;

θ!, | K T θ K_a θ R K T θ K_a θ̄!;

θ R || K T θ K_a θ̄!; - θ R K T | θ K_a θ̄!; - θ R K T θ K_a θ̄!; ||

θ K_a θ R K T θ K_a θ L!, G_u | D N θ̄!,

θ K_a θ R K T θ K_a || θ L!, G_u D N θ̄!, |

θ K_a θ R K T θ K_a θ L!, G_u D N ||

θ L!, G_u D N θ̄!

θ L!, G_u D N θ̄!

θ L!, G_u D N || θ̄!

2. N, θ R K T K T D N, | , N, θ R K T K T D N, , ||

N, θ R K T K T D N, | θ L!, G_u D N D N θ̄!, || (2 times) ||

N, θ R K T K T D N, | , N, θ R K T K T D N, , ||

N, θ R K T K T D N, | θ L!, G_u θ̄!,

N, θ R K T K T || D N θ L!, G_u θ̄!, |

N, θ R K T K T D N θ L!, G_u || D N θ̄!,

θ L!, G_u D N θ̄!,

θ L!, G_u D N || θ̄!

3. $\theta K_a \theta L!$, $K T \theta K_a \bar{\theta}!$, $|\theta K T \theta K_a - \theta K T \theta K_a - K T \theta K_a ||$

$\theta K_a \theta L!$, $K T \theta K_a \bar{\theta}!$, $|\theta K T \theta K_a J! - \theta K T \theta K_a J! ||$ (2 times)

$\theta K_a \theta L!$, $K T \theta K_a \bar{\theta}!$, $|\theta K T \theta K_a - \theta K T \theta K_a - K T \theta K_a ||$

$\theta K_a \theta L!$, $K T \theta K_a \bar{\theta}!$, $|\theta K_a D N \theta!$,

$\theta K_a \theta L!$, $K T \theta K_a \bar{\theta}!$, $\theta K_a D N \bar{\theta}!$,

$\theta K_a \theta L!$, $K T \theta K_a \bar{\theta}!$, $\theta \parallel D N \theta K T \theta K_a$

$\theta \parallel D N \theta K T \theta K_a$

$\theta D N \parallel \bar{\theta}!$

3. Roopaka Thāla Moharas

1. $\theta \theta!$, $-\theta R K T \theta!$, $K T - \theta K_a \theta R K T \theta K_a \parallel$

$K T \theta K_a \theta!$, $-\theta R K T \theta!$, $K T - \theta K_a \theta R K T \theta K_a \parallel$

$\theta \theta!$, $-\theta R K T \theta!$, $K T - \theta K_a \theta R K T \theta K_a \parallel$

$\theta \theta!$, $-\theta L!$, $G_u D N D N \bar{\theta}! \parallel$

} (2 times)

Repeat the first three Avrithas and add :—

$\theta \theta!$, $-\theta R K T \theta!$, $K T - \theta L!$, $G_u \bar{\theta}!$,

$K T \theta K_a \theta!$, $K T - \theta K_a \theta R K T \theta K_a - \theta L!$, $G_u \theta!$,

$K T \theta K_a \theta!$, $K T - \theta K_a \theta R K T \theta K_a -$

$\theta L!$, $G_u D N \parallel \bar{\theta}!$.

$\theta L!$, $G_u D N \bar{\theta}!$,

$\theta L!$, $G_u D N \parallel \bar{\theta}!$

2. D, θ L!, G_u N K_a D!, , θ R θ R K T θ G_u !, || θ R K T - θ K_a θ R K T θ K_a
 θ D θ L!, G_u N K_a D!, || , θ R θ R K T - θ L!, G_u - D \overline{N} D N $\overline{\theta}$!, || (2 times)
D, θ L!, G_u N K_a D!, , θ R θ R K T - θ G_u !, || θ R K T - θ K_a θ R K T θ K_a
 θ D θ L!, G_u N K_a D!, | , θ R θ R K T θ L!, G_u $\overline{\theta}$!,
 θ D θ L!, G_u || N K_a D!, , θ R θ R K T θ L!, G_u $\overline{\theta}$!,
 θ D || θ L!, G_u N K_a D!, , θ R θ R K T
 θ L!, G_u D N || θ !,
 θ L!, G_u D N $\overline{\theta}$!,
 θ L!, G_u D N || $\overline{\theta}$!

MOHARA MUKTHĀYI

1. Ādi Thāla

Chaturasra Gamana Mohāra Mukthāyi

(Chouka in 2 Kalas)

- , D N!, K T - θ K_a θ R K T θ K_a - θ K T θ K_a - θ K T θ K_a - K T θ K_a
 θ , D N!, K T - θ K_a θ R K T θ K_a - θ K T θ K_a J!, - θ K T θ K_a J!, | (2 times) ||
, D N!, K T - θ K_a θ R K T θ K_a - θ K T θ K_a - θ K T θ K_a - K T θ K_a
 θ , D N!, K T - θ K_a θ R K T θ K_a - θ K T θ K_a J!,
D N!, K T - | θ K_a θ R K T θ K_a - θ K T θ K_a J!,

 θ K_a D N $\overline{\theta}$! ; ; θ K_a D N $\overline{\theta}$! ; ; θ K_a D N ||

Mukthāyi:— θ D!, G, N, $\bar{\theta}$! - θ D!, G, N, $\bar{\theta}$! - θ D!, G, N, $\bar{\theta}$!

I Kāla:— θ , , , D!, ; ; ; G, ; ; ; N, ; ; ; $\bar{\theta}$!, , ,	}
II Kāla:— θ , D!, ; G, ; N, ; $\bar{\theta}$!,	
III Kāla:— θ D!, G, N, $\bar{\theta}$!	
3:— θ , , D!, ; ; ; G, ; ; ; N, ; ; ; $\bar{\theta}$!, ,	
2:— θ , D!, ; G, ; N, ; $\bar{\theta}$!,	
1:— θ D!, G, N, $\bar{\theta}$!	

2. Ādi Thāla

Thrisra Gamana Mohara Mukthāyi
(Chouka in 3 Kalas)

θ θ !, θ R K T θ !, K T - θ K_a θ R K T θ K_a

K T θ K_a θ !, θ R K T θ !, K T - θ K_a θ R K T θ K_a

θ θ !, θ R K T θ !, K T - θ K_a θ R K T θ K_a

θ θ !, θ L!, G_u D N D N $\bar{\theta}$!, | (2 times) ||

θ θ !, θ R K T θ !, K T - θ K_a θ R K T θ K_a

K T θ K_a θ !, θ R K T θ !, K T - θ K_a θ R K T θ K_a

θ θ !, θ R K T θ !, K T - θ K_a θ R K T θ K_a θ L!, G_u $\bar{\theta}$!,

K T θ K_a θ !, θ R K T θ !, K T | θ K_a θ R K T θ K_a θ L!, G_u $\bar{\theta}$!,

K T θ K_a θ !, θ K_a θ R K T θ K_a θ L!, G_u θ L!, G_u

θ K_a D N $\bar{\theta}$!, ; ; ;

θ K_a D N $\bar{\theta}$!, ; ; ;

θ K_a D N ||

Mukthāyi:— $\theta D!, G N \bar{\theta}! - \theta D!, G N \bar{\theta}! - \theta D!, G N \bar{\theta}!$

I Kāla:— $\theta, , , D!, ; ; ; G, , , N, , , \bar{\theta}!, , ,$
 II Kāla:— $\theta, D!, ; G, N, \bar{\theta}!,$
 III Kāla:— $\theta D!, G N \bar{\theta}!$

3:— $\theta, , D!, ; ; G, , N, , \bar{\theta}!, ,$
 2:— $\theta, D!, ; G, N, \bar{\theta}!,$
 1:— $\theta D!, G N \bar{\theta}! ||$

3. Ādi Thāla

Misra Gamana Mohara Mukthāyi

$\theta!, K T \theta K_a \theta R K T \theta K_a - \theta G_u!, \theta R K T \theta K_a \theta R K T \theta K_a -$
 $\theta!, K T \theta K_a \theta R K T \theta K_a - \theta L!, G_u - D N D N \theta!, (2 \text{ times}) |$
 $\theta!, K T \theta K_a \theta R K T \theta K_a - \theta G_u!, \theta R K T - \theta K_a \theta R K T \theta K_a -$
 $\theta!, K T \theta K_a \theta R K T \theta K_a - \theta L!, G_u \bar{\theta}! \theta L!, G_u \bar{\theta}!$

$\theta K_a D N \bar{\theta}!, ; ; ; ,$

$\theta K_a D N \bar{\theta}!, ; ; ; ,$

$\theta K_a D N ||$

Mukthāyi:— $\theta D!, G N \bar{\theta}! - \theta D!, G N \bar{\theta}! - \theta D!, G N \bar{\theta}!$

I Kāla:— $\theta, ; ; ; D!, ; ; ; G, , , N, , , \bar{\theta}!, , ,$
 II Kāla:— $\theta, ; D!, ; G, N, \bar{\theta}!,$
 III Kāla:— $\theta, D!, G N \bar{\theta}!$

3:— $\theta, ; ; D!, ; ; G, , N, , \bar{\theta}!, ,$
 2:— $\theta, , , D!, , , G, N, \bar{\theta}!,$
 1:— $\theta, D!, G N \bar{\theta}! ||$

4. Ādi Thāla

Khanda Gamana Mohara Mukthāyi

N, Da R K T K T D! θ θ!,

θ R θ R K T θ Gu!, θ R K T θ Ka θ R K T θ Ka

D N, θ R K T K T D! θ θ!,

θ R θ R K T θ L!, Gu D N D N θ!, | (2 times)

N, Da R K T K T D! θ θ!,

θ R θ R K T θ Gu!, θ R K T θ Ka θ R K T θ Ka

D N, θ R K T K T D! Da θ!, θ R θ R K T θ L!, Gu θ̄!,

D N, θ R K T | K T D! Da θ!, θ R θ R K T θ L!, Gu θ̄!, θ L!, Gu θ̄!,

θ Ka D N θ̄!, ; ; ,

θ Ka D N θ̄!, ; ; ,

θ Ka D N ||

Mukthāyi :— θ D G N θ̄! - θ D G N θ̄! - θ D G N θ̄!

I Kāla :— θ, , D, , G, , N, , θ̄!, , ,
 II Kāla :— θ, D, G |. N, θ̄!,
 III Kāla :— θ D G N θ̄!

3 :— θ, , D, , G, , N, , θ̄!, ,
 2 :— θ, D, G, N, θ̄!,
 1 :— θ D G N θ̄! ||

5. Ādi Thāla

Sankeerna Gamana Mohara Mukthāyi

1

θ L θ L!, θ K_a θ R K T θ K_aθ θ θ L!, θ K_a θ R K T θ K_aθ θ θ θ L!, θ K_a θ R K T θ K_a θ θ θ L!, G_a θ L!, G_u D N D N θ!, (2 times) |θ L θ L!, θ K_a θ R K T θ K_aθ θ θ L!, θ K_a θ R K T θ K_aθ θ θ θ L!, θ K_a θ R K T θ K_aθ θ θ θ L!, θ θ θ L!, θ L θ L!, θ L!,θ K_a D N θ̄!, ; ; ; ;, θ K_a D N θ̄!, ; ; ; ;, θ K_a D N || θ̄!2. , D N!, K T - θ K_a θ R K T θ K_a - θ K T θ K_a - θ K T θ K_a - K T θ K_a θ R K T |θ D N!, K T - θ K_a θ R K T θ K_a - θ θ K T θ K_a J!, - θ θ K T θ K_a J!, (2 times)-, D N!, K T - θ K_a θ R K T θ K_a - θ K T θ K_a - θ K T θ K_a - K T θ K_a θ R K Tθ D N!, K T - θ K_a θ R K T θ K_a - θ θ K T θ K_a J!,θ θ K T θ K_a J!, , θ K_a D N θ̄!, ; ; ; ;,θ K_a D N θ̄!, ; ; ; ;, θ K_a D N ||

Mukthāyi :- θ D!, G, N, θ̄! - θ D!, G, N, θ̄! - θ D!, G, N, θ̄!

I Kāla :- θ, ; ; ; D!, ; ; ; G, ; ; ; N, ; ; ; θ̄!, ;

II Kāla :- θ, , , D!, , , G, , , N, , , θ̄!,

III Kāla :- θ, D!, G, N, θ̄!

3 :- θ, ; ; D!, ; ; G, ; ; N, ; ; θ̄!, ,

2 :- θ, , , D!, , , G, , , N, , , θ̄!,

1 :- θ, D!, G, N, θ̄! ||

Chapter IV

MUKTHĀYI

Mukthāyi is the play of a jāthi repeated three times. This is to be played just before the beginning of the Pallavi from its second commencement. The initial pause, if any, in a pallavi should be absorbed in the mukthāyi.

Where to begin the mukthāyi :—

Suppose $\theta \text{ D G N } \overline{\theta}$ in chosen for mukthāyi. Three times the number of letters in that jāthi gives the number of letters in the mukthāyi. $3 \times 5 = 15$. When the number of letters in the mukthāyi is divided by the number of letters in a kriya, the number of kriyas is arrived at. Considering the kriya as chaturasra kriya, i.e. a kriya having 4 aksharakālas (units of time in letters with short vowels), the number of such kriyas = $15 \div 4 = 3\frac{3}{4}$. Thus the mukthāyi has the duration of $3\frac{3}{4}$ chaturasra kriyas. Let us take Ādi Thāla having chaturasra kriyas without initial pause. This thāla has 8 kriyas. When $3\frac{3}{4}$ is subtracted from 8, $4\frac{1}{4}$ is obtained. So the mukthāyi should begin at the point after $4\frac{1}{4}$ kriyas.

Eg: ; ; - ; ; - ; ; - ; ; | , $\theta \text{ D G } - \text{N } \overline{\theta}$ | $\theta \text{ D } | \text{G N } \overline{\theta}$ | $\theta - \text{D G N } \overline{\theta}$ ||

===== If there is an initial pause, which is generally met with, the number of letters in the pause must first be subtracted from the mukthāyi letters and then the above calculation is to be made to spot out the beginning of the mukthāyi.

It is customary in this section to reckon

- I Kāla as having 1 letter (of the jāthi) per kriya,
- II Kāla as having 2 letters per kriya, (II Kāla is also spoken of as madhyama Kāla)
- III Kāla as having 4 letters per kriya.

Eg — $\theta \text{ D G N } \overline{\theta}$ - in the 3 kālas (Chaturasra Kriyas)

- I Kāla :— $\theta, , , | \text{D}, , , | \text{G}, , , | \text{N}, , , | \overline{\theta}, , , \dots \dots \dots$
- II Kāla :— $\theta, \text{D}, | \text{G}, \text{N}, | \overline{\theta}, \theta, | \text{D}, \text{G}, | \text{N}, \overline{\theta}, \dots \dots \dots$
- III Kāla :— $\theta \text{ D G N } \overline{\theta} | \theta \text{ D G } | \text{N } \overline{\theta} | \theta \text{ D } | \dots \dots \dots$

The present chapter contains many kinds of mukthāyis in jāthi and gamana (gathi) variations. The tables are 64 in number and each table gives the respective calculations to guide the framing of the mukthāyis.

A detailed explanation of the form of the mukthāyi pertaining to each table is given under that table. Besides, an example of the mukthāyidesign is also given in the mridanga notation. This example expects the individual framing of the remaining mukthāyis in that table.

The design under each table is given in Kriyas. So any of these mukthāyis can be adjusted to any thāla, keeping in view the particular number of kriyas so that they occupy the rear part of the Avritha.

The mukthāyi calculations are of utmost need and importance for the principal musician as well as those that accompany him. Mukthāyi plays an essential and inevitable part in Nritya (Dance).

Jāthi and Gamana :— This is to be well distinguished. Jāthi is the vocal expression of a series of sounds or letters in groups of 4, 3, 7, 5 or 9. Gamana which means movement, is the rate of progress of the letters per kriya. It is also of five kinds :— 1. Chaturasra, Thrisra, Misra, Khanda and Sankeerna. For example, a kriya in khanda gamana has five letters.

TABLE 1
Number of kriyas and letters in the Mukthāyi in five Jāthis
with variation in Gathi.

The form of Jāthi	No. of letters in the Jāthi	No. of letters in Mukthāyi	g ₁		g ₃		g ₇		g ₅		g ₉	
			Kr	L	Kr	L	Kr	L	Kr	L	Kr	L
θ D G N θ!	5	15	3	3	5	—	2	1	3	—	1	6
θ D!, G N θ!	6	18	4	2	6	—	2	4	3	3	2	—
θ D!, G N θ!	7	21	5	1	7	—	3	—	4	1	2	3
θ D!, G, N, θ!	8	24	6	—	8	—	3	3	4	4	2	6
θ D!, G, N, θ!	9	27	6	3	9	—	3	6	5	2	3	—

g₁ :— Chaturasra Gathi.

g₃ :— Thrisra Gathi.

g₇ :— Misra Gathi.

g₅ :— Khanda Gathi.

g₉ :— Sankeerna Gathi.

Kr :— Kriyas.

L :— Letters (Aksharas)

Gathi and Gamana are the same.

Mukthāyi is explained in the introduction.

Eg.— 1, θ D G | N θ! — θ D | G N θ! — θ | D G N θ! ||

TABLE 2
Mukthāyi in II and III Kāla Gamanas
of Jāthi.

The form of Jāthi	No. of letters	No. of letters in Mukthāyi	g ₁		g ₃		g ₇		g ₅		g ₉	
			Kr	L	Kr	L	Kr	L	Kr	L	Kr	L
θ D G N θ̄!	5	15	3	3	5	—	2	1	3	—	1	6
θ D!, G N θ̄!	6	18	4	2	6	—	2	4	3	3	2	—
θ D!, G N θ̄!	7	21	5	1	7	—	3	—	4	1	2	3
θ D!, G, N, θ̄!	8	24	6	—	8	—	3	3	4	4	2	6
θ D!, G, N, θ̄!	9	27	6	3	9	—	3	6	5	2	3	—

In the above table the forms of the five jāthis, the number of aksharas (letters) in each jāthi, the total number of letters in the mukthāyi and the number of kriyas and aksharas (letters) in each of the five gamanas are given.

In the same duration of the mukthāyi, each of the five jāthis can be played in the following way :—

First, the jāthi must be played once in the II Kāla (2 letters per kriya) and the same in the III Kāla (4 letters per Kriya) once ;

The number of Kriyas and aksharas in this respect are the same as those of the Mukthāyi in the respective gamanas. So, this altered form starts at the same moment as the mukthāyi.

Total number of letters = 3 × no. of letters in jāthi.

The coefficient is 3.

Formula :— $M = 3 \times J$

Eg :— (1) Mukthāyi :— |, θ D G | N θ̄! - θ D | G N θ̄! - θ | D G N θ̄! || (15 letters)

(2) Jāthi in II & III Kāla .— |, θ, D |, G, N |, θ̄!, - θ | D G N θ̄! || (15 letters)

In the above two, the second is the Mukthāyi Equivalent. By II Kāla is meant the lower degree of speed.

The given jāthi is deemed to be in the III degree of speed.

TABLE 3

Mukthāyi Prasthāra of the 5 Jāthis in Chaturasra Gamana

Jāthi	No. of letters in Mukthāyi	The Total in different numbers	Form of Mukthāyi
1	2	3	4
5. Khandā	15	5+5+5	$\theta D G N \bar{\theta}! - \theta D G N \bar{\theta}! - \theta D G N \bar{\theta}!$
		4+5+6	$K T \theta K_a - \theta D G N \bar{\theta}! - \theta D!, G N \bar{\theta}!$
		3+5+7	$\theta K T - \theta D G N \bar{\theta}! - \theta D!, G N \bar{\theta}!$
		2+5+8	$\theta K_a - \text{do} - \theta D!, G, N, \bar{\theta}!$
		1+5+9	$\theta - \text{do} - \theta D!, G, N, \bar{\theta}!$
6. Thrisra	18	6+6+6	$\theta D!, G N \bar{\theta}!$ (3 times)
		5+6+7	$\theta D G N \bar{\theta}! - \theta D!, G N \bar{\theta}! - \theta D!, G N \bar{\theta}!$
		4+6+8	$K T \theta K_a - \text{do} - \theta D!, G, N, \bar{\theta}!$
		3+6+9	$\theta K T - \text{do} - \theta D!, G, N, \bar{\theta}!$
		2+6+10	$\theta K_a - \text{do} - K T \theta K_a \theta D!, G N \bar{\theta}!$
		1+6+11	$\theta - \text{do} - K T \theta K_a \theta D!, G N \bar{\theta}!$
7. Misra	21	7+7+7	$\theta D!, G N \bar{\theta}!$ (3 times)
		6+7+8	$\theta D!, G N \bar{\theta}! - \theta D!, G N \bar{\theta}! - \theta D!, G, N, \bar{\theta}!$
		5+7+9	$\theta D G N \bar{\theta}! - \text{do} - \theta D!, G, N, \bar{\theta}!$
		4+7+10	$K T \theta K_a - \text{do} - \theta K_a D G_u \theta D!, G N \bar{\theta}!$
		3+7+11	$\theta K T - \text{do} - \theta K_a D G_u \theta D!, G N \bar{\theta}!$
		2+7+12	$\theta K_a - \text{do} - \theta K_a D G_u \theta D!, G, N, \bar{\theta}!$
		1+7+13	$\theta - \text{do} - \theta K_a D G_u \theta D!, G, N, \bar{\theta}!$

1	2	3	4
8.	24	8+8+8	$\theta D!, G, N, \bar{\theta}!$ (3 times)
Chathu- rasra		7+8+9	$\theta D!, G, N, \bar{\theta}! - \theta D!, G, N, \bar{\theta}! - \theta D!, G, N, \bar{\theta}!$
		6+8+10	$\theta D!, G, N, \bar{\theta}! - do - KT\theta K_a \theta D!, G, N, \bar{\theta}!$
		5+8+11	$\theta D G N \bar{\theta}! - do - KT\theta K_a \theta D!, G, N, \bar{\theta}!$
		4+8+12	$KT\theta K_a - do - KT\theta K_a \theta D!, G, N, \bar{\theta}!$
		3+8+13	$\theta KT - do - KT\theta K_a \theta D!, G, N, \bar{\theta}!$
		2+8+14	$\theta K_a - do - \theta D G N \bar{\theta}! \theta D!, G, N, \bar{\theta}!$
		1+8+15	$\theta - do - \theta D!, G, N, \bar{\theta}! \theta D!, G, N, \bar{\theta}!$
	9.	27	9+9+9
Sankee- rna		8+9+10	$\theta D!, G, N, \bar{\theta}! - \theta D!, G, N, \bar{\theta}! - KT\theta K_a \theta D!, G, N, \bar{\theta}!$
		7+9+11	$\theta D!, G, N, \bar{\theta}! - do - KT\theta K_a \theta D!, G, N, \bar{\theta}!$
		6+9+12	$\theta D!, G, N, \bar{\theta}! - do - KT\theta K_a \theta D!, G, N, \bar{\theta}!$
		5+9+13	$\theta D G N \bar{\theta}! - do - KT\theta K_a \theta D!, G, N, \bar{\theta}!$
		4+9+14	$KT\theta K_a - do - \theta D G N \bar{\theta}! \theta D!, G, N, \bar{\theta}!$
		3+9+15	$\theta KT - do - \theta D!, G, N, \bar{\theta}! \theta D!, G, N, \bar{\theta}!$
		2+9+16	$\theta K_a - do - \theta D!, G, N, \bar{\theta}! \theta D!, G, N, \bar{\theta}!$
		1+9+17	$\theta - do - \theta D!, G, N, \bar{\theta}! \theta D!, G, N, \bar{\theta}!$

The above table shows the number of ways in which a mukthāyi in the same jāthi can be played, keeping the jāthi constant in the middle and effecting a change in the first and the third parts. The total is the same in every alteration.

In each jāthi, the first line is the mukthāyi and the rest are the mukthāyi equivalents which are as good as the mukthāyi itself.

TABLE 4

Mukthāyi in Chaturasra, Thrisra and Thrisra higher Kāla gamana of Jāthi

Jāthi	No. of letters	No. of letters in Mukthāyi	g ₄		g ₃		g ₇		g ₅		g ₉	
			Kr	L	Kr	L	Kr	L	Kr	L	Kr	L
θ D G N θ̄!	5	15	3	3	5	—	2	1	3	—	1	6
θ D!, G N θ̄!	6	18	4	2	6	—	2	4	3	3	2	—
θ D!, G N θ̄!	7	21	5	1	7	—	3	—	4	1	2	3
θ D!, G, N, θ̄!	8	24	6	—	8	—	3	3	4	4	2	6
θ D!, G, N, θ̄!	9	27	6	3	9	—	3	6	5	2	3	—

The table shows the number of Kriyas and letters when a jāthi is played in chaturasra gamana, thrisra gamana and thrisra higher degree gamana in order, for mukthāyi.

As this altered form of mukthāyi has the same number of kriyas and letters as the mukthāyi in its original sense of the jāthi repeated thrice in the same gamana, it begins at the same moment as the latter.

No. of letters for mukthāyi = 3 × no. of letters in jāthi.

Chaturasra

Thrisra

Thrisra higher degree .

θ D G N θ̄! - θ D G N θ̄! - θ D G N θ̄!

Eg:— 1, θ D G | N θ̄! - θ, D |, G, N, θ̄! ; - θ, D, G, N, θ̄!, ||

TABLE 5

Mukthāyi in the II Kāla, Thrisra and Thrisra higher Kāla gamana of Jāthi

Jāthi	No. of letters	No. of letters in Mukthāyi	Chatura-sra Kriyas	Thāla
$\theta D G N \bar{\theta}!$	5	20	5	Thrisra Roopaka
$\theta D!, G N \bar{\theta}!$	6	24	6	Chaturasrā Roopaka
$\theta D!, G N \bar{\theta}!$	7	28	7	Thrisra Thripata
$\theta D!, G, N, \bar{\theta}!$	8	32	8	Chaturasra Thripata
$\theta D!, G, N, \bar{\theta}!$	9	36	9	Khanda Thripata

The above table shows the number of letters in mukthāyi, when the jāthi is played in the II kala (in the lower degree), in thrisra gamana and in thrisra higher kāla gamana, in order. In addition to this, the number of chaturasra kriyas for each jāthi mukthāyi and the corresponding thālas where the mukthāyi is Sama graha Sama are also given. The number of the kriyas in relation to a jāthi is equal to the number of the letters in that jāthi.

Eg:— $\overset{II}{\theta D | G N | \bar{\theta}!} - \overset{g_s}{\theta, D |, G, N, \bar{\theta}!} ; - \overset{g_s - II}{\theta, D, G, N, \bar{\theta}!}, ||$

No. of kriyas in II kāla gamana = 2

„ in thrisra gamana = 1

„ thrisra Higher kāla = 1

Total = 4

So the total number of letters in mukthāyi = 4 × the number of letters in the jāthi.

Note:— The total number of letters for thrisra gamana of any jāthi mukthāyi is equal to 4 times the number of letters in that jāthi.

TABLE 6
Vinyāsa hāyi

Jāthi	No. of letters	No. of letters in Mukthāyi	No. of kriyas	No. of letters	No. of letters in the pause	Total No. of kriyas
$\theta \text{ D G N } \overline{\theta}$	5	25	6	1	3	7
$\theta \text{ D! , G N } \overline{\theta}$	6	30	7	2	2	8
$\theta \text{ D! , G N } \overline{\theta}$	7	35	8	3	1	9
$\theta \text{ D! , G , N , } \overline{\theta}$	8	40	10	-	-	10
$\theta \text{ D! , G , N , } \overline{\theta}$	9	45	11	1	3	12

Vinyāsa means pause. Vinyāsa mukthāyi is one in which a pause equal to the duration of the jāthi follows the jāthi. The order is, jāthi - pause - jāthi - pause - jāthi.

Eg:— |,,, θ | D G N $\overline{\theta}$ | -,,, |, - θ D G | N $\overline{\theta}$ | -,, |,,, - θ | D G N $\overline{\theta}$ | ||

But a slight alteration in the above is made in practice for the rhythmic beauty. Jāthi is sashabda and pause is nishabda. In the mukthāyi, after sashabda, the first letter only of the nishabda is played. as shown below:—

Eg:— |,,, θ | D G N $\overline{\theta}$ | | - θ ,,,, |, - θ D G | N $\overline{\theta}$ | - θ , |,,, - θ | D G N $\overline{\theta}$ | ||

The following types of mukthāyis are also equal in magnitude to the Vinyāsa mukthāyi. Their patterns are:—

1. Jāthi followed by its thrisra gamana mukthāyi.

$$\theta \overset{4}{\text{D G N } \overline{\theta}} | - \overset{3}{\theta \text{ D G N } \overline{\theta}} | - \theta \text{ D G N } \overline{\theta} | - \theta \text{ D G N } \overline{\theta} | \quad ||$$

2. Mukthāyi - thrisiagamana - thrisra higher Kāla.

$$\overset{4}{\theta \text{ D G N } \overline{\theta}} | - \overset{3}{\theta \text{ D G N } \overline{\theta}} | - \overset{3}{\theta \text{ D G N } \overline{\theta}} | - \overset{3}{\theta \text{ D G N } \overline{\theta}} | - \overset{3}{\theta \text{ D G N } \overline{\theta}} | \quad ||$$

3. First, each letter of the jāthi in twice its duration and next, each in thrice its duration.

$$\theta, \text{ D , G , N , } \overline{\theta} |, - \overline{\theta}, \text{ , D , , G , , N , , } \overline{\theta} |, \quad ||$$

Total number of letters in the mukthāyi.

$$= 5 \times \text{the number of letters in the jāthi.}$$

TABLE 7
Mukthāyi in 3-2-1 duration of Jāthi letters.

Jāthi	No. of letters	No. of letters in Mukthāyi	No. of Kriyas	No. of letters	No. of letters in the Pause	Total no. of Kriyas.
θ D G N θ̄!	5	30	7	2	2	8
θ D!, G N θ̄!	6	36	9	-	-	9
θ D!, G N θ̄!	7	42	10	2	2	11
θ D!, G, N, θ̄!	8	48	12	-	-	12
θ D!, G, N, θ̄!	9	54	13	2	2	14

First, the jāthi is to be played, each of its letters having three times its duration. Next, it is to be repeated each of the letters having twice its duration. Lastly, the jāthi is to be repeated again as it is, each letter in its own duration.

In the above table, the total number of letters converted into chaturasra kriyas and letters, are given. The initial pause in akshara kālas, to make up the integral number of kriyas is also given. The pause is always at the initial kriya

Khanda jāthi :— (in Kriyas)

1, , θ, |, D, , | G, , N |, , θ̄!, |, - θ, D |, G, N |, θ̄!, - θ | D G N θ̄! ||

Other types of mukthāyis of the same magnitude and their patterns :—

1. Jāthi I Kāla - Thrisra gamana - Thrisra higher Kāla.

, , - θ, , , D, , , G, , , N, , , θ̄!, , , - θ D G N θ̄! - θ D G N θ̄! ||

2. Jāthi II Kāla - Thrisra gamana mukthāyi.

, , - θ, D, G, N, θ̄!, - θ D G N θ̄! - θ D G N θ̄! - θ D G N θ̄! ||

3. Chaturasra - Thrisra - thrisra higher kāla in order and then mukthāyi

, , - θ D G N θ̄! - θ D G N θ̄! - θ D G N θ̄! -

θ D G N θ̄! - θ D G N θ̄! - θ D G N θ̄!

Total number of letters in the mukthāyi

= 6 × number of letters in the jāthi.

Thrikāla is to be understood as I Kāla, II Kāla add III Kāla played consecutively. The jāthi is to be first played in I Kāla, then in II Kāla and finally in III Kāla. The whole forms a thrikāla mukthāyi.

In the above table, the number of kriyas and letters for each thrikāla mukthāyi are indicated in Shatkālas.

Other types of mukthāyis of the same magnitude and their patterns :—

1. Thrisra gamana mukthāyi – chaturasra gamana mukthāyi,

$$\theta \text{ D G N } \overline{\theta}! - \theta \text{ D G N } \overline{\theta}! - \theta \text{ D G N } \overline{\theta}! -$$

$$\theta \text{ D G N } \overline{\theta}! - \theta \text{ D G N } \overline{\theta}! - \theta \text{ D G N } \overline{\theta}!$$

2. First, each letter in 4 times its duration and next in three times its duration

$$\theta, , , \text{D}, , , \text{G}, , , \text{N}, , , \overline{\theta}!, , , - \theta, , \text{D}, , \text{G}, , \text{N}, , \overline{\theta}!, , \text{||}$$

3. Initial pause equal to the magnitude of the jāthi and then 3-2-1 duration of letters (as explained in Table 7.)

$$, , , , - \theta, , \text{D}, , \text{G}, , \text{N}, , \overline{\theta}!, , - \theta, \text{D}, \text{G}, \text{N}, \overline{\theta}!, - \theta \text{ D G N } \overline{\theta}! \text{ ||}$$

Total no. of letters in the mukthāyi

= 7 × number of letters in the jāthi.

TABLE 9

Thrikāla Mukthāyi in Drutha Kāla

Jāthi	No. of letters	No. of letters in Thrikāla	No. of letters in the Pause	No. of Kriyas
$\theta D G N \bar{\theta}!$	5	35	5	5
$\theta D!, G N \bar{\theta}!$	6	42	6	6
$\theta D!, G N \bar{\theta}!$	7	49	7	7
$\theta D!, G, N, \bar{\theta}!$	8	56	8	8
$\theta D!, G, N, \bar{\theta}!$	9	63	9	9

Madhyama kāla means ordinary speed. Drutha kāla means, speed, quicker than madhyama kāla and vilamba kāla means, speed slower than madhyama kāla. When a kriya in madhyama kāla takes 1 letter, the same kriya takes 2 letters in the druthakāla.

The mukthāyis above take 2 letters for 1 kriya in II kāla, 4 letters for 1 kriya in III kāla and 8 letters for 1 kriya in IV kāla.

Eg:— $\theta, D, - G, N, \bar{\theta}!, - \theta D G N \bar{\theta}! - \theta D G N \bar{\theta}! \parallel$

For Sama, i. e. to end with the final kriya, a pause equal to the magnitude of Jāthi in druthakāla is to be given. For example, khanda jāthi mukthāyi will have $\frac{5}{2}$ letters pause.

Eg:— $\theta, D, - G, N, \bar{\theta}!, - \theta D G N \bar{\theta}! - \theta D G N \bar{\theta}! \parallel$

$\theta, D, G, N, | \bar{\theta}! - \theta D G N \bar{\theta}! \parallel$

TABLE 10

Thrikāla Mukthāyi in Thrikāla

Jāthi	No. of letters	No. of letters in mukthāyi	g ₄		g ₃		g ₇		g ₅		g ₉	
			Kr	L	Kr	L	Kr	L	Kr	L	Kr	L
θ D G N θ̄!	5	122½	30	2½	40	2½	17	3½	24	2½	13	5½
θ D!, G N θ̄!	6	147	36	3	49	-	21	-	29	2	16	3
θ D!, G N θ̄!	7	171½	42	3½	57	½	24	3½	34	1½	19	½
θ D!, G, N, θ̄!	8	196	49	-	65	1	28	*	39	1	21	7
θ D!, G, N, θ̄!	9	220½	55	½	79	1½	31	3½	44	½	24	4½

The jāthi is to be played in thrikāla as explained in Table 8. In doing so, each of the above 3 Kālas are to be played in thrikāla.

- I Kāla :— (i) ;, - θ; | ;;; | ;,D; | ;;; | ;,G; | ;;; | ;,N; | ;;; | ;, θ̄!; | ;;; |
 (ii) ;, - θ; | ;,D; | ;,G; | ;,N; | ;, θ̄!; |
 (iii) ;, - θ; ,D | ;,G; ,N | ;, θ̄! ;, -

- II Kāla :— (i) θ | ;;;,D | ;;;,G | ;;;,N | ;;;, θ̄! ;;;, -
 (ii) θ | ;,D; ,G | ;,N; , θ̄! | ;, -
 (iii) θ, D, G | , N, θ̄!, -

- III Kāla :— (i) θ ; | , D ; , G ; | , N ; , θ̄! ; |
 (ii) , θ, D, G, N | , θ̄! , -
 (iii) θ D G N θ̄! ||

The method in the division of kriyas:—

The duration of each letter in I (i) = 8, (ii) = 4, (iii) = 2 akshara kālas.

„ „ II (i) = 4, (ii) = 2, (iii) = 1 akshara kāla.

„ „ III (i) = 2, (ii) = 1, (iii) = ½ „

TABLE 11
THREE-FOLD MUKTHAYI (a)

Jāthi	Gathi of Thāla	No. of letters in the Jāthi	Jāthi Gamana	No. of letters in the Pause	Gathi	Kriyas	Letters in Thrikāla	Total No. of Kriyas	Total No. of Letters in Thrikāla	
1	2	3	4	5	6	7	8	9	10	
Chaturasra	g ₁ (Khanda Gathi) Thrisra jāthi Roopaka.	4	k T θ K _a	—	(Sama)	g ₁	3	12	10	40
						g ₃	4	16		
						g ₄	3	12		
								40		
Khanda	g _a Roopaka (Chaturasra)	5	θ D G N θ̄!	1	g ₄	4	15	12	47	
					g ₃	5	20			
					g ₅	3	12			
							47			
Thrisra	g ₇ Thrisra jāthi Thripata	6	θ D!, G N θ̄!	2	g ₁	9	18	27	54	
					g ₃	12	24			
					g ₃ ii	6	12			
							54			
Misra	g ₃ Ādi (Chaturasra jāthi Thripata)	7	θ D!, G N θ̄!	3	g ₁	6	21	16	61	
					g ₃	7	28			
					g ₇	3	12			
							61			

1	2	3	4	5	6	7	8	9	10
Chaturasra	g ₀ Khanda Thriputa	8	θ D!, G, N, θ!	4	g ₄	6	24	17	68
					g ₃	8	32		
					g _{1,ii}	3	12		
							68		
Sankeerna	g ₁₀ Misra Jhampa	9	θ D!, G, N, θ!	5	g ₁	6 $\frac{3}{4}$	27	18 $\frac{3}{4}$	75
					g ₃	9	36		
					g ₀	3	12		
							75		

The Threefold Mukthāyi is a mukthāyi, compounded of three mukthāyis in different gamanas.

A jathi, in which the number of letters is less than the number of kriyas in a thāla by 1, is to be taken. Mukthāyi is to be played (i. e. 3 times) first in chaturasra gamana and next in thrisra gamana. For the third mukthāyi, it is to be played in the jathi gamana. For instance, if the thāla has 5 kriyas, a jathi in 4 letters is to be taken, and the final mukthāyi must be in the jathi gamana, i. e. chaturasra gamana. The whole series is the threefold mukthāyi.

Thrisra Thriputa is to have 2 letters per kriya. Each of the other thālas above, in chouka Kāla of 2 kaḷas, will be 1 avritha.

- Thrisra Roopaka :— g₄ :— K T θ K_a - K T θ K_a - K T θ K_a -
g₃ :— K T θ | K_a K T - θ K_a K - T θ K_a -
g₁ :— K T θ K_a - K T θ K_a - K T θ K_a ||
- Chaturasra Roopaka :— g₄ :— θ D G - N θ! θ D - G N θ! θ - D G N θ! - |
g₃ :— θ D G - N θ! θ - D G N - θ! θ D - G N θ! -
g₅ :— θ D G N θ! - θ D G N θ! - θ D G N θ! ||

3. Thrisra

Thripata :— g_1 :— ,, - $\theta D!$ - , G | $\bar{N}\bar{\theta}!$ - $\theta D!$ - , G - $\bar{N}\bar{\theta}!$ || $\theta D!$ - , G - $\bar{N}\bar{\theta}!$ |

g_2 :— $\theta, D!$ - , ; - G, \bar{N} - , $\bar{\theta}!$, || $\theta, D!$ - , ; - G, \bar{N} | , $\bar{\theta}!$, - $\theta, D!$ - , ; - G, \bar{N} || , $\bar{\theta}!$,

g_3 ii:— $\theta, D!$ - , ; - G, \bar{N} - , $\bar{\theta}!$, | $\theta, D!$ - , ; - G, \bar{N} - , $\bar{\theta}!$, - $\theta, D!$ - , ; - G, \bar{N} - , $\bar{\theta}!$, ||

4. Ādi :—

g_1 :— ; , $\theta D!$, G - $\bar{N}\bar{\theta}!$ $\theta - D!$, G \bar{N} - $\bar{\theta}!$ $\theta D!$ - , G $\bar{N}\bar{\theta}!$ -

g_2 :— $\theta D!$ - , G \bar{N} | $\bar{\theta}!$ $\theta - D!$, G - $\bar{N}\bar{\theta}!$ $\theta D!$, - | G $\bar{N}\bar{\theta}!$ -

g_3 :— $\theta D!$, G $\bar{N}\bar{\theta}!$ - $\theta D!$, G $\bar{N}\bar{\theta}!$ - $\theta D!$, G $\bar{N}\bar{\theta}!$ ||

5. Khanda

Thripata g_1 :— ; ; - $\theta D!$, G - , \bar{N} , $\bar{\theta}!$ - $\theta D!$, G - , \bar{N} , $\bar{\theta}!$ - $\theta D!$, G - , \bar{N} , $\bar{\theta}!$ -

g_2 :— $\theta D!$, - G, \bar{N} - , $\bar{\theta}!$ θ | $D!$, G - , \bar{N} , - $\bar{\theta}!$ $\theta D!$ - , G, - | \bar{N} , $\bar{\theta}!$ -

g_3 ii:— $\theta D!$, G, \bar{N} , $\bar{\theta}!$ - $\theta D!$, G, \bar{N} , $\bar{\theta}!$, - $\theta D!$, G, \bar{N} , $\bar{\theta}!$ ||

6. Misra

Jhampa :— g_1 :— ; ; - , $\theta D!$ - , G, \bar{N} - , $\bar{\theta}!$ $\theta - D!$, G, - \bar{N} , $\bar{\theta}!$ $\theta - D!$, G - , \bar{N} , $\bar{\theta}!$ -

g_2 :— $\theta D!$ - , G, - \bar{N} , $\bar{\theta}!$ - $\theta D!$ - , G, - \bar{N} , $\bar{\theta}!$ | $\theta D!$ - , G, | \bar{N} , $\bar{\theta}!$ -

g_3 :— $\theta D!$, G, \bar{N} , $\bar{\theta}!$ - $\theta D!$, G, \bar{N} , $\bar{\theta}!$ - $\theta D!$, G, \bar{N} , $\bar{\theta}!$ ||

Note :— Kāla and kaḷa are to be well distinguished. Kāla refers to time or speed. Kaḷa refers to kriya. Chouka kāla means slow speed. Chouka kāla of 2 kaḷas means slow speed in which each kriya has twice its own duration.

TABLE 12
Threefold Mukthäyis (b)

Jäthi	No. of letters	Gathi	No. of kriyas	No. of letters	Total Kriyas	Total letters
K T θ K ₂	4	g ₁	3	12	10	40
		g ₃	4	16		
		g ₁	3	12		
			10	40		
θ D G N $\bar{\theta}$!	5	g ₄	$3\frac{3}{4}$	15	$11\frac{3}{4}$	47
		g ₂	5	20		
		g ₅	3	12		
			$11\frac{3}{4}$	47		
θ D!, G N $\bar{\theta}$!	6	g ₄	$4\frac{1}{2}$	18	$13\frac{1}{2}$	54
		g ₃	6	24		
		g ₃ ii	3	12		
			$13\frac{1}{2}$	54		
θ D!, G N $\bar{\theta}$!	7	g ₄	$5\frac{1}{4}$	21	$15\frac{1}{4}$	61
		g ₃	7	28		
		g ₁	3	12		
			$15\frac{1}{4}$	61		

$\theta D \bar{I}, G, N, \bar{\theta} \bar{I}$	8	g_1	6	24	17	68
		g_2	8	32		
		g_3	3	12		
			17	68		
$\theta D \bar{I}, G, N, \bar{I}$	9	g_1	$6\frac{3}{4}$	27	$18\frac{3}{4}$	75
		g_2	9	36		
		g_3	3	12		
			$18\frac{3}{4}$	75		

This table is the same as the Table 11. In this, gamanas, kriyas and total number of letters are shown.

TABLE 13
Mukthāyi in nishabda and sashaba Jāthi in drutha Kāla.

Jāthi	The form of Jāthi	Total No. of letters in the Mukthāyi	Nishabda					Mukthāyi letters	Pause (in letters)							
			Nishabda	Sashabda	Nishabda	Sashabda	Nishabda		g ₃	g ₇	g ₄	g ₉	Kriyas	Pause	Kriyas	Pause
5	θ D G N θ̄!	40	5	5	5	5	5	15	2	7	2	3	-	5	14	3
6	θ D!, G N θ̄!	48	6	6	6	6	6	18 ^a	-	8	8	4	-	6	6	3
7	θ D!, G N θ!	56	7	7	7	7	7	21	4	10	-	4	-	7	16	4
8	θ D!, G, N, θ̄!	64	8	8	8	8	8	24	2	11	6	5	-	8	8	4
9	θ D!, G, N, θ!	72	9	9	9	9	9	27	-	12	12	6	-	9	-	4

With respect to Drutha Kāla, a Kriya has letters twice as many as the number indicated in gamana. For example, a kriya in g₃ has 3 letters in its normal course. But in Drutha Kāla it has 2×3=6 letters. Likewise in g₄—8 letters, g₇—14 letters, and g₉—18 letters per kriya.

The Mukthāyi for each jāthi in the above table is in the following order:— Jāthi nishabda-sashabda-nishabda-sashabda-nishabda-and Jāthi mukthāyi (3 times).

Eg:— (1) θ D G N θ̄! in g₃. (6 letters per kriya.)

; - , , , , - θ D G N θ̄! | - , , , , - θ | D G N θ̄! - , , , , - θ D G | N θ! - θ D G N | θ̄! - θ D G N θ̄! | ;

(2) θ D!, G N θ̄! in g₇. (14 letters per kriya.)

;;; - , , , , - | θ D!, G N θ̄! - , , , , - θ D | | , G N θ̄! - , , , , - θ D!, G | N θ̄! - θ D!, G N θ̄! - θ D!, G N θ̄! |

(3) θ D!, G N θ̄! in g₄. (8 letters per kriya)

, , , , - θ | , D! ; G N θ̄! - , , , , - θ D | | , G N θ̄! - , , , , - θ D!, G | N θ̄! - θ D!, G N θ̄! - θ D!, G N θ̄! |

(4) θ D!, G, N, θ̄! in g₉. (18 letters per kriya)

;;; - , , , , - θ D | | , G , N , θ̄! - , , , , - θ D!, G | , N , θ̄! - , , , , - θ D!, G , N | , θ̄! - θ D!, G , N , θ̄! | θ D!, G , N , θ̄! |

Note:— The initial pause, if any, is indicated by semicolons.

The total no. of letters in the Mukthāyi

= 8×no. of letters in the Jāthi.

Khanda gamana is in Table 14.

TABLE 14

Mukthāyi in Nishabda, Sashabda, Jāthi
in Druthakāla Khanda Gamana.

Jāthi	The form of Jāthi	Total No. of letters in Mukthāyi	Nishabda	Sashabda	Nishabda	Sashabda	Nishabda	Mukthāyi	Pause	Kriyas
5	$\theta D G N \bar{\theta}!$	40	5	5	5	5	5	15	-	4
6	$\theta D!, G N \bar{\theta}!$	48	6	6	6	6	6	18	2	5
7	$\theta D!, G N \bar{\theta}!$	56	7	7	7	7	7	21	4	6
8	$\theta D!, G, N, \bar{\theta}!$	64	8	8	8	8	8	24	6	7
9	$\theta D!, G, N, \bar{\theta}!$	72	9	9	9	9	9	27	8	8

The above table completes the Table 13 with respect to the remaining Khanda gamana.

The explanation of Table 13 holds good in the above table. In druthakāla khanda gamana, a kriya has 10 letters.

Eg :- $\theta D!, G, N, \bar{\theta}!$ in g_5 . (10 letters per kriya.)

;;;;- , , , , , , - $\theta D!, G, N, \bar{\theta}!$ - , , , , , , - $\theta D!, G, N, \bar{\theta}!$ -
 , , , , , , - $\theta D!, G, N, \bar{\theta}!$ - $\theta D!, G, N, \bar{\theta}!$ - $\theta D!, G, N, \bar{\theta}!$ |

TABLE 15

Nishabda Vinyāsa Mukthāyi with the usual Mukthāyi

Jāthi	The form of Jāthi	Mukthāyi letters	Gamana Gathi	Nishabda	Sashabda	Nishabda	Sashabda	Nishabda	Mukthāyi	Pause	Kriyas
1	2	3	4	5	6	7	8	9	10	11	12
Kha. 5.	θ D G N θ̄!	40	g ₁	5	5	5	5	5	15	—	10
			g ₃	"	"	"	"	"	"	2	14
			g ₇	"	"	"	"	"	"	2	3
			g ₅	"	"	"	"	"	"	—	4
			g ₉	"	"	"	"	"	"	14	3
Thri. 6.	θ D!, G N θ̄!	48	g ₁	6	6	6	6	6	18	—	12
			g ₃	"	"	"	"	"	"	—	16
			g ₇	"	"	"	"	"	"	8	4
			g ₅	"	"	"	"	"	"	2	5
			g ₉	"	"	"	"	"	"	6	3
Mi. 7.	θ D!, G N θ̄!	56	g ₁	7	7	7	7	7	21	—	14
			g ₃	"	"	"	"	"	"	1	19
			g ₇	"	"	"	"	"	"	—	4
			g ₅	"	"	"	"	"	"	4	6
			g ₉	"	"	"	"	"	"	16	4

1	2	3	4	5	6	7	8	9	10	11	12
Cha. 8.	$\theta D^1, G, N, \theta^1$	64	g_1	8	8	8	8	8	24	—	16
			g_3	”	”	”	”	”	”	2	22
			g_7	”	”	”	”	”	”	6	5
			g_5	”	”	”	”	”	”	6	7
			g_9	”	”	”	”	”	”	8	4
Sam. 9.	$\theta D^1, G, N, \theta^1$	72	g_1	9	9	9	9	9	27	—	18
			g_3	”	”	”	”	”	”	—	24
			g_7	”	”	”	”	”	”	12	6
			g_5	”	”	”	”	”	”	8	8
			g_9	”	”	”	”	”	”	—	4

This Table is the same as Tables 13 and 14. The only difference is, g_7, g_5, g_9 are calculated in chauka kāla.

TABLE 16
Compound Mukthāyi

of Jāthi mukthāyi, Jāthi in each of its letters of three times duration, Thrisra and thrisra higher kāla gamana.

The form of Jāthi	No. of letters in Jāthi	Mukthāyi letters	Kriyas
$\theta D G N \bar{\theta}$	5	40	10
$\theta D!, G N \bar{\theta}$	6	48	12
$\theta D!, G N \bar{\theta}$	7	56	14
$\theta D!, G, N, \bar{\theta}$	8	64	16
$\theta D!, G, N, \bar{\theta}$	9	72	18

In this model, first the jāthi mukthāyi is to be played. Next, each of the jāthi letters is to be played in three times its duration. Then the jāthi is to be played in thrisra gamana followed by thrisra higher degree of speed.

Eg:— $\theta D G N | \bar{\theta} | - \theta D G | N \bar{\theta} | - \theta D | G N \bar{\theta} | - \theta | , , D , | , G , , | N , , - \bar{\theta} | |$
 $, , - \overset{3}{\theta} , D | , G , N , \bar{\theta} | | , - \overset{3}{\theta} , D , G , N , \bar{\theta} | , ||$

Other patterns of the same magnitude:—

(1) $L_3 + L_2 + L_1 + \text{Thrisra} + \text{Thrisra higher kāla}$.

Eg:— $\theta , , D | , , G , | , N , , | \bar{\theta} | , , - \theta | , D , G | , N , \bar{\theta} | | , - \theta D G |$
 $N \bar{\theta} | - \theta , D | , G , N , \bar{\theta} | | , - \theta , D , G , N , \bar{\theta} | , ||$

(2) Jāthi Sashabda - Nishabda - S - N - Thrisra gamana mukthāyi.

Eg:— $\theta D G N | \bar{\theta} | - \theta , , | , , - \theta D | G N \bar{\theta} | - \theta | , , , , |$
 $\overset{3}{\theta} D G | N \bar{\theta} | - \bar{\theta} | D G N | \bar{\theta} | - \theta D | G N \bar{\theta} | ||$

Note:— The first letter θ in Nishabda is included for the beauty of the play.
 No. of letters in the mukthāyi
 = $8 \times$ no. of letters in the jāthi.

TABLE 17
Jāthi Kālabhēda Mukthayi
 (Mukthāyi of Jāthi in different kālas.)

The form of Jāthi	Jāthi letters	Mukthāyi letters	Kriyas	letters	Pause	Total no. of kriyas.
$\theta \text{ D G N } \bar{\theta}!$	5	45	11	1	3	12
$\theta \text{ D! , G N } \bar{\theta}!$	6	54	13	2	2	14
$\theta \text{ D! , G N } \bar{\theta}!$	7	63	15	3	1	16
$\theta \text{ D! , G , N , } \bar{\theta}!$	8	72	18	-	-	18
$\theta \text{ D! , G , N , } \bar{\theta}!$	9	81	20	1	3	21

The Jāthi is to be played once in the I kāla, then once in the II kāla and finally three times in III kāla.

In the I kāla, one letter of the jāthi, in the II 2 letters and in the third, 4 letters.

The total number of kriyas and letters and the initial pause in aksharakālas, and the total number of kriyas with the initial pause are shown in the table.

Eg.— I Kāla :— ; , - θ | , , , D | , , , G | , , , N | , , , $\bar{\theta}!$ | , , , -

II Kāla :— θ | , D , G | , N , $\bar{\theta}!$ | , -

III Kāla :— $\theta \text{ D G | N } \bar{\theta}!$ - $\theta \text{ D | G N } \bar{\theta}!$ - $\theta \text{ | D G N } \bar{\theta}!$ ||

Other Patterns of the same magnitude :—

1. Mukthāyi of Jāthi (3 times) + $L_3 + L_2 + L_1$
2. Vinyāsa Mukthāyi + Thrisra gamana Mukthāyi.

; , $\theta \text{ | D G N } \bar{\theta}!$ | - θ , , , | - $\theta \text{ D G | N } \bar{\theta}!$ - θ , | , , , $\theta \text{ | D G N } \bar{\theta}!$ |

$\theta^3 \text{ D G | N } \bar{\theta}!$ - $\theta \text{ | D G N } \bar{\theta}!$ - $\theta \text{ D | G N } \bar{\theta}!$ ||

3. Jāthi in $L_1 + L_3 + L_2$.

; , θ | , , , D | , , , G | , , , N | , , , $\bar{\theta}!$ | , , , - θ | , , , D , | , G , , | N , , $\bar{\theta}!$ | , , ,

θ , | D , G , | N , $\bar{\theta}!$, ||

The No. of letters in the Mukthāyi
 = 9 × the no. of letters in the Jāthi.

TABLE 18

Mukthāyi in Thrikāla, Thrisra and Thrisra higher Kāla of the jāthi.

The form of Jāthi	Jāthi letters	Mukthāyi Letters	g ₄		g ₃		g ₇		g ₅		g ₉	
			Kr	L	Kr	L	Kr	L	Kr	L	Kr	L
θ D G N θ̄!	5	45	11	1	15	-	6	3	9	-	5	-
θ D!, G N θ̄!	6	54	13	2	18	-	7	5	10	4	6	-
θ D!, G N θ̄!	7	63	15	3	21	-	9	-	12	3	7	-
θ D!, G, N, θ̄!	8	72	18	-	24	-	10	2	14	2	8	-
θ D!, G, N, θ̄!	9	81	20	1	27	-	11	4	16	1	9	-

The number of kriyas and letters are given in each gamana for each Jāthi.

The Jāthi is to be played in thrikāla (i. e. I, II, III kālas in order), thrisra gamana and thrisra higher kāla in order. g₄, g₃, g₇, g₅, g₉ - the numbers indicate the aksharas in kriya.

Eg:— θ D G N θ̄! in g₄,

; , - θ | , , , D | , , , G | , , , N | , , , θ̄ | , , , - θ | , D, G | , N, θ̄ | ,

θ D G | N θ̄! -

θ, D | , G, N, θ̄ | , - θ, D, G, N, θ̄! , ||

(2) θ D G N θ̄! in g₃

θ, , | , D, | , , G | , , , | N, , | , θ̄ | , | , , θ | , D, | G, N | , θ̄! , | θ D G | N θ̄! -

θ, | , D, , G, | , N, , θ̄ | , | , - θ D G N θ̄! ||

For Thrikāla - 7 × Jāthi letters

Thrisra & Thrisra Higher kāla - 2 × Jāthi letters.

∴ Total no. of letters = 9 × Jāthi letters.

TABLE 19

Mukthāyi in each of Chaturasra, Thrisra and Thrisra higher Kala

Jāthi	Letters	Mukthāyi letters	Gamanas	Kr	L	Total No. of Kriyas and letters	
1	2	3	4	5	6	7	8
θ D G G θ!	5	45	g ₄	3	3	11	1
			g ₃	5	-		
			g ₃ ii	2	2		
				11	1		
θ D!, G N θ!	6	54	g ₄	4	2	13	2
			g ₃	6	-		
			g ₃ ii	3	-		
				13	2		
θ D!, G N θ!	7	63	g ₄	5	1	15	3
			g ₃	7	-		
			g ₃ ii	3	2		
				15	3		
θ D!, G, N, θ!	8	72	g ₄	6	-	18	-
			g ₃	8	-		
			g ₃ ii	4	-		
				18	-		

1	2	3	4	5	6	7	8
θ D!, G, N, θ!	9	81	g ₁	6	3	20	1
			g ₃	9	-		
			g ₃ ii	4	2		
				20	1		

g₃ ii — Thrisra gamana higher Kāla.

The jāthi is to be played three times in Chaturasra gamana. Then it is to be played three times in thrisra gamana and likewise finally in thrisra higher degree of speed.

Eg:— (1) θ D G N θ! Thrice in each of g₄, g₃, g₃ ii.

g₄:— ;, - θ | D G N θ! | θ D G N | θ! - θ D G | N θ! -

g₃:— θ, D |, G, N, θ! |, - θ, D, G |, N, θ! - θ |, D, G, N, θ! -

g₃ ii:— θ, D, G, | N, θ!, - θ, D, G, N, | θ!, - θ, D, G, N, θ!, ||

(2) θ D!, G N θ!:-

g₄:— ; θ D! |, G N θ! | θ D!, G | N θ! - θ D! |, G N θ! |

g₃:— θ D!, | G N θ! | θ D!, | G N θ! | θ D!, | G N θ! |

g₃ ii:— θ D!, G N θ! | θ D!, G N θ! | θ D!, G N θ! ||

(3) θ D!, G N θ!:-

g₄:— , θ D! |, G N θ! + θ D!, | G N θ! - θ |, D!, G | N θ! -

g₃:— θ, , |, D!, , , G |, N, θ!, - θ |, , , D!, , , G |, N, θ!, -
θ, , |, D!, , , G, N |, θ!, -

g₃ ii:— θ, , , D!, |, , G, N, θ!, - θ, , , | D!, , , G, N, θ!, -
θ, |, , D!, , , G, N, θ!, ||

No. of letters for Chaturasra	= 3 × Jāthi letters
„ thrisra	= 4 × „
„ „ Higher Kāla	= 2 × „
Total	= 9 × Jāthi letters

TABLE 20
Mukthāyi (Jāthi in convergence.)

Jāthi	No. of letters	Mukthāyi letters.	g ₁		g ₃		g ₇		g ₅		g ₉	
			Kr	L	Kr	L	Kr	L	Kr	L	Kr	L
θ D G N θ̄	5	45	11	1	5	9	1	17	2	5	1	9
θ D!, G N θ̄	6	63	15	3	5	3	2	7	3	3	1	27
θ D!, G N θ̄	7	84	21	—	7	—	3	—	4	4	2	12
θ D!, G, N, θ̄	8	108	27	—	9	—	3	24	5	8	3	—
θ D!, G, N, θ̄	9	135	33	3	11	3	4	23	6	15	—	27

Jāthi in convergence is to be understood as follows :—

The first letter of the jāthi has its duration of as many letters as there are in the jāthi. Each succeeding letter has its duration one unit time less than that of the previous one, the last letter every where having its duration of one unit time.

For example, taking khanda jāthi, θ D G N θ̄, into consideration.

The duration of θ is 5 units of time

„ D is 4 „

„ G is 3 „

„ N is 2 „

„ θ̄ is 1 unit „

The total being 15 units of time, the number of letters in the mukthāyi is $3 \times 15 = 45$.

TABLE 21

Mukthāyi and Thrikāla

Jāthi	Letters	No. of letters in Mukthāyi	Kr	L	Pause in letters	Total No. of Kriyas
$\theta DGN\bar{\theta}!$	5	50	12	2	2	13
$\theta D!,GN\bar{\theta}!$	6	60	15	-	-	15
$\theta D!,GN\bar{\theta}!$	7	70	17	2	2	18
$\theta D!,G,N,\bar{\theta}!$	8	80	20	-	-	20
$\theta D!,G,N,\bar{\theta}!$	9	90	22	2	2	23

The Jāthi is to be repeated three times and its thrikāla is to be added to it.

Eg:— $\theta DGN\bar{\theta}!$

; - $\theta D | GN \bar{\theta}!$ - $\theta | DGN \bar{\theta}!$ | $\theta DGN | \bar{\theta}!$ - $\theta, , |, D, , |, G, , |, N, , |, \bar{\theta}!$, , |, $\theta, D |, G, N |, \bar{\theta}!$, - $\theta | DGN \bar{\theta}!$ ||

Other Patterns of the same magnitude:—

1. Thrikāla + Chaturasra + Thrisra + Thrisra higher kāla
2. Each letter in the duration of 4, 3, 2, 1 letters duration in order
3. Jāthi in I Kāla + in II Kāla + Thrisra gamana mukthāyi.

Eg. I Kāla:— ; - $\theta, |, , D, |, , G, |, , N, |, , \bar{\theta}!$, |, , -

II Kāla:— $\theta, | D, G, | N, \bar{\theta}!$, ||

g₃ mukthāyi:— $\theta DGN | \bar{\theta}!$ - $\theta | DGN | \bar{\theta}!$ - $\theta D | GN \bar{\theta}!$ ||

No. of letters in the mukthāyi

$$= 10 \times \text{no. of letters in the Jāthi}$$

TABLE 22

Kalabheda Mukthāyī
(Mukthāyī in different Kalas)

Jāthi	Letters	Mukthāyī letters	g ₄		g ₃		g ₂		g ₅		g ₉	
			Kr	L	Kr	L	Kr	L	Kr	L	Kr	L
θ D G N θ̄!	5	55	13	3	18	1	7	6	11	—	6	1
θ D!, G N θ̄!	6	66	16	2	22	—	9	3	13	1	7	3
θ D!, G N θ̄!	7	77	19	1	25	2	11	—	15	2	8	5
θ D!, G, N, θ̄!	8	88	22	—	29	1	12	4	17	3	9	7
θ D!, G, N, θ̄!	9	99	24	3	33	—	14	1	19	4	11	—

The Jāthi is to be played once in the I Kāla, 2 times in the II Kāla and 3 times in the III Kāla in order.

Eg:— θ D G N θ̄! - (g₄)

I Kāla:— , - θ, , l, D, , l, G, , l, N, , l, θ̄!, , l, -

II Kāla:— θ, D l, G, N l, θ̄!, - θ l, D, G l, N, θ̄! l, -

III Kāla:— θ D G l N θ̄! - θ D l G N θ̄! - θ l D G N θ̄! ll

Total no. of kriyas in the mukthāyī

$$= 11 \times \text{no. of letters in the Jāthi.}$$

TABLE 23

Mukthāyi in each of II Kāla, III Kāla and Thrisra gamana higher Kāla in order.

Jāthi	Letters	Mukthāyi letters	Kr	L	Pause in lett.	Total Kriyas
$\theta D G N \bar{\theta}!$	5	55	13	3	1	14
$\theta D!, G N \bar{\theta}!$	6	66	16	2	2	17
$\theta D!, G N \bar{\theta}!$	7	77	19	1	3	20
$\theta D!, G, N, \bar{\theta}!$	8	88	22	-	-	22
$\theta D!, G, N, \bar{\theta}!$	9	99	24	3	1	25

Mukthāyi is to be played in II Kāla. Then it is to be played in III Kāla and finally in Thrisra gamana higher Kāla.

Eg:— $\theta D G N \bar{\theta}!$

II Kāla:— $, -\theta, D |, G, N |, \bar{\theta}!, -\theta |, D, G |, N, \bar{\theta}! |, -\theta, D |, G, N |, \bar{\theta}!, -$

III Kāla:— $\theta | D G N \bar{\theta}! | \theta D G N | \bar{\theta}! - \theta D G | N \bar{\theta}! -$

g₃ Hr. Kāla:— $\theta D G | N \bar{\theta}! - \theta D G N | \bar{\theta}! - \theta D G N \bar{\theta}! ||$

Other Mukthāyis of the same magnitude.

1. Thrikāla + Thrisra gamana mukthāyi.
2. Vinyasa mukthāyi + $L_3 + L_2 + L_1$
3. Mukthāyi + $L_3 + L_2 + L_1$ + Thrisra & Thrisra higher Kāla

Mukthāyi:— $, \theta D G | N \bar{\theta}! - \theta D | G N \bar{\theta}! - \theta | D G N \bar{\theta}! |$

$L_3 + L_2 + L_1$:— $\theta, , D |, , G, |, N, | \bar{\theta}!, , -\theta |, D, G |, N, \bar{\theta}! |, \theta D G | N \bar{\theta}! -$

Thrisra & Thrisra Hr. Kāla:— $\theta, D |, G, N, \bar{\theta}! |, - \theta, D, G, N, \bar{\theta}! |, ||$

No. of letters in the Mukthāyi

= $11 \times$ No. of letters in the Jāthi.

TABLE 24

Mukthāyi in 5-4-3 diminution of Jāthi

Jāthi	Letters	Mukāthyi Letters	Kriyas
$\theta D G N \bar{\theta}!$	5	60	15
$\theta D!, G N \bar{\theta}!$	6	72	18
$\theta D!, G N \bar{\theta}!$	7	84	21
$\theta D!, G, N, \bar{\theta}!$	8	96	24
$\theta D!, G, N, \bar{\theta}!$	9	108	27

The Jāthi is to be first played, each of its letters having 5 times its duration. Next it is to be played again, each of its letters having 4 times its duration. Finally the same each letter having 3 times its duration.

Eg:— $\theta D G N \bar{\theta}!$

$\theta, , , , D, , , , G, , , , N, , , , \bar{\theta}!, , , , - \theta, , , , D, , , , G, , , , N, , , , \bar{\theta}!, , , , - \theta, , , , D, , , , G, , , , N, , , , \bar{\theta}!, , , ,$

Other patterns of the same magnitude:—

1. $\overset{7}{\text{Thrikāla}} + \overset{5}{\text{Vinyāsa mukthāyi}}$
2. $\overset{4}{\text{Chaturasra mukthāyi}} + \overset{3}{\text{Thrisra mukthāyi}} + \overset{5}{\text{Vinyāsa mukthāyi}}$
3. $\overset{6}{L_3} + \overset{6}{L_2} + L_1 + \overset{2}{\text{Thrisra and Thrisra higher Kāla}}$
+ $\overset{4}{\text{Thrisra mukthāyi}}$.

Total No. of letters in the mukthāyi

$$= 12 \times \text{No. of letters in the Jāthi.}$$

TABLE 23

Mukthāyi in Thrikāla and 3-2-1 duration

Jāthi	Letters	Mukthāyi letters	Kriyas	Letters	Pause in letters	Total kriyas
$\theta D G N \theta!$	5	65	16	1	3	17
$\theta D!, G N \bar{\theta}!$	6	78	19	2	2	20
$\theta D!, G N \bar{\theta}!$	7	91	22	3	1	23
$\theta D!, G, N, \bar{\theta}!$	8	104	26	—	—	26
$\theta D!, G, N, \bar{\theta}!$	9	117	29	1	3	30

The Jāthi is to be played first in Thrikāla. Next it is to be played in 3-2-1 duration (the nature of this being explained in Table 24.)

Eg:— $\theta D G N \bar{\theta}!$

$\theta, -\theta |, , , D |, , , G |, , , N |, , , \bar{\theta} |, , , -\theta |, D, G |, N, \bar{\theta} |, -\theta D G |$
 $N \bar{\theta} | -\theta, |, D, , | G, , N |, , \bar{\theta} |, |, -\theta, D |, G, N |, \bar{\theta} |, -\theta | D G N \bar{\theta} | ||$

Other patterns of the same magnitude:—

- I_3^4 Kāla + II Kāla 4 2 times + III Kāla 3 3 times
 + Thrisra & Thrisra 2 higher Kāla.
- $L_3 - L_2 - L_1 +$ Vinyāsa mukthāyi + Thrisra & Thrisra 2 higher Kāla.
- Mukthāyi (i. e. Jāthi repeated 3 times) + $L_1 - L_3 - L_2 - L_1$
 Total No. of letters in the Mukthāyi
 = $13 \times$ No. of letters in the Jāthi,

TABLE 26

Kālabheda Vinyāsa Mukthāyi

(Mukthāyi in different Kālas and vinyāsa)

Jāthi	Letters	Mukthāyi letters	g ₁		g ₂		g ₃		g ₄		g ₅	
			Kr	L	Kr	L	Kr	L	Kr	L	Kr	L
θ D G N θ̄!	5	70	17	2	23	1	10	-	14	-	7	7
θ D!, G N θ̄!	6	84	21	-	28	-	12	-	16	4	9	3
θ D!, G N θ̄!	7	98	24	2	32	2	14	-	19	3	10	8
θ D!, G, N, θ̄!	8	112	28	-	37	1	16	-	22	2	12	4
θ D!, G, N, θ̄!	9	126	31	2	42	-	18	-	25	1	14	-

The stages in order of the Mukthāyi are:—

1. Jāthi letters are to be played once in I Kāla.
2. Vinyāsa or the pause in II Kāla of the Jāthi.
3. Jāthi letters 2 times in II Kāla.
4. Vinyāsa in III Kāla of the Jāthi
5. Jāthi 3 times in III Kāla.

The whole when played consecutively, forms the Mukthāyi.

Eg:— θ D G N θ̄!

1. ; - θ, |, , D, |, , G, |, , N, |, , θ̄!, |, , -
2. θ, |, , , , |, , , , |
3. θ, D, | G, N, | θ!, - θ, | D, G, | N, θ̄!, |
4. θ, , , |,
5. θ D G | N θ̄! - θ D | G N θ! - θ | D G N θ̄! ||

In the vinyāsa items 2 and 4, the first letter θ is included for rhythmic beauty, though the whole is nishabda.

Total No. of letters in the Mukthāyi
= 14 × the no. of letters in the Jāthi

TABLE 27

Mukthāyi, Thrikāla and Thrisra gamana mukthāyi

Jāthi	Letters	Mukthāyi letters	Kriyas	Letters	Pause	Total Kriyas
$\theta D G N \bar{\theta}!$	5	70	17	2	2	18
$\theta D!, G N \bar{\theta}!$	6	84	21	-	-	21
$\theta D!, G N \bar{\theta}!$	7	98	24	2	2	25
$\theta D!, G, N, \bar{\theta}!$	8	112	28	-	-	28
$\theta D!, G, N, \bar{\theta}!$	9	126	31	2	2	32

The Mukthāyi of the Jāthi is to be first played, next the jāthi in Thrikāla and then thrisragamana mukthāyi is to be played.

Eg :— $\theta D G N \bar{\theta}!$

Mukthāyi :— ; - $\theta D G N \bar{\theta}!$ - $\theta D G N \bar{\theta}!$ - $\theta D G N \bar{\theta}!$ -

Thrikāla :— $\theta, , l, D, , l, G, , l, N, , l, \bar{\theta}!, , l,$

$\theta, D l, G, N l, \bar{\theta}!, - \theta D G N \bar{\theta}!$

Thrisragamana } :- $\theta D G l N \bar{\theta}!$ - $\theta D G N l \bar{\theta}!$ - $\theta D l G N \bar{\theta}!$
mukthāyi. }

Other patterns of the same magnitude :—

1. $\overset{3}{\text{Chaturasra mukthāyi}} + \overset{4}{\text{Thrisra mukthāyi}}$

+ $\overset{5}{\text{Vinyasa mukthāyi}} + \overset{2}{\text{Thrisra \& Thrisra higher Kāla}}$

2. $L_3 - L_4 - L_3 - L_2 - L_1$

Total no. of letters in the Mukthāyi

= $14 \times$ no. of letters in the Jāthi.

TABLE 28.
Threefold Mukthāyi in the 5 Jāthis in each Gamana

Gamana (Gathi)	Kriyas	Mukthāyi letters	No. of Pauses	No. of letters in the Pauses	Initial pause	Jāthi Mukthāyis,	
1	2	3	4	5	6	7	
g ₅	10. (Khandā)	5	60	2	6	9	(a) θ D G N θ̄ 1 9 times
		6	60	2	6	—	(b) θ D !, G N θ̄ ! ,,
		7	70	2	6	1	(c) θ D !, G N θ̄ ! ,,
		8	80	2	6	2	(d) θ D !, G, N, θ̄ ! ,,
		9	90	2	6	3	(e) θ D !, G, N, θ̄ ! ,,
g ₃	12. (Thrisra)	5	60	2	6	9	(a) ,,
		6	72	2	6	12	(b) ,,
		7	84	2	6	15	(c) ,,
		8	96	2	6	18	(d) ,,
		9	108	2	6	21	(e) ,,
g ₇	14. (Misra)	5	70	2	20	5	(a) ,,
		6	84	2	24	6	(b) ,,
		7	98	2	28	7	(c) ,,
		8	112	2	32	8	(d) ,,
		9	126	2	36	9	(e) ,,

	1	2	3	4	5	6	7
g _i	16.	5	80	2	20	15	(a) "
		6	96	2	24	18	(b) "
		(Chaturasra) 7	112	2	28	21	(c) "
		8	128	2	32	24	(d) "
		9	144	2	36	27	(e) "
g _o	18.	5	90	2	20	25	(a) "
		6	108	2	24	30	(b) "
		(Sankeerna) 7	126	2	28	35	(c) "
		8	144	2	32	40	(d) "
		9	162	2	36	45	(e) "

In this pattern, the Mukthāyi itself is to be repeated three times as shown in the example below. The three mukthāyis have two intervals between them and this explains column (4). column (5). gives the no. of letters for those two intervals and each interval is equal to half the no. in column (5). column (6) gives the pause at the beginning.

The number of kriyas in the present pattern of mukthāyi = the number of letters in the jāthi, except in khandā jāthi khandagamana (ī row) which has 6 kriyas instead of 5.

Eg :— Khandā jāthi in Khandagamana

ॐ D G N ॐ 1 - in g_i (10 letters per kriya)

The initial pause = 9 letters.

No. of pauses between mukthāyis = 2

Their total no. of letters = 6

∴ Each interval (pause) = 3 letters

No. of Kriyas = 6

;;;, - θ | D G N θ̄! - θ D G N θ̄! - θ | D G N θ̄! - , , , - θ D G | N θ̄! - θ D G N
θ̄! - θ D G | N θ̄! - , , , - θ D G N θ̄! - | θ D G N θ̄! - D G N θ̄! ||

Note:— Misra, Chaturasra and Sankeerna gamanas have a speciality about the duration of the 2 intervals between the three mukthāyis. The duration of each such interval = 2 × No. of letters in the jāthi.

TABLE 29

Mukthāyi in Gathibheda

(The different patterns are explained in column (4) of each table.)

- A -

Gamana	Letters in Gamana	Jāthi	Pattern of Mukthāyi	Jāthi	Mukthāyi letters	Kriyas
1	2	3	4	5	6	7
Khanda	10	θ D G N θ̄!	Mukthāyi & Thrikala	Kha.	50	5
		θ D!, G N θ̄!		Thri.	60	6
		θ D!, G N θ̄!		Mi.	70	7
		θ D!, G, N, θ̄!		Ch.	80	8
		θ D!, G, N, θ̄!		Sam.	90	9

Eg:— θ D G N θ̄!. in khanda Gathi.

Mukthāyi:— θ D G N θ̄! - θ D G N θ̄! | θ D G N θ̄! -

Thrikala:— ⁱθ , , D | , , , G , , , N , , | , θ̄! , , , - ⁱⁱθ, D, G | , N, θ̄! , - ⁱⁱⁱθ D G N θ̄! ||

Total no. of letters in the Mukthāyi

= 10 × no. of letters in the Jāthi.

- B -

1	2	3	4	5	6	7
Thrisra	6 12	$\theta D G N \bar{\theta}!$	Thrikāla and Vinyāsa Mukthāyī	Kha.	60	5
		$\theta D!, G N \bar{\theta}!$		Thri.	72	6
		$\theta D!, G N \theta!$		Mi.	84	7
		$\theta D!, G, N, \bar{\theta}!$		Cha.	96	8
		$\theta D!, G, N, \theta!$		Sam.	108	9

Eg:— $\theta D G N \bar{\theta}!$ - Thrisra Gathi. (12 letters per kriya)

$\theta, D, G, N, \bar{\theta}!$ - $\theta, D, G, N, \bar{\theta}!$ - $\theta D G N \bar{\theta}!$ - θ |

$D G N \bar{\theta}!$ - θ - $\theta D G | N \bar{\theta}!$ - θ - $\theta D G N \theta!$ ||

Total no. of letters in the Mukthāyī
= 12 × No. of letters in the jāthi.

- C -

1	2	3	4	5	6	7
Mīsra	7 14	$\theta D G N \theta!$	Chaturasra Mukthāyī, Thrikāla and Thrisra mukthāyī	Kha.	70	5
		$\theta D!, G N \bar{\theta}!$		Thri.	84	6
		$\theta D!, G N \theta!$		Mi.	98	7
		$\theta D!, G, N, \bar{\theta}!$		Cha.	112	8
		$\theta D!, G, N, \theta!$		Sam.	126	9

Eg:— $\theta D G N \theta!$ - Mīsra Gamana. (14 letters per Kriya)

Chaturasra Mukthāyī:— $\theta D G N \bar{\theta}!$ - $\theta D G N \theta!$ - $\theta D G N | \bar{\theta}!$ -

Thrikāla:— $\theta, D, G, N, \bar{\theta}!$ - $\theta, D, G, N, \theta!$ - $\theta D G N \bar{\theta}!$ -

Thrisra Mukthāyī:— $\theta D G | N \bar{\theta}!$ - $\theta D G N \theta!$ - $\theta D G N \theta!$ ||

Total No. of letters in the Mukthāyī
= 14 × No. of letters in the Jathi.

- D -

1	2	3	4	5	6	7
Chaturasra	16	$\theta D G N \bar{\theta}!$	Mukthayi, Thrikala & L ₃ + L ₂ + L ₁	Kha.	80	5
		$\theta D!, G N \bar{\theta}!$		Thri.	96	6
		$\theta D!, G N \bar{\theta}!$		Mi.	112	7
		$\theta D!, G, N, \bar{\theta}!$		Cha.	128	8
		$\theta D!, G, N, \bar{\theta}!$		Sam.	144	9

Eg:— $\theta D G N \bar{\theta}!$ - Chaturasra gamana. (16 letters per Kriya)

Mukthāyi :— $\theta D G N \theta! - \theta D G N \bar{\theta}! - \theta D G N \bar{\theta}!$

Thrikāla :— $\theta |, \dots, D, \dots, G, \dots, N, \dots, \bar{\theta}! |, \dots, - \theta, D, G, N, \bar{\theta}!, - \theta D G N \bar{\theta}! -$

$L_3 + L_2 + L_1 \theta, \dots, D, \dots, G, \dots, N, \dots, \bar{\theta}!, |, - \theta, D, G, N, \bar{\theta}!, - \theta D G N \bar{\theta}! ||$

Total No. of letters in the Mukthayi

= 16 × No. of letters in the Jathi

- E -

1	2	3	4	5	6	7
Sankeerna	18	$\theta D G N \bar{\theta}!$	Thrika, L ₃ + L ₂ + L ₁ and Vinyasa Mukthāyi.	Kha.	90	5
		$\theta D!, G N \bar{\theta}!$		Thri.	108	6
		$\theta D!, G N \bar{\theta}!$		Mi.	126	7
		$\theta D!, G, N, \theta!$		Cha.	144	8
		$\theta D!, G, N, \theta!$		San.	162	9

Eg:— $\theta D G N \bar{\theta}!$ - Sankeerna Gamana (10 letters per kriya)

Thrikala :— $\theta, \dots, D, \dots, G, \dots, N, \dots, \bar{\theta}!, |, \dots, - \theta, D, G, N, \bar{\theta}!, - \theta D G N \bar{\theta}! -$

$L_3 + L_2 + L_1 :— \theta |, \dots, D, \dots, G, \dots, N, \dots, \bar{\theta}!, \dots, - \theta, D, | G, N, \bar{\theta}!, - \theta D G N \bar{\theta}! -$

Vinyasa mukthāyi } $\theta D G N \bar{\theta}! - \theta, |, \dots, - \theta D G N \bar{\theta}! - \theta, \dots, - \theta D G N \bar{\theta}! ||$

Total No. of letters in the Mukthāyi

= 18 × No. of letters in the Jathi.

TABLE 30

Mukthāyi with 3-2-1 duration

Gamana	Kriyas	Mukthāyi letters	No. of intervals	interval duration	initial pause	Jāthi
1	2	3	4	5	6	7
g ₅ 10.	Khandā	50	1	3	2	(a) $\theta D G N \theta \bar{I}$
		60	1	3	3	(b) $\theta D \bar{I}, G N \theta \bar{I}$
		70	1	3	4	(c) $\theta D \bar{I}, G N \theta \bar{I}$
		80	1	4	4	(d) $\theta D \bar{I}, G, N, \theta \bar{I}$
		90	1	4	5	(e) $\theta D \bar{I}, G, N, \theta \bar{I}$
g ₃ 12.	Thrisra	60	1	6	9	(a) Note:- The above five
		72	1	6	12	(b) Jāthis repeat as
		84	1	6	15	(c) per a, b, c, d, e,
		96	1	6	18	(d) down below.
		108	1	6	21	(e)
g ₇ 14.	Misra	70	1	20	5	(a)
		84	1	24	6	(b)
		98	1	28	7	(c)
		112	1	32	8	(d)
		126	1	36	9	(e)

	1	2	3	4	5	6	7
ॐ ₄ 16. Chaturasra	5	80	1	20	15	(a)	
	6	96	1	24	18	(b)	
	7	112	1	28	21	(c)	
	8	128	1	32	24	(d)	
	9	144	1	36	27	(e)	
ॐ ₉ 18. Sankeerna	5	90	1	20	25	(a)	
	6	108	1	24	30	(b)	
	7	126	1	28	35	(c)	
	8	144	1	32	40	(d)	
	9	162	1	36	45	(e)	

The number of kriyas in each = the number of letters in the Jāthi.

- (1) The Jāthi is to be played in the gamana mentioned three times for the I part, (the mukthāyi.)
- (2) Next the Jāthi is to be played in $L_3 + L_2 + L_1$, order as shown below:—

Column (4) is the interval between the mukthāyi and $L_3 + L_2 + L_1$ i. e., the I & II parts. Its duration in Letters (akshara Kālas) is given in column (5)

column (6) indicates the initial pause in akshara kālas.

column (2) shows the total no. of kriyas.

Eg:— $\theta \text{ D G N } \bar{\theta}!$ - Khanda gamana (10 letters per kriya)

Mukthāyi:— ; $\theta \text{ D G N } \bar{\theta}!$ - $\theta \text{ D G } | \text{ N } \bar{\theta}!$ - $\theta \text{ D G N } \bar{\theta}!$ - , , , |

$3 + 2 + 1$:— $\theta, \text{ D}, \text{ G}, \text{ N } |, \bar{\theta}!$, - $\theta, \text{ D}, \text{ G } |, \text{ N}, \bar{\theta}!$, - $\theta \text{ D G N } \bar{\theta}!$ ||

TABLE 31

Jāthi gamana in nishabda and sashabda.

Jāthi	Letters	Sashabda letters	Nishabda letters	Total	Jāthi	(n).Nishabda and (S) Sashabda letters.									
						n	S	n	S	n	S	n	S	n	S
						Kha.	5	10	50	60	θ D!, K T	1	5	1	5
Thri.	6	7	42	60	θ D!, G N θ̄!	-	6	3	6	3	6	3	6	3	6
Mi.	7	5	35	60	θ D!, G N θ̄!	5	7	5	7	5	7	5	7	5	7
Cha.	8	5	40	60	θ D!, G, N, θ̄!	4	8	4	8	4	8	4	8	4	8
San.	9	5	45	60	θ D!, G, N, θ̄!	3	9	3	9	3	9	3	9	3	9
Kha. Drutha	10	5	50	60	K T θ K _a θ D!, G N θ̄!	2	10	2	10	2	10	2	10	2	10
Ch. Mi.	11	5	55	60	K T θ K _a θ D!, G N θ̄!	1	11	1	11	1	11	1	11	1	11

The Jāthis in the above table, when played in the order shown against each, amount to 60 letters in 15 Kriyas.

Eg:— θ D!, K T. (Khanda Jāthi.)

, θ D!, | K T, - θ | D!, K T |, - θ D!, | K T, - θ | D!, K T |, - θ D!, | K T, - θ | D!, K T |, - θ D!, | K T, - θ | D!, K T |, - θ D!, | K T, - θ | D!, K T ||

Eg:— θ D!, G N θ̄! (Thrisra Jāthi.)

θ D!, G | N θ̄! - ,, |, - θ D!, | G N θ̄! - ,, |, - θ D! |, G N θ̄! | - ,, - θ | D!, G N | θ̄! - ,, | - θ D!, G | N θ̄! - ,, |, - θ D!, | G N θ̄! - ,, |, - θ D! |, G N θ̄! ||

TABLE 32

Mukthāyi in Thrikāla, 3-2-1 duration, Thrisra and thrisra higher kala.

Jāthi.	Letters	Mukthāyi letters	Kriyas	letters	Initial Pause	Total Kriyas
$\theta D G N \theta \bar{1}$	5	75	18	3	1	19
$\theta D !, G N \theta \bar{1}$	6	90	22	2	2	23
$\theta D !, G N \theta \bar{1}$	7	105	26	1	3	27
$\theta D !, G, N, \theta \bar{1}$	8	120	30	—	—	30
$\theta D !, G, N, \theta \bar{1}$	9	135	33	3	1	34

The Jāthi is to be played first in Thrikāla, next in 3-2-1 gamana, and finally in Thrisra and Thrisra higher kāla in order. The initial pause is also indicated to make up the integral number of kriyas.

Eg:— $\theta D G N \theta \bar{1}$

Thrikāla:— $\theta, |, D, |, G, |, N, |, \theta \bar{1}, |, - \theta, D |, G, N |, \theta \bar{1}, - \theta | D G N \theta \bar{1} |$

3-2-1:— $\theta, |, D |, |, G, |, N, |, \theta \bar{1}, |, - \theta |, D, G |, N, \theta \bar{1} |, - \theta D G | N \theta \bar{1} -$

Thrisra and
Thrisra Hr. } $\theta, D |, G, N, \theta \bar{1} |, - \theta, D, G, N, \theta \bar{1}, ||$

Other Mukthāyis of the same magnitude.

- (1) I Kāla (once) + II Kāla (twice) + III Kāla (thrice) + Thrisra gamana mukthāyi.
- (2) I Kāla (once) + II Kāla Jāthi pause + II Kāla (twice) + II Kāla Jāthi pause + III Kāla (thrice.)
- (3) 5-4-3-2-1 gamana.
- (4) 6-5-4 gamana

Total no. of letters in the Mukthāyi
= 15 × no. of letters in the Jāthi.

TABLE 33

Jāthi in 6 - 4 - 3 - 2 - 1 duration

Jāthi	letters	Mukthāyi letters	Cha. g ₁		Thri. g ₃		Mis.. g ₇		Kha. g ₈		San. g ₉	
			Kr	L	Kr	L	Kr	L	Kr	L	Kr	L
θ D G N θ̄!	5	80	10	—	13	2	5	10	8	—	4	8
θ D!, G N θ̄!	6	96	12	—	16	—	6	12	9	6	5	6
θ D!, G N θ̄!	7	112	14	—	18	4	8	—	11	2	6	4
θ D!, G, N, θ̄!	8	128	16	—	21	2	9	2	12	8	7	2
θ D!, G, N, θ̄!	9	144	18	—	24	—	10	4	14	4	8	—

Each Kriya is of 8 aksharakālas.

Eg:— θ D G N θ̄! - in g₁

θ, , , , D, l, , , , G, , , l, , , N, , , , , | θ!, , , , , - θ, l, , , D, , , G, l

, , N, , , θ̄!, l, , , - θ, , D, , l G, , N, , θ̄!, l, , - θ, D, G, N, l θ̄!, - θ D G N θ̄! ||

Total no. of letters = 16 × no. of letters in the Jāthi.

TABLE 34
Mukthāyi, Thrikāla and 3 - 2 - 1 duration

Jāthi	letters	Mukthāyi letters	g ₁		g ₃		g ₇		g ₅		g ₉	
			Kr	L	Kr	L	Kr	L	Kr	L	Kr	L
θ D G N θ!	5	80	5	—	6	8	5	10	8	—	4	8
θ D!, G N θ!	6	96	6	—	8	—	6	12	9	6	5	6
θ D!, G N θ!	7	112	7	—	9	4	8	—	11	2	6	—
θ D!, G, N, θ!	8	128	8	—	10	8	9	2	12	8	7	2
θ D!, G, N, θ!	9	144	9	—	12	—	10	4	14	4	8	—

Note :— Jāthi in its gamana in the above order will be Sama graha Sama in 8 kriyas.

Eg :— θ D G N θ! - in g₃

Mukthāyi :— θ D G N θ! - θ D G N θ! | - θ D G N θ! -

Thrikāla :— θ,,, D |,,, G,,, N,, 1, θ!,,, - θ, D, G |, N, θ!, - θ D G N θ! |

3 - 2 - 1 θ,, D,, G,, N |,, θ!,, - θ, D, G |, N, θ!, θ D G N θ! ||

Total no. of letters = 16 × no. of letters in the Jāthi.

TABLE 35
Three Thrikālas

Jāthi	Letters	Gathi	Pause in kriyas	Kriyas	No. of letters in Thrikāla with pause	Total kriyas	Total letters
$\theta D G N \theta \bar{I}$	5	Cha. Thri. Kha.	$\frac{1}{4}$ $\frac{3}{8}$ —	$8\frac{3}{4}$ $11\frac{3}{8}$ 7	36 48 28	28	112
$\theta D \bar{I}, G N \theta \bar{I}$	6	Cha. Thri. Thri. Hr.	$\frac{1}{2}$ — —	$10\frac{1}{2}$ 14 7	44 56 28	32	128
$\theta D \bar{I}, G N \theta \bar{I}$	7	Cha. Thri. Misra	$\frac{3}{16}$ $\frac{3}{8}$ —	$12\frac{1}{4}$ $16\frac{1}{2}$ 7	52 68 28	37	148
$\theta D \bar{I}, G, N, \theta \bar{I}$	8	Cha. Thri. Cha. Hr.	— $\frac{1}{2}$ —	14 $18\frac{3}{8}$ 7	56 76 28	40	160
$\theta D \bar{I}, G, N, \theta \bar{I}$	9	Cha. Thri. Sam.	$\frac{1}{4}$ — —	$15\frac{3}{4}$ 21 7	64 84 28	44	176

The Mukthāyi consists of three thrikālas, for each of the particular gamanas (gathi) shown.

The jāthi is to be played first in chaturasra gamana thrikāla, next in Thrisra gamana thrikāla and finally in the jāthi gamana thrikāla as indicated in the table.

Note ;— Thrisra gamana thrikāla presents a little complication, when the mukthāyī is played in the series of the gamanas and as per the kriyas indicated in column 5, when it contains a fraction of a kriya, in items 1, 3 and 4. The difficulty arises at the change-over of the gamana. So, for practical convenience, a pause, for making up the integral number of kriyas for the necessary gamanas is also indicated. The particular pause will be the initial pause for the particular gamana, in the same gamana.

The calculations in Column 5

The number of letters in thrikāla of a Jāthi is arrived at by multiplying the number of letters in the Jāthi by 7.

For example, $\theta D G N \bar{\theta}$ is khanda jāthi. (5 letters.) No. of letters in Thrikāla = $7 \times 5 = 35$. This number is to be taken as the basis for calculating the no. of kriyas.

$$\text{No. of Kriyas in chaturasra gamana} = \frac{35}{4} = 8 \frac{3}{4}$$

$$\text{,, Thrisra ,,} = \frac{35}{3} = 11 \frac{2}{3}$$

$$\text{,, Khanda ,,} = \frac{35}{5} = 7$$

(The kriyas are finally reckoned as chaturasra kriyas.)

PRACTICAL.

1. $\theta D G N \bar{\theta}$:— Cha. I:— , - θ ; | , D ; | , G ; | , N ; | , $\bar{\theta}$; | , -

(5) II:— θ , D | , G , N | , $\bar{\theta}$ | , -

III:— θ | D G N $\bar{\theta}$ | |

Thri. I:— , - θ , | ; D | , ; | G ; | , N , | ; $\bar{\theta}$ | | , ; |

II:— θ , D | , G , | N , $\bar{\theta}$ | | , -

III:— θ D | G N $\bar{\theta}$ | |

Kha. I:— θ , ; D | , ; G , | ; N ; | , $\bar{\theta}$ | , ; |

II:— θ , D , G | , N , $\bar{\theta}$ | , |

III:— θ D G N $\bar{\theta}$ | |

2. $\theta D! , G N \bar{\theta}!$:— Cha. I:— ; - $\theta , ! ; D! , ! ; ! ; G , ! ; N , ! ; \bar{\theta}! , ! ; -$
 (6) II:— $\theta , ! D! , ; ! G , N , ! \theta! , -$
 III:— $\theta D! ! , G N \bar{\theta}! -$
 Thri. I:— $\theta ; ! , D! , ! ; ! ; ! G ; ! , N , ! ; \bar{\theta}! ! , ; !$
 II:— $\theta , D! ! , ; ! G , N ! , \bar{\theta}! , !$
 III:— $\theta D! , ! G N \bar{\theta}! !$
 Thri. Hr. I:— $\theta , D! ! , ; ! G , N ! , \bar{\theta}! , !$
 II:— $\theta D! , ! G N \bar{\theta}! !$
 III:— $\theta D! , G N \bar{\theta}! !$
3. $\theta D! , G N \bar{\theta}!$:— Cha. I:— ; , - $\theta ! ; ; ! ; , D! ! ; ; ! ; , G ! , ; N ! , ; \bar{\theta}! ! , ; -$
 (7) II:— $\theta ! , ; D! ! , ; G ! , N , \bar{\theta}! ! , -$
 III:— $\theta D! ! , G N \bar{\theta}! !$
 Thri. I:— ; - $\theta ! , ; ! , ; ! , D! , ! ; ! , ; ! G ; ! , N , ! ; \bar{\theta}! ! , ; !$
 II:— $\theta ; ! , D! , ! ; G ! , N , ! \bar{\theta}! , -$
 III:— $\theta ! , D! , ! G N \theta! !$
 Mis. I:— $\theta ; ; ! , D! , ; ; ! ; G , ; N ! , ; \bar{\theta}! , ; !$
 II:— $\theta , ; D! ; ! , G , N , \theta! , !$
 III:— $\theta D! , G N \bar{\theta}! !$
4. $\theta D! , G , N , \bar{\theta}!$:— Cha. I:— $\theta , ; ! D! , ; ! ; ! G , ; ! ; ! N , ; ! ; ! \bar{\theta}! , ; !$
 (8) II:— $\theta , D! , ! ; G , ! ; N , ! ; \bar{\theta}! , !$
 III:— $\theta D! , G ! , N , \bar{\theta}! !$
 Thri. I:— , - $\theta , ! ; D! ! , ; ! , ! , G , ! , ; ! , ; ! N , ! , ; ! ; \bar{\theta}! ! , ;$
 II:— $\theta , D! ! , ; ! G ; ! , N , ! ; \bar{\theta}! ! , -$
 III:— $\theta D! ! , G , ! N , \bar{\theta}! !$

Cha, Hr. I:- $\theta, D!, l; G, l; N, l; \overline{\theta}!, l$

II:- $\theta D!, G l, N, \overline{\theta}! |$

III:- $\theta D!, G, N, \overline{\theta}! |$

5. $\theta D!, G, N, \overline{\theta}!$:— Cha. I:- $, -\theta; l; ; l, D!; l; ; l, G; l; ; l, N; l; ; l,$

(9)

$\overline{\theta}!; l, -$

II:- $\theta; l, D!; l, G; l, N; l, \overline{\theta}!, -$

III:- $\theta |, D!, G l, N, \overline{\theta}! -$

Thri. I:- $\theta; l; ; l; D! l, ; l; ; l, G, l; ; l; ; l; N; l; ; l;$

$\overline{\theta}! l, ; l$

II:- $\theta; l, D! l; G l, ; l; N; l, \overline{\theta}!, l$

III:- $\theta D! l, G, l; N, \overline{\theta}! |$

Sad. I:- $\theta, ; ; D! l, ; ; G, l; ; N; l, ; ; \overline{\theta}!, ; l$

II:- $\theta, ; D!; G l, ; N, ; \overline{\theta}!, l$

III:- $-\theta D!, G, N, \overline{\theta}! ||$

TABLE 36
Three Mukthayis in three Kalas

Jāthi	Letters	Mukthāyi letters	g ₁		g ₂		g ₃		g ₄		g ₅	
			Kr	L	Kr	L	Kr	L	Kr	L	Kr	L
θ D G N θ̄!	5	105	26	1	35	-	15	-	21	-	11	6
θ D!, G N θ̄!	6	126	31	2	42	-	18	-	25	1	14	-
θ D!, G N θ̄!	7	147	36	3	49	-	21	-	29	2	16	3
θ D!, G, N, θ̄!	8	168	42	-	56	-	24	-	33	3	18	6
θ D!, G, N, θ̄!	9	189	47	1	63	-	27	-	37	4	21	-

The first mukthāyi is to be played at 1 letter per Kriya. The second mukthāyi at 2 letters per Kriya and the third at 4 letters per Kriya.

Eg:— θ D G N θ̄! — in g₁

(The initial pause is 3 lettees for 27 Kriyas.)

I Mukthāyi :- ;, - θ | ,, D | ,, G | ,, N | ,, θ̄ | ,, - θ | ,, D | ,, G |
,, N | ,, θ̄ | ,, - θ | ,, D | ,, G | ,, N | ,, θ̄ | ,, -

II Mukthāyi :- θ |, D, G |, N, θ̄ |, - θ, D |, G, N |, θ̄ |, - θ |
, D, G |, N, θ̄ |, -

III Mukthāyi :- θ D G | N θ̄ | - θ D | G N θ̄ | - θ | D G N θ̄ | ||

(The whole is a continuous series, separated in such a way as to show the different parts.)

No. of letters in the Mukthāyi

$$= 21 \times \text{no. of letters in the Jāthi.}$$

TABLE 37

Jāthi Thaggimpu. (Diminution)

(6-5-4-3-2-1 duration)

Jāthi	Letters	Total no. of letters	g ₁		g ₂		g ₃		g ₄		g ₅	
			Kr	L	Kr	L	Kr	L	Kr	L	Kr	L
θ D G N θ̄!	5	105	26	1	35	—	15	—	21	—	11	6
θ D!, G N θ̄!	6	126	31	2	42	—	18	—	25	1	14	—
θ D!, G N θ̄!	7	147	36	3	49	—	21	—	29	2	16	3
θ D!, G, N, θ̄!	8	168	42	—	56	—	24	—	33	3	18	6
θ D!, G, N, θ̄!	9	189	47	1	63	—	27	—	37	4	21	—

The manner of play is as follows :— The Jāthi is to be played, each letter having 6 times its duration. This is to be repeated with the duration of 5, 4, 3, 2, 1 times successively each time. The following example serves well to illustrate this.

Eg. θ D G N θ̄! — in g₄.

(The initial pause for 27 kriyas is 3.)

6 :— ;, -θ | , , , , | , D, | , , , , | , G | , , , , | , N, | , , , , | , θ̄! | , , , , | , -

5 :— θ, | , , , , | , D, | , , , , | , G | , , , , | , N, | , , , , | , θ̄!, | , , , , | , -

4 :— θ, | , , , | , D, | , , , | , G, | , , , | , N, | , , , | , θ̄!, | , , , | , -

3 :— θ, | , , | , D, | , , | , G, | , , | , N, | , , | , θ̄!, | , , | , -

2 :— θ, | , , | , D, | , , | , G, | , , | , N, | , , | , θ̄!, | , , | , -

1 :— θ | D G N θ̄! ||

Total no. of letters

$$= 21 \times \text{No. of letters in the Jāthi.}$$

TABLE 38

Mukthāyi in 9-7-5 Duration

Jāthi	Letters	No. of letters in 9-7-5 duration	g ₁		g ₂		g ₃		g ₄		g ₅	
			Kr	L	Kr	L	Kr	L	Kr	L	Kr	L
θ D G N θ̄!	5	105	26	-	35	-	15	-	21	-	11	6
θ D!, G N θ̄!	6	126	31	2	42	-	18	-	25	1	14	-
θ D!, G N θ̄!	7	147	36	3	49	-	21	-	29	2	16	3
θ D!, G, N, θ̄!	8	168	42	-	56	-	24	-	33	3	18	6
θ D!, G, N, θ̄!	9	189	47	11	63	-	27	-	37	4	21	-

The Jāthi is to be played successively in 9-7-5 duration of its letters.

Eg.— θ D G N θ̄! — in g₁.

(Initial pause for 27 Kriyas is 3)

9 :— ;, - θ | , , , , | , , , , | D | , , , , | , , , , | G | , , , , | ; N | , , , , | , , , , | θ̄ | | , , , , | , , , , |

7 :— θ | , , , | , , , D | | , , , | , , G | | , , , | , , N | | , , , | | θ̄ | | , , , | , , , -

5 :— θ | | , , , | D | | , , , | , G | | , , , | , N | , , , | θ̄ | | , , , | |

Total No. of letters

= 21 × No. of letters in the Jāthi.

TABLE 39

Mukthāyi in Chaturasra, Thrisra and Thrisra higher-kāla gamana, each in Thrikāla:

Jāthi	Letters	No. of letters in Thrikāla Jāthi	Total no. of letters in Thrikāla in three gamanas	Gamanas (Gathis)	Kriyas
1	2	3	4	5	6
$\theta D G N \bar{\theta} \bar{I}$	5	35	105	Chaturasra Thrisra Thrisra Hr.	$8\frac{3}{4}$ $11\frac{3}{8}$ $5\frac{5}{8}$ <hr/> $26\frac{1}{4}$
$\theta D I, G N \bar{\theta} \bar{I}$	6	42	126	Chaturasra Thrisra Thrisra Hr.	$10\frac{1}{2}$ 14 7 <hr/> $31\frac{1}{2}$
$\theta D I, G N \bar{\theta} \bar{I}$	7	49	147	Cha. Thri. Thri. Hr.	$12\frac{1}{4}$ $16\frac{3}{8}$ $8\frac{5}{8}$ <hr/> $36\frac{3}{7}$
$\theta D I, G, N, \bar{\theta} \bar{I}$	8	56	168	Cha. Thri. Thri. Hr.	14 $18\frac{3}{8}$ $9\frac{1}{4}$ <hr/> 42
$\theta D I, G, N, \bar{\theta} \bar{I}$	9	63	189	Cha. Thri. Thri. Hr.	$15\frac{3}{4}$ 21 $10\frac{1}{2}$ <hr/> $47\frac{1}{4}$

The Jāthi is to be played first in chaturasra gamana thrikāla. next in thrisra-gamana thrikāla and finally in thrisra higher kāla gamana thrikāla.

1. Eg:— θ D G N $\bar{\theta}$!

The total no. of kriyas = $26\frac{1}{4}$. To make this number an integral one, i. e. 27, an initial pause of $\frac{3}{4}$ kriya is to be given. $\frac{3}{4}$ kriya = 3 letters.

Chaturasra, I Kāla :— ; , - θ | , , , D | , , , G | , , , N | , , , $\bar{\theta}$! | , , , -

II Kāla :— θ | , D , G | , N , $\bar{\theta}$! | , -

III Kāla :— θ D G | N $\bar{\theta}$! -

Thrisra, I Kāla :— θ ; | ; ; , D | ; ; ; | , G ; ; | ; , N ; | ; ; , $\bar{\theta}$! | ; ; ; | , -

II Kāla : θ ; , D | ; , G ; | , N ; , $\bar{\theta}$! | ; , -

III Kāla :— θ , D | , G , N , $\bar{\theta}$! | , -

Thrisra Hr. I Kāla :— θ ; , D | ; , G ; | , N ; , $\bar{\theta}$! | ; , -

II Kāla :— θ , D | , G , N , $\bar{\theta}$! | , -

III Kāla :— θ D G N $\bar{\theta}$! ||

Total no. of letters

$$= 21 \times \text{No. of letters in the Jāthi.}$$

The Coefficient of Chaturasra + Thrisra + Thrisra Higher Kāla

$$= 1 + \frac{1}{3} + \frac{2}{3} = 3$$

The Coefficient of Thrikāla = 7

$$\therefore \text{The Compound Coefficient} = 7 \times 3 = 21$$

TABLE 40

Mukthāyi in Thrikāla, Thrisragamana and Thrisra higher Kāla gamana

Jāthi	Letters	Mukthāyi Total letters	g ₁		g ₂		g ₇		g ₅		g ₉	
			Kr	L	Kr	L	Kr	L	Kr	L	Kr	L
θ D G N θ̄	5	135	33	3	45	-	19	2	27	-	15	-
θ D , G N θ̄	6	162	40	2	54	-	23	3	32	2	18	-
θ D , G N θ̄	7	189	47	1	63	-	27	-	37	4	21	-
θ D , G, N, θ̄	8	216	54	-	72	-	30	6	43	1	24	-
θ D , G, N, θ̄	9	243	60	3	81	-	34	5	48	3	27	-

This Mukthāyi is compounded of separate mukthāyis. The Jāthi is to be played first in thrikāla, next in Thrisragamana and finally in thrisra higher Kāla.

- (1) Thrikāla :— I Kāla — Jāthi 3 times in I, II and III Kālas
 (2) Thrisra gamana :— " "
 (3) " higher Kāla gamana :— " "

Eg :— θ D G N θ̄ — in g₁ (initial pause = 1 for 34 Kriyas.)

Thrikāla :— I Kāla :— } , - θ , , |, D , , |, G , , |, N , , |, θ̄ , , |, - θ , , |, D , , |
 Mukthāyi. } , G , , |, N , , |, θ̄ , , |, - θ , , |, D , , |, G , , |, N , , |, θ̄ , , |, -

Mukthāyi, II Kāla :— θ , D |, G, N |, θ̄ |, - θ |, D, G |, N, θ̄ |, |, -
 θ , D |, G, N |, θ̄ |, -

" III Kāla :— θ | D G N θ̄ | | θ D G N | θ̄ | - θ D G | N θ̄ | -

Thrisra (Mukthāyi) :— θ , D |, G, N, θ̄ |, |, - θ, D, G |, N, θ̄ |, -
 θ |, D, G, N |, θ̄ |, -

Thrisra Hr. (Mukthāyi) :— θ D G | N θ̄ | - θ D G N | θ̄ | - θ D G N θ̄ | ||

(Thrikāla + Thrisra + Thrisra Hr.) Mukthāyi = $(7 + \frac{1}{3} + \frac{2}{3}) \times 3 = 9 \times 3 = 27$

∴ No. of letters in the Compound Mukthāyi. = 27 × No. of letters in the Jāthi.

TABLE 41

Mukthāyī in Khanda jathi (θ K T $\bar{\theta}$!) in Thrikāla.

θ K T $\bar{\theta}$!, θ K T θ !, θ K T θ !	:—	6 + 6 + 5	=	17
θ D G N θ !	:—		=	6
θ K _a θ D G N θ !	:—		=	8
θ K _a D G _u θ D G N θ !	:—		=	9
				<u>40</u>

Madhyama Kāla is to be taken as the base for the above 40 letters. As such, in I Kāla, they are 80 letters and in III Kāla they are 20 letters, the total being 140.

Gamana		Pradhama (or) I kāla		Madhyama (or) II Kāla		Thrithiya (or) III Kāla		Total No. of Kriyas in Thrikāla		Total No. of letters
		Kr	L	Kr	L	Kr	L	Kr	L	
Cha.	8	10	-	5	-	2	4	17	4	140
Thri.	12	6	8	3	4	1	8	11	8	
Misra.	14	5	10	2	12	1	6	10	-	
Kha.	10	8	-	4	-	2	-	14	-	
Sam.	18	4	8	2	4	1	2	7	14	

The above is to be played in chauka kāla in 2 Kālas for each gamana.

Eg. — Thrisra Gamana. (4 letters initial pause for 12 Kriyas)

- I Kāla :— ; ; - θ , K, T, $\bar{\theta}$!, | ,,,, - θ , K, T, $\bar{\theta}$!, | ,,,, - θ , K, T, $\bar{\theta}$!, |
 ,, θ , D, G, N, $\bar{\theta}$!, | ,, - θ , K_a, θ , D, G, | N, $\bar{\theta}$!,,, - θ , K_a, D, |
 G_u, θ , D, G, N, $\bar{\theta}$!, |
- II Kāla :— θ K T $\bar{\theta}$!, , θ K T $\bar{\theta}$!, , | θ K T $\bar{\theta}$!, - θ D G N $\bar{\theta}$!, θ | K_a θ D G N $\bar{\theta}$!, -
 θ K_a D G_u θ | D G N $\bar{\theta}$! -
- III Kāla :— θ K T $\bar{\theta}$!, , θ K T $\bar{\theta}$!, , θ K T $\bar{\theta}$! | , θ D G N $\bar{\theta}$!, θ K_a θ D G N $\bar{\theta}$!, -
 θ K_a D G_u θ D G N $\bar{\theta}$! ||

Note :— Chaturasra or Thrisra, or Sadkeerna takes an initial pause of 4 letters.

TABLE 42

Mukthāyī in Misra jathī ($\theta \text{ K}_a \theta \text{ K T } \bar{\theta}!$,) in Thrikāla

$$\begin{aligned} \theta \text{ K}_a \theta \text{ K T } \bar{\theta}!, \text{ ; } -\theta \text{ K}_a \theta \text{ K T } \bar{\theta}!, \text{ , } -\theta \text{ K}_a \theta \text{ K T } \bar{\theta}!, \text{ :- } & 8 - 8 + 7 = 23 \\ \theta \text{ D}!, \text{ G N } \bar{\theta}!, \text{ , } , \text{ :- } & = 10 \\ \theta \text{ K}_a \theta \text{ D}!, \text{ G N } \bar{\theta}!, \text{ , } , \text{ :- } & = 12 \\ \theta \text{ K}_a \text{ D G}_u \theta \text{ D}!, \text{ G N } \bar{\theta}! \text{ :- } & = 11 \\ & \underline{\hspace{10em}} \\ & 56 \end{aligned}$$

Madhyama Kāla is to be taken as the base for the above 56 letters. As such, in I Kāla there are 112 letters and in III Kāla, 28 letters, the total being 196 letters.

Gamana		Pradhama or I Kāla		Madhyama or II Kāla		Thrithiya or III Kāla		Total No. of Kriyas in Thrikāla		Total No. of letters
		Kr	L	Kr	L	Kr	L	Kr	L	
Cha.	8	14	-	7	-	3	4	24	4	196
Thri.	12	9	4	4	8	2	4	16	4	
Mis.	14	8	-	4	-	2	-	14	-	
Kha.	10	11	2	5	6	2	8	19	6	
Sam.	18	6	4	3	2	1	10	10	16	

The above is to be played in Chauka Kāla in 2 kaḷas for each gamana.

Eg :- Chaturasra gamana. (Initial pause 4 letters for 25 Kriyas)

I :- ; - θ , K_a , | θ , K , T , $\bar{\theta}!$, | , , , , - θ , K_a , | θ , K , T , $\bar{\theta}!$, | , , , , - θ , K_a , |
 θ , K , T , $\bar{\theta}!$, | , , - θ , , $\text{D}!$, | , , G , N , $\bar{\theta}$, | , , , , , - θ , | K_a , θ , , $\text{D}!$, |
 , G , N , $\bar{\theta}!$, | , , , , , - θ , | K_a , D , G_u , θ , | , , $\text{D}!$, , G , | N , $\bar{\theta}!$, -

II :- $\theta \text{ K}_a \theta \text{ K | T } \bar{\theta}!$, , - $\theta \text{ K}_a \theta \text{ K | T } \bar{\theta}!$, , - $\theta \text{ K}_a \theta \text{ K | T } \bar{\theta}!$, - $\theta \text{ D}!$, G |
 $\text{N } \bar{\theta}!$, , $\theta \text{ K}_a \theta | \text{D}!$, $\text{G N } \bar{\theta}!$, | , | , $\theta \text{ K}_a \text{ D G}_u \theta \text{ D}!$ | | , $\text{G N } \bar{\theta}!$ -

III :- $\theta \text{ K}_a \theta \text{ K T } \bar{\theta}!$, | , - $\theta \text{ K}_a \theta \text{ K T } \bar{\theta}!$, , - $\theta \text{ K}_a \theta \text{ K T } \bar{\theta}!$, - θ | , $\text{D}!$, $\text{G N } \bar{\theta}!$, , -

$\theta \text{ K}_a \theta \text{ D}!$, $\text{G | N } \bar{\theta}!$, , - $\theta \text{ K}_a \text{ D G}_u \theta \text{ D}!$, $\text{G N } \bar{\theta}!$ ||

TABLE 43

Mukthāyi in Sankeerna jathi (θ K_a D G_u θ K T $\bar{\theta}$!), in Thrikāla:

θ K _a D G _u θ K T $\bar{\theta}$! ; ; θ K _a D G _u θ K T $\bar{\theta}$! ; ; θ K D _a G θ K T $\bar{\theta}$! ; ;	11 + 11 + 9 = 31
θ D! ; G, N, $\bar{\theta}$! ; ; :-	= 13
θ K _a θ D! ; G, N, $\bar{\theta}$! ; ; :-	= 15
θ K ^a D G θ D! ; G, N, $\bar{\theta}$! :-	= 13
	72

Madhyama Kala is to be taken as the base for the above 72 letters. As such in I Kāla, they are 144 letters and in III Kāla, 36 letters, the total being 252 letters.

Gamana		Pradhama or I Kala		Madhyama or II Kala		Thrithiya or III Kala		Total No. of Kriyas in Thrikāla		Total No. of letters
		Kr	L	Kr	L	Kr	L	Kr	L	
Cha.	8	18	-	9	-	4	4	31	4	252
Thri.	12	12	-	6	-	3	-	21	-	
Mis.	14	10	4	5	2	2	8	18	-	
Kha.	10	14	4	7	2	3	6	25	2	
Sam.	18	8	-	4	-	2	-	14	-	

The above is to be played in Chauka Kāla in 2 Kalas, for each gamana.

Eg :— . Chaturasra gamana (Initial pause 4 letters for 32 Kriyas).

I Kāla :— ; ; - θ , K_a, | D, G_u, θ , K, | T, $\bar{\theta}$! ; ; | ; - θ , K_a, D, | G_u, θ , K, T, | $\bar{\theta}$! ; ; ; |

θ , K_a, D, G_u, | θ , K, T, $\bar{\theta}$! ; ; - θ ; ; ; D! ; ; ; G ; ; ; N, | ; ; ; $\bar{\theta}$! ; ; ; | ; ; - θ , K_a, |

θ ; ; ; D! ; ; ; | G ; ; ; N ; ; ; | $\bar{\theta}$! ; ; ; | ; - θ , K_a, D, | G_u, θ ; ; ; D! ; ; ; | ; ; G ; ; ; N, | ; ; ; $\bar{\theta}$! ; -

II Kāla :— θ K_a D G_u | θ K T $\bar{\theta}$! ; ; - θ | K_a D G_u θ K T $\bar{\theta}$! ; ; | ; - θ K_a D G_u θ K | T $\bar{\theta}$! ; -

θ D! ; G | ; N, $\bar{\theta}$! ; ; | θ K_a θ D! ; G, | N, $\bar{\theta}$! ; ; - θ | K_a D G_u θ D! ; G | ; N, $\bar{\theta}$! ; -

III Kāla :— θ K_a D G_u θ K T $\bar{\theta}$! ; ; ; - θ K_a D G_u θ K T $\bar{\theta}$! ; ; - θ K_a | D G_u θ K T $\bar{\theta}$! ; -

θ D! ; G, N, $\bar{\theta}$! ; ; ; - θ K_a θ D! ; G, N, $\bar{\theta}$! ; ; ; - θ K_a D G_u θ D! ; G, N, $\bar{\theta}$! ; ;

Note :— For Misra gamana, an initial pause of 8 letters is to be given for 26 Kriyas.

TABLE 44

3, $1\frac{1}{2}$, $\frac{3}{4}$ Thrikāla in Chaturasra gamana

Jāthi		Jāthi	No. of letters in Thrikāla	Kriyas	Letters
Cha,	4	K T θ K _a	21	5	1
Thri.	3	θ K T	$15\frac{3}{4}$	3	$3\frac{3}{4}$
Misra.	7	θ K _a θ D G N θ̄!	$36\frac{3}{4}$	9	$\frac{3}{4}$
Kha.	5	θ D G N θ̄!	$26\frac{1}{4}$	6	$2\frac{1}{4}$
Sam.	9	θ K _a D G _a θ D G N θ̄!	$47\frac{1}{4}$	11	$3\frac{1}{4}$

Note :— If the Kriyas and letters are multiplied by 4, the numbers in the last column can be made integral.

Eg :— K T θ K_a. (Initial pause = 3 in g₄ for 6 Kriyas)

; , K | , , T , | , θ , , | K_a , - K , | , T , , θ , , K_a | , , - K , , T , , θ , , K_a , , ||

Total No. of letters

$$= 5\frac{1}{4} \times \text{No. of letters in the Jāthi.}$$

$$(3 + 1\frac{1}{2} + \frac{3}{4} = 5\frac{1}{4})$$

TABLE 45

Mukthāyi in Khanda Jāthi in the diminishing order of 9-7-5-4-3

Jāthi	Mukthāyi letters	Thrikāla	g ₄		g ₃		g ₂		g ₁		g ₀	
			Kr	L	Kr	L	Kr	L	Kr	L	Kr	L
$\overset{9}{\theta} \overset{7}{D} \overset{5}{G} \overset{4}{N} \overset{3}{\theta!}$ $\theta D G N \theta!$	84	1	21	-	28	-	12	-	16	4	9	3
		2	10	2	14	-	6	-	8	4	4	12
		3	5	1	7	-	3	-	4	4	2	12

θ has 9 times its duration as θ ;;;. D has 7 times its duration, G 5 times N 4 times and $\theta!$ 3 times.

The positions on the mridanga :—

Note :— $\overset{Ch}{\theta}$ $\overset{3}{D}$ $\overset{1d}{G}$ $\overset{m}{N}$ $\overset{1}{\theta!}$

Eg :— Chaturasra gamana (g₄)

I Kāla :— θ ;;;, | ;;;, |, D ;;;, | ;;;, | G ;;;, |, N ;;;, |, $\theta!$, ; | (3 times)

II Kāla :— ; ; - θ , ; | ; ; ; D ; | ; ; G, ; |, N, ; $\theta!$; | - θ , ; ; ; |, D ; ; ; | G ; ; N ; |, $\theta!$; - θ , ; |

;; ; D ; | ; ; G, ; |, N, ; $\theta!$; ||

III Kāla :— ; ; ; ; ; - θ , ; | ; ; ; D ; ; ; G, ; |, N, ; $\theta!$; - θ , ; ; ; |, D ; ; ; G ; ; N ; |

, $\theta!$; - θ ; ; ; D ; | ; ; G ; ; N ; $\theta!$; ||

(9 + 7 + 5 + 4 + 3) 3 = 28 × 3 = 84 letters.

TABLE 48

Jāthi Shatkāla in Chaturasra gamana set to the Thāla of 6 Kriyas

	Jāthi	Letters in Shatkāla	Kriyas	Letters	Account in Avrithas			Initial pause		Total Avrithas
					Av	Kr	L	Kr	L	
Kha. 5	θ D G N θ̄!	315	78	3	13	-	3	5	1	14
Thri. 6	θ D!, G N θ̄!	378	94	2	15	4	2	1	2	16
Mi. 7	θ D!, G N θ̄!	441	110	1	18	2	1	3	3	19
Cha. 8	θ D!, G, N, θ̄!	504	126	-	21	-	-	-	-	21
San. 9	θ D!, G, N, θ̄!	567	141	3	23	3	3	2	1	24

Thālas of 6 Kriyas :- Chaturasra Roopaka ; Thrisra Jhampa.

Vide Table 46 for the practical and mark the avrithas for 6 Kriyas.

TABLE 49

Jāthi Shatkāla in Chaturasra gamana set to the Thāla of 5 Kriyas

	Jāthi	Letters in Shatkāla	Kriyas	Letters	Account in Avrithas			Initial pause		Total Avrithas
					Avr	Kr	L	Kr	L	
Kha. 5	θ D G N θ̄!	315	78	3	15	3	3	1	1	16
Thri. 6	θ D!, G N θ̄!	378	94	2	18	4	2	-	2	19
Mi. 7	θ D!, G N θ̄!	441	110	1	22	-	1	4	3	23
Cha. 8	θ D!, G, N, θ̄!	504	126	-	25	1	-	4	-	26
San. 9	θ D!, G, N, θ̄!	567	141	3	28	1	3	3	1	29

Thālas of 5 Kriyas :- Thrisra Roopaka ; Khanda Eka.

Vide Table 46 for the practical and mark the avrithas for 5 kriyas.

TABLE 50
Thrisra gamana Adi Thāla in Thrikāla
(12 - 24 - 48 order)

Jāthi	Jāthi in Thrikāla	Kāla
	I Kālā II Kālā	
Kha. 5	$\theta, \kappa_a, \theta, \kappa, T, \theta, \kappa_a, \theta, \kappa, T, \kappa T \theta \kappa_a$	I Kālā
	$\theta \kappa_a \theta \kappa T \theta \kappa_a \theta \kappa T \kappa T \theta \kappa_a $ (2 times)	II „
	$\theta \kappa_a \theta \kappa T \theta \kappa_a \theta \kappa T \kappa T \theta \kappa_a$ (4 times)	III „
	I Kālā II Kālā	
Mi. 7	$\theta, \kappa, T, \theta, \kappa_a, D, M, - \theta \kappa_a \theta \kappa T - \theta \kappa_a \theta \kappa T$	I Kālā
	$\theta \kappa \quad \quad \quad D M - \theta \kappa_a \theta \kappa T - \theta \kappa_a \theta \kappa T$ (2 times)	II „
	$\theta \kappa T \theta \kappa_a D M - \theta \kappa_a \theta \kappa T - \theta \kappa_a \theta \kappa T$ (4 times)	III „
	I Kālā II Kālā	
Cha. 8	$\theta, D!, ; G, ; N, ; \theta^!, - \kappa T \theta \kappa_a - \kappa T \theta \kappa$	I Kālā
	$\theta D!, G, N, \theta^! - \kappa T \theta \kappa_a - \kappa T \theta \kappa_a$ (2 times)	II „
	$\theta D!, G, N, \theta^! - \kappa T \theta \kappa_a - \kappa T \theta \kappa_a$ (4 times)	III „
	I Kālā II Kālā	
San. 9	$\theta, \kappa_a, D, G_u, \theta, D, G, N, \theta^!, - \theta D!, G N \theta^!$	I Kālā
	$\theta \kappa_a D G_u \theta D G N \theta^! - \theta D G N \theta^!$ (2 times)	II „
	$\theta \kappa_a D G_u \theta D G N \theta^! - \theta D!, G N \theta^!$ (4 times)	III „

I Kālā :— 1 Avritha of Jāthi in 12 letters. 12
 II „ :— 1 „ „ „ „ 2 times 24
 III „ :— 1 „ „ „ „ 4 times 48

TABLE 51

Thāla Kriya Jāthi in Chaturasra, Thrisra and Thrisra Hr. Kāla gamana for 1 Avriṭha

No. of Thālas of the same magnitude	Names of the 35 Thālas	Kriyas	Chaturasra gamana Jāthi	Jāthi in Thrisra	Jāthi in Thrisra Higher degree
1	2	3	4	5	6
1	Thri. Eka	3	$\theta K T$	"	"
1	Cha. Eka	4	$K T \theta K_a$	"	"
2	Thri. Roopaka } Kha. Eka }	5	$\theta D G N \bar{\theta}!$	"	"
2	Cha. Roopaka } Thri. Jhampa }	6	$\theta D!, G N \bar{\theta}!$	"	"
4	Kha. Roopaka } Cha. Jhampa } Thri. Triputa } Misra. Eka }	7	$\theta D!, G N \bar{\theta}!$	"	"
3	Thri. Matya } Kha. Jhampa } Cha. Thriputa }	8	$\theta D!, G, N, \bar{\theta}!$	"	"
3	Misra Roopaka } Kha. Thriputa } San. Eka }	9	$\theta D!, G, N, \bar{\theta}!$	"	"
3	Cha. Matya } Mi. Jhampa } Thri. Ata }	10	$\theta K_a D G_w \theta D!, G N \bar{\theta}!$	"	"

1	2	3	4	5	6
3	Thri. Dhruva } San. Roopaka } Mi. Thripata }	11	$\theta K_a D G_w \theta D!, G N \bar{\theta}!$	”	”
3	Kha. Matya } San. Jhampa } Cha. Ata. }	12	$\theta D G N \bar{\theta}! \theta D!, G N \bar{\theta}!$	”	”
1	San. Thripata	13	$\theta K_a D G_u \theta D!, G, N, \bar{\theta}!$	”	”
2	Cha. Dhruva } Kha. Ata }	14	$\theta D G N \bar{\theta}! \theta D!, G, N, \bar{\theta}!$	”	”
1	Misra. Matya	16	$\theta D!, G N \bar{\theta}! \theta D!, G, N, \bar{\theta}!$	”	”
1	Kha. Dhruva	17	$\theta D!, G, N, \bar{\theta}! \theta D!, G, G, \bar{\theta}!$	”	”
1	Misra. Ata	18	$\theta D G N \bar{\theta}!$ $\theta D!, G N \bar{\theta}!$ $\theta D!, G N \bar{\theta}!$	”	”
1	San. Matya	20	$\theta D G N \bar{\theta}!$ $\theta D!, G N \bar{\theta}!$ $\theta D!, G, N, \bar{\theta}!$	”	”
1	San. Ata	22	$\theta K_a D G_u \theta D G N \bar{\theta}!$ $\theta D!, G N \bar{\theta}!$ $\theta D!, G N \bar{\theta}!$	”	”

1	2	3	4	5	6
1	Mi. Dhruva	23	$\theta D!, G N \bar{\theta}!$ $\theta K_a \theta D!, G N \bar{\theta}!$ $\theta K T \theta D!, G N \bar{\theta}!$
1	San. Dhruva	29	$\theta D!, G, N, \bar{\theta}!$ $\theta K_a \theta D!, G, N, \bar{\theta}!$ $\theta D!, G, N, \bar{\theta}!$

Thāla kriya jāthi is a jāthi having as many letters as there are kriyas in the Thāla. This is to be played first in Chaturasra druthakāla gamana (i. e. 2 letters per Kriya), next in Thrisra gamana (Ordinary Kāla) and finally in thrisra higher Kāla. Column 2 indicates the Thālas to which the mukthāyi in 1 Avritha holds good.

Eg.— Thrisrajāthi Roopaka. $\theta D G N \bar{\theta}!$ Symbol 0 1₃

$\theta D - G N | \bar{\theta}! \theta, D -, G, N, \bar{\theta}! -, \theta D G N \theta! ||$

(The Kriyas are separated by hyphens - 2 Kriyas in Drutha & 3 in Laghu. No. of letters in the mukthāyi.

- $4 \times$ No. of letters in the jāthi. $(2 + 1\frac{1}{3} + \frac{2}{3} = 4)$

TABLE 52

Thāla Kriya Jāthi, Nishabda, Sashabda. N - , S - , N - and with Jāthi mukthāyi

No. of Thālas of the same magnitude	Names of Thālas	Kriyas	Thāla Kriya Jāthi	Nishabda	Sashabda	Nishabda	Sashābda	Nishabda	Mukthāyi	Total letters
1	2	3	4	5	6	7	8	9	10	11
1	Thri. Eka	3	θ K T	3	3	3	3	3	9	24
1	Cha. Eka	4	K T θ K _a	4	4	4	4	4	12	32
2	Thri. Roop } Kha. Eka }	5	θ D G N θ!	5	5	5	5	5	15	40
2	Cha. Roop } Thri. Jha }	6	θ D!, G N θ!	6	6	6	6	6	18	48
4	Kha. Roop } Cha. Jha } Thri. Thrip } Mis. Eka }	7	θ D!, G N θ!	7	7	7	7	7	21	56

1	2	3	4	5	3	7	8	9	10	11
3	Thri Matya } Kha. Jham } Ch. Thrip }	8	$\theta D!, G, N, \bar{\theta}!$	8	8	8	8	8	24	64
3	Mis. Roop } Kha. Trip } San Eka }	9	$\theta D!, G, N, \bar{\theta}!$	9	9	9	9	9	27	72
3	Cha. Matya } Mis Jham } Thri. Ata }	10	$\theta K_a D G_u \theta D!, G N \bar{\theta}!$	10	10	10	10	10	30	80
3	Thri. Dhru } San. Roop } Mis. Thrip }	11	$\theta K_a D G_u \theta D!, G N \bar{\theta}!$	11	11	11	11	11	33	88
3	Kha. Matya } San. Jham } Cha. Ata }	12	$\theta K_a \theta K T \theta D!, G N \bar{\theta}!$	12	12	12	12	12	36	96

1	2	3	4	5	6	7	8	9	10	11
1	San. Trip	13	$\theta K_a D G_u \theta D!, G, N, \bar{\theta}!$	13	13	13	13	13	39	104
2	Cha. Dhru Kha. Ata }	14	$\theta K_a \theta K T \theta D!, G, N, \bar{\theta}!$	14	14	14	14	14	42	112
1	Mis. Matya	16	$\theta D!, G, N, \bar{\theta}! - \theta D!, G, N, \bar{\theta}!$	16	16	16	16	16	48	128
1	Kha. Dhru	17	$\theta D!, G, N, \bar{\theta}! - \theta D!, G, N, \bar{\theta}!$	17	17	17	17	17	51	136
1	Mis. Ata	18	$\theta D G N \bar{\theta}! - \theta D!, G, N, \bar{\theta}! -$ $\theta D!, G, N, \bar{\theta}!$	18	18	18	18	18	54	144
1	San. Matya	20	$\theta D G N \bar{\theta}! - \theta D!, G, N, \bar{\theta}! -$ $\theta D!, G, N, \bar{\theta}!$	20	20	20	20	20	60	160
1	San. Ata	22	$\theta K_a D G_u$ } $\theta D G N \bar{\theta}!$ } $\theta D!, G, N, \bar{\theta}!$ } $\theta D!, G, N, \bar{\theta}!$ }	22	22	22	22	22	66	176

1	2	3	4	5	6	7	8	9	10	12
1	Mis. Dhru	23	$\theta D!, G N \bar{\theta}!$ $\theta K, \theta D!, G N \bar{\theta}!$ $\theta K T \theta D!, G N \bar{\theta}!$	23	23	23	23	23	69	184
1	Sar. Dhru	29	$\theta D!, G, N, \bar{\theta}!$ $\theta K, \theta D!, G, N, \bar{\theta}!$ $\theta D!, G, N, \bar{\theta}!$	29	29	29	29	29	87	232

Jāthi having as many letters as there are Kriyas in the thāla is taken up. It is then played in the following order :— Nishabda - Sashabda - Nishabda - Sashabda - Nishabda - and the three times repetition of the Jāthi.

Note :— The whole is to played in druthakāla, i. e. 8 letters per kriya.

Eg :— Cha. Roopaka. $\theta D!, G N \bar{\theta}!$

$\theta, ; ; \theta D! -, G N \bar{\theta}! \theta, ; ; \theta D!, G N \bar{\theta}! - \theta, ; ; \theta D! -, G N \bar{\theta}! \theta D!, G -$
 $N \bar{\theta}! \theta D!, G N \bar{\theta}! ||$

(The Kriyas are separated by hyphens.)

Total No. of letters = 8 × no. of letters in the Jāthi.

TABLE 53

Thāla Kriya Jāthi in Thrikāla and in Sashabda and Nishabda in One Avritha (in the five gamanas.)

No. of Thālas of the same magnitude	Names of Thālas	Kriyas	Gamanas	Thāla kriya jāthi	Thrikāla	Sashabda	Nishabda	Total	Total No. of letters.
1	2	3	4	5	6	7	8	9	10
1.	Thri. Eka	3	ḡ ₁	θ K T	7	5	4	16	48
			ḡ ₃	"	7	3	2	12	36
			ḡ ₇	"	7	4	3	14	42
			ḡ ₅	"	7	2	1	10	30
			ḡ ₉	"	7	6	5	18	54
1.	Cha. Eka	4	ḡ ₄	K T θ K _a	7	5	4	16	64
			ḡ ₃	"	7	3	2	12	48
			ḡ ₇	"	7	4	3	14	56
			ḡ ₅	"	7	2	1	10	40
			ḡ ₉	"	7	6	5	18	72
1.	Thi. Roopa Kha. Eka }	5	ḡ ₁	θ K _a θ K T	7	5	4	16	80
			ḡ ₃	"	7	3	2	12	60
			ḡ ₇	"	7	4	3	14	70
			ḡ ₅	"	7	2	1	10	50
			ḡ ₉	"	7	6	5	18	90

1	2	3	4	5	6	7	8	9	10
2.	Thri.Jham } Cha. Roopa }	6	g ₁	θ D!, G N θ!	7	5	4	16	96
			g ₃	„	7	3	2	12	72
			g ₇	„	7	4	3	14	84
			g ₅	„	7	2	1	10	60
			g ₉	„	7	6	5	18	108
4.	Kha. Roopa } Cha. Jham } Thri. Thrip } Mi. Eka }	7	g ₁	θ K T θ K _a D M	7	5	4	16	112
			g ₃	„	7	3	2	12	84
			g ₇	„	7	4	3	14	98
			g ₅	„	7	2	1	10	70
			g ₉	„	7	6	5	18	126
3.	Thri. Matya } Kha. Jham } Cha. Thrip }	8	g ₁	θ K T θ D G N θ!	7	5	4	16	128
			g ₃	„	7	3	2	12	96
			g ₇	„	7	4	3	14	112
			g ₅	„	7	2	1	10	80
			g ₉	„	7	6	5	18	144
3.	Mi. Roopa } Kha. Thrip } San. Eka }	9	g ₁	θ K D G _a θ D G N θ!	7	5	4	16	144
			g ₃	„	7	3	2	12	108
			g ₇	„	7	4	3	14	126
			g ₅	„	7	2	1	10	90
			g ₉	„	7	6	5	18	162

1	2	3	4	5	6	7	8	9	10
3	Cha. Matya	10	g ₄	$\theta K_a D G_a \theta D!, G N \bar{\theta}!$	7	5	4	16	160
	Mi. Jham		g ₃	„	7	3	2	12	120
	Thri. Ata		g ₇	„	7	4	3	14	140
			g ₅	„	7	2	1	10	100
			g ₉	„	7	6	5	18	180
3	Thri Dhru	11	g ₄	$\theta K_a D G_a \theta D!, G N \bar{\theta}!$	7	5	4	16	176
	San. Roopa		g ₃	„	7	3	2	12	132
	Mi. Thrip		g ₇	„	7	4	3	14	154
			g ₅	„	7	2	1	10	110
			g ₉	„	7	6	5	18	198
3	Kha. Matya	12	g ₄	$\theta K T \theta K, D M \theta K_a \theta K T$	7	5	4	16	192
	San. Jham		g ₃	„	7	3	2	12	144
	Cha. Ata		g ₇	„	7	4	3	14	168
			g ₅	„	7	2	1	10	120
			g ₉	„	7	6	5	18	216
1	San. Thrip	1!	g ₄	$\theta K_a D G_a \theta D!, G, N, \bar{\theta}!$	7	5	4	16	208
			g ₃	„	7	3	2	12	156
			g ₇	„	7	4	3	14	182
			g ₅	„	7	2	1	10	130
			g ₉	„	7	6	5	18	234

1	2	3	4	5	6	7	8	9	10
2	Cha. Dhru Kha. Ata }	14	g ₁	$\theta K_a \theta K T \theta K_a D G_u \theta D G N \bar{\theta}!$	7	5	4	16	224
			g ₃	"	7	3	2	12	168
			g ₇	"	7	4	3	14	196
			g ₅	"	7	2	1	10	140
			g ₀	"	7	6	5	18	252
1	Mi. Matya	16	g ₁	$K T \theta K_a \theta K_a \theta K T \theta D!, G N \bar{\theta}!$	7	5	4	16	256
			g ₃	"	7	3	2	12	192
			g ₇	"	7	4	3	14	224
			g ₅	"	7	2	1	10	160
			g ₀	"	7	6	5	18	288
1	Kha. Dhru	17	g ₁	$\theta K T \theta D G N \bar{\theta}! \theta D!, G, N, \bar{\theta}!$	7	5	4	16	272
			g ₃	"	7	3	2	12	204
			g ₇	"	7	4	3	14	238
			g ₅	"	7	2	1	10	170
			g ₀	"	7	6	5	18	306
1	Mi. Ata	18	g ₁	$\theta K_a \theta K T \theta D!, G N \bar{\theta}! \theta D!, G N \bar{\theta}!$	7	5	4	16	288
			g ₃	"	7	3	2	12	216
			g ₇	"	7	4	3	14	252
			g ₅	"	7	2	1	10	180
			g ₀	"	7	6	5	18	324

1	2	3	4	5	6	7	8	9	10
1	San. Matya	20	g ₄	$\theta \nu K \theta K T \theta K T \theta K_a D M \theta K T \theta D G N \theta!$	7	5	4	16	320
			g ₃	„	7	3	2	12	240
			g ₇	„	7	4	3	14	280
			g ₅	„	7	2	1	10	200
			g ₉	„	7	6	5	18	360
1	San. Ata	22	g ₄	$\theta K_a D G_u \theta D G N \theta!$	7	5	4	16	352
			g ₃	$\theta D!, G N \theta!$	7	3	2	12	264
			g ₇	$\theta D!, G N \theta!$	7	4	3	14	308
			g ₅		7	2	1	10	220
			g ₉		7	6	5	18	396
1	Mi. Dhru	23	g ₄	$\theta D!, G N \theta!$	7	5	4	16	368
			g ₃		7	3	2	12	276
			g ₇	$\theta K_a \theta D!, G N \theta!$	7	4	3	14	322
			g ₅	$\theta K T \theta D!, G N \theta!$	7	2	1	10	230
			g ₉		7	6	5	18	414
1	San. Dhru	29	g ₄		7	5	4	16	464
			g ₃	$\theta D!, G, N, \theta!$	7	3	2	12	348
			g ₇	$\theta K_a \theta D!, G, N, \theta!$	7	4	3	14	406
			g ₅	$\theta D!, G, N, \theta!$	7	2	1	10	290
			g ₉		7	6	5	18	522

Jāthi having as many letters as there are kriyas in the thāla is taken up (col. 5). Column 6 indicates the Coefficient for Thrikāla. Columns 7 and 8 indicate the number of Sashabdas and nishabdas respectively which are to be played alternately, beginning with sashabda. These numbers are also Coefficients. Column 9 indicates the total of the Coefficients. This grand Coefficient when multiplies the letters in the jāthi; gives the total number of letters for the play. (Column 10.)

Note :— Column 9 indicates not only the grand Coefficient but also the number of letters per kriya with respect to the gamana shown ahead. The coefficients are also multiples of gamanas.

To start with, in the I Kāla, each letter of the Jāthi should be reckoned as having 4 times its duration.

Practical :— The Jāthi to be played first in thrikāla (each kriya having as many letters as indicated in Col. 9 against the particular gamana. Then the same jāthi is to be played in the III Kāla as Sashabda, Nishabda, S - , N - alternately as many times as indicated in Col. 7 for Sashabda and Col. 8 for nishabda, according to each gamana.

1. CHATURASRA JĀTHI ROOPAKA

Eg :— $\theta D!$, $G \bar{N} \bar{\theta}!$ - For Chaturasra jāthi Roopaka Thāla (IV item).

This thāla has six kriyas and so, the jāthi $\theta D!$, $G \bar{N} \bar{\theta}!$ of 6 letters is taken up. For the Nishabda part, the initial letter θ is included.

1. g_4 :— No. of letters per kriya (col. 9) = 16. Sashabdas = 5. Nishabdas = 4
 Thrikāla :— $\theta, ; D!, ;;; G, ; I \bar{N}, ; \bar{\theta}!, ; - \theta, D!, ; G, I \bar{N}, \bar{\theta}!, \theta D!, G \bar{N} \bar{\theta}! -$
 S - N - S :— $\theta D!, G \bar{N} \bar{\theta}! | \theta, ; ; - \theta D!, G \bar{N} \bar{\theta}! - \theta, ; | ; - \theta D!, G \bar{N} \bar{\theta}! -$
 $\theta, ; ; - \theta D! | , G \bar{N} \bar{\theta}! - \theta, ; ; - \theta D!, G \bar{N} \bar{\theta}! ||$
2. g_3 :— No. of letters per kriya = 12. (Col. 9.) S = 3, N = 2
 Thrikāla :— $\theta, ; D!, ;;; | G, ; N, ; \bar{\theta}!, ; | \theta, D!, ; G, N, \bar{\theta}!, | \theta D!, G \bar{N} \bar{\theta}! -$
 S - N - S :— $\theta D!, G \bar{N} \bar{\theta}! | - \theta, ; ; - D!, G \bar{N} \bar{\theta}! | - \theta, ; ; - \theta D!, G \bar{N} \bar{\theta}! ||$
3. g_7 :— No. of letters per kriya = 14 (Col. 9.) S = 4, N = 3
 Thrikāla :— $\theta, ; D!, ;;; G, | ; N, ; \bar{\theta}!, ; - \theta, D!, | ; G, N, \bar{\theta}!, - \theta D!, G \bar{N} \bar{\theta}! -$
 S - N - S :— $\theta D!, G \bar{N} \bar{\theta}! - \theta, ; ; - \theta D! | , G \bar{N} \bar{\theta}! - \theta, ; ; - \theta D!, G |$
 $N \bar{\theta}! - \theta, ; ; - \theta D!, G \bar{N} \bar{\theta}! ||$

4. g_6 :— No. of letters per kriya = 10 (Col. 9) $S = 2$ $N = 1$
 Thrikāla :— $\theta, ; D!, ; ; | G, ; N, ; | \bar{\theta}!, ; -\theta, D!, ; | G, N, \bar{\theta}!, -\theta D!, G | N \bar{\theta}! -$
 $S - N - S :— \theta D!, G N \bar{\theta}! - \theta, | ; ; - \theta D!, G N \bar{\theta}! ||$
5. g_9 .— No. of letters per kriya = 18. $S = 6$ $N = 5$
 Thrikāla :— $\theta, ; D!, ; ; G, ; N, | ; \bar{\theta}!, ; -\theta, D!, ; G, N, \bar{\theta}!, | \theta D!, G N \bar{\theta}! -$
 $S - N - S :— \theta D!, G N \bar{\theta}! - \theta, ; ; | \theta D!, G N \bar{\theta}! - \theta, ; ; - \theta D!, G N \bar{\theta}! |$
 $\theta, ; ; - \theta D!, G N \bar{\theta}! - \theta, ; ; | \theta D!, G N \bar{\theta}! - \theta, ; ; - \theta D!, G N \bar{\theta}! ||$

2. THRISRA JĀTHI THRIPUTA (item 5)

This Thāla has 7 Kriyas. So the jāthi $\theta \text{ K T } \theta \text{ K}_a \text{ D M}$ of 7 letters is taken up.
 (The other explanations for the gamanas, the same as above.)

1. g_4 :- Thrikāla :- $\theta, ; K, ; T, ; \theta, ; | K_a, ; D, ; M, ; -\theta, K, | T, \theta, K_a, D, M, -$
 $\theta \text{ K T } \theta \text{ K}_a \text{ D | M -}$
 S-N-S :- $\theta \text{ K T } \theta \text{ K}_a \text{ D M - } \theta ; ; ; - \theta | \text{ K T } \theta \text{ K}_a \text{ D M - } \theta ; ; ; - \theta \text{ K T |}$
 $\theta \text{ K}_a \text{ D M - } \theta ; ; ; - \theta \text{ K T } \theta \text{ K}_a | \text{ D M - } \theta ; ; ; - \theta \text{ K T } \theta \text{ K}_a \text{ D M ||}$
2. g_3 :- Thrikāla :- $\theta, ; K, ; T, ; | \theta, ; K_a, ; D, ; | M, ; -\theta, K, T, \theta, | K_a, D, M, -$
 $\theta \text{ K T } \theta \text{ K D | M -}$
 S-N-S :- $\theta \text{ K T } \theta \text{ K}_a \text{ D M - } \theta, ; | ; , - \theta \text{ K T } \theta \text{ K}_a \text{ D M - } \theta, | ; ; , -$
 $\theta \text{ K T } \theta \text{ K}_a \text{ D M ||}$
3. g_7 :- Thrikāla :- $\theta, ; K, ; T, ; \theta, | ; K_a, ; D, ; M, ; | \theta, K, T, \theta, K_a, D, M, |$
 $\theta \text{ K T } \theta \text{ K}_a \text{ D M -}$
 S-N-S :- $\theta \text{ K T } \theta \text{ K}_a \text{ D M | } \theta ; ; ; - \theta \text{ K T } \theta \text{ K}_a \text{ D M | } \theta ; ; ; - \theta \text{ K T } \theta \text{ K}_a \text{ D M ||}$
4. g_5 :- Thrikāla :- $\theta, ; K, ; T, | ; \theta, ; K_a, ; | D, ; M, ; -\theta, | K, T, \theta, K_a, D, |$
 $M, - \theta \text{ K T } \theta \text{ K}_a \text{ D M -}$
 S-N-S :- $\theta | \text{ K T } \theta \text{ K}_a \text{ D M - } \theta, ; | ; , - \theta \text{ K T } \theta \text{ K}_a \text{ D M ||}$
5. g_9 :- Thrikāla :- $\theta, ; K, ; T, ; \theta, ; K_a, | ; D, ; M, ; -\theta, K, T, \theta, | K_a, D, M, -$
 $\theta \text{ K T } \theta \text{ K}_a \text{ D M -}$
 S-N-S :- $\theta \text{ K T } \theta \text{ K}_a | \text{ D M - } \theta ; ; ; - \theta \text{ K T } \theta \text{ K}_a \text{ D M - } \theta, |$
 $; ; , - \theta \text{ K T } \theta \text{ K}_a \text{ D M - } \theta, ; ; | , \theta \text{ K T } \theta \text{ K}_a \text{ D M - } \theta ; ; ; - \theta \text{ K T |}$
 $\theta \text{ K}_a \text{ D M - } \theta ; ; ; - \theta \text{ K T } \theta \text{ K}_a \text{ D M ||}$

TABLE 54

Thāla Kriya Jāthi in Thrikāla with Vinyāsa

No. of Thālas of the same magnitude.	Names of Thālas		Kriyas	Thāla Kriya Jāthi (II Kāla Sashabda once)	Nishabda II Kāla once	Sashabda III Kāla No. of times	Nishabda IV Kāla vinyasa letters	Sashabda IV Kāla No. of times	Total
1	2		3	4	5	6	7	8	9
1	Thri.	Eka	3	θ K T	3	2	3	3	48
1	Cha.	Eka	4	K T θ Ka	4	2	4	3	64
2	Thri. Kha.	Roopa Eka	5	θ D G Ṇ θ̄!	5	2	5	3	80
2	Thri. Cha.	Jham Roopa	6	θ D !, G Ṇ θ̄!	6	2	6	3	96
4	Kha. Cha. Thri. Mis.	Roopa Jham Thrip Eka	7	θ D !, G Ṇ θ̄!	7	2	7	3	112

1	2	3	4	5	6	7	8	9
3	Thri. Matya } Kha. Jham } Cha. Thrip }	8	$\theta D!, G, N, \theta \bar{!}$	8	2	8	3	128
3	Mis. Roopa } Kha. Thrip } San. Eka }	9	$\theta D!, G, N, \theta \bar{!}$	9	2	9	3	144
3	Cha. Matya } Mis. Jham } Thri. Ata }	10	$\theta K_a D G_u \theta D!, G N \theta \bar{!}$	10	2	10	3	160
3	Thri. Dhru } San. Roopa } Mis. Thrip }	11	$\theta K_a D G_u \theta D!, G N \theta \bar{!}$	11	2	11	3	176
3	Kha. Matya } San. Jhām } Cha. Ata }	12	$\theta K_a \theta K T \theta D!, G N \theta \bar{!}$	12	2	12	3	192

1	2		3	4	5	6	7	8	9
1	San.	Thrip.	13	$\theta K D G_u \theta D!, G, N, \bar{\theta}!$	13	2	13	3	208
2	Cha.	Dhru.	14	$\theta K \theta K T \theta D!, G, N, \bar{\theta}!$	14	2	14	3	224
	Kha.	Ata.							
1	Mis.	Matya	16	$\theta K_a \theta D G N \bar{\theta}! \theta D!, G, N, \bar{\theta}!$	16	2	16	3	256
1	Kha.	Dhrw.	17	$\theta K T \theta D G N \bar{\theta}! \theta D!, G, N, \bar{\theta}!$	17	2	17	3	272
1	Mis.	Ata.	18	$\theta D G N \bar{\theta}! \theta D!, G N \bar{\theta}! -$ $\theta D!, G N \bar{\theta}!$	18	2	18	3	288
1	San.	Matya	20	$\theta D G N \bar{\theta}! - \theta D!, G N \bar{\theta}! -$ $\theta D!, G, N, \bar{\theta}!$	20	2	20	3	320
1	San.	Ata.	22	$\theta K D G_u \theta D G N \bar{\theta}! - \theta D!, G N \bar{\theta}! -$ $\theta D!, G N \bar{\theta}!$	22	2	22	3	352
1	Mis.	Dhru.	23	$\theta D!, G N \bar{\theta}! - \theta K^a \theta D!, G N \bar{\theta}!$ $\theta K T \theta D!, G N \bar{\theta}!$	23	2	23	3	368
1	San.	Dhru.	29	$\theta D!, G, N, \bar{\theta}! \theta K_a \theta D!, G, N, \bar{\theta}!$ $- \theta D!, G, N, \bar{\theta}!$	29	2	29	3	464

A jāthi, having as many letters as there are Kriyas in the Thāla is set to I Avritha of that Thāla, in thrikāla and vinyāsa.

The jāthi is to be played once in II Kāla gamana. This is to be reckoned as I Kāla for practical purpose. Next, the same jāthi in the same Kāla is Nishabda. Then the jāthi is played is sashabda two times in the II Kāla. Again the jāthi in III Kāla is Nishadda. Finally the jāthi in the III Kāla is to be played three times. The whole series forms one avritha, each kriya having 16 letters.

Eg :— $\theta \text{ D G N } \overline{\theta}!$ — for 5 Kriyas.

Jāthi I Kāla (once) :— $\theta, ; \text{D}, ; \text{G}, ; \text{N}, ; | \overline{\theta}! ; -$

Nishabda ,, ,, :— $\theta, ; ; ; ; ; | ; ; ; ; -$

Jāthi II ,, (2 times) :— $\theta, \text{D}, \text{G}, \text{N}, | \overline{\theta}!, - \theta, \text{D}, \text{G}, \text{N}, \overline{\theta}!, -$

Nishabda-III ,, (once) :— $\theta, ; |, -$

Jāthi III ,, (3 times) :— $\theta \text{ D G N } \theta! - \theta \text{ D G N } \overline{\theta}! - \theta \text{ D G N } \overline{\theta}! ||$

The above in a continuous series.

$\theta, ; \text{D}, ; \text{G}, ; \text{N}, ; | \overline{\theta}!, ; - \theta, ; ; ; ; ; | ; ; ; ; - \theta, \text{D}, \text{G}, \text{N}, |$

$\overline{\theta}!, - \theta, \text{D}, \text{G}, \text{N}, \overline{\theta}!, - \theta, ; |, - \theta \text{ D G N } \theta! - \theta \text{ D G N } \overline{\theta}! - \theta \text{ D G N } \overline{\theta}! ||$

Another pattern of Mukthayi of the same magnitude :—

- Jāthi I Kāla once (as above) + the same in pause
- + Jāthi II Kāla, 2 times + Jāthi I Kāla in pause
- + Thrisra higher Kāla mukthāyi (3 times.)

No. of letters in the Mukthāyi

$$= 16 \times \text{No. of letters in the Jāthi.}$$

The Coefficients :—

$$\begin{aligned} & \text{I Kāla} + \text{Nishabda I} + \text{II Kāla (twice)} + \text{Nishabda III} + \text{III Kāla (thrice)} \\ & = 4 + 4 + 4 + 1 + 3 = 16 \end{aligned}$$

TABLE 55

Vinyāsa Mukthāyi in One Avritha set to Adī Thāla (chaturasra gamana)

	Jāthi (Sashabda)	Nishabda	Sashabda	Nishabda	Sashabda	Total (including initial pause)
5. Kha.	, θ D G N θ̄!	8	5	8	5	32
6. Thri.	θ D!, G N θ̄!	7	6	7	6	„
7. Mis.	, θ D!, G N θ̄!	5	7	5	7	„
8. Cha.	θ D!, G, N, θ̄!	4	8	4	8	„
9. San.	, θ D!, G, N, θ̄!	2	9	2	9	„

Jāthi is to be played as Sashabda, Nishabda, S - N - and finally in N - in order. The Jāthi with odd number of letters has an initial pause of 1 letter. The number in the last Column is the total of the Columns, 2, 3, 4, 5 and 6.

The whole series thus played is Samagraha Sama for Adī thāla.

Eg : - (Khanda). θ D G N θ̄!

, θ D G - N θ̄! θ, - ; - ; θ D | G N θ̄! θ - ; | ; , θ - D G N θ̄! ||

(The Kriyas in angas are separated by hyphens.)

(Thrisra) θ D!, G N θ̄!

θ D!, G - N θ̄! θ, - ; - , θ D!, | G N θ̄! θ - ; | ; θ D! - , G N θ̄! ||

TABLE 56

Mukthāyi of Jāthi in 1-2-3 repetition

	Jāthi	No. of times of Sashabda	Nishabda or No. of letters in pause					No. of times of Sashabda
			g ₁	g ₃	g ₇	g ₅	g ₉	
5 Kha.	θ D G N θ̄!	1	17	9	13	5	3	2
6 Thri.	θ D!, G N θ̄!	1	14	6	10	2	18	2
7 Mis.	θ D!, G N θ̄!	1	11	3	7	9	15	2
8 Cha.	θ D!, G, N, θ̄!	1	8	24	4	6	12	2
9 San.	θ D!, G, N, θ̄!	1	5	21	1	3	9	2

The Jāthi is to be played once in a gamana. Then the pause indicated for that gamana is to be given. Next the Jāthi is to be played two times, after which the same pause is to be given. Finally the Jāthi is to be played three times. The play is samagraha. sama (4 letters per Kriya).

TABLE 56 (continued)

Nishabda or No. of letters in pause					No. of times of Sashabda	No. of Kriyas				
g ₄	g ₈	g ₇	g ₅	g ₉		g ₄	g ₅	g ₇	g ₅	g ₉
17	9	13	5	3	3	16	16	4	4	2
14	6	10	2	18	3	16	16	4	4	4
11	3	7	9	15	3	16	16	4	6	4
8	24	4	6	12	3	16	32	4	6	4
5	21	1	3	9	3	16	32	4	6	4

Eg:— θ D G N θ̄ | - g₄ (Set to Adi Thāla)

θ D G N - θ̄ | θ ; - ; - ; ; | ; ; - ; θ D | G N θ̄ | θ - D G N θ̄ | ||

θ , ; - ; - ; - ; ; | , θ D G - N θ̄ | θ D | G N θ̄ | θ - D G N θ̄ | ||

Total No. of letters = 6 × No. of letters in the jāthi + 2 × the No. of letters in the pause for the particular gamana.

TABLE 57

Mukthāyi of Jāthi in split form and in Jāthi gamana

Gamana	Letters in Drutha Kāla	Pause	The split form of Jāthi	No. of kriyas
1	2	3	4	5
Kha. 5	10	4	$\theta \kappa T - \theta D!, G \bar{N} \bar{\theta}!$	(3+7) 11
		2	$\kappa T \theta \kappa_a - \theta D!, G \bar{N} \bar{\theta}!$	(4+6) 10
		3	$\theta - \theta D!, G, \bar{N}, \bar{\theta}!$	(1+9) 12
Thri 6	12	3	$\theta \kappa T - \theta D!, G, \bar{N}, \bar{\theta}!$	(3+9) 11
		-	$\kappa T \theta \kappa_a - \theta D!, G, \bar{N}, \bar{\theta}!$	(4+8) 10
		3	$\theta D G \bar{N} \bar{\theta}! - \theta D!, G \bar{N} \bar{\theta}!$	(5+7) 10
Mis. 7	14	1	$\theta D G \bar{N} \bar{\theta}! - \theta D!, G, \bar{N}, \bar{\theta}!$	(5+9) 10
		4	$\theta D!, G \bar{N} \bar{\theta}! - \theta D!, G, \bar{N}, \bar{\theta}!$	(6+8) 10
Cha. 8	16	5	$\theta D!, G \bar{N} \bar{\theta}! - \theta D!, G, \bar{N}, \bar{\theta}!$	(7+9) 10
		2	$\theta D!, G \bar{N} \bar{\theta}! - \kappa T \theta \kappa_a \theta D!, G \bar{N} \bar{\theta}!$	(6+10) 10
		7	$\theta D G \bar{N} \bar{\theta}! - \kappa T \theta \kappa_a \theta D!, G \bar{N} \bar{\theta}!$	(5+11) 11
		4	$\kappa T \theta \kappa_a - \theta \kappa T \theta D!, G, \bar{N}, \bar{\theta}!$	(4+12) 11

1	2	3	4	5
San. 9	18	6	$\theta D!, G, N, \bar{\theta}! - \kappa T \theta \kappa_a \theta D!, G N \bar{\theta}!$ (8+10)	10
		3	$\theta D!, G N \bar{\theta}! - \kappa T \theta \kappa_a \theta D!, G N \bar{\theta}!$ (7+11)	10
		-	$\theta D!, G N \bar{\theta}! - \kappa T \theta \kappa_a \theta D!, G, N, \bar{\theta}!$ (6+12)	10
		6	$\theta D G N \bar{\theta}! - \theta \kappa_a D G_u \theta D!, G, N, \bar{\theta}!$ (5+13)	11
		3	$\kappa T \theta \kappa_a - \theta D!, G N \bar{\theta}! \theta D!, G, N, \bar{\theta}!$ (4+14)	11
		-	$\theta \kappa T - \theta D!, G N \bar{\theta}! \theta D!, G, N, \bar{\theta}!$ (3+15)	11

Initial Pause is indicated against Jāthi. After the pause, the split Jāthi is to be played three times, followed by the mukthāyi (3 times repetition) of the second part of the split Jāthi. The gamana is that of Jāthi.

Eg:— $\theta \kappa T - \theta D!, G N \bar{\theta}!$ - (Khanda gamana. 5 letters per Kriya.
Corresponding initial pause = 4)

Jāthi :— ; - $\theta | \kappa T \theta D! |, G N \bar{\theta}! - \theta | \kappa T \theta D! |, G N \bar{\theta}! - \theta | \kappa T \theta D! | G N \bar{\theta}!$ -

Mukthāyi :— $\theta |, D!, G N | \bar{\theta}! - \theta D!, | G N \bar{\theta}! - \theta | D!, G N \bar{\theta}!$ ||

Jāthi 3 times = $3 \times 10 = 30$. II part Mukthāyi = $3 \times 7 = 21$; pause = 4

∴ Total = $30 - 21 + 4 = 55$. (Khanda.) So, No. of Kriyas = $\frac{55}{5} = 11$

TABLE 58

Jāthi preceded by $\theta D \theta$,, diminishing step by step

Jāthi	The form of Jāthi.	Total No. of letters.	Mukthāyi letters	Shatkālas.	ḡ ₄		ḡ ₃		ḡ ₇		ḡ ₅		ḡ ₉	
					Kr	L	Kr	L	Kr	L	Kr	L	Kr	L
					6	7	8	9	10	11	12	13	14	15
Khanda 5	$\theta D \theta$,, $\theta D G N \theta$!	40	40	1	40	-	13	1	5	5	8	-	4	-
	$D \theta$,, $\theta D G N \theta$!			2	20	-	6	4	2	12	4	-	2	-
	θ ,, $\theta D G N \theta$!			3	10	-	3	4	1	12	2	-	1	4
	$\theta D G N \theta$!			4	5	-	1	16	-	-	1	-	-	-
	$\theta D G N \theta$!			5	2	8	-	-	-	-	-	-	-	-
	$\theta D G N \theta$!			6	1	8	-	-	-	-	-	-	-	-

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Thirisa 6	$\theta D \theta, , \theta D!, G N \theta!$	45	45	1	45	-	15	-	6	3	9	-	5	-
	$D \theta, , \theta D!, G N \theta!$			2	22	1	7	3	3	3	4	5	2	9
	$\theta, , \theta D!, G N \theta!$			3	11	1	3	9	1	17	2	5	1	9
	$\theta D!, G N \theta!$			4	5	5	1	21	-	-	1	5	-	-
	$\theta D!, G N \theta!$			5	2	13	-	-	-	-	-	-	-	-
					6	1	13	-	-	-	-	-	-	-
Misra 7	$\theta D \theta, , \theta D!, G N \theta!$	50	50	1	50	-	16	2	7	1	10	-	5	5
	$D \theta, , \theta D!, G N \theta!$			2	25	-	8	2	3	8	5	-	2	14
	$\theta, , \theta D!, G N \theta!$			3	12	2	4	2	1	22	2	10	1	14
	$\theta D!, G N \theta!$			4	6	2	2	2	-	-	1	10	-	-
	$\theta D!, G N \theta!$			5	3	2	1	2	-	-	-	-	-	-
					6	1	18	-	-	-	-	-	-	-

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Chaturasra 8	$\theta D \theta, , \theta D!, G, N, \bar{\theta}!$	55	55	1	55	-	18	1	7	6	11	-	6	1
	$D \theta, , \theta D!, G, N, \bar{\theta}!$			2	27	1	9	7	3	13	5	5	3	1
	$\theta, , \theta D!, G, N, \bar{\theta}!$			3	13	3	4	7	1	27	2	15	1	19
	$\theta D!, G, N, \bar{\theta}!$			4	6	7	2	7	-	-	1	15	-	-
	$\theta D!, G, N, \bar{\theta}!$			5	3	7	1	7	-	-	-	-	-	-
	$\theta D!, G, N, \bar{\theta}!$			6	1	23	-	-	-	-	-	-	-	-
Sankeerna 9	$\theta D \theta, , \theta D!, G, N, \bar{\theta}!$	60	60	1	60	-	20	8	4	12	-	6	6	
	$D \theta, , \theta D!, G, N, \bar{\theta}!$			2	30	-	10	-	4	4	6	-	3	6
	$\theta, , \theta D!, G, N, \bar{\theta}!$			3	15	-	5	-	2	4	3	-	1	24
	$\theta D!, G, N, \bar{\theta}!$			4	7	4	2	12	1	4	1	20	-	-
	$\theta D!, G, N, \bar{\theta}!$			5	3	12	1	12	-	-	-	-	-	-
	$\theta D!, G, N, \bar{\theta}!$			6	1	28	-	-	-	-	-	-	-	-

The above table shows the Kriyas and letters for each Jāthi in Column 2 for the Six Kālas.
The first item in the Khanda jāthi has 40 letters and for Chaturasra gamana, the no. of Kriyas in III Kāla = 10.

Eg:— $\theta D, | \theta, , \theta | D G N \bar{\theta}! | D \theta, | , \theta D G |$

$N \bar{\theta}! \theta, | , \theta D G | N \bar{\theta}! \theta D | G N \bar{\theta}! \theta | D G N \bar{\theta}! ||$

TABLE 59

Mukthāyi of Jāthi preceded by θ D θ , , diminishing step by step

34	Jāthi	The form of Jāthi	No. of letters	Mukthāyi letters	Shat Kalās	g ₄		g ₃		g ₂		g ₁		g ₀	
						Kr	L	Kr	L	Kr	L	Kr	L	Kr	L
						6	7	8	9	10	11	12	13	14	15
Khandā 5		$\theta D \theta , , \theta D G N \theta !$ $D \theta , , \theta D G N \theta !$ $\theta , , \theta D G N \theta !$ $\theta D G N \theta !$ $\theta D G N \theta !$	40	120	1	120	-	40	-	17	1	24	-	13	3
						60	-	20	-	8	8	12	-	6	12
						30	-	10	-	4	8	6	-	3	12
						15	-	5	-	2	8	3	-	1	48
						7	8	2	24	1	8	1	40	-	-
						3	24	1	24	-	-	-	-	-	-

1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.
Thrisra 6	$\theta D \theta,, \theta D!, G N \bar{\theta}!$	45	135	1	135	-	45	-	19	2	27	-	15	-
	$D \theta,, \theta D!, G N \bar{\theta}!$			2	67	1	22	3	9	9	13	5	7	9
	$\theta,, \theta D!, G N \bar{\theta}!$			3	33	3	11	3	4	23	6	15	3	27
	$\theta D!, G N \bar{\theta}!$			4	16	7	5	15	2	3	3	15	1	63
	$\theta D!, G N \bar{\theta}!$			5	8	7	2	39	1	23	1	55	-	-
				6	4	7	1	39	-	-	-	-	-	-
Misra 7	$\theta D \theta,, \theta D!, G N \bar{\theta}!$	50	150	1	150	-	50	-	21	3	30	-	16	6
	$D \theta,, \theta D!, G N \bar{\theta}!$			2	75	-	25	-	10	10	15	-	8	6
	$\theta,, \theta D!, G N \bar{\theta}!$			3	37	2	12	6	5	10	7	10	4	6
	$\theta D!, G N \bar{\theta}!$			4	18	6	6	6	2	38	3	30	2	6
	$\theta D!, G N \bar{\theta}!$			5	9	6	3	6	1	38	1	70	1	6
				6	4	22	1	54	-	-	-	-	-	-

1	2	3	4	5	6	7	8	9	10	11	12	18	14	15
Chaturasra 8	$\theta D \theta \text{ ,, } \theta D!, G, N, \bar{\theta}!$	55	165	1	165	-	55	-	23	4	33	-	18	3
	$D \theta \text{ ,, } \theta D!, G, N, \bar{\theta}!$			2	82	1	27	3	11	11	16	5	9	3
	$\theta \text{ ,, } \theta D!, G, N, \bar{\theta}!$			3	41	1	13	9	5	25	8	5	4	21
	$\theta D!, G, N, \bar{\theta}!$			4	20	5	6	21	2	53	4	5	2	21
	$\theta D!, G, N, \bar{\theta}!$			5	10	5	3	21	1	53	2	5	1	21
	$\theta D!, G, N, \bar{\theta}!$			6	5	5	1	69	-	-	1	5	-	-
Sankeerna 9	$\theta D \theta \text{ ,, } \theta D!, G, N, \bar{\theta}!$	50	180	1	180	-	60	-	25	5	36	-	20	-
	$D \theta \text{ ,, } \theta D!, G, N, \bar{\theta}!$			2	90	-	30	-	12	12	18	-	10	-
	$\theta \text{ ,, } \theta D!, G, N, \bar{\theta}!$			3	45	-	15	-	6	12	9	-	5	-
	$\theta D!, G, N, \bar{\theta}!$			4	22	4	7	12	3	12	4	20	2	36
	$\theta D!, G, N, \bar{\theta}!$			5	11	4	3	36	1	68	2	20	1	36
	$\theta D!, G, N, \bar{\theta}!$			6	5	20	1	84	-	-	1	20	-	-

For the Mukthāyi, the example under Table 58 may be referred; to Only the process is to be repeated three times.

TABLE 60

Thrikāla Mukthāyi of Jāthi preceded by $\theta D \theta$,, diminishing step by step

Jāthi	The form of Jāthi	Letters	Thrikāla Mukthāyi letters	g ₄		g ₃		g ₂		g ₅		g ₆	
				kr.	L	kr	L	kr	L	kr	L	kr	L
1	2	3	4	5	6	7	8	9	10	11	12	13	14
Khanda 5	$\theta D \theta$,, $\theta D G N \theta$!	} 40	280	70	—	93	1	40	—	56	—	31	1
	$D \theta$,, $\theta D G N \theta$!												
	θ ,, $\theta D G N \theta$!												
	$\theta D G N \theta$!												
	$\theta D G N \theta$!												
Thrisra 6	$\theta D \theta$,, $\theta D!$, $G N \theta$!	} 45	315	78	3	105	—	45	—	63	—	35	—
	$D \theta$,, $\theta D!$, $G N \theta$!												
	θ ,, $\theta D!$, $G N \theta$!												
	$\theta D!$, $G N \theta$!												
	$\theta D!$, $G N \theta$!												

1	2	3	4	5	6	7	8	9	10	11	13	14	14
Misra 7	$\theta D \theta, , \theta D!, G N \theta!$ $D \theta, , \theta D!, G N \theta!$ $\theta, , \theta D!, G N \theta!$ $\theta D!, G N \theta!$ $\theta D!, G N \theta!$	50	350	87	2	116	2	50	-	70	-	38	8
Chaturasra 8	$\theta D \theta, , \theta D!, G, N, \theta!$ $D \theta, , \theta D!, G, N, \theta!$ $\theta, , \theta D!, G, N, \theta!$ $\theta D!, G, N, \theta!$ $\theta D!, G, N, \theta!$	55	385	96	1	128	1	55	-	77	-	42	7
Sankeerna 9	$\theta D \theta, , \theta D!, G, N, \theta!$ $D \theta, , \theta D!, G, N, \theta!$ $\theta, , \theta D!, G, N, \theta!$ $\theta D!, G, N, \theta!$ $\theta D!, G, N, \theta!$	60	420	105	-	140	-	60	-	84	-	46	6

The coefficient for thrikāla = 7 Vide Tables 8 & 9.

TABLE 61

Jāthi preceded by $\theta D \theta$., diminishing step by step — in Thrikala and also 3-2 1 duration

Jāthi	The form of Jāthi	letters	Mukṭhāyi letters	g ₁		g ₃		g ₇		g ₅		g ₉	
				kr	L	kr	L	kr	L	kr	L	kr	L
				1	2	3	4	5	6	7	8	9	10
Khanda 5	$\theta D \theta$., $\theta D G N \theta$!	40	520	130	—	173	1	74	2	104	—	57	7
	$D \theta$., $\theta D G N \theta$!												
	θ ., $\theta D G N \theta$!												
	$\theta D G N \theta$!												
	$\theta D G N \theta$!												
Thriśra 6	$\theta D \theta$., $\theta D', G N \theta$!	45	585	146	1	195	—	83	4	117	—	65	—
	$D \theta$., $\theta D', G N \theta$!												
	θ ., $\theta D', G N \theta$!												
	$\theta D', G N \theta$!												
	$\theta D', G N \theta$!												

1	2	3	4	5	6	7	8	9	10	11	12	13	14
Misra 7	$\theta D \theta, \theta D!, G \bar{N} \theta!$ $D \theta, \theta D!, G \bar{N} \theta!$ $\theta, \theta D!, G \bar{N} \theta!$ $\theta D!, G \bar{N} \theta!$ $\theta D!, G \bar{N} \theta!$	50	650	162	2	216	2	92	6	130	—	72	
Chaturara 8	$\theta D \theta, \theta D!, G, \bar{N}, \theta!$ $D \theta, \theta D!, G, \bar{N}, \theta!$ $\theta, \theta D!, G, \bar{N}, \theta!$ $\theta D!, G, \bar{N}, \theta!$ $\theta D!, G, \bar{N}, \theta!$	55	715	178	3	238	1	102	1	143	—	79	
Sankeerna 9	$\theta D \theta, \theta D!, G, \bar{N}, \theta!$ $D \theta, \theta D!, G, \bar{N}, \theta!$ $\theta, \theta D!, G, \bar{N}, \theta!$ $\theta D!, G, \bar{N}, \theta!$ $\theta D!, G, \bar{N}, \theta!$	60	780	195	—	260	—	111	3	156	—	86	

for the design, Vide Table 25.

TABLE 62

Jāthi preceded by θ D θ,, diminishing step by step - in Thrikāla, Thrisra and Thrisra higher Kāla

Jāthi	The form of Jāthi	Letters	Mukthayi letters	g ₁		g ₂		g ₇		g ₅		g ₉	
				Kr	L	Kr	L	Kr	L	Kr	L	Kr	L
				5	6	7	8	9	10	11	12	13	14
1	2	3	4	5	6	7	8	9	10	11	12	13	14
Khandā 5	θ D θ,, θ D G N θ̄!	40	360	90	-	120	-	51	3	72	-	40	-
	D θ,, θ D G N θ̄!												
	θ,, θ D G N θ̄!												
	θ D G N θ̄!												
	θ D G N θ̄!												
Thrisra 6	θ D θ,, θ D!, G N θ̄!	45	405	101	1	135	-	57	6	81	-	45	-
	D θ,, θ D!, G N θ̄!												
	θ,, θ D!, G N θ̄!												
	θ D!, G N θ̄!												
	θ D!, G N θ̄!												

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Misra 7		$\theta D \theta, \theta D!, G N \bar{\theta}!$ $D \theta, \theta D!, G N \bar{\theta}!$ $\theta, \theta D!, G N \bar{\theta}!$ $\theta D!, G N \bar{\theta}!$ $\theta D!, G N \bar{\theta}!$	50	450	112	2	150	-	64	2	90	-	50	-
Chaturasra 8		$\theta D \theta, \theta D!, G, N, \bar{\theta}!$ $D \theta, \theta D!, G, N, \bar{\theta}!$ $\theta, \theta D!, G, N, \bar{\theta}!$ $\theta D!, G, N, \bar{\theta}!$ $\theta D!, G, N, \bar{\theta}!$	55	495	123	3	165	-	70	5	99	-	55	-
Sankeerna 9		$\theta D \theta, \theta D!, G, N, \bar{\theta}!$ $D \theta, \theta D!, G, N, \bar{\theta}!$ $\theta, \theta D!, G, N, \bar{\theta}!$ $\theta D!, G, N, \bar{\theta}!$ $\theta D!, G, N, \bar{\theta}!$	60	540	135	-	180	-	77	1	108	-	60	-

For the design, Vide Table 18.

TABLE 63

Mukthayi of Jathi preceded by $\theta D \theta$, diminishing step by step-in Thrikala Thrisra, and Thrisra higher Kala gamana

Jathi	The form of jathi	letters	Mukthayi letters	g ₁		g ₃		g ₇		g ₅		g ₉	
				Kr	L	Kr	L	Kr	L	Kr	L	Kr	L
1	2	3	4	5	6	7	8	9	10	11	12	13	14
Khanda 5	$\theta D \theta, \theta D G N \theta!$	40	1080	270	-	360	-	154	2	216	-	120	
	$D \theta, \theta D G N \theta!$												
	$\theta, \theta D G N \theta!$												
	$\theta D G N \theta!$												
	$\theta D G \theta!$												
Thrisra 6	$\theta D \theta, \theta D!, G N \theta!$	45	1215	303	3	405	-	173	4	243		135	
	$D \theta, \theta D!, G N \theta!$												
	$\theta, \theta D!, G N \theta!$												
	$\theta D!, G N \theta!$												
	$\theta D!, G \theta!$												

1	2	3	4	5	6	7	8	9	10	11	12	13	14
Misra 7	$\theta D \theta, \theta D!, G, N, \theta!$ $D \theta, \theta D!, G, N, \theta!$ $\theta, \theta D!, G, N, \theta!$ $\theta D!, G, N, \theta!$ $\theta D!, G, N, \theta!$	50	1350	337	2	450	-	192	6	270	-	150	-
Chaturasta 8	$\theta D \theta, \theta D!, G, N, \theta!$ $D \theta, \theta D!, G, N, \theta!$ $\theta, \theta D!, G, N, \theta!$ $\theta D!, G, N, \theta!$ $\theta D!, G, N, \theta!$	55	1485	371	1	495	-	212	1	297	-	165	-
Sankeerna 9	$\theta D \theta, \theta D!, G, N, \theta!$ $D \theta, \theta D!, G, N, \theta!$ $\theta, \theta D!, G, N, \theta!$ $\theta D!, G, N, \theta!$ $\theta D!, G, N, \theta!$	60	1620	405	-	540	-	231	3	324	-	180	-

For the design, Vide Table 40.

TABLE 64
Thrikāḷa Mukthāyis, each increasing in letters and Kriyas

Letters for Thrikāḷa	Series for the Practical	Kriyas
1	$\text{II Kāḷa III K IV K}$ $, \theta, - \theta - \theta - \theta \underline{D!}, \underline{G N \bar{\theta}!} \parallel$	2
2	$, \theta, K_a, - \theta K_a - \theta K_a - \theta \underline{D!}, \underline{G, N, \bar{\theta}!} \parallel$	3
3	$, \theta, K, T, - \theta K T - \theta K T - \theta \underline{D!}, \underline{G, N, \bar{\theta}!} \parallel$	4
4	$, K, T, \theta, K_a, - K T \theta K_a - K T \theta K_a - \theta \underline{K T \bar{\theta} D!}, \underline{G N \bar{\theta}!} \parallel$	5
5	$, \theta, K_a, \theta, K, T, - \theta K_a \theta K T - \theta K_a \theta K T - K T \theta \underline{K_a \bar{\theta} D!}, \underline{G N \bar{\theta}!} \parallel$	6
6	$, \theta, D!; ; G, N, \bar{\theta}!, - \theta D!, \underline{G N \bar{\theta}!} - \theta \underline{D!}, \underline{G N \bar{\theta}!} - \theta \underline{K T \bar{\theta} D!}, \underline{G, N, \bar{\theta}!} \parallel$	7
7	$, \theta, ; D!; ; G, N, \bar{\theta}!, - \theta D!, \underline{G N \bar{\theta}!} - \theta \underline{D!}, \underline{G N \bar{\theta}!} - K T \theta \underline{K_a \bar{\theta} D!}, \underline{G, N, \bar{\theta}!} \parallel$	8
8	$, \theta, D!; ; G, ; N, ; \bar{\theta}!, - \theta D!, \underline{G, N, \bar{\theta}!} - \theta \underline{D!}, \underline{G, N, \bar{\theta}!} - \theta \underline{D G N \bar{\theta}! \theta D!}, \underline{G, N, \bar{\theta}!} \parallel$	9
9	$, \theta, ; D!; ; G, ; N, ; \bar{\theta}!, - \theta D!, \underline{G, N, \bar{\theta}!} - \theta \underline{D!}, \underline{G, N, \bar{\theta}!} - \theta \underline{D!}, \underline{G N \bar{\theta}! \theta D!}, \underline{G, N, \bar{\theta}!} \parallel$	10.

The above table gives a number of series in mukthāyi, in kriyas ranging from 2 to 10. Each series has an initial pause of 1 letter.

For each mukthāyi, letters whose number is less than the corresponding number of kriyas by 1 are taken. For example the series with 4 kriyas starts with 3 letters $\theta \kappa \tau$. These letters are first played in II kāla (2 letters per kriya), next in III Kāla and finally in IV Kāla with the addition of $\theta \text{ D G } \bar{\theta}$ or the like in the IV Kāla as shown in the table.

The practical is of utmost service in exhibiting rhythmic beauty. While playing a Nada, each time a mukthāyi of the above can be added to it with the adjustment of kriyas for the Thāla chosen.

Thrikāla gamana in $1 \frac{3}{4}$ kriyas.

This does not mean playing a jāthi in thrikāla. $1 \frac{3}{4}$ indicates number of kriyas for thrikāla.

Eg: I Kāla - 1 Kriya :— θ ;

II Kāla - $\frac{1}{2}$ Kriya :— θ ,

III Kāla - $\frac{1}{4}$ Kriya :— θ
Total $1 \frac{3}{4}$ Kriyas.

Shatkāla gamana in 9 Kriyas.

This does not imply playing a jāthi in the six Kālas consecutively. It is 2 Kriyas in each of I, II and III Kālas, and 1 Kriya in IV, V and VI Kālas. This is of use in Sankeerna laghu or any thāla of Kriyas.

Expl :— I Kāla - 2 Kriyas.

II Kāla - 2 Kriyas.

III Kāla - 2 Kriyas.

IV „ - 1 „

V „ - 1 „

VI „ - 1 „ Total 9 Kriyas.

Eg:— Khanda jāthi Thripata Thāla.

- I Kāla :— $\theta, ; ; ;$
 II Kāla :— $\theta, ; K, ;$
 III Kāla :— $K, T, \theta, K_a,$
 IV Kāla :— $K T \theta K_a |$
 V Kāla :— $\underline{K T \theta K_a \theta R K T}$
 VI Kāla :— $\underline{K T \theta K_a \theta R K T - \theta K_a \theta R K T \theta K_a ||}$

Thrikāla of Jāthi in Jāthi gamana

Number of letters per kriya in the five gamanas :—

Khanda gamana	10 letters
Thrisra	„	„	„	12 „
Misra	„	„	„	14 „
Chaturasra	„	„	„	16 „
Sankeerna	„	„	„	18 „

- I Kāla mārga :— Each letter of a gamana should have the duration equal to twice the number of letters shown against that gamana.
 II Kāla mārga : Each letter has the duration of the number of letters shown against the gamana.
 III Kāla mārga :— Each letter has the duration of half the number of letters shown against the gamana.

The numbers shown above are to be taken as the madhyama Kāla base.

- I Kāla :— No. of Kriyas for each letter of the Jāthi = 2
 II Kāla :— „ „ „ = 1
 III Kāla :— „ „ „ = $\frac{1}{2}$

No. of letters in thrikāla

$$= 7 \times \text{No. of letters in the Jāthi} \times \text{No. of letters in the Jāthi}$$

Jāthi & its gamana.	Total Thrikāla letters.	Thrikala Kriyas.
(1) Khanda Jāthi in Khanda gamana. :—	$7 \times 5 \times 5 = 175$	$17\frac{1}{2}$
(2) Thrisra Jāthi in Thrisra „ :—	$7 \times 6 \times 6 = 252$	21
(3) Misra „ „ Misra „ :—	$7 \times 7 \times 7 = 343$	$24\frac{1}{2}$
(4) Chaturasra „ „ Chaturasra „ :—	$7 \times 8 \times 8 = 448$	28
(5) Sankeerna „ „ Sankeerna „ :—	$7 \times 9 \times 9 = 567$	$31\frac{1}{2}$

JĀTHI IN DIFFERENT GAMANAS

Jāthi.

1. Chaturasra gamana

Khanda. 5 :— $\theta D G N | \overset{1}{\theta} - \theta D G | N \overset{2}{\theta} - \theta D | G N \overset{3}{\theta} - \theta | D G N \overset{4}{\theta} ||$

Thrisra 6 :— $\theta D |, G | N \overset{2}{\theta} - \theta D | |, G N \overset{3}{\theta} ||$

Misra 7 :— $\theta D |, | G N \overset{3}{\theta} - \theta |, D |, G | N \overset{2}{\theta} - \theta | D |, G N | \overset{1}{\theta} -$

$\theta D | |, G N \overset{4}{\theta} ||$

San. 9 :— $\theta D |, | G, N, | \overset{1}{\theta} - \theta D | |, G, N |, \overset{2}{\theta} - \theta | D |, G, | N, \overset{3}{\theta} -$
 $\theta |, D |, G |, N, \overset{4}{\theta} ||$

2. Thrisra gamana

Cha. 4 :— $K T \theta | K_a - K T | \theta K_a - K | T \theta K_a ||$

Kha. 5 :— $\theta D G | N \overset{2}{\theta} - \theta | D G N | \overset{1}{\theta} - \theta D | G N \overset{3}{\theta} ||$

Mis. 7 :— $\theta D | |, G N | \overset{1}{\theta} - \theta | D |, G | N \overset{2}{\theta} - \theta |, D |, | G N \overset{3}{\theta} ||$

3. Misra gamana

- Kha. 5:— $\theta D G \overset{5}{N} \bar{\theta} \bar{!} - \theta D | G \overset{3}{N} \bar{\theta} \bar{!} - \theta D G N | \overset{1}{\theta} \bar{!} - \theta D G N \overset{6}{\theta} \bar{!} - \theta |$
 $D G \overset{4}{N} \bar{\theta} \bar{!} - \theta D G | \overset{2}{N} \bar{\theta} \bar{!} - \theta D G N \bar{\theta} \bar{!} ||$
- Thri. 6:— $\theta D |, G N \bar{\theta} \bar{!} - \theta | D |, G N \bar{\theta} \bar{!} - \theta D | |, G N \bar{\theta} \bar{!} \theta D | |, G N \bar{\theta} \bar{!} -$
 $\theta D |, G | N \bar{\theta} \bar{!} - \theta D |, G N | \bar{\theta} \bar{!} - \theta D |, G N \bar{\theta} \bar{!} ||$
- Cha. 8:— $\theta D |, G, N, | \bar{\theta} \bar{!} - \theta D |, G, N |, \bar{\theta} \bar{!} - \theta D |, G, | N, \bar{\theta} \bar{!} - \theta D |, G |$
 $, N, \bar{\theta} \bar{!} - \theta D |, | G, N, \bar{\theta} \bar{!} - \theta D | |, G, N, \bar{\theta} \bar{!} - \theta | D |, G, N, \bar{\theta} \bar{!} ||$
- San. 9:— $\theta D |, G, N |, \bar{\theta} \bar{!} - \theta D |, G |, N, \bar{\theta} \bar{!} \theta D | |, G, N, \bar{\theta} \bar{!} - \theta |$
 $, D |, G, N, | \bar{\theta} \bar{!} - \theta D |, G, | N, \bar{\theta} \bar{!} - \theta D |, | G, N, \bar{\theta} \bar{!} - \theta |$
 $D |, G, N, \bar{\theta} \bar{!} ||$

4. Khanda gamana

- Cha. 4:— $K T \theta K_a - K | T \theta K_a - K T | \theta K_a - K T \theta | K_a - K T \theta K_a ||$
- Thri. 6:— $\theta D |, G N | \bar{\theta} \bar{!} - \theta D |, G | N \bar{\theta} \bar{!} - \theta D |, | G N \bar{\theta} \bar{!} - \theta D | |$
 $, G N \bar{\theta} \bar{!} - \theta | D |, G N \bar{\theta} \bar{!} ||$
- Mis. 7:— $\theta D |, G | N \bar{\theta} \bar{!} - \theta D | |, G N \bar{\theta} \bar{!} - \theta |, D |, G N | \bar{\theta} \bar{!} - \theta D |, |$
 $G N \bar{\theta} \bar{!} - \theta | D |, G N \bar{\theta} \bar{!} ||$
- San. 9:— $\theta D |, G |, N, \bar{\theta} \bar{!} - \theta |, D |, G, | N, \bar{\theta} \bar{!} - \theta | D |, G, N |$
 $, \bar{\theta} \bar{!} - \theta D | |, G, N, | \bar{\theta} \bar{!} - \theta D |, | G, N, \bar{\theta} \bar{!} ||$

5. Sankeerna gamana

- Kha. 5:— $\theta D G N \bar{\theta} \bar{!} - \theta D G N | \bar{\theta} \bar{!} - \theta D G N \bar{\theta} \bar{!} - \theta D G | N \bar{\theta} \bar{!} - \theta D G N \bar{\theta} \bar{!} - \theta D |$
 $G N \bar{\theta} \bar{!} - \theta D G N \bar{\theta} \bar{!} - \theta | D G N \bar{\theta} \bar{!} - \theta D G N \bar{\theta} \bar{!} ||$
- Thri. 6:— $\theta D |, G N \bar{\theta} \bar{!} - \theta D |, | G N \bar{\theta} \bar{!} - \theta D |, G N \bar{\theta} \bar{!} ||$
- Misra 7:— $\theta D |, G N \bar{\theta} \bar{!} - \theta | D |, G N \bar{\theta} \bar{!} - \theta D |, | G N \bar{\theta} \bar{!} - \theta D |, G N |$
 $\bar{\theta} \bar{!} - \theta D |, G N \bar{\theta} \bar{!} - \theta |, D |, G N \bar{\theta} \bar{!} - \theta D | |, G$
 $N \bar{\theta} \bar{!} - \theta D |, G | N \bar{\theta} \bar{!} - \theta D |, G N \bar{\theta} \bar{!} ||$

Cha. 8 :— $\theta D!$, G, N, $\theta!$ - $\theta | D!$, G, N, $\theta!$ - $\theta D!$, G, N, $\theta!$ - $\theta D!$, |
 G, N, $\theta!$ - $\theta D!$, G, |, N, $\theta!$ - $\theta D!$, G, | N, $\theta!$ - $\theta D!$, G, N |
 , $\theta!$ - $\theta D!$, G, N, | $\theta!$ - $\theta D!$, G, N, $\theta!$ ||

Mukthāyi of the jāthi repeated set to Ādi Thāla for 1 Avritha.

The following are the Mukthāyīs with the same jāthi repeated for Ādi thāla Chaturasra gamana for the five gamanas.

1 Kha. 5 :— $\theta \theta J!$, - $\theta \theta J!$, - $\theta \theta J!$,

Mukthāyi :— $\theta | D G N \theta!$, - $\theta D G N \theta!$, - $\theta D G N \theta!$ ||

2 Thri. 6 :— $\theta \theta J!$; - $\theta \theta J!$;

Mukthāyi :— $\theta D!$, G | N $\theta!$, - $\theta D!$, G N $\theta!$, - $\theta D!$, G N $\theta!$ ||

3 Mis. 7.— $\theta J!$, - $\theta J!$, - $\theta J!$,

Mukthāyi :— $\theta D!$, G N $\theta!$ |, $\theta D!$, G N $\theta!$, - $\theta D!$, G N $\theta!$ ||

4 Cha. 8 :— $\theta J!$, - $\theta J!$,

Mukthāyi :— $\theta D!$, G, N, $\theta!$, - $\theta | D!$, G, N, $\theta!$, - $\theta D!$, G, N, $\theta!$ ||

5 San. 9 :— $\theta J!$, -

Mukthāyi :— $\theta D!$, G, N, $\theta!$, - $\theta D!$, G, N, $\theta!$, - $\theta D!$, G, N, $\theta!$ ||

MUKTHĀYI SET TO ĀDI THĀLA IN THE FIVE GAMANAS.

In the following mukthāyīs. Khanda gamana has 5 letters, Thrisra 12, Misra 14, Chaturasra 16 and Sankeerna 14 letters. These mukthāyīs are of madhyama Kāla and so if these are practised in the other two Kālas, I Kāla and III Kāla, it promotes rhythmic sense.

I. ĀDI THĀLA — Khanda gamana

1. $\theta K T - \theta D G N \theta!$ - θ ,, - θ ,, $\theta D!$, G N $\theta!$ |

$D \theta K T - \theta D G N \theta!$ - θ ,, - θ ,, $\theta D!$, G N | $\theta!$

$\theta D \theta K T - \theta D G N \theta!$

$\theta \theta - \theta D!$, G | N $\theta!$

$\theta \theta - \theta D!$, G N $\theta!$

$\theta \theta - \theta D!$, G N $\theta!$ ||

2. $\theta_{Ka} \theta_{KT} - \theta_{Ka} \theta_{KT} - \theta_{Ka} J_{Nu} \theta_{Ka} \theta_{KT} \theta_{Ka} | D N$
 $\theta_{,,} - \theta D !, G N \bar{\theta} !$
 $\theta_{,,} - \theta D !, G || N \bar{\theta} !$
 $\theta_{,,} - \theta D !, G N \bar{\theta} ! - \theta ;$
 $\theta_{,,} - \theta !, D !, G N \bar{\theta} ! -$
 $\theta_{,,} - \theta D !, G N \bar{\theta} ! -$
 $\theta_{,,} - \theta ||, D !, G N \bar{\theta} ! - \theta ;$
 $\theta_{,,} - \theta D !, G N \bar{\theta} ! - |$
 $\theta_{,,} - \theta D !, G N \bar{\theta} ! -$
 $\theta_{,,} - \theta D !, G N \bar{\theta} ! || \theta$
3. $\theta_{Ka} J_{Nu} \theta_{Ka} \theta_{KT} - \theta_{Ka} J_{Nu} \theta_{Ka} \theta_{KT} - \theta_{Ka} J_{Nu} | \theta_{Ka} \theta_{KT} -$
 $\theta ; - \theta D !, G N \bar{\theta} !$
 $\theta ; - \theta D ! ||, G N \bar{\theta} !$
 $\theta ; - \theta D !, G N \bar{\theta} ! - \theta ;$
 $\theta_{,,} |, - \theta D !, G N \bar{\theta} !$
 $\theta ; - \theta D !, G N \bar{\theta} !$
 $\theta_{,,} ||, - \theta D !, G N \bar{\theta} ! - \theta ;$
 $\theta ; - \theta D !, G N \bar{\theta} ! |$
 $\theta ; - \theta D !, G N \theta !$
 $\theta ; - \theta D !, G N \bar{\theta} ! ||$
4. $\theta_{KTJ} ! ; - \theta_{KTJ} ! ; - \theta_{KTJ} !$
 $\theta D G N \bar{\theta} !,$
 $\theta_{Ka} \theta D G N \bar{\theta} !,$
 $\theta_{Ka} D G_u \theta D G N \bar{\theta} ! ||$

This mukthāyi is of 4 kriyas

II ĀDI THĀLA - Thrisra gamana

1. $\theta K_a D N - \theta D!, G N \bar{\theta}! - \theta,, - \theta,, - \theta D!, G, N, \bar{\theta}! |$
 $D \theta K_a D N - \theta D!, G N \bar{\theta}! - \theta,, - \theta,, - \theta D!, G, N, || \bar{\theta}!$
 $\theta D \theta K_a D N - \theta D!, G N \bar{\theta}!$
 $\theta \theta - \theta D!, G, N, \bar{\theta}!$
 $\theta \theta - \theta D!, G, N, \bar{\theta}!$
 $\theta \theta - \theta D!, G, N, \bar{\theta}! ||$

2. $\theta R K T \bar{\theta}!, - \theta R K T \bar{\theta}!, - \theta R K T \bar{\theta}!,$
 $\theta D!, G N \bar{\theta}!;$
 $\theta K_a \theta D!, G N \bar{\theta}!;$
 $\theta K_a D G_u \theta D!, G N \bar{\theta}! ||$

This mukthāyi is of 4 kriyas.

III ĀDI THĀLA - Misra gamana

1. $\theta K_a \theta K T - \theta D!, G N \bar{\theta}! - \theta,, - \theta,, - K T \theta K_a \theta D!, G N \bar{\theta}! |$
 $D \theta K_a \theta K T - \theta D!, G N \bar{\theta}! - \theta,, - \theta,, - K T \theta K_a \theta D!, G N || \bar{\theta}!$
 $\theta D \theta K_a \theta K T - \theta D!, G N \bar{\theta}!$
 $\theta \theta K T \theta K_a - \theta D!, G | N \bar{\theta}!$
 $\theta \theta K T \theta K_a - \theta D!, G N \bar{\theta}!$
 $\theta \theta K T \theta K_a - \theta D!, G N \bar{\theta}! ||$

2. $\theta K_a \theta K T \bar{\theta}!, - \theta K_a \theta K T \bar{\theta}!, - \theta K_a \theta K T \bar{\theta}!,$
 $\theta D!, G N \bar{\theta}!, ;$
 $\theta K_a \theta D!, G N \bar{\theta}!, ;$
 $\theta K_a D G_u \theta D!, G N \bar{\theta}! ||$

This mukthāyi is of 4 Kriyas.

IV ĀDI THĀLA - Chaturasra gamana

1. $\text{K T } \theta \text{ K}_a \text{ D N} - \theta \text{ D!}, \text{G, N, } \overline{\theta!} - \theta \text{ ,,} - \theta \text{ ,,} -$

$\theta, ; - \theta \text{ D!}, \text{G, N, } \overline{\theta!} \mid$

$\text{D K T } \theta \text{ K}_a \text{ D N} - \theta \text{ D!}, \text{G, N, } \overline{\theta!} - \theta \text{ ,,} - \theta \text{ ,,} -$

$\theta, ; - \theta \text{ D!}, \text{G, N, } \parallel \overline{\theta!} -$

$\theta \text{ D } \theta \theta - \text{K T } \theta \text{ K}_a \text{ D N} - \theta \text{ D!}, \text{G, N, } \overline{\theta!}$

$\theta \theta \theta \text{ K T} - \theta \text{ D!}, \text{G, N, } \overline{\theta!}$

$\theta \theta \theta \text{ K T} - \theta \text{ D!}, \text{G, N, } \overline{\theta!}$

$\theta \theta \theta \text{ K T} - \theta \text{ D!}, \text{G, N, } \overline{\theta!} \parallel$

Thrisra Lower Kāla

2. $\theta \text{ K}_a - \theta \text{ K T} - \text{K T } \theta \text{ K}_a - \theta \text{ D G N } \overline{\theta!} - \theta, \text{K}_a, \text{D, N, } \overline{\theta!}, ;$

Thrisra

$\theta - \theta \text{ K T} \mid \text{K T } \theta \text{ K}_a - \theta \text{ D G N } \overline{\theta!} - \theta \text{ K}_a \text{ D N } \overline{\theta!},$

Cha. Hr.

$\theta \text{ K T} - \text{K T } \theta \text{ K}_a - \theta \text{ D G N } \overline{\theta!} - \theta \text{ K}_a \text{ D N } \overline{\theta!}, \parallel$

3. $\theta \text{ K}_a \theta \text{ R K T } \overline{\theta!} \text{ ,,} - \theta \text{ K}_a \theta \text{ R K T } \overline{\theta!} \text{ ,,} - \theta \text{ K}_a \theta \text{ R K T } \overline{\theta!}, -$

$\theta \text{ D!}, \text{G, N, } \overline{\theta!} ; ;$

$\theta \text{ K}_a \theta \text{ D!}, \text{G, N, } \overline{\theta!} ; ;$

$\theta \text{ K}_a \text{ D G}_u \theta \text{ D!}, \text{G, N, } \overline{\theta!} \mid$

This mukthāyi is of 4 Kriyas

V ĀDI THĀLA - Sankeerna gamana

1. $\theta \text{ K T } \theta \text{ K}_a \text{ D N} - \theta \text{ D!}, \text{G, N, } \overline{\theta!} - \theta \text{ ,,} - \theta \text{ ,,} -$

$\theta \text{ K T} - \theta \text{ K}_a \theta \text{ K T} - \theta \text{ D!}, \text{G, N, } \overline{\theta!} \mid$

$\text{D } \theta \text{ K T } \theta \text{ K}_a \text{ D N} - \theta \text{ D!}, \text{G, N, } \overline{\theta!} - \theta \text{ ,,} - \theta \text{ ,,} -$

$\theta \text{ K T} - \theta \text{ K}_a \theta \text{ K T} - \theta \text{ D!}, \text{G, N, } \overline{\theta!} \mid$

$\theta D \theta \theta \theta K T \theta K_a D N - \theta D !, G, N, \theta \bar{!}$
 $\theta \theta \theta K T - \theta K_a D N - \theta D !, G N \theta \bar{!}$
 $\theta \theta \theta K T - \theta K_a D N - \theta D !, G N \theta \bar{!}$
 $\theta \theta \theta K T - \theta K_a D N - \theta D !, G N \theta \bar{!} \parallel$

2. $\theta K_a - \theta K T - K T \theta K_a - \theta D G N \theta \bar{!} - \theta K_a D N \theta \bar{!},$
 $\theta - \theta K T - K T \theta K_a - \theta D G N \theta \bar{!} - \theta K_a D N \theta \bar{!},$
 $\theta K T - K T \theta K_a - \theta D G N \theta \bar{!} - \theta K_a D N \theta \bar{!},$
 $\theta D G N \theta \bar{!}$
 $\theta D G N \theta \bar{!}$
 $\theta D G N \theta \bar{!} \parallel$

3. $\theta K_a D G_u \theta K T \theta \bar{!} ; ; - \theta K_a D G_u \theta K T \theta \bar{!} ; ; - \theta K_a D G_u \theta K T \theta \bar{!},$
 $\theta D !, G, N, \theta \bar{!}, ;$
 $\theta K_a \theta D !, G, N, \theta \bar{!}, ;$
 $\theta K_a D G_u \theta D !, G, N, \theta \bar{!} \mid$

This mukthāyi is of 4 Kriyas.

Jathis in Kriyas

In the following, different kinds of Jathis (Jathi, in the sense of a series of sounds) equal in magnitude to the different Kriyas are given. When the play is to be limited to a certain number of Kriyas at any place, the respective jathis can be made use of. The Kriyas are chaturasra Kriyas, i. e. Kriyas each having the duration of 4 letters with short vowels (4 aksharakālas). The Kālas in Roman numbers and the gamanas are indicated wherever necessary.

2 KRIYAS

- | | |
|--|---|
| 1. $\theta K T - \theta D G N \theta \bar{!} \parallel$ | 3. $\theta K T \theta \bar{!}, - \theta D G N \theta \bar{!} - \theta D !, G N \theta \bar{!}$ |
| 2. $\overset{\text{Thri.}}{K T} \overset{\text{Thri. Hr}}{\theta K_a} - \overset{\text{Thri. Hr}}{K T} \overset{\text{Thri.}}{\theta K_a} \parallel$ | 4. $\overset{\text{II K}}{, \theta}, - \overset{\text{III}}{\theta} - \overset{\text{IV}}{\theta} - \theta D !, G N \theta \bar{!} \parallel$ |

3. KRIYAS

1. $\theta K_a \theta K T - \theta D !, G N \bar{\theta} !$ ||
2. $\theta K T - K T \theta K_a - \theta D G N \bar{\theta} !$ ||
3. $\theta D !, G N \bar{\theta} ! - \theta D !, G N \bar{\theta} !$ ||
4. $K T \theta K_a - K T \theta K_a - \underline{K T \theta K_a}$ ||
5. $, \theta, K_a, - \theta K_a - \theta K_a - \theta D !, G, N, \bar{\theta} !$ ||

4. KRIYAS

1. $\theta, K, T, - \theta, D, G, N, \bar{\theta} !$ ||
2. $\theta D !, G N \bar{\theta} ! - \theta D !, G, N, \bar{\theta} !$ ||
3. $, \theta, K, T, - \theta K T - \theta K T - \theta D !, G, N, \bar{\theta} !$ ||
4. $, \theta, K, T, - \theta K T - \theta K T - \theta K T - \theta K T - \theta K T$ ||
5. $K, T, \theta, K_a, - K T \theta K_a - \underline{K T \theta K_a}$ ||
6. $\theta \bar{\theta} !, - \theta K_a \bar{\theta} !, - \theta K T \bar{\theta} !, - \theta D G N \bar{\theta} ! - \theta D !, G N \bar{\theta} !$ || (Thrisra II Kāla.,
7. $\theta D M \theta \theta M - \theta K_a \theta D M - \theta K_a \theta D M - \underline{K T \theta K_a \theta R K T}$ || (Khanda gamana)
8. $, \underline{\theta D \theta} !, K_u \theta K T - \underline{D \theta} !, K_u \theta K T - \theta !, \underline{K_u \theta K T} - \underline{\theta K T} - \underline{\theta K T}$ ||
9. $, \underline{\theta D \theta K_a D N \bar{\theta} !}, - \underline{D \theta K_a D N \bar{\theta} !}, - \underline{\theta K_a D N \bar{\theta} !}, - \underline{\theta D !, G N \bar{\theta} !}$ ||
10. $D \theta K_a D N \bar{\theta} !, K_u - \theta K_a D N \bar{\theta} !, K_u$ ||

5. KRIYAS

1. $\theta, ; | ; ; | \theta, ; | D, G, | N, \bar{\theta} !, ||$
2. $\theta \bar{\theta} !, | \theta \theta \bar{\theta} !, - \theta K_a \theta !, \bar{\theta} !, - \theta | D G N \bar{\theta} !$ ||
3. $\theta, D, G, N, \bar{\theta} !, - \theta D G N \bar{\theta} ! - \theta D G N \bar{\theta} !$ ||
4. $\theta K T \theta K_a, - K T \theta K_a, - T \theta K_a, - \theta K_a, - \theta, ||$
5. $, K, T, \theta, K_a, - K T \theta K_a - \underline{K T \theta K_a} - \theta K T - \theta D !, G N \bar{\theta} !$ ||

6 KRIYAS

1. $\theta, ; | ; ; | \theta, ; | K, ; | K, T, | \theta, K_a, ||$
2. $\theta \bar{\theta}!, - \theta K_a \bar{\theta}!, - \theta K T \bar{\theta}!, - \theta D G N \bar{\theta}! - \theta D!, G N \bar{\theta}! ||$
3. $\theta D \theta K_a D N \bar{\theta}!, - D \theta K_a D N \bar{\theta}!, - \theta K_a D N \bar{\theta}!, ||$
4. $\theta D!, G N \bar{\theta}! - \theta K_a \theta D!, G N \bar{\theta}! - \theta K_a D G_u \theta D!, G N \bar{\theta}! ||$
5. $\theta D, \theta R \theta R G_u!, - \theta K_a \theta D, \theta R \theta R G_u!, - \theta K_a D G_u \theta D, \theta R \theta R G_u!, ||$
6. $\theta, D!, ; G, N, \bar{\theta}!, - \theta D!, G N \bar{\theta}! - \theta D!, G N \bar{\theta}! ||$
Thri. Hr.
7. $\theta K T \theta K_a ; - K T \theta K_a ; - T \theta K_a ; - \theta K_a ; - K_a, ||$
8. $, \theta, K_a, \theta, K, T, - \theta K_a \theta K T - \theta K_a \theta K T - K T \theta K_a - \theta D!, G N \bar{\theta}! ||$

7 KRIYAS

1. $\theta, ; | ; ; | \theta, ; | K, ; | \theta D! |, G | N \bar{\theta}! ||$
2. $, \theta D \theta K_a D N \theta!, K_u - D \theta K_a D N \theta!, K_u - \theta K_a D N \theta!, K_u ||$
3. $\theta, K_a, \theta, D, G, N, \bar{\theta}!, - \theta K_a \theta D G N \bar{\theta}! - \theta K_a \theta D G N \bar{\theta}! ||$
Thri. Hr, Thri.
4. $\theta \bar{\theta}!, - \theta \theta \bar{\theta}!, - \theta K_a \theta \bar{\theta}!, - \theta K T \theta \bar{\theta}!, - \theta D, \theta R \theta R G_u!, ||$
5. $, \theta, D!, ; G, N, \bar{\theta}!, - \theta D!, G N \bar{\theta}! - \theta D!, G N \bar{\theta}! - \theta K T \theta D!, G, N, \bar{\theta}! ||$

8 KRIYAS

1. $\theta, ; | ; ; | \theta, ; | K, ; | T, ; | \theta, D!, | ; G, | N, \bar{\theta}!, ||$
2. $\theta, K, T, \theta, D, G, N, \bar{\theta}!, - \theta K T \theta D G N \bar{\theta}! - \theta K T \theta D G N \bar{\theta}! ||$
Thri. Thri. Hr
3. $\theta, ; D!, ; G, N, \bar{\theta}!, - \theta D!, G N \bar{\theta}! - \theta D!, G N \bar{\theta}! -$
 $\theta D G N \bar{\theta}! - \theta D G N \bar{\theta}! - \theta D G N \bar{\theta}! ||$
4. $\theta D, \theta R \theta R G_u!, - \theta D \theta, \theta R \theta R G_u!, - \theta D \theta, \theta R \theta R G_u!, ||$
Thri. Thri.
5. $\theta D, \theta R \theta R G_u!, - \theta K_a - \theta D, \theta R \theta R G_u!, - \theta K_a D G_u \theta D, \theta R \theta R G_u!, ||$
 (Thrisra Gamana.)

6. $\theta K_u!, \theta D, \theta R \theta R G_u!, -\theta \theta K_u!, \theta D, \theta R \theta R G_u!, -\theta \theta \theta K_u!, \theta D, \theta R \theta R G_u!$
7. $\theta \theta J!, -\theta \theta J!, -\theta \theta J!, -\theta, \theta R \theta R G_u!, , \theta, \theta R \theta R G_u!, , \theta,$
 $\theta R \theta R G_u!, ||$
8. $, \theta, ; D!, ; G, N, \bar{\theta}!, -\theta D!, \overset{kha}{G N \bar{\theta}!} - \theta D!, \overset{kha}{G N \bar{\theta}!} - \theta D!, \overset{kha}{G N \bar{\theta}!} ||$
9. $\theta, D, G, N, \bar{\theta}!, -, \theta, D, G, N, \bar{\theta}!, -, \theta, D, G, N, \bar{\theta}!, ||$
10. $, \theta, ; D!, ; G, N, \bar{\theta}!, -\theta D!, G N \bar{\theta}! - \theta D!, G N \bar{\theta}! - \text{KT} \theta K_a - \theta D!, G, N, \bar{\theta}! ||$

9 KRIYAS

1. $\theta, ; | ; ; | K, ; | T, ; | \theta, ; | K_a, ; | \theta D!, | G | N \bar{\theta}! ||$
2. $\theta, K_a, D, G_u, \theta, D, G, N, \bar{\theta}!, -\theta K_a \overset{Thri}{D G_u} \theta D G N \bar{\theta}!, -\theta K_a \overset{Thri-Hr}{D G_u} \theta D G N \bar{\theta}! ||$
3. $\theta K_u!, \theta D, \theta R \theta R G_u!, -\theta \theta K_u!, \theta D, \theta R \theta R G_u!, -\theta \theta \theta K_u!, \theta D,$
 $\theta R \theta R G_u!, ||$
4. $\left. \begin{array}{l} \theta D, \theta R \theta R G_u!, \\ \theta K_a \theta D, \theta R \theta R G_u!, \\ \theta K_a D G_u \theta D, \theta R \theta R G_u!, || \end{array} \right\} \text{(Thrisra gamana)}$
5. $\theta, ; | - ; ; | - \theta, ; | K_a, ; | - K, T, | \theta, K_a, | \text{KT} \theta K_u | - \text{KT} \theta K_a \theta R \text{KT} |$
 $\text{KT} \theta K_a \theta R \text{KT} \theta K_a \theta R \text{KT} \theta K_a ||$

The above item is in Shatkāla.

6. $, \theta, D!, ; G, ; N, ; \bar{\theta}!, -\theta D!, G, N, \bar{\theta}! - \theta D!, G, N, \bar{\theta}! - \theta D G N \bar{\theta}! -$
 $\theta D!, G, N, \bar{\theta}! ||$

10 KRIYAS

1. $\theta, ; | ; ; | K, ; | T, ; | \theta, ; | K_a, ; | \theta, D!, | ; G, | ; N, | ; \bar{\theta}!, ||$
2. $, \theta, ; D!, ; G, ; N, ; \bar{\theta}!, -\theta D!, G, N, \bar{\theta}! - \theta D!, G, N, \bar{\theta}! - \theta D!, G N \bar{\theta}! -$
 $\theta D!, G, N, \bar{\theta}! ||$

12 KRIYAS

1. $\theta D \theta K_a D N \bar{\theta}!$, - $D \theta K_a D N \bar{\theta}!$, - $\theta K_a D N \bar{\theta}!$, -
 $\theta D!$, $G N \bar{\theta}!$ - $\theta K_a \theta D!$, $G N \bar{\theta}!$ - $\theta K_a D G_u \theta D!$, $G N \bar{\theta}!$ ||
2. $\theta K_a D N \theta!$, ; , - $\theta K_a D N \theta!$, ; , - $\theta K_a D N \theta!$, ; , -
 θD , $\theta L!$, $G_u \bar{\theta}!$, - θD , $\theta L!$, $G_u \bar{\theta}!$, - θD , $\theta L!$, $G_u \bar{\theta}!$, ||
3. $\theta D \theta K_a D N \theta!$, ; , - $D \theta K_a D N \theta!$, ; , - $\theta K_a D N \theta!$, -
 $\theta D!$, $G N \bar{\theta}!$ - $\theta D!$, $G N \bar{\theta}!$ - $\theta D!$, $G N \bar{\theta}!$ ||

16 KRIYAS

1. $\theta D \theta K_u D N \bar{\theta}!$, , $\theta D G N \bar{\theta}!$ | - $D \theta K_u D N \bar{\theta}!$, , $\theta D G N \bar{\theta}!$ - $\theta K_u | D N \bar{\theta}!$, -
 $\theta D!$, G , N , $\bar{\theta}!$ - $\theta D!$, G , N , $\bar{\theta}!$ - $\theta D!$, G , N , $\bar{\theta}!$ ||
2. $\theta D \theta K_u D N \bar{\theta}!$, , θ , $\theta R K T \theta K_a$
 $D \theta K_u D N \bar{\theta}!$, , θ , $\theta R K T \theta K_a$
 $\theta K_u || D N \bar{\theta}!$, , θ , $\theta R K T \theta K_a$
 $, \theta D$, $\theta R | K T \theta K_a$
 θD , $\theta R K T \theta K_a$
 θD , $\theta R K T \theta K_a$ ||
3. $\theta D \theta K_a D N - \theta K_a D N \theta K_a D N \bar{\theta}!$,
 $D \theta | K_a D N - \theta K_a D N \theta K_a D N \bar{\theta}!$,
 $\theta K_a D N - \theta K_a D N \theta K_a D N || \bar{\theta}!$,
 θ , K_a , θ , D , G , N , $\bar{\theta}!$, - θ , $|$, $D!$, $G N \bar{\theta}!$ - $\theta D!$, $G N \bar{\theta}!$ - $\theta D!$, $G N \bar{\theta}!$ - $\theta D!$, $G N \bar{\theta}!$ ||
Kha. Kha. Kha.
4. $\theta D \theta K T D!$, - $\theta D!$, $G N \bar{\theta}!$ | θ , ;
 $D \theta K T D!$, - $\theta D!$, $G || N \bar{\theta}!$ - θ , ;
 $\theta K T D!$, - $\theta D!$, $G | N \bar{\theta}!$
 $\theta D!$, $G N \bar{\theta}!$
 $\theta D!$, $G N \bar{\theta}!$ ||

5. $\theta D \theta K T D !, \theta D G N \bar{\theta} ! - \theta, | ;$
 $D \theta K T D !, \theta D G N \bar{\theta} ! - \theta, || ;$
 $\theta K T D !, \theta D G N \bar{\theta} ! - \theta K T D !, \theta D G N \bar{\theta} ! - \theta K T D !, \theta D G N \bar{\theta} ! ||$
6. $\theta K T - K T \theta K_a - \theta D G N \bar{\theta} ! - \theta, K_a, D, N, \bar{\theta} !, ;$
 $\theta - \theta K T || K T \theta K_a - \theta D G N \bar{\theta} ! - \theta K_a D N \bar{\theta} !,$
 $\theta K T - K T \theta K_a - \theta D G N \bar{\theta} ! - \theta K_a D N \bar{\theta} !, ||$
7. $\theta D \theta K_a D N - D \theta K_a D N - \theta K_a | D N - \theta D !, G N \bar{\theta} !, , - \theta D !, G N \bar{\theta} ! ||$
 $; - \theta D !, G N \bar{\theta} ! - \theta, , \theta D !, G | N \bar{\theta} ! - \theta D !, G N \bar{\theta} ! - \theta D !, G N \bar{\theta} ! ||$
8. $\theta D \theta K_a D N - \theta D \theta K_a D N - \theta | D \theta K_a D N - \theta D !, G N \bar{\theta} !, ,$
 $\theta D !, G N \bar{\theta} !, , - \theta D !, G N \bar{\theta} ! - \theta, ,$
 $\theta |, D !, G N \bar{\theta} ! - \theta D !, G N \bar{\theta} ! - \theta D !, G N \bar{\theta} ! ||$
9. $\theta D \theta K_a D N - \theta D \theta K_a D N - \theta | D \theta K_a D N - \theta D !, G N \bar{\theta} !, ,$
 $\theta D ! ||, G N \bar{\theta} !, , - \theta D !, G N \bar{\theta} ! - \theta, ,$
 $\theta D ! |, G, N, \bar{\theta} ! - \theta D !, G, N, \bar{\theta} ! - \theta D !, G, N, \bar{\theta} ! ||$
10. $D, ; - \theta |, ; - \theta K_a D N \bar{\theta} !, ; | \theta |, ; - \theta K_a D N \bar{\theta} !, ; - \theta K_a D N || \bar{\theta} !, -$
 $\theta, , - D, , - G, , - N, , - \bar{\theta} !, |, - \theta, D, G, N, \bar{\theta} !, - \theta D | \bar{\theta} ! ||$

24 KRIYAS

1. $\theta, , \theta D !, D_a \theta, ; ; K T \theta K_a | \theta, ; \theta D !, D_a \theta, ; ; K T \theta K_a ||$
 $\theta R K T - \theta \theta, \theta D !, D_a, \theta, ; ; - | D, ; ; G, ; ; N, ; ; || - \bar{\theta} !, ; ;$
 $\theta K_a, D N, \bar{\theta} !, K_a - \theta K_a, D N, \bar{\theta} !, K_a - \theta K_a, D N, || \bar{\theta} !$
2. $\theta, \theta, K, T, \bar{\theta} !, ; - \theta \theta K T | \bar{\theta} !, ; - \theta R, \theta N, J N_u \bar{\theta} !, , J ! ||$
 $, \theta \theta, D R_u G_u D_u \theta K_a \theta, , J !, \theta \theta |, D R_u G_u D_u \theta K_a \theta, ,$
 $J !, \theta \theta, D R_u G_u D_u \theta K_a ||$
 $\theta J !, \theta D, \theta R \theta R G_u !, , - \theta J !, \theta | D, \theta R \theta R G_u !, , - \theta J !, \theta D, \theta R \theta R G_u !, ||$

26½ KRIYAS

1. $\theta D \theta K_a \bar{N} K_a - \theta K_a \theta R K T \theta K_a J !, , - \theta D G \bar{N} \theta !$	20
$D \theta K_a \bar{N} K_a - \theta K_a \theta R K T \theta K_a J !, , \theta D G \bar{N} \theta !$	18
$\theta K_a \bar{N} K_a - \theta K_a \theta R K T \theta K_a J !, , \theta D G \bar{N} \theta !$	16
$\theta D \theta K_a \bar{N} K_a, - \theta D G \bar{N} \theta !$	14
$D \theta K_a \bar{N} K_a, - \theta D G \bar{N} \theta !$	12
$\theta K_a \bar{N} K_a, - \theta D G \bar{N} \theta !$	10
$\theta K_a \theta D G \bar{N} \theta !$	7
$\theta K_a D G_u \theta D G \bar{N} \theta !$	9
Total	<u>106</u>

2. $\theta D, \theta R K T \theta \bar{1}, - \theta R K T \theta K_a D N \theta \bar{1}, , \theta R K T \theta K_a D N \theta K_a$
$D, \theta R K T \theta \bar{1}, - \theta R K T \theta K_a D N \theta \bar{1}, , \theta R K T \theta K_a D N \theta K_a$
$\theta R K T \theta \bar{1}, - \theta R K T \theta K_a D N \theta \bar{1}, , \theta R K T \theta K_a D N \theta K_a$
$\theta D, - \theta R K T \theta K_a D N, \theta R K T \theta K_a D N \theta K_a$
$D, - \theta R K T \theta K_a D N, \theta R K T \theta K_a D N \theta K_a $
$\theta R K T \theta K_a D N, - \theta R K T \theta K_a D N \theta K_a$
$\theta K_a \theta R K T \theta K_a D N \theta K_a$
$\theta K_a D G_u \theta R K T \theta K_a D N \theta K_a -$

32 KRIYAS

1. $\theta D \theta K_a \bar{N} K_a - \theta K_a \theta R K T \theta K_a J !, , \theta D G \bar{N} \theta !$
$D \theta K_a \bar{N} K_a - \theta K_a \theta R K T \theta K_a J !, , \theta D G \bar{N} \theta !$

$\theta K_a \bar{N} K_a - \theta K_a \theta R K T \theta K_a J!, |, \theta D G \bar{N} \theta!$
 $\theta D \theta K_a \bar{N} K_a, - \theta || D G \bar{N} \theta!$
 $D \theta K_a \bar{N} K_a, - \theta D G \bar{N} \theta! |$
 $\theta K_a \bar{N} K_a, - \theta D G \bar{N} \theta!$
 $\theta K_a \theta J!, J ||, D!, G \bar{N} \theta!$
 $\theta J!, \theta D!, G \bar{N} \theta! |$
 $J!, \theta D!, G \bar{N} \theta!$
 $\theta D!, G \bar{N} \theta! ||$

2. $\theta D \theta!, , \theta K_a D \bar{N} \theta!, \theta J!, | \theta J!, \theta, \theta R \theta R G_u!,$
 $D \theta!, , \theta K_a D | \bar{N} \theta!, \theta J!, \theta J!, \theta, \theta R \theta R G_u!,$
 $\theta!, |, \theta K_a D \bar{N} \theta!, \theta J!, \theta J!, \theta, \theta R || \theta R G_u!,$
 $\theta K_a D \bar{N} \theta!, \theta J!, \theta J!, \theta, | \theta R \theta R G_u!,$
 $\theta J!, \theta J!, \theta, \theta R \theta R G_u!, \theta, || ;;$
 $\theta J!, \theta J!, \theta, \theta R \theta R G_u!, \theta |, ;;$
 $\theta J!, \theta J!, \theta, \theta R \theta R G_u!, ||$

40 KRIYAS

1. $\theta, \theta, K, T, \theta!, ; - \theta \theta K T | \theta!, ; - \theta R \theta N J N_u \theta!, , -$
 $J! ||, \theta \theta, D R_u G_u D_u \theta K_a \theta, , - J!, \theta \theta |, D R_u G_u D_u \theta K_a \theta, , -$
 $J!, \theta \theta, D R_u G_u D_u \theta K_a ||$
 $\theta, H \theta J!, \theta R \theta!, , - \theta J!, \theta R | \theta!, , - G \bar{N}!, \theta R -$
 $\theta D!, G \bar{N} \theta! J || N_u \theta K_a - D \theta K_a D G_u - \theta D!, G \bar{N} \theta!$
 $K | T; - \theta K_a; - K T; \theta K_a; - K T \theta K_a. \theta; ||$
 $, D, ; - G, ; - N, ; \bar{\theta}!, |, - \theta, D, G, N, \bar{\theta}!, - \theta D G \bar{N} \theta! ||$

48 KRIYAS

1. , $\theta K_a \theta K T - \theta K T - \theta K_a D N \bar{\theta}!$, , | ;
 $\theta \theta K T - \theta K T - \theta K_a D N \bar{\theta}!$, | ; ;
 $\theta K T - \theta K T - \theta K_a D N \bar{\theta}!$, | ,
 $\theta D G N \bar{\theta}! - \theta D G N \bar{\theta}! - \theta D G N \bar{\theta}! ||$
 $\theta K_a \theta K T - \theta K T - \theta K_a D N \bar{\theta}!$; ; |
 $\theta \theta K T - \theta K T - \theta K_a D N \bar{\theta}!$; ;
 $\theta || K T - \theta K T - \theta K_a D N \bar{\theta}!$, -
 $\theta D !, G | N \bar{\theta}! - \theta D !, G N \bar{\theta}! - \theta D !, G N \bar{\theta}! ||$
 $\theta K_a \theta K T - \theta K T - \theta K_a D N \bar{\theta}!$
 $\theta \theta K | T - \theta K T - \theta K_a D N \bar{\theta}!$
 $\theta K T - \theta K T - \theta || K_a D N \bar{\theta}!$, -
 $\theta D !, G, N, \bar{\theta}! - \theta | D !, G, N, \bar{\theta}! - \theta D !, G, N, \bar{\theta}! ||$

2. $\theta D \theta K_a D N D N,$
 $D \theta K_a | D N D N,$
 $\theta K_a D N,$
 $\theta K T D !, - \theta || D G N D N,$
 $D \theta K T D !, - \theta D | G N D N,$
 $\theta D \theta K T D !, - \theta || D G N \bar{\theta}! -$ — 17 Kriyas.
 $\theta D \theta K_a D N \theta !, K_u$
 $D |, \theta K D N_a \theta !, K_u$
 $\theta K_a D N$

θ KTD! , θ DGN θ !, α_a	
D θ KTD!, - θ DGN θ !, α_u	
θ D θ KTD!, - θ DGN θ ! -	- 16 Kriyas
θ D θ K ₂ DND \mathcal{N}	
D θ K ₂ DND \mathcal{N}	
θ K ₂ DN -	
- θ KTD!, θ DGN \mathcal{N}	
D θ KTD!, θ DGN D \mathcal{N}	
θ D θ KTD!, θ DGN $\overline{\theta}$!	- 15 Kriyas
Total	<u>48</u> Kriyas

CHAPTER 5

PALLAVI

In music, it is customary to sing certain special compositions relating to God or love, set to a thāla in any one of the gamanas. The duration of each such composition, when sung, is one avritha. It is of two parts — (1) the Poorvānga or the first part and (2) the Uttarānga or the second part.

Eg :- Harē Rāma Gōvinda Murārē — Mukunda Shourē Murahara.
(Poorvānga.) — (Uttarānga.)

The last syllable should coincide with the beat (ghā'ha) immediately succeeding the laghu. This is the first condition.

For instance, when the composition in the above example is set to Ādi Thāla (1,500'), the whole of the Poorvānga except the last "rē" occupies the laghu and "rē" coincides with the beat of the dhrutha, next to the laghu.

The point where this coincidence takes place is called Padagarbha. (Garbha = middle.)

After the padagarbha, there should be a pause (Vinyāsa or virāma). This is the second condition. The uttarānga follows the pause and makes up the avritha.

The composition, governed by the above two conditions and rhythm (Laya) is called PALLAVI.

Pallavi in different gamanas are also governed by the above conditions.

The word Pallavi is composed of the initial syllables of Pa-da, La-ya and Vi-nyāsa, l being repeated.

This pallavi in its literary form is called the Sāhitya Pallavi. The percussion instrument accompanying the sāhitya pallavi, should closely follow the sāhitya pallavi producing relevant sounds of duration corresponding to the syllables in the pallavi. The series of sounds thus produced is called Shabda Pallavi, (Shabda = sound.)

Like the sāhitya pallavi, shabda pallavi is also governed by the two conditions of padagarbha and vinyāsa, laya being inevitable everywhere. The only deviation in the shabda pallavi is that the uttarānga or the latter part may be a mukthāyi.

PADAGARBHA

The following examples of padagarbha are given for the five kinds of laghus in Chaturasra gamana

Three items are given under each laghu, the principle in each first item is :-

(i) There is an initial pause equal in duration of time to the jathi having as many letters (aksharas) as there are kriyas in the laghu. This pause or vinyāsa is headed by and including θ , and this is in III kāla.

(ii) Next the same jathi is played in the II kāla and III kāla in order.

(iii) The final $\bar{\theta}$ or θ , is the padagarbha.

Items 2 and 3 or practice models.

Padagarbha for the five laghus

1. Thrisra jāthi laghu - Chaturasra gamana

1. $\theta, -\theta |, K, T |, -\theta K T | \bar{\theta}$
2. $\theta, K, | T, -\theta, |, -\theta, , | \bar{\theta}$
3. $\theta K_a D N | \bar{\theta}, -\theta, |, -D, , | \theta$

2. Chaturasra jāthi laghu - Chaturasra gamana

1. $\theta, ; | K, T, | \theta, K_a, | K T \theta K_a | \bar{\theta}$
2. $\theta, K_a, | \theta, K, | T, -\theta, |, -\theta, , | \bar{\theta}$
3. $\theta, K_a, | \theta, ; | ; -D, | ; ; | \theta$

3. Khanda jāthi laghu - Chaturasra gamana

1. $\theta, ; |, -\theta, K_a |, \theta, K |, T, -\theta | K_a \theta K T | \bar{\theta}$
2. $\theta, K_a, | D, N, | -\theta, K, | T, -\theta, |, -\theta ; | \bar{\theta}$
3. $\theta, K_a, | D, N, | -\theta, ; | ; -D, | ; ; | \theta$

4. Misra jāthi laghu - Chaturasra gamana

1. $\theta, ; | ;, -\theta |, K_a, \theta |, D, G |, N, \bar{\theta} |, -\theta K_a \theta | D G N \bar{\theta} | | \theta$
2. $\theta, K_a, | \theta, R, | K, T, | \theta, K_a, | -\theta, K, | T, -\theta, |, -\theta ; | \bar{\theta}$
3. $K, T, | \theta, K_a, | D, N, | \bar{\theta}, ; | ; -\theta, ; | ; -D, | ; ; | \theta$

5. Sankeerna jāthi Laghu - Chaturasra gamana

1. $\theta, ; | ; ; |, - \theta, \kappa_a |, D, G_u |, \theta, D |, G, N |, \theta \bar{1}, - \theta | \kappa_a, D G_u | \theta | D G N \theta \bar{1} | \theta$
2. $\theta, \kappa_a, | D, G_u, | \theta, \kappa_a, | \theta, R, | \kappa, T, | \theta, \kappa_a, | - \theta, \kappa, | T, - \theta, |, - \theta ; | \theta \bar{1}$
3. $\theta, \kappa_a, | D, G_u, | \theta, D, | G, N, | \theta \bar{1}, - \theta, | \kappa, T, | - \theta, ; | ; - D, | ; ; | \theta$

SHABDA PALLAVI

This is of two kinds :—

1. The poorvānga is played as usual and the uttarānga is a mukthāyi
2. Jāthi is played in jāthigamana (i. e. each letter in the jāthi has the duration of the number of letters in it,) with its final letter in the higher kāla. This is played in thrikāla for the poorvānga. At the end of the thrikāla, what is known as “ padagarbha mugimpu ” (shabda for ending) is given to make up the laghu and then $\theta \bar{1}$ is the padāgarbha. A pause equal to the jāthi is then given. Finally the mukthāyi of the same jāthi is played.

1 Kind

1. DHRUVA THĀLA (1₄ 0 |₄ |₄)

$\theta, J N_u - \theta J N_u \theta - , J N_u \theta - \theta \kappa_a D N | \theta !, ; - ; , \theta |$
 $J !, \theta, - \theta D G N - \theta \bar{1} \theta J !, - \theta, \theta D ! | , G N \theta \bar{1} - \theta J !, \theta -$
 $, \theta D ! - , G N \theta \bar{1} ||$

2. MATYA THĀLA (1₄ 0 |₄)

$\theta, \theta D - , M \theta \kappa - T D, M - \theta \kappa_a D N | \theta , , \theta, \theta D G |$
 $N \theta \bar{1} \theta, - \theta D G N - \theta \bar{1} \theta, \theta - D G N \theta \bar{1} ||$

3. ROOPAKA THĀLA (0 |₄)

$\theta, J N_u \theta J G_u J - N_u \theta J N_u \theta \theta J N_u | \theta !, ; ; \theta D ! -$
 $, G N \theta \bar{1} \theta !, ; - \theta D !, G N \theta \bar{1} \theta !, - ; \theta D !, G N \theta \bar{1} ||$

4. JHAMPA THĀLA (1₄ U 0)

$\theta, H \theta J !, \theta R - , ; \theta J !, \theta R - , \theta J !, \theta R, \theta - J !, \theta R \theta \kappa_a J N_u |$
 $\theta !, , \theta, \theta D G | N \theta \bar{1} \theta, \theta D G N - \theta \bar{1} \theta. \theta D G N \theta \bar{1} ||$

5. THRIPUTA THĀLA (1,00) (Ādi)

„ $\theta \theta - JN_u \theta!$, - $\theta K_u DN \theta!$, $K_u D - N \theta!$, $DN \theta!$, $\theta!$

$\theta!$ „ $\theta - DG N \overline{\theta!} | \theta DG N - \overline{\theta!} \theta DG || N \overline{\theta!}$

6. ATA THĀLA (1, 1, 00)

$\theta D \theta RKT -$ „ $D \theta RKT -$, $\theta DG N \overline{\theta!} \theta D - GN \overline{\theta!} \theta DG N \overline{\theta!} |$

$\theta!$ „ „ $\theta D!$, $G - N \overline{\theta!} \theta D!$, $GN \overline{\theta!} - \theta D!$, $GN \theta!$, θ , - „ $\theta D!$, $GN \overline{\theta!} \theta!$ |

$D!$, $GN \overline{\theta!} \theta D!$, - $GN \overline{\theta!} \theta$ „ „ $\theta D!$, $GN \overline{\theta!} \theta D!$, $G - N \overline{\theta!} \theta D!$, $GN \overline{\theta!} ||$

II Kind

Shabda Pallavi in thrikāla and with mukthāyi set to Ādi Thāla in the five gamanas.

Jāthi	The form of Jāthi	Letters in Avritha	Initial Pause	Letters in Thrikāla	Letters to make up the Laghu	Vinyāsa including $\theta!$	Mukthāyi letters
5 Kha.	$\theta DG N \overline{\theta!}$	40	2	$31\frac{1}{2}$	$6\frac{1}{2}$	12	15
6 Thri.	$\theta D!, GN \overline{\theta!}$	48	2	$38\frac{1}{2}$	$7\frac{1}{2}$	14	18
7 Misra	$\theta D!, GN \overline{\theta!}$	56	2	$45\frac{1}{2}$	$8\frac{1}{2}$	16	21
8 Cha.	$\theta D!, G, N, \overline{\theta!}$	64	2	$52\frac{1}{2}$	$9\frac{1}{2}$	18	24
9 San.	$\theta D!, G, N, \overline{\theta!}$	72	2	$59\frac{1}{2}$	$10\frac{1}{2}$	20	27

The component parts of the angas of Ādi Thāla to which the Shabda Pallavi in one avritha is set, are explained as below :—

1. Laghu :— This contains (1) the initial pause, (2) the Jāthi in thrikāla with its final letter each time in the higher Kāla and (3) a pause headed by or including θ , to make up the laghu.
2. I Dhrutha .— This contains (1) $\overline{\theta!}$ for pada garbha (2) Vinyasa (3) Part of the Jāthi mukthāyi to make up the Dhrutha
3. II Dhrutha :— This contains the rest of the said mukthāyi.

Explanation of the Table

Taking up $\theta DGN\theta!$, as the final letter of the jāthi is to be in the Kāla, higher than that of the preceding letters. its duration is half of any one of those letters. So, $\theta DGN\theta!$ is of $4\frac{1}{2}$ akharakālas (units of time). To arrive at the total number of letters in thrikāla, $4\frac{1}{2}$ is to be multiplied by 7 which is the thrikāla coefficient. So $4\frac{1}{2} \times 7 = 31\frac{1}{2}$ which explains the figure in column 5 of the Table.

The total of columns 4, 5, 6 and 7 = $2 + 31\frac{1}{2} + 6\frac{1}{2} + 12 = 52$ As this whole part is to be in the Kāla, higher than that of the mukthāyi, its duration is half of 52 = 26, reckoned in the unit of time of the mukthāyi. This number, 26 added to 15, the mukthāyi letters, gives 41.

In Khanda gamana, Adi thāla has $8 \times 5 = 40$ letters. Out of the 41 letters, 40 letters occupy the avritha and the 41st letter $\theta!$ answers for the initial pause of 2 letters in the II Kāla, equal to a pause of one letter in the I Kāla.

The same process of calculation is to be followed for the other Jāthis.

(1) 5. Khanda jāthi : $\theta DGN\theta!$

I Kāla with initial pause :— ., - θ ; D ; | G ; N ; $\theta!$; |

II Kāla :— θ , D , G , N , $\theta!$ -

III Kāla with making up :— $\theta | DGN\theta!$ - , θ ; θ ; |

Padāgarbha with Vinyāsa :— $\theta!$, ; ; ; | ; -

Mukthāyi :— $\theta DGN | \theta!$ -

$\theta DGN | \theta!$ -

$\theta DGN || \theta!$

(2) 6. Thrisra jāthi : $\theta D! , GN\theta!$

I Kāla with initial pause :— ., - θ ; D! ; ; | ; G ; N ; $\theta!$; |

II Kāla :— $\theta D!$; G , N , $\theta!$ -

III Kāla with making up :— $\theta | D! , GN\theta!$ - , θ ; θ ; $\theta!$ |

Padāgarbha with Vinyāsa :— $\theta!$, ; ; ; ; | ; -

Mukthāyi :— $\theta D !, G N | \bar{\theta} ! -$
 $\theta D !, G N | \bar{\theta} ! -$
 $\theta D !, G N || \bar{\theta} !$

(3) 7. Misra jāthi : $\theta D !, G N \bar{\theta} !$

I Kāla with initial pause :— ,, - θ , ; ; D !, ; l ; ; G, ; N, ; $\bar{\theta} !$, l

II Kāla :— θ , ; D !, ; G, N, $\bar{\theta} ! -$

III Kāla with making up :— $\theta |$, D !, G N $\bar{\theta} ! -$, $\theta \theta$, $\bar{\theta} !$, $\theta \theta$, l

Padagarbha with Vinyasa :— $\bar{\theta} !$, ; ; ; ; ; l ; -

Mukthāyi :— $\theta D !, G N | \bar{\theta} ! -$
 $\theta D !, G N | \bar{\theta} ! -$
 $\theta D !, G N || \bar{\theta} !$

(4) 8. Chaturasra jāthi : $\theta D !, G, N, \bar{\theta} !$

I Kāla with initial pause :— ,, - θ , ; D !, ; ; G, l ; ; ; N, ; ; $\bar{\theta} !$, l

II Klāa :— θ , D !, ; G, ; N, ; $\bar{\theta} ! -$

III Kāla with making up :— $\theta |$ D !, G, N, $\bar{\theta} ! -$, θ , ; $\bar{\theta} !$, ; $\theta |$

Padagarbha with Vinyāsa :— $\bar{\theta} !$, ; ; ; ; ; l ; -

Mukthāyi :— $\theta D !, G, N, l \bar{\theta} ! -$
 $\theta D !, G, N, l \bar{\theta} ! -$
 $\theta D !, G, N, || \bar{\theta} !$

(5) 9. Sankeerna jāthi : $\theta D !, G, N, \bar{\theta} !$

I Kāla with initial pause :— ,, - θ , ; ; D !, ; ; ; l G, ; ; N, ; ; $\bar{\theta} !$, l

II Kāla :— θ , ; D !, ; G, ; N, ; $\bar{\theta} ! -$

III Kāla with making up :— $\theta |$, D !, G, N, $\bar{\theta} ! -$, θ , $\bar{\theta} !$, $\theta \theta$, $\bar{\theta} !$, $\theta \theta$

Padagarbha with Vinyāsa :— $\bar{\theta} !$, ; ; ; ; ; l ; -

Mukthāyi :- θ D !, G, N, | θ̄! -
 θ D !, G, N, | θ̄! -
 θ D !, G, N, || θ̄!

Pallavi — Kāla and gamana

Pallavi is usually sung in III or IV kāla. Generally the Sāhitya (composition) of the pallavi has as many or twice as many as the number of kriyas in the thāla. There is also the practice of singing the pallavi in thrikāla or thrisra and thrisra higher kāla gamana. Shabda Pallavi accompanies saḥitya pallavi as shown in the example.

Pallavi in thrikāla

The number of syllables, taking into account the long and short vowels, per kriya must first be noted. This is to be treated as the madhyama (II) kāla basis. Each such kriya becomes 2 kriyas in the I Kāla and $\frac{1}{2}$ Kriya in the III Kāla. The shabda (thatthakāra) is to be based on that number.

Pallavi in Thrisra gamana

The madhyama kāla saḥitya in chaturasra gamana is equal to 2 avrithas in thrisragamana repeated three times.

The same saḥitya is equal to 1 avritha in thrisra higher Kāla gamana repeated three times.

The following illustrates all the above.

Chaturasra gamana pallavi saḥitya in thrikāla :-

I Kāla saḥitya once in 2 avrithas.

II Kāla (Madhyama) saḥitya once in 1 avritha.

III Kāla saḥitya once in $\frac{1}{2}$ avritha (or 2 times in 1 avritha).

Note :- the small line above the vowel of the syllable indicates long vowel and the syllable is of 2 akshara Kālas. Vowels without the line are short and the syllable with such vowel is of 1 aksharakāla. "au" and any vowel followed by m or n in the syllable are long.

Examples :-

Ādi Thāla.

(Chauka kāla in 2 Kaḷas.)

Sahitya Pallavi with Thatthhakāra.

A. Chaturasra gamana :

Madhyama kā'a :-

Sahitya :- ; Ha rē rā ma Gō vin da mu rā | rē ;;

Shabda :- ; θ D!, θ, θ D!, θK T θ θ, | θ̄!, ;;

Mu Kun da shau rē Mu ra || ha ra - Harērāma

θ J!, θ R, θ, K T || θ Ka - θ D!, θ, θ

I Kāla :- , Ha rē rā ma Go | , vin da Mu rā rē ||

, θ D!, θ, θ D! | , θK T θ θ, θ̄!

,;; Mu Kun | do shau rē Mu ra ha || ra - Harērāma

,;; θ J!, | θ R, θ, K T θ || Ka - θ D!, θ, θ

II Kāla :- ; Ha rē rā ma Gō vin da mu rā | rē ;;

; θ D!, θ, θ D!, θK T θ θ, | θ̄!, ;;

Mu Kun da Shau rē Mu ra || ha ra - Harērāma

θ J!, θ R, θ, K T || θ Ka - θ D!, θ, θ

III Kāla :- ;; Ha rē rā ma Gō vin da mu rā rē ;;

; θ D!, θ, θ D!, θK T θ θ, θ̄!, ;;

Mu Kun da shau rē | mu ra ha ra = Ha rē

θ J!, θ R, θ, | K T θ Ka = θ D!,

rā ma Gō vin da mu rā - rē ;; Mu kun da

θ, θ D!, θK T θ θ, - θ̄!, ;; θ J!, θ

shau rē || Mu ra ha ra = Ha rē rā ma

R, θ, || K T θ Ka = θ D!, D, θ, θ

B. Thrisra gamana :

;; Ha rē rā ma Gō vin da Mu rā - rē ;; Mu |

;; θ D!, θ, θ D!, θK T θ θ, - θ̄!, ;; θ |

kun da shau rē Mu ra ha ra = Ha rē rā ma

J!, θ R, θ, K T C Ka = θ D!, θ, θ

Gō vin da mu r || ā - rē ;; Mu kun da shau rē

D!, θK T θ θ ||, - θ̄!, ;; θ J!, θ R, θ,

Mu ra ha ra = Ha rē rā | ma

K T θ Ka = θ D!, θ, | θ

Gō vin da mu rā - rē ;; Mu kun da shau rē

D!, θK T θ θ, - θ̄!, ;; θ J!, θ R, θ,

Mu || ra ha ra = Ha rē rā ma

K || T θ Ka = θ D!, θ, θ

C. Thrisra higher Kāla gamana :

;;; Ha rē rā ma Gō vin da Mu rā - rā ;;

;;; θ D!, θ, θ D!, θK T θ θ, - θ̄!, ;;

Mu kun da shau rē Mu ra ha ra =

θ J!, θ R, θ, K T θ Ka =

Ha rē rā ma Gō vin | da Mu rā - rē ;;

θ D!, θ, θ D!, θK | T θ θ, - θ̄!, ;;

Mu kun da shau rē Mu ra ha rā = Ha rē rā ma

θ J!, θ R, θ, K T θ Ka = θ D!, θ, θ

Gō viñ da Mu rā - rā ;; Mu kun da shau ||

D!, θK T θ θ, - θ̄, ;; θ J!, θ R, ||

rē, Mu ra ha ra = Ha rē rā ma

θ, K T θ K_a = θ D:, θ, θ

Note :- Gathibheda Sahitya Pallavi is not included within the limits of this book. But Shabda pallavis in Ādi Thāla in the 5 gamanas have been already given. To accompany a sahitya pallavi on a percussion instrument, one must learn the sahitya previously of some pallavis. The initial pause, the angas of the thāla, the number of Kriyas and their gamana should first be noted. A Jathi having as many letters as there are Kriyas in the thāla is to be chosen and with the aid of the principles shown in the previous illustrations, one can easily accompany a sahitya pallavi.

THĀLAS

Serial No.	Thāla.	Symbol or Angas.	Jāthi	Kriyas	No. of letters in Gamana				
					g ₄ Cha.	g ₃ Thri.	g ₇ Mis.	g ₅ Kha.	g ₉ San.
1	2	3	4	5	6	7	8	9	10
1	DHRUVA	1011	Cha.	14	56	42	98	70	126
			Thri.	11	44	33	77	55	99
			Mis.	23	92	69	161	115	207
			Kha.	17	68	51	119	85	153
			San.	29	116	87	203	145	261
2	MATYA	101	Cha.	10	40	30	70	50	90
			Thri	8	32	24	56	40	72
			Mis.	16	64	48	112	80	144
			Kha.	12	48	36	84	60	108
			San.	20	80	60	140	100	180

1	2	3	4	5	6	7	8	9	10
3	ROOPAKA	01	Cha.	6	24	18	42	30	54
			Thri.	5	20	15	35	25	45
			Mis.	9	36	27	63	45	81
			Kha.	7	28	21	49	35	63
			San.	11	44	33	77	55	99
4	JHAMPA	100	Cha.	7	28	21	49	35	63
			Thri.	6	24	18	42	30	54
			Mis.	10	40	30	70	50	90
			Kha.	8	32	24	56	40	72
			San.	12	48	36	84	60	108
5	THRIPUTA	100	Cha.	8	32	24	56	40	72
			Thri.	7	28	21	49	35	63
			Mis.	11	44	33	77	55	99
			Kha.	9	36	27	63	45	81
			San.	13	52	39	91	65	117

1	2	3	4	5	6	7	8	9	10
6	A T A	1100	Cha.	12	48	36	84	60	108
			Thri.	10	40	30	70	50	90
			Mis.	18	72	54	126	90	162
			Kha.	14	56	42	98	70	126
			San.	22	88	66	154	110	198
7	E K A	1	Cha.	4	16	12	28	20	36
			Thri.	3	12	9	21	15	27
			Mis.	7	28	21	49	35	63
			Kha.	5	20	15	35	25	45
			San.	9	36	27	63	45	81

This table is of immense use in gathibhēda pallavis for kriyas and letters.

THĀLAS & KRIYAS

Serial No.	Thālas.	Kriyas.	Serial No.	Thālas.	Kriyas.
1	Thrisra Eka	3	20	Thrisra Dhruva	11
2	Chaturasra Eka	4	21	Sankeerna Roopaka	
3	Thrisra Roopaka	5	22	Misra Triputa	
4	Khanda Eka		23	Khanda Matya	
5	Chaturasra Roopaka	6	24	Sankeerna Jhampa	12
6	Thrisra Jhampa		25	Chaturasra Ata	
7	Khanda Roopaka	7	26	Sankeerna Thriputa	13
8	Chaturasra Jhampa		27	Chaturasra Dhruva	
9	Thrisra Thriputa		28	Khanda Ata	
10	Misra Eka	8	29	Misra Matya	16
11	Thrisra Matya		30	Khanda Dhruva	
12	Khanda Jhampa		31	Misra Ata	
13	Chaturasra Triputa	9	32	Sankeerna Matya	20
14	Misra Roopaka		33	Sankeerna Ata	
15	Khanda Triputa		34	Misra Dhruva	
16	Sankeerna Eka	10	35	Sankeerna Dhruva	29
17	Chaturasra Matya				
18	Misra Jhampa				
19	Thrisra Ata				

The above table shows the names of thālas having the same number of Kriyas wherever possible.

GLOSSARY

ĀDI THĀLA :- (“DI” pronounced as “the”). A particular name given to chaturasra jāthi Thriputa Thāla. Its angas are a chaturasra laghu and two druthas in order.

AKSHARA :- 1. Syllable, 2. The fundamental unit of musical time equal to the time taken to utter a syllable having a short vowel. A syllable with a long vowel is equal to two aksharas. 3. The magnitude of an expression or a series of swaras or shabdās is also expressed in aksharas. For example, the magnitude of θKTDM is 5 aksharas which means that the said expression takes as much time for utterance as 5 aksharas. Akshara, syllable and letter are synonymously used in this context.

AKSHARAKĀLA :- Akshara; - kāla meaning time.

ANGA :- Part of a thāla. Laghu, Drutha, Anudrutha, Guru, Plutha and Kākapāda are the six angas.

ANUDRUTHA :- One of the six angas of thāla. It is one kriya, represented by one ghātha or beat, Its symbol is U.

ATA THĀLA :- The sixth of the seven principal thālas. Its angas are two laghus and two druthas in order. Its symbol is ||00

ĀVRITHA :- The space between the beginning and the end of a thāla. The magnitude of the content of a musical composition either of Sahitya or swara, or the series of sounds, (shabdās) occupying the space of one thāla is one āvritha.

CHATURASRA :- Having four (aksharas) (1) Chaturasra jāthi laghu or chaturasra laghu is one having 4 Kriyas. (2) Chaturasra Kriya is one which takes 4 aksharas. (3) Chaturasra gamana is the movement of swaras or shabdās at the rate of 4 aksharas per Kriya and so with the Kriyas and gamanas of the rest of the jāthis.

CHOUKA KĀLA :- Degree of speed lower than the normal one, the I degree of speed. This is of three types - chouka Kāla in (i) Dwikāla (ii) Thrikāla and (iii) Chathushkāla. A kriya in chouka Kāla in Dwikāla has two times the magnitude of a Kriya in I degree. It is three times for thrikāla and fourtimes for chathushkāla. Chouka Kāla is made use of in Pallavis and also where the dimension or magnitude of a Kriya is very large in the normal speed.

DRUTHA :- One of the six angās of thāla, denoted by the symbol, 0. It is represented by two Kriyas, a ghatha (beat) and an usi (waving of the hand) in order.

DRUTHA KĀLA :- Speed in a degree higher than the running one.

DHRUVA THĀLA :- The first of the seven principal thālas. Its angas are a Laghu, a Drutha and two Laghus in order. Its symbolic form is |0||.

EKA THĀLA :- This is the last or the seventh of the principal thālas. It has only one anga, a Laghu. Its symbolic form is 1.

GAMAKA :- A type of play for enhancing rythmical beauty.

GAMANA :- (Movement or pace). It is the rate in akharas per Kriya, at which the letters of an expression or series of shabdas (percussion sounds) keep on progressing. It is of five Kinds — chaturasra, thrisra, misro, khanda and sankeerna, the rate of movment being 4, 3, 7, 5 and 9 aksharas respectively per Krāya.

GATHI :- The same as gamana.

GHĀTHA : A beat (usually produced by striking the right palm against the left). This is a kriya. Ghātha is also called Shabda kriya or Sashabda kriya, as the beat is audible

GRAHA :- It is the point in a thāla where a musical composition or the play on the mridanga begins. It is Sama graha when the thāla and the play begin at the same moment. If otherwise, it is vishama graha which is of two kinds — Atheetha graha and Anāgatha graha. If the musical composition starts a bit earlier than the thāla it is Atheetha graha. If it starts a bit later than the thāla it is Anāgatha graha. In the second case, the interval between the beginning of the thāla and that of the composition is called the Initial pause. Generally these initial pauses are of 1, 2, 3, or 6 aksharas.

GURU :- One of the six angas of thāla. Its symbolic form is S. It is two laghus, one after the other, the ghātha of the second laghu being a nishabda Kriya.

JATHI :- An expression or a series of shabdas.

JĀTHI :- A particular type of a series of shabdas. It is of five kinds — chaturasra, thrisra, misra, Khanda and sankeerna, having 4, 3, 7, 5 and 9 aksharas respectively. It also means kind.

JHAMPA THĀLA :- The fourth of the seven principal thālas. Its angas are Laghu, Anudrutha and Drutha, Its symbolic form is | U O.

KĀKAPĀDA :- The sixth of the angas of thāla. Its symbolic form is +. It is four laghus in succession.

- KĀLA** :- Akshara, mātra and kaḷa are synonymous according to some trend of thought.
- KĀLA** :- time. It is one of the Dasa Prānas or the tene lements of thāla. In Thrikāla it is the degree of speed.
- KHANDA** :- Five. Khanda jāthi laghu or khanda laghu is the kind of laghu having 5 Kriyas. Khanda kriya has the duration of 5 aksharas. Khanda gamana is the movement of the swaras or shabdās at the rate of 5 aksharas per kriya.
- KRIYA** :- In its normal sense, it is a ghātha, an usi, or the Counting with finger. But when it comes to marking or measuring time, it is the interval between two successive time operations like ghātha, usi and counting with fingers. It is the unit of thāla.
- LAGHU** :- One of the six angas of thāla. It is indicated by a ghātha followed by Counting of fingers. Its magnitude (in aksharas) varies with the jāthi.
- LAYA** :- The regular interval between two successive time operations like ghātha, usi or Counting of fingers or two successive aksharas.
- MĀRGA** :- One of the Dasa Pranas of thāla.
- MĀTYA THĀLA** :- The second of the seven principal thālas, Its angas are Laghu, Drutha and Laghu in order. Its symbolic form is |0|.
- MISRA** :- Seven. Misra jāthi laghu or Misra laghu is a laghu having seven Kriyas. Misra Kriya has the duration of 7 aksharas. Misra gamana is the movement of swaras or shabdās at the rate of 7 aksharas per Kriya.
- MOHARA** :- A particular type of play in solo.
- MUKTHĀYI** :- A play of a jāthi or a series of shabdās repeating it three times.
- NADA** :- A series of shabdās
- NĀDA** :- ("DA" as "tha" in that) Sound.
- NISHABDA** :- Having no sound. A nishabda Kriya is visible:but not audible.
- PADA GARBHA** :- The middle of the Pallavi.
- PALLAVI** :- A short line of musical composition with which the artist exhibits a wide range of his skill in PADA (composition or Githa) and Laya.
- PAUSE** :- Interval.
- PLUTHA** :- One of the six angas of thāla. It is three Laghus in succession. Its symbolic form is S¹

PRASTHĀRA :- Permutation or elaboration.

PURVĀNGA :- The first half of the pallavi.

ROOPAKA THĀLA :- The third of the seven principal thālas. Its angas are Drutha and Laghu in order. Its symbolic form is 0 1.

SAMAGRAHA :- Vide Graha. Samagraha-sama means beginning and ending with the thāla.

SANKEERNA :- Nine. Sankeerna jāthi laghu is a laghu having 9 Kriyas. Sankeerna Kriya has the duration of 9 aksharas. Sankeerna gomana is the movement of swaras or shabdās at the rate of 9 aksharas per Kriya.

SHABDA :- Having sound; audible.

SHATKĀLA :- The six degrees of speed.

THĀLA :- The biggest unit of musical time. Its parts or angas are laghu, drutha, anudrutha, guru, plutha and kākāpāda.

THRIKĀLA :- The three degrees of speed, I, II and III.

THRIPUTA THĀLA :- The fifth of the seven principal thālas. Its angas are Laghu, and two Druthas in order. Its symbolic form is 100.

THRISRA :- Three. Thrisra laghu is a laghu having 3 Kriyas. Thrisra Kriya has the duration of 3 aksharas. Thrisra gamana is the movement of the swaras or shabdās at the rate of 3 aksharas per Kriya.

USI :- Waving the palm to indicate a Kriya.

UTHARĀNGA :- The second half of the pallavi.

VINYĀSA :- Nishabda.

YATHI :- An arrangement of different series of shabdās in a particular order.

OM

ANNEXURE

Visesha Jaathi Laghus :

In addition to the usual Laghus (viz., Chaturasra, Trisra, Misra, Khanda, Sankeerna Jaathis), there are five more additional Laghus. They are:-

1) **Divya Sankeerna Jaathi Laghu:- 6 kriyas.**

First Kriya - beat, Second kriya - little finger, Third kriya - Ring finger, Fourth kriya - middle finger, Fifth kriya - Indexfinger, Sixth kriya - Thumb finger. This is also called as Divya Laghu.

2) **Misra Sankeerna Jaathi Laghu:- 8 kriyas**

1 - beat, 2 - little finger, 3 - ring finger, 4-middle finger 5 - Index finger, 6 - thumb, 7 - again little finger of the same hand, 8 - ring finger. This is also called as Simha Laghu.

3) **Desya Sankeerna Jaathi Laghu:- 10 kriyas**

1 - beat, 2,3,4,5,6,7,8,9,10 fingers counting from little, ring, middle, index finger, thumb, again little, ring, middle, index, thumb fingers respectively. This is also called as Varna Laghu.

4) **Misra Desya Sankeerna Jaathi Laghu - 12 kriyas**

First kriya - beat, rest of the kriyas are shown as above from little finger to thumb and again from little finger. There is no second beat for these Visesha Laghus, counting of fingers on one hand only. This is also called as Vadya Laghu.

5) **Desya Suddha Sankeerna Jaathi Laghu:- 16 kriyas**

1 - beat, Rest of the kriyas are counting from little finger to thumb and again little to thumb and again little to thumb. This is also called as Karnataka Laghu.

Anuloma and Viloma

1) **Anuloma:-** Keeping Thaala in one speed and singing or playing in three speeds or six speeds is called Anuloma.

2) **Viloma:-** Keeping the singing or playing in one speed and the Thaala kriyas are in three speeds or six speeds. This Viloma is also called as Prathiloma.

Maarga Thaalas

- 1) Chacchatputa, 2) Chaachaputa, 3) Shatpita putrika, 4) sampadwestika, 5) Udghatta. The above five Thaalas are called as Maarga Thaalas. The Thaala Angaas of the above five Thaalas are given in the 108 Thaalas in the latter pages.

Suddha Thaalas

Suddha Thaalas are Thaalas that are not mixed with any other Thaala.

- 1) Chacchatputa - Maarga Suddha Thaala
- 2) Dhruva Thaala - Desya Suddha Thaala

Saalaga Thaalas

- 1) Keerthi Thaala - This Thaala is mixed with Tribhinna and Kokila Priya. This is called as Maarga Saalaga Thaala.
- 2) Dhruva Rupaka Thaala:- This is mixed with Dhruva Thaala and Rupaka Thaala. This is called as Desya Saalaga Thaala.
- 3) Sankeerna Thaalas:- Thaalas which are formed from more than two Thaalas are called as Sankeerna Thaalas. Ex:- Simha Nandana Thaala.

Desi Thaalas

Thaalas which are popular in different parts of the country are called Desi Thaalas or Desya Thaalas. Popular Sapta Thaalas are examples for the Desi Thaalas in South India.

Important Points to note:-

- 1) Every Thaala Anga will start with beat except Kaakapaada.
- 2) Every Thaala will start with beat.
- 3) Starting Thaala with Nishabda (soundless) anga is not in accordance with Sastra.

Chaapu Thaalas

- 1) Chaapu Thaalas are of one type of Thaalas which are not mentioned in Thaala Prakarana and also in 35 Thaalas. In the olden days, these Chaapu Thaalas are used in Bhajans, Chekka Bhajans, Hari Kadhaas and Burra Kadhaas etc. Even in the present days also, these Thaalas are in vogue in music concerts, Bhajans, Hari Kadhas and other forms of folk music etc. Only two beats are rendered for the convenience of singing songs and kritis. Many songs and compositions are popular in Chaapu Thaalas in the present days.

Chapu Thaalas are of 4 kinds which are in vogue. They are (1) Trisra Chaapu (2) Misra Chaapu (3) Khanda Chaapu (4) Sankeerna Chaapu.

- 1) Trisra Chaapu - This is rendered with two beats. First beat is 1 akshara, second beat is 2 aksharas (letters). Eg:- θ KT. This was called as “Rupaka Chaapu Thaala” in the olden days.
- 2) Misra Chaapu:- Two beats. First beat 3 aksharas, second beat 4 aksharas. Eg:- θKT θkaDM (Ka is a single akshara). This was called in the olden days as “Dhruva Chaapu Thaala”.
- 3) Khanda Chaapu:- Two beats. First beat is 2 aksharas, Second beat is 3 aksharas. Eg:- θka θKT.
- 4) Sankeerna Chaapu:- Two beats. First is 4 aksharas, Second is 5 aksharas, Eg:- θKaDGu θDGNθ (Gu is a single akshara)

Note:- The underlined aksharas in the above examples are to be treated as beats.

Desaadi Madhyadi Thaalas.

- 1) Desaadi Thaala:- The tempo of this Thaala is usually slow and is of 4 kriyas. Starting with usi (waving of hand) followed by three beats. The song or krithi starts after leaving three aksharas in the Usi. Eg:- Bhuvini Daasudani.
- 2) Madhyadi Thaala:- This Thaala is also formed with 4 kriyas and in the same manner of usi and three beats but with little higher speed. In this Thaala 2 aksharas (letters) are left in usi for starting the krithi. Eg:- “Meru Samaana”.

Musical Instruments

Musical instruments can be classified into four kinds

- 1) Thantri (Stringed) Instruments:- These instruments are played completely based on strings. Ex:- Veena, Gotu, Violin, Sitar, Sarangi etc.
 - 2) Wind (sushira) Instruments:- These instruments are played by blowing the wind into instruments. Eg:- Flute, Nadaswaram, Shahanai, Zaxaphone etc.
 - 3) Percussion (Avanaddha) Instruments:- These instruments are manufactured with skin or leather of animals. Eg:- Mridangam, Kanjira, Dolu (Thavil), Dolak, Tabla, Pakhavadyam, Dappu, Dhamarukam etc. etc.
 - 4) Metal (Ghana) Instruments:- These instruments are manufactured with metal (loha). Eg:- Bhajan Taalas, Morsing, etc.
-

Laya Vadyas (Rhythmical Instruments)

These instruments are played purely based on Laya or Thaala. Eg:- Mridangam, Ghatam, Kanjira, Morsing, Dolu, Dolak, Suddha Maddalam, Kole, etc.

In the above Laya Vadyas, Mridangam is the important and ancient instrument. In this instrument “OMKAARA” sound can be produced. Hence this instrument is called as the Chief Instrument among the above other instruments. Rest of the instruments can be used for Mridangam as Upa Vadyas (accompanying instruments)

Prastara

Rhythmical forms are innumerable and they all are the derivatives of this element, Prastara, in which Thaala-angas are permuted into all possible combinations in a systematic process to avoid repetition.

Taking the number of different Thaala-angas used in the process of permutation into account, the modes of permutation are divided into four kinds. They are:- 1) Chaturanga Prastara, 2) Panchanga Prastara, 3) Shadanga Prastara, 4) Samyuktanga Prastara. Each one of these modes of permutations has two main divisions viz., 1) Akhanda Prastara and 2) Khanda Prastara among which Khanda Prastara has two sub-divisions viz., 1) Heena Prastara and Yukta Prastara. All these divisions consists of two different processes of Prastara, viz., 1) Anuloma Prastara and Viloma Prastara and two key figures viz., 1) Sankhya and Mahapatala which are the total number of Prastaras and the total number of Talangas used in the process of permutation respectively. This element helps in obtaining the full details of all the various Prastaras.

The Prastara of five Jaathi Laghus are given below as an example. In the same process, Prastara of Guru, Plutha and Kakapada Laghus can be done.

Those who are interested to know the particulars of Prastara, can refer to the book “Permutative Genius in Thaala (Prastara) in Indian Music” written by Sri Akella Mallikarjuna Sarma who is a research scholar of Indian Music.

LAGHU PRASTARA

1. Prastara of Chaturasra Jaathi Laghu

1.	1	4.	UOU
2.	OO	5.	OUU
3.	UOU	6.	UUU

2. Prastara of Trisra Jaathi Laghu

1.	1	3.	OU
2.	UO	4.	UU

Prastara of Mishra Jaathi Laghu

1.	1 ₇	12.	UOUOU
2.	UOOO	13.	OUVOU
3.	OVOO	14.	UUUVOU
4.	UUVOO	15.	UOOUU
5.	OOVO	16.	OVOUU
6.	UUVOU	17.	UUUVUU
7.	UOVUO	18.	OOUUU
8.	OUVUO	19.	UVUUUU
9.	UUUUVO	20.	UOUUUU
10.	OOOU	21.	OUUUUU
11.	UUOOU	22.	UUUUUUU

4. Prastara of Khanda Jaathi Laghu

1.	1 ₅	6.	UUOU
2.	UOO	7.	UOUU
3.	OVO	8.	OUUU
4.	UUVO	9.	UUUUU
5.	OOU		

5. Prastara of Sankeerna Jaathi Laghu

1.	1 ₉	29.	OOUVOU
2.	UOOOO	30.	UUUOVOU
3.	OVOOO	31.	OOUVOU
4.	UUUOOO	32.	UUOUVOU
5.	OOUOO	33.	UOUUUOU
6.	UUOUOO	34.	OUUUUOU
7.	UOUUOO	35.	UUUUUUOU
8.	OUUUOO	36.	UOOOUU
9.	UUUUUOO	37.	OVOOUU
10.	OOOUO	38.	UUUOOUU
11.	UUOOUO	39.	OOUOUU
12.	UOUOUO	40.	UUOUOUU
13.	OUVUOU	41.	UOUVOUU
14.	UUUUOUO	42.	OUUUOUU
15.	UOOUUO	43.	UUUUUOUU
16.	OOUUUO	44.	OOUUUU
17.	UUUOUUO	45.	UUOOUUU
18.	OOUUUU	46.	UOUUUUU
19.	UUOUUUU	47.	OUUUUUU
20.	UOUUUUU	48.	UUUUUUUU
21.	OUUUUUU	49.	UOOUUUU
22.	UUUUUUUO	50.	OOUUUUU
23.	OOOUU	51.	UUUUUUUU
24.	UOOOUU	52.	OOUUUUU
25.	UOUOUU	53.	UUOUUUUU
26.	OUVUOUU	54.	UOUUUUUU
27.	UUUUOUU	55.	OUUUUUUU
28.	UOOOUU	56.	UUUUUUUUU

Note :- In the above Prastara, Angas can be reduced from right to left.

Aksharas (letters) for each Kriya

Margas	Chaturasra	Trisra	Misra	Khanda	Sankeerna
Dakshina	32	24	56	40	72
Vartika	16	12	28	20	36
Chitra	8	6	14	10	18
Chitratara	4	3	7	5	9
Chitratama	2	1½	3½	2½	4½
Atichitratama	1	¾	1¾	1¼	2¼

Tables of Sapta Thaalas are derived by way of Jaathi Bhedam and Gathi Bhedam

1. Dhruva Thaala (Chitratara Marga)

Thaala	Thaala Angas	Thaala Kriyas	Chaturasra Gathi	Trisra Gathi	Misra Gathi	Khanda Gathi	Sankeerna Gathi
Chaturasra Jaathi Dhruva Thaala	1011	14	14x4=56	14x3=42	14x7=98	14x5=70	14x9=126
Trisra Jaathi Dhruva Thaala	1011	11	11x4=44	11x3=33	11x7=77	11x5=55	11x9=99
Misra Jaathi Dhruva Thaala	1011	23	23x4=92	23x3=69	23x7=161	23x5=115	23x9=207
Khanda Jaathi Dhruva Thaala	1011	17	17x4=68	17x3=51	17x7=119	17x5=85	17x9=153
Sankeerna Jaathi Dhruva Thaala	1011	29	29x4=116	29x3=87	29x7=203	29x5=145	29x9=261

2. Matya Thaala (Chitratara Marga)

Thaala	Thaala Angas	Thaala Kriyas	Chaturasra Gathi	Trisra Gathi	Misra Gathi	Khanda Gathi	Sankeerna Gathi
Chaturasra Jaathi Matya Thaala	101	10	10x4=40	10x3=30	10x7=70	10x5=50	10x9=90
Trisra Jaathi Matya Thaala	101	8	8x4=32	8x3=24	8x7=56	8x5=40	8x9=72
Misra Jaathi Matya Thaala	101	16	16x4=64	16x3=48	16x7=112	16x5=80	16x9=144
Khanda Jaathi Matya Thaala	101	12	12x4=48	12x3=36	12x7=84	12x5=60	12x9=108
Sankeerna Jaathi Matya Thaala	101	20	20x4=80	20x3=60	20x7=140	20x5=100	20x9=180

3. Rupaka Thaala (Chitratara Marga)

Thaala	Thaala Angas	Thaala Kriyas	Chaturasra Gathi	Trisra Gathi	Misra Gathi	Khanda Gathi	Sankeerna Gathi
Chaturasra Jaathi Rupaka Thaala	01	6	$6 \times 4 = 24$	$6 \times 3 = 18$	$6 \times 7 = 42$	$6 \times 5 = 30$	$6 \times 9 = 54$
Trisra Jaathi Rupaka Thaala	01	5	$5 \times 4 = 20$	$5 \times 3 = 15$	$5 \times 7 = 35$	$5 \times 5 = 25$	$5 \times 9 = 45$
Misra Jaathi Rupaka Thaala	01	9	$9 \times 4 = 36$	$9 \times 3 = 27$	$9 \times 7 = 63$	$9 \times 5 = 45$	$9 \times 9 = 81$
Khanda Jaathi Rupaka Thaala	01	7	$7 \times 4 = 28$	$7 \times 3 = 21$	$7 \times 7 = 49$	$7 \times 5 = 35$	$7 \times 9 = 63$
Sankeerna Jaathi Rupaka Thaala	01	11	$11 \times 4 = 44$	$11 \times 3 = 33$	$11 \times 7 = 77$	$11 \times 5 = 55$	$11 \times 9 = 99$

4. Jhampe Thaala (Chitratara Marga)

Thaala	Thaala Angas	Thaala Kriyas	Chaturasra Gathi	Trisra Gathi	Misra Gathi	Khanda Gathi	Sankeerna Gathi
Chaturasra Jaathi Jhampe Thaala	100	7	$7 \times 4 = 28$	$7 \times 3 = 21$	$7 \times 7 = 49$	$7 \times 5 = 35$	$7 \times 9 = 63$
Trisra Jaathi Jhampe Thaala	100	6	$6 \times 4 = 24$	$6 \times 3 = 18$	$6 \times 7 = 42$	$6 \times 5 = 30$	$6 \times 9 = 54$
Misra Jaathi Jhampe Thaala	100	10	$10 \times 4 = 40$	$10 \times 3 = 30$	$10 \times 7 = 70$	$10 \times 5 = 50$	$10 \times 9 = 90$
Khanda Jaathi Jhampe Thaala	100	8	$8 \times 4 = 32$	$8 \times 3 = 24$	$8 \times 7 = 56$	$8 \times 5 = 40$	$8 \times 9 = 72$
Sankeerna Jaathi Jhampe Thaala	100	12	$12 \times 4 = 48$	$12 \times 3 = 36$	$12 \times 7 = 84$	$12 \times 5 = 60$	$12 \times 9 = 108$

5. Triputa Thaala (Chitrataru Marga)

Thaala	Thaala Angas	Thaala Kriyas	Chaturasra Gathi	Trisra Gathi	Misra Gathi	Khanda Gathi	Sankeerna Gathi
Chaturasra Jaathi Triputa Thaala	100	8	$8 \times 4 = 32$	$8 \times 3 = 24$	$8 \times 7 = 56$	$8 \times 5 = 40$	$8 \times 9 = 72$
Trisra Jaathi Triputa Thaala	100	7	$7 \times 4 = 28$	$7 \times 3 = 21$	$7 \times 7 = 49$	$7 \times 5 = 35$	$7 \times 9 = 63$
Misra Jaathi Triputa Thaala	100	11	$11 \times 4 = 44$	$11 \times 3 = 33$	$11 \times 7 = 77$	$11 \times 5 = 55$	$11 \times 9 = 99$
Khanda Jaathi Triputa Thaala	100	9	$9 \times 4 = 36$	$9 \times 3 = 27$	$9 \times 7 = 63$	$9 \times 5 = 45$	$9 \times 9 = 81$
Sankeerna Jaathi Triputa Thaala	100	13	$13 \times 4 = 52$	$13 \times 3 = 39$	$13 \times 7 = 91$	$13 \times 5 = 65$	$13 \times 9 = 117$

6. Ata Thaala (Chitrataru Marga)

Thaala	Thaala Angas	Thaala Kriyas	Chaturasra Gathi	Trisra Gathi	Misra Gathi	Khanda Gathi	Sankeerna Gathi
Chaturasra Jaathi Ata Thaala	1100	12	$12 \times 4 = 48$	$12 \times 3 = 36$	$12 \times 7 = 84$	$12 \times 5 = 60$	$12 \times 9 = 108$
Trisra Jaathi Ata Thaala	1100	10	$10 \times 4 = 40$	$10 \times 3 = 30$	$10 \times 7 = 70$	$10 \times 5 = 50$	$10 \times 9 = 90$
Misra Jaathi Ata Thaala	1100	18	$18 \times 4 = 72$	$18 \times 3 = 54$	$18 \times 7 = 126$	$18 \times 5 = 90$	$18 \times 9 = 162$
Khanda Jaathi Ata Thaala	1100	14	$14 \times 4 = 56$	$14 \times 3 = 42$	$14 \times 7 = 98$	$14 \times 5 = 70$	$14 \times 9 = 126$
Sankeerna Jaathi Ata Thaala	1100	22	$22 \times 4 = 88$	$22 \times 3 = 66$	$22 \times 7 = 154$	$22 \times 5 = 110$	$22 \times 9 = 198$

7. Eka Thaala (Chitrataru Marga)

Thaala	Thaala Angas	Thaala Kriyas	Chaturasra Gathi	Trisra Gathi	Misra Gathi	Khanda Gathi	Sankeerna Gathi
Chaturasra Jaathi Eka Thaala	1	4	4x4=16	4x3=12	4x7=28	4x5=20	4x9=36
Trisra Jaathi Eka Thaala	1	3	3x4=12	3x3=9	3x7=21	3x5=15	3x9=27
Misra Jaathi Eka Thaala	1	7	7x4=28	7x3=21	7x7=49	7x5=35	7x9=63
Khanda Jaathi Eka Thaala	1	5	5x4=20	5x3=15	5x7=35	5x5=25	5x9=45
Sankeerna Jaathi Eka Thaala	1	9	9x4=36	9x3=27	9x7=63	9x5=45	9x9=81

The above mentioned Thaalas are formed each 25 for 7 Thaalas (i.e.) $25 \times 7 = 175$. This is for Chitrataru Marga only. In the same manner Sapta Thaalas are derived according to each Marga are 175 (viz.) Dakshina, Varthika, Chitra, Chitrataru, Chitrataru and Ati Chitra tama.

S.No.	Thaala Name	Angas	S.No.	Thaala Name	Angas
56	Samatalamu	1100U	86	Pratimatya	112211
57	Nandana	1002	87	Garugi	00000U
58	Udeekshana	112	88	Vasanth	111222
59	Mattika	202	89	Lalitha	0012
60	DDenkikatalamu	212	90	Rathi Talamu	12
61	Varna mattikamu	00100	91	Karnayathi	0000
62	Abhinandana	11002	92	Yathi	2111
63	Antara Kreed	000U	93	Shataiamu	000000
64	Mallatalamu	111100U	94	Vardhana	0012
65	Deepaka	001122	95	Varnayathi	1122
66	Ananga	12112	96	Rajanarayana	001212
67	Vishama	00000U00000U	97	Madana	002
68	Nandi	100112	98	Kaarikaa	0000U
69	Mukunda	10012	99	Paarvathee lochana	0010022 1111211
70	Kanduka	11112	100	Sreenandana	2112
71	Ekatalamu	0	101	Leela	012
72	Ata Talamu	1001	102	Vilokitha	12002
73	Purna Kamkala	000021	103	Lalitha priya	11211
74	Khanda Kamkala	0022	104	Jllaka	211
75	Sama Kamkala	221	105	Janaka	11112112
76	Vishama Kamkala	122	106	Lakshmeesa	00112
77	Chatustalamu	2000	107	Raga Vardhana	00002
78	Dombuli	11U	108	Ustava	21
79	Abhanga	12			
80	Raya Vamkola	21200			
81	Laghu Sekhara	1U			
82	Pratapa Sekhara	200U			
83	Jagajjampa	2000U			
84	Chaturmukha	1212			
85	Jhampa	00U1			

Note :- There are different opinions about the names of the above Thaalas and Angas.

THE INDIAN MUSICAL DRUMS.

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1. Introduction.

MANY years ago, I drew attention to the remarkable acoustic properties of the musical drums which are used as accompaniments to vocal or instrumental music and are extremely popular in India even at the present time. My investigations showed clearly that these instruments contained the solution in a practical form of the acoustical problem of transforming a circular drum-head giving inharmonic overtones into a harmonic musical instrument. In its classical form, the instrument is known as the Mridanga, and is referred to in ancient Sanskrit works and is also pictured in the paintings on the walls of the Ajanta caves. It is thus clearly a very ancient invention, and its acoustical perfection must be considered a remarkable testimony to the inventiveness and musical taste of its progenitors. The physical study of the Mridanga, however, possesses more than a merely archaeological interest. As was pointed out in my earliest note on the subject and somewhat more fully in my articles on musical instruments in *Handbuch der Physik.*, the successful conversion of an inharmonic sequence of tones into a harmonic one has been effected in a very interesting manner. The drum has the special property of vibrating freely in different forms but with identical frequencies which can be superposed on each other. Some of the superposition forms have a striking simplicity, and indicate an analogy between the musical drum and the harmonic vibrations of a uniform stretched string. In view of the extreme brevity of the accounts previously published, it appeared desirable to set out more fully the results obtained. The subject is, however, far from being exhausted by the present report, and it is hoped that the paper is only the precursor of a complete treatise on the musical drums of India.

2. Description of the Instruments.

An immense variety of drums of various forms and shapes are to be found in use in different parts of the country. The musical drum, however, stands apart in a class by itself, and is used exclusively for high class chamber music where the noise of an ordinary percussion instrument would be intolerable. The classical form of the instrument known as the Mridanga is a two-sided drum which is played with both hands. Its shape resembles that of two truncated cones or flower-pots placed together end to

end with the narrow ends outwards. The construction usually takes the form of a hollow wooden shell of the shape mentioned with both ends open over which the drum-skins are stretched. To enable the drum-skins to be tightened to any desired tension, and at the same time ensure a uniform tension in all directions, the following device is adopted. The drum-heads are firmly attached to circular hoops by interlaced thongs of leather. The hoops are then put over the ends of the drum. A long band of leather repeatedly passes through both the hoops and to and fro over the full length of the drum, in all exactly sixteen times at equal intervals along its circumference. The ends of the leather band are then tied together. The tuning of the drum is roughly effected by lightening up the leather cord by adjusting the position of 8 movable cylindrical blocks of wood over which it passes. The final adjustment is made by the strokes of a hammer which force down the hoop over which the drum-head is stretched to the extent desired. The arrangement enables the drum-head to be accurately adjusted to any desired tension, and, what is equally important, enables the tensions in different directions to be equalised with meticulous precision. One can travel from one end of India to the other and seek in vain for a Mridanga which has either more or less than sixteen tightening straps. It is clear, therefore, that the inventors of the drum not only realised the importance of equalising the tensions, but laid stress on having exactly the right number of tension equalizers, namely, sixteen.

Apart from the details mentioned above, the special feature of the Mridanga consists in the construction of the drum-head played with the right hand. As originally put on, the drum-head is not a single piece of leather, but consists of three layers of drum-skin superposed on each other. In the final stages of construction, all the layers except one are taken out leaving only rings round the margin to reinforce one drum-skin which is left intact and is capable of vibration. Externally one such ring of leather is visible over the drum-head. The latter is then loaded symmetrically with a firmly adherent composition which is said to consist of finely divided iron-oxide mixed with charcoal, starch and gum. The laying on of this composition and making it firmly adherent are elaborate processes which take a great deal of time. Actually, the composition is put on layer by layer and pressed down by rubbing with a smooth piece of stone or metal. The thickness of the layer is greatest in the centre and shades down towards the margin. In some cases, it is found that the thickness is stepped down by three, five or seven stages towards the margin. Watching the process of putting it on, it is found that the thickness and distribution are determined by testing the tone of the drum continuously as the work proceeds.

The left-hand drum-head of the Mridanga is usually larger in size than the right-hand one. It is constructed in a similar manner to that described above, but without the central loading. In playing the instrument, however, the left-hand drum-skin is loaded

with a piece of dough (kneaded wheat-flour) which is moistened and put on in sufficient quantity towards the centre to bring the pitch down to the desired value.

A modern variant of the Mridanga is known as the Thabla. This really consists of two drums placed simultaneously with the right-hand and left-hand respectively. Both consist of wooden or metal shells open at one end only and covered with drum-skins. The drum-head of the Thabla played with the right-hand is very similar to that of the Mridanga. The drum played with the left-hand has a firmly adherent composition which is, however, unsymmetrically placed on the membrane. The purpose of such unsymmetrical loading is quite different from that of the symmetrical loading used in the right-hand drum, with which alone we are concerned in the present paper. The tension arrangements in the Thabla are similar to those in the Mridanga, with the difference that the tightening cords simply pass round the closed end of the Thabla. The number of tightening straps is exactly 16 as in the Mridanga. In some very recent forms of Thabla, the tightening is effected by 16 iron rods placed at equal intervals round the drums each having a hook which goes over the circular hoop of the drum-skin and is provided with a tightening nut and bolt at the lower end. With this arrangement again it is possible to adjust the tensions very accurately to equality in all directions.

The description of the Mridanga and of the Thabla given above is sufficiently comprehensive to cover all cases met with in practice. It must not be imagined, however, that all instruments going by these names are exact copies of each other. This is far from being the case. The individual examples differ notably in the size and shape of the wooden shell used, as also in the Nature of the wood itself and the thickness of the shell. Notable differences also occur in the thickness of the leather used for the drum-skin, in the exact area and distribution of the central load, and specially also in the width of the marginal ring of the leather which is left superposed on the vibrating drum-head. In some forms of Mridanga or Thabla, the marginal ring is left very wide. In others, it is cut down to the barest minimum.

3. **Its Acoustic characters.**

The most striking feature which distinguishes the Mridanga and the Thabla from other forms of drum is the sustained character of the tones. This is evidently the result of two features in the construction, namely, the heavy wooden shell on which the drum-head is stretched and the symmetrical loading of the latter by a firmly adherent composition. A drum-head which is stretched on a frame of small mass is obviously incapable of prolonged vibration, owing to the rapid communication of movement to the supporting frame. The heavy rigid shell in the Mridanga or Thabla, on the other hand, is favourable to the sustained vibration of the drum-head. The loading of the drum-head greatly

increases the energy of vibration and is therefore a factor which favours the emission of a sustained tone. The presence of the enclosed air within the shell is probably also a factor tending in the same direction.

It is empirically observed that the width of the marginal ring of leather superposed on the drum-head has a notable influence on the duration of tone. The ring in fact acts as a kind of damper, and its width is adjusted to obtain the desired kind of tone. With a broad ring, we obtain a muffled tone of short duration in which few overtones are present, while with a narrow ring, the tone is prolonged and is also brighter, containing more overtones. From these observations, it is to be inferred that the purpose served by the marginal ring is mainly to suppress high tones which are not desired. The mechanism of such suppression is not difficult to understand. It is well known that in the case of a circular drum-head, the amplitude of vibration is relatively greatest towards the centre in the case of lower tones, but increases relatively towards the margin in the case of the higher overtones having several nodal diameters. The leather ring, therefore, acts as a damper for these high overtones without sensibly influencing the lower tones. Too broad a ring, however, carries the suppression to an undesirable extent, cutting out even the tones of lower pitch. As will be seen later in the paper, the construction of the drum-head seeks to arrange the first nine normal modes of the membrane into a harmonic sequence of five tones. The existence of normal modes of still higher pitch can only serve to injure the final result, and their elimination may therefore be described as the purpose of the marginal ring. The latter cannot greatly affect the pitch of the graver tones inasmuch as the amplitude of vibration is rather small for such tones towards the margin, and the effect of the marginal ring considered as a load must therefore be unimportant. The contact between the ring and the drum-head is probably imperfect, and this should tend to make the ring act as a damper rather than as a load influencing the pitch.

It should be mentioned that the Mridanga and Thabla, though they have much in common, are by no means identical in their acoustic properties. In the playing of the Mridanga, the flat of the hand is used more frequently, while with the Thabla, the finger tips are usually employed.

4. **The Five Tones of the Drum.**

The sustained character of the vibrations of the drum makes it possible to excite and observe them very readily. Indeed, one of the most striking properties of the harmonic drum is that any desired mode of vibration may be excited by simple percussion quite as easily as a stretched string may be caused to vibrate in one or other of its harmonic modes by touching it at a nodal point and plucking it suitably. The analogy is indeed very close as will be presently made clear.

The gravest mode of vibration of the drum-head is, of course, that without any interior nodal lines. This is best excited by bringing down the flat of the palm of the hand smartly on the centre of the drum-head and then quickly removing it. Produced in this way, *the deep hum-tone obtained is quite free from overtones*, whereas the tone obtained by striking the drum with the finger tips contains overtones.

The second tone of the drum-head is that having one nodal diameter. The professional drummer excites this by smartly striking the membrane with the edge of his palm laying his little finger along a diameter so as to bring it to rest, while the edge strikes the membrane and rapidly recoils from it. A clear sustained tone is obtained in this way. That the membrane thus excited vibrates with one nodal diameter at rest is readily demonstrated by strewing a little fine sand on it either before or immediately after the stroke. The sand gathers itself into a clear-cut straight line along a nodal diameter coinciding with the position of the little finger in striking. For the success of this experiment, one has, of course, to cultivate the professional touch in the manner of striking the drum. It is also very important to adjust the tensions of the membrane in different directions to equality with great care. If this is not done, the experiment succeeds only if the drum is struck along the nodal diameter having the greatest or the least tension. When struck along a diameter with an intermediate tension, beats are heard, and the nodal diameter as indicated by the sand rotates to and fro about the centre periodically. If the beats are very fast, the sand is visible only as a little pile at the centre of the drum-head.

There is another method of exciting the mode of vibration with one nodal diameter which is very simple and does not need any professional skill. This is merely to touch the membrane gently with one finger of the left-hand laid along a diameter near the margin, and to strike the membrane smartly with a finger of the right-hand at a suitable point on the perpendicular diameter. The finger touching the drum determines the position of the nodal diameter which is indicated by the sand forming a line across the drum-head.

(See Fig. 4.)

For exciting the third tone of the drum by itself, the simplest method is to touch the membrane gently with the fingers at two points near each other on the edge of the black central load and then strike the drum smartly with the finger at a point removed 90 degrees away; a clear ringing tone is obtained, and if the two points touched are at a suitable distance apart, two parallel nodal lines stretching across the drum are formed by the sand (Fig. 5). The significance of this form relatively to the usual modes of vibrations of a circular drum-head will be considered later.

The fourth tone of the drum is similarly excited by touching the edge of the loaded area lightly at three points, and striking the drum near its outer edge smartly with the finger at a point 90 degrees away from the middle of the three points touched. If the three points touched are at suitable equal distances apart, the drum-head vibrates with three parallel nodal lines stretching across it, the position of which is indicated by the lines of the sand (Fig. 6). A clear ringing tone is heard at the same time.

The fifth tone may similarly be excited by touching the edge of the loaded area at four points, and striking the drum smartly at a point some distance away on the marginal ring of leather. Except in large and specially well-made instruments, the duration of this tone is rather small, and it is not quite so easy to obtain its sand figures by percussion as in the case of the graver tones.

The harmonic relationship between the five tones of the drum is readily appreciated when they are excited one after another in the manner described above. It will be noticed that the fundamental corresponds to the drum-head vibrating as a whole. The second harmonic corresponds to the drum-head vibrating in two equal parts separated by a nodal diameter. The third harmonic corresponds to a mode of vibration in which the drum-head divides into three parts separated by two parallel nodal lines. The fourth harmonic corresponds to a mode in which the drum-head divides into four parts separated by three parallel nodal lines. The fifth harmonic similarly corresponds to a case in which the drum-head vibrates in five parts separated by four nodal lines. The analogy with the simple case of a vibrating stretched string is thus remarkably close.

5. Superposition Figures of the Third Harmonic.

We have now to consider the relationship between the normal modes of vibration of the drum-head and the series of harmonic tones given by it. As regards the first and second harmonics, no special remarks are necessary as the modes of vibration are unique in each case. The third harmonic, on the other hand, is produced by a combination, in any desired ratio of amplitudes, of the modes of vibration of the drum-head with one nodal circle, and the mode with two nodal diameters. The proof of this statement is very easy and is illustrated in Figs. 7 to 12. It depends on the fact that by touching the drum-head gently at suitable points and exciting it by percussion, the mode of vibration with one nodal circle, and the mode with two nodal diameters may be excited, either each by itself, or together in any desired ratio of amplitude. In either case, the pitch of the tone obtained is identical, but the superposition gives rise to nodal diagrams which are observed as sand figures and assume varying shapes.

The mode of vibration with one nodal circle is most readily obtained by touching the drum-head at some little distance from its centre with the tip of a pencil, and tapping the centre with a light hammer. If the point of damping has been suitably chosen, a nodal circle is obtained. If it is too near or too far from the centre, an elliptic sand figure is found. To obtain a very elongated ellipse, we touch two points which are very close to each other on the edge of the loaded area and strike the drum with the finger at a point removed from them by 90 degrees. On increasing the distance between the two points touched, the ellipse straightens out and we obtain two parallel nodal lines running across the drum-head, and dividing it into three parts of which the middle has a smaller area than two outer ones. On further increasing the distance between the two points touched, the nodal lines curve outwards and assume the form of hyperbolae. Finally, when two points 90 degrees apart on the edge of the loaded area are damped with the fingers and the drum is struck at the mid-point of the adjacent quadrant, we get two nodal diameters passing through the centre.

6. **Superposition Figures of the Fourth Harmonic.**

The fourth harmonic is given by the drum-head vibrating in one or other of two forms: (a) a mode with one nodal diameter and one nodal circle, (b) a mode with three nodal diameters, or by superposition of both these forms. This is demonstrated by the sand figures reproduced as Figs. 13-18. Most of the figures for the fourth harmonic are obtained by touching three points on the edge of the loaded area and tapping the drum with the finger just on the inner edge of the marginal ring of leather. If the three points touched are exactly 60 degrees apart from each other, we get the mode of vibration with three nodal diameters. If they are closer together but at equal distances the diagram takes the form of three lines, one of which is a diameter running across the drum-head and the other two are hyperbolae curved outwards. As a special case, we have the figure consisting of three parallel straight lines running across the drum. All these figures are evidently obtained by the superposition of the normal two modes mentioned above. To obtain by itself the mode with one nodal diameter and a nodal circle, the device is adopted of touching the loaded area at two points 90 degrees apart, one at the edge of the loaded area and the other on the nodal circle itself and of tapping the drum-head near its edge.

A specially interesting case is that shown in Fig. 18 where we have a nodal figure consisting of three lines, two of them running perpendicular to the third which is a diameter. This is really the same case as that of three parallel lines running across the drum-head and may be derived from it by reversing the relative phase of the two superposed modes of vibration. It is obtained by touching the edge of the loaded area at three points, one of which is removed by 90 degrees from the mid-point of the

other two. In general, when the three points touched are unequally spaced, we get curious curved nodal lines of which Fig. 17 is an example. These are clearly due to superposition of the two normal modes with the nodal diameters not coincident but inclined to each other.

7. **Superposition Figures of the Fifth Harmonic.**

From the fact that the fifth harmonic is obtained when four points on the drum-head are damped, it may be inferred that it arises from a super-position of at least two modes, namely, (a) one with four nodal diameters only, (b) one with two nodal diameters and a nodal circle. Experiments made at Calcutta in 1919 with a fine large Mridanga showed that in reality we have also a third mode superposed on the above, namely, the mode with two nodal circles only. By touching the drum at suitable points, it was found possible to excite any of the foregoing three modes by itself, and obtain the relative sand figures, the pitch of the modes being the same in all the three cases. If it is possible to excite the drum in sustained vibrations of this frequency, a great variety of superposition figures should evidently be capable of being obtained.

8. **Summary.**

The paper gives a detailed description of the results obtained by the author in the year 1919 which showed that in the Indian musical drums we have a circular drum-head which is loaded and damped in such a manner that all the overtones above the ninth are suppressed and these nine are grouped in such a manner as to give a succession of five tones in harmonic sequence. The vibrations of the drum-head present a striking analogy to the case of a stretched string giving one or the other of its first five harmonics; the drum-head divides up into 1, 2, 3, 4 or 5 sections giving the respective harmonics. The third, fourth and fifth harmonics are obtained by superposition of 2, 2 and 3 respectively of the normal modes of vibration. The corresponding superposed forms of vibration are readily obtained and demonstrated by means of sand figures. Numerous figures illustrate the paper.

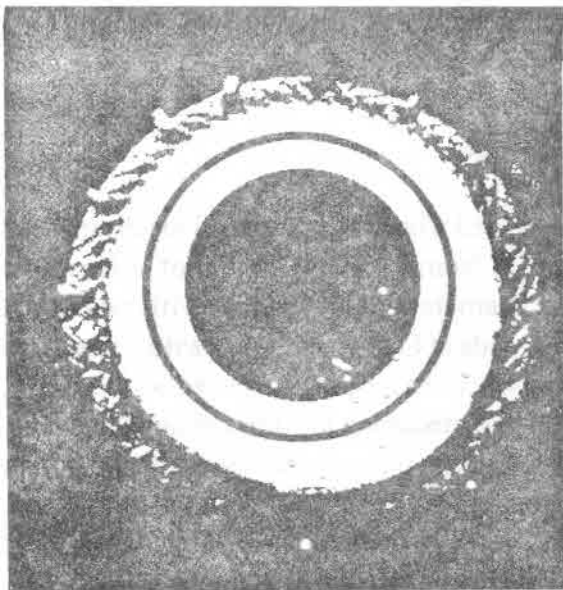


Fig. 3

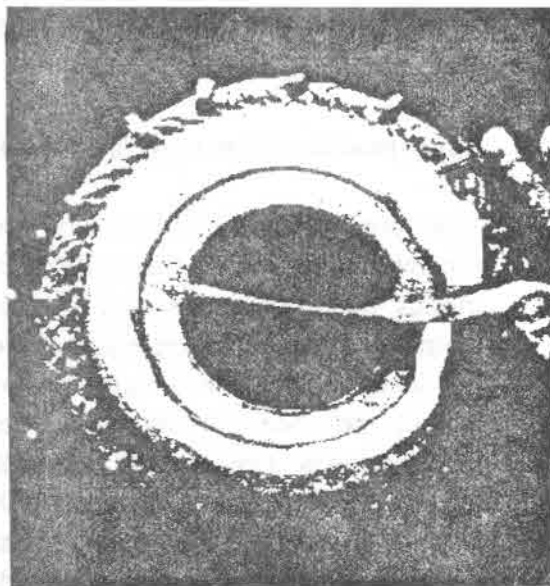


Fig. 4

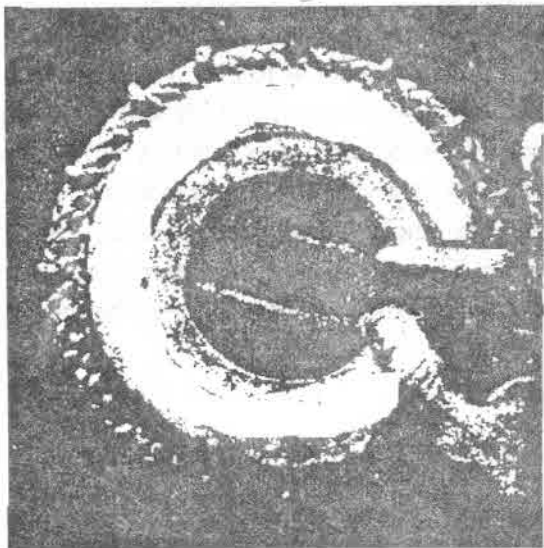


Fig. 5



Fig. 6

Fig. 7

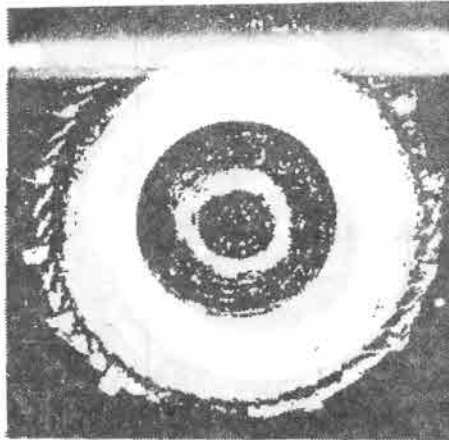


Fig. 8

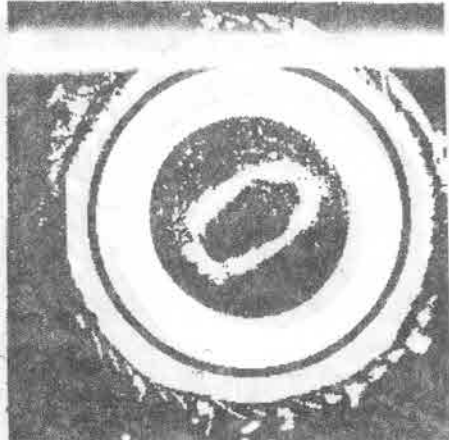


Fig. 9

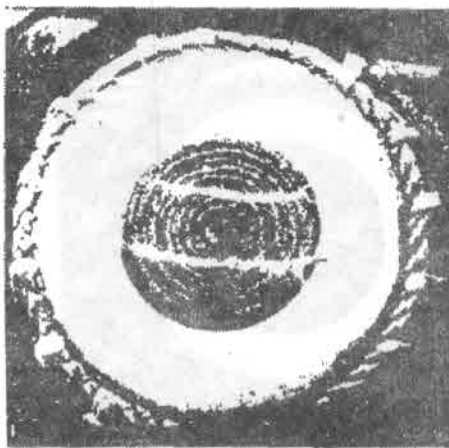


Fig. 10

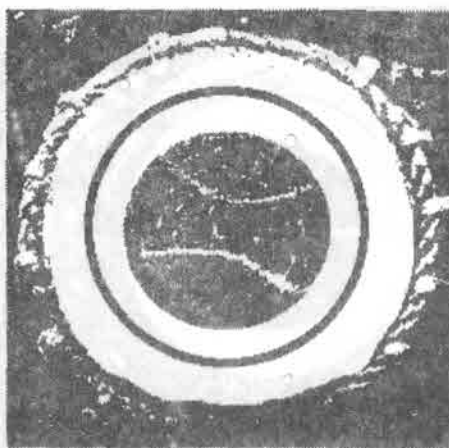


Fig. 11

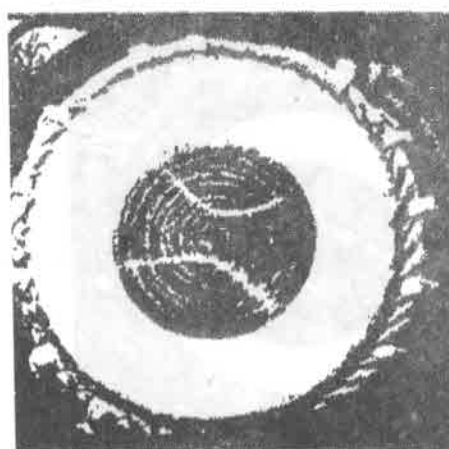


Fig. 12

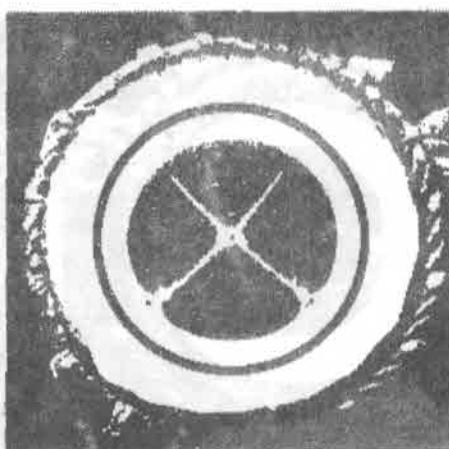


Fig. 13

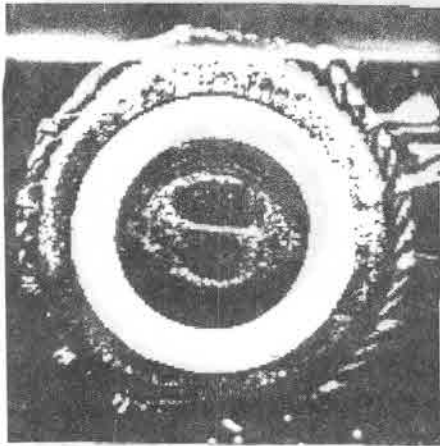


Fig. 14



Fig. 15



Fig. 16



Fig. 17

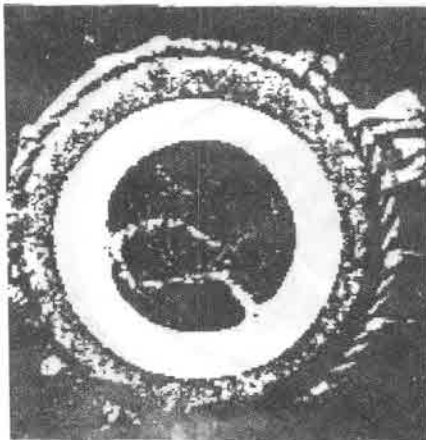
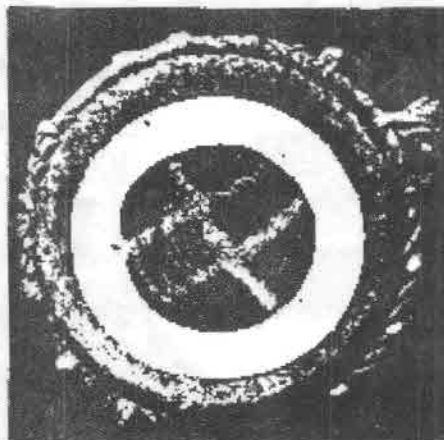


Fig. 18



Bio-Data of Late Sri Dharmala Rama Murthy, Author

(12-11-1910 :: 15-8-1978)

Sri Dharmala Rama Murthy was born on 12.11.1910 (Sadharana Nama Samvatsara Kartika Suddha Dasami, Saturday) to Late Sri Kamayya and Smt. Kantamma at Palivela, East Godavari District in a respectable family as the eldest son. He studied Sukla Yajurveda in the boyhood. He started learning Mridangam from 1930 under Late Sri Varanasi Ghantayya Sastry and Late Sri Mullapudi Lakshmana Rao, great exponents in the field of Mridanga. He accompanied on Mridangam many stalwarts in numerous sabhas.

He had researched on the art of Mridanga for more than 20 years and wrote a book on Mridangam. His Guru Sri Mullapudi Lakshmana Rao has encouraged him and guided him in a proper manner in writing the book "Mridanga Thatwam". Many top ranking vidwans appreciated his work and gave their testimonials.

Sri Palghat T.S. Mani Iyyar, a Mridanga veteran of international fame came down to Rajahmundry and graciously released the book "Mridanga Thatwam" for the public in 1966. Sri Mani Iyyar has adorned Sri Rama Murthy with Swarna Kankana and a title "Mridanga Vidwachekara" in that sabha. Smt. M.S. Subbalakshmi had honorably sent Rs.501/- through Sri Mani Iyyar for felicitaton in that sabha.

His book "Mridanga Thatwam" was selected as the best book in Indian languages and English by the National Academy of Music & Dance, New Delhi. Sri Rama Murthy has given a number of demonstrations in the Music Academy, Madras, All India Radio Stations, Doordarshan and in many sabhas. He had received many appreciations and felicitations including the First World Telugu Conference held by the Govt. of A.P. He was honored by the then President of India Sri V.V. Giri when releasing the book Mridanga Thatwam in English that was Co-Authored by his eldest son Sri D. Venkateswara Rao.

He also authored the books "Muktayi Sutra Bhashyam" and "Suryopasana Sarvaswam" and had received the appreciation of many scholars.

He attained the Lotus feet of Lord Sri Venkateswara (expired) on 15.8.1978 at 5 AM at the banks of river Godavari, Rajahmundry.

Sri Rama Murthy has five sons and among them the eldest son Sri Dharmala Venkateswara Rao is a Mridanga Vidwan and Co-Author of the books. He has taken pains in publishing his father's books and also toured extensively including U.S.A. and propogated the art of Mridanga and their books. Sri Rama Murthy's grand son Chi D.V. Rama Murthy (son of D. Venkateswara Rao) who is an Engineer in U.S.A. is also a Mridangam Artist and has been giving performances,

Sri Rama Murthy is always alive in the music world through his invaluable books.

Bio-Data of Sri Dharmala Venkateswara Rao, Co-Author

Sri Dharmala Venkateswara Rao is born in a respectable family on 23.8.1935 at Palivela in East Godavari District, Andhra Pradesh, India. He is the eldest son of Late Sri Dharmala Rama Murty, a great Mridangam Scholar, who wrote several books on the art of Mridanga and Suryopasana.

Sri Venkateswara Rao is the disciple of a great master Late Sri Mullapudi Lakshmana Rao and also his father Sri Dharmala Rama Murty. Sri Venkateswara Rao is the Co-Author of his father's books Mridanga Thatwam, Muktaiy Sutra Bhashyam and The Theory and Practice of Mridanga and is instrumental in publishing these books. He worked as a Lecturer in Mridangam in the Govt. College of Music & Dance, Hyderabad for 25 years and trained many students. He also served the college by organizing cultural programmes and participated in several cultural activities. He has done research on the art of Mridanga and acquired good knowledge in the art of Mridanga.

Sri Dharmala has accompanied on Mridangam many top ranking artists throughout India on several important occasions and in many sabhas since 1950. He is a 'B'-High grade artist of All India Radio and Doordarshan and has been participating in concerts for several decades including National Programmes. He was felicitated in many sabhas and he is honoured with the title "Mridanga Ratnakara" in the 105th Ganapathi Festival of Sangeetha Vidwat Sabha, Kakinada in 1998.

He passed M.A. in Political Science from Osmania University and also passed Visarada Examination in Mridanga. Sri Dharmala has been doing public service as Secretary of Sri Yagnavalkya Cultural Association of Hyderabad and organized many programmes. He has also organized his father's Vardhanthis and Jayanthi celebrations in a prestigious manner and published the second editions of the aforementioned books.

His two sons Chi D.V. Rama Murty and D.V.S.S. Prasad are Software Engineers in U.S.A. and play Mridangam. His eldest son Mr. D.V. Rama Murty has inherited the hereditary art of Mridanga. He is a graded artist in AIR and has been performing in public concerts in India and USA.

Sri Dharmala Venkateswara Rao has been doing research on the art of Mridanga and is publishing the second edition of "The Theory and Practice of Mridanga" with some enhancements.



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