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Mod-01 Lec-5 Piṅgala's Chandaḥśāstra

Study notes by Sanskrit AI Universe, based on this video

Video by NPTEL course 'Mathematics in India' (IIT Bombay) · nptelhrd · 22 Dec 2013

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About these notes

— Official title: Mod-01 Lec-5 Pingala's Chandahsastra

— Speaker and channel: NPTEL course 'Mathematics in India' (IIT Bombay) · nptelhrd

— Published 22 Dec 2013 · Running time 52 min 25 s · https://www.youtube.com/watch?v=YV_tu2Ucby4

— Official description: Mathematics in India - From Vedic Period to Modern Times by Prof. M.D.Srinivas,Prof.M.S.Sriram & Prof.K.Ramasubramanian,Department of mathematics,IIT Bombay.For more details on NPTEL visit

— Catalogue caution: Popular claims that Piṅgala 'invented binary' go further than the lecture.

— These pages are study notes drawn from the video's own title, description and captions, plus the journal's already published Watch note. They are not a transcript and not a substitute for watching the film.

— The journal treats videos as leads, not as sources you should cite on their own. Check the papers and editions behind a claim.

— Caption source: English (Invidious lang=en track). These English captions look like a prepared track rather than rolling auto-captions, but wording may still be imperfect. Distinctive phrases follow the captions closely.

From the talk · 0:13–7:02

— Like panini pingala is another great deal in ancient india pingala is the person who systematized the Chandaḥśāstra he wrote the Chandaḥśāstra with Chandaḥsūtras which give.

— The theory of prosody both of vedic metres as also of the classical sanskrit we touch again do not know like in.

— The case of panini exact date of pingala generally scholars place him around 300 before bc so in this talk i will give a brief overview of the development of Chandaḥśāstra then.

— The end of each foot of a metre the last syllable can be optionally taken to be good this is the definition obviously it not be clear we nearly state it so.

From the talk · 7:07–10:20

— Are called gaṇas are unit of 3 syllables each with a particular structure of laghu guru so the second part is very simple number 7 so there is a.

— Here it is various people searched so there is a book on telugu prosody by a man call charles brown written in 1843 where he has coated this.

— So each triplet here is a binary sequence of length 3 if you put this on circle give you put this on a circle you will find.

— So you can have such cycles for binary sequence of length 4 there are 16 of them again you can put them on a circle.

From the talk · 10:24–14:13

— That pingala was so what are the possible meters with 21 syllables can you write them down can you understand something about them so these are basically dealing with.

— The possible metres of a particular length so if the length is only 3 there are only 8 possibilities these are 8 gaṇa so you have an array of 8 rows but.

— The power 31 so is the rule by which you can write down now one you have written down then the question is the next mathematical questions is suppose.

— The problem without doing the once again i should just go and write down what is the metrical form what is the it appear in the prastāra then.

From the talk · 14:20–17:41

— The prastāra 3 syllabus so prastāra should have each and every metrical form of that when should appear one and only one.

— I will tell you how the mathematical theory of prastāra in music is discussed by the rule for doing prastāra.

— The beginning and doing all that so this rule is found in so going from one row to next row the rule is the following start scanning from.

— That up with the gs so let us do the next row start from the left first time g is encounter put the l there bring down whatever l is to.

From the talk · 17:49–21:52

— This power so if you are looking for the prastāra or n syllable take me number n now start dividing by 2 if the number can.

— We have you just write 2 somewhere just put a mark 2 somewhere if the number cannot be half you detect 1 and instead of putting 0 at.

— That point you put a symbol 0 so this is where the symbol 0 of s in pingala it can be hard put it to 2.

— The wherever 0 of s multiplied by 2 wherever 2 of s to square of the number so ultimately to calculate 2 to.

From the talk · 21:59–26:03

— In n+1 syllable with number m syllable so clearly is very clearly away that 2 to the power n but he never tells you that sn is.

— If it is not a it will be called and so next mathematical problem is how many of length l so pingala in this chapter of.

— The problem and giving a solution of it so we know the number of length n is 2 to the power n now obviously will have n the.

— And second are the same and therefore 2 to the power n squared-2 to the power n in the same argument will lead to.

From the talk · 26:08–29:28

— Followed by laguna 2 can we have you get guru laghu laugh now you cannot stop here because you are looking for meters or four syllable so do.

— So whenever you beginning you go to a g nothing will happen 1*2-1 is 1 so you have to really come to the first laghu that is.

— Why he saying you can just go up to the first laghu that you will find here so the first laghu is here so when we find.

— The laghu you multiply by 2 1*2 is 2 then again you find another laghu you multiply that by 2 your get 4 finally you have a guru so.

From the talk · 29:35–33:02

— I have written down the process from the left write 1 2 to 2 square 2 cube wherever l of s add those numbers that will be the.

— The power n now we come to the last which is called the lugakriya so given in the en syllable prastāra how many metres are there which have 5 gurus or.

— And then the next sn+1 the number of meters of length n+1 is just twice the previous number without the reduction of 1 so subtracting 1.

— Let us just see the way how will explain says you form this figure how do you form this figure first you write the square with 1 entry below.

From the talk · 33:10–50:30

— The binomial coefficient that is the pingalas recurrence relation which is coming in so we can now read this i will just to feel happy that are you.

— How is explain now this si the way the portion also studied in modern times and this figure has a very famous name in modern time it is called.

— Before as well obtained it is an unfortunate thing that all our terminology refers to events that happened in the past 2 3 centuries and we really are not aware of.

— Now whenever once you are set the protagonist of the study salary come whenever you have a list of things immediately question is can i give a rule by which all.

Sources and credit

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— Captions used: English (Invidious lang=en track) (en), retrieved on 24 November 2026 via a public Invidious instance. These English captions look like a prepared track rather than rolling auto-captions, but wording may still be imperfect.

— Also used: the official video title and description, and the Watch catalogue note already published in this journal (presenter and why the video is listed).

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