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Algebraic concept in Śrirudram of Krishna Yajurveda

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Abstract

Sri Rudram is a part of *Taittirīya samhitā* (तैत्तिरीयसंहिता) of *Kṛṣṇa yajurveda* (कृष्णयजुर्वेदः) containing eleven *Anuvākas* (or chapters) followed by *Camakaṃ* (चमकं) which also consists of eleven *Anuvākas*. The number 'eleven' plays a significant role in *Sri Rudram* and its chanting by various methods known as *Rudraikādaśinī* (रुद्रैकादशिनी), *Laghurudraṃ* (लघुरुद्रं), *Mahārudraṃ* (महारुद्रं), *Atirudraṃ* (अतिरुद्रं). Several Mathematical facts are skillfully concealed in the Vedic mantras revealed by Great Sages of yore; this paper is an attempt to bring out the significance of 'eleven' associated with *Sri Rudram* revealing one concept of algebra concealed in the opening mantra, using Vedic Numerical Code.

Keywords: *Sri Rudram*, divisibility by 11, ancient Vedic numerical code

Introduction

विद्यासु श्रुतिरुत्कृष्टा रुद्रैकादशिनी श्रुतौ ।

Vidyāsu śrutirutkrṣṭā rudraikādaśinī śrutau ।

“Of Vidyas, Veda is the greatest; in Veda, ‘Sri Rudram’ containing 11 *Anuvākas* is the greatest.”

Siva Puranas have explained in detail the merits of his names listed in *Sri Rudram*

The term ‘रुद्र (*Rudra*)’ indicates that *Parameśvara* is capable of removing the misery of all evils and ailments in the world. It is said that रुद्रं संसारदुःखं द्रावयतीति रुद्रः (*Rutaṃ saṃsāraduḥkhaṃ drāvayatīti rudraḥ*). To please this deity the main portion of *Veda* is *Sri Rudram*, containing eleven *Anuvākas*. This portion is available in all existing branches of the four *Vedas* *Ṛgveda*, *Śuklayajurveda*, *Kṛṣṇayajurveda*, *Sāmaveda* and *Atharvaveda*. Mainly eleven *Rudras* are prominent according to Ancient Scriptures. The chanting of this portion is done in several ways as

- Rudraikādaśinī* (रुद्रैकादशिनी)
- Laghurudraṃ* (लघुरुद्रं)
- Mahārudraṃ* (महारुद्रं)
- Atirudraṃ* (अतिरुद्रं)

a. *Rudraikādaśinī* (रुद्रैकादशिनी):

This method is as per the following procedure:

Step 1: Chanting of all *Anuvākas* of *Sri Rudram* is done once.

Step 2: Chanting of the first *Anuvāka* alone of *camakaṃ* is done once.

Step 3: Chanting of all 11 *Anuvākas* of *Sri Rudram* is done second time.

Step 4: Chanting of the 2nd *Anuvāka* alone of *camakaṃ* is done once, and so on.

Step 21: Chanting of all 11 *Anuvākas* of *Sri Rudram* is done second time.

Step 22: Chanting of the 11th *Anuvāka* alone of *camakaṃ* is done once.

b. Laghurudram (लघुरुद्रं)

Eleven Rudraikādaśinī (रुद्रैकादशिनी) constitute one Laghurudram (लघुरुद्रं).

c. Mahārudram (महारुद्रं)

Eleven Laghurudram (लघुरुद्रं) constitute one Mahārudram (महारुद्रं).

d. Atirudram (अतिरुद्रं)

Eleven Mahārudram (महारुद्रं) constitute one Atirudram (अतिरुद्रं).

It is seen with crystal clarity that the number 'ELEVEN' plays a vital role in all the factors connected with Sri Rudram. this paper is an attempt to bring out the significance of 'eleven' associated with Sri Rudram revealing one concept of algebra concealed in the opening mantra, using Vedic Numerical Code.

Vedic Numerical code (Katapaya code)

In this system,

1. The consonants (vyanjanas) beginning with ka (क), ta (ट), pa (प) and ya (य) referred the digits from 1 to 9 (i.e. letters

from ka (क) to jha (झ), from ṭa (ट) to dha (ध), denote 1 to 9;

2. Pa (प) to ma (म) stand for 1 to 5;
3. Letters from ya (य) to ha (ह) represent the digits 1 to 8;
4. The nasals ña (ञ) and na (न) denote 0;
5. In the case of conjunct consonants, the number denoted only by the last consonant is taken;
6. The vowels following consonants have no value;
7. The vowels not preceded by any consonant represent 0;
8. The arrangement of the digits is from right to left as per the rule ankānam vāmato gatiḥ (अङ्कानाम् वामतो गतिः);
9. The letter ḷa (ळ), peculiar to the Dravidian languages, represent 9.

The rule is:

'kādi nava, ṭādi nava, pādi pañca, yādyashtau'

1. 'Kādi nava' means ka and the following eight letters
2. 'Ṭādi nava' means ta and the following eight letters
3. 'Pādi pañca' means pa and the following four letters
4. 'Yādyashtau' means ya and the following seven letters
5. 'Ksha' represents zero.

To make this more clear and understandable, the notation is given by the following table:

Table 1: Vedic Numerical Code (Katapayādi system)

Category	1	2	3	4	5	6	7	8	9	0
Kādinava	क	ख	ग	घ	ङ	च	छ	ज	झ	ञ
	ka	kha	ga	gha	ṅa	ca	cha	ja	jha	ña
Ṭādinava	ट	ठ	ड	ढ	ण	त	थ	द	ध	न
	ṭa	ṭha	ḍa	ḍha	ṇa	ta	tha	da	dha	na
Pādipañca	प	फ	ब	भ	म					
	pa	pha	ba	bha	ma					
Yādyashtau	य	र	ल	व	श	ष	स	ह	ळ	क्ष
	ya	ra	la	va	śa	ṣa	sa	ha	ḷa	ksha

Hence

- a) The Vowels are not included in the list.
- b) They are exempted because, only the consonants with vowels are assigned numbers.
- c) In conjunct consonants, the last consonant alone is to be coded.

Opening mantra of Sri Rudram

According to Taittirīya saṃhitā (तैत्तिरीयसंहिता) of Kṛṣṇa yajurveda (कृष्णयजुर्वेदः) Sri Rudram begins with the following mantra (Ṛk or couplet):

Mantra:

नमस्ते रुद्र मन्यव
उतोतु इषवे नमः ।
नमस्ते अस्तु धन्वने
बाहुभ्यामुत ते नमः ॥ (TS.4.5.1)

Transliteration of the mantra:

Namāste rudra manyava
Utota iṣave namāḥ.
Namāste astu dhanvāne
Bāhubhyāmuta te namāḥ. (TS.4.5.1)

Brief meaning of the mantra:

Salutations to your Ire, Rudra
Salutations to your arrow.

Salutations to your bow.

Salutations to your both arms. (TS.4.5.1)

Since we are going to deal with only the mathematical aspects of the mantra, an elaborate explanation of the above mantra is not presented here.

Table 2: Vedic Numerical Coding of the Verse 6-4 of the text

Line 1	0	5	6	2	2	5	1	4
Line 2	0	6	6	0	6	4	0	5
Line 3	0	5	6	0	6	9	4	0
Line 4	3	8	1	5	6	6	0	5

The word pāpa (पाप) is decoded as the number 11 using Vedic numerical code. When a mantra is meant as pāpa nivartanī (पापनिवर्तनी), the algebraic concept of 'divisibility by 11' is suggested as an indication.

Working

The 32-digit number obtained by decoding the whole mantra is as below.

0 5 6 2 2 5 1 4 0 6 6 0 6 4 0 5 0 5 6 0 6 9 4 0 3 8 1 5 6 6 0 5
A = Sum of the digits at odd places of the above number = 47

B = Sum of the digits at even places of the above number = 69
Using the criterion for divisibility by 11, we see that $|A - B| = |47 - 69| = 22$, the number is divisible by 11.

Conclusion

The significance of Mathematics was well realised and explored by the Ancient Sages and Scholars. Sky is the limit is too insignificant a phrase to describe the magnitude of the prevalence of Mathematical calculation in everything in the universe.

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