Number Symbolism in the Vedas

S. S. N. Murthy,
School of Physical Sciences,
Jawaharlal Nehru University,
New Delhi-110067, INDIA.
E-mail: ssnm0700@mail.jnu.ac.in

Numbers became very sacred to all cultures since the time man started feeling the need to use numbers in daily life and started observing that the events related to nature/cosmos had a preference for certain numbers. Thus came a stage when mathematics started evolving along with philosophy. All this activity ultimately led to the evolution of the modern 'numerology' (science of numbers), the credit for which goes to Pythagoras. During this process, all cultures, independent of each other, had shown preference for certain numbers in their religious beliefs and activities[1]. Similarly, in the Vedas too, one finds numbers such as 1, 3, 7 and 10 as the most used numbers; at least on a few hundred or perhaps even more than a thousand occasions to describe various events. {The other single digit numerals like 4 and 5 etc. are also preferred although to a lesser extent (Murthy, 2003)}. The symbolism associated with the single digit numerals was very well established in virtually all cultures, since counting began on the ten fingers. [The reader may consult: Beidermann, (1996); Bunce, (2000); and Schimmel (1993), for more a general reading. And for symbolism in the Vedic context, the reader may refer to: Bhattacharya, 1969, Parameswaranand, (2002), Macdonnell & Keith, (1995), and Blazek (1999)].

The Vedic Ṛṣis also used large compound numbers like 21, 33, 34, 99, and 100 etc. very frequently (which were previously explained by the translators of RV, to mean 'many'), but no serious attempt has been made far to see whether there is any hidden symbolism in these numbers. Because of lack of information on this front[2], there is often confusion or lack of agreement among the scholars, in the interpretation of the verses. One interesting case, which had become a subject of heated debate in the recent years, is the Vedic verse referring to the sacrifice of horse (RV.I.162.8, YV.25.41), which gives an (outward) impression that the ribs of the sacrificial horse are 34 in number. Rajaram[3] (and also Kak, 2002; Frawley, 2002) quote the above verse to identify the Vedic horse with the native horse[4], which is said to have the same number of ribs. Witzel has hotly contested this[5] on the grounds that the usual horse has 36 ribs

---

[1] The numbers 1-5, and 10 are natural numbers in the sense that they are related to natural phenomena. But it is not so with number seven. It appears to have become important, as 'the seven largest and brightest of the luminaries of the night sky' are believed to have a profound influence on the life on earth. See the Internet article by H. P. Blavatsky, "The number seven", at http://www.blavatsky.net/blavatsky/arts/NumberSeven.htm

[2] The reader may refer to Miyakawa, (2001) in this context.

[3] Rajaram.N.S., http://sathyavaadi.tripod.com//truthisgod/archives/harappa.html.
http://www.hinduonnet.com/thehindu/op/2002/02/19/stories/2002021900040100.htm

[4] According to the article on Internet by Seymour. K and Watson. A., (www.Hindunet.org/saraswati/horse5.htm); the usual number of ribs in horses is 36 although horses with 38 or 34 ribs are not unknown.

[5] Witzel: http://www.hinduonnet.com/thehindu/op/2002/05/21/stories/2002052100060200.htm.
And also, see Witzel (2001).

not 34, and since the sacrificial horse is a symbol of the heavens, the numeral symbolism has a role to play. In the same set of hymns {ascribed to the sage Dīrghátamas (as per the anukramaṇī)}, there is a mention (RV.I.164.48) of 360 days and 12 months of a year etc. where it appears that we get the meaning of the numbers in a straight forward manner. This observation adds some more confusion to the entire discussion as in one case (the former) the number has a symbolic meaning and in the other (latter) it does not. The suggestion of some scholars that these hymns could be a later addition to RV also does not solve the problem. The answer to this puzzle, in all probability also lies in numeral symbolism itself. Hence, a necessity has been felt to see the meaning and the ideas of the Vedic Ṛṣis in the use of compound numbers in their verses. I completely agree with Witzel that that the numeral 34 does not correspond to the ribs of the sacrificial horse and numeral symbolism has a very major role in that context. This statement is based on my analysis of the compound numbers (used in the Vedas), the details of which are as given below.

Discussion

For the sake of convenience of discussion, I have tabulated almost all the compound numbers mentioned in RV in three separate groups as: Appendices I, II, and III. Keeping in mind that the Vedic Ṛṣis followed the decimal system and were acquainted with some basic arithmetic operations like additions and multiplications etc. of smaller numbers (at least!)[6], the first thing that strikes our mind on looking at the Appendices is that there is a pattern or method in the use of numbers as given below. [At this point, one must keep in mind that the concept of zero did not exist at that time and also there was no script (Witzel, 1998, 2001)].

(i). Very large numbers are either rounded-up to the nearest hundred or thousand (or tens of thousands). Examples given are 100000, 99000, 90000, 60000 and 30000 etc. (Also see: Miyakawa, 2001. I have not included some of these numbers in the Appendices).

(ii). Some numbers can be expressed as simple addition/subtraction of specific numbers like 99, 90, 33, 10, 7, 6, 3 and 1, to the rounded-up number[7]. For example 60099 can be expressed as 60000 + 99, retaining the significance of 99 in the compound number. At this point, we have to doubt that the Vedic Ṛṣis have an absolute idea of how big the number '60099' is, as this kind of understanding is not needed for them (immediately), and what all they require is that the rules of 'chándas' are not violated on using these numbers in their verses (which are oral in nature).

(iii). Numbers above 100 do not appear to involve multiplication and the Vedic Ṛṣis seemed to be very comfortable with summation of larger numbers. In some cases (shown in Appendix II), the numbers are mentioned simply as product of the sacred numerals, like 3 x 7 x 70; but it is doubtful that the Vedic bards know the end result of the multiplication.

In view of the above observations, it can be concluded the level of mathematics that is demonstrated in the compound numbers given in the Vedic hymns, is very basic in nature, and this is especially true for the Ṛgvedic period.

---

[6] K.L.Kashyap, www.vedah.com/vedah/maths/maths.htm#a7.

[7] Witzel, in his private communication, points out that Miyakawa (2001), understands sahasra śatá (RV.IV.32.18) as '1100', based on similar cases, not as 100,000.

(a). The numbers 90, 99, 100, and 1000 in RV: In Appendix I, I have tabulated those numbers that can be expressed as a simple summation and have a preference for 1, 7, 10, 33, 90, 99, 100, and 1000, in the compound number (also see, Appendix III). The use of certain numbers like 99 (or 90) forts of Śambara, 99 arms, 99 rivers, 99 Vāyu's horses etc. is interesting. These numbers occur many times in the Vedas. The preference for number 9 (and hence, 99 or 90), can be understood from the mathematical aspect of this particular number which is easier to handle because it is '10 − 1'[8, 9,10]. And also it is 3 x 3, where 3 is considered by the Vedic Ṛṣis to be the most sacred among the single digit numerals. In addition, it is also worth noting that all combination of 3 like 6 (2 x 3); 33 (30 + 3); 90 (3 x 30) and 99 (3 x 33) are all very well used.

In the Vedas, the number 10 or 100 or 1000 are no doubt used to 'mean many', but at the same time the basic unit is retained as 10 / 100 / 1000 to illustrate the fullness of whatever is in view. Hence, these numbers mean ordinal perfection and order. It is perhaps, with this view that the number of books of RV is kept at 10 (this of course must have taken place at a much later time) and the normal duration of human life is recognized to be 100 years at many places in RV. The same literary trend continued in the later Purāṇic legends where people were often quoted to have meditated for 100 or 1000 years, although the Purāṇas (also) recognize that normal duration of human life is not more than 100 years.

In view of what is said above, the number 99 can be understood as 'one short of perfection'[11]. The Purāṇas have dramatized this aspect in an interesting way linking Indra to the Áśvamedha sacrifices (AMSs) where the 100th one in some of the cases was interrupted by Indra[12] restricting the total to 99[13, 14]. A similar disruption of the 100 years of penance of Diti during the 99th year can also be linked to a similar trend (also, see the next section). It is said that Yudhiṣṭhira had performed 3 AMSs; Parīkṣit 3; Janamejaya 3; Rāma, the hero of Rāmayaṇa 10;

---

[8] Multiplication involving 9 and 11 can very easily be performed by the methods mentioned in the books of the "so-called" (modern) Vedic Mathematics. No other number is so magical as 9. Modern numerology also recognizes this aspect in the form of fadic number, (which is the sum of the individual numbers in the compound number); and multiplication of 9 with any number results in a number whose fadic number is always 9. The fadic number of 99 is 18, which reduces further to 9. Note that both 18 and 9 are favored in later Purāṇas (see Murthy, 2003(a)).

[9] In Rmn.(VII.10.10-12), Rāvaṇa cuts off his 9 (out of a total of 10) heads to please Śiva. Similarly in Chinese mythology, the archer Yi shoots down 9 of the 10 (too hot) Suns (cf. Witzel, 2004).

[10] Witzel is of the opinion that the numeral 9 is due to old north Asian shamanic ideas; while the numeral 7 is a typical near Eastern number! (7 is already found in the Indus civilization on seals etc.) in RV, we have both: old northern origins & near Eastern/Indus influences. (The reader may also refer to: Blazek, 2001). Note that even the "primitive" Stone Age Andamanese have a complex way of counting things-not their bare numbers, which are different from this system: the system goes up to 31 and then starts again ; thus 1X31, 2x31 etc. (Witzel, 2002).

[11] This point is emphasized in a mystic fashion in TS.V.5.2.5-7; VII.1.5.2-3 where (3 x 333) + 1 is shown to be equal to 1000.

[12] This can be seen as a sign of the decreasing importance of Indra in the post Vedic mythology.

[13] The reader may refer to, Dikshitar (1951), Bg.P, Garrett, 1999 and Debroy & Debroy for more details.

[14] The linking of Indra to AMS might be due to the Vedic myth connecting him to Dadhyañc, the Aśvins and the horse head (see, Griffith's foot note for RV.I.84.13). The Vedic epithet "śatákratu" (lord of hundred powers) of Indra, had become a title to be conferred on those who had performed 100 AMSs and it had become a minimum qualification to the post of Indra.

Nahuṣa 99; Pṛthu 99; Sāgara 99; Bali 100 (and in some Purāṇas 99 only); Somadatta 100 and Mahābhiṣa 1000 AMSs. Interestingly, King Bharata Duṣyanti was said to have performed 133 (= 100 + 33) AMSs. It may be noted that the numbers used in the context of AMSs are 3, 33, 99, and 10 / 100 / 1000 [and the ritual itself is a 3-day event! (PB.XXIII)] and understandably number 7 which signifies spirituality is missing in these numbers. One can see a similar fascination for some of these numbers in many different contexts in the Purāṇas[15].

(b). The number 7 in the Vedas: In the Vedas, the Maruts are said to be 7 times 7 (not 49! See Appendix II). [This reminds us of the Purāṇic legend where Indra cuts down the foetus (Maruts) in the womb of Diti into 7 pieces and again each piece into 7 parts]. Clearly, the emphasis here is on the number '7', recognized as a spiritual number[16] and hence, the word '7 x 7' must be having a much deeper spiritual meaning. It may not be all that correct to interpret '7 x 7' to mean 'many'. It is interesting to see in this context that in YV (25.4, 5; 9.33) and in the Brāhmaṇa texts, the Maruts are associated with the number '7'. At about more than a dozen times in RV, the number 21 is mentioned in various contexts as 3 x 7, not as 21[17]. Śayaṇa in one context takes the number 3 x 7 as 21, and interprets it as the Sun's number made up of: 12 months + 5 seasons + 3 worlds + Āditya. This explanation, for the first time can be traced to ŚB. Therefore, it is a bit doubtful whether this explanation can be extended backwards in time to the Ṛgvedic period. In addition, it is not a convincing explanation as the 5 seasons are inherent in the '12 months period'. This explanation of ŚB looks like a desperate attempt by the composers of Brāhmaṇs to some-how make it to 21. Griffith in his translation of Vedas, interprets it (again) to mean 'many'. Another interpretation based on spirituality is offered in Mbh and Bg.P (of course), at a much later period[18]. However, all these explanations need not be correct in the context of RV. In most of the cultures, including the Vedic one, the numbers 3 and 7 denote divine- and spiritual-perfections respectively, and hence, the number 3 x 7 should be looked-at as interplay of the both simultaneously (for example, spiritualism at three levels?).

(c). The numbers 11, 33 and 34 in the Vedas: These numbers occur in different forms as shown in Appendix III. The gods in Vedas are stated to be 33 in number and is several times

---

[15] The modern numerology seemed to have developed well by the time of Purāṇas. [Fadic numbers of course depend on the Indian system writing them as 1, 10, 1000 etc.-which was not found in early inscriptions, and manuscripts; but only from the first few centuries AD onwards, probably not a BC feature]. According to VP, the time period of Satyá-, Dvāpára-, Trétā- and Káli- yugás in units of thousand yrs. is 1728, 1296, 864, and 432 respectively; whose fadic nos. are 18/9, 18/9, 18/9, and 9 respectively. If we write the same as in terms of 1200 x 360 yr. cosmic cycle, then the time periods reduce to 4, 3, 2, and 1 cycles of the above; the sum of which is 10. In Mbh war, the total military involved, in units of 'ákṣohiṇi' is 18, where each 'ákṣohiṇi' consists of 109350 infantry, 65610 cavalry, 21870 chariots and 21870 elephants, whose fadic numbers are all 18/9 and are in the ratio 5:3:1:1, the sum of which is again 10.

[16] Also, see footnote.10.

[17] This number 21 appears in the Purāṇas as the number of times the Brāhmaṇa sage Paraśurāma went round the world to kill the Kṣatriya class. Some scholars tried to explain this event as proof of conflict between the two castes for supremacy.

[18] The number 21 is explained in Mbh as consisting of; 5 each of: gross elements, subtle elements (Prāṇas?), organs of cognition, organs of action + mind / conscience. It is also some times referred to as: 21 innumerable forces of nature.

expressed as 'thrice eleven' and a few times as 30 + 3 (see the Appendix III). The RV (I.139.11) assigns 11 gods each to the three regions, but is silent on the identity of these gods. As per the post Ṛgvedic understanding, the regular gods are divided mainly in to three groups: 8 Vasus (earthly gods), 11 Rudras (atmospheric gods) and 12 Ādityas (heavenly gods). One can trace these numbers to YV[19]. However, this explanation may not be valid in the context of RV as the no. of Ādityas and the Rudras identified during the period of RV is not as given above[20]. In many contexts different gods are invoked independently to receive the oblations along with the '33 gods' indicating that they are not part of the list of '33'[21]. Often, one god is identified with the other and hence, it is always not possible to specify to which zone a particular god belongs to. In addition, everything is defied including 'the pressing stones' of Soma. Thus, at a first sight, there appears to be no meaning to the absolute value of the number '33', although one can in principle, accept that there are three principal gods (the Sun or Sūrya, Vāyu and Agni), ruling over the three regions[22]. The suggestion that the 27 lunar mansions as part of the '33' also (strictly speaking), may not be valid for the period of RV because they all belong to heaven and hence, does not fit in to the scheme of '3 x 11'. Moreover, the no. of lunar mansions known to RV may not be 27. {See, Vedic Index by Macdonnell & Keith, and probably this is true up to the time of AV (XIX.7, 8)}[23]. Then, who are these '33'? In fact, in RV (VIII.28.1), the 33 Gods are said to be from 'times of old'. This gives us a doubt whether the Vedic Ṛṣis themselves have a fair idea about the identity of these '33' gods. Are they some form of alphabets (phonemes/sounds)?[24]

The Rudras are 6 in number in RV and are said to be 11 in number in white YV and also in BU (3.9.4)[25], whereas the TS says that they are 33 (cf. VM). Rudra in YV (16.3,4) is a mountain dweller. In certain yogic practices, the vertebrae on the human spinal cord are referred to as 'mountains' (the abode of gods or wisdom)[26] and are interestingly, also 33 in

---

[19] There are many verses in white YV, which give this information in an indirect fashion. For example, in verses YV (XI.58-60,65; XXIII.8), the Vasus are identified with Gāyatrī metre; Rudras with Triṣṭup; and Ādityas with Jagatī metres which have 8, 11 and 12 syllables per pāda respectively. A similar meaning exists in the verses of TS, for example the reader may see TS.III.4.9.12.

[20] This point is cited from Vedic Mythology (Macdonell). However, Witzel (2002) feels that RV has these numbers.

[21] For example, in the verses RV.VIII.57.2, IX.92.4 and III.6.9; it is the Aśvins (before the Sun), Soma and Agni who are asked to bring the '33 gods' along with them, indicating that are not part of the '33'.

[22] See PB.XX.15.3 and also refer to: ŚB .XI.6.3; for an interesting discussion between two sages regarding this issue of the number of gods.

[23] Also see Narahari Achar (2000), and Balakrishna (1998).

[24] Sunderraj (1994), suggests that the number '33' may correspond to 33 syllables or phonetics of Vedic Sanskrit recognized much before the time of RV. Unfortunately, we have no documental evidence to prove this point. However, it is interesting to see in this context, that the present Sanskrit language, has 34 consonants and if we do not include the letter 'kṣa' to the list, the total becomes 33! According to the Hindu belief 'akṣaras/phonemes' themselves are gods and elsewhere, in RV (I.164.39) the same sentiment is expressed.

[25] The 11 Rudras are: 10 vital airs + mind. Interesting that mind is the seat of the moon in human body and hence, this explanation links the association of the moon with Rudra-Śiva.

[26] "O Agni,....you are the wisdom that resides in mountains" YV.I.19 (Trans. by Debroy & Debroy, 1994).

number. This observation perhaps connects Rudra to the above yogic practices and also explains why the Rudras are said to be 33 in number. [The modern numerology also says that the number 33 is spiritually the most significant number[27]]. However, this explanation need not be applicable to the Vedic verses, as yoga in all probably, was not known to the Vedic bards (Coomaraswamy, 2001).

A closer analysis of the arrangement of the hymns of RV[28] reveals that about 7.6 % of them are arranged in sets of 11, which clearly indicates that the number '11' is also viewed as sacred by the Vedic bards which is also clear from Appendix III. The fondness for the numeral 11 can also be seen in the hymns of AV.VI.25.1-3: XIX.47.3-5, where the numerals 11, 22, 33, …. 99 are mentioned. This number can also be handled very easily, as it can be expressed as 10+1. This number is also very important in Vedic rituals: the number of stakes used for the animal sacrifices is 11 (and interestingly, the horse in AMS is tied to the 11th stake out of a total of 21 used in that ritual). However, during the post Ṛgvedic period, the Vedic bards tried to philosophize this number as can be seen in two hymns of YV (25.5; 9.33), where no.11 is associated with Indra[29]. This trend continued till the time of Mbh (III.209) and the Bg.P (cf. Thadani, 1933 and Bhattacharya, 1969), where it is identified as 11 indriyas (organs of perception)[30]. Therefore, with the three principal gods, the number becomes 33 and fits in to the scheme of '3 x 11'. However, this does not appear to be sensible as the three principal gods are not 'humanized' yet during the time of RV, and hence, the 'concept of 11 indriyas' cannot be applied to them.

At this juncture it appears to me that the Vedic Ṛṣis are fascinated by the results of early mathematics. This can very clearly be seen in the use of the numbers, 33, 66, 99, 133, 3306, 3339, 6333, 6666, 60099, 90000 and 60099 (shown in Appendices I and III), where they can be expressed as simple combinations of 3 or 33, where 3 is the most sacred single digit numeral. In addition, the number '33' can also be expressed as '3 x 11', (where both 3 and 11 are sacred) or 30 + 3. Apart from that, the Vedic bards must have realized that the other (sacred) numeral 99 can also be expressed as '3 x 33' or '9 x 11'. These end results of mathematics must have made the Ṛṣis to think that "the numbers are not simply organizing tools invented by humans but primal realities of the universe, 'absolute' traces of super human forces and sacred symbols of gods"[31] and hence, in the process of this kind of thinking, the number 33 must have become very sacred to them. In my view, there are no separate gods numbering '33'. It must have been brought in to picture during the philosophization of the results of mathematics. This point also becomes much clearer in the philosophical discussion between the sages Śākalya and Yajñāvalkya given in ŚB.XI.6.3 and also, in the manner the number of gods are enumerated in the post Ṛgvedic period. For example, Mbh (I.1) gives the number of gods to be 33000 + 3300 +

---

[27] In modern numerology, the numbers 11, 22, and 33 are called Master numbers because they possess more potential than other numbers. The number 33 is the most influential of all the numbers and focuses on the spiritual up-liftment of the mankind. (We, at present do not know the extent of the influence of Vedas on modern numerology).

[28] Out of a total of 1017 (1028 – 11 Vālakhilya-) hymns, about 77 are arranged in sets of 11 verses each.

[29] At many places in TS, the offerings to Indra are always made in 11 potsherds.

[30] They are identified as: five organs of action + five cognitive senses + mind. A similar meaning occurs indirectly in the verses of TS.II.5.10.3, 12.

[31] These words within the quotes are taken from Biedermann, 1996.

33, retaining the sacredness of 33 (Appendix III). Even in RV, the gods on one occasion were said to be '5 x 7'; in another context they were said to be '3003 + 303 + 33' (see, Appendix III). So is the case with the 'other gods' Vasus, Gandharvas and Rudras (see, Appendix. III).

(d). The numeral 34: There are a few verses in RV, which say the there is only one god (RV.III.55.1; 8.58.2; 10.114.5 and 1.164.46). This one godhead + the above set of '33' together will make it 34[32]. There are some other interesting suggestions in the context of the numeral '34'. The verse RV.X.27.15[33] has reference to the numerals to 7, 8, 9, and 10, the sum of which is 34. Ludwig thinks that the various classes of letters of alphabets are intended in the above verse (cf. Griffith's translation of RV. And also see footnote-24). Coming back to the RV verse (RV.1.162.8)[34], there is a belief among some scholars that this verse could be a later addition to RV (see Satya Prakash Sarasvati, 1988). If that is the case, then the number 34 in that verse probably refers to: (i). 33 gods + Prajāpati, or (ii). 27 lunar mansions + 5 planets[35] + the Sun + the Moon, or (iii). 8 Vasus + 11 Rudras + 12 Ādityas + Prajāpati + Vásaṭkārá + Virāj (PB.VI.2.5); as suggested by Witzel. If, the above verse is not a later addition to RV, then the 2nd and 3rd of the above interpretations may not hold in view of our discussion in the previous paragraph. Regarding the first interpretation, the gods numbering '33' could be any of the sets described in the previous paragraphs. In addition, other possibilities also exist as discussed below.

The 34 ribs referred to in the above verse, can also be referred to as 17 pairs, and interestingly enough, in YV (IX.34) the number 17 is said to be associated with Prajāpati[36] [it should be born in mind in this context that Prajāpati is a late entry in to the Vedic pantheon[37]]. PB (II.10.5, IV.5.6), also says that Prajāpati is 17 fold[38]. The Bg.P also identifies Puruṣa as a combination of: ego + five elements + 11 indriyas; which are 17 in total [which is the number associated with Vedic Prajāpati in YV (IX.34)]. A verse in YV (18.24-26) mentions the series of odd numbers 1, 3, 5,…33, and interestingly, the verse stops at '33', which is the 17th number in the series. Following the method adopted by the Ṛsis as in Appendix. I, it can also be expressed as 10 + 7, where 7 is a spiritual number and 10 signifies complete order and thus, it is a combination of spirit and order. It is also the 7th prime number[39], where '7' is also known to be sacred to Prajāpati[40]. [Moreover, if we apply the modern numerology, then the fadic number of

---

[32] TS (II.3.5.1) in a mystical fashion say that Prajāpati has 33 daughters. With him the total number is 34!

[33] RV.X.27.15: "Seven heroes from the nether part ascended, and from the upper part came eight together. Nine from behind came armed with winnowing-baskets: ten from the front pressed o'er the rock's high ridges".

[34] Debroy & Debroy (1994) preferred to use the word '34 parts' for '34 ribs' (of the horse body) in their translation.

[35] The Planets are probably not known at the time of RV.

[36] Also, see the footnote of Griffith, for YV.IX.10.

[37] See Witzel (1998).

[38] This number is interpreted as: 12 months + 5 seasons.

[39] The prime numbers are: 2, 3, 5, 7, 11, 13, 17,…

[40] See, Murthy (2003(b)).

34 is 7 (= 3 + 4) which again corresponds to spirituality!]. Thus, we see that there are various philosophies associated with the numerals 33 and 34, and hence, one needs to be very careful in identifying the number 34 in the verse RV (I.162.8), with the actual number of the ribs of a horse. The following verse of PB (XVII.11.3) clearly shows the link between the horse, the numbers 33 & 34, and Prajāpati, which reads as:

"These make thirty-three dakṣiṇa (-cow) s; there are thirty-three deities; he reaches the deities. The horse is the thirty-fouth of the dakṣiṇas; Prajāpati is the thirty-fourth of the deities; he reaches Prajāpati"[this verse is- in connection with 'one day rites'].

In the same Brāhmaṇa text, there are many references to, 33 gods: with Prajāpati as the 34th.

Thus, we see that the Vedic bards are fascinated by the early mathematics as is reflected in their fascination for certain compound numbers which can be expressed as simple mathematical combinations of single numerals of 1, 3, 7, 9, 10, and 11 (as shown in Appendices I-III), which they tried to philosophize, in terms of human or animal anatomy[41] and also, in the Vedic rituals mentioned in the YV and later Brāhmaṇas like ŚB and PB[42]. The belief that the numbers can explain everything has initially met with some success. For example, the 27 lunar mansions can be expressed as '3 x 9', and after the initial corrections their number rose up to 28 (AV. XIX.7, 8), which can be expressed as '4 x 7', where 4 is the creation number (see, Murthy 2003(b)). Similarly, the number 360 (days recognized as consisting of a year) of RV.I.164. 48, can be expressed as a summation consisting of 3 and 33 as: 330 + 30 (as per the method used in Appendix III). {I do not wish to write it as '12 x 30' or '24 x 15' or '3 x 3 x 4 x 10', as I am not sure that the Vedic people are comfortable with multiplication that results in a three digit number}. Interestingly, the numbers shown in the Appendices I - III, are the numerals that were the most used in the later Purāṇas[43]. However, this play with numerals though initially met with some success as described above, later on gave rise to scientifically unjustifiable numbers being ascribed to the calculation[44] of years, days and nights of Brahmā in the Purāṇas.

Appendix I: List of very large compound numbers given in RV.

Reference	Context	Number	Description of the number	Number emphasized
RV.VI.26.6	No. of persons	60,000	60 x 1000	6, 1000

[41] See Satya Prakash (1988), for details on this issue.

[42] For example, the number of stakes used in the animal sacrifice is 11; the horse in the AMS is tied to the 11th stake where the total number of stakes used (there) are 21 in number and also the horse is decorated with 101 pearls etc. (see Kak, 2002). The no. of cows donated on each day of the 3-day rite is 333 (PB.XX.15.13). The no. of days of the ritual is 3 days each for: 3-day, and 33-day rites; and 7 days each for: 7-day, and 49 (7 x 7)-day rites (PB.XXIII).

[43] The numbers used in the Purāṇas are: 3, 4, 5, 7, 9, 10, 100 (mostly) and also 11, 12, 18, 21, 27, 28 and 99 (see 'The Purāṇas' by Debroy & Debroy, for a quick survey of the numbers in Purāṇas).

[44] See, for example: footnote. 15.

	killed by Indra			
RV.I.53.9	No. of Dāsás killed by Indra	60,099	60,000 + 99	6, 99, 1000
RV.X.98.10	No. of wagon loads	99,000	100,000-1000 = 99 x 1000	99, 1000
RV.I.54.6, RV.II.19.6	Forts of Śambara, etc.	99	100 -1	99, 100
RV.II.14.6	Persons killed	100,000	100 x 1000	100, 1000
RV.X.98.11	No. of wagons	90,000	100,000-10,000	10, 90, 1000
RV.I.130.7	Forts of Dāsá.	90	100 – 10	10, 90, 100
RV.VIII.1.24	Steeds of Indra	1100	1000 + 100	100, 1000, 11 (?)
RV	Many contexts	1000	1000	1000
RV.II.13.9	No. of Dāsás	110	100 + 10	10, 11(?), 100
	No. of addtl. hymns in AV(XX)*	133	100 + 33	33, 100
RV.X.97.1	Powers of herbs	107	100 + 7	7, 100
RV.X.130.1	No. of ministers	101	100 + 1	1, 100
RV	Many contexts	100	100	100
RV.X.93.15	No. of horses/..	77	70 + 7	7, 10
RV	Many contexts	10	10	10

*The book. XX of AV consists of 143 hymns of which 133 are additional called Kuntāpa-Khila.

Appendix II: Reference to compound numbers containing 7.

Reference	Context	Number	Description of the number	Number emphasized
RV.VIII.46.26	No. of horses	3 x 7 x 70	3 x 7 x 7 x 10	3, 7, 10
RV.VIII.19.37	No. of cows in…	3 x 70	3 x 7 x 10	3, 7, 10
RV.X.97.1	Powers of herbs	107	100 + 7	7, 10

RV.X.93.15	No. of horses/..	77	70 + 7	7
RV.VIII.85.8	No. of Maruts	63*	7 x 9	3, 7
RV.V.52.17	No. of Maruts	7 x 7	7 x 7	7
RV. X.55.3	No. of gods	5 x 7	5 x 7	5, 7
RV.X.90.15	No. Maruts, and meters etc.	3 x 7	3 x 7	3, 7
RV.VII.19.11	No. of persons killed	21	3 x 7	3, 7

*It can also be: 3 x 60 (see Griffith's translation of RV).

Appendix III: Reference to the compound numbers containing 3, 11 and 33.

Reference	Context	Number	Description	Number emphasized
Mbh.I.1	No. of devas	-	33000 + 3300 + 33	33
RV.VII.19.14	No. of Dāsás killed	6666*	3300 + 3300 + 33 + 33	33
AV.XI.5.2	No. of Gandharvas	6333	3300 + 3000 + 33	3, 33
RV.III.9.9	No. of gods	3339	3003 + 303 + 33	3, 33
ŚB .XI.6.3	,,	3306	3003 + 303	3
RV.IV.27.6	No. of warriors	3000	3 x 1000	3
TS (cf. VM)	No. of Vasus	333	300 + 33	3, 33
RV.V.29.8	No. of offerings of Soma†	300	3 x 100	3
	No. of additional hymns in AV(XX)*	133	100 + 33	33
RV.VIII.85.8	No.of Maruts	63	33 + 30	3, 33
RV.X.34.8	No.of dice…..	53††	50 + 3 or 20 + 33	3, 33 (?)
RV.X.114.6	No. of saucers for…	36	33 + 3 (?)	3, 33
RV.X.55.3	No. of lights	34	33 + 1 (?)	3, 33
VM	No. of hymns to Maruts (alone)	33	3 x 11 = 30 + 3	3, 11, 33
RV.VIII.28.1	No. of gods	33	,,	3,11(?),33
TS (cf. VM)	No. of Rudras	33	,,	3, 11, 33
RV.III.4.9	No. of gods	3 x 11	3 x 11	3, 11
YV.15.5	No. of metres	22	2 x 11	2, 11
	No. of Rudras	11	11 = 10 + 1	11
RV.139.11	No. of gods with each zone	11	,,	11
RV	No. of hymns to Bŕíhaspáti (alone)	11	,,	11

*It can also be expressed as 6 x 11 x 101, but it is doubtful that the Ṛṣis know multiplication involving higher compound numbers.

† Translation of Narahari Achar, posted on the web: www.hindu.org.

††It can also be thrice five in number (see Griffith's translation of RV).

List of Abbreviations

AV   AtharvaVeda
Bg.P   Bhāgavata Purāṇa
BU   Bṛhadāraṇyak Upaniṣads
Mbh   Mahābhārata
PB   Pañcaviṁśá Brāhmaṇa
RV   ṚgVeda
ŚB   Śatapatha Brāhmaṇa
TS   Taittarīya Saṁhitā
VP   Viṣṇu Purāṇa
VM   Vedic Mythology, by Macdonell, A. A.
YV   YajurVeda (Vājaneyi Saṁhitā)

References:

Balakrishna, S. 'Names of Stars from the period of Vedas', 1998; at:
        http://www.geocities.com/vijaybalak/stars/nakshatra.html.

Beidermann, H., Dictionary of Symbolism, Wordsworth, London, 1996.

Bhattacharya, T. The Cult of Brahmā, Chowkhamba Sanskrit Series Office, Varanasi, 1969.

Blazek, V., Numerals. Comparative-etymological Analyses and their Implications. Brno; Masarykova Univerzita v Brne 1999.

Bunce, F.W. Numbers. Their Iconographic Consideration in Buddhist & Hindu Practices, D.K.Printworld, New Delhi, 2002.

Caland, W. Pañcaviṁśá-Brāhmaṇa, Asiatic Soc. of Bengal, Calcutta, 1931.

Coomaraswamy, A. K. Yakṣas, Munshiram Manoharlal, Delhi 2001 (reprint).

Dawson, Dictionary of Hindu mythology, D.K.Printworld, New Delhi 2000(reprint).

Debroy, B. and Debroy, D. The Holy Vedas, BR Publ., Delhi, 1994.

Debroy, B. and Debroy, D. The Purāṇas, BR Publ., Delhi, 1994.

Devi Chand, The AtharvaVeda, Munshiram Manoharlal, Delhi 1982.

Devi Chand, The YajurVeda, Munshiram Manoharlal, Delhi 1980.

Dikshitar, V.R.R The Purāṇic Index, University of Madras, 1951.

Frawley. D. The Rig Veda; Historical Analysis, Ādityas Prakashan, 2002.

Garrett, J. A Classical Dictionary of India, D.K.Printworld, Delhi 1999.

Griffith, R. T. H. Hymns of the AtharvaVeda, Munshiram Manoharlal, Delhi 1985 (reprint).

Griffith. R. T. H. Hymns of the ṚgVeda, Motilal Banarsidas, Delhi 1999 (reprint).

Griffith, R.T.H. YajurVeda Saṃhitā, Parimal Publ., Delhi 2002 (reprint).

Kak. S. The Aśvamedha, the Rite and its Logic, Motilal Banrsidass, Delhi, 2002.

Macdonell, A.A. Vedic Mythology, Motilal Banarsidass, Delhi 1997 (reprint).

Macdonell, A.A. and A.B.Keith, Vedic Index, Motilal Banarsidass, Delhi 1995 (reprint).

Mani Vettam, Purāṇic Encyclopaedia, Motilal Banarsidass, Delhi 1975 (reprint).

Miyakawa, H.,Die altindischen Grundzahlwörter im Rigveda. Münchener Studien zur Sprachwissenchaft, Beiheft, 2001.

Monnier Williams, A Dictionary of Sanskrit-English, Munshiram Manoharlal, New Delhi, 2002 (reprint).

Murthy, S.S.N. (a). Questionable Historicity of Mahābhārata, Electronic Journal of Vedic Studies, Vol.10 (5), 2003.

Murthy, S.S.N. (b). The Meaning of Rāmāyaṇa, Electronic Journal of Vedic Studies, Vol.10 (6), 2003.

Narahari Achar, B.N. Searching for the Nakṣatras in the ṚgVeda, Electronic Journal of Vedic Studies, Vol.6 (2), 2000.

Parameswaranand, S. Encyclopaedic Dictionary of Vedic Terms, Sarup & Sons, New Delhi 2002.

Raghunadan, N. Srimad Bhagavatam (translation), Vighneswara Publ. House, Bangalore, 1976.

Sastri, H.P. The Rāmāyaṇa of Vālmīki, Shanti Sadan, London, 1962.

Satya Prakash Sarasvati, The Critical and Cultural Study of the Śatapatha Brāhmaṇaṃ, Govindram Hasanand, Delhi, 1988.

Schimmel Annamarie. The Mystery of Numbers, Oxford University Press, 1993.

Sunder Raj, M., Ṛgvedic Studies, Ed. Mahalingam, Int. Soc. for the Investigation of Ancient Civilization, Madras, 1994.

Whitney, W.D. AtharvaVeda Saṃhitā and Bhasya of Śayaṇāchārya, ed.by K.L.Joshi, Parimal Publ., Delhi 2002.

Witzel. M., Early Sanskritization. Origins and Development of the Kuru State, Electronic Journal of Vedic Studies (EJVS), 1-4, 1-26, 1998.

Witzel. M., Autochthonous Aryans? The Evidence from Old Indian and Iranian Texts, Electronic Journal of Vedic Studies (EJVS), 7-3, 1-93, 2001.

Witzel. M., Mother Tongue: The Numeral System of Jarawa Andamanese, MT VII, 2002, pp265-272.

Witzel. M., "The Ṛgvedic Religious System and its Central Asian and Hindukush Antecedents": In "The Vedas: Texts, Language and Ritual"; Griffiths, A. and Houben, J. E. M. (eds.); Groningen: Forsten, 2004; pp 581-636.