

WORD-FORMATION OF CARDINAL NUMERALS IN SANSKRIT & SLAVIC LANGUAGES (RUSSIAN, POLISH, CROATIAN)

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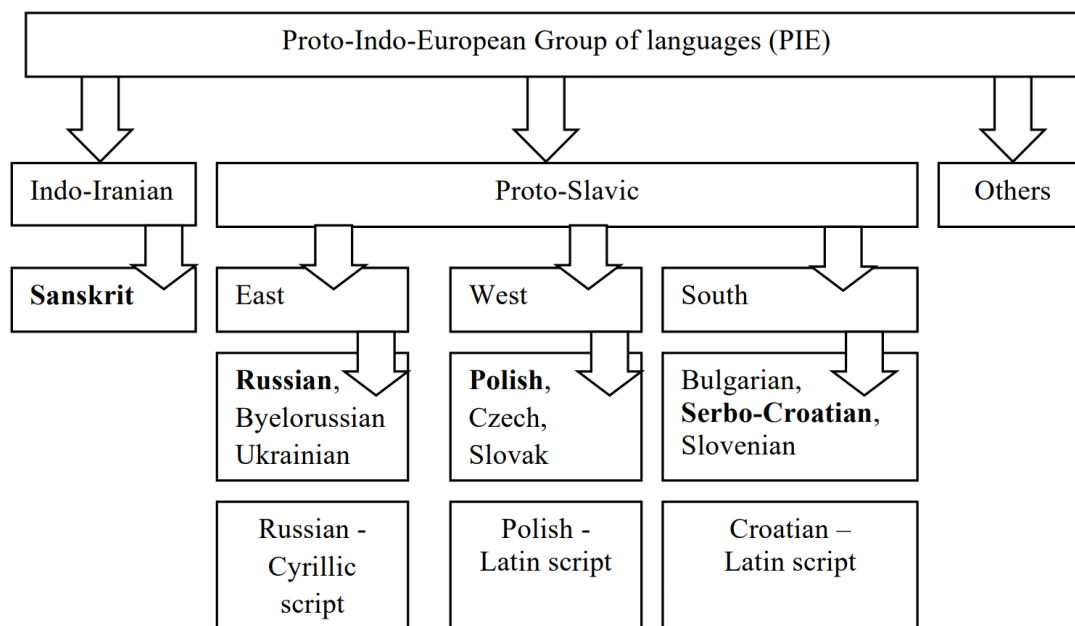
ABSTRACT

The present article is dedicated to Comparative & Historical study of word-formation of cardinal numerals in Sanskrit & Slavic Languages. In our case we will be comparing the theme in Sanskrit & three Slavic languages: Russian, Polish & Croatian. All the languages under study in this article belong to Indo-European family. The present article is an attempt to study the structural system of word-formation of especially cardinal numerals (0-1000) in the mentioned languages.

Keywords: word-formation, numerals, cardinal numerals, Sanskrit, Slavic Languages, Etymology

1. INTRODUCTION

The languages under study in the present article are Sanskrit, Russian, Polish & Croatian. All four languages developed from a common source (Proto-Indo-European). Russian, Polish, Croatian are Slavic languages spoken in Russia, Central and Eastern Europe. The word Slav/Slavic originates from the Slavic word ['slava'] which means 'glory'. The origin and classification of these languages is shown in a compact way in the following diagram:



The earliest Slavic written documents date from the ninth century A.D., the time of advent of Christianisation. Around the year 850 two Greek missionary-brothers Cyril and Methodius brought Bible to Slavic speakers and translated it into local language, which did not have a developed script at that time. The missionaries gave a new alphabet to the Slavic people, which got the name – Cyrillic script (although some of the Slavic languages have Latin script, see Diagram 1). Some letters are borrowed from Greek, like, Π; Φ; Д etc. In fact, this is the only similarity between Greek and Slavic languages, their Grammar systems are different. The language into which the Greek missionaries translated the Bible is known as Old-Church Slavonic or Old Bulgarian. The Russian Orthodox Church still maintains it as its official language. This Old-Church Slavonic language is similar to Proto-Slavic, thus the differences between the various Slavic languages are relatively slight.

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Like Sanskrit, Russian, Polish and Croatian are synthetic languages which are characterized by inflection and agglutination in expressing syntactic relationship between words in a sentence. Thus, the grammar system of these languages is similar, except the fact that Slavic languages lack only one of the grammatical cases of Sanskrit, the ablative. Inflection happens by adding a morpheme to a root word, while agglutination is a combination of two or more morphemes with the root word. Thus, word-formation is an integral part of these languages and it can be either inflectional (formation of another form of one and the same word) or derivative (formation of a new word belonging to a different part of speech, like formation of a noun from a verb with the same root).

2. ABOUT WORD-FORMATION

Word-formation is a part of linguistics which studies the composition of words (morphemics), relations between same root words and methods of derivation of new words. The study of word-formation has a great theoretical and practical significance.

Knowledge of theoretical rules of word-formation, ability of defining the meaning of derivative morphemes helps in enriching one's vocabulary and correct use of grammatical structures in speech; better understanding of the grammatical system of a given language. The practical aspect of the study of Word-formation leads to formation of correct literate written language, as knowledge of morphemic composition of a word and available ways of word-formation helps in formation of the 'feel of language' among its learners.

Word-formation is one of the components of the general system of a language and is one of the important sources of enriching one's vocabulary. It is both a process of formation of derivative words and a linguistic science which studies derivativeness, means and ways of formation of new words. [Russian Grammar, 1980 - Русская грамматика, 1]

Shansky N.M. (1922-2005), a Russian linguist, professor of Moscow State University, rightly pointed out: "owing to the diachronic nature of the process of formation of new words and the dynamic aspect of the derivative system, any of its phenomenon can be deeply and thoroughly understood only with the help of a composite – synchronic, as well as diachronic method of research , i.e. studying the words as a result of derivation in a larger context of their contemporary form and historical development". [Shansky, 50]

2.1 The Numerals

The idea of counting first appeared in Proto-Indo-European period (PIE). It can be proved by the fact that in modern numerals, other words & word-forms we find the word-roots of that period (*duō, *penke, *dekm-, g^wows (cow)-, PIE endings –ty [ti-] as in Sanskrit 'asti' (he is) etc.). [Starikova, 34]

Compare PIE /dekm/ and Modern English /ten/, as a result of phonological change PIE /d/ changed into Proto-Germanic (Pgm) /t/, as in 'ten' or PIE /duo/ & Latin /two/. [Lehmann, 12]

We also note the systematic difference in vowel between Sanskrit /a/ and Latin & Greek /e/ in the first syllables of the words for 'asht' - 'eight', 'sapt' - 'seven' and 'dasha' - 'ten'. [Lehmann, 8]

A. Reformatsky (1900-1978), a Russian linguist, professor and author of famous book "Introduction to linguistics" (1947) highlighted the fact that "numbers and ability to think in numbers is one of the greatest and ancient achievements of mankind". [Reformatsky, 76]

These 'counting words' experienced different paths of development in various languages of the world. As compared to other parts of speech these words demonstrate anthropomorphism of language systems, as quantitative-number representation stretches back to human being, his body – a fact which has been repeatedly mentioned in scientific-scholarly literature. [Zholobov, 82] As "the quantitative perception provides the surrounding world it's spatial and time description and clarity". [Zholobov, 90]

The numerals are one of the most interesting parts of speech in languages of various types: some differentiate numeral forms during concrete or abstract counting, while others use different counting systems of diverse objects and so on. [Stepanov, 45]

The numerals as a lexico-grammatical class of words have a unique character of their own, which is prevalent in their semantics, in their functioning, in syntactic relations and even in graphic depiction, as numerals can be expressed in written form as figures which are universally accepted. The latter differentiates numerals from other classes of words. The ancient history of numerals or the words which became numerals can be partially reconstructed with the help of comparative and historical method. [Lukina, 1]

The historical and comparative study of numerals helps in:

- Clarifying many modern words which denote numerals and quantity;
- Tracing the order in which separate elements of their system were formed;
- Establishing ancient mutual relations between these elements, as well as some lexico-word formation groups of other parts of speech. The old connections of nominal parts of speech which constituted the modern system of numerals can be reliably reconstructed with the help of their word-formation characteristics.

From the word-formation point of view the cardinal numerals are divided into three types:

1. Simple numerals which consist of only one root;
2. Complex numerals which consist of two roots in one word;
3. Compound numerals which consist of several orthographic word-forms.

Further, we will compare the word-formation of cardinal numerals in following sections: (0-10; 11-19; 20, 30, ..., 90, 100; 21-29, ..., 91-99.

2.2 The comparison of Cardinal Numerals 0-10

The cardinal numerals from 0-10 in Sanskrit, Russian, Polish & Croatian (See Table No. 1) are simple numerals consisting of a single root.

Table No.1: Cardinal numbers (0-10)

	Sanskrit	In Russian script & Transcription	In Polish	In Croatian	
0	शून्य	ноль/нуль	[nol'/nul']	zero	nula
1	एकम्	один	[odin]	jeden	jedan
2	द्वे	два	[dva]	dwa	dva
3	त्रीणि	три	[tri]	trzy	tri
4	चत्वारि	четыре	[chetyire]	cztery	četiri
5	पञ्च	пять	[pyat']	pięć	pet
6	षट्	шесть	[shest']	sześć	šest
7	सप्त	семь	[sem']	siedem	sedam
8	अष्ट	восемь	[vocsem']	osiem	osam
9	नव	девять	[devyet']	dziewięć	devet
10	दश	десять	[desyet']	dziesięć	deset

Notes: [t'] is a soft consonant which is pronounced between Hindi 't' and 'ch'; 'e' denotes nasal vowel

Thus, the comparative study of cardinal numerals from 0-10 points out to the following:

1. 0 in Russian and Croatian derive from Latin 'nullus' while Polish uses 'zero'; The word 'Null or nil or naught' originates from Latin 'nullus' – nothing, none. The word zero originates in the following way:
2. zero < zero (French) < (zephirum) zefiro (Italian) < safira or sifr (Arabic) - a calque from Sanskrit < 'sunya'.

3. The numeral '1' in all four languages have same root (e-) in Modern Russian both e- and o- exist in the beginning of the word; the root *odin-*, *jeden-*, *jedan-* originate from Sanskrit 'Adi':
4. *odin* (Russian)/*jeden* (Polish)/*jedan* (Croatian) < *jedin/jedina* (Proto-Slavic) < *ek* (Sanskrit)
5. The Cardinal numeral 3 has same root words in all the four languages: (Sanskrit) त्रि, (Russian) три [tri], (Polish) trzy, (Croatian) tri. In Polish we notice a phonological change, where 'r' > 'rz'[zh] = [sh] after voiceless consonant 't', so 3 is pronounced as [tshy];
6. The Cardinal Numeral 4 has the same root in all the four languages: (S)चतुर, (R) четыре [chetyire], (P) cztery, (C) četiri;
7. The Cardinal numeral '5' in Russian пять [pyat'], Polish pięć [piench] & Croatian pet also originate from Sanskrit पञ्च [panch]. Polish language still retains the nasal vowel [ɛ̃] as in Sanskrit. Russian and other Slavic languages also had nasal vowels but they became denasalized;
8. The Cardinal numeral '6' in Russian, Polish & Croatian originate from Sanskrit with the same root 'shat';
9. The Cardinal numeral '7' in Russian, Polish & Croatian take their root from Proto-Slavic 'sedmъ' and this root in turn originates from Indo-European 'septem';
10. The Cardinal numeral '8' in Russian, Polish & Croatian take their root from Proto-Slavic 'osmъ' which itself originates from Indo-European 'okto';
11. The Cardinal numeral '9' in Russian, Polish & Croatian originate from Proto-Slavic 'devet-' which does seem to have a different root than Proto-Indo-European word 'navam'/'nav' but has a strong connection with it, as 'nav' means both 9 and new. The digit nine is considered both the end and beginning of the new cycle of 10. In Slavic mythology too 9 is related to the eternal wheel of life and death and is a symbol of the matriarchal beginning of the universe. This figurative meaning, we find in the Slavic word 'deva' which resulted in 9 being called in Slavic languages as 'devit'. The same perception of '9' in Indian mythology 'navratra' ('new cycle', 'a cycle of 9 days);
12. The Cardinal numeral '10' in Russian, Polish and Croatian originate from Proto-Slavic 'desentъ' which in its turn comes from Proto-Indo-European 'dekm-'.

2.3 The comparison of Cardinal Numerals 10-20

The Cardinal numerals from 11-19 in all the four languages (see Table No. 2) are complex words consisting of two word-roots.

For example, 11 is formed in the following manner: one + on + ten (*odin + na + desyet'*), similarly 12-19 are formed in the same way in all four languages, except that in Sanskrit the numeral '19' has two versions: 1) nine + on + ten (नवदशन्) & 2) one + less + twenty (एकोनविंशति OR ऊनविंशति OR एकान्विंशति).

Table No. 2: Cardinal numbers (11-20)

	Sanskrit	In Russian script & Transcription	In Polish	In Croatian	
10	दश	десять	[desyat']	dziesięć	deset
11	एकादश	одиннадцать	[odinnadsat']	jedenaście	jedanaest
12	द्वादश	двенадцать	[dvenadsat']	dwanaście	dvanaest
13	त्रयोदश	тринадцать	[trinadsat']	trzynaście	trinaest
14	चतुर्दश	четырнадцать	[chetirnadsat']	czternaście	četnaest
15	पञ्चदश	пятнадцать	[pyatnadsat']	pietnaście	petnaest
16	षोडश	шестнадцать	[shestnadsat']	szesnaście	šesnaest
17	सप्तदश	семнадцать	[semnadsat']	siedemnaście	sedamnaest
18	अष्टादश	восемнадцать	[vosemnadsat']	osiemnaście	osamnaest
19	नवदश OR एकोनविंशति OR ऊनविंशति OR एकान्विंशति	девятнадцать	[devyatnadsat']	dziewiętnaście	devetnaest
20	विंशति:	двадцать	[dvadsat']	dwadzieścia	dvadeset

2.4 The Word-formation of cardinal numerals, 20, 30, 40, 50, 60, 70, 80, 90

The Cardinal numerals from 20, 30, ..., 90 in all the four languages (see Table No. 3) are complex words consisting of two word-roots. For example, 20 is formed in the following manner: two + ten (dva + desyat'), similarly 30, 40, 50, ..., 90 are formed in the same way in all four languages, except that in Russian 40 and 90 follow different word-formation: 1) 40 is a totally different root 'Sorok' which in Proto-Slavic used to be (four + ten) but became in East Slavic 'sorok', a word denoting 'a bunch of 40 sable pelts; forty [9] & 2) 90 is formed in a different way: nine + to + hundred (devet' + na + sto).

Table No. 3: Cardinal numbers (10,20, 30, ..., 90)

	Sanskrit	In Russian script & Transcription		In Polish	In Croatian
10	दश	десять	[desyat']	dziesięć	deset
20	विंशतिः	двадцать	[dvadsat']	dwadzieścia	dvadeset
30	त्रिंशत्	тридцать	[tridsat']	trzydzieści	trideset
40	चत्वारिंशत्	сорок	[sorok]	czterdzieści	četrdeset
50	पञ्चाशत्	пятьдесят	[pyat'desat]	pięćdziesiąt	pedeset
60	षष्टिः	шестьдесят	[shest'desat]	sześćdziesiąt	šezdeset
70	सप्ततिः	семьдесят	[sem'desat]	siedemdziesiąt	sedamdeset
80	अशीतिः	восемьдесят	[vosem'desat]	osiemdziesiąt	osamdeset
90	नवतिः	девяносто	[devyanosto]	dziewięćdziesiąt	devetdeset

Notes: 'sorok' (40) & 'devyanosto' (90) in Russian are special cases of word-formation.

2.5 The Word-formation of cardinal numerals, 21, 22, 23, ..., 29; 91, 92, 93, ..., 99

The Cardinal numerals from 21-29, 31-39, ..., 91-99 in Sanskrit are complex words in which one is the first component (one + twenty) while in Russian, Polish and Croatian the numeral words are compound words (see Table No. 4) and one is the second component.

For example, 21 is formed in the following manner: twenty + one (dvadsat' + odin) – they are written separately, similarly 22-29 are formed in the same way.

In Sanskrit 29, 39 etc. two versions: nine + twenty or one + less + thirty. The Numeral word for hundred in Slavic languages 'sto' originates from Indo-European 'shat' and is a simple word.

Table No. 4: Cardinal numbers (21, 22, 23, ..., 29 & 91, 92, ..., 99)

	Sanskrit	In Russian script & Transcription		In Polish	In Croatian
20	विंशतिः	двадцать	[dvadsat']	dwadzieścia	dvadeset
21	एकविंशतिः	двадцать один	[dvadsat' odin]	dwadzieścia jeden	dvadeset jedan
22	द्वाविंशतिः	двадцать два	[dvadsat' dva]	dwadzieścia dwa	dvadeset dva
23	त्रयोविंशतिः	двадцать три	[dvadsat' tri]	dwadzieścia trzy	dvadeset tri
24	चतुर्विंशतिः	двадцать четыре	[dvadsat' chetire]	dwadzieścia cztery	dvadeset četiri
25	पञ्चविंशतिः	двадцать пять	[dvadsat' pyat']	dwadzieścia pięć	dvadeset pet
26	षड्विंशतिः	двадцать шесть	[dvadsat' shest']	dwadzieścia sześć	dvadeset šest
27	सप्तविंशतिः	двадцать семь	[dvadsat' sem']	dwadzieścia siedem	dvadeset sedam
28	अष्टाविंशतिः	двадцать восемь	[dvadsat' vosem']	dwadzieścia osiem	dvadeset osam
29	नवविंशतिः or एकोनत्रिंशत् or ऊनत्रिंशत् or एकान्नत्रिंशत्	двадцать девять	[dvadsat' devyat']	dwadzieścia dziewięć	dvadeset devet
30	त्रिंशत्	тридцать	[tridsat']	trzydzieści	trideset
...					
90	नवतिः	девяносто	[devyanosto]	dziewięćdziesiąt	devedeset

91	एकनवतिः	девяносто один	[devyanosto odin]	dziewięćdziesiąt jeden	devedeset jedan
92	द्वानवतिः <i>or</i> द्विनवतिः	девяносто два	[devyanosto dva]	dziewięćdziesiąt dwa	devedeset dva
93	त्रयोनवतिः <i>or</i> त्रिनवतिः	девяносто три	[devyanosto tri]	dziewięćdziesiąt trzy	devedeset tri
94	चतुर्नवतिः	девяносто четыре	[devyanosto chetyire]	dziewięćdziesiąt cztery	devedeset četiri
95	पञ्चनवतिः	девяносто пять	[devyanosto pyat’]	dziewięćdziesiąt pięć	devedeset pet
96	षण्णवतिः	девяносто шесть	[devyanosto shest’]	dziewięćdziesiąt sześć	devedeset šest
97	सप्तनवतिः	девяносто семь	[devyanosto sem’]	dziewięćdziesiąt siedem	devedeset sedam
98	अष्टानवतिः <i>or</i> अष्टनवतिः	девяносто восемь	[devyanosto vosem’]	dziewięćdziesiąt osiem	devedeset osam
99	नवनवतिः <i>or</i> एकोनशत <i>or</i> ऊनशत <i>or</i> एकान्नशत	девяносто девять	[devyanosto devyat’]	dziewięćdziesiąt dziewięć	devedeset devet
100	शतम्	сто	[sto]	sto	sto

2.6 The Comparison of Cardinal Numerals 100, 200, 300, ..., 1000

The Cardinal numerals from 200, 300, 400, ..., 900 in all the four languages (see Table No. 5) are complex words consisting of two word-roots. For example, 200 is formed in the following manner: two + hundred (dve + sti), 300 (tri + sta), 400 (chtyri + sta) but 500 (pyat’ + sot), 600 (shest’ + sot) and in the same manner 700-900. The second component for ‘hundred’ has three variants sti, sta, sot. The cardinal numeral for hundred and thousand are simple words and ‘tysicha’, numeral for 1000 in fact is a feminine singular noun. In Sanskrit 1000 is a numeral and can play the role of adjective too & has two variants: 1) nine + hundred & 2) sahasr.

Table No. 5: Cardinal numbers

	Sanskrit	In Russian script & Transcription	In Polish	In Croatian
100	शतम्	сто [sto]	sto	sto
200	द्विशतम् <i>or</i> द्वेशते	двести [dvesti]	dwieście	dvjesto
300	त्रिशतम्	триста [trista]	trzysta	tristo
400	चतुःशतम्	четыреста [četyresta]	czteryście	četiristo
500	पञ्चशतम्	пятьсот [pjat’sot]	pięćset	petsto
600	षट्शतम्	шестьсот [šest’sot]	sześćset	šesto
700	सप्तशतम्	семьсот [sem’sot]	siedemset	sedamsto
800	अष्टशतम्	восемьсот [vosem’sot]	osiemset	osamsto
900	नवशतम्	девятьсот [devjat’sot]	dziewięćset	devetsto
1000	सहस्रम् <i>or</i> दशशतम्	тысяча [tysjača]	tysiąc	tisuća

3. CONCLUSION

- ❖ Word-formation of numerals in Sanskrit, Russian, Polish & Croatian originates from a common source – Proto-Indo-European;
- ❖ In all the four languages, the word-formation of cardinal numerals is divided into three types: simple, complex & compound numerals;

- ❖ If we analyze cardinal numerals 0-100, we find that in Sanskrit there are 10 (Simple numerals) and rest are complex, while in Slavic languages 12 are Simple numerals, 16 are complex, 72 are compound.
- ❖ In Slavic languages the formation of compound numerals has 1-9 as first component only for 11-19, while the rest have 1-9 as second component but in Sanskrit 1-9 is the first component.
- ❖ All numerals in Sanskrit, Russian, Polish & Croatian can have gender differentiation and are declinable words. They change according to grammatical cases.

Thus, we can say that historic-comparative method can determine the essential elements of the Proto-Indo-European phonological and grammatical systems, including vocabulary.

REFERENCES

1. Lehmann, Winfred P. Historical Linguistics: an introduction, The University of Texas, Oxford & IBN Publishing Co., Calcutta, Bombay, New Delhi, 1966.
2. Lukinova T.B. From the History of Numerals in Slavonic Languages, Opera Slavica IX, Kiev, 1999. (ИЗ ИСТОРИИ ЧИСЛИТЕЛЬНЫХ В СЛАВЯНСКИХ ЯЗЫКАХ Т. Б. Лукинова (Киев) shorturl.at/eIUVY)
3. Reformatsky, A.A. Numbers and Grammar//Linguistics and Poetics. Moscow, 1987. P.76-87. (Реформатский А.А. Число и грамматика // Реформатский А.А. Лингвистика и поэтика. М., 1987. С. 76–87)
4. Shansky N.M., Tikhonov A.N. Modern Russian Language. Textbook. Three Volumes. Volume 2: Word-Formation. Morphology. Second Edition, Moscow, 'Prosvishenie', 1987. – 256 pages. (Шанский Н. М., А. Н. Тихонов. Современный русский язык. Учеб. для студентов пед. ин-тов С 56 по спец. № 2101 «Рус. яз. и лит.». В 3 ч. Ч. 2. Словообразование. Морфология / Н. М. Шанский, А. Н. Тихонов. — 2-е изд., испр. и доп. — М.: Просвещение, 1987. — 256 с.. 1987).
5. Starikova, G.N. Modern Numerals and language dynamics. Newsletter of Tomsk State University, Philology No. 4, 2011, Russia. (ВЕСТНИК ТОМСКОГО ГОСУДАРСТВЕННОГО УНИВЕРСИТЕТА 2011 Филология №4(16) УДК 811.161.1 Г.Н. Старикова СОВРЕМЕННЫЕ ЧИСЛИТЕЛЬНЫЕ В АСПЕКТЕ ЯЗЫКОВОЙ ДИНАМИКИ)
6. Stepanov Yu.S. Counting, name of numerals, alphabet denoting numerals in Indo-European languages // Problems of Linguistics, 1989. No.4. Pp. 46-72; No.5. Pp 5-31. (Степанов Ю.С. Счет, имена чисел, алфавитные знаки чисел в индоевропейских языках // Вопросы языкознания. 1989. № 4. С. 46–72; № 5. С. 5–31.)
7. Word-Formation (Russian Grammar, 1980) (Словообразование. <http://rusgram.narod.ru/191-207.html>)
8. Zholobov O. F. Ancient Slavonic Numerals in Etymological and Contrastive aspects // Contrastive Philology and Polylinguism: Conference proceedings, Kazan University 29-31 October 2002. Ed. Andromonova N. A. Kazan city, 2003. Pp. 82-91. (Жолобов О.Ф. Древнеславянские числительные в этимологическом и сопоставительном аспектах // Сопоставительная филология и полилингвизм: Материалы Всерос. науч.-практ. конф. в Казанском университете (29–31 октября 2002 г.) / под ред. Н.А. Андромоновой. Казань, 2003. С. 82–91.)
9. <http://www.evpatori.ru/cifry-vedicheskogo-sanskrita.html#> (shorturl.at/hnrz3)
