

## INTRODUCTION

Numerals represent a specific class of words expressing quantity. The use of quantification undoubtedly belongs to the most important abilities of modern mankind. It is not possible to date this discovery. There is an archeological evidence demonstrating paleolithic roots of this knowledge. One of the most convincing is the wolf's radius-bone found at the Magdalenian locality Pekárna (Southern Moravia) covered by 30+25 incisions. The longer series has been interpreted as an astronomical record expressing perhaps the number of days in a synodic month (29,5 days). The shorter one was divided in pentads. Similarly also other late paleolithic discoveries, e.g. the carving of a horse head from the cave Arudy (France), or the rib from Novgorod-Seversk (Russia) — both with remarkable geometrical decoration, have been interpreted as counting (astronomical ?) records (Jelinek 1977: 424, 441, 452). In all known languages of the present and past, numerals exist and existed. It is probable that numerals are of the same age as the idea of counting, hence they could have to search no latter than the beginning the late paleolithic. It is symptomatic that the first signes in the oldest writing systems (Sumer, Elam) were numerical signes.

In the study of numerals there are at least three steps, logically following one another: (1) description; (2) structural analysis; (3) etymological analysis. The first serious study collecting and confronting the numeral systems of many languages of various language families was published by Pott already in 1847. In the 20th century there were two great attempts to describe the numeral systems of all known languages: that of Alfredo Trombetti (1916) and that of Theodor Kluge (1937–42). The first one collected a vast material, but the author discredited his undoubtedly considerable effort by seeking similarities between numerals to demonstrate monogenesis of all languages. Kluge's approach was more cautious: he tried to describe all numeral systems known in his time, analyzing only those formations which were quite transparent. Although his data are rather outdated and frequently inaccurate, if confronted with the recent results they can represent a valuable contribution even at present. In the nineties, Eugene Chan prepares the most detailed description of all the known numeral systems. Besides these global attempts, there are partial studies devoted to concrete language families. The serious studies are usually limited to the steps (1) & (2), while etymology has been omitted or its results are not too convincing.

The main targets of the present study are (a) to apply the methods of comparative-historical linguistics to the etymological analysis of numeral systems

in selected language families; (b) to formulate some general rules of creation of numerals in confrontation with the 'transparent' numeral systems.

The study consists of the parts A, B, C, divided into chapters: A. **Non-Indo-European numerical systems**: Saharan, Nubian, Egyptian, Berber, Kartvel, Uralic, Altaic; B. **Indo-European numerals**: "1", "2", "3", "4", "5", "6", "7", "8", "9", "10" (always with their ordinal correlates and corresponding tens), "100" and "1000"; C. **Patterns of creating numerals**. Every chapter represents an independent article including proper references. The language families in part A belong to those best described, including historical phonology and morphology; for every family there are special or at least partial studies describing and analyzing numerals (Petráček 1971 for Saharan; Meinhof 1918–19 for Nubian; Sethe 1916 and Loprieno 1986 for Egyptian; Woelfel 1954 for Berber; Klimov 1967 and Manaster Ramer 1995 for Kartvelian; Honti 1993 for Uralic; Ramstedt 1907, Kotwicz 1931 and Hamp 1970, 1974, for Altaic). The Indo-European numerals (B) represent the central part of the study. Here the most important deposits were realized by Ferdinand Sommer (1951), Oswald Szemerényi (1960), Werner Winter (1986[90]), Wolfgang P. Schmid (1989) and a team of scholars headed by Jadranka Gvozdanović (1992). In the final part (C), those numeral systems are studied whose semantic motivation of the individual numerals is transparent (body parts or arithmetic operations applied to existing numerals) and allows us to formulate some general rules of creation of numerals in human speech. The maximalist structure of each chapter/article studying an Indo-European numeral is as follows: All important forms including those from 'Restsprachen' are collected in agreement with the standard grouping, projected into partial reconstructions, usually of a late Indo-European ('Brugmannian') level, and organized in cardinals of the first decad plus the corresponding tens, ordinals, and if they exist, also multiplicatives, collectives, abstract nouns, members of compounds, various derivatives. On the basis of partial reconstructions a primary proto-form is established. And it should represent a key to the etymology. Naturally, the existing etymological solutions are discussed too. If there are external parallels, they are also analyzed. The same scheme with a certain reduction is also applied to the non-Indo-European systems of numerals.

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