Contents of

Glottometrics 7, 2004 (including abstracts)

Abstract. Recent investigations have shown that a model can be derived from an association matrix, Fig. 1a, which describes a functional language network at the level of words in text. In this model words are gathered in classes, Fig. 1b, in which the number of words increases by a repeated factor of two. It could be shown that when an artificial text is generated with the aid of the model, this text contains maximum entropy. By comparison the conclusion can be drawn that this behaviour is also valid for natural language text. Therefore it is possible to determine some quantitative linguistic values and diagrams immediately and without any difficulty. Recently, this was already shown in the case of Zipf's famous frequency diagrams, Fig. 2 and Fig. 4.

In the paper at hand the following values are derived: text length in dependence on the number of different words, equ. (3), ramification curve, equ. (30), the number of different word pairs in dependence on text length, equ. (34), the average length of sentences measured in words, equ. (35), and the entropy, equ. (38). All these calculations are elementary, based on statistical average values of model parameters and of text generation procedures, and they lead therefore only to first approximations for curves and characteristic values. However more precise results are attainable by simulating the process of text generation in the model step by step. Then, of course, normal distributions can be found, Fig. 7, which lead to Zipf-diagrams with smoothed stairs, Fig. 8a,b, instead of ideal rectangular steps as in Fig. 2. Finally the question of a possible connection between language and prime numbers is discussed.

Abstract. Logistic laws do not only apply to linguistic but also to medical, biological, demographic etc. developmental phenomena. This study will support the logistic law, known in linguistics as Piotrowski Law, using data from a selected etymological dictionary. In contrast to other studies there has ─ in this process ─ not only been taken account of terms borrowed from other languages but also of words which developed in German language. Special attention has been paid to the Anglo-American terms.

Abstract. Hoaglin (1980) introduced the Poissonness plot to detect departures of data from a hypothesized Poisson model. Hoaglin and Tukey (1985) extended the use of the Poissonness plot to other one parameter discrete distributions include geometric and logarithmic distributions. On the other hand, in many applications the Zipf plot is used to verify that the data obeys the Zipf's law. We present a unified presentation of these plots and extend its use for 3-parameter families. In particular, the Lerch family of discrete distributions, which includes as special cases the Zipf, Zipf-Mandelbrot, the logarithmic and the polylogarithmic distributions. A comparison with other types of plots for discrete distributions shows the resistance and power of this plot, the Lerchianness plot. We apply this plot to some of the Hoaglin and Tukey data sets and show it gives better fits. In addition, an application to subject and letter frequencies and to Egyptian city sizes has been presented.

Tamaoka, Katsuo & Altmann, Gabriel

Symmetry of Japanese Kanji lexical productivity on the left- and right-hand side   65 - 84

Abstract: Japanese kanji combine with other kanji to produce various two-kanji compound words. First, the present study examined whether the extent of left-hand and right-hand productivity of the Japanese 1,945 basic kanji abides by an 'honest' distribution. The result showed that kanji compound building (or kanji lexical productivity) was depicted by a birth-and-death process leading to the negative binomial and/or the Waring distribution. Second, the study investigated whether these basic kanji display symmetry on the left- and right-side lexical productivity. Analysis of these kanji suggested that although each kanji displayed symmetry in lexical productivity, there is no tendency among the basic kanji to produce their compound words to the same extent on the left or the right side on the whole.

Brüers, Nina & Heeren, Anne

Pluralallomorphe in Briefen Heinrich von Kleists   85 - 90

Abstract. The paper brings a further corroboration of the hypothesis that entities of linguistic classes are rank-ordered. Here the geometric distribution has been fitted to the ranked distribution of plural morphemes in letters of H. von Kleist.

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