

Typology of writing systems: proof-of-concept of a model assessing the evolutionary dynamics of writing systems

Writing is one of humanity's greatest inventions, which potentially had a large impact on language evolution. We know that the evolution of writing and writing systems (Haarmann 1990)(Rogers 2005) may have similarities with the evolutionary mechanisms of language as a symbolic system (Deacon 1997, Sinha 2014). Signs become conventionalized and simplified, systems become less varied and reduced in number – but all this may also develop in the other direction. In the lecture, we will describe a proof-of-concept for setting up an evolutionary model for writing systems cross-linguistically. The basis is a databank of most existing ancient writing systems, which contain individual graphemes as cut-out glyphs. The database was compiled to develop Unicode, but has a different structure compared to how Unicode is organized (writing systems are referred to as character blocks in Unicode). An important part of setting up this experiment are the following challenges: 1) to typologize glyphs, so that pattern recognition can be automated and available data can be analysed by evolutionary models, 2) to compile complete and coherent metadata for writing systems, so that the general preconditions for systems can be analysed. These metadata include information such as language, geographic metadata, type of writing system and writing system size. The aim of the is to produce a phylogeny of writing and reconstruct the evolutionary dynamics of writing, including patterns of sign conventionalization and simplification, change rates of system reduction and expansion, and potential cross-linguistic iconicity in the pattern of graphemes. Further, the concept aims to trace trends for, e.g., glyph-sound representation. We will present the database and its design and our model for typologizing glyphs by automation. In addition, we will perform a proof-of-concept by presenting a phylogeny of the writing systems of Greek dialects (Goldstein 2020).

Reference List

Deacon, T. (1997). The symbolic species : the co-evolution of language and the human brain. London, Allen Lane.

Goldstein, D. B. (2020). Indo-European phylogenetics with R.

Haarmann, H. (1990). Universalgeschichte der Schrift. Frankfurt/Main, Campus-Verl.

Rogers, H. (2005). Writing systems: a linguistic approach. Malden, Mass., Blackwell.

Sinha, C. (2014). Niche construction and semiosis: biocultural and social dynamics, Oxford University Press.

