

Quantitative analysis of lexical iconicity in sign languages

Vadim Kimmelman¹, Anna Klezovich² & George Moroz²

¹Bergen University, ²Higher School of Economics

vadim.kimmelman@gmail.com, belkannkl@gmail.com, agricolamz@gmail.com

Many if not most lexical signs in natural sign languages (SLs) are iconic (Taub 2012). Recently, various aspects of lexical iconicity in SLs have been studied (e.g. Padden et al. 2015, Östling et al. 2015). However, a more general study of iconicity including multiple iconic features and multiple languages is still missing. We created a database of lexical signs in 19 SLs for signs from 7 semantic fields annotated for 5 iconic features. We analyzed the database quantitatively to find out whether languages and semantic fields are different from each other in iconic features.

Database: We selected 19 SLs from the www.spreadthesign.com multilingual dictionary of SLs with most signs annotated per language. We included 87 concrete concepts from 7 semantic fields: transport, nature, tools, house, clothes, food, and animals (total: 1542 signs). Each sign was annotated for the following iconicity features: form-image association, personification, associated action, location, and part-whole (Taub 2012). The database is available at https://sl-iconicity.shinyapps.io/iconicity_patterns/

Analysis: We conducted multiple correspondence analysis (MCA) to see how similar or different SLs and semantic fields are based on iconicity.

Results: Semantic fields are clearly different from each other in how they use iconic features, although there is still substantial overlap. In contrast, different SLs show a large overlap and almost no differences. We hypothesize that there is an interaction between semantic fields and languages which can obscure the results. When looking at individual iconic features and their distribution across both languages and semantic fields, it turns out that some semantic fields show variation of preferences across languages, while others do not. For instance, the semantic field of transport shows little variation between languages in the choice of the form-image mapping, but the field of tools shows clear variation in this feature, etc.

Discussion: Iconicity features vary both across semantic fields and across SLs, although the latter variation is heavily mediated by the former. It is not surprising that different semantic fields use different iconic mechanisms as concepts of different types are naturally depicted in different ways. More surprising is that variation between SLs can only be observed in some fields. We hypothesize that for some concepts multiple natural iconic strategies exist, while for other concepts only one strategy is naturally available.

References: • Östling, R., C. Börstell & S. Courtaux. 2018. Visual iconicity across sign languages. *Frontiers in Psychology* 9(725). • Padden, C., S.-O. Hwang, R. Lepic & S. Seegers. 2015. Tools for language: Patterned iconicity in sign language nouns and verbs.. *Topics in Cognitive Science* 7(1). 81–94. • Taub, S. F. 2012. Iconicity and metaphor. In R. Pfau, M. Steinbach & B. Woll (eds.), *Sign language: An international handbook*, 388–412). Berlin: De Gruyter Mouton.