

Linguistic typology and the cognitive science of non-WEIRD languages

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1. Description of the topic and research questions

The goal of this workshop is to shed light on the psycholinguistics and neurolinguistics of non-WEIRD (i.e. Western, Educated, Industrialized, Rich, Democratic) languages, with a focus on how this research can contribute to a better understanding of the typological diversity of the world's languages. The core structural features of human languages are imposed by our brain, although the languages we speak impact as well on our perceptive and processing abilities. For instance, speakers of languages with different basic word order (e.g. S(ubject) O(bject) V(erb) vs. SVO) have been shown to exhibit a differential ability at recalling initial vs. final stimuli, as in a list of numbers or words, respectively (Amici et al., 2019). Likewise, speakers of languages with less harmonic structures (e.g. with a Adj(ective) N(oun) order in the noun phrase, but with a VO order in the verbal phrase) tend to show a less marked regularization bias (i.e. the tendency to regularity when dealing with structural rules) (Culbertson, 2012). Also, different languages can impose different patterns of conceptualization and categorical representation on world knowledge, mostly as a result of cultural constraints, this in turn differently affecting to the automatization and the acuity of perceptive abilities (Kemmerer, 2006). Ultimately, language-specific structural constraints can be associated with a differential involvement of specific cognitive functions in language processing, with language features that are more costly to process and learn resulting in the creation of “cognitive gadgets” through modifications in learning and data-acquisition mechanisms (Clarke and Heyes, 2017).

Humans speak around 7.000 languages (and sign more than 300 languages). Linguistic typology has identified the core structural properties of human languages, the aspects in which languages tend to diverge, and the phenomena that can be regarded as infrequent, or absent among the world languages. Today, we have rich databases of typological information (like WALS or Grambank). Nonetheless, the cognitive science of language is still focused on a limited number of world-wide languages, mostly WEIRD languages (Blasi et al. 2022). Gradually, some minority languages are being examined by the neuroscience of language. The potential benefits of this shifting trend are illustrated by studies like the one recently conducted by Malik-Moraleda and colleagues (2022), who described the brain substrate of 45 languages from 12 different language families. This research uncovered a common functional language network for typologically-diverse

languages, which supports the view that all languages might share a common structural skeleton which is processed by the same core brain regions. However, for linguistic typology, the neuroscience of language would notably benefit from conducting fine-grained analysis of selected language-specific phenomena, and in particular exceptional phenomena, because, as stressed by Perkins (1988), exceptions (or rarities) are those precise elements that test our theories best. In the domain of linguistic typology, Cysouw and Wohlgemuth have noted that the features and properties found in very few languages (usually referred to as *rara* and *rarissima*), “can tell us as much about the capacities and limits of human language(s) as do universals” (2010:1). Likewise, Culicover (1999) has pointed out that language learning mechanisms are capable of accommodating not only universal properties, but also language irregularities, exceptional and marked cases, and idiosyncratic features. All this means that we need more research aimed exploring how our brain deals with the variable cognitive loads and demands imposed by different types of linguistic phenomena of typological interest, including those that are less functionally motivated, like *rara*.

At the same time, typologists know well that present-day language diversity is the outcome of how languages changed in the past; that language change depends, in turn, on how languages are acquired and used; and that language acquisition and use are ultimately subject to functional constraints, most of which are cognitive by nature, including general cognitive biases that favor e.g. systematicity, salience, or harmony in language structure (Culbertson, 2012; Culbertson et al., 2013). Accordingly, if we increase the number and the diversity of languages (and linguistic phenomena) under the scrutiny of a neuroscience of language we will be contributing to a better understanding of how the human brain processes language (diversity), and of the cognitive biases that systematically guide language change, which, as noted, are the ultimate source of language universals. In other words, linguistic typology can be expected to benefit as well from this non-WEIRD approach to language diversity.

Specific research questions to be addressed during the workshop include (but are not limited to):

- Psycholinguistics of typologically-interesting phenomena in non-WEIRD languages
- Neurolinguistics of typologically-interesting phenomena in non-WEIRD languages
- Feedback effects between language and cognition, with a focus on non-WEIRD languages
- Feedback effects between sociologically-driven diversity and cognitive diversity
- Cognitive biases and the typology of non-WEIRD languages

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2. Keywords

Typological diversity; psycholinguistics; neurolinguistics; language biases on cognition; non-WEIRD societies