Towards a Neurobiologically Plausible Model of Human Sentence Comprehension Across Languages

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Abstract

Among human cognitive abilities, language is singular in the diversity of its manifestations: over 6000 languages are spoken in the world today. Some of the major challenges in modelling how language is processed by the human brain thus lie in explaining (a) how this diversity is handled, and (b) whether there are nevertheless some underlying generalisations that recur across languages of different types. Furthermore, an adequate model should be neurobiologically plausible, i.e., respect what we know about the structure and function of the human brain. In this presentation, I will describe a line of research in which we have attempted to take up these challenges at the level of sentence comprehension. Based on the results of neurophysiological experiments in a range of typologically varied languages, I will argue for a comprehension architecture that is actor-centred, i.e., focused on identifying the participant primarily responsible for the state of affairs under discussion. I will introduce the latest version of a comprehension model (extended Argument Dependency Model, eADM; Bornkessel and Schlesewsky, 2006), the architecture of which is built around actor-centrality as a design principle, and will describe how it accounts for potential universals of comprehension and critical dimensions of variation.

References

Ina Bornkessel and Matthias Schlesewsky. 2006. The Extended Argument Dependency Model: A neurocognitive approach to sentence comprehension across languages. *Psychological Review*, 113, 787–821.