

## TOWARDS A GRAMMAR OF GESTURE: EVOLUTION, BRAIN, AND LINGUISTIC STRUCTURES

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The primary goal of the project is to put together a grammar of gesture which is – with regard to significant aspects – grounded in neurocognition and evolution. A grammar of gesture has rather far-reaching implications for several key topics in the humanities and the natural sciences. In this project we will bring together four disciplines: linguistics, semiotics, neurology, and evolutionary anthropology, and our findings will contribute to three key topics: the multimodality of language, neurocognitive foundations of gestures as part of human language, and the evolution of language. A secondary goal is to provide an encompassing account of the structural properties of gestures which not only serves as a point of departure for further studies into gesture analysis in fields such as neurology and evolutionary anthropology, but which will also inform fields that have discovered gestures as an revelatory ‘window onto thought’, such as more general cognitive psychology, artificial intelligence, and communication studies, but which all currently suffer from a lack of shared scientifically grounded knowledge of gestures.

The core of the project is a descriptive linguistic and semiotic account of the fundamental semantic and formal structures in human gestures and their syntactic integration with speech: in short, the foundations of a grammar of gesture. Showing that gestures are highly structured signs which are syntactically integrated into language – for instance, as attributive constructions – challenges the traditional concept of language as a closed system of vocal signs and imply that the very nature of language is multimodal. This touches upon the current concept of language underlying all branches of current linguistic theory – be it structural linguistics, the generative paradigm, or cognitive grammar and semantics. In short, regarding language as systematically structured in multimodal terms questions no less than the fundamental concept of linguistics as a discipline. Neurocognitive studies of the semantic and formal structures identified through linguistic and semiotic analyses will show their psychological and biological reality, i.e. they will ground these structures in the brain. It is in this sense that they will contribute to addressing the question of how cognitive structures are grounded in neurocognition. Comparative studies of gestural structures in human and nonhuman primates will investigate more closely which of the linguistically identified structures in human gestures are present in our closest relatives. This will sharpen our understanding of the different kinds of structures present in human gestures and reveal which aspects of the human ‘grammar of gesture’ are also present in non-human primates. Determining exactly which structures overlap across primate species and which ones evolved uniquely with human language will contribute to the current debate in evolutionary anthropology that posits a gesture-first theory of language evolution (Arbib 2005a, 2005b) against one in which gesture and speech emerged in concert (Gallagher et al, 2005).

### REFERENCES

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