

The evolutionary origin of the language areas in the human brain. A neuroanatomical perspective

Aboitiz, Francisco

García V., Ricardo

The capacity to learn syntactic rules is a hallmark of the human species, but whether this has been acquired by the process of natural selection has been the subject of controversy. Furthermore, the cortical localization of linguistic capacities has prompted some authors to suggest a modular representation of language in the brain. In this paper, we rather propose that the neural device involved in language is embedded into a large- scale neurocognitive network comprising widespread connections between the temporal, parietal and frontal (especially prefrontal) cortices. This network is involved in the temporal organization of behavior and motor sequences, and in working (active) memory, a sort of short-term memory that participates in immediate cognitive processing. In human evolution, a precondition for language was the establishment of strong cortico-cortical interactions in the postrolandic cortex that enabled the development of multimodal associations. Wernicke's area originated as