

The emergence of combinatorial language processing in infancy

Cheslie C. Klein, Emiliano Zaccarella, Angela D. Friederici & Charlotte Grosse Wiesmann

Department of Neuropsychology, Max Planck Institute for Human Cognitive and Brain Sciences, Leipzig; Research Group Milestones of Early Cognitive Development, Max Planck Institute for Human Cognitive and Brain Sciences

The ability to combine elements into a hierarchical structure is a key component of human language. Although syntax shows a slow acquisition trajectory that extends beyond childhood, early syntactic combinatorial capacity emerges before the age of two years, potentially forming the basis for later development. How this combinatorial capacity develops in infancy is, however, still poorly understood. To this end, we conduct an eye-tracking study to assess the ability of 10- to 14-month-olds to process minimal syntactic two-word combinations (i.e., adjective-noun phrases). In the adjective position, we use color words with which infants are familiarized prior to testing in a sparse linguistic context. After training, infants are tested using an intermodal preferential looking paradigm on novel objects of the trained colors, which are presented to the infant together with an auditory adjective-noun phrase. The auditory stimulus is presented simultaneously with two visual stimuli, the target depicting an object representing the combinatorial phrase and a distractor representing the target sentence in a decomposed manner. We hypothesize that if infants can successfully process the adjective-noun phrase, they will look longer at the target compared to the distractor. Data collection is still ongoing, but initial pilot data suggest that infants as young as 11 months of age can process these combinatorial phrases. This study will allow us to examine early combinatorial language processes in infants, which may be a first step into later syntactic development.