



Standing Committee for the Humanities

OMLL: The Origin of Man, Language and Languages

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Categorical perception and its role in the evolution of language (CRP 01-JA10)

➤ Joël Fagot, CNRS, Center for Research in Cognitive Neurosciences, Marseille, France

Abstract:

There has been and continues to be considerable debate about the intellectual differences that make humans different from other species. The conventional debate principally concerns the role of language in promoting symbolic reasoning in relational problem solving. However, our work connects language to a different type of thinking that might appear to be more simple. It is driven by recent investigations that have shown a linguistic basis to performance on what might appear to be solely perceptually based categorisation tasks. These tasks include commonly encountered stimuli such as colour, shape and facial expressions; in fact, any continuously varying type of stimulus. We argue that continuously varying stimuli present conceptually difficult problems for categorisation. We further propose that it is the need to solve these categorisation problems that could have driven the evolution of language.

Our research extends the previous studies on the relation between language and categorical perception cross-lingually to include phylogenetic investigations. Monkeys can, of course, solve many categorisation tasks and these have been argued to have evolutionary significance, allowing considerable economy in cortical organisation. However, if our thesis is correct, monkeys should nevertheless have difficulties categorising continuously varying stimuli. The main goal of our research is thus to compare monkeys and humans on categorisation tasks involving continuously varying colour stimuli in the green-blue range. Several procedures have been developed for that purpose, all involving joystick manipulation for responding. Categorical perception is inferred from the comparison between within and between class discrimination performance. In a second term of our research program, we will continue the cross-lingual research by studying groups of children in two widely separated cultures with languages that have different numbers of colour terms. The data should provide evidence on whether the universal aspects of colour similarity are innately categorical or whether they are based on non-categorical perceptual mechanisms. If the latter, the eventual categorical basis of colour terms should derive from the speaker's language terms and performance of the two groups should diverge over the course of the study.