

Labels and pictures co-refer to object categories in adults and 9-month-old infants

Dr Eugenio Parise
(Lancaster University)

Tuesday 3 March, 12.00-13.30
LT3, Rendall Building, University of Liverpool

ALL WELCOME

Abstract

Even infants below one year of age display recognition and understanding of some words, but the nature of this skill is debated. We used electrophysiological methods to investigate (1) whether young infants' word knowledge reflects referential understanding, and (2) whether they expect that object labels refer to object categories that exist independent of being labelled. In the first study, mothers of 9-month-old infants introduced objects to their child by pointing gestures and labels. The objects then appeared from behind an occluder, either matching or mismatching the preceding label. We found a clear effect of object-label congruency in terms of an N400 event-related potential component, which is thought to reflect semantic priming. Thus, by setting up a live, ostensive context for referring to objects, we managed to demonstrate that semantic priming occurs in young infants, and that they expect that known words refer to specific object kinds.

The second study addressed the question whether labels alone, without perceptual similarities, could make adults and 9-month-olds group objects together. We measured the desynchronization of alpha-band EEG oscillations in a category oddball paradigm.

Adults learnt one of two pseudo-words for each of six unfamiliar objects without shared perceptual features. Subsequently, four of the six objects, three sharing the label and one having the other label, were presented without labels on screen, with equal frequency. Participants responded to the oddball category with stronger attenuation of alpha oscillation over the left frontal region. Similar response was found for known categories.

Nine-month-olds were engaged in a live familiarisation with an experimenter presenting them the six unfamiliar objects one by one, while uttering the two novel labels. Right after the familiarisation, we presented them with the four objects the same way as above. Stronger alpha attenuation in response to the oddball category suggested that 9-month-olds, just like adults, exploited the labels to form two object categories. Moreover, when passively watching pictures of objects belonging to known categories they produced a similar electrophysiological response, but only when the pictures were introduced by ostensive-referential cues.

Our data strongly suggest that ostensive communication helps infants to interpret both labels and objects as symbols referring to object categories.

Speaker Biography

Dr Parise is a [Lecturer at Lancaster University](#). He received his PhD [Sapienza University of Rome](#) in 2005. He then spent three and a half years at the [Max Planck Institute for Human Cognitive and Brain Sciences](#) in Leipzig, Germany, where he specialised in electroencephalography (EEG) / event related brain potentials (ERP) and near infrared spectroscopy (NIRS) techniques with young infants. Following this he refined his theoretical and technical skills during a postdoc at the [Cognitive Development Center of the Central European University](#) in Budapest, Hungary. Dr Parise's research interests are focused on infant development, in particular the development social cognition, with a stress on the role of ostensive communication and how it affects different cognitive process, such as attention, language development and categorization.

Directions

The Rendall Building is number 432 on the [University of Liverpool campus map](#).

Further information

For further information about this seminar, please contact michaeline.k.glover@manchester.ac.uk or about LuCiD, please contact helen.allwood@manchester.ac.uk