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Evidence for representation of symbolic associations and Negation logical operator in 4 mo old infants

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Abstract

In experiment 1 in an EEG-ERP design we showed 4 mo-old infants who are trained on 2 associations strictly in label to object direction and 2 other associations in the opposite direction can retain these representations bi-directionally, as opposed to several other species failing on this task (Urcuioli, 2015), suggesting that the label-object associations are acquired symbolically in early infancy. In Experiment 2 infants were home trained on four label-object associations as in Exp 1 and then received a brief familiarization that when the labels precede a pseudo-word, the upcoming object can be any except the one originally matched with that label. Results suggest that infants discriminate between incongruent and congruent applications of this negation pseudoword on a novel label and can furthermore generalize to new objects as evidenced by the patterns of their EEG-ERP responses, providing a first direct evidence for negation in early infancy.