ERP correlates of processing regular and irregular word stress information in infancy

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Abstract

The main challenge for learners during language acquisition is segmentationthe fluent speech into meaningful elements. From early ages prosody has a prominent contribution to segmentation however different language environment can cause different strategiesthat learners would apply. We examine the nature of early stress representation in a language with fixed stress pattern by an electrophysiological experiment (passive odd-ball paradigm measuring ERPs, 33 infants, 400 items, deviant: p=25%) and a behavioral study (go/no go head-turn preference paradigm, 36 infants, 20 items, target: p= 50%) using the same set of stimulus: bi-syllabic Hungarian pseudo-words with regular and irregular stress pattern. We examined two age groups (10 and 6 month-olds) in two conditions, varied by the position of the regularly stressed stimulus (in standard or deviant position). Our ERP results reveal age differences in both conditions, as only 10 month-olds showed mismatch responses to stress violation. In contrast with adults' responses, 10 month-olds produced one late mismatch response in both conditions. Adults, based on their long-term representation, reacted upon the absence of stress producing a specific double mismatch only in the regular condition. Behavioral data also support different stress processing in the two age groups, as only 10 month-olds reacted differently to the words in the regular condition. The irregular condition was confusing for both groups. We conclude that 10 month-olds, contrary to the younger age group, are sensitive to stress information mainly to the stress pattern of their mother tongue.

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