

Word segmentation from continuous speech: an ERP study with 10-month-old infants

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In their first year of life, before they start to speak, infants rapidly learn to deal with the sound structure of their native language. An important step in this first year of language acquisition is learning to recognize words in continuous speech (word segmentation). Behavioral studies have shown that infants learn to segment words from continuous speech between approximately 7 and 10 months of age. The predominant stress pattern of a language seems to play an important role in acquiring this skill. To study this step in language acquisition in more detail, we designed a new auditory ERP repetition paradigm. In this paradigm we presented 10-month-old infants with 20 blocks of words and sentences, while measuring EEG. Each block consisted of a familiarization phase and a test phase. In the familiarization phase, we presented the infants with 10 tokens of the same two-syllable word with stress on the first syllable. In the test phase, which followed immediately after familiarization, we presented infants with eight randomized sentences of which four contained the familiarized word. The remaining four sentences contained a new two-syllable word, also with stress on the first syllable. The test phase shows an effect of Familiarity in the form of a negative-going deflection on the familiar words as compared to the unfamiliar words in the sentences. This effect starts well before the end of the critical word. This result shows that 10-month-old infants can indeed segment words from continuous speech. Moreover, the timing of the effect shows us that they need approximately only the first half of the word to do so.

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