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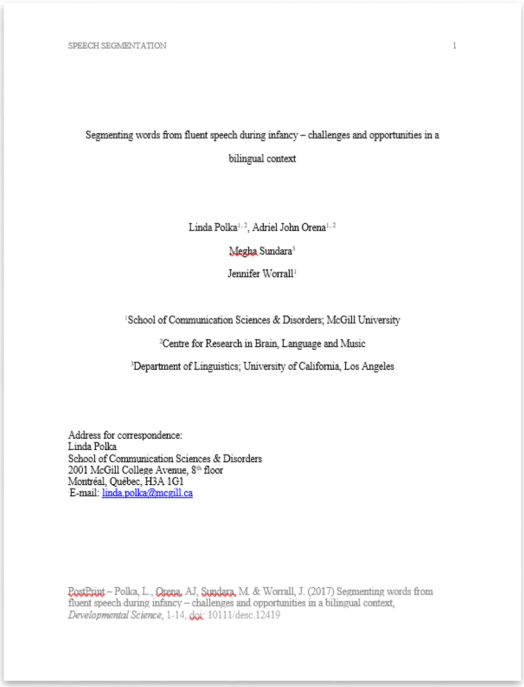

SPEECH SEGMENTATION 1

Segmenting words from fluent speech during infancy – challenges and opportunities in a bilingual context

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SPECIAL ISSUE ARTICLE

Segmenting words from fluent speech during infancy – challenges and opportunities in a bilingual context

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Abstract

Previous research shows that word segmentation is a language-specific skill. Here, we tested segmentation of bi-syllabic words in two languages (French; English) within the same infants in a single test session. In Experiment 1, monolingual 8-month-olds (French; English) segmented bi-syllabic words in their native language, but not in an unfamiliar and rhythmically different language. In Experiment 2, bilingual infants acquiring French and English demonstrated successful segmentation for French when it was tested first, but not for English and not for either language when tested second. There were no effects of language exposure on this pattern of findings. In Experiment 3, bilingual infants segmented the same English materials used in Experiment 2 when they were tested using the standard segmentation procedure, which provided more exposure to the test stimuli. These findings show that segmenting words in both their native languages in the dual-language task poses a distinct challenge for bilingual 8-month-olds acquiring French and English. Further research exploring early word segmentation will advance our understanding of bilingual acquisition and expand our fundamental knowledge of language and cognitive development.

Research highlights

- A new dual-language task is used to assess infant word segmentation in two languages (French; English) within a single test session.
- Findings with the new task confirm that monolingual 8-month-olds acquiring either French or English segment bi-syllabic words in their native language, but not in a rhythmically different language.
- For bilingual 8-month-olds acquiring French and English, segmenting words in both their native languages in the dual-language task poses a distinct challenge, providing a unique window into their word segmentation skills.

Introduction

The great challenge of *word segmentation* concerns the following question: how do naive listeners know when words begin and end in a continuous stream of fluent speech? This can be a daunting task for young infants, as words are rarely produced in isolation (Aslin, Woodward, LeMendola & Bever, 1996; Brent & Siskind, 2001); and unlike written language, words in spoken language are not reliably separated by spaces. Thus, young language learners must learn to extract discrete words from the speech stream. Indeed, their success in this task has been associated with better concurrent word learning abilities (Graf-Estes, Evans, Alibali & Saffran, 2007) and language outcomes (Cristia, Seidl, Junge, Soderstrom & Hagoort, 2014; Newman, Rowe & Ratner, 2015; Singh, Reznick & Xuehua, 2012). An important consideration is how infants learning more than one language begin to segment words in both of their languages. Research in word segmentation has traditionally focused on infants raised in monolingual homes, while largely overlooking bilingual infants. However, word segmentation is a language-specific skill (Polka & Sundara, 2012), and thus bilingual infants face a different word segmentation

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