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Early world segmentation and representation: psychological responses and electrophysiological correlates (CRP 01-JA26)

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Abstract:

This project explores the emergence and the development of the ability to segment fluent speech into words during the first year of life, in infants growing up in a French-speaking environment.

The importance of studying word segmentation in French comes from the finding that infants growing up in an English-speaking environment use various word boundary cues, many of which are language-specific. One of the most important cue when word segmentation emerges around 7-8 months is a prosodic/rhythmic cue: these infants segment fluent speech into trochaic (i.e. stress-initial) units, which correspond to the rhythmic unit in English; the trochaic unit is also the stress pattern of the majority of bisyllabic English words. However, this trochaic based segmentation procedure would not be useful for segmenting French words, for at least two reasons: first, not only is lexical accentuation weakly marked in French, but it is word-final; second, the rhythmic unit in French is the syllable, and studies have shown that this is the unit processed by French adults when segmenting speech. Both differences suggest that the development of word segmentation in French will follow a different course, in which individual syllables might play a more important role.

So far, we have used the head-turn preference procedure, previously used in studies with infants acquiring English, to evaluate whether French infants segment bisyllabic words as a whole, or if they segment their two syllables independently. For example, when the target word toucan appears several times in the context of a passage, do they segment and memorize "toucan," or either "tou" or "can" or both? At this point, our results fail to provide evidence for the segmentation/recognition of the target words as a whole at both 8 and 12 months (although in a collaboration with L. Polka and M. Sundara, we are re-evaluating this result with new bisyllabic stimuli that have been shown to be segmented by French-Canadian 8-month-olds). But our results show that at 12 months, though not at 8 months, infants segment/recognize the final syllable of the target words. These results combined support a syllable-based segmentation procedure. Presently, we are testing whether or not the initial syllable of the target words is segmented/recognized, which will provide an evaluation of the influence of (weak) lexical accentuation on word segmentation in French.