Processing of French Liaisons in Toddlers

Mireille Babineau and Rushen Shi

Abstract

This study tested the hypothesis that statistically-based word segmentation is subject to linguistic constraints. French liaisons provide an ideal case for testing the syllable-alignment constraint on segmentation. Liaisons occur when the underlying coda of liaison-causing words, mainly function words, surfaces phonetically as the syllabic onset of the subsequent vowel-initial word (e.g., “les amis”–[le zami]). The word onset and syllable onset are thus mis-aligned. Using a preferential looking procedure, we tested French-learning toddlers’ parsing interpretation of liaisons. Familiarization stimuli were sentences containing a pseudo-noun, onche or èque, preceded by liaison-causing words containing different underlying codas, e.g., causing onche to surface as [t]onche, [z]onches, [ɾ]onche, [n]onche. The variable liaisons offered statistical support for segmenting the vowel-initial word. In Experiments 1 and 3, test stimuli were isolated vowel-initial target versus non-target (onche/èque). The target was consistent with the subsyllabic statistical parse. Twenty-four-month-olds segmented the target, whereas 20-month-olds failed. Experiment 2 presented isolated consonant-initial forms as target versus non-target (zonches/zèques, the syllable-integrity bias). Twenty-month-olds segmented the consonant-initial target (corresponding to a surfaced consonant-initial form from familiarization), despite the statistical cues to the vowel-initial word boundary. Taken together, when statistical cues and syllable-alignment were conflicting, the latter guided infants’ word segmentation even at 20 months of age. Only by 24 months of age do infants become able to overcome this constraint by learning to segment words using subsyllabic statistical cues, contrasting sharply with preverbal infants’ statistical segmentation that respects the constraint. Our study therefore demonstrates the impact of a linguistic constraint during early acquisition.