

Prosodic Boundaries and Focal Accents in Processing Ambiguous Structures

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Prosodic boundaries and focal accents have each been shown individually to influence processing of ambiguous structures (e.g. Kjelgaard & Speer, 1999; Schafer et al., 1996; Speer et al., 1996). However, no previous work has directly investigated how the two cues interact during sentence processing. One goal of our study was to further examine the individual effects of prosodic boundaries and focal accents on the online resolution of relative clause attachment ambiguities (Experiments 1 and 2). Another goal was to explore interactions between cues (Experiment 3). A cross-modal continuation judgment task was employed to examine prosodic effects online. Participants listened to sentence fragments as in (1).

(1) *The journalist interviewed the coaches of the gymnast who*

Example (1) is ambiguous because the relative clause beginning with *who* can modify either the high noun phrase (NP1) *the coaches* or the low noun phrase (NP2) *the gymnast*. The visual targets *was* and *were* appeared as soon as fragments ended, and participants chose the better continuation. The noun phrases differed in number, so responses indicated which one participants thought the relative clause modified.

In Experiment 1, intonational phrase boundary location was manipulated: 1) no boundary, 2) boundary after NP1 only, 3) boundary after NP2 only, and 4) boundaries after both NPs. A boundary after NP1 decreased attachment to NP1 irrespective of the presence of a boundary after NP2. A boundary after NP2, however, only affected attachment decisions when there was also a boundary after NP1. The absence of any effect of a boundary after just NP2 may be explained by recent findings from Clifton et al. (2006), who found that listeners tend to discount the syntactic significance of a boundary when its presence can be explained by the need to pause after a long preceding constituent.

In Experiment 2, pitch accents were manipulated: 1) no accent, 2) accent on NP1 only, 3) accent on NP2 only, and 4) accent on both NPs. In contrast to previous offline studies (Schafer et al., 1996; Maynell, 1999; 2000), there were no reliable effects of accent on-line. This finding is consistent with recent results from Lee and Watson (2008) showing that accent effects may be attributable to memory and processing load. The paradigms used in previous studies may have had greater memory requirements than the judgment task used here.

In Experiment 3, boundaries and accents were jointly manipulated: 1) boundary and accent both after/on NP1, 2) boundary and accent both after/on NP2, 3) boundary after NP1 and accent on NP2, and 4) boundary after NP2 and accent on NP1. The results demonstrated that effects of a boundary after NP1 were independent of accents while the placement of accents modulated the effects of a boundary after NP2.

Across experiments, we found that listeners exhibited different degrees of sensitivity to different prosodic cues in anticipating upcoming syntactic structure: Boundaries were consistently used as long as there were no alternative reasons for them to be present, while the effect of accents was limited to modulating the effect of a boundary.

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