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Accentual phrase rises as a cue to word boundaries

We investigated the rise in pitch at the beginning of accentual phrases in Japanese speech to determine whether it could provide a useful word boundary cue. We segmented a corpus of spontaneous Japanese speech into words, located all accentual phrase rises (APRs), and compared the locations of APRs and word boundaries. We also counted how many words followed pauses. Preliminary results, averaged across four speakers, show that APRs occur at 72% of all word boundaries and 54% of non-post-pausal word boundaries. Using APRs to locate word boundaries would give very few false positives since APRs occur almost exclusively at word boundaries. APRs should be easily perceptible to listeners: Only APRs and certain final boundary tones cause pitch to rise in Japanese, and these two types of rises are highly distinct. Thus, use of APRs would allow the listener to locate approximately half of the word boundaries which cannot be located through pauses while only rarely causing the listener to posit a word boundary where there is none. This corpus study establishes a potential segmentation cue in the language and lays the groundwork for future perceptual studies to determine whether listeners actually do use APRs in speech segmentation.