

The interplay among various durational units in Japanese stop quantity distinction

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This talk gives a summary of several studies that examined native speakers' production and perception of singleton and geminate stops in Japanese, focusing on the use of duration. Although the major acoustic correlate and perceptual cue to this distinction is known to be duration of stop closure, there have been various ideas as to what is the single speech unit to which the closure duration relates most reliably in distinguishing this stop quantity. Candidates for such a unit that emerged as results of different production and perception experiments have been: the preceding vowel, the preceding mora, the following vowel, the disyllable, and the word of any length. How should we interpret these seemingly different results? Do these units stand stable against durational variability such as different speakers, speaking rates, segmental composition, and length of words?

Most recently, Amano and Hirata (2010), Amano and Hirata (2011), and Hirata and Amano (2012) found that it was the durations of stop closure and the unit of (C)V(C)CV that related most reliably in the stop quantity distinction. This conclusion has been reached experimentally for both production and perception of 2- versus 3-mora words (e.g., [kako]-[kak:o] 'past' vs. 'parenthesis') and 3- versus 4-mora words (e.g., [itoku]-[it:oku] 'dignity' vs. 'an advantage' and [gaten]-[gat:en] 'art exhibition' vs. 'agreement') under varied speaking rate conditions. This claim, however, is not incompatible with the other units previously proposed because it assumes that word-internal segments are of an acceptable range of duration. We propose that the unit of (C)V(C)CV provides *sufficient invariance* for recognizing a word or part of a word as having a singleton or geminate stop. That is, the (C)V(C)CV unit as a whole and its individual segments give the listener sufficient durational information for a stable percept of a singleton or geminate stop, and this information sufficiently withstands the variability in speakers, speaking rates, segments, and word length. It is proposed that, in online processing, the stop quantity *can* be identified only from parts of this unit, such as V1C(C), CV1C(C), C(C)V2, or V1C(C)V2, but that it is this (C)V(C)CV unit that makes the quantity identification final and reliable under an invariant durational rule.

References

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