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Effects of the lexical accent on the perception of geminate stops in Japanese

Although many researchers have found that dynamic F0 and/or lexical accent affect the perception of vowel length in Japanese (Kinoshita *et al.*, 2002; Lehnert-LeHouillier, 2007; Takiguchi *et al.*, 2010), it is still unclear whether these F0-related factors have effects on the perception of consonant length (geminate vs. singleton). In this study, we investigated effects of the lexical accent on the perception of geminate/singleton stops in Japanese.

We conducted a perceptual experiment where four series of stimuli (LLL, LHH, HLL, and HHH (L and H denote a syllable with low tone (200 Hz) and high tone (230 Hz), respectively) were presented to native speakers of Japanese. The stimuli were nonsense word /rakuru/, which was read by a female Japanese speaker, and their F0 were manipulated with praat (Boersma & Weenink, 2009). Also, we manipulated the duration of /k/ in the second syllable from 88 ms to 178 ms in 15-ms steps so that we can examine whether the difference in the accentual pattern of the word affect the perception of the geminate/singleton stop. Results show that the HLL-series has statistically significantly lower perceptual boundary value than other three series.

References

- Boersma, Paul and David Weenink (2009). Praat: doing phonetics by computer (Version 5.0.46) [Computer program]. Retrieved January 14, 2009, from <http://www.praat.org/>
- Kinoshita, K., Behne, D. M., & Arai, T., “Duration and F0 as perceptual cues to Japanese vowel quantity”, *Proceedings of the 7th International Conference on Spoken Language Processing*, 2002.
Online: http://www.splab.ee.sophia.ac.jp/papers/2002/2002_03.pdf, accessed on 2 Sep, 2009.
- Lehnert-LeHouillier, H., “The influence of dynamic F0 on the perception of vowel duration: Cross-linguistic evidence”, *Proceedings of the 16th International Congress of Phonetic Sciences*, 757-760, 2007.
- Takiguchi, Izumi, Takeyasu, Hajime, & Giriko, Mikio (2010). “Effects of a dynamic F0 on the perceived vowel duration in Japanese,” *Speech Prosody 2010 (Proceedings of the 5th International Conference of the Speech Prosody Special Interest Group of the International Speech Communication Association)*[CD-ROM], 100944: 1-4.