Asymmetric representations of lexical pitch

Yuki Asano
University of Tübingen

This study explores underlying representations of lexical pitch in Japanese and Chinese. Although both languages exhibit lexical pitch, Japanese is classified as a pitch-accent language and Chinese a tone language (Hyman, 1978). Tonal references in Japanese are claimed to be privative, i.e. are solely /H(igh)/ (and /ø/), resulting in asymmetric representations, while those in Chinese are /H/ and /L(ow)/ (Hyman, 2009), i.e. symmetric representations. A speeded lexical decision task using minimal pair words and pseudo-words that contrasted in pitch (HL with a pitch accent on the first mora vs. LH without pitch accent in Japanese/Exp.1, and HL with the 2nd tone and LH with the 4th tone in Chinese/Exp.2) was completed by 24 native listeners of each language. Reaction times and response accuracy were analyzed using linear mixed effects models.

The results of Japanese/Exp.1 showed a significant interaction between *pitch* (HL vs. LH) and *wordness* (word vs. non-word), both in reaction times and response accuracy (both $p < 0.001$); LH words were more difficult to process than HL words, but this did not apply to non-words, see *Figure 1*.

The finding provides empirical evidence that the tonal reference represented in the Japanese mental lexicon is /H/ and asymmetric without /L/. Exp.2 is currently being conducted, and the results comparing Japanese and Chinese will be presented at the conference. The study expands current models of spoken word recognition, incorporating still understudied lexical prosody and its representations.
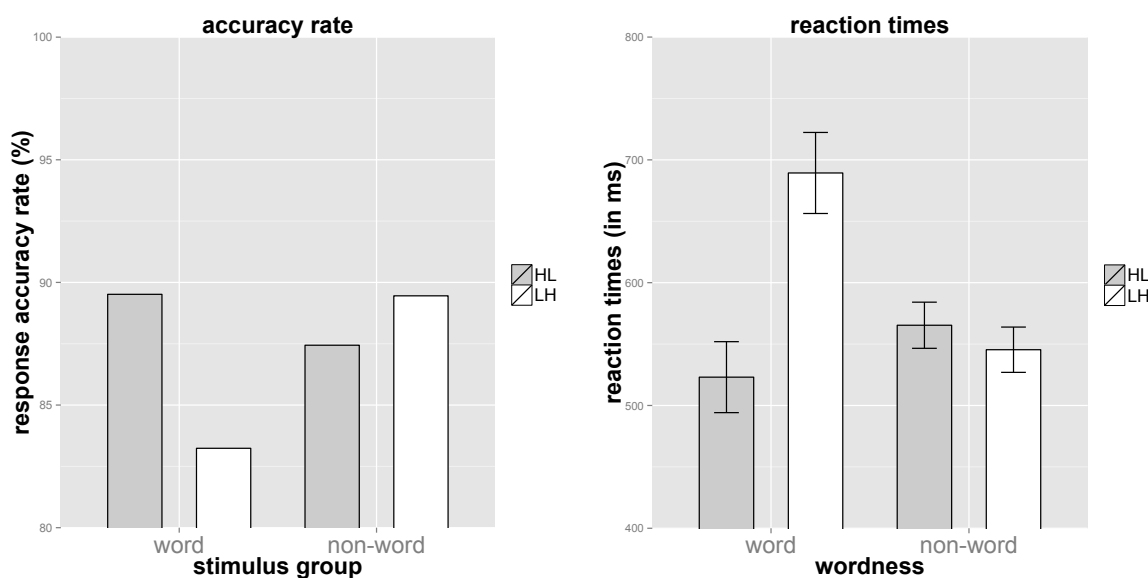

Figure 1. Mean accuracy rates and RTs with 95\% CI bars (Exp.1).

References:
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