

## Online processing of lexical pitch-accent by Korean learners of Japanese

Learners of foreign languages have difficulties in processing the target language in many aspects. Phonology is one of these. Previous studies have shown that second language (L2) learners encounter difficulties in parsing segmental (e.g., vowels and consonants) and prosodic features (e.g., stress and tone). For instance, difficulty in discriminating /r/ vs. /l/ is persistent in Japanese learners of English [1]. Advanced French learners of Spanish have ‘persistent deafness’ in perceiving Spanish lexical stress [2]. Theoretical models proposed by Lado (1957) and Brown (1998) account for such perceptual difficulties that the lack of certain phonological representations in the native language influences non-native perception and thus bring difficulties to process the non-native contrasts[3-4].

In order to examine the predictions from these models, I investigated L2 perception of Japanese lexical pitch-accent. Two language groups were tested: advanced Korean learners of Japanese (target group) and Tokyo Japanese native speakers (control group). Tokyo Japanese has a lexical pitch-accent system where the meaning of a word is determined by the presence or location of a pitch fall (“pitch-accent”) in multi-syllable domain. In contrast, Seoul Korean features no word-level tonal representations to signal lexical contrasts.

In the experiment, I examined three accentual contrasts (H’-L vs. L-H’, H’-L vs. L-H and L-H vs. L-H’) by means of a sequence-recall paradigm adapted from Dupoux et al. (2001). Compared to ABX discrimination task used most often, the highlight of Dupoux’s paradigm was to examine phonological processing with short-term memory load, which was more demanding. The experiment contained three parts, each part investigating each contrast. Non-words (e.g., /nono/) of the three accentual contrasts were used. Participants were first required to learn each contrast (two words e.g., A, B). Then they heard the words in two-word, three-word and four-word sequence (e.g., AB, ABA, ABAB) in block1, block2 and block3, respectively and recalled the sequence of words after they heard. The longer the sequence of words were, the more demanding the task was and the more participants had to resort to process pitch-accent phonologically.

The results (see in page 2 for details) showed that there was no significant difference between advanced Korean learners and Japanese native speakers in perceiving pitch-accent contrasts including minimal pairs of final accented vs. unaccented (L-H vs. L-H’). This result cannot be explained by the models in [3-4] but instead supports “acoustic warping” models predicting that non-native perception of certain cues can be enhanced or reduced, depending on their functional value in the native language [5-7]. Although pitch does not function at word-level in Seoul Korean, it plays a crucial role in word segmentation [8]. In particular, IP (intonational phrases) and AP (accentual phrases) depend to a large extent on the usage of pitch to distinguish phrase-level meanings in Seoul Korean. This provides some insight into Korean learners’ processing Japanese pitch-accent in that the usage of pitch at the phrasal level in their native language facilitates the perception of lexical pitch in pitch-accent.

In conclusion, the study applied the paradigm demanding phonological processing with short-term memory load to examine the processing of lexical pitch-accent by advanced Korean learners of Japanese. The findings can be regarded as an approach to examine phonology acquisition models. Further studies will be carried out in less advanced Korean learners of Japanese. And online parsing of lexical pitch-accent in mental lexicon in L2 learners of Japanese is of interest for future study.

## References

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## Tables and figures

### 1) Stimuli for the experiments

Contrast	First Item	Second Item
Initial accented vs. Final accented	H'-L	L-H'
Initial accented vs. Unaccented	H'-L	L-H
Final accented vs. Unaccented	L-H'	L-H

### 2) Results of the experiments

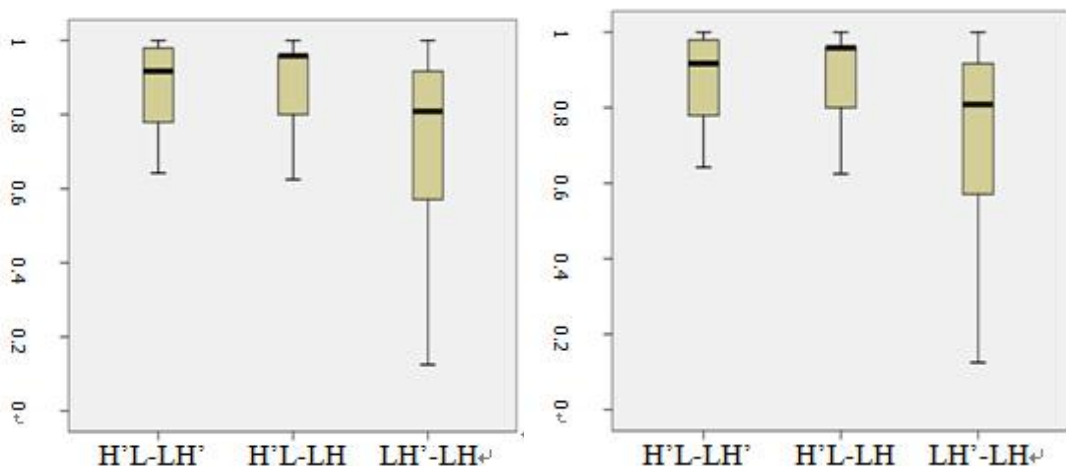


Figure 1. Korean group's accuracy rate. Figure 2. Japan group's accuracy rate. No significant difference was shown in each contrast (H'-L vs. L-H': p=0.104, H'-L vs. L-H: p=0.276, L-H' vs. L-H: p=0.644).