

Perception of lexical stress and sentence focus by Korean/Spanish learners of English

Goun Lee^{1*}, Dong-Jin Shin^{2**}, Maria Teresa Martinez Garcia^{3**}
* Sungkyunkwan University, ** Hankuk University of Foreign Studies
¹cconni@skku.edu, ²djshin@hufs.ac.kr, ³mtmg87@gmail.com

ABSTRACT

The current study investigates to what extent the phonological features of a L1 influences the perception of prominence in a L2. Considering that Spanish has word-level-stress and Korean has phrasal accent, we examined how these two different L2 groups of English process English lexical stress and sentence focus differently. 16 Spanish learners of English and 15 Korean learners of English completed a lexical stress and a sentence focus oddity test. The results revealed that having lexical stress and phrasal accent in the L1 facilitates the acquisition of L2 prominence.

1. Introduction

Prominence can be expressed as the relative difference between two syllables within a word, and as the difference between words within phrases. Word-level prominence creates lexical contrasts by using one of the acoustic cues such as F0, duration, intensity, or segmental differences [1]; phrasal-level prominence creates context-dependent pitch accents which distinguish phrasal boundaries [2].

Languages have different ways of expressing prominence, either at the word-level or at the sentence-level. For example, English carries free lexical stress, and the prominence within a word can be assigned at any syllable within the word. Similarly, Spanish has free lexical stress, although there is a statistical preference for penultimate syllable [3] and phrasal-level prominence [4]. On the other hand, Korean does not carry lexical stress [5], but carries phrasal-level prominence, known as the Accentual Phrase (AP), which plays an important role in marking phrasal boundary [6].

Based on these cross-linguistic differences between Korean and Spanish, the current study aims to investigate to what extent the phonological features in the L1 influences the perception of prominence in a L2. Previous studies have claimed that the learnability of lexical stress is solely dependent on the phonological features found in the L1, as suggested by the Stress Deafness Model [7]. If so, the differences of expressing prominence in the L1 will affect the acquisition of prominence in the L2. Thus, the primary goal of the current study is to examine whether Spanish learners of English, whose L1 carries word-level stress, process

English lexical stress and English sentence focus better than Korean learners of English. We also examine whether Korean learners of English will be better at identifying English sentence focus than Spanish learners of English, since Korean marks AP using F0.

2. Methods

2.1. Subjects

16 Spanish learners of English and 15 Korean learners of English completed a lexical stress and a sentence focus oddity test implemented in Praat [8]. To control the proficiency level between the two groups, participants completed the Michigan test [9] in which the listeners hear a sentence auditorily and then choose the possible answer among three visually presented candidates. The Wilcoxon test did not reveal differences in proficiency between the two groups at $p > .05$.

2.2. Stimuli

For the stress oddity test, listeners heard three words consecutively and then had to choose which sound had a different stress pattern. The stimuli consisted of 68 pairs of disyllabic stress pairs (e.g., *CONtract-conTRACT*), which were recorded by native speakers of Southern British English. A total of 272 stimuli (68 words x 2 pairs x 2 speakers) were played during this test.

For the sentence focus recognition test, the same L1 native speakers of SBE also produced 61 Bamford-Kowal-Bench (BKB; [10]) sentences. These sentences were produced to have the sentence focus either on the first NP (e.g., *THE HOUSE had nine rooms*) or the last NP (e.g., *the house had nine ROOMS*) by answering the prompted questions (e.g., *What has nine rooms? vs. What did the house have?*) Similarly to the lexical stress oddity test, the Korean/Spanish listeners heard three different sentences on each trial, and then were asked to choose which one had the different intonation pattern. A total of 244 stimuli (61 sentences x 2 focus patterns x 2 speakers) were presented during this test.

2.3. Analysis

For the statistical analysis, a logistic mixed effect model was run using the *lme4* package [11] in *R* [12]. The model analysed Accuracy (1=correct, 0=incorrect)

as dependent variables with Test (Lexical stress vs. Sentence focus), Group (Spanish vs. Korean), and Proficiency (1-45) as independent variables. Subject and Trial were entered as random effects.

3. Results

The results showed a main effect of Test, $c^2(1) = 15.98$, $p < 0.001$, indicating that listeners identified lexical stress more accurately than sentence focus. We also found a main effect of Proficiency, $c^2(1) = 7.92$, $p < 0.001$, indicating that listeners identified both tests more accurately as their proficiency increases. We also found a significant interaction between Test and Group, $c^2(1) = 13.22$, $p < 0.001$, indicating that Spanish listeners were better at recognizing lexical stress than Korean listeners, whereas Korean listeners were better at recognizing sentence focus than Spanish listeners. Figure 1 indicates that the accuracy difference of two oddity tests by the two listener groups.

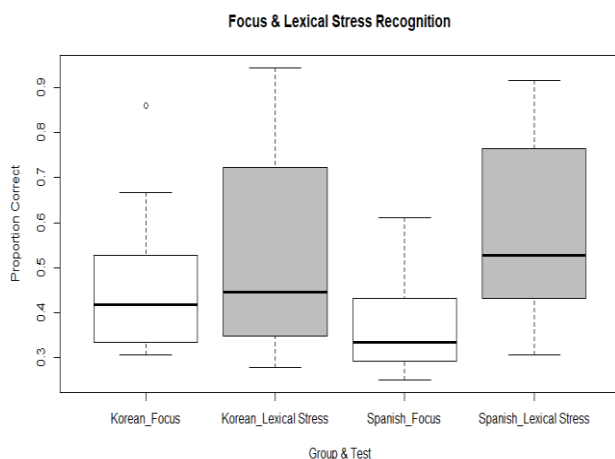


Figure 1. Recognition accuracy of sentence focus (white box) and lexical stress (grey box) of the two speaker groups (Left: Korean, Right: Spanish)

4. Discussion

The results of the two oddity tests revealed that L1 phonological features facilitate the acquisition of L2 prominence. As opposed to the Stress Deafness Model [7], Korean learners of English could identify English stress patterns, as indicated by an accuracy level above chance level (33%). However, it was also true that having lexical stress in the L1 (Spanish learners) facilitates acquiring L2 lexical stress, as suggested by the higher accuracy rate for Spanish listeners than Korean listeners at identifying stress pattern. A similar pattern was also found from sentence focus identification but in an opposite way, showing higher accuracy rate for Korean listeners than Spanish listeners at identifying sentence focus. This might be due to the

fact that Korean dominantly uses F0 cues to mark the phrasal boundary in AP domain, thus Korean listeners are more sensitive to the use of F0 than Spanish learners. Moreover, even though both Spanish and English have phrasal-level prominence, the two languages differ in how this feature is instantiated [4], fostering negative transfer and causing some perceptual difficulties among the listeners in the Spanish group. Taken together, the current study was able to reveal that L1 phonological features that express different levels of prominence either facilitate or hinder the acquisition of L2 prominence.

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