JAPANESE EFL LEARNERS' PRODUCTION OF PRONOUNS AND ARTICLES IN ENGLISH: EVIDENCE FOR L2 PROSODIC STRUCTURES

Noriko Yamane *[1], Noriko Yoshimura †[2] and Atsushi Fujimori ‡[3]
[1] Kobe University. [1,2] University of Shizuoka. [3] Shizuoka University, Japan

1 Introduction

Experimental studies on Japanese speakers of L2 English (JEL2) have revealed that L1 prosodic transfer occurs in the production of lexical accent, duration, and temporal organization across syllables [4], syllable structures and isochrony [1]. The entire intonation of L2 English may also be influenced by L1 syntax, such as word order [2] and phrasing [3]. But it remains unclear how items unavailable in the L1 are realized in L2 prosody. The current study investigates how morphosyntactic components unavailable in L1 Japanese are prosodically realized in L2 English.

2 Method

2.1 Procedure

Twenty Japanese university students who learn English as a foreign language (intermediate level, 18-22 years old, 14 females, 6 males) (JEL2) and 10 speakers of North American English (20-49 years old, 7 females, 3 males) (EL1) participated in the study. Their task was to read a short passage (1) aloud.

(1) *Some years ago, Mr. Sato had a very kind student in his class. She had a pretty name, Aika. Her classmates liked her very much. Sometimes Mr. Sato saw her at school early in the morning. In her hands she always had very pretty flowers. She picked them from her garden. Everyone in her class loved the colorful flowers.*

2.2 Measurements

English personal pronouns and articles ('her', 'them', and 'the') were selected for the present analysis because their equivalents are not available in Japanese. The duration of these items and phrases containing them (DPs and VPs) was measured with Praat. Then the ratios of the target items to the entire phrases were calculated, and compared with those of EL1. The pitch height and the duration of the pauses were also measured if they became relevant. This paper reports the measurement results of some noun phrases ('the colorful flowers' and 'her garden') and a verb phrase (i.e., 'picked them') recorded.

* noriko.yamane@outlook.com
† yoshimun@u-shizuoka-ken.ac.jp
‡ fujimori.atsushi@shizuoka.ac.jp

3 Results

3.1 Duration

It is well known that L1 English has a significant duration difference between stressed and unstressed syllables. The duration of a stressed vowel to the duration of an unstressed vowel of the same word (e.g., "CONtract") produced by L1 English ranges from 1.6 to 2, but the novice JEL2 tend to have the ratio around 1 [4]. Since pronouns and articles are unstressed in English, some difference should be expected between EL1 and JEL2, in terms of the duration ratio of these items to the phrase containing stressed syllables.

A significant difference in the ratios was found in the noun phrase [her garden], but not in the verb phrase [picked them]. As expected, JEL2 pronounced the pronoun 'her' significantly longer than EL1 in the noun phrase ($p<.0001$). The mean duration ratio of 'her' was 27.8% in EL1, and 41.2% of the phrase in JEL2.

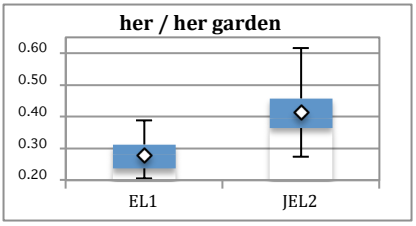

Figure 1: Ratio of 'her' to DP

In the verb phrase, however, the object pronoun 'them' did not show any significant difference in the mean duration ratio between the two groups. (46.4% for EL1, 48.4% for JEL2).

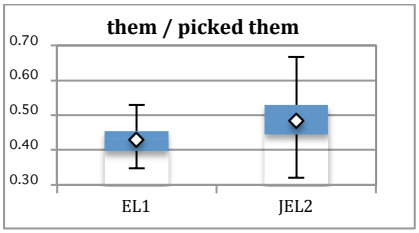

Figure 2: Ratio of 'them' to VP

There was a general tendency for JEL2 to have longer duration in the production of pronouns and articles in DP compared to EL1.

3.2 Pitch

As for the pitch patterns of the target phrases (DP and VP), there was no statistically significant difference between JEL2 and EL1. Both groups showed a great variety of pitch patterns – rising, falling or flat appeared across the speakers,

and it was ungeneralizable. However, the global pitch contours over the sentence level seem somewhat different.

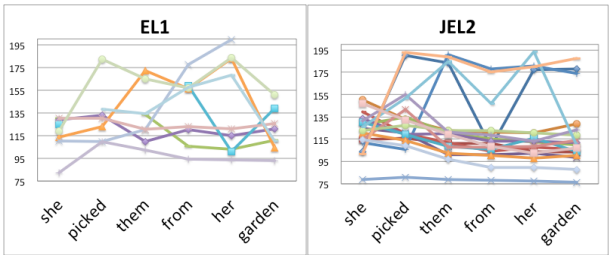

Figure 3: Pitch patterns of the whole sentence

In the sentence *she picked them from her garden*, the subject pronoun 'she' is given whose referent is in the discourse (old information) while the VP is the focus (new information). Then the VP is expected to receive the highest pitch. As seen in Figure 3, the pitch movements vary across EL1, but in the transition from the pronoun 'she' to verb 'picked' (i.e., at the left edge of the VP), pitch rise seems to be a popular direction. As for JEL2, pitch fall in this position seems to be a general tendency, contrary to the expectation. You could also recognize from the graph above that the majority of JEL2 have the highest pitch at the sentence initial position and gradually decline it toward the end of the sentence. This is probably a transfer of Japanese intonation to L2 English [5].

3.3 Pause

Pauses were identified if two ESL instructors perceived them as such. The difference of pausing between EL1 and JEL2 was found most noticeably in the sentence *Everyone in her class loved the colorful flowers.* EL1 typically placed a pause before the determiner (i.e., at the left edge of the DP), but about half of JEL2 paused between 'the' and 'colorful'. The latter pattern was not found in any of EL1. The acoustic measurements were done for the duration of the pauses that those JEL2 placed, and the average was around 74 ms. The duration of the DP *the colorful flowers* that they produced was also measured. For all participants of JEL2, the duration ratio of the pause to the DP utterance was calculated. The results show that the mean ratio of pauses to the DP was 0.03, and there was a significant difference between JEL2 and EL1 ($p<.01$).

4 Discussion

It is interesting to see that there is an initial F0 rise at the sentence-initial position, because the neutral intonation contour of Japanese sentences is similar to the orthography □ showing an initial rise and downsteps [3]. Such a pattern was found in the JEL2's production, suggesing that it is a prosodic transfer at the global intonation level.

Now one question arises: why were pronouns and articles unavailable in Japanese pronounced longer? English pronouns and articles are, in neutral context, realized as phonologically weak (with schwa) which makes a sharp contrast with content words which should have greater prominence. Although pronouns and articles do not exist in Japanese, pronouns like *kare* 'he' or *kanojo* 'she' (direct translations from English) can appear only when they function as referential nouns and have semantic focus in the context. Thus, JEL2 could have unconsciously mapped the L1 focus prominence onto the prosodic prominence of L2 English.

Another question concerns why a pause appears between 'the' and 'colorful' in the JEL2's production. This could be due to a processing problem. Generally speaking, the longer the DP, the longer the time it takes to process it. The JEL2 might have put a pause after the determiner to process the rest of the phrase.

Finally, as shown in section 3.1, EL1 and EJL2 had no significant difference in the duration ratio of the pronoun to VP. It is possible to think that in EL1, the duration of pronouns could behave asymmetrically between DP and VP. Pronouns of English are usually short, but they could be subject to get lengthened due to the VP-final position. This view is compatible with Complement Law which states that 'in a head and complement pair of words, main stress falls on the complement independently of its location' and the Iambic-Trochaic Law which states that OV languages like Japanese is inclined to have trochaic rhythm, and VO languages like English to have iambic rhythm [2]. Further research is required with augmented and controlled data.

5 Conclusion

It was found that i) English pronouns and articles are realized in a longer proportion to the relevant syntactic phrase in JEL2's production, ii) pitch contours of JEL2 have some trace of Japanese, iii) an unexpected break was found inside a phrase. Further study is needed with controlled sentences in order to find whether there is any difference in pronouns and articles between DP and VP.

Acknowledgments

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