L1 PROSODIC INTERFERENCE: THE CASE OF SLOVENE STUDENTS OF JAPANESE

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Abstract

A bidirectional perception experiment was conducted on Japanese and Slovene subjects to evaluate the result of a full L1 prosodic interference in recognizing (lexical) accent place in declaratives and interrogatives. Perceptual hypercorrection into L1 prosody on the side of the listener was achieved by making the subjects think they were listening to their own language, and results show clear tendencies for errors, which in general agree with predictions. However, mapping from phonetic to phonological representations was found to be asymmetric, suggesting that subjects of the two languages rely on different phonetic cues, as well as that distinctive function of certain phonetic cues, such as duration, has different effects on perception of segmental structure.

Keywords: perception; lexical accent; L1 interference; Japanese; Slovene

Povzetek

Raziskava razkriva rezultate obojestranskega testa slušnega zaznavanja, ki ga je avtorica izvedla na slovenskih in japonskih slušateljih z namenom, da bi ocenila vpliv maternega jezika na prepoznavanje besednega naglasa v besedah povednega in vprašalnega naklona. Percepcijska hiperkorekcija v prozodijo maternega jezika je bila dosežena tako, da so slušatelji mislili, da poslušajo besede v svojem maternem jeziku. Rezultati kažejo jasne tendence napak, ki se v splošnem skladajo s predvidevanji. Vendar pa hkrati rezultati kažejo, da je bilo uvrščanje fonetičnih oblik v fonološke nesimetrično, zaradi česar lahko sklepamo, da se slušatelji obeh jezikov pri slušnem zaznavanju besednega naglasa zanašajo na različne fonetične lastnosti. Poleg tega lahko sklepamo tudi, da ima pomensko-razločevalna funkcija fonetičnih lastnosti, kot je na primer trajanje, različne vplive na percepcijo segmentne strukture.

Ključne besede: slušno zaznavanje; besedni naglas; vpliv maternega jezika; japonščina; slovenščina

1 Introduction

Second language (L2) learners tend to make mental associations or interlingual identifications between structures of the two languages (Weinreich, 1953; Odlin, 1989; Jarvis & Pavlenko, 2008), and first language (L1) interference is especially high when

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phonological differences between L1 and L2 are hidden behind the phonetic similarities (Eckman et al., 1989; Eckman, 2008).

In this paper, a bidirectional perceptual experiment was conducted to discuss how well a learner perceives L2 accent place under the supposition of a full L1 prosodic interference, or in other words, how well a native listener can recognize accent place from the learner's 'foreign accent' pronunciation.

Much has been done on phonetics and phonology of Japanese accentuation (e.g. Haraguchi, 1977; Shibatani, 1972; Sugito, 1972; Uwano, 2003; etc.), and some on Slovene accentuation (e.g. Bhaskararao & Golob, 2006; Srebot-Rejec, 1988, 1997; Šuštaršič, 1995, 2004; Toporišič, 1965, 2000; etc.) respectively, however, very little is known on the prosodic interference of the two languages[1]. A comparative study on acoustics of accentuation (Golob, 2005; Golob, 2011 compared Japanese pitch accent and Slovene stress accent) pointed out a different interaction of accentual and intonational tier in the two languages, and proposed a possible L1 interference as shown in Figure 1 (Golob, 2005).

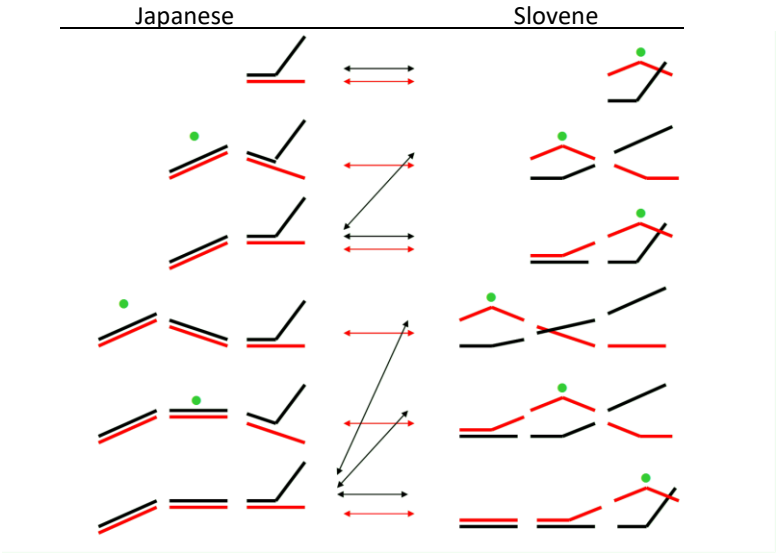


Figure 1: Hypothetical L1 interference between Japanese and Slovene based on pitch patterns. Declaratives are in red and interrogatives in black. Accent place is marked with a green dot.

Accent place in declaratives is expected to be perceived correctly since the similarities in pitch patterns stay within the so-called 'bilingual minimal pair'. This is not the case with interrogatives, where certain accent patterns in Japanese are expected to take more than one Slovene pattern while others show no matches.

[1] Prosodic influence was reported for Slovene speakers of Chinese, another language with tonal contrast (Petrovčič & Lin, 2015).

The present study aims to verify the above hypothesis and investigates on Japanese accent patterns that hypothetically show no matches. It further briefly examines the role of duration and intensity (which are ignored in the above hypothesis) in the misperception of an accent place.

2 Perception experiment

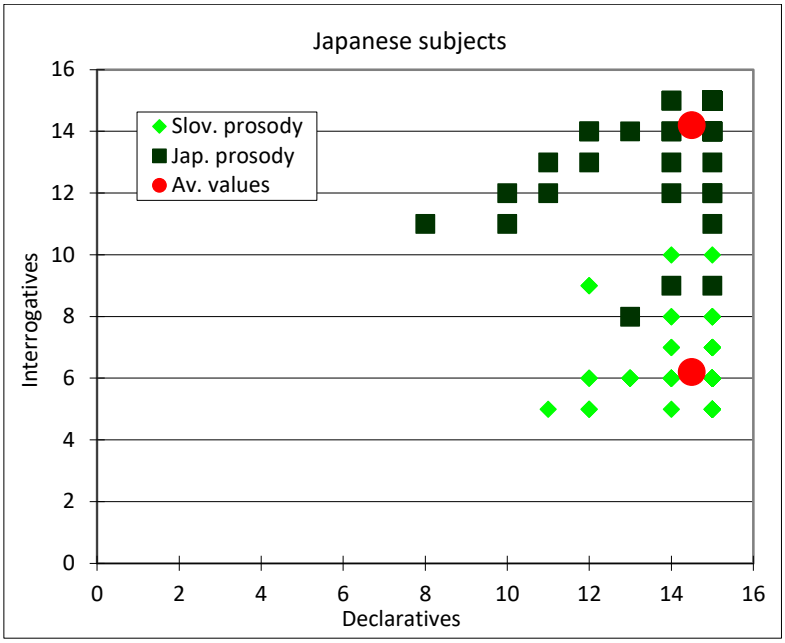
2.1 Methodology

Altogether 173 subjects, 106 Japanese and 67 Slovene native speakers, were asked to listen to their native language (reiterant speech, Larkey, 1983) and mark the accent place. The material, in total including 60 items, consisted of 2- and 3-syllabic words, half with Japanese and half with Slovene prosody, and chosen randomly from 10 Japanese and 10 Slovene native speakers. 'No accent place' answer option was given to Japanese subjects for the Japanese so-called *heibangata* accent pattern, cf. an accentless word, and was equated with the Slovene word accented on the final syllable.

Subjects scoring less than 50% in either declaratives or interrogatives of their native language were eliminated from further analysis (25 Japanese and 6 Slovene subjects).

2.2 Results

Figures 2a, 2b show results from 82 Japanese (top) and 61 Slovene subjects (bottom). Generally speaking, the difference between L1 and L2 perception was statistically significant for both groups of subjects ($p<0.001$), error rate being higher for L2 perception. Japanese subjects show a very high score for both intonational surroundings in L1 (96.3%, SD 9.0 and 94.7%, SD 10.2) as well as for declaratives in L2 (96.4%, SD 6.6), while L2 interrogatives, with only 41.6% in average (SD 6.9), show strong and clear error tendencies (see below). Slovene subjects also perceive accent places of L1 (89.0%, SD 12.5 and 82.1%, SD 14.1) better than those of L2 (76.7%, SD 15.9 and 57.7%, SD 17.9) but their error rate rises relatively evenly in both intonational surroundings, the tendency being typical for certain Japanese accent patterns (described in detail in 2.2.1).



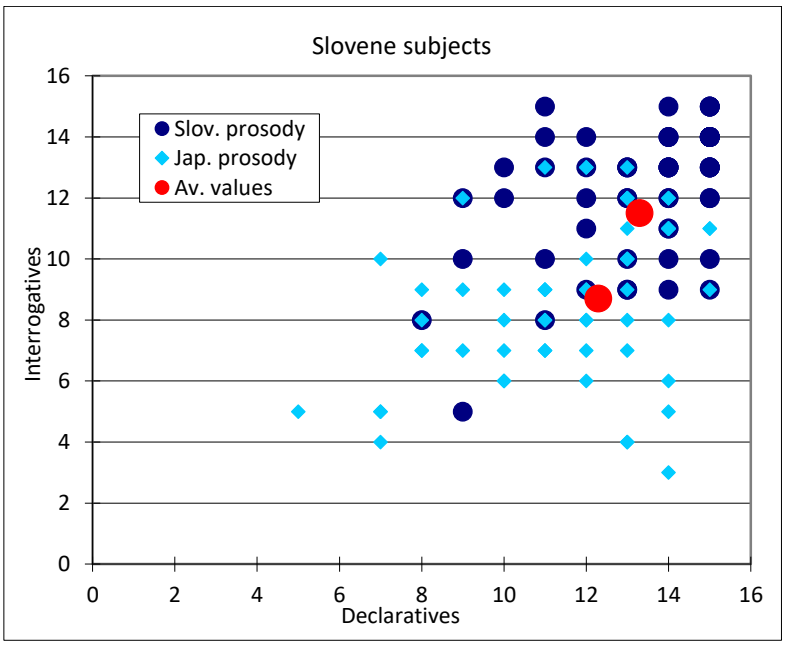


Figure 2a, 2b: Scattergrams showing correct answers in L1 and L2 perception by Japanese (top) and Slovene subjects (bottom).

2.2.1 Error analysis

Error rates were observed based on accent patterns and error tendencies were further evaluated to conclude on general L1 interference.

Results for Japanese subjects show that error rates in declaratives are negligible (Figure 3a), while in interrogatives (Figure 3b), there is a clear distinction between high and low error rates, depending on accent pattern. Validity is very low with words that are accented on a non-final syllable (average error rate is 92%, SD 4.1), of which 89.4% (SD 3.9) of cases were judged to have accent on the final syllable.

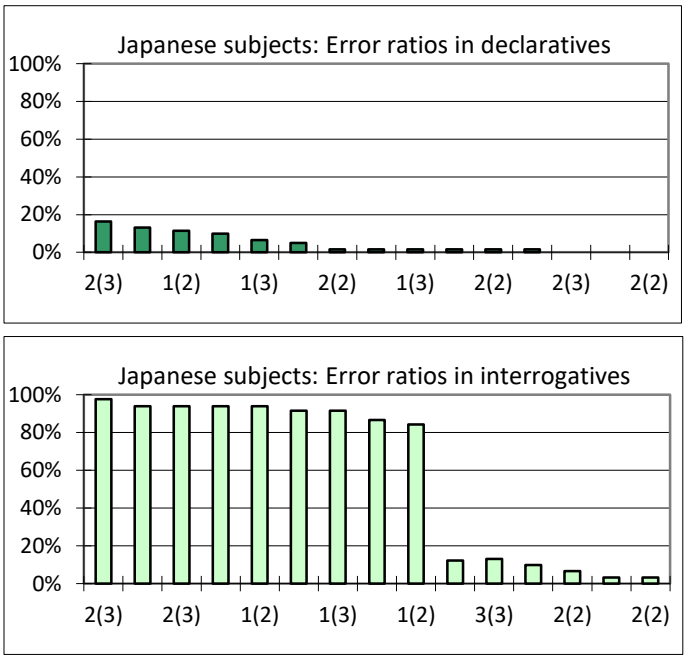


Figure 3a, 3b: Error rates for each word in declaratives (top) and interrogatives (bottom) by Japanese subjects. X-axis shows accent place and number of syllables in a word (in brackets).

Figures 4a and 4b show that, irrespective of intonational surrounding, Slovene subjects tend to make most errors in cases of Japanese non-accented words (28.8%, SD 16.5 and 50.2%, SD 19.6), placing the accent onto the first syllable (13.0%, SD 7.0 and 20.3%, SD 7.4) or penultimate syllable (11.7%, SD 6.5 and 18.7%, SD 12.4) in 3-syllabic words, and onto the first syllable in 2-syllabic words (10.1%, SD 3.6 and 20.3%, SD 5.5). Words accented on the first, penultimate, or first and penultimate syllable show slightly higher validity with the error ratios of 8.3%, SD 3.2 and 16.0%, SD 10.8, 16.7%, SD 4.7 and 27.0%, SD 7.5, 9.7%, SD 6.0 and 24.3%, SD 17.6, respectively. Their error tendencies seem to be random.

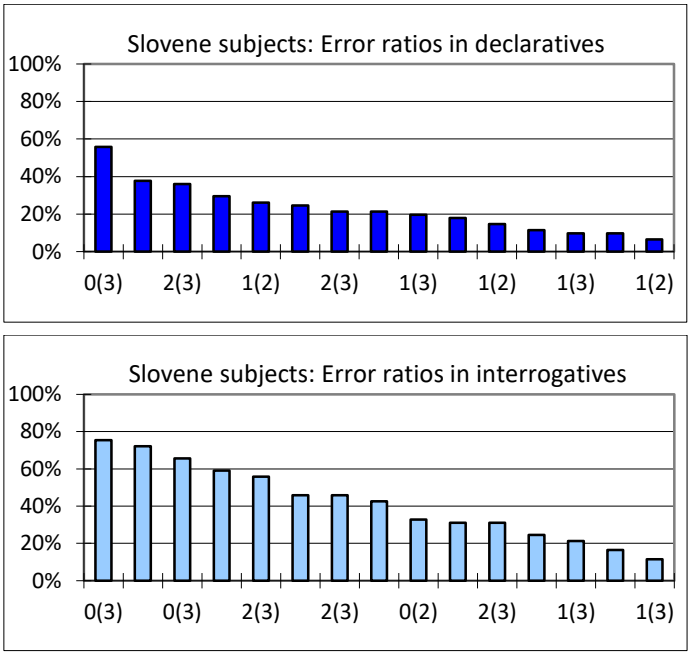


Figure 4a, 4b: Error rates for each word in declaratives (top) and interrogatives (bottom) by Slovene subjects. X-axis shows accent place and number of syllables in a word (in brackets).

3 General discussion and conclusions

A bidirectional study predicted symmetric mapping of phonetic information into L1 phonology. Predictions were confirmed for Japanese subjects, who extremely well perceived all but interrogatives with a non-final accent place, mistaking them for non-accented words. Similar results were obtained by Ayusawa (reviewed in Ayusawa, 2003) for several other language groups, which additionally shows that Japanese native listeners rely on the pitch fall in perception of accent place (Sugito, 1972; Uwano, 2003). Despite the low error rate, some Japanese subjects pointed out the possible incorrect transcription on the answer sheet, claiming a missing moraic vowel on the accented syllable, which points at L1 prosodic characteristics interfering with segmental organization. On the other hand, Slovene subjects show a weak tendency to place accent on a non-final syllable, following a common accent patterning in Slovene (Toporišič, 2000 [1976]). In general, however, errors were observed to occur randomly, suggesting that pitch information alone is not sufficient to correctly perceive accent place. Duration was shown to be an important phonetic cue in Slovene (Bhaskararao & Golob, 2006; Toporišič, 2000 [1976]), and further investigation is needed to show how much the lack of durational information (also those on intensity?) contributes to the misperception of accent place.

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