The adaptation of Italian geminates and vowels in Japanese: its relation to the perception

Shin'ichi Tanaka
Kobe University

This paper examines how geminates and vowels in a donor language are borrowed in a language which already has a geminate and a vowel-length contrasts, by analysing the loanword adaptation of Italian consonants and vowels in Japanese and its relationship to the perception of geminates and vowels by Japanese speakers. We argue that both phonological factors (phonological markedness hierarchy of L1) and phonetic factors (phonetic duration patterns in L2) affect the adaptation patterns.

It is known that both Italian and Japanese have a contrast in consonant length. On the other hand, they exhibit noticeable differences: while Italian has geminates for almost all consonants in its consonant inventory, Japanese disfavour voiced geminate obstruents and generally prohibit geminate approximants. We report that this hierarchy or order affects the adaptation patterns of loanwords. As for vowels, it is known that while Japanese has a phonological contrast in vowel length (Tsujimura 2007, etc.), Italian has no contrast; vowel length in Italian depends on the cooccurrence of the stress, the syllable structure and the syllable position (Marotta 1985, D'imperio and Rosenthall 1999, Kori 1993): a vowel is phonetically longer if it occurs in a stressesd syllable (than in an unstressed syllable), in an open syllable (than in a close syllable including **geminates**), and a default penultimate position. We report that these conditions affect the adaptation patterns of loanwords.

In the first part of the presentation, we report a corpus study of the loanword adaptation patterns in Japanese. By extracting 981 loanwords from Italian containing a total of 3,674 examples of intervocalic consonants (3,347 singletons and 327 geminates) and 4,213 examples of vowels (3754 short vowels and 459 long vowels), we claim the following. First, more than half of Italian geminates are borrowed as geminates in Japanese (58%: 190/327), and almost all consonants that form geminates in Japanese are attributable to geminates in Italian (99%: 190/193). Second, the percentage of geminates increases in accordance with the tendency: namely, voiceless obstruents (82%: 167/204), voiced obstruents (57%: 13/23), and approximants (10%: 10/100). These results are similar to those of geminates in loanwords from English. Third, vowels in a stressed open syllable are most likely to be borrowed as long vowels, while vowels in a closed syllable, even in stressed syllable, are never borrowed as long vowels. We argue that this is attributable to the prohibition of the occurrence of super heavy (i.e. trimoraic) syllables (Kubozono 1995).

In the latter half of the paper, we report the results of a perception experiment with Japanese speakers as subjects. From the 5,040 samples obtained (84 stimulus words × 60 subjects), we first

demonstrate that the majority of geminates in Italian are perceived as geminates by Japanese speakers (85%: 2,139/2,520). Second, the percentage of geminate approximants as perceived as geminates is lower (75%: 271/360). However, the percentage of perceived geminates is considerably higher than that of gemination in actual loanwords from Italian (58%: 190/327). These results suggest that the phonology of L1 plays a role in Japanese speakers' perception by limiting the occurrence of voiced obstruent geminates and prohibiting the occurrence of approximant geminates */rr/: specifically, */rr/ affects the perception of Japanese speakers. Third, Japanese speakers perceive almost all vowels in a stressed open syllable as long, while they perceive vowels in an unstressed close syllable as long, except in the condition where its coda is approximant (/ll/and/rr/).

Finally, we point out a clear correlation between the percentage of perceived geminates and the duration of consonants. Moreover, the consonant duration varies considerably depending on the position: consonants tend to be longer towards the end of the word (i.e. the stressed position). In accordance with this, geminate approximants are extremely short in the -4 or -5 positions, which is arguably responsible for the relatively low percentage of perceived geminates in approximants.

(1) Geminate approximants [It] → [Jap] ＋Gem. vs. - Gem.

a. (-2) se**rr**a 'greenhouse'→ se**r.r**a (58/60) vs. se.**r**a (2/60)

(-2) ane**ll**o 'ring' → a.ne**r.r**o (58/60) vs. a.ne.**r**o (2/60)

b. (-5) fe**rr**agosto → fe**r.r**a.go.su.to (18/60) vs. fe.**r**a.go.su.to (42/60)

(-5) a**ll**egria 'cheerful' → a**r.r**e.gu.rii.a (31/60) vs. a.**r**e.gu.rii.a (29/60)

From these results, we conclude that the positional effect does not depend on the position itself, but rather it reflects the position-dependent phonetic features (i.e. default stressed positon) in Italian.

References

D'imperio, Maria Paola and Rosenthall, Sam. 1999. Phonetics and phonology of main stress in Italian. *Phonology* 16, 1-28.

Kori, Shiro. 1993. Itariago no Inritsuteki Tokutyoo: Oto no Nagasa o Kiteisuru Yooin ni tsuite [Prosodic Characteristics of Italian: On Factors Determining the Duration of Segments]. In *Retirement Festschrift in Honor of Professor Ikeda, Kiyoshi,* Ed by Aratani, Jiro, 185-210. Osaka: Osaka University of Foreign Studies.

Kubozono, Haruo. 1995. *Gokeisei to On'in Koozoo* [*Word Formation and Phonological Structure*]. Tokyo: Kurosio.

Marotta, Giovanna. 1985. *Modelli e misure ritmiche: la durata vocalica in italiano*.

Tsujimura, Natsuko. 2007. *An Introduction to Japanese Linguistics*. Wiley-Blackwell.