

Rendaku and Markedness: Phonetic and Phonological Effects

The conditions for occurrence of *rendaku* have been discussed from various viewpoints. However, little attention has been given to the phonological environment of *rendaku* consonants. The present study investigated the effects of sounds before and after word or morpheme boundaries on *rendaku* and gave a consideration from the perspective of markedness: (1) the effects of the final vowels of the first element of the compounds (i.e., /a/, /i/, and /u/), (2) the voicing likelihood of the four voiceless consonants /k/, /s/, /t/, and /h/, (*rendaku*-targeted consonants hereafter), and (3) the effects of vowels (i.e., /a/, /e/, /i/, /o/, and /u/) following the *rendaku*-targeted consonants.

Two experiments were conducted using a questionnaire comprising voiced-or-voiceless choices by native Japanese speakers. The stimulus items are the compounds composed of Japanese real words in the first element and nonwords in the second element. Nonwords were selected to eliminate the different *rendaku* power for each real words (Rosen 2001). A one-way analysis of variance with repeated measures on *rendaku* strength, with each instance of *rendaku* counting as one point, indicated that the main effect of *rendaku*-targeted consonants was significant [$F(3,486)=41.559, p<.001$]. It was observed from the results of subsequent simple paired contrasts that the *rendaku* strengths were marked by the differences among the *rendaku*-targeted consonants in the descending order /h/ > /k/ = /t/ > /s/. The main effect of the vowels following *rendaku*-targeted consonants was significant [$F(4,648)=6.031, p<.001$]. The *rendaku* strengths followed the order /a/ = /u/ > /e/ = /o/ = /i/. As for the effects of the final vowels of the first element of the compound, the statistical analysis indicated the main effect was not significant [$F(2,324)=2.857, p=.059$].

The present study revealed: (1) In the effects of the final vowels of the first element of the compounds, no differences were observed among the vowels. These vowels do not affect *rendaku* across morpheme or word boundaries. (2) The voicing likelihood of *rendaku*-targeted consonants was higher in /k/ and /t/ than in /s/, which conforms to the markedness scale of consonants (Stop << Fricative; labial>> dorsal >> coronal >> glottal). The stop /b/ is lower in markedness, so the voicing likelihood of /h/ is considered higher. (3) The result of the effects of the vowels following *rendaku*-targeted consonants was found to be ordered /a/ = /u/ > /e/ = /o/ = /i/, which conforms to the markedness scale of vowels (/a/ << /i/ /u/ << /e/ /o/) except /i/.

References

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