

## Phonetic and phonological adaptation of loanwords: Mandarin falling diphthongs in Heritage Korean in China

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**Introduction:** Standard Korean lacks falling diphthongs and when foreign words with a falling diphthong are borrowed into Homeland Korean, the diphthong is most often realized as a disyllabic vowel sequence (Table 1(b)). This adaptation satisfies the native phonological restriction against falling diphthongs at the expense of altering the input phonological structure. In this study, we examine how Mandarin falling diphthongs are adapted to a heritage Korean dialect spoken in Dandong, China, where the level of bilingualism is high, and examine how the conflicting demands of faithfulness to input phonological structure and the markedness restriction of the native phonology may be reconciled differently depending on the sociolinguistic context of borrowing. Specifically, we hypothesize that the faithfulness to the input phonological structure will be more important in the context of high than low bilingualism. We also expect that the importation of novel structure will be more common in high bilingualism (Haugen 1950, Paradis & LaCharité 2008). Our study also examines how subtle phonetic conditions of the source language affects adaptation. We hypothesize that in this bilingual population, generalizations speakers draw about adaptation are mediated by their knowledge of Mandarin phonological categories and speakers develop adaptation patterns that over- or under-project subtle phonetic effects (Kang 2010, de Jong & Cho 2012).

**Methodology:** Loanword data were collected from seven ethnic Koreans in Dandong, who are bilingual speakers of Mandarin and Korean but consider Korean as their native language. We examined the production of established loanwords as well as online adaptation of Mandarin words into Korean. The list included 128 Mandarin words balanced for (a) the tone on the target diphthong (T1, T2, T3, & T4) and (b) the position (initial vs. final) of the target syllable. The Mandarin words were presented aurally along with the Chinese orthography, and speakers produced the appropriate Korean forms embedded in a contextually suitable carrier sentence.

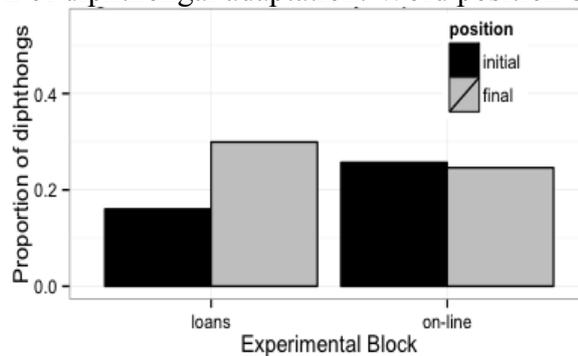
**Results:** Two major patterns emerge in the data: (a) coalescence into a monophthong and (b) retention of the diphthong. The monophthongal adaptation obeys the constraint against falling diphthongs in Korean phonology while the diphthongal adaptation preserves the Mandarin syllable count at the expense of violating a native constraint (Table 1(a)). We also found that the diphthongal adaptation is more likely when the vowel occurs in a final than non-final syllable, a difference attributed to the longer vowel duration of vowels in final syllables in Mandarin, with long duration inducing more diphthongal adaptation (Figure 1). Interestingly, this position effect disappears in on-line adaptation, suggesting that adapters internalized the adaptation pattern, abstracting away from this context-dependent phonetic variation of the input. We also found that a longer tone (T3) conditions more diphthongal adaptations than vowels with a shorter tone (T4). However, while this durational asymmetry in Mandarin is found only in final position as T3 shortens to a length comparable to that of other vowels in non-final syllables, the tone-based asymmetry in adaptation persists, albeit weaker, in non-final syllables (Figure 2). This indicates that while the diphthongal adaptation preference of T3 may have its origin in phonetics, the tonal effect in adaptation is grammaticalized based on Mandarin tonal categories, persisting even in contexts where the phonetic condition does not hold.

**Conclusion:** The study found that the Mandarin phonological structure (i.e., syllable count) is preferentially preserved in the adaptation by bilinguals. Phonetic duration of input vowel affects adaptation (i.e., longer vowels induce more diphthongs), but we also found that these phonetic effects make their way into the lexicon (established loans) and the grammar (on-line adaptation) through the filter of Mandarin phonological categories. Together, these results illustrate how loanword adaptation in this bilingual population is shaped by the confluence of phonetic and phonological properties of the L2 input.

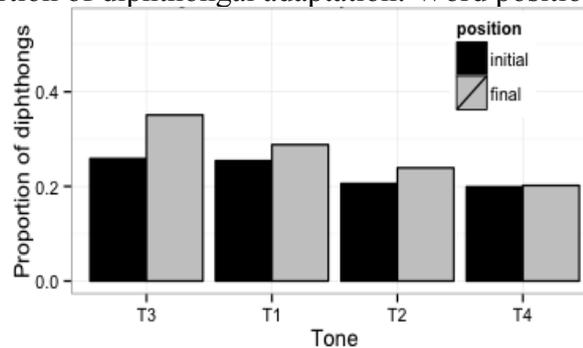
**Table 1.** Adaptation patterns of Mandarin loanwords: Heritage vs. Homeland

(a) Heritage Korean in China (1,207 total tokens)	(b) Homeland Korean
<u>monophthong</u> (75.8%)	<u>diphthong</u> (24.2%)
雪糕 /ɕjɛ.kau/ > /swe.k*o/	彩票 /ts <sup>h</sup> ai.p <sup>h</sup> iau/ > /c <sup>h</sup> ai.p <sup>h</sup> jo/
毛泽东 /mao.tsə.tuŋ/ > /ma.o.c*ə.tuŋ/	
DEP-SYL, *FALLDIPH >> *COALESCENCE	DEP-SYL, *COALESCENCE >> *FALLDIPH
	*FALLDIPH, *COALESCENCE >> DEP-SYL

**Figure 1.** Proportion of diphthongal adaptation: Word position by experimental block



**Figure 2.** Proportion of diphthongal adaptation: Word position by Mandarin tone



## References

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