Inhibition of Korean palatalization in L2 English: Electropalatographic data
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Korean is known to exhibit an allophonic process of palatalization, categorically changing alveolar consonants (e.g. /s, n, l/) to alveolopalatals (e.g. [ɕ, ɲ, ʎ]; Lee, 1999; see (1a)). In contrast, alveolars in English do not undergo palatalization before front vowels, consistently maintaining their place of articulation (1b). Previous phonetic research has established strong influences of L1 on L2 (Flege, 1987; Kang & Guion, 2006; Hacking et al. 2016, among others). Most work, however, has been concerned with learning phonological contrasts (or their realizations), rather than with the acquisition or inhibition of phonological/allophonic processes (but see Oh, 2008). In this paper we investigate whether native Korean speakers transfer the L1-specific process of palatalization to their L2 English.

We collected electropalatographic (EPG) data from 2 Korean native speakers who are intermediate learners of English. EPG tracks the contact between the tongue and the roof of the mouth over time, using a custom-made artificial palate with built-in electrodes. The Korean materials consisted of sentences with 36 established English loanwords (from Kwuklipkwukeyenkwuwen, 1991) with initial and medial /s, n, l/ before /i/ (targets) and before other vowels (controls). The English materials included sentences with the corresponding 36 English words. Sample stimuli for /s/ are shown in (2). Sentences were presented 6 times, yielding a total 432 tokens per speaker. Measurements, taken at the point of maximum contact during the consonant, included the Quotient of electrode activation in the posterior region of the palate (Qp), which is expected to be higher for palatal(ized) consonants (Hacking et al., 2016).

The results for the Korean condition revealed that consonants had significantly higher Qp in target items than control items – reflecting the predicted presence of palatalization before /i/ and its absence elsewhere (see Figure 1, the top panel). The overall degree of contact and the amount of change was lower for /l/ than for /s/ and /n/. The results for the English condition were strikingly different, showing no significant differences between target and control items (the bottom panel). Overall, Qp values for the English target items were as low as for the Korean controls (and lower for /l/), indicative of the near-absence of palatalization. The English /l/ was produced with less palatal contact than the Korean /l/ (where it varies contextually [l,'ʎ,ɾ]), presumably reflecting the velarization of the former.

To summarize, our EPG results from 2 Korean native speakers exhibited no L1-like palatalization of alveolar consonants in L2 English. This suggests that the learners have largely acquired the target pattern, effectively inhibiting the L1 allophonic process. This partly contradicts previous work on the transfer/inhibition of coarticulation (Oh, 2008). The difference is possibly due to a greater salience of categorical allophonic processes (or their absence), compared to gradient coarticulation. The results also show that the realization of Korean palatalization (in L1) is somewhat different depending on the consonant manner, being much smaller in magnitude for /l/ (i.e. [l'] rather than [ʎ]). Further work is needed to confirm the current finding of palatalization inhibition using a more extensive dataset and a larger participant sample.
(1) 


(2) Sample stimuli for the /s/ variable

a. Korean 시즌 (sicun) – 사이클 (saikhul) 가십 (kasip) – 카세트 (khaseythu)
b. English season – cycle, gossip - cassette

Figure 1. Mean Qp (amount of posterior contact) by language condition (KR = Korean, EN = English), stimulus type (target, control) and consonant variable (s, n, l), averaged over position and speakers

Selected references


