

Variable realization of consonant clusters in Seoul and Gyeongsang Korean

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Background In Korean, consonant clusters are realized either as the first (C1) or second consonant (C2) of the cluster before another consonant (e.g. *kulk.ta* ‘to be thick’), conforming to the phonotactic constraints disallowing clusters in syllable coda as well as onset positions. The early studies showed that Consonant Cluster Simplification (CCS) in Korean is conditioned by cluster type ([1]) and dialect ([2]). Recent acoustic studies show further that an innovative variant of preserving both consonants (C1C2) has emerged and increased its frequency in /l/ + consonant (lC) clusters ([3,4]). These studies suggest that younger speakers show a preference to preserve C1, realizing CC as C1 or C1C2, despite the Standard Pronunciation rule dictating that CC should be pronounced as C2 in some cluster types. The present study aims to examine the realization of lC in Seoul and Gyeongsang Korean, using a large-scale spontaneous speech corpus.

Data & Methods The data come from the NIKL Korean Dialogue Corpus ([5]), a corpus of conversational interviews conducted with 2739 speakers from all parts of South Korea in 2020. From this 500-hour-long transcribed corpus, 1107 tokens of lC clusters (/lh, lt^h, lk, lp, lm/) were extracted using the Korean forced aligner ([6]). The coding was performed based on three phonetically-trained coders’ auditory and acoustic analyses. Each token was coded as C1, C2, or C1C2 as well as for the factors known to condition the patterns of CCS. Mixed effects logistic regression models with random intercepts for speaker and verb stem were fit using the *glmer()* function in R to evaluate the effects of all factors as well as their interaction terms on the occurrence rate of C1-preserved variants (C1 & C1C2).

Results The results show that /lp/, /lk/ and /lm/ surface variably as C1, C2 or CC, whereas /lh/ and /lt^h/ clusters are realized categorically as C1. Also, CC in nominal stems (e.g. *talk* ‘chicken’) was categorically realized as C2. Further analyses, therefore, focus on the variable realizations of /lp/, /lk/ and /lm/ in verb stems. The distributional and statistical analyses provide the three main findings.

First, the realization patterns differ drastically by cluster type ($p < 0.001$). Figure 1 shows that the occurrence rate of C1-preserved variants is significantly higher for /lp/ than /lk/ ($\beta = -2.32$, $p < 0.05$) and /lm/ ($\beta = -7.46$, $p < 0.001$) in both dialects.

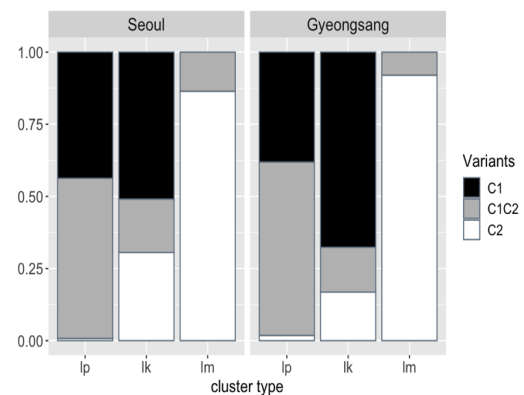
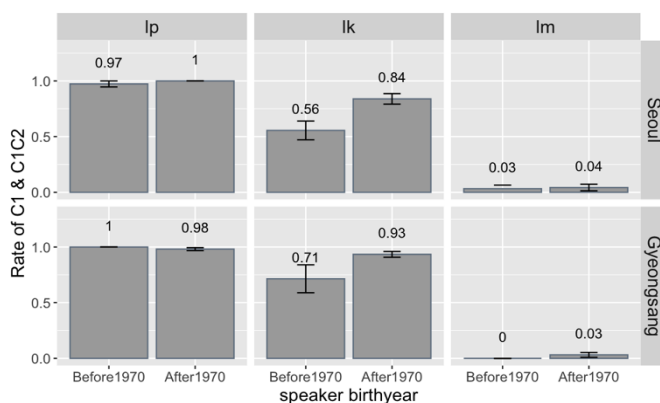


Figure 1. Relative frequency of variants by cluster type and dialect



Second, the trend toward preserving C1 shows an asymmetry depending on cluster type and dialect. Figure 2 reveals that, for /lp/, preserving C1 is prevalent both among older and younger speakers in both dialects; for /lk/, speakers born after 1970 show a significantly higher rate of preserving C1 than those born before 1970 ($\beta = -1.75$, $p < 0.01$) in both dialects; for /lm/, preserving C1 is rarely observed.

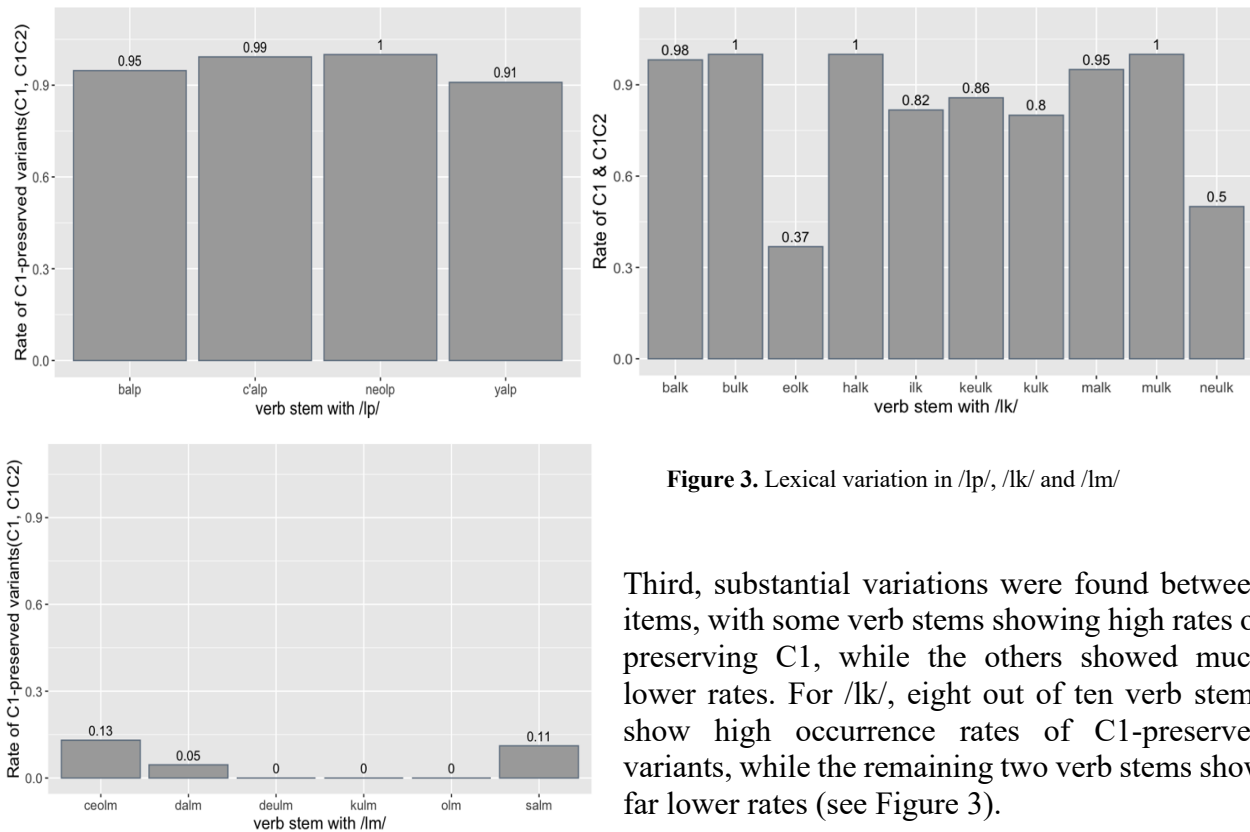


Figure 3. Lexical variation in /lp/, /lk/ and /lm/

Third, substantial variations were found between items, with some verb stems showing high rates of preserving C1, while the others showed much lower rates. For /lk/, eight out of ten verb stems show high occurrence rates of C1-preserved variants, while the remaining two verb stems show far lower rates (see Figure 3).

Discussion We argue that these findings represent mid-course patterns of an ongoing lexical diffusion that involves the expansion of a phonological process from one context to the next and from one item to another within each new context ([7], [8]). We speculate that the change was initiated in a limited context where the preference of C1 over C2 has a strong phonetic motivation, such as /lp/. Following Steriade’s ([9],[10]) licensing by cue hypothesis, we suggest that speakers may prefer to select /l/ over /p/ on the ground that /l/ is perceptually more salient. The change toward preserving C1 in /lp/ appears to have almost gone to completion, with C1 preserved almost categorically. The innovation could have extended to /lk/ where the rate of preserving C1 appears to be vigorously increasing among younger speakers in both dialects. Within this new context, it is presumed to affect certain lexical items earlier than others. The change in /lm/ where the difference between two consonants in the strength of acoustic cues is small appears to be at a very early stage, with C1-preserved variants appearing in some verb stems only.

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