

Experimental Evidence for Phonetic Priming as a Mechanism for Contact-induced Dialect Leveling

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Nanjing is a large, bi-dialectal city in southern China. Both standard Mandarin Chinese (SM) and the local Nanjing Dialect (ND) are in common use in most social contexts [1], yet locals frequently report that ND is leveling towards SM as successive generations of speakers become increasingly “Mandarinized.” This study investigates the role that phonetic priming may play in such contact-induced dialect leveling. Specifically, we present evidence from a bi-dialectal shadowing experiment which indicates that priming speakers with novel phonetic features in one dialect (in this case SM) can lead to related changes in a second dialect (in this case ND).

In two pre-test elicitation blocks, 30 bi-dialectal speakers of SM and ND recorded baseline pronunciations of a word list that could be read in both varieties, recording the complete list in ND first, and then in SM. The list contained 142 words that exemplified six phonetic variables known to differ between the dialects, namely voice onset time (VOT), nasal coda presence, vowel nasality measured by A1-P0, F1xF2 trajectory length of the /ie/ diphthong, midpoint F3 in phonological /n/ syllable onsets, and midpoint F3 of phonological /y/ vowels [2,3]. Note that the nasal coda presence and A1-P0 measures are related, in that they come from the same syllables in the word list. These syllables all have phonological nasal codas in SM, but are typically produced with a nasalized vowel and no coda in ND; i.e., cues to syllable nasality generally exist in both the consonant and vowel in SM, but only the vowel in ND.

In a following shadowing block, participants heard and repeated after recordings of a SM-speaking model talker producing a subset of the same word list that included the VOT and nasal coda/A1-P0 words, but which excluded the rest of the word list. The model talker’s productions were manipulated to include two hyper-standard phonetic variants: increased VOT and consistent nasal coda presence. Participants were expected to significantly imitate these features during shadowing, as shown in prior research [4,5]. In a final post-test elicitation block, participants once again recorded the full word list in ND to assess whether shadowing in SM had altered their ND pronunciations of any of the phonetic variables under examination.

Linear mixed effects regressions and likelihood ratio tests confirmed that participants significantly imitated the model talker’s hyper-standard VOT and nasal coda presence during shadowing, but showed no evidence of an expected change in A1-P0. In the post-test ND elicitation block, VOT, nasal coda presence, diphthong trajectory length, and F3 in /y/ showed no change from the dialect baseline, while A1-P0 converged towards the SM norm, and F3 in /n/ onsets diverged from it, contra theoretically-founded expectations [6]. Note that while ND nasal coda presence did not increase in the post-test, the decrease in vowel nasality alone can be reasonably construed as ND converging with SM norms after exposure to the model talker, as these measures of these phonetic features were taken from the same phonological unit.

These findings illustrate several points with implications for our understanding of both phonetic priming phenomena and dialect change. (1) Phonetic priming can occur across dialects, in this case as influence from (hyper-)Standard Mandarin into Nanjing Dialect. (2) Effects can be seen in related but distinct features, as seen here in changes in A1-P0 following exposure to increased nasal coda presence. (3) Effects can be seen in unprimed features related to an influencing dialect; in this case, F3 raising (indicating a distinctively ND [l] rather than [n] onset realization) occurs after exposure to SM, even though no /n/ onsets were present in the SM exposure materials. (4) Some effects of priming decrease dialect distinctiveness (e.g., nasal coda realization), while others increase it (e.g., /n/ onset realization). Together, these results suggest that the domain of cross-dialectal priming is more abstract than surface acoustic features. Rather, it is at least somewhat phonologically general (e.g., “nasality,” rather than A1-P0 or nasal coda realization) and may reflect dialect-level priming (e.g., priming “Mandarinness” may lead to (non-)Mandarin patterns of onset realization). Further, the influence of cross-dialectal priming is sufficiently abstract that it can cause both convergence and divergence in different surface variables simultaneously.

References

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