Sound Change and Cross-linguistic Influence among Multilingual Speakers: Evidence from /n/-/l/ Merger in Cantonese

Yuhan Lin

Shenzhen University (China)

Merger, the collapse of phonological distinction, is often believed to be unlikely to reverse [1], but recent evidence shows that merger reversals are possible when speakers are consistently exposed to an unmerged phonological system [2,3,4,5]. Existing work on merger focuses primarily on monolingual communities [6], limiting the types of linguistic exposure investigated. This study extends existing research by examining a merger amidst sustained bilingualism.

Investigating how phonological flexibility in one language affects the production of similar sounds in the other languages a multilingual speaker uses also contributes to second language acquisition research. Specifically, the current study aims to shed light on the degree and directionality of cross-linguistic transfer with regard to phonological relations.

This study examines word-initial /n/-/l/ contrast in Guangdong Cantonese, which was reported to be merging towards /l/ since the 1960s. A large-scale study [7] on Guangdong Cantonese showed that speakers born between 1985 and 2000 exhibited complete merger in production. Due to increasing in-migration and language standardization campaign, young Guangdong Cantonese speakers now also have high Mandarin proficiency and learn English as a foreign language through mandatory education. In both languages, /n/ and /l/ are contrastive. This study aims to 1) to document the current status of /n/-/l/ merger in Guangzhou Cantonese and 2) to examine the cross-linguistic transfer of /n/ and /l/ among multilingual speakers of Cantonese, Mandarin and English.

Twenty-two (F=15) young Cantonese speakers born (Y.O.B.:1997-2003) and raised in Guangdong participated in an isolated word reading task, which was blocked by language (see Table 1) in the order of Mandarin, Cantonese, and English. All Cantonese and Mandarin target items were shared cognates, and thirteen items appeared in both blocks. All usable tokens (N=2146) were perceptually categorized into [n] or [l] by two sets of phonetically trained raters, with exceptionally high interrater agreement (Kappa stats: 0.97 and 0.984).

The first analysis examined the /n/-/l/ merger in Cantonese. As shown in Table 2, most cross-category production fell in the direction of /n/ → [l]. Therefore, a mixed-effects logistic regression model was constructed for /n/ only, with the independent variables of gender, parent Cantonese background, frequency of Cantonese use, and cognate presence in the Mandarin block. Gender ($p < 0.01$) was the only significant factor: female speakers show greater tendency to merge /n/ to / l/ (see Figure 1). The second analysis compared the production of /n/ and /l/ across the three languages. Unlike the merging pattern in Cantonese, /n/ → [l] is rare in Mandarin and English (see Figure 2). Mixed-effects logistic regression confirmed these observations: among all pairwise comparisons on Figure 2, the only significant comparisons were Cantonese-English ($p < 0.001$) and Cantonese-Mandarin ($p < 0.001$) for /n/ → [l]. A closer look at individual variation revealed that even speakers that showed (near) categorical merger in Cantonese exhibited clear distinction in Mandarin and English.

These results suggest that the /n/-/l/ merger is still present in Guangdong Cantonese, although to a much lesser extent and exhibiting great inter-speaker variation. On the other hand, the merger is rare in Mandarin and English, even for cognates that appear in both Cantonese and Mandarin blocks. This evidence indicates a possible case of merger reversal, with Mandarin and English providing the lexical and phonological base. This hypothesis would also indicate the possibility of a later-learned linguistic variety influencing the native language in terms of phonological relations, supporting the predictions of Speech Learning Model [8]. Furthermore, I posit that the inter-speaker variation in Cantonese /n/-/l/ (un)merging results from speakers' differing levels of lexical independence [9] between Mandarin and Cantonese, rather than the degree of phonological distinction between /n/ and /l/.

Table 1. Target token count by language and phoneme.

	Cantonese	Mandarin	English
/n/	14	13	20
/l/	15	17	20

Table 2. Target phoneme and realization in Cantonese.

target / realization	/n/	/l/
[n]	235	9
[l]	91	345

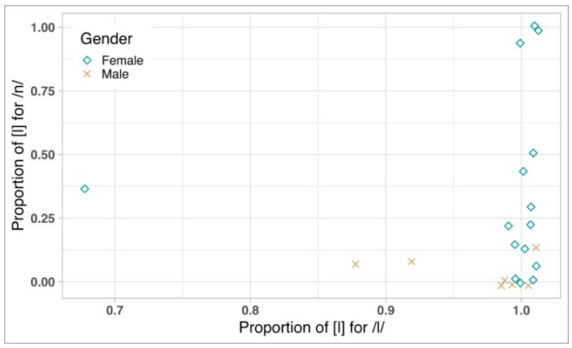

Fig. 1. Proportion of [l] for /l/ by proportion for [l] for /n/ for each speaker. Values jittered to minimize overlap.

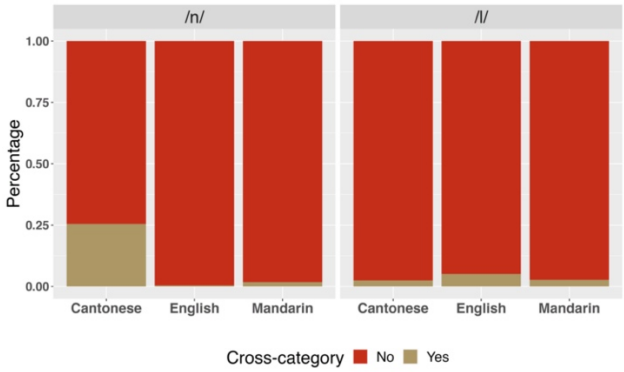

Fig. 2. Percentage of cross-category production by language and target phoneme.

References

[1] Labov, W. (1994). *Principles of language change, vol. 1: Internal factors*. Oxford : Blackwell.

[2] Duncan, D. (2022). Merger reversal in St. Louis: Implementation and implications. *Journal of English Linguistics, 50(1),* 72–105.

[3] Lin, Y. (2018). The role of educational factors in the development of lexical splits. *Asia-Pacific Language Variation*, *4(1),* 36–72.

[4] Regan, B. (2020). The split of a fricative merger due to dialect contact and societal changes: A sociophonetic study on Andalusian Spanish read-speech. *Language Variation and Change*, *32*(2), 159–190.

[5] Yao, Y., & Chang, C. B. (2016). On the cognitive basis of contact-induced sound change: Vowel merger reversal in Shanghainese. *Language*, *92*(2), 433–467.

[6] Ravindranath, M. (2015). Sociolinguistic variation and language contact. *Language and Linguistics Compass*, *9(6),* 243–255.

[7] Peng, X., & Liang, X. (2008). Guangzhou liwanqu qingshaonian yueyu shengmu yinbian qingkuang diaocha [Teenagers' sound change of initials in Guangzhou dialect at Liwan district of Guangzhou]. *Yuyan Yanjiu, 28(1),* 107–114.

[8] Flege, J. E. (1995). Second language speech learning: Theory, findings, and problems. In W. Strange (Ed.), *Speech perception and linguistic experience: Issues in cross-language research* (pp.233-272). Baltimore : York Press.

[9] Amengual, M. (2016). Cross-linguistic influence in the bilingual mental lexicon: Evidence of cognate effects in the phonetic production and processing of a vowel contrast. *Frontiers in Psychology, 7*, 617.