

Variation of sibilant palatalization in homeland and heritage Cantonese

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Introduction. This paper studies variation of sound change in different speech communities. Cantonese has a set of sibilants varying between alveolars [ts,ts^h,s] and palato-alveolars [tʃ,tʃ^h,ʃ]/[tɕ,tɕ^h,ɕ] depending on phonological contexts [1,2]. As suggested by [3], the variability in palatalization is more than synchronic coarticulation: it is an ongoing sound change started in late 20th century, as supported by age effects in follow-up studies (*i.e.*, younger speakers prefer palatalization [4,5]; *cf.* [6,7]). There is however an *understudied* aspect: since the 20th century, there have been waves of Hong Konger immigration to North America, forming heritage Cantonese communities. This leads us to investigate whether the same sound change may have developed differently in a single language in two speech communities, namely, Hong Kong (homeland) and Toronto (heritage) Cantonese in this study.

Research questions. (i) What are the phonological contexts that favor sibilant palatalization? (ii) Does the change develop in different ways in Hong Kong (homeland) and Toronto (heritage) Cantonese? If yes, why? Do other social factors (e.g. age, gender) have an impact?

Method. We obtained audio-recorded and transcribed sociolinguistic interviews with Hong Kong (Gen-0) speakers, first generation (Gen-1), and second generation (Gen-2) immigrants in Toronto from HLVC corpus [8]. For each generation, 8 speakers (F:M=roughly 1:1, young(<age 40):old=1:1 except Gen-1 w/ only old speakers) were selected (n=23). Each token of sibilants was annotated as either palatalized (Y) or not (N) by two annotators blindly to each other, with disagreements adjudicated by a third annotator. Mixed effect regression was conducted with AIC stepwise model selection in R [9].

Results. Phonological contexts: we found a significant effect of consonant type ($p<.001$) with fricative being significantly lower than that of affricates in palatalization ratio. Significant effects of vowel roundedness are also found (/y,u,œ,ø,ɔ/>/i,e,ɛ,a/ in palatalization, $p<.001$), but not for vowel frontness nor height. **Social factors:** First, palatalization ratio increases gradually from Gen-0, Gen-1 to Gen-2, though only Gen-0 vs. Gen-2 is significant ($p<.001$). Second, unlike affricates, the ratio for fricative has not changed significantly across generations (Fig. 1). Third, similar gradient change across generations (Gen-2>1>0) is found for rounded Vs (Fig. 2). For unrounded Vs, while palatalization is rare for Gen-0/1, it is more often in Gen-2 (highest around 40% for [ɛ]). Fourth, Age alone has no significant effect but it interacts with V-roundedness: a larger effect of roundedness on palatalization for young people than for old people. Finally, Gender does not appear to be statistically significant, but in all three generations, females show a higher ratio of palatalization than males (Fig. 3).

Discussion. First, palatalization is likely to be in a later stage in Toronto than in Hong Kong, as evidenced by the increase in ratio in both rounded Vs *and* unrounded Vs in Gen-2 speakers (*i.e.*, widening of the phonological context). **Second**, palatalization of fricatives may be a separate phonological/phonetic process from affricates, as can be seen in its low ratio and being intact across communities (echoing previous findings in [5]). **Third**, the change in affricate palatalization, despite initially being an *internal* change from co-articulation [5], seems to be facilitated by the greater *external* contact with English in Toronto, as English only has /tʃ/ for voiceless affricates (*cf.* [10] for English-induced change in Toronto Cantonese vowels). The intactness of fricatives might also be explained by that English has both /s,ʃ/ for fricatives.

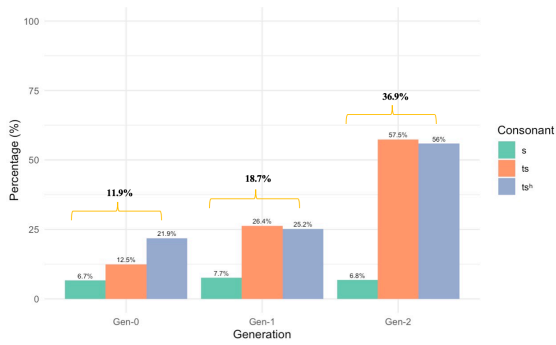


Figure 1: Ratio of palatalization by generation by consonant type. The number on top of the bars is the overall ratio of palatalization for each generation.

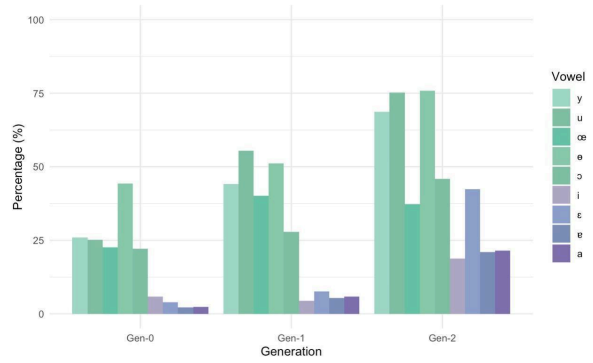


Figure 2: Ratio of palatalization by generation by vowel type.

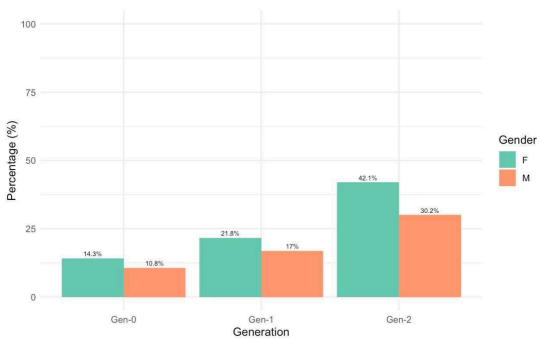


Figure 3: Ratio of palatalization by generation by gender.

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