Attrition of Tone in Cantonese Heritage Language Speakers of Toronto

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A glance at the literature reveals that there is little or no prior research on the production of tone among heritage language speakers. Informal observations of some Cantonese heritage language speakers in Canada, however, reveals non-native production of lexical tone. Hong Kong Cantonese (HKC) has an extremely crowded tonal space with 6 tones. Following Chao's (1948) convention to describe tones as numerical levels from 1 to 5 (low to high), HKC has 3 level tones (55, 44, 33), 2 rising tones (35, 24), and 1 falling tone (21) (Yue-Hashimoto, 1972). According to Gross' definition of attrition (2002), factors that drive attrition can be system internal, and loss of tonal categories may be a result of the complexity of the Cantonese tonal system. Studies since the 2000s report that even some HKC monolinguals have difficulties maintaining tonal contrasts in production, showing some degree of merging between the rising tones (35 and 24), mid and low level tones (44 and 33), and low level and falling tones (33 and 21) (e.g. Mok, Zuo, & Wong, 2013).

In addition, linguistic context such as limited L1 input and use, and influence from the dominant language (Gross 2002), may further contribute to the loss of tone categories. Cantonese and English use pitch (f0) for different purposes: Cantonese for tone, English for stress and intonation. Cantonese does not have a rich use of intonation, instead conveying discourse information using sentence-final particles (Wakefield, 2011). Intonation seems to be restricted to final rising intonation in echo questions (Ma, Ciocca & Whitehill, 2006; Xu & Mok, 2011). Final falling intonation does not seem to be apparent in recent production data (Ma, Ciocca & Whitehill; Xu & Mok; cf. Vance, 1976). In contrast, English has utterance-final falling intonation in declarative sentences. For heritage language speakers, the larger role of f0 for English intonation may have an effect on their use of f0 as a cue for tone.

Hypotheses and Predictions: This project will investigate non-target-like productions of tone by heritage Cantonese speakers and to what extent it is driven by non-contrastive f0 use in English and the complex tonal system, and to show that this phenomenon is attrition rather than incomplete acquisition. The hypotheses regarding the production of tonal categories by heritage language population are: First, due to pressures from the crowded tonal system, speakers merge tones that are in close proximity in the tonal space. These tones are most likely the same tones that some monolingual speakers merge. Second, English influences HKC such that English intonation is imposed on top of Cantonese tone.

1) Heritage speakers will merge tones 35 and 24, 44 and 33, 33 and 21 (Mok, Zuo, & Wong).
2) There will be final falling intonation in declarative contexts reflective of English intonational patterns.

Data: The data was collected as part of the Heritage Language Variation and Change Project (Nagy 2011), consisting of 36 semi-structured interviews, word elicitations, and Ethnic Orientation Questionnaires from three generations of Toronto-based HKC heritage language speakers. All contributors to the corpus must be able to converse comfortably in Cantonese. In the elicitation, speakers named or described 47 items from a children's picture book. 10 Generation 1 and 13 Generation 2 speakers' elicitations (29-87 tokens each) were analysed for the present study. Gen 1 speakers moved to Canada after age 18 between 1965 and 1990, notably prior to the reported start of the tone merger in the early 2000s in monolingual HKC. Any tone changes they exhibit are intragenerational, and can be considered to be attrition and not incomplete acquisition (Gross).

Results: There were few errors in the elicitation task, since speakers typically produced the words in an isolated context. Both generations exhibit the tonal error in which the f0 offset of the low-falling tone to approach the offset of the low level tone, consistent with (1). A second common error is that both rising tones became more level in Gen 2 speech. This agrees with (1), but could also be due to rising tones being universally marked (Yip, 2002). The mid and low level merger is not found, showing that patterns in language change do not necessarily reflect patterns in heritage language phonology. Last, some Gen 2 speakers imposed final falling intonation on top of tone, consistent with (2). Both system-internal factors and influence from the dominant language motivate attrition of Cantonese tones. Results from statistical modelling of the tones will provide a more complete picture of attrition patterns, and will be reported at the conference.

Chao. 1948. Mandarin Primer, Harvard University Press. **Gross**. 2004. A modest proposal. In *First language attrition: Interdisciplinary perspectives on methodological issues*, 281-298. **Ma, Ciocca, Whitehill.** 2006. Effect of intonation on Cantonese lexical tones. *JASA* 120: 3978-3987. **Mok, Zuo, Wong.** 2013. Production and perception of a sound change in progress: Tone merging in Hong Kong Cantonese. *LVC 25*: 341-370. **Nagy.** 2011. A multilingual corpus to explore geographic variation. *Rassegna Italiana di Linguistica Applicata* 43.1-2, 65-84. **Vance.** 1976. An experimental investigation of tone and intonation in Cantonese. *Phonetica* 33, 368–392. **Wakefield**. 2011. *The English equivalents of Cantonese sentence-final particles.* Doctoral dissertation, HK PolyU. **Xu, Mok**. 2011. Final rising and global raising in Cantonese intonation. *ICPhS:* 2173-2176. **Yip**. 2002. *Tone*. Cambridge University Press.