

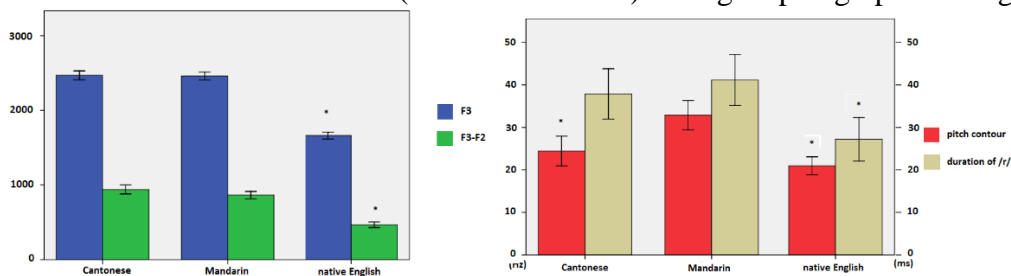
# Impact of L1 tone on L2 segments: evidence from Cantonese and Mandarin speakers' production of English consonant clusters

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It is found that although Cantonese and Mandarin are similar on segmental and syllable levels, Mandarin speakers seldom delete the [r], and Cantonese speakers seldom insert vowels in their /r/-cluster (e.g. *pr*, *tr*, *kr*) productions (Lan and Oh, 2012). To investigate reasons other than segmental ones, we noticed that for Cantonese speakers, tones associated to the vowel after the consonant cluster were usually high level tones, but for Mandarin speakers, falling tones. The observation has led to a hypothesis that different production patterns of the same target syllable structure may result from tonal reasons.

Many studies have confirmed that L1 supra-segmental features will transfer to L2 as segments do in rhythm and stress (Repp and Lin, 1990). However, few previous studies have suggested that supra-segments may influence segmental production as well. The current study argues that difference of L1 tone inventories may influence the production of segments for L2 English speech. In Mandarin, falling tones, together with non-value-bearing tones, or *qingsheng*, are present while not in Cantonese. An evidence of Cantonese speakers' tone preferences in L2 English was reported in Wee (2013). He has asserted that Cantonese learners use high or low level tones to represent English syllables for more than 89.4% of the times in a transliteration book from English to Cantonese.

In the experiment, 3 Cantonese, 3 Mandarin and 3 native English speakers participated in the study. 62 productions of r-cluster, r-initial, plosive-initial, w-initial and l-initial words were recorded (9\*62=558 tokens) through a paragraph-reading task.



The figures above showed the F2 and F3 formant (left) and pitch/duration (right) differences of Cantonese, Mandarin and native English productions. Although formant values do not differ much between Cantonese and Mandarin speakers, Mandarin speakers showed broader pitch ranges and longer duration in their productions than Cantonese ones. A correlation test has shown that the most significant factor with /r/ duration is the pitch contour.

Results had shown that pitch contour in L2 production did correspond to more undesirable acoustic patterns of L2 speech, which were shown by the correlation between durational and pitch contour measurements for productions. Therefore the results can, at least rudimentarily, confirm L1 tone differences are associated with L2 segment production differences.

## References

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