

1. Central issues

- Modern HK Cantonese (HKC) tones/F0 profiles
- Tone merger in HKC?

2. Previous studies

Standard Cantonese tonal inventory (Beijing 1995):
T1[55], T2[35], T3[33], T4[21], T5[23], T6[22]

2.1 Bauer et al (2003)

- Tone mergers in T2&T5, T3&T5 or T3&T6
- Resulting in various 5-tone system

2.2 Fung (2012)

- Full merger in T2&T5, partial merger in T3&T6, and near merger in T4&T6
- Moving towards a 4-tone system: T1[55], T2[35], T3[33], T6[22]

3. Data elicitation

- Replication study with variant methodology
- Important for independent support and substantiation for good work of others

3.1 Subjects

- 6 speakers balanced for gender
- Young adult speakers of HKC born after 1980

3.2 Data recording

- Stimuli providing comprehensive coverage of HKC tonal inventory, varying over three cardinal vowels [a], [i] & [u]

[a] type **[i] type** **[u] type**

T1	巴	baa1	資	zi1	姑	gu1
T2	寡	gwaa2	指	zi2	古	gu2
T3	霸	baa3	志	zi3	故	gu3
T4	爬	paa4	磁	ci4	扶(扶持)	fu4
T5	棒	pang5	市	ci5	婦	fu5
T6	罷(罷工)	baa6	字	zi6	負	fu6

- 18 target items randomised with 18 fillers

3.3 Phonetic analysis

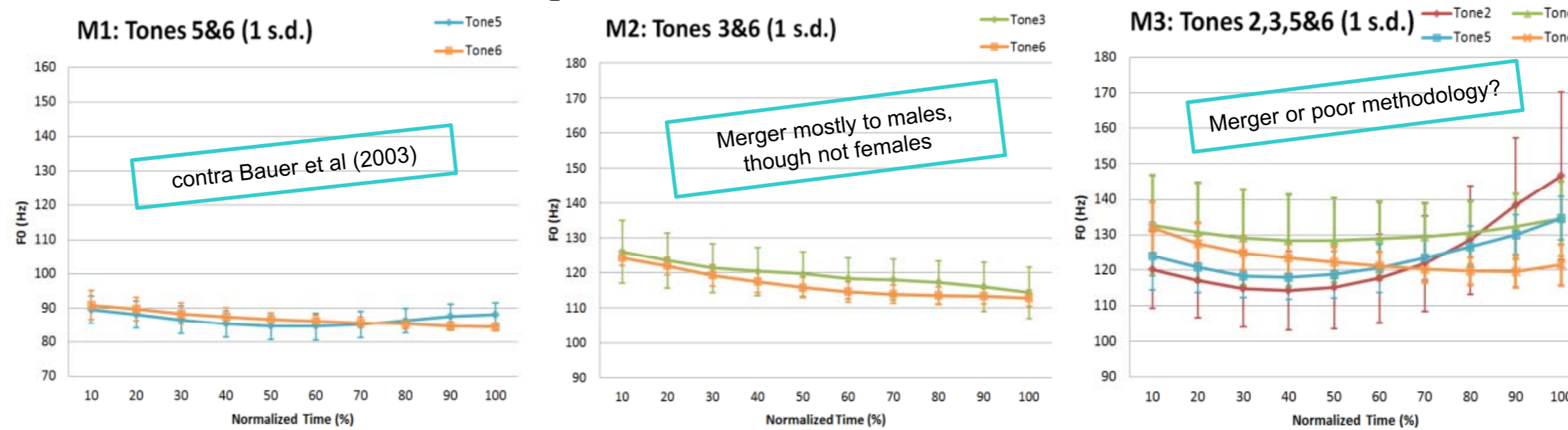
- F0 of recordings extracted with Praat (ver.5.3.39)
- Time normalized across syllables traditionally classified as same tonal category at 10% interval points of the rhymes with Praat script ProsodyPro (ver. 3.5)

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4. Findings and discussion

4.1 Potential cases of tone merger



- No merger between T4&T6 (contra Fung 2012)
- Female speakers: all tonal categories better preserved than male speakers
- Premature to say that merger of tones has happened in HKC
- Unlike case of M3 suggests cues for tonal contrasts may lie in a different place, see §4.2.

4.2 Musical intervals of (relatively) level tones (T1, T3, T4 & T6) (based on mean values)

	M1	M2	M3	F1	F2	F3
T1:T3		minor third		major second	minor third	major second
T1:T4	perfect fourth	perfect fifth		perfect fourth	perfect fifth	tritone
T1:T6		major third		minor third	perfect fourth	major third
T3:T6	minor second	unison (merged)		minor second	major second	minor second
T3:T4	major second	minor third	major third	minor third	major third	
T6:T4	minor second		minor third	major second		minor third

- Pitch Interval Class (PIC): ranging from unison T3&T6 (M2) to perfect fifth T4&T1 (M2, M3, F2)
- Tone merger: T3&T6 (M3); smallest PIC for other subjects, minor or major second
- Proximity of intervals might be an indicator for predicting mergers

5. Limitations and directions

- ☛ Less strictly controlled minimal sets in stimuli
 - ☞ To convincingly check for tone merger, stimuli should contain segmental variation (18 target items + 18 fillers) x 3 positions x 2 repetitions = 216 tokens
- ☛ Does not include all possible Cantonese combinations (~4000 items)
 - ☞ Strive for a economical design that would allow for greatest variations within each tone category for a speaker. If this even this does not yield merger, then H₀ (no merger) is false!
- ☛ Based on the recording data, corresponding perception tasks needed

References

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- 北京大學 (PKU) 中國語言文學系, 語言學教研室 編(1995) 《漢語方言詞彙》北京: 語文出版社 第二版 頁33

F0 profiles of each subject

