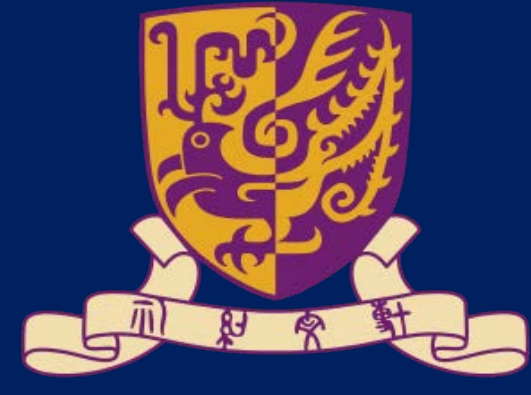# Catching a distinction before it disappears

Peggy Mok[1], Vivian Guo Li[1], Alan C. L. Yu[2]

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Introduction

- **Tone change** in Cantonese
  - a **non-high rising** tone → a **high rising** tone
  - only in a limited set of syllables and in a selective set of morphological contexts.
    - 雪梨 /lei/21 (original tone) '(a kind of) pear'
    - 啤梨 /lei/25 (derived high rising) '(a kind of) pear'

- **Conflicting claims**

  derived (DR) vs. **lexical (LR)** high rising tones
  1. DR has a lower onset than LR, but the two are comparable at offsets [1, 2]
  2. DR similar to LR and sometimes have higher offset than LR [3]
  3. DR and LR are similar or have merged completely [4, 5]
     - Claims 1-3 report only impressionistic descriptions; some provided illustrative pitch contours but did **not** conduct **detailed acoustic analysis.**
  4. in the final stage of merging: consistently distinguished in production (DR having a higher pitch than LR); but indistinguishable in perception [6]
     - The study above had only five speakers but found much variation.
  5. distinction has been neutralized among young speakers [7]

The Current Study

- **Research question**

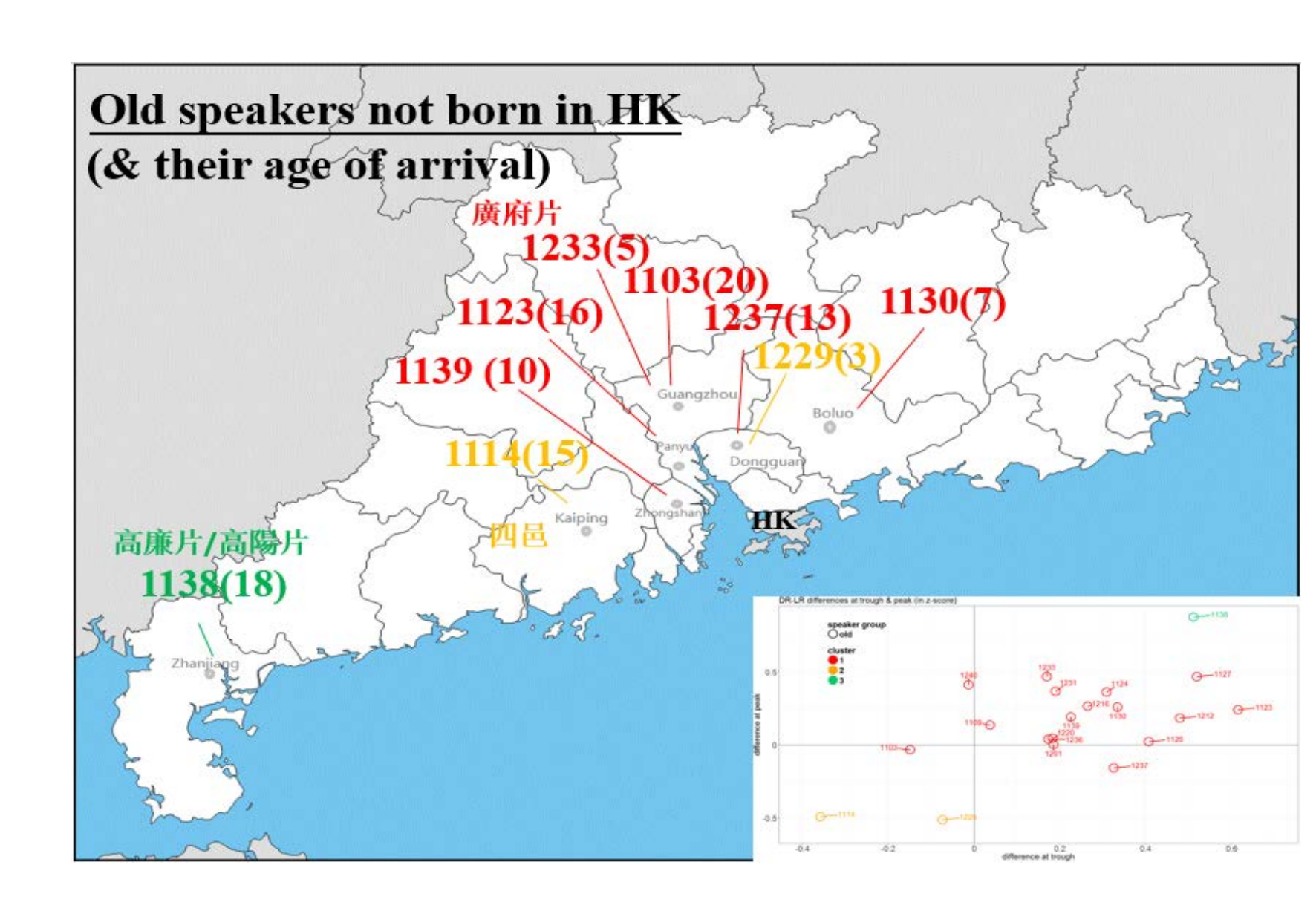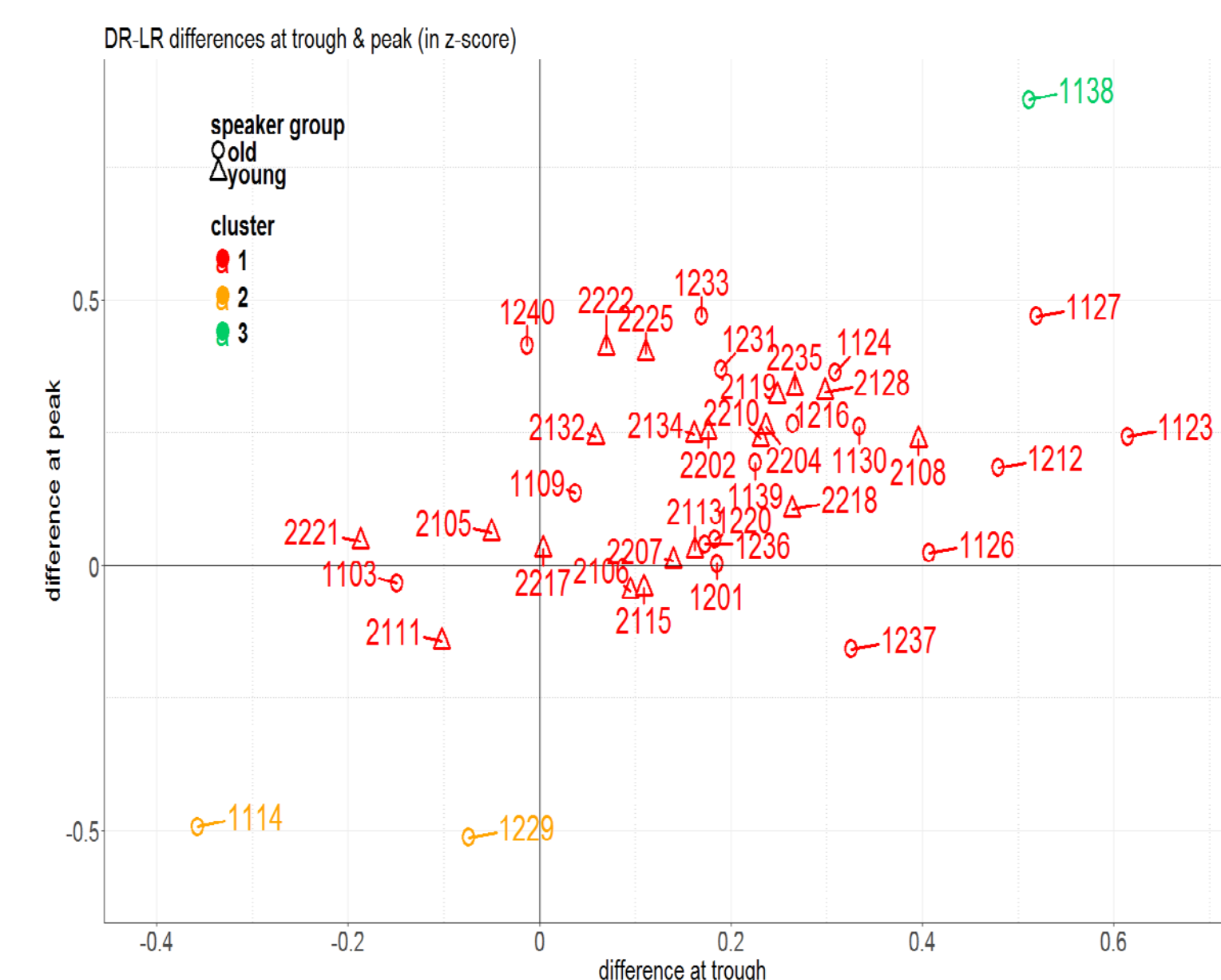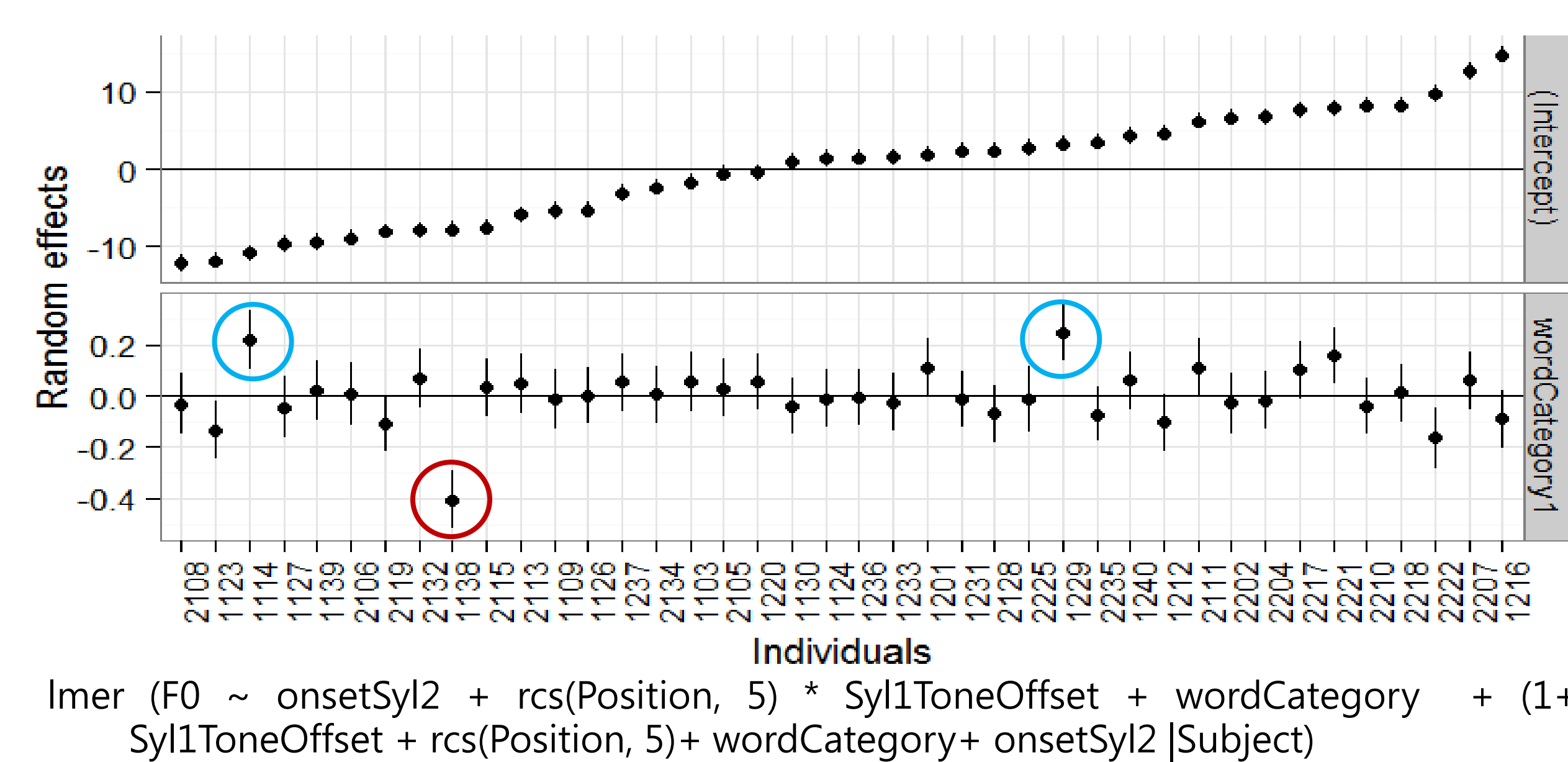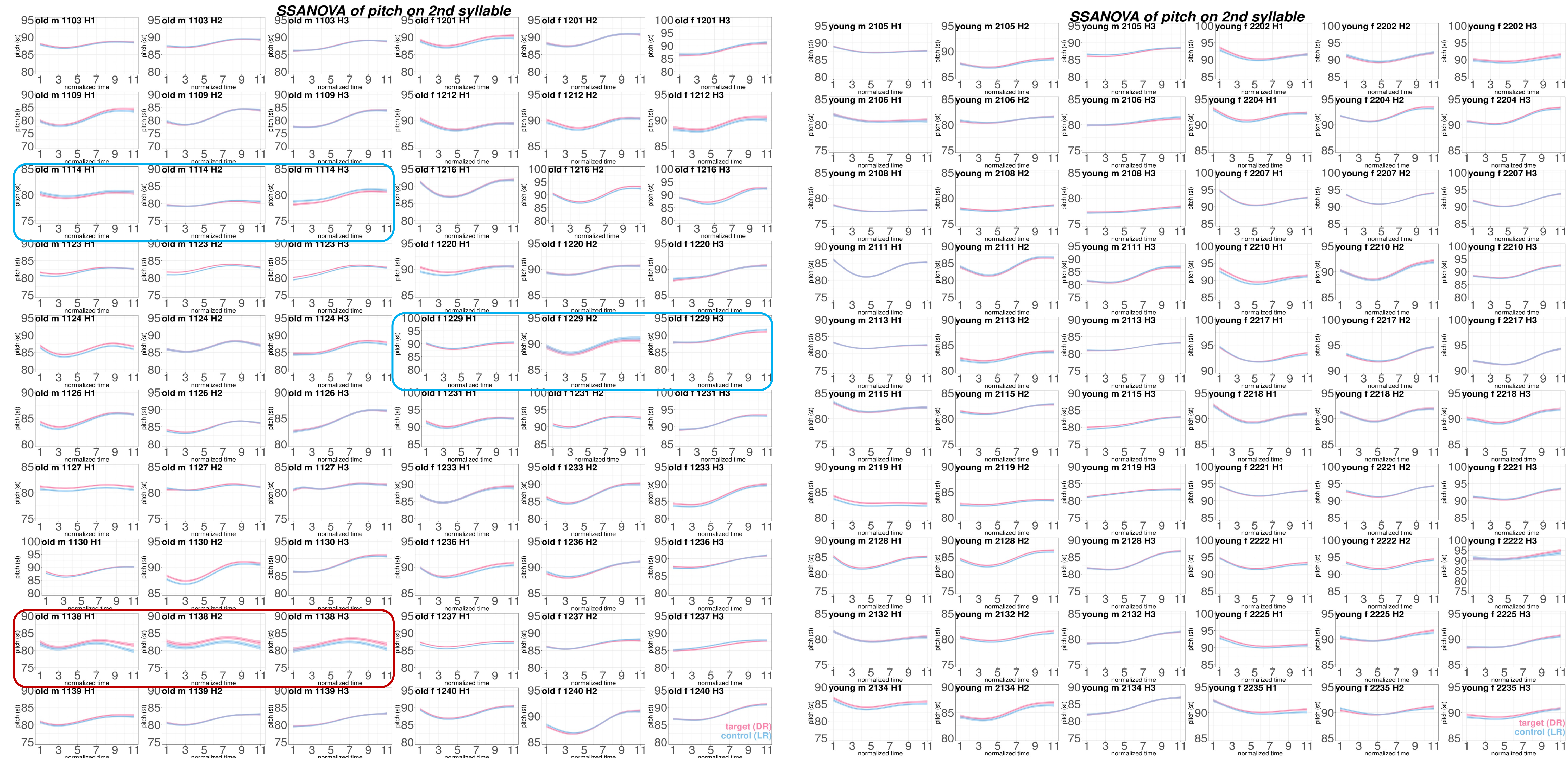 Have DR and LR **merged completely** among Cantonese speakers?

- **Materials**

  34 (near) minimal pairs of DR and LR in disyllabic words, e.g.
  - ✓ matched syllable structure
  - ✓ controlled for tone on first syllable
  - ✓ controlled for original tone for DR syllables

	T1-T3	T1-T4	T2-T3	T2-T4
target (DR)	書架 syu55 gaa	今年 gam55 nin	影相 jing25 soeng	炒河 caau25 ho
control (LR)	真假 zan55 gaa	金鏈 gam55 lin	感想 gam25 soeng	許可 heoi25 ho

- **Native Speakers** of Cantonese in HK

  20 young (10f, 10m; aged 21-26; all HK born);

  20 old (10f, 10m; aged 64-85; all except 9 were HK born)

Results

SSANOVA of pitch on 2nd syllable

$$lmer\ (F0 \sim onsetSyl2 + rcs(Position,\ 5) * Syl1ToneOffset + wordCategory + (1 + Syl1ToneOffset + rcs(Position,\ 5) + wordCategory + onsetSyl2\ |Subject)$$

DR-LR differences at trough & peak (in z-score)

Old speakers not born in HK (& their age of arrival)

Conclusion

- **Derived (DR)** vs. **lexical (LR)** high rising tones have completely merged for most speakers of HK Cantonese, although there remains cross-individual variation.
- The cause of such variation is not clear, although variation in linguistic background of the older speakers may play a significant role.

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