# Constructing **Hong Kong English** identity through **vowel mergers**:

## Indexical meanings of local phonological features in the Outer Circle of English

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# English in Hong Kong

- **Hong Kong:** Special Administrative Region of China, former British colony

- Official languages: English & Chinese

- 51.9% speak English, most of them trilingual in Cantonese-English-Mandarin (Census and Statistics Department, 2017)
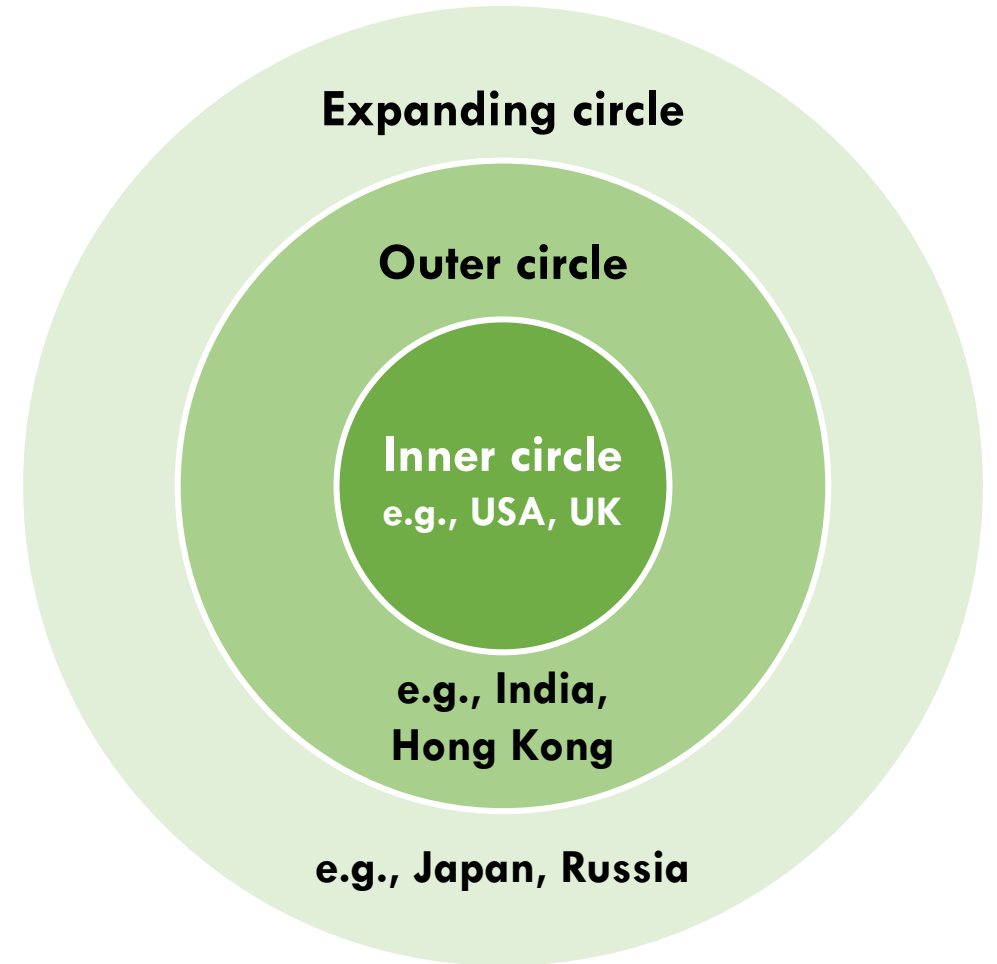


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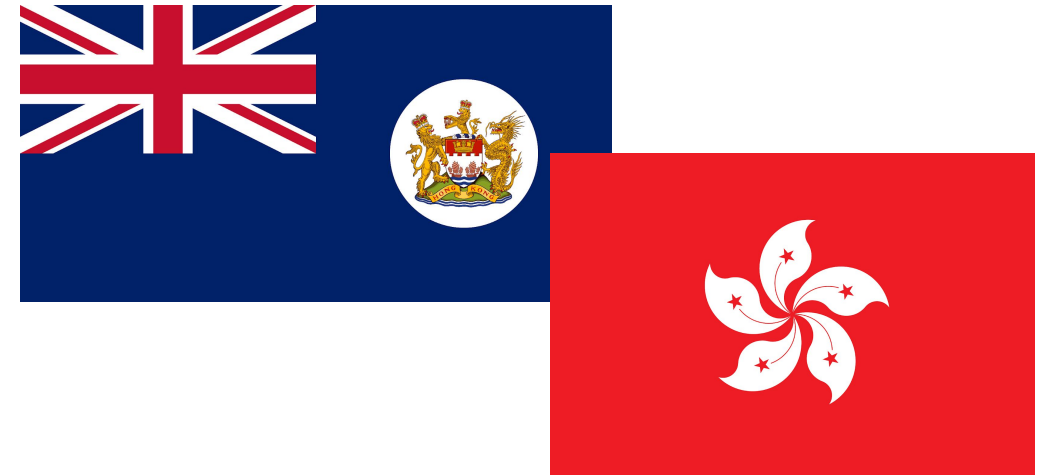


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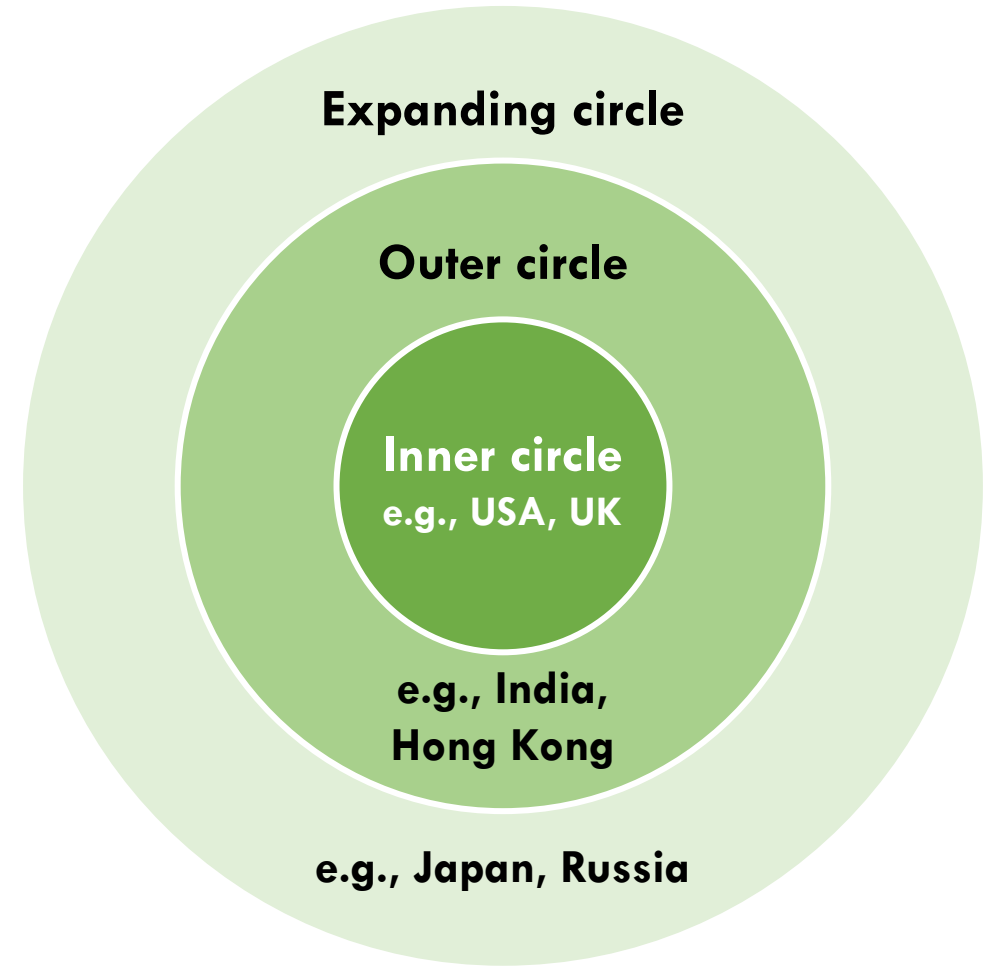
# English in Hong Kong

- **Outer circle** of English (Kachru 1985)

- English mostly spoken as an L2 alongside L1 Cantonese (Hansen Edwards, 2018)

- Official language, language of education, governance, business, written communication, etc. (Bacon-Shone et al., 2015; Hansen Edwards, 2018; Sewell, 2016)

**Expanding circle**

**Outer circle**

**Inner circle**
e.g., USA, UK

e.g., India, Hong Kong

e.g., Japan, Russia

Adapted from Crystal (2003)

# English in Hong Kong

- Unlike the **Inner Circle** where English is the sole dominant language
  - E.g., US, UK, Canada
- Unlike the **Expanding Circle** where English is a foreign language without official status or social functions
  - E.g., Mainland China, Japan, Russia

**Expanding circle**

**Outer circle**

**Inner circle**
e.g., USA, UK

e.g., India, Hong Kong

e.g., Japan, Russia

Adapted from Crystal (2003)

# Hong Kong English

- Hong Kong English (HKE): indigenized variety of English in Hong Kong

  - Influence from British English and Cantonese

- Covert prestige, indexes Hong Kong identity & group solidarity (Hansen Edwards, 2019, 2023)

- Lack of overt prestige, British/American English are seen as more "standard" and "correct" than HKE (Luk, 2010; Sewell, 2012)
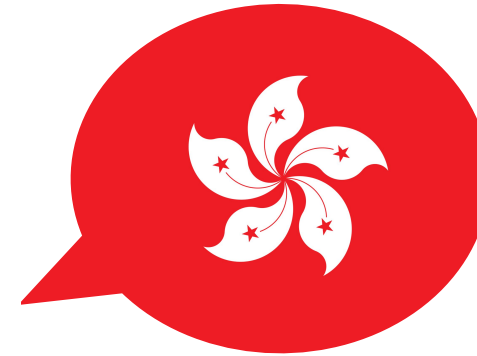
# English in Hong Kong

- Variation in language affiliation among English speakers in Hong Kong

*"What kind of English do I speak?"*

# English in Hong Kong

*"What kind of English do I speak?"*

- Some identify as HKE speakers, others as speakers of Inner Circle varieties (British or American) or a mix of both

- HKE: 25-30%; mix of HKE and AmE/BrE: 33-42%; AmE/BrE: 15-22% (Hansen Edwards, 2018)

# Research questions

- Do English speakers in Hong Kong who identify with HKE produce more HKE features than those who don't?

- This study compares the production of **high front** & **low back vowel mergers**, two phonological features of HKE
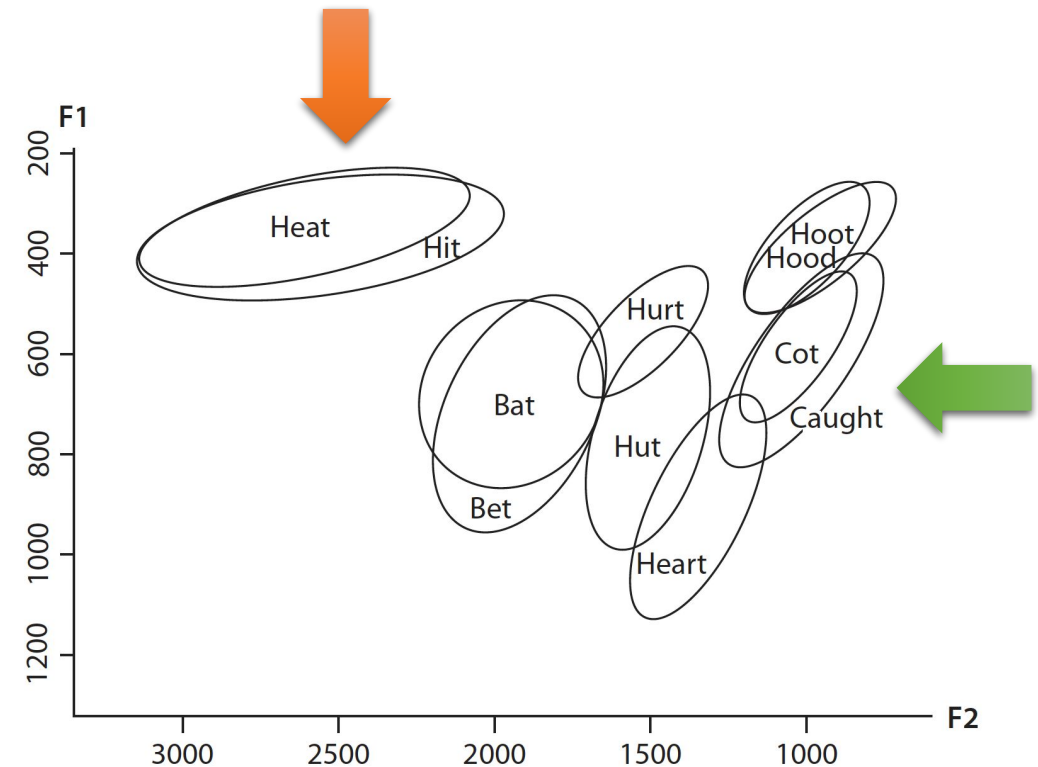
# Vowel mergers in HKE

- High front merger: KIT merges to FLEECE before non-velar consonants (Hung, 2000, 2012; Yeung, 2022)
  - *heat, hit* = [hit]

- Low back merger: LOT merges to THOUGHT (Hung, 2000, 2012)
  - *cot, caught* = [kɔt]



From Hung (2012)

# Vowel mergers in HKE

beat = bit → [bit]

- **High front merger** is present in many Outer Circle varieties but absent in prestige pronunciation models like Received Pronunciation (RP) and General American (GA) (Wells, 1982)

- Slight variation in phonetic realization across Inner Circle varieties, but the phonemic distinction is usually maintained

# Vowel mergers in HKE

cot = caught ➡ [kɔt]

- **Low back merger** is absent in RP but common in other prestige Inner Circle varieties like Mainstream AmE (Wells, 1982; Labov et al., 2008)

- Merger is found in Canada, Western US, Scotland, etc.

# Hypothesis

- Stronger HKE identity:

  - Merger of KIT and FLEECE, both realized as [i]

  - Merger of LOT and THOUGHT, both realized as [ɔ]

- Weaker HKE identity:

  - Distinction between KIT and FLEECE, [ɪ] for KIT and [i] for FLEECE

  - LOT and THOUGHT more variable, may or may not merge

# Methodology

- 39 speakers, aged 18-58 (22 F, 17 M)

- All Cantonese-English bilinguals, born and raised in Hong Kong

- Interview schedule:

  - Sociolinguistic interview (~75 mins)

  - Word list (~20 mins)

  - Minimal pair (~10 mins)

- Demographic & attitudinal info: sociolinguistic interview

- Vowel production data: interview, word list

# **Methodology**
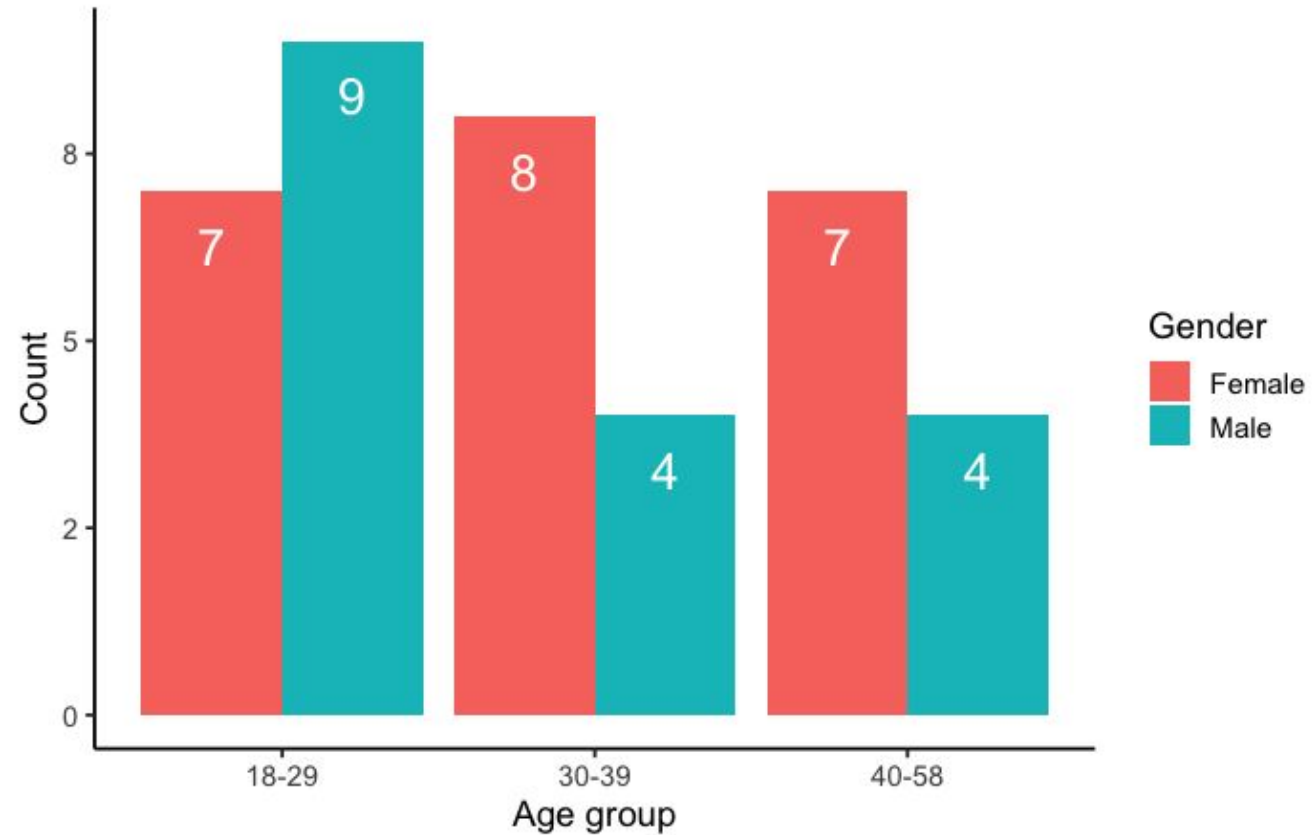


Wide range of age and gender groups represented

# **Methodology**

Word list reading task:

- 5 monosyllabic words for each lexical set

- 3 repetitions for each word = 60 tokens/speaker

- Word presented in a pseudo-random order

- Embedded in carrier phrase "Say ___ again."

- Audio: 44.1 kHz sampling rate, 16-bit sample depth

# Word list

| FLEECE | KIT | THOUGHT | LOT |
|--------|-----|---------|-----|
| beat | bit | bought | bot |
| deep | dip | caught | cot |
| feet | fit | dawn | don |
| Pete | pit | stalk | stock |
| team | Tim | walk | wok |

# **Methodology**

- Minimal pair task:

- Same words from the wordlist task were presented side by side

  - E.g., beat-bit, bought-bot

- Participants read them once and answered if they are homophones

- Audio: 44.1 kHz sampling rate, 16-bit sample depth

# **Methodology**

- Participants were divided into three groups based on how much they identified with HKE:

1. Identified with HKE only

2. Identified with both HKE and other varieties

3. Did not identify with HKE

# Methodology

- Interviews transcribed using *otter.ai*, a speech-to-text service

- Recordings segmented using Montreal Forced Aligner (McAuliffe et al., 2017)

- All tokens of FLEECE, KIT, LOT, and THOUGHT from the interview and the word list were extracted

# Methodology

| Vowel class | Conversation | | Word List | |
|---|---|---|---|---|
| | Per speaker | Total | Per speaker | Total |
| FLEECE | 194-680 | 16,310 | 12-15 | 566 |
| KIT | 172-618 | 15,160 | 13-15 | 579 |
| LOT | 91-372 | 8,046 | 12-15 | 570 |
| THOUGHT | 45-157 | 3,836 | 13-15 | 576 |
| | Total | 43,352 | | 2,291 |

# Methodology

- F1 & F2 measurements were taken at the midpoint of vowel duration using Praat (Boersma & Weenink 2022)

- Formant measurements more than 3 SDs from the mean of each vowel class for each speaker were excluded as outliers

- Formant measurements were normalized by speaker using the Lobanov z-score method (Lobanov, 1971)

# Methodology

- Four mixed-effect regression models for each combination of formants (F1, F2) and mergers (high front, low back) using lmerTest package in R (Kuznetsova et al., 2017)

- Pillai scores derived from by-speaker MANOVAs fits (Nycz & Hall-Lew 2013), access degree of overlap between the two vowel classes in each merger (FLEECE vs. KIT, LOT vs. THOUGHT)

- Statistical significance of Pillai scores accessed using the formula provided by Stanley & Sneller (2023)

# Results: Language identity

1. HKE only: 16 (41%)

2. HKE & other varieties: 11 (28%)

3. Not identify with HKE: 12 (31%)
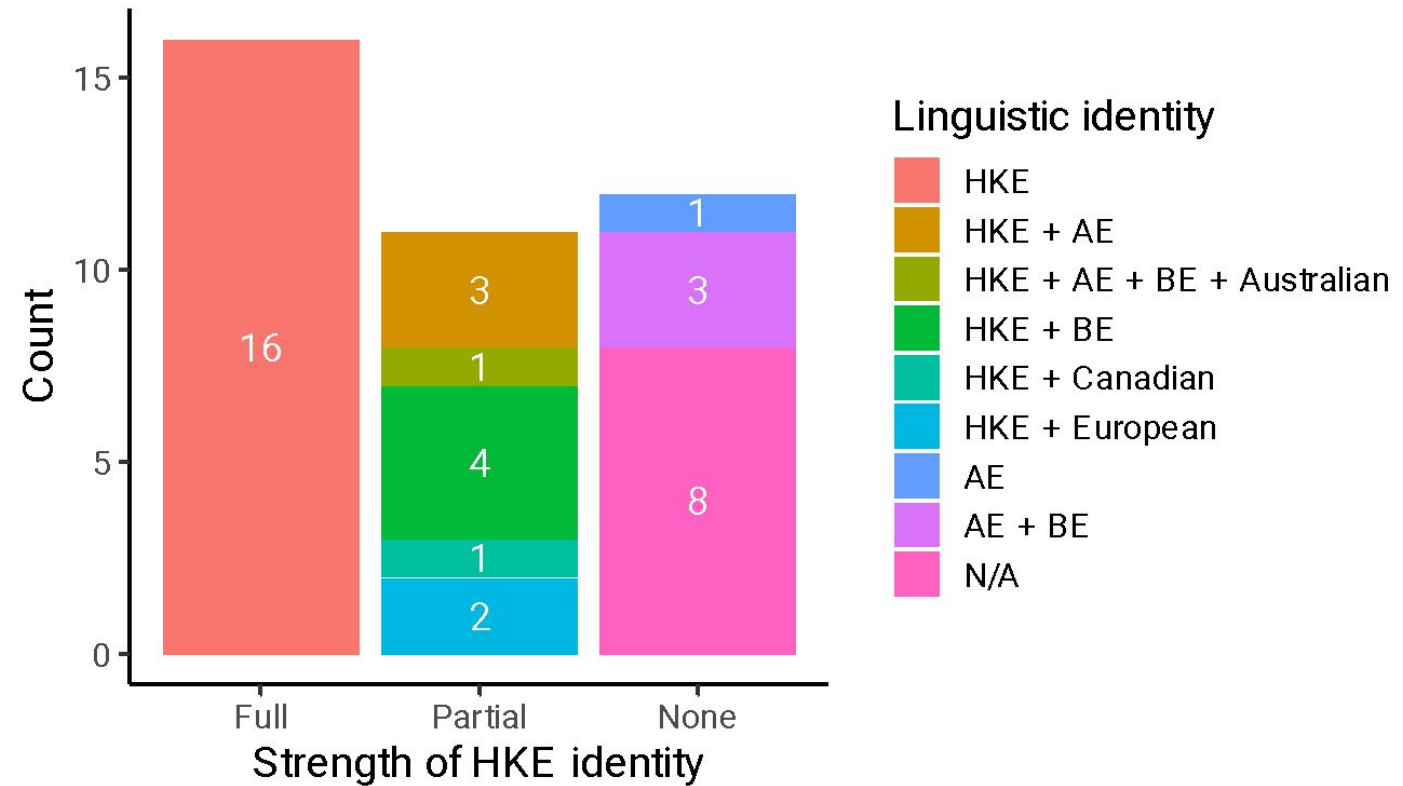
# Results: High front merger

- KIT in general had significantly higher F1 (p=0.000127) & lower F2 (p=1.98E-06) than FLEECE

- Speakers who fully identify with HKE had significantly lower F1 (p=0.014426) and higher F2 (p=0.010911) for KIT
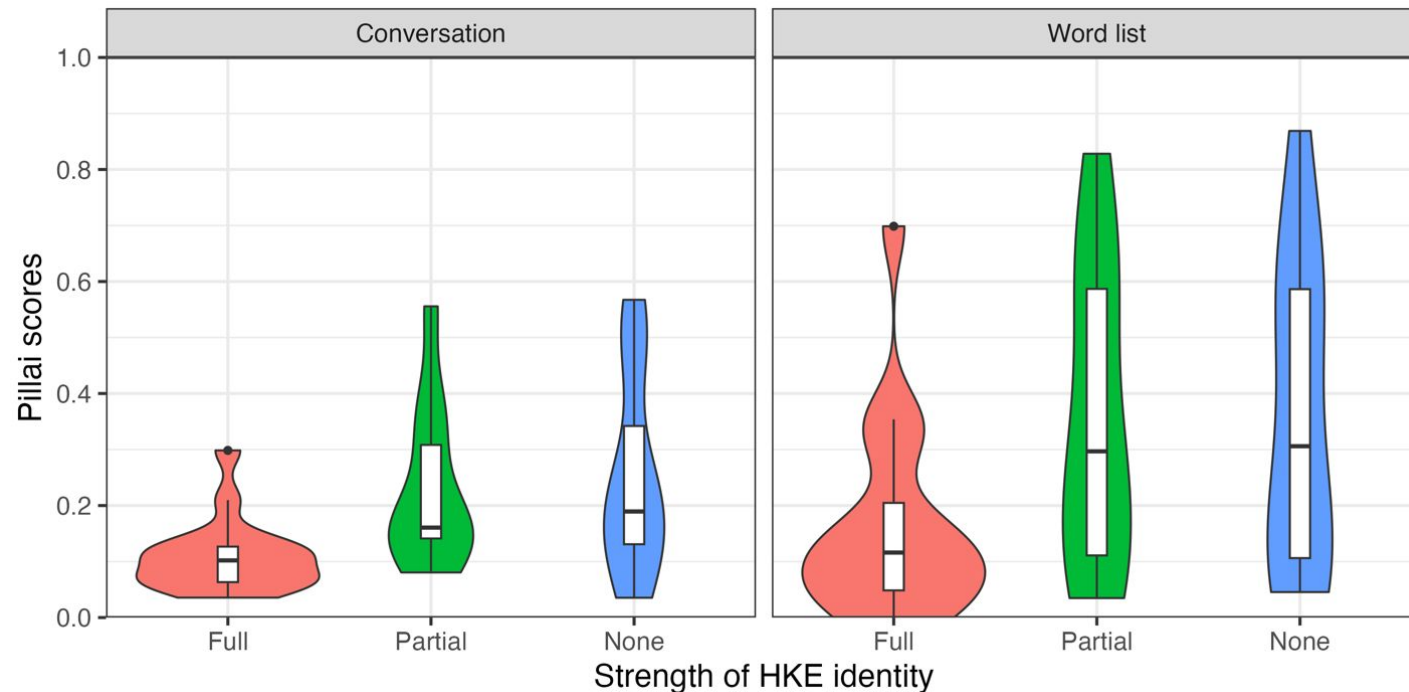


Interview
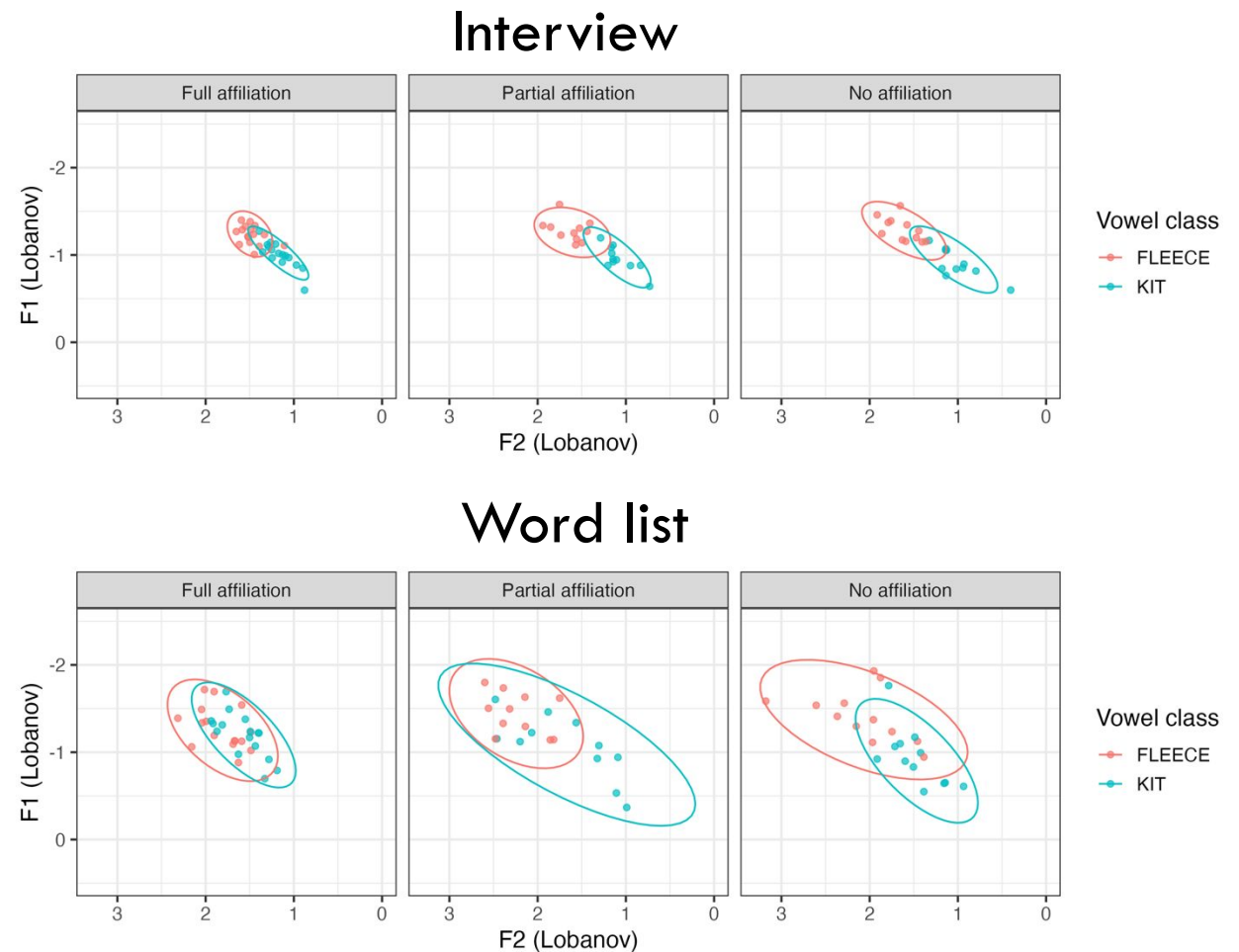


Word list

# Results: High front merger

- Speakers who fully identified with HKE had significantly lower Pillai scores (p=0.0168, p=0.0115) in interview, more merged vowels
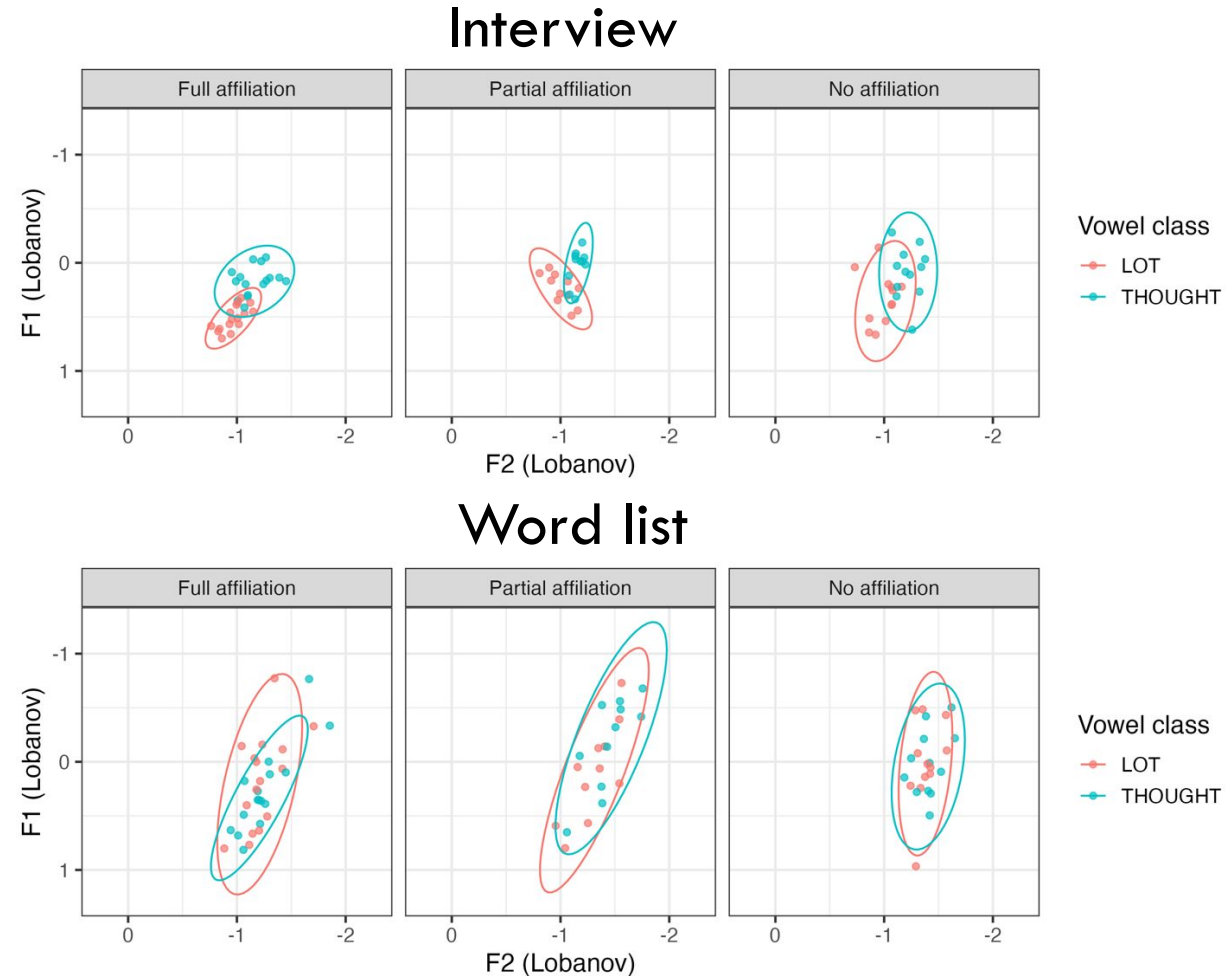- No significant difference in wordlist (p=0.1072)
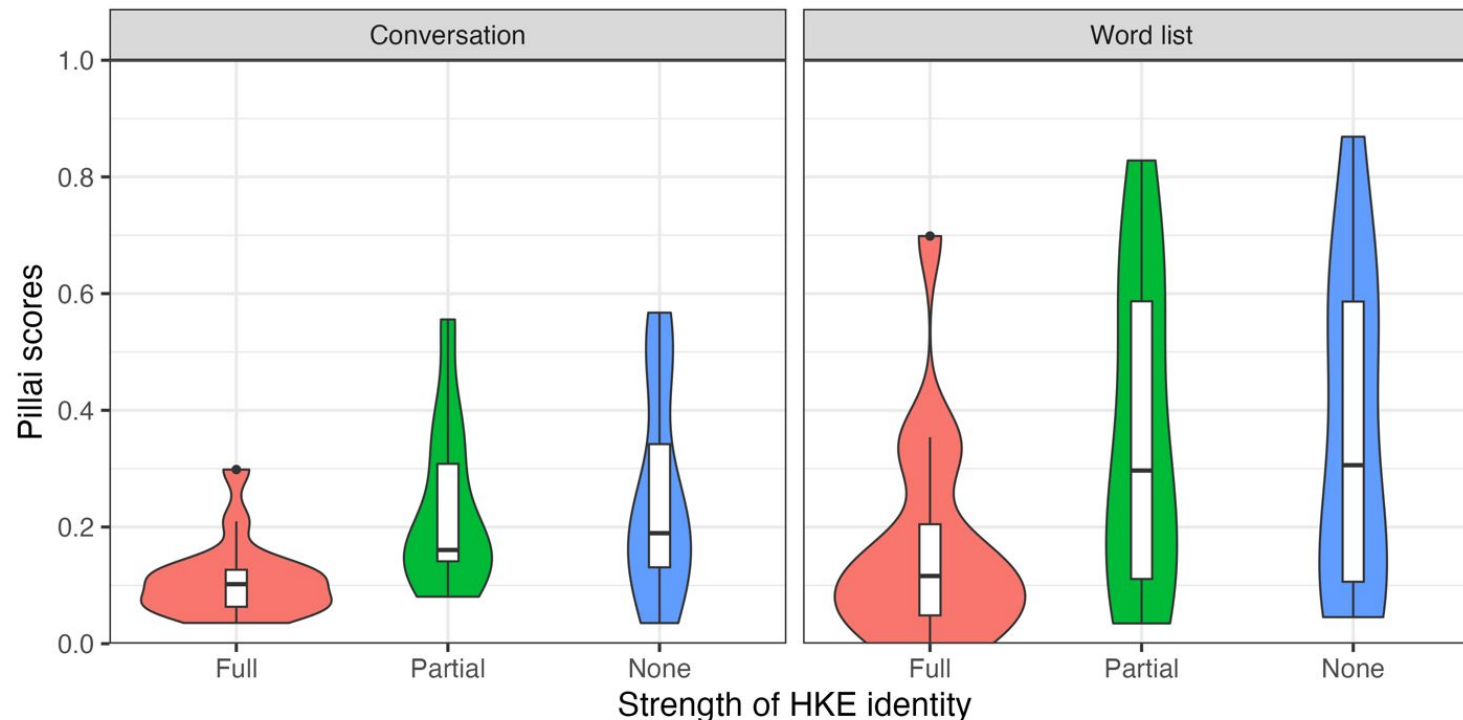
# Results: High front merger

- The vowels were more completely merged in wordlist than in interview

- 0% of speakers below threshold in interview vs. 54% in wordlist

- We should consider sample size when accessing Pillai scores

# Results: Low back merger

- THOUGHT in general had significantly lower F1 (p=8.41E-06) & F2 (p=0.000667) than LOT
- THOUGHT by speakers who partially identified with HKE had significantly lower F1 (p=2.56E-08) & F2 (p=0.003271) in wordlist than LOT by speakers who fully identified with HKE in interview



Interview



Word list

# Results: Low back merger

- Speakers who partially identified with HKE had significantly higher Pillai scores (p=0.01121) in interview, less merged vowels
- No significant difference in wordlist (p=0.2061)
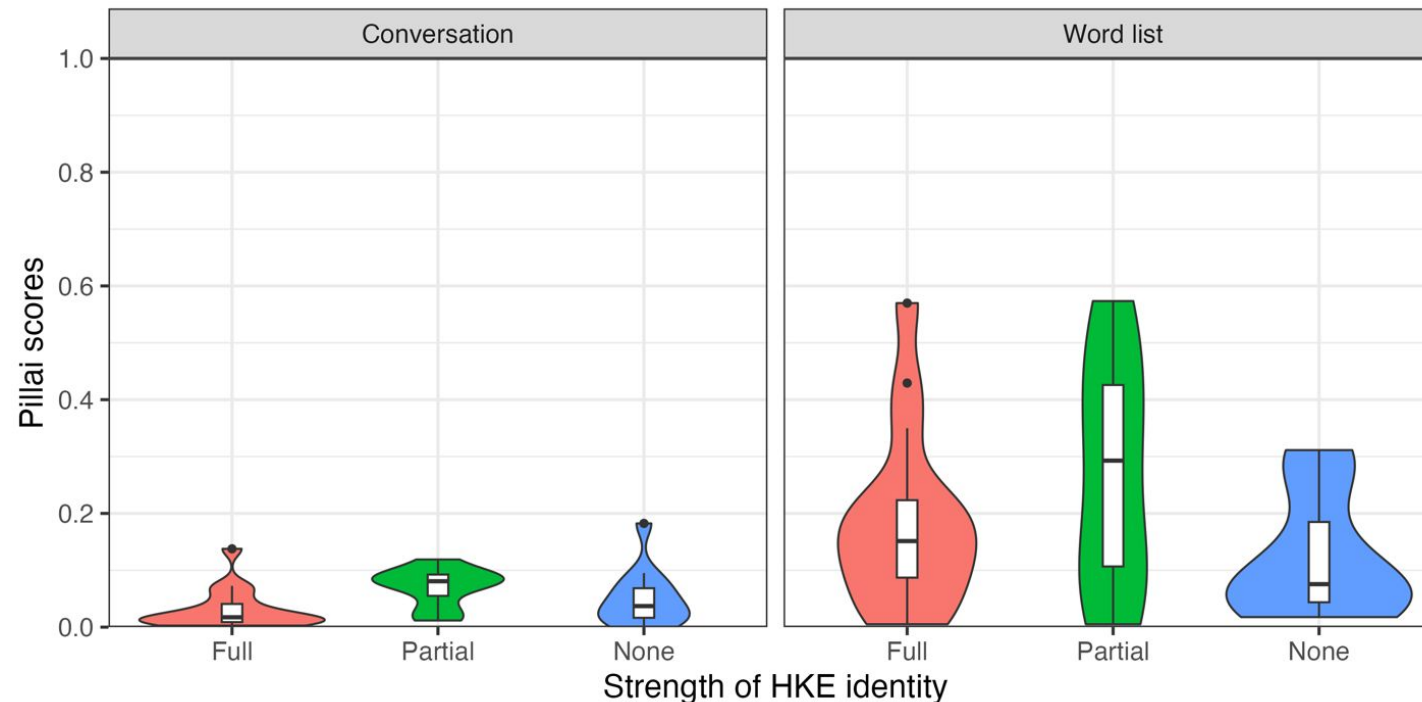
# Results: Low back merger

- The vowels were more completely merged in wordlist than in interview
- 31% of speakers below threshold in interview vs. 59% in wordlist
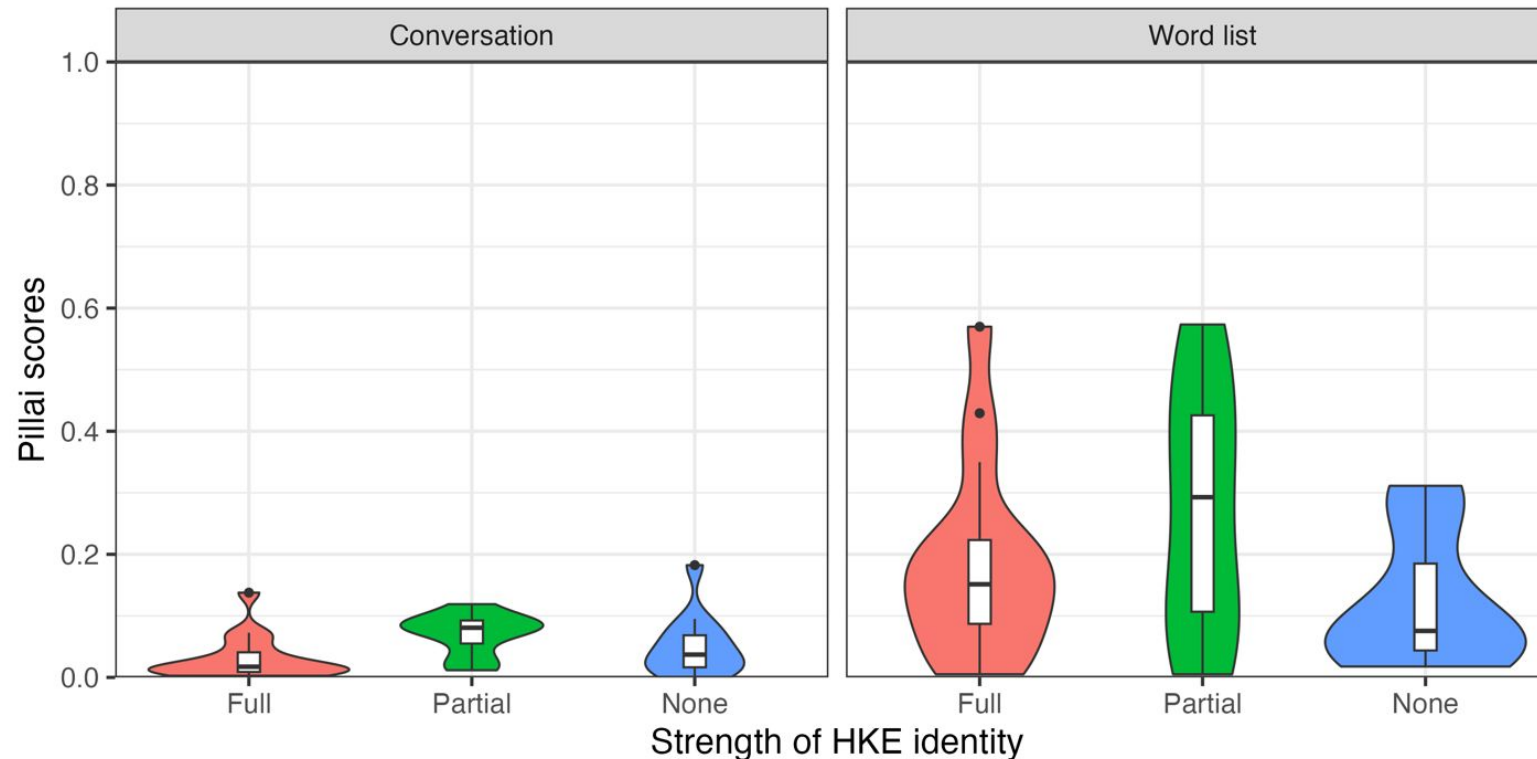
# Results: Minimal pairs

- Minimal pairs with low back vowels more often judged as homophones (~46%) than those with high front vowels (~20%)

- Minimal pair judgment did not differ by linguistic identity
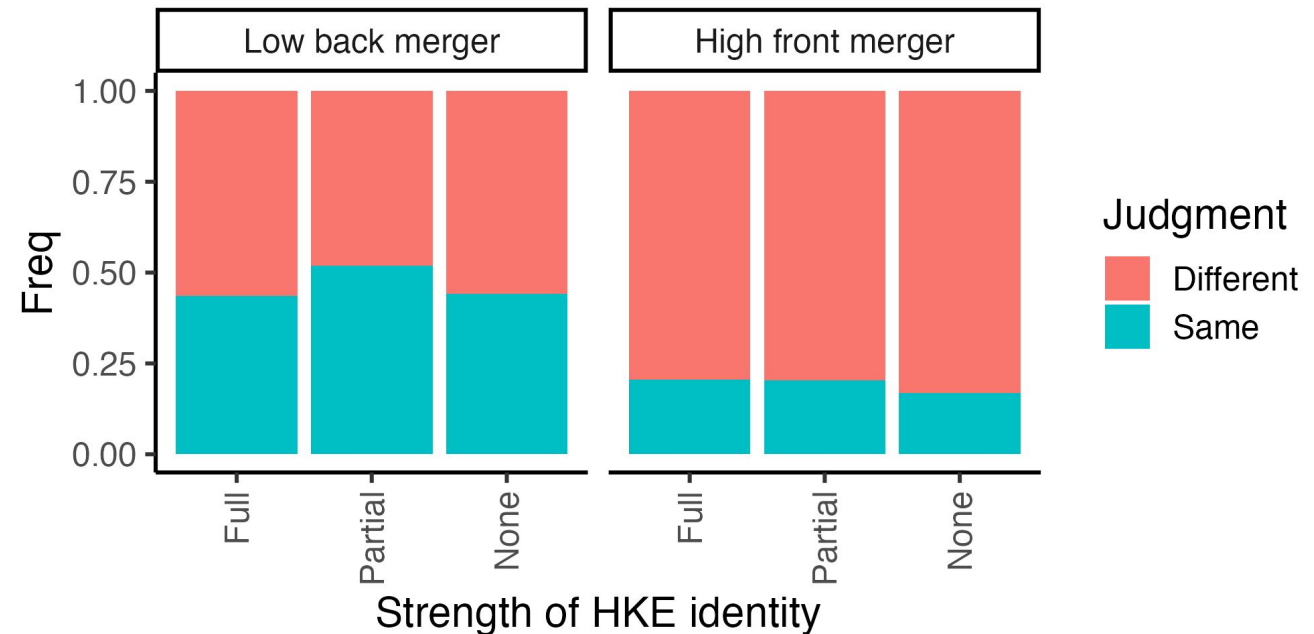
# Results: Task effects

Percentage of complete merger:

| Merger | Interview | Word list | Minimal pair |
|---|---|---|---|
| High front | 0% ⬇️ | 54% ⬆️ | 20% ⬇️ |
| Low back | 31% ⬇️ | 59% ⬆️ | 46% ⬇️ |

# Discussion

- Unlike previous descriptions of HKE (e.g., Hung, 2000, 2012), neither the high front vowels nor the low back vowels are completely merged

- Low back merger is more advanced than high front merger

- **Near-merger:** the mergers are more advanced in careful speech than in casual speech

# Discussion

- Speakers who fully identified with HKE had **more merged high front vowels** than speakers who did not identify with HKE

- The effect of linguistic identity is **only** present in **spontaneous speech,** not in careful speech or minimal pair judgment

- The effect of linguistic identity on **low back merger** is less clear

# Discussion

- **High front merger** might be more socially salient than low back merger as a feature of HKE

- **High front merger** might index HKE identity while low back merger might not

- Future perception studies will provide more insights into the social meanings of the two vowel mergers

# Discussion

- Why is high front merger subject to more variation than low back merger?

- Possible reasons:
  - High front merger is absent in prestige varieties, hence more stigmatized
  - Differences in perceptual salience
  - High front vowels have a higher functional load. Merging them would create too many homophones (Brown, 1988).

# Thank you!

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