Contrast Maintenance and Innovation in Toronto Heritage Cantonese High Vowels

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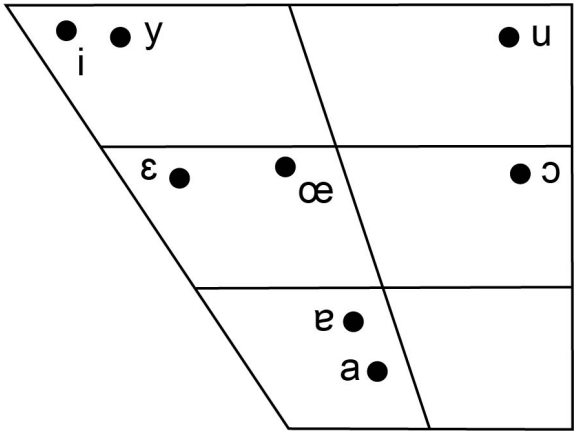
Workshop on Innovations in Cantonese Linguistics (WICL-3)

THE OHIO STATE UNIVERSITY

Columbus, OH
March 12, 2016



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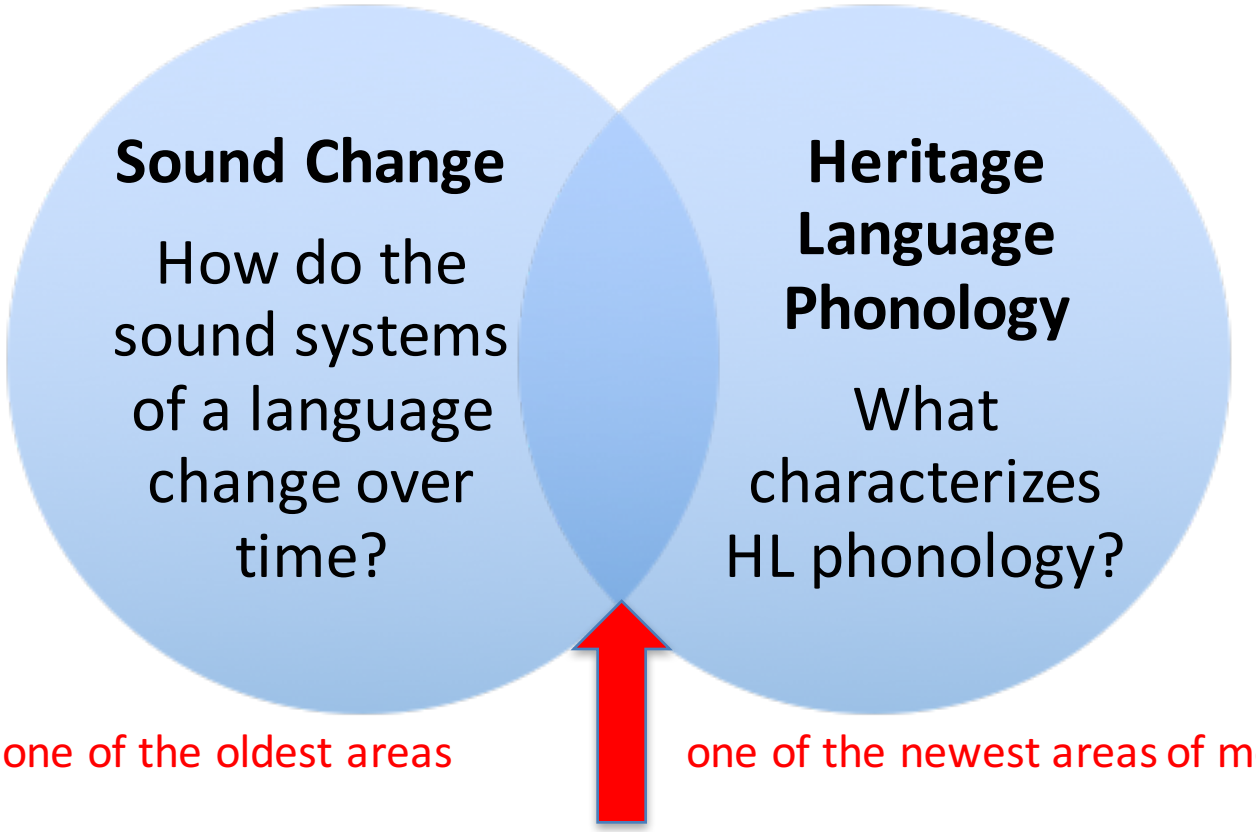
Research Goals



Heritage Language (HL)

In Canada: a non-official and non-indigenous language

More generally: an immigrant minority language

one of the oldest areas

one of the newest areas of modern linguistics

What inter-generational differences can we find in the vowel system of HL speakers?

Variationist Approach: "Change in Progress" as evidenced in synchronic variation
= "change in apparent time"

Variationist Sociolinguistics and Vowels

According to Labov (1994, 2001):

CHANGE FROM ABOVE — CONSONANTS TYPICALLY INCLUDED

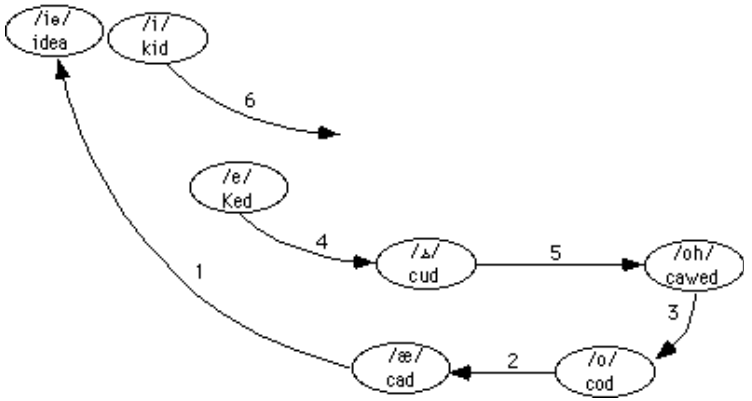
Generally more noticeable to people, non-linguists talk about it

Example:

"Fou[r]th Floo[r]" in New York City English

Photo by H. Tse (2013)

Figure 1. The Northern Cities Shift



http://www.ling.upenn.edu/phono_atlas/ICSLP4.html

CHANGE FROM BELOW — VOWELS TYPICALLY INCLUDED

Typically not noticed by speakers (non-linguists), may have important implications for internal motivation behind sound change

Sound Change in Cantonese

Sound Change	Environment	Example	Gloss
n- → l-	onset	nei5 → lei5	2nd person pronoun
gwo/kwo → go/ko	Before "o"	gwok3 → gok3	'country'
-k → -t (coda)	coda	baak3 → baat3	'hundred'
k > h	only in 'keoi5'	keoi5 → heoi5	3rd person pronoun
ng > 0	onset	ngo5 → o5	1st person pronoun
ng > m	syllabic nasal	ng5 → m5	'five'
ng > n	coda	saang1 → saan1	'to grow/produce'

Matthews & Yip 2011: 36-37

- All consonants
  - Above the level of conscious awareness
  - People talk about "laan5 jam1" ('lazy speech', Matthews & Yip 2011: 4)
- Studies of Tonal Mergers (Bauer et al 2003, Mok et al 2013)
- Vowels
  - Not mentioned as part of laan5 jam1 (appear to be below the level of conscious awareness)

Vowel Research on Cantonese

- Mostly focused on "normative" descriptions
  - Bauer & Benedict (1997): Discussion of debates over transcription
  - Zee (2003): Acoustic study
    - 50 male and 50 female speakers (not normalized)
    - But all college age (18-21) → not an age stratified sample
- Exception (aside from HLVC research)
  - Lee (1983)
    - Found more peripheral vowels among HK speakers (N=3) than among G(w)ong2 Zau1 (Canton/Guangzhou) speakers (N=3)
- Vowel variation seems to be below the level of conscious awareness among Cantonese speakers
  - And among Cantonese linguists too!
  - Lack of variationist vowel studies of Cantonese

HL Vowel Research

- Also understudied topic (but see Godson 2004, Ronquest 2013)
- Chang et al 2011
  - compared HL and L2 English-Mandarin bilingual speakers
  - HL speakers maximize language-internal and cross-linguistic distinctions due to early exposure to two languages

L2 Mandarin

y ← u

Distinct but with ENG phonetic influence

HL Mandarin

y u →

Phonological considerations inhibit fronting

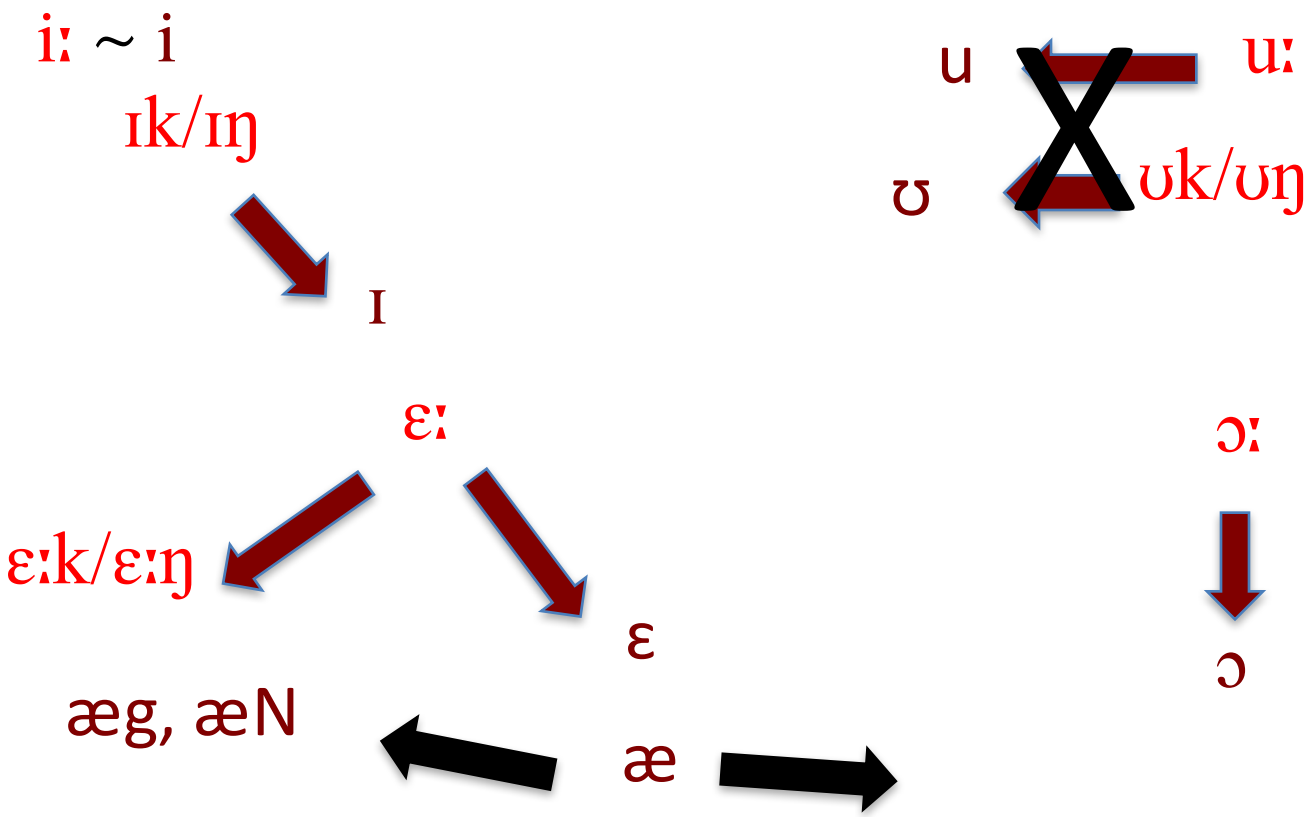
assimilation vs. dissimilation (both influenced by English)

L2 Phonology ≠ HL Phonology

Summary of Tse (2015)

Cantonese Vowels (Red)

Toronto English Vowels (Brown)



Contrasts maintained across 5 vowel categories
Allophonic distinctions across 2 categories maintained
Lack of /u/-fronting
Allophonic splits innovated

Current Presentation

Two vowels not considered in Tse (2015) to be added to analysis: /œ/ and /y/

1. Are vowel contrasts maintained across two generations of Cantonese speakers in Toronto for 7 out of the 8 canonical monopthongs?
2. Is there evidence of influence from contact with Toronto English and if so what is the nature of this influence?
   - assimilation or dissimilation?

Data

- Heritage Language Variation and Change (HLVC) in Toronto Project (Nagy 2011)
- Includes hour-long sociolinguistic interviews (spontaneous speech), Ethnic Orientation Questionnaire, and Word List (Picture based task)

GEN 1 Speakers

- Born and raised in HK, came to TO as adults, AND have lived in TO for > 20 years
- Variable levels of English proficiency (L2 bilinguals)

English + 粵語

Chinatown East (Riverdale) in Toronto, ON. Photo by Holman Tse, 2014

GEN 2 Speakers

- Grew up in TO
- Learned Cantonese primarily at home
- Universal knowledge of English (HL or early bilinguals)

Speakers Examined

Generation	MALE	FEMALE	TOTAL
1 grew up in HK (Ages: 42-82)	C1M46A C1M59A C1M61A C1M62A	C1F50A C1F54A C1F58A C1F78A C1F82A	N=9
2 grew up in TO (Ages: 16-44)	C2M21D C2M27A C2M44A	C2F16A C2F16B C2F16C C2F20A C2F21B	N=8
Total	N=7	N=10	Grand Total N=17

Token Distribution Per Speaker

Vowel	Open Syllable	Closed Syllable	Total
/aː/	15	0	N = 15
/ɛː/	10	5	N = 15
/iː/	10	5	N = 15
/ɔː/	10	5	N = 15
/uː/	5	10	N = 15
/œː/	0	15	N = 15
/yː/	10	5	N = 15
			TOTAL N = 105

- 17 speakers X 7 vowels X 15 tokens = GRAND TOTAL = 1785 tokens
  - Watts & Fabricius Modified Normalization technique (Fabricius et al 2009)
- Closed Syllable = pre-velar for all except /y:/
  - N for each context depended on general frequency in spontaneous speech
- All Tone 1 (high-level) except for /u:/ and /y:/ due to low frequency

Brul (Johnson 2009)

Note: Step-up and Step-down match in all results reported, Best Step-down shown in all cases

Mixed Effects Modeling for each vowel category

Dependent Variable

F1, F2

Independent Variables

Fixed Effects	
Social:	GEN, Sex, Age, EOQ
Linguistic (depends on vowel):	velar context, syllable type, Tone
Factor Group	GEN:Sex:Velar

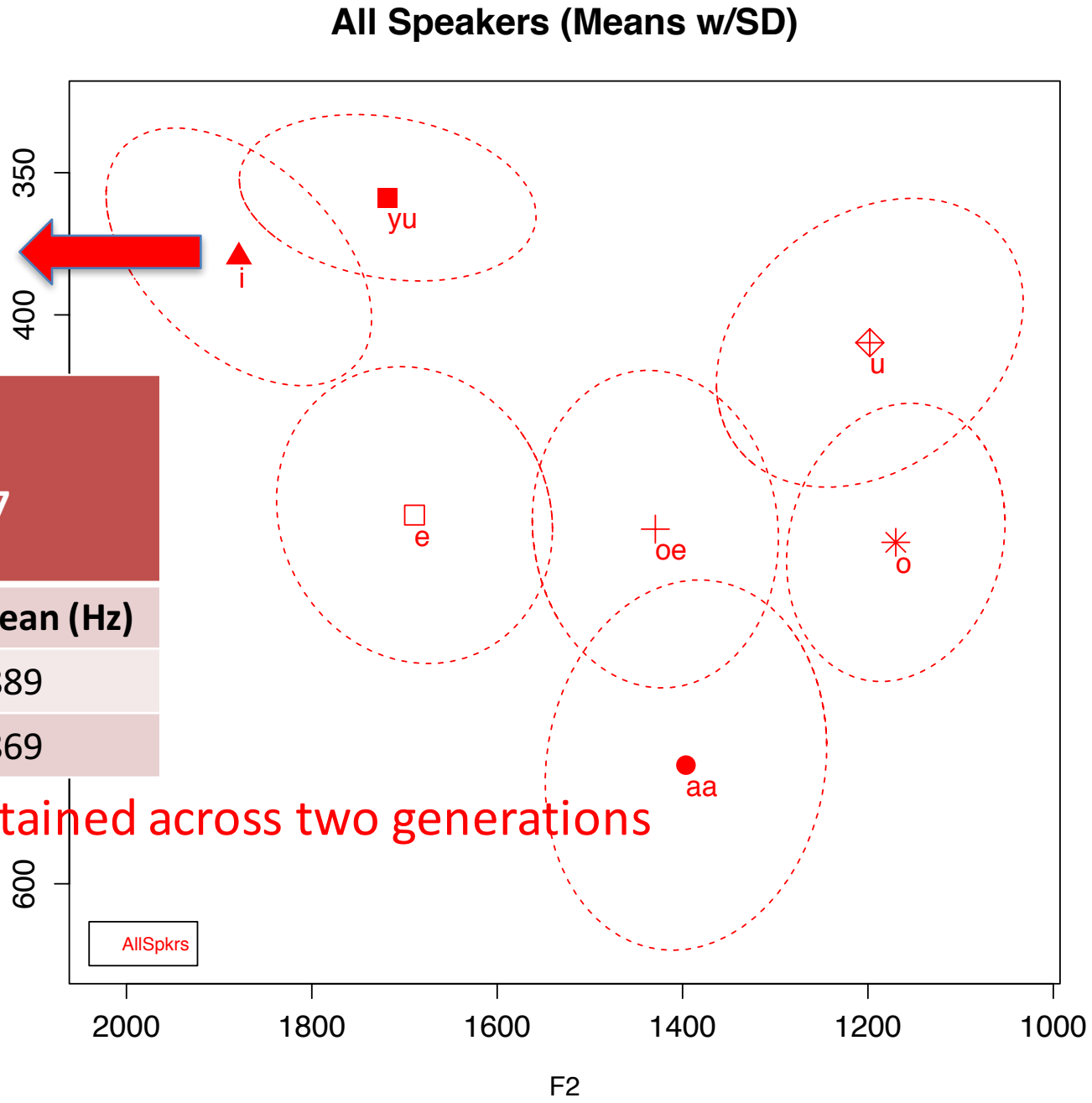
Random Effects

Speaker, Word

GEN n.s. in any model except for:

F2 for /i/ r^2 [fixed] = 0.023, r^2 [random] = 0.267 GEN (p = 0.00934)***			
	Coeff.	**N**	**Mean (Hz)**
GEN 2	22.439	120	1889
GEN 1	-22.439	135	1869

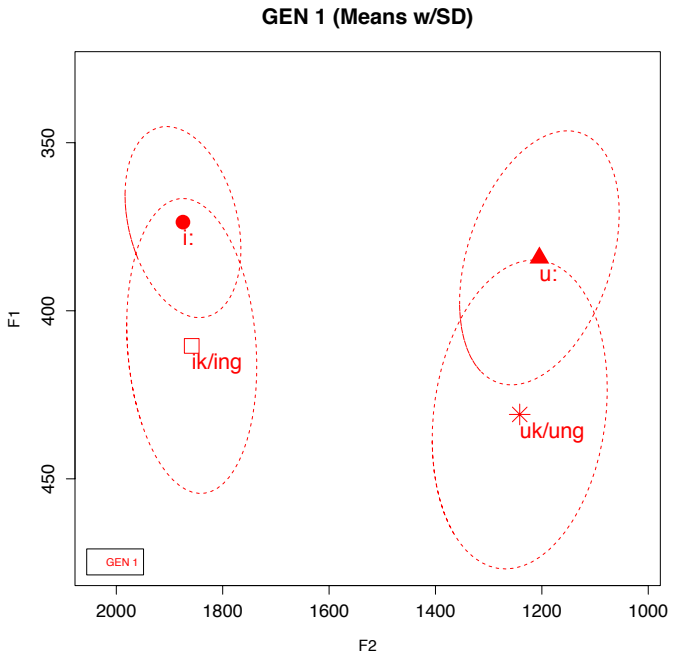
Vowel contrasts maintained across two generations

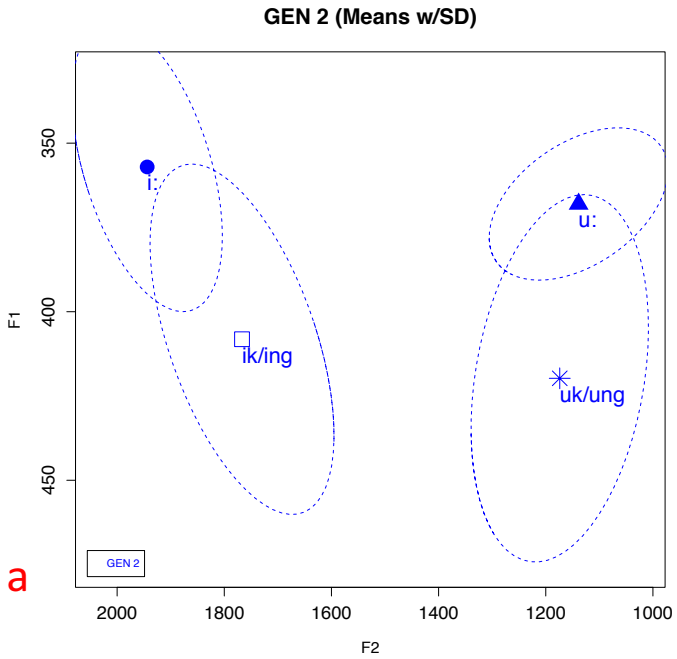


High Vowel Allophones

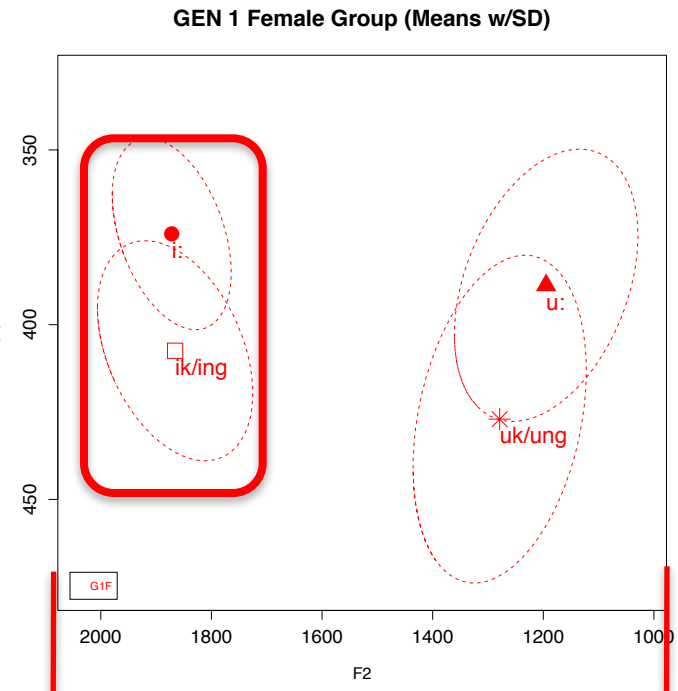
F1 for /i/ r^2 [fixed] = 0.200, r^2 [random] = 0.287 Velar (p = 0.000272)***			
	Coeff.	**N**	**Mean (Hz)**
[ik/ing]	22.173	85	410
[i:]	-22.173	170	365
GEN and all other variables: n.s.			

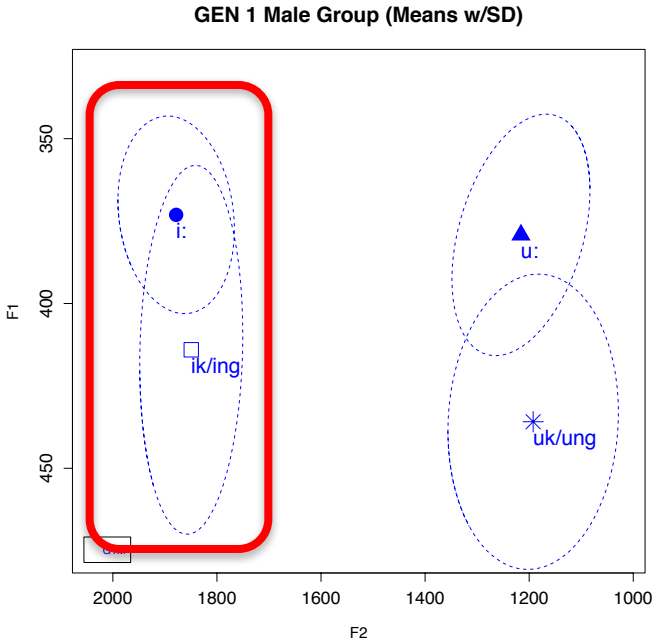
F1 for /u/ r^2 [fixed] = 0.207, r^2 [random] = 0.148 Velar (p = $8.86X10^{-9}$)***			
	Coeff.	**N**	**Mean (Hz)**
[uk/ung]	24.985	172	410
[u:]	-24.985	83	365
GEN and all other variables: n.s.			



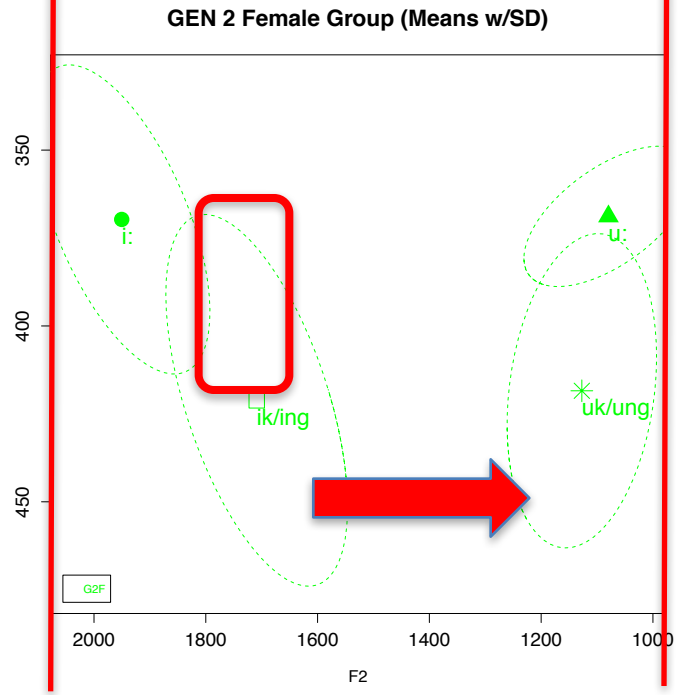


Allophonic distinctions maintained (also shown in previous HLVC work and in Tse Forthcoming, which used a different normalization technique and 20 speakers)

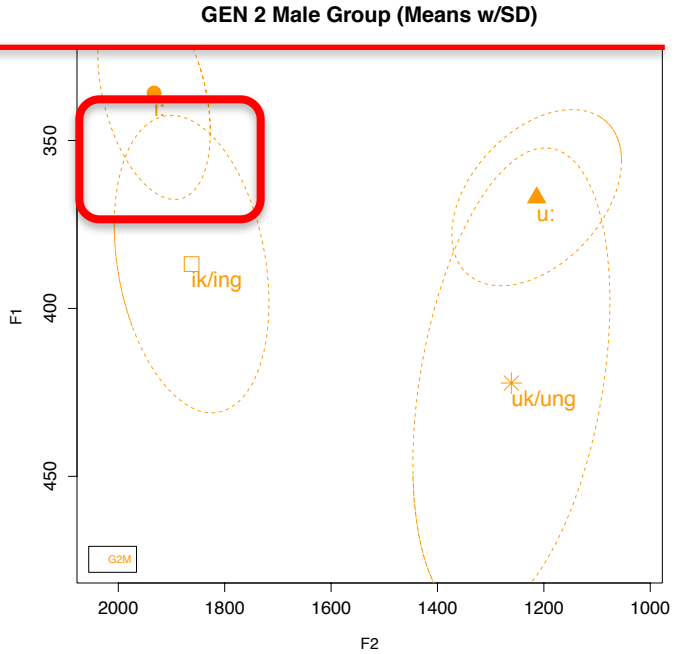




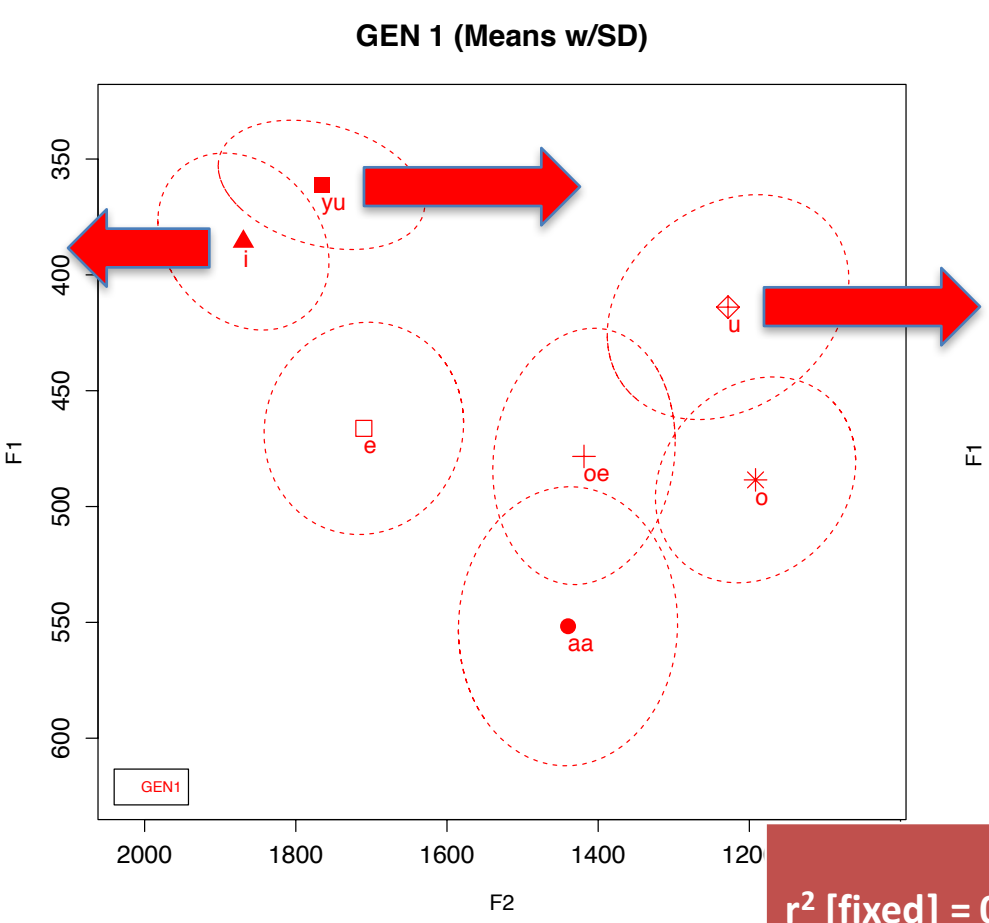
Some overlap

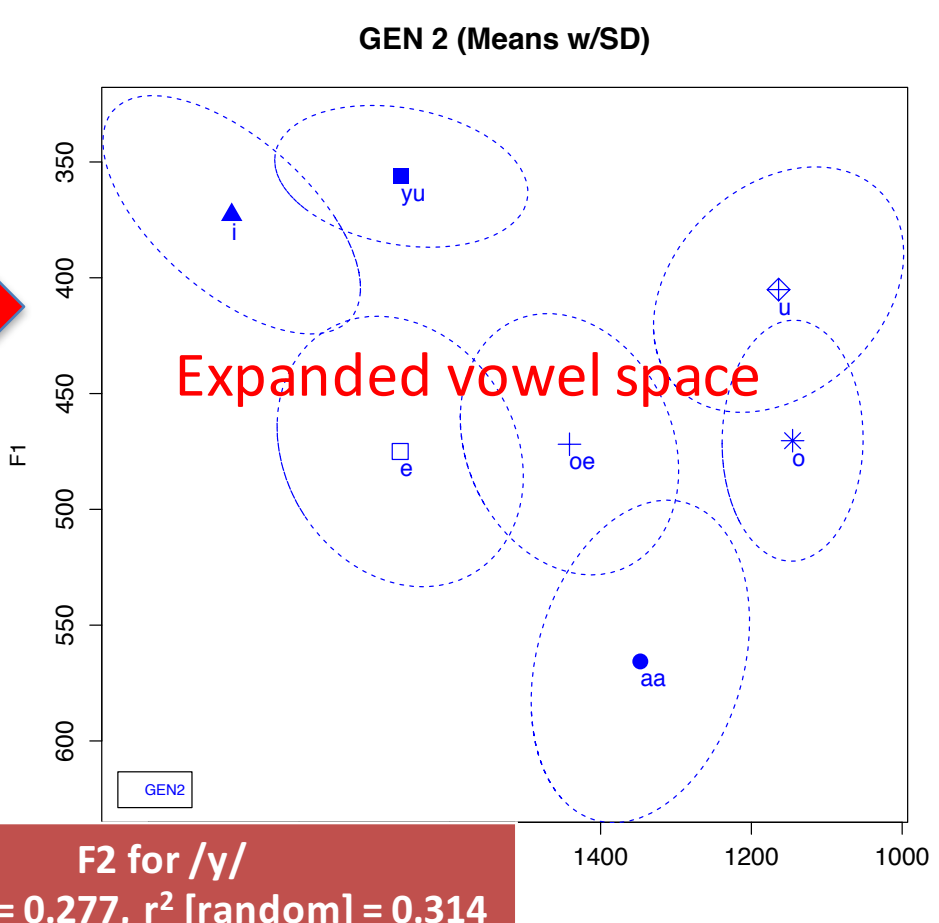


Increasing separation
Also in Tse
(Forthcoming)



Peripheralization





F2 for /i/
r^2 [fixed] = 0.023,
r^2 [random] = 0.267
GEN (p = 0.00934)***

	Coeff.	N	Mean (Hz)
GEN 2	22.439	120	1889
GEN 1	-22.439	135	1869

F2 for /y/
r^2 [fixed] = 0.277, r^2 [random] = 0.314
Sex (p=0.00836)***

	Coeff.	N	Mean (Hz)
M	56.047	105	1792
F	-56.047	150	1667

Age (p=0.00632)***

	Coefficient
+1	3.029

F2 for /u/
r^2 [fixed] = 0.086,
r^2 [random] = 0.318
Age (p=0.00749)***

	Coefficient
+1	2.263

Summary

Maintenance

- Vowel contrasts (7 categories) for all speakers
- Allophones of /i/ and /u/
  - Lower before velars for all speakers

Innovation

- Evidence for split in /i/ allophones
- Fronting of /i/ + retraction of /y/ and /u/
  - → Expansion of vowel space among youngest (GEN 2) speakers

Research Questions Addressed

1. Are vowel contrasts maintained across two generations of Cantonese speakers in Toronto for 7 out of the 8 canonical monopthongs?

   Yes

2. Is there evidence of influence from contact with Toronto English and if so what is the nature of this influence?

   Yes, dissimilation rather than assimilation best describes inter-generational differences (supporting Chang et al 2011 study of Mandarin)

Discussion

- Early bilingualism means early exposure to TWO phonological systems resulting in improved ability of making BOTH language internal AND cross-linguistic distinctions (Chang et al 2011)
  - Accounts for lack of vowel mergers among GEN 2 speakers = (lg internal)
  - Accounts for expanded vowel space among GEN 2 speakers possibly to accommodate both English and Cantonese vowels
  - → YES, English influence present but not assimilatory (as in L2 phonology), rather dissimilatory
  - Not typical of what we expect in contact-induced change possibly due to the general lack of attention paid to the effects of early bilingualism

Next Steps

- Inter-generational comparison
  - Add more speakers and vowel tokens with the help of forced alignment (cf. Peters & Tse, WICL-3)
- Cross-variety comparison
  - To confirm hypothesis of dissimilation rather than assimilation with Toronto English vowels (cf. Hoffman & Walker 2010)
- Cross-community comparison
  - Is there evidence for the same changes in Hong Kong Cantonese?
  - To strengthen support for contact with Toronto English → Homeland data now available

Conclusion

"Deficit" Perspective of HLs

- HL speech is characterized by attrition and even "Incomplete Acquisition" (cf. Montrul 2008)

"Conservative" Perspective of HLs

- HL speech is conservative because it preserves features that have been lost in the Homeland variety (cf. NWAV 44 panel on conservatism in HL's)

Towards a Variationist or Dialectological Perspective of HLs

- No evidence for attrition in HL phonology
- Evidence for both maintenance (conservatism) and innovation possibly due to interaction with another phonological system
- Also: evidence for low-level phonetic differences just as has widely been observed across different dialects of English
  - Toronto Cantonese not different! → A new Yue dialect? (cf. Nagy 2016)

감사합니다 Дякую Grazie molto Спасибо 多謝 gratsiə namuorːə

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Collaborators:

Yoonjung Kang
Alexei Kochetov
James Walker

Funding:

SSHRC, University of Toronto, Shevchenko Foundation

HTTP://PROJECTS.CHASS.UTORONTO.CA/NGN/HLVC

Additional Acknowledgements

- Naomi Nagy, U of T Linguistics Dept., Scott Kiesling, Shelome Gooden, U of Pittsburgh Linguistics Dept. and Dietrich School of A & S
- WICL-1/3 Organizers
- Slides will be available at: http://www.pitt.edu/~hbt3/presentations.html
- 多謝晒!

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