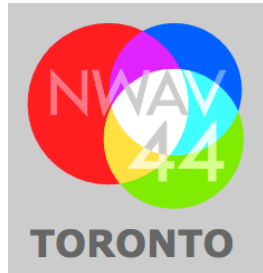


Is Heritage Phonology Conservative?: Evidence from Toronto Heritage Cantonese

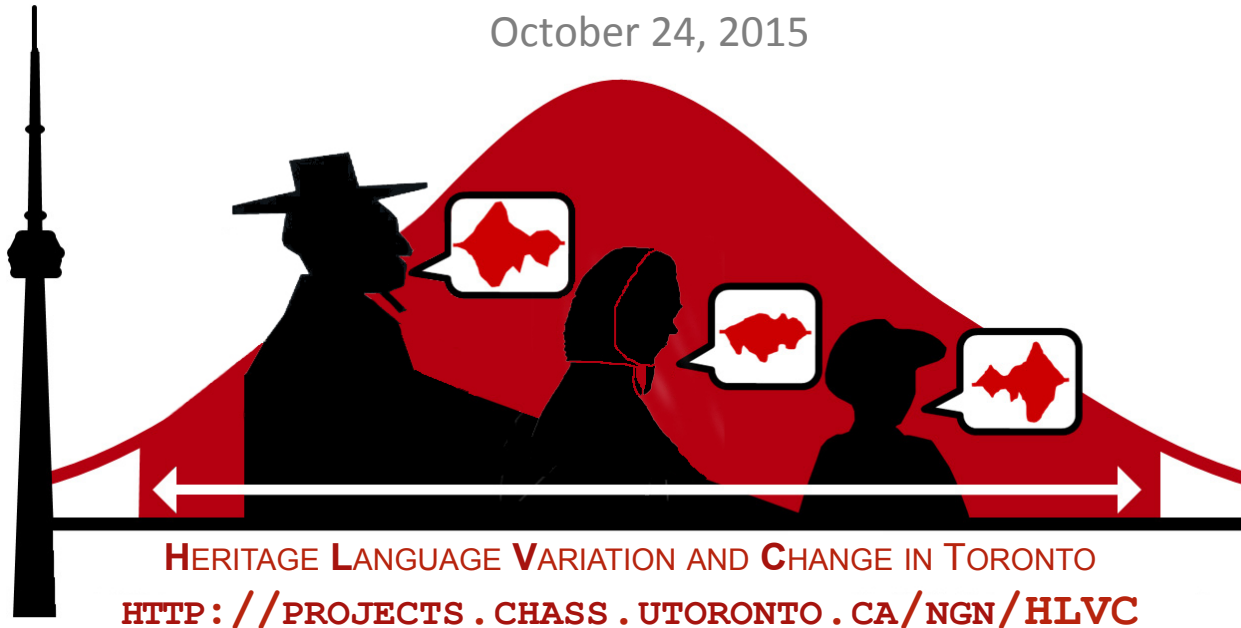
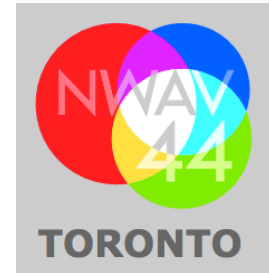


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New Ways of Analyzing Variation 44
Toronto, ON, Canada
October 24, 2015



HERITAGE LANGUAGE VARIATION AND CHANGE IN TORONTO

[HTTP://PROJECTS.CHASS.UTORONTO.CA/NGN/HLVC](http://projects.chass.utoronto.ca/ngn/hlvc)



Social Sciences and Humanities
Research Council of Canada

Conseil de recherches en
sciences humaines du Canada



UNIVERSITY OF
TORONTO

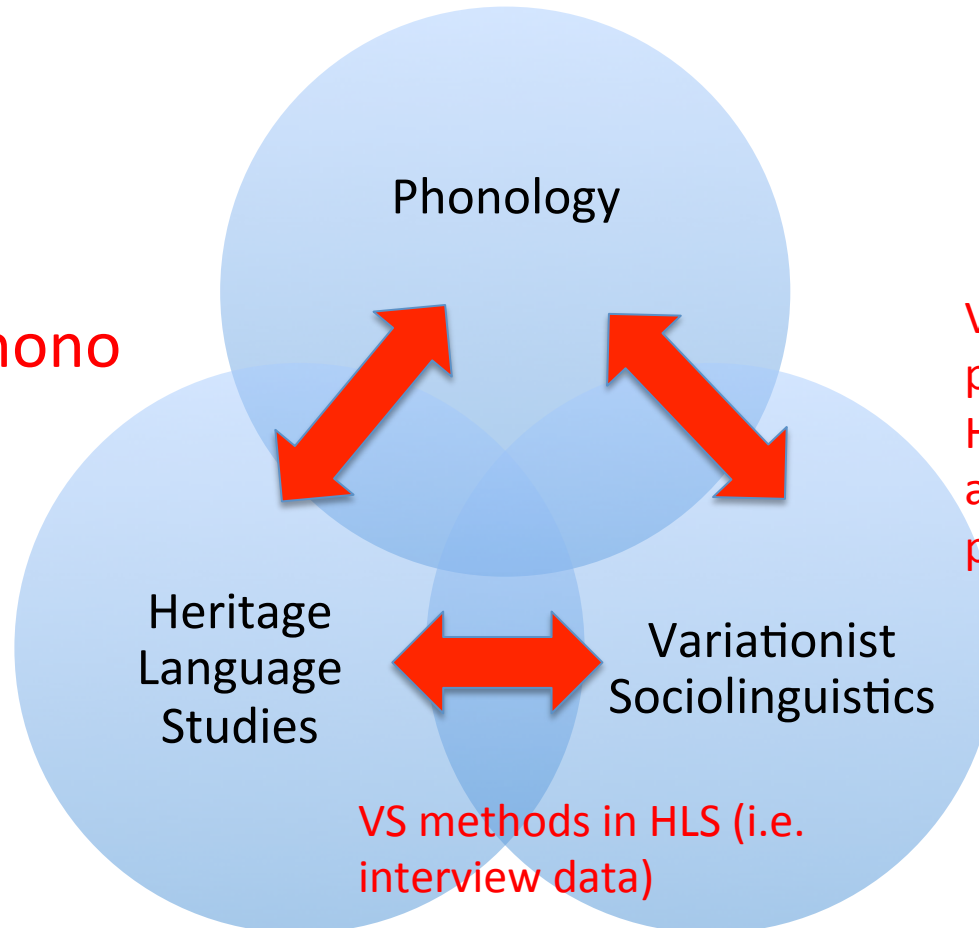
Intersections

Is HL phonology conservative?

Evidence from Toronto Heritage Cantonese Vowels

Research involves crossing many intersections

About HL Phono

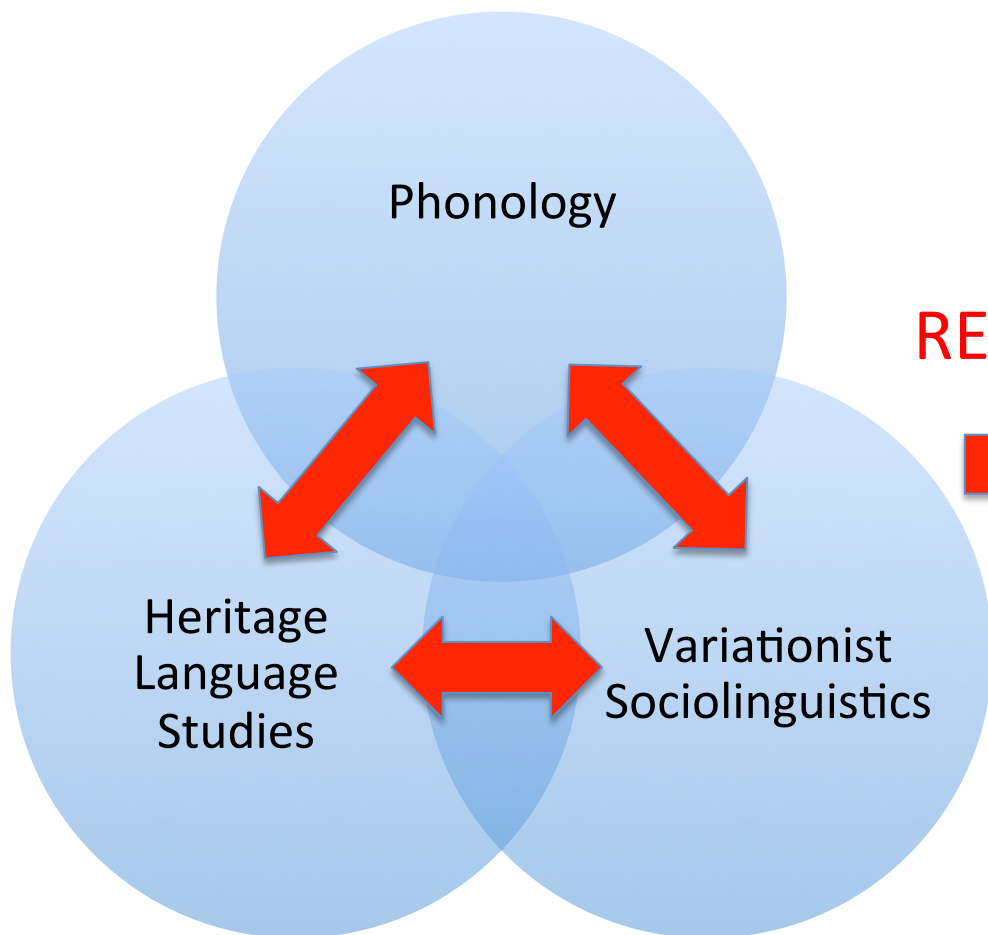


Variationist approach to phonological change, HLs necessitate more attention to phonological factors

Intersections

Is HL phonology conservative?

Evidence from Toronto Heritage Cantonese Vowels?



RESULTS



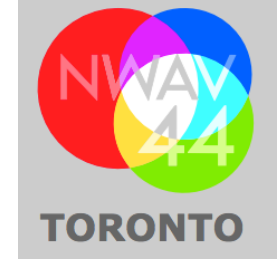
NO, instead evidence for innovation of allophonic splits below the level of conscious awareness
ALTHOUGH phonological contrasts maintained

Cantonese

(Yue, Sub-Family of Chinese)

- 62 million speakers worldwide (Ethnologue)
 - 52 million in Mainland China
 - 5 million in HK (Homeland Variety)
 - 5 million in the Diaspora including Canada
 - (Heritage Variety)





#TorontoIntersections



NWAV 44 Toronto @NWAV44

22 Sep

Share what's special about your #TorontoIntersections. To you, what do they represent about #Toronto? #NWAV44 #YYZ #YTZ (2/2)

Expand



Downtown Chinatown. Photo by Holman Tse, 2014

- Represents dominance of Cantonese in TO Chinese community
- One of the largest in the Western Hemisphere (178,000+ speakers, 2011 Census)
- Cantonese 2nd (about tied with Italian) most widely spoken languages in the GTA

蘇豪
 [su55 hau51] in Mandarin
 (Standard Chinese) BUT
 [sou55 hou21] in Cantonese

Intersections: Language Contact

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 (Late bilinguals)

GEN 2 Speakers

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

ENGLISH

+

廣東話



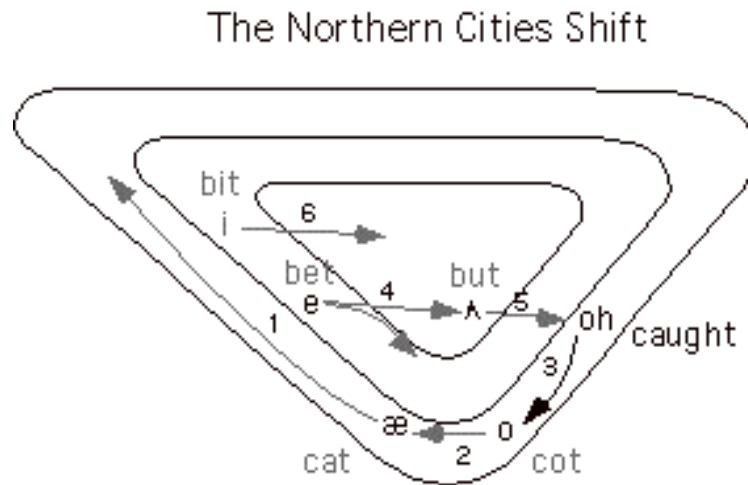
Chinatown East (Riverdale).
Photo by Holman Tse, 2014

Conservatism in HL Phonology

1. Maintenance of Homeland (GEN 1) Phonology
 - Widespread “native-like” impressions of HL Phonology among HL teachers and researchers (Polinsky & Kagan 2007)
2. Maintenance of features that have changed in the Homeland variety contributing to perceptions of difference
 - Heritage Thai teenage girls speak more like their mothers than Homeland Thai speakers of same age b/c consonant and tone changes in Homeland Thai (Thepboriruk 2010, 2015)

Vowels?

- Consonants may be more salient BUT what about this?



- Could there be innovation below the level of conscious awareness?

HL vs. L2 Contact Phonology (Chang et al 2011)

- Study comparing HL and L2 English-Mandarin bilingual speakers
- /u/ in Mandarin influenced by fronted /u/ in English for L2 Mandarin speakers but not for HL speakers
- /u/ ~ /y/ contrast in Mandarin
- HL speakers maximize language-internal and cross-linguistic distinctions
- Phonological considerations may override phonetic ones in HL phonology

Phonological Considerations ...

- May apply more generally to other HL's
 - Lack of /u/ and /o/ fronting in HL Western Armenian even in community of California English speakers (Godson 2004)
 - English phonological stress rule influence on HL Spanish (Ronquest 2013)
 - HL Spanish vowel reduction, but vowel phonetically different from English schwa

Implications?

- Raises questions that may have implications for innovation/conservatism:

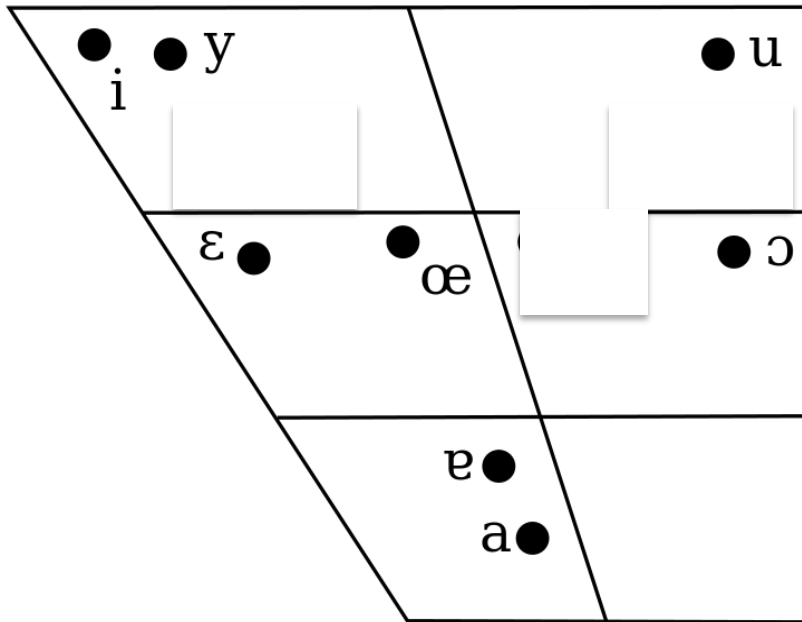
- Are HL allophonic distinctions maintained?
- Can allophonic distinctions in the dominant language be transferred?

廣東話：YES,
sometimes with
an innovative
twist

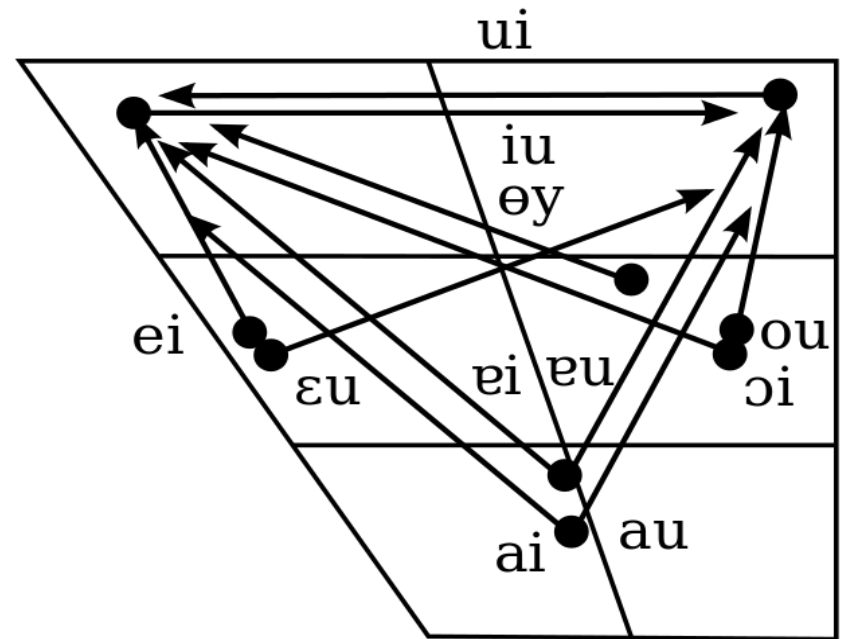
廣東話：YES

廣東話：phonological contrasts maintained

Homeland Cantonese Vowels (Zee 1999)

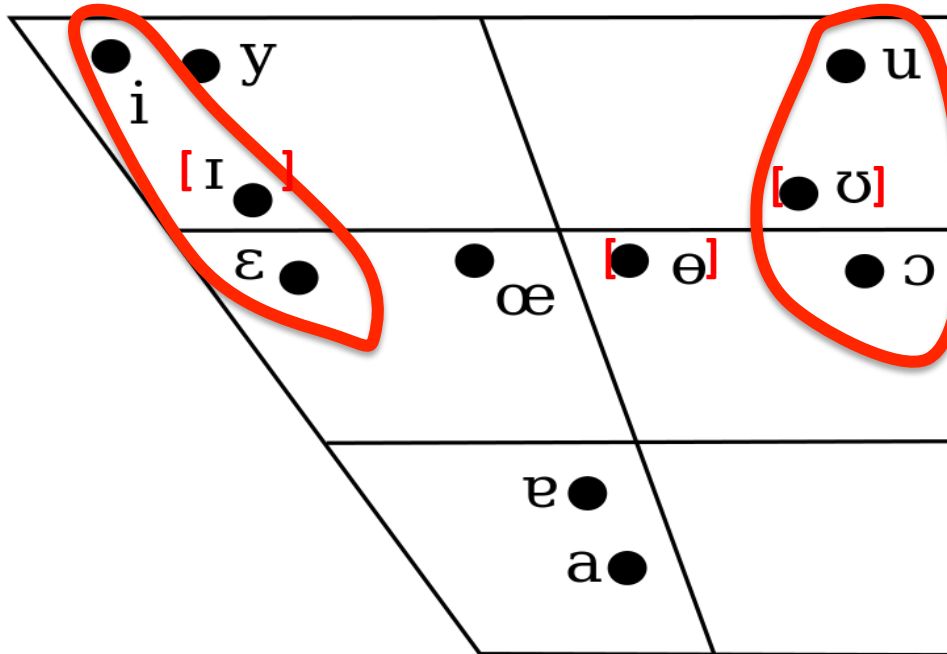


8 contrastive monophthongs!



11 diphthongs!

Cantonese Vowels



In Open Syllable Context

	Long Vowels	Jyutping Symbol	Examples (all in high level tone)
✓	i:	i	si, 'silk'
	y:	yu	sy, 'book'
✓	ɛ:	e	tse, 'umbrella'
	œ:	oe	hœ, 'boot'
	a:	aa	sa, 'sand'
✓	ɔ:	o	sɔ, 'comb'
✓	u:	u	fu, 'skin'

	Short Vowel Counterparts	Jyutping Symbol	Examples (all in high level tone)
✓	ɪ	i	sɪk1, 'color'
	ə	eo	sət1, 'shirt'
	ɐ	a	sɐp1, 'wet'
✓	ʊ	u	sʊk1, 'uncle'

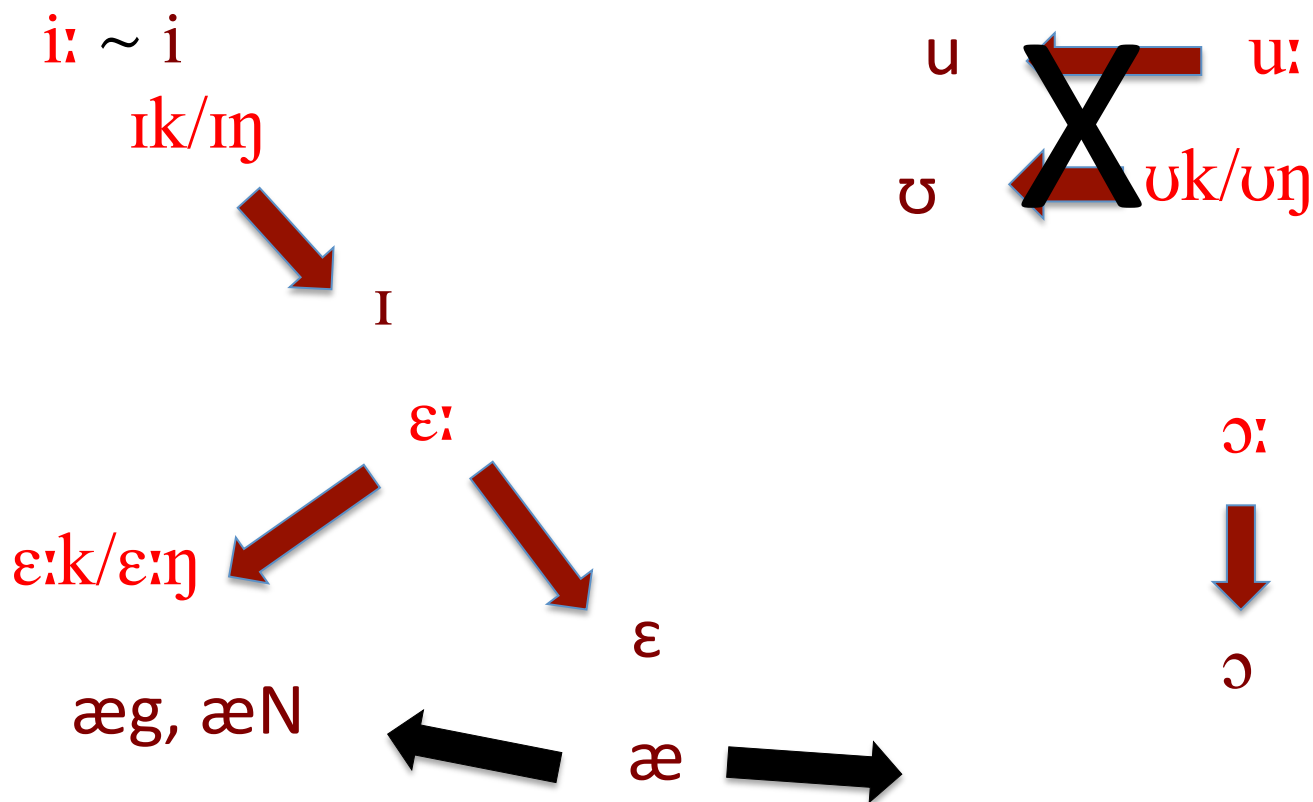
In Pre-velar Context

/i:/ → [ɪ] / __ k, ŋ

/u:/ → [ʊ] / __ k, ŋ

Toronto English vs. Homeland Cantonese

Note: Cantonese-English heritage bilinguals not significantly different from other Toronto English speakers (Hoffman & Walker 2010)



Speakers Examined

	Male	Female	
GEN 1	C1M46A C1M59A C1M61A C1M62A	C1F50A C1F54A C1F58A C1F78A C1F82A	N = 9
GEN 2	C2M21D C2M27A C2M44A	C2F16A C2F16B C2F16C C2F20A C2F21B	N = 8
	N = 7	N = 10	TOTAL N = 17

- From Heritage Language Documentation Corpus (HerLD, Nagy 2011)
 - Part of the HLVC (Heritage Language Variation and Change) in Toronto Project
 - Speaker Code indicates demographic info
- Primary criterium: audio quality

Token Distribution Per Speaker

Vowel (Jyutping)	Vowel (IPA)	Open syllable	Pre-velar	Total
AA	/a:/	15	0	N = 15
E	/ɛ:/	10	5	N = 15
I	/i:/	10	5	N = 15
O	/ɔ:/	10	5	N = 15
U	/u:/	5	10	N = 15
		N = 50	N = 25	TOTAL N = 75

- 17 speakers X 75 tokens = 1275 tokens
- /a:/ used as point vowel for normalization (Watts & Fabricius Modified technique)
 - Low frequency in pre-velar context
- /u:/ occurs in low frequency in open syllable context
- Tone 1 (high-level) only except for /u:/ due to low frequency



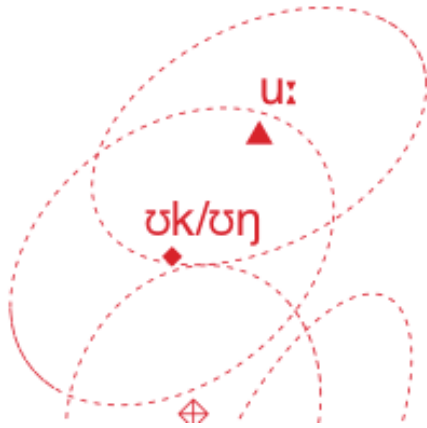
Brul

		Independent Variables		
		Random Effects	Fixed Effects	
			Social Factors	Linguistic Factors
Dependent Variables	F1	Speaker, Word	Generation, Sex, Age Preceding Segment, Following Velar	Generation:Sex:Velar
	F2			

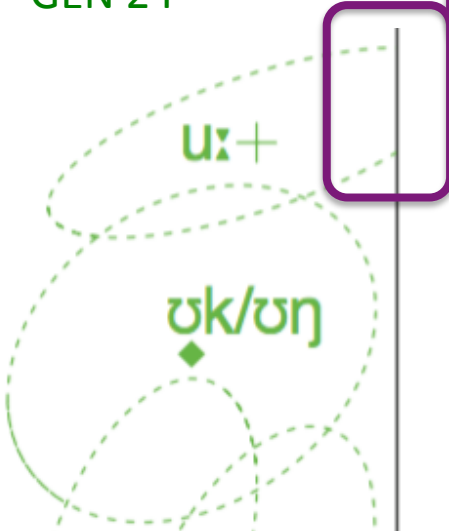
- Mixed Effects Modeling
- One-level analysis
- If significant, included Generation:Sex:Velar Factor Group
 - To determine how M and F speakers from each GEN group differ in production of pre-velar vowels

Results for /u:/

GEN 1 F



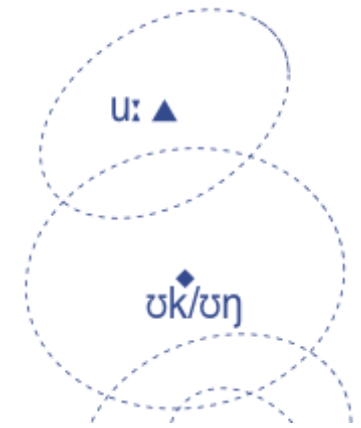
GEN 2 F



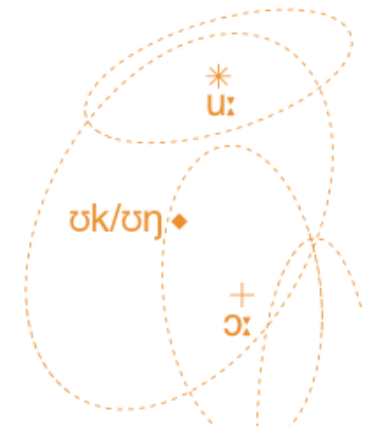
F1 for /u:/			
One-level Analysis (R2 [total] = 0.367)			
Random Effects (R2 = 0.122)			
Speaker [random]			
Word [random]			
Fixed Effects (R2 = 0.245)			
Velar (p=1.04e-05)**			
factor	coef	N	mean Hz
[k/ŋ]	30	172	429
[u:]	-30	83	378
Not Significant Factors			
Generation (0.483)			
Sex (0.454)			
Age (0.189)			
Preceding (0.302)			

F2 for /u:/			
One-level Analysis (R2 [total] = 0.449)			
Random Effects (R2 = 0.148)			
Speaker [random]			
Word [random]			
Fixed Effects (R2 = 0.301)			
Age (p=0.0163)*			
cont.	coef		
1	+4.097		
Velar (p=0.0207)*			
factor	coef	N	mean Hz
[u:]	40	83	1180
[k/ŋ]	-40	172	1211
Not Significant Factors			
Generation (0.177)			
Sex (0.156)			

GEN 1 M

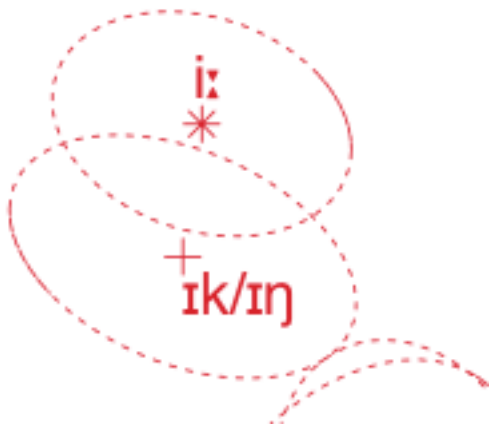


GEN 2 M

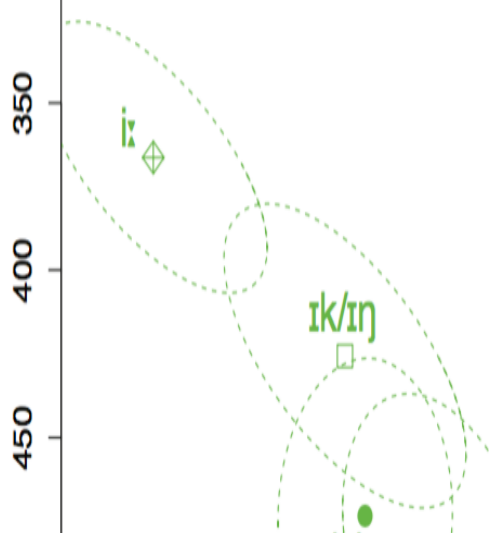


Results for /i:/:

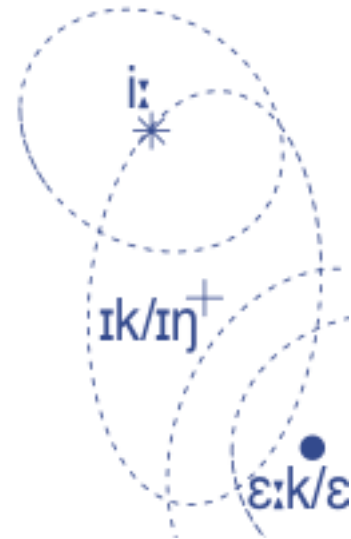
GEN 1 F



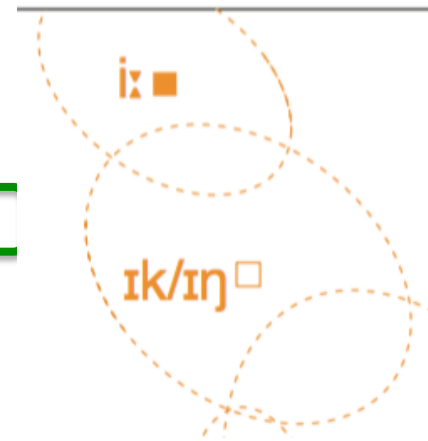
GEN 2 F



GEN 1 M



GEN 2 M



STEP UP AND STEP DOWN MATCH

F1 for /i:/

Best Step-Down Model, R2 [total] = 0.421

Random Effects (R2 = 0.12)

Speaker [random]

Word [random]

Fixed Effect (R2 = 0.301)

Generation.Sex.Velar (0.000641)**

factor	coef	N	mean Hz
2.F.[k/ŋ]	35	25	426
1.M.[k/ŋ]	31	20	417
1.F.[k/ŋ]	27	25	407
2.M.[k/ŋ]	3	15	391
1.M.[i:]	-14	35	372
1.F.[i:]	-15	45	369
2.F.[i:]	-18	50	366
2.M.[i:]	-49	30	336

factor	coef	N	mean Hz
2.F.[k/ŋ]	35	25	426
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factor	coef	N	mean Hz
1.F.[i:]	-15	45	369
2.F.[i:]	-18	50	366
2.M.[i:]	-49	30	336

factor	coef	N	mean Hz
2.F.[i:]	-18	50	366
2.M.[i:]	-49	30	336

Not Significant Factors

Preceding

Age

STEP UP AND STEP DOWN MATCH

F2 for /i:/

Best Step-Down Model, R2 [total] = 0.355

Random Effects (R2 = 0.188)

Speaker [random]

Word [random]

Fixed Effect (R2 = 0.167)

Generation.Sex.Velar (1.9e-06)**

factor	coef	N	mean Hz
2.F.[i:]	83	50	1969
2.M.[i:]	63	30	1948
2.M.[k/ŋ]	43	15	1876
1.M.[i:]	4	35	1890
1.F.[k/ŋ]	-17	25	1880
1.F.[i:]	-20	45	1864
1.M.[k/ŋ]	-29	20	1858
2.F.[k/ŋ]	-127	25	1712

factor	coef	N	mean Hz
2.F.[i:]	83	50	1969
2.M.[i:]	63	30	1948
2.M.[k/ŋ]	43	15	1876
1.M.[i:]	4	35	1890
1.F.[k/ŋ]	-17	25	1880
1.F.[i:]	-20	45	1864
1.M.[k/ŋ]	-29	20	1858
2.F.[k/ŋ]	-127	25	1712

factor	coef	N	mean Hz
2.M.[i:]	63	30	1948
2.M.[k/ŋ]	43	15	1876
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1.F.[k/ŋ]	-17	25	1880
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factor	coef	N	mean Hz
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factor	coef	N	mean Hz
2.F.[k/ŋ]	-127	25	1712

Not Significant Factors

Preceding

Age

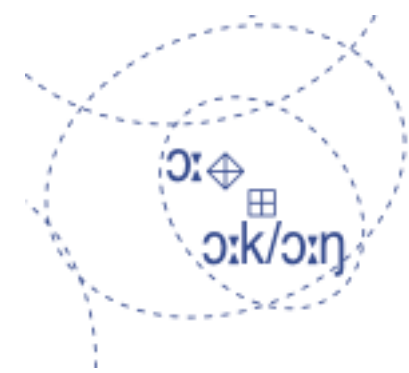
Results for /ɔ:/

STEP UP AND STEP DOWN MATCH			
F1 for /ɔ:/			
Best Step-Down Model (R2 total) = 0.263			
Random Effects (R2 = 0.169)			
Speaker [random]			
Word [random]			
Fixed Effects (R2 = 0.094)			
Generation.Sex.Velar (p = 0.00317)**			
factor	coef	N	mean Hz
2.M.[k/ŋ]	29	15	520
1.M.[k/ŋ]	17	20	508
1.F.[k/ŋ]	11	25	502
1.M.[ɔ:]	7	40	499
2.F.[k/ŋ]	-4	20	485
1.F.[ɔ:]	-12	50	480
2.F.[ɔ:]	18	52	474
2.M.[ɔ:]	-31	30	460
Not Significant Factors			
Age			
Preceding			

GEN 1 F



GEN 1 M



GEN 2 F

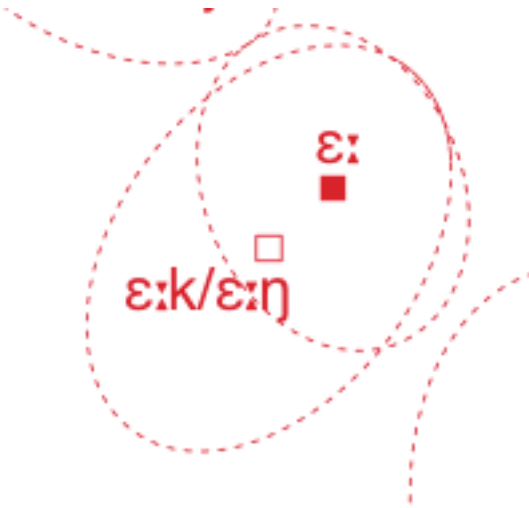


GEN 2 M

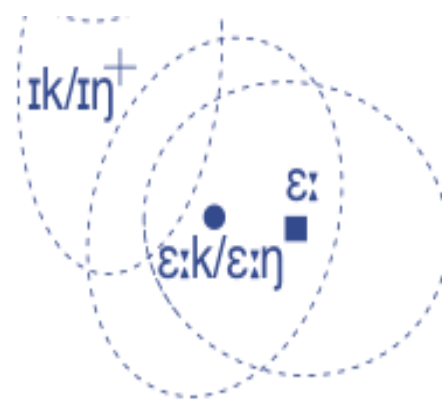


Results for /ɛ:/

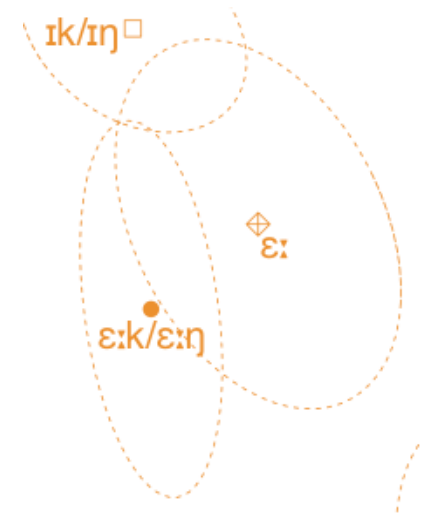
GEN 1 F



GEN 1 M

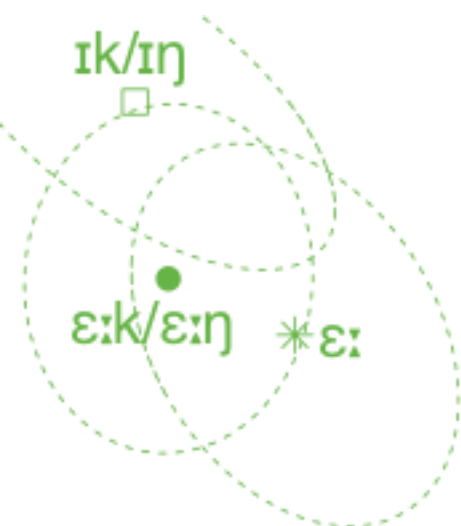


GEN 2 M

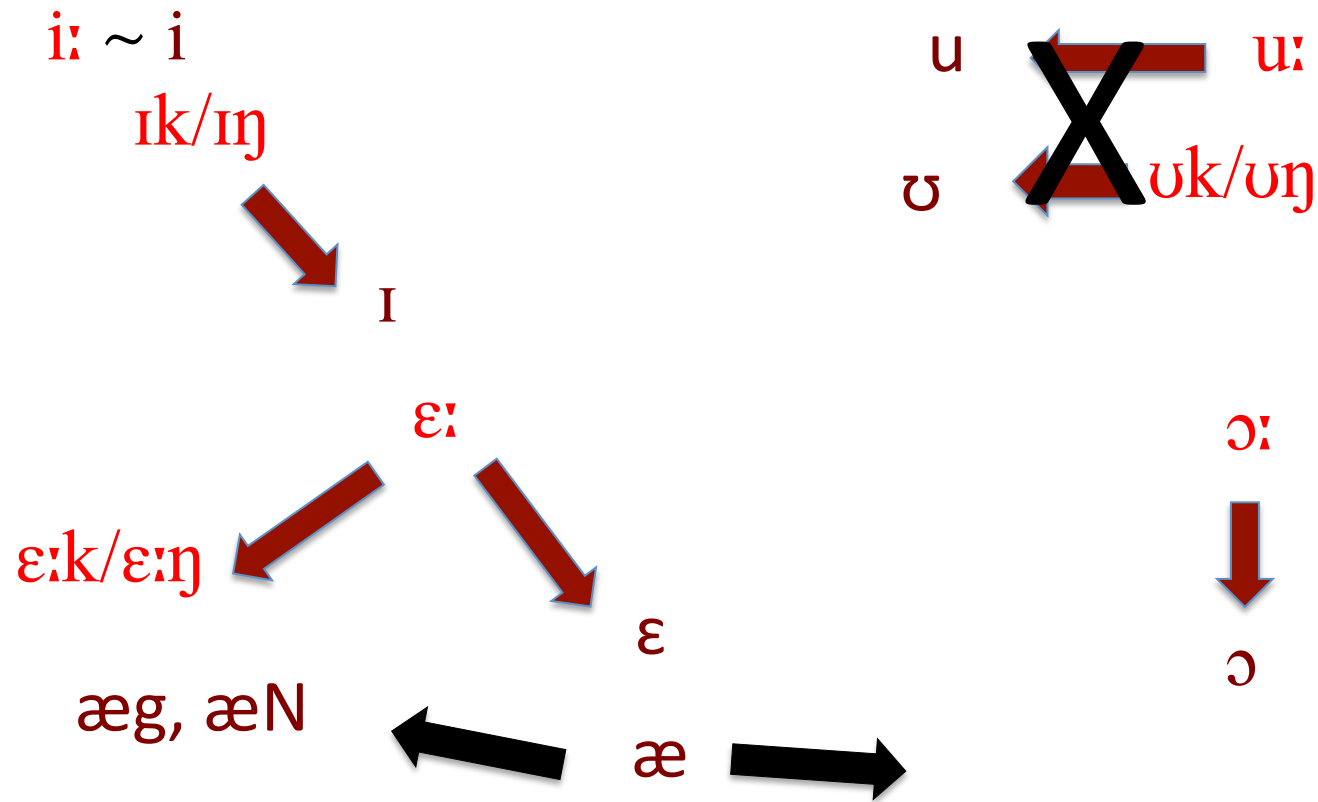


STEP UP AND STEP DOWN MATCH				STEP UP AND STEP DOWN MATCH			
F1 for /ɛ:/				F2 for /ɛ:/			
Best Step-Down Model, (R2 = 0.398)				Best Step-Down Model, (R2 = 0.575)			
Random Effects (R2 = 0.307)				Random Effects (R2 = 0.392)			
Speaker [random]				Speaker [random]			
Word [random]				Word [random]			
Fixed Effects (R2 = 0.091)				Fixed Effects (R2 = 0.183)			
Generation.Sex.Velar (p = 0.0054)**				Generation.Sex.Velar (p = 0.00598)**			
factor	coef	N	mean Hz	factor	coef	N	mean Hz
2.M.[k/ŋ]	76	15	507	2.M.[k/ŋ]	94	15	1853
1.F.[k/ŋ]	24	25	489	1.M.[k/ŋ]	27	20	1771
2.F.[k/ŋ]	24	25	473	1.F.[ɛ:]	24	50	1696
1.M.[k/ŋ]	10	20	457	1.F.[k/ŋ]	23	25	1747
2.F.[ɛ:]	-11	50	489	1.M.[ɛ:]	21	40	1696
2.M.[ɛ:]	-29	30	472	2.M.[ɛ:]	15	30	1721
1.F.[ɛ:]	-43	50	473	2.F.[k/ŋ]	-60	25	1685
1.M.[ɛ:]	-51	40	460	2.F.[ɛ:]	-143	50	1583
Not Significant Factors				Not Significant Factors			
Age				Age			

GEN 2 F



Summary of Results



Allophonic distinctions maintained
 Lack of /u/-fronting
 Allophonic splits innovated

Conclusion

- Is HL Phonology conservative?
 - Perhaps in contrast maintenance BUT evidence for innovation below the level of conscious awareness
 - Is the phonology of any language/variety conservative?
 - Variationist perspective: ALL languages exhibit variation and change over time.
 - HLVC under-researched
- Only 4 out of 8 contrastive monophthongs in an under-researched (in the Variationist literature) variety examined ... This is only the beginning
- Variation and change in HL vowels a promising avenue for future research ...

HLVC RAs:

Cameron Abma

Vanessa Bertone

Ulyana Bila

Rosanna Calla

Minji Cha

Karen Chan

Joanna Chociej

Sheila Chung

Tiffany Chung

Courtney Clinton

Radu Craioveanu

Marco Covi

Derek Denis

Tonia Djogovic

Joyce Fok

Paolo Frasca

Matt Gardner

Rick Grimm

Dongkeun Han

Natalia Harhaj

Taisa Hewka

Melania Hrycyna

Michael Iannozzi

Diana Kim

Janyce Kim

Iryna Kulyk

Mariana Kuzela

Ann Kwon

Alex La Gamba

Carmela La Rosa

Natalia Lapinskaya

Kris Lee

Nikki Lee

Olga Levitski

Arash Lotfi

Paulina Lyskawa

Rosa Mastri

Timea Molnár

Jamie Oh

Maria Parascandolo

Rita Pang

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Tiina Rebane

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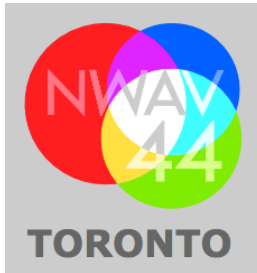
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- Thank you! 多謝晒! Merci de votre attention!

Questions?



Intersections



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