

Co-variation in Heritage Cantonese

Naomi Nagy, Timothy Gadanidis & Joyce Woo



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

Naomi.Nagy@utoronto.ca



Social Sciences and Humanities
Research Council of Canada

Conseil de recherches en
sciences humaines du Canada



What is the HLVC Project?

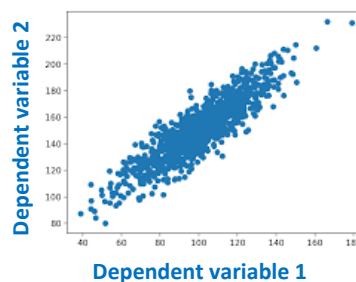
- Large-scale project investigating variation and change in Toronto's heritage languages
 - To **document and describe heritage languages** spoken by immigrants and 2 generations of their descendants
 - To compare to a Homeland "baseline" & local English (also variable)
 - to understand changes in progress
 - To **create a corpus** available for research on a variety of topics
 - To **push variationist research beyond its monolingually-oriented core (and its majority language focus)**
 - To **promote HL vitality** through research, training, and "knowledge mobilization" in and out of the classroom

(Nagy & Meyerhoff 2008, Nagy 2017)

Co-variation

→ Are innovators in one aspect of a language more likely to be innovators in another?

- Past work has been inconclusive about where/if co-variation exists (Guy 2013, Guy & Hinskens 2016)
 - Oushiro (2016) on Brazilian Portuguese
 - Waters and Tagliamonte (2017) on Toronto English
 - Meta-analysis: 52% co-variation



UKLVC 2019

3

Motivating Questions

- General understanding of co-variation
 - How do linguistic systems change?
 - Who leads the changes?
- Context of heritage languages and contact-induced variation
 - Does English (usage) have a consistent effect on Heritage languages?
 - Is variation due to incomplete acquisition? (cf. Montrul 2012:178)

UKLVC 2019

4

Cantonese in 2 multilingual cities



<http://www.servcorp.com.hk/media/9459/-twoifc-building-3>

In Hong Kong:

- **86%** of population uses CAN
- 83% are able to speak English
- **5%** have “very good” English

Census and Statistics Dept. (2014:4)



<https://evolvetours.com/wp-content/uploads/2015/04/CN-Tower.jpg>

In Toronto (since the 1970s):

- **4.5%** report CAN as mother tongue (267,000 MT speakers)
- 96% are able to speak English
- **77%** (mostly) use English “at home”

Statistics Canada (2016)

UKLVC 2019

5

Predictions

- 1) Co-variation among dependent variables
- 2) Co-variation with degree of English use
- 3) More co-variation among changing variables

UKLVC 2019

6

Methods

- 23 Heritage Cantonese speakers
 - from 2 generations (immigrants, their kids)
- Data from HLVC corpus and previous studies
 - Relevant tokens were extracted from 1hr sociolinguistic interviews and analyzed by MEMs
 - Generated ranked speaker lists representing how likely a speaker uses the innovative variant
 - Used Speaker random effects from MEMs (BLUPs)
 - Pairwise comparisons between variables

UKLVC 2019

7

Variables examined

- **pro-drop** (Nagy *et al.* 2011 + new data) (N=2800)
 - Innovation: more overt subjects (though this is stable)
- **classifiers** (Nagy & Lo 2019) (N=1600)
 - Innovation: *go3* 個 specialized more to singular nouns
- **4 vowel changes** (overlap determined by Pillai scores) (Tse 2019) (N=15,456)
- **% of English word usage** (Tse 2019) (N=260,447)
 - word counts from interview transcriptions
 - used as an estimate of fluency
 - less use of English = more fluency/comfort in Cantonese
- **Ethnic Orientation**
- **Gender**

UKLVC 2019

8

Pro-drop

yan1 wai6 Ø mou5 ga1 yan4 hai5 dou6
 因為 有 家 人 係 度
because Ø (I) NEG have relative be here

Because I do not have any relatives here. [C1F50A]

UKLVC 2019

9

Classifiers: Specialization of 個 (go3) to singular

saam	<u>bou6</u>	din6	nou5	<u>go3</u>	din6	nou5
1						
三	<u>部</u>	電	腦	<u>個</u>	電	腦
three	<u>CL</u>	computers		<u>CL</u>	computer	
	(function)			(generic)		

Three computers



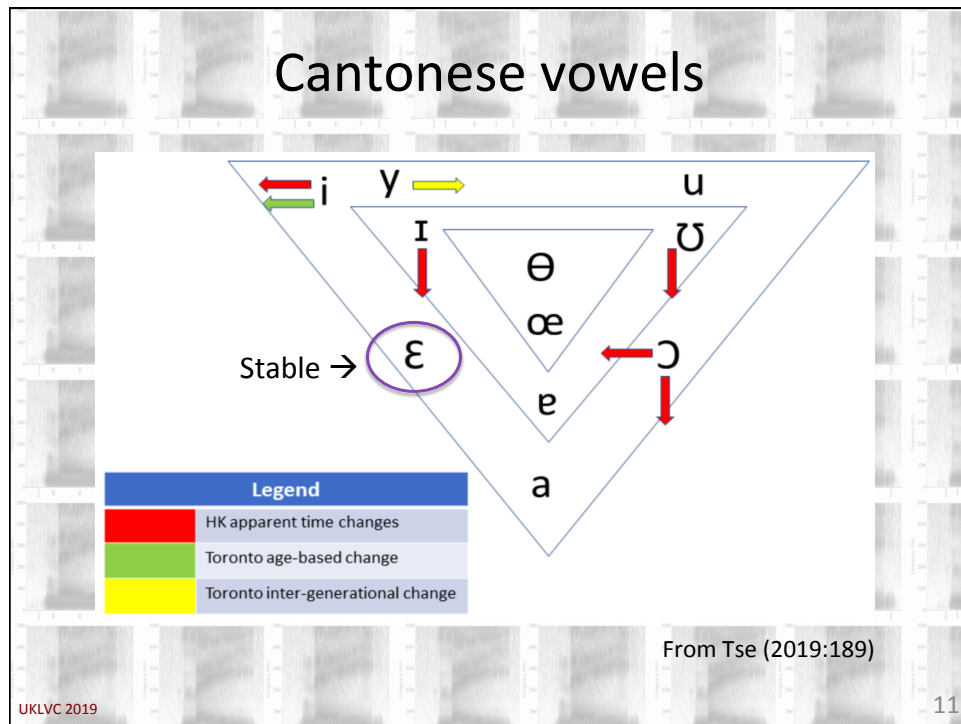
A computer



UKLVC 2019

<http://clipartbarn.com>

10



Which variables are changing?

Dependent variables	Homeland change?	Heritage change?
/i/-/ɪ/ split	Yes	Yes
/y/-/u/ merger	No	Yes
/ɛ/ split by coda	No	No
/ɔ/ split by coda	Yes	No
Classifiers specializing → sg.	No	Yes
Pro-drop	No	No

% Cantonese words, by generation

(Tse 2019, p. 180)

	% Canto words	Word count	
		Cantonese	English
Hong Kong	99.6	603	18
GEN 1	97	694	163
GEN 2	78	472	403

UKLVC 2019

13

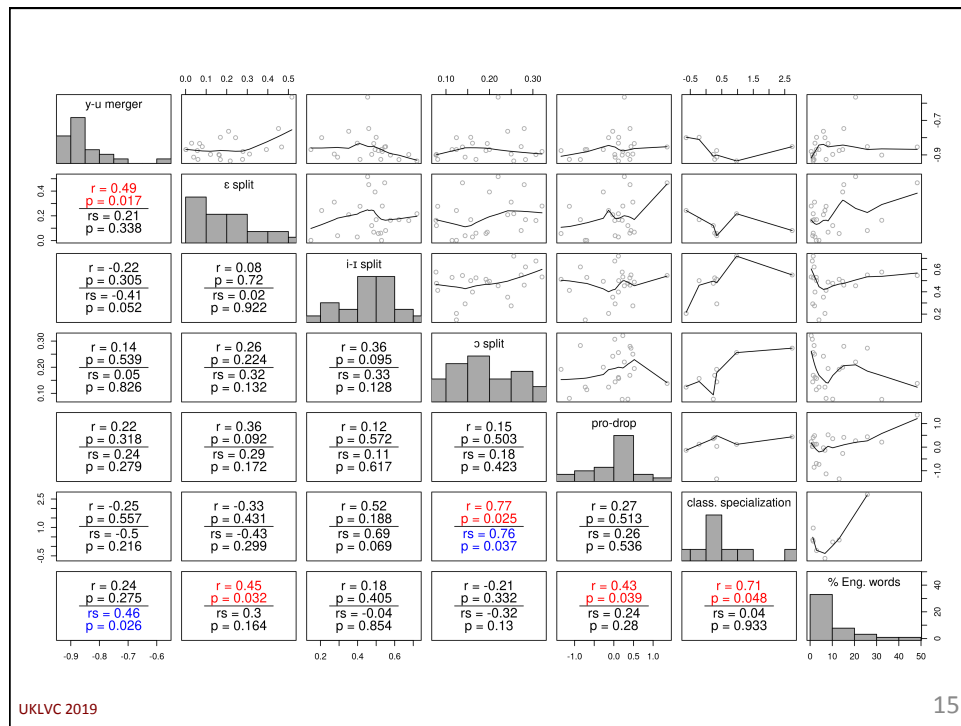
Methods

Matrix of scatterplots showing Pearson & Spearman correlations

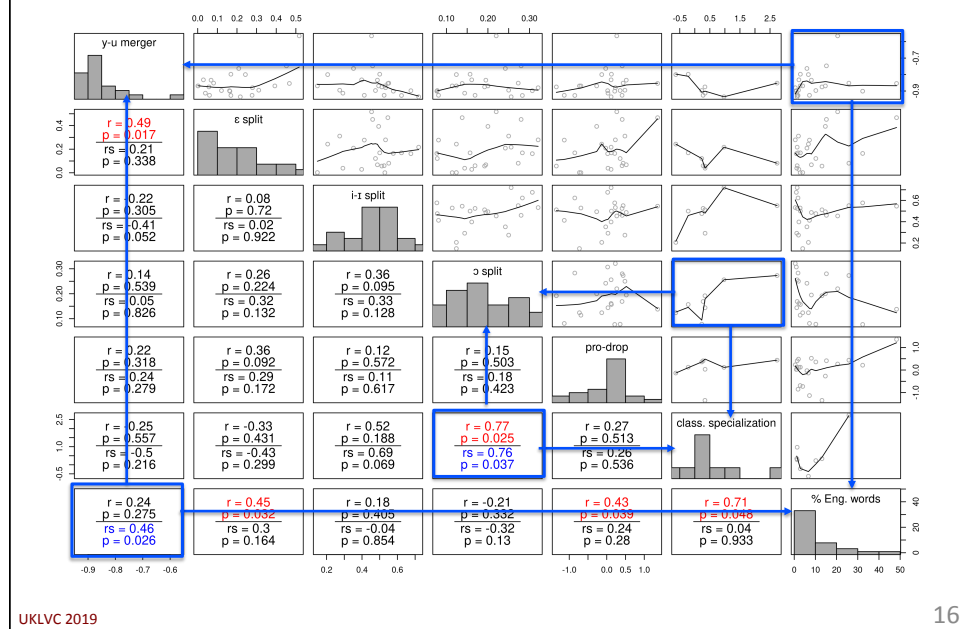
- Used `pairscor.fnc` from `languageR` (Baayen)
- We compare **Pearson correlation scores** (Following Oushiro & Guy 2015)
- We also calculate **Spearman rank correlation scores**, for our non-normally distributed data

UKLVC 2019

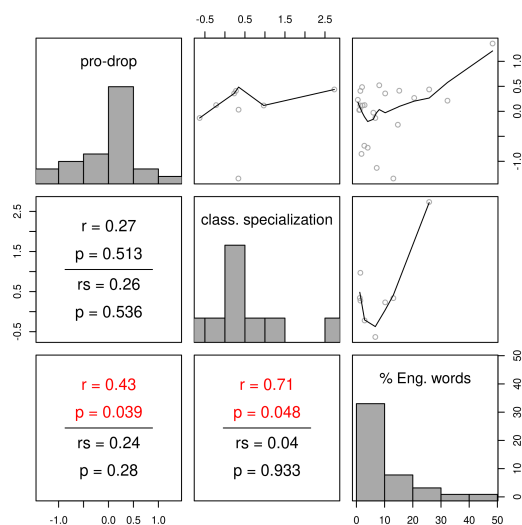
14



Few co-variations; only one with %English words



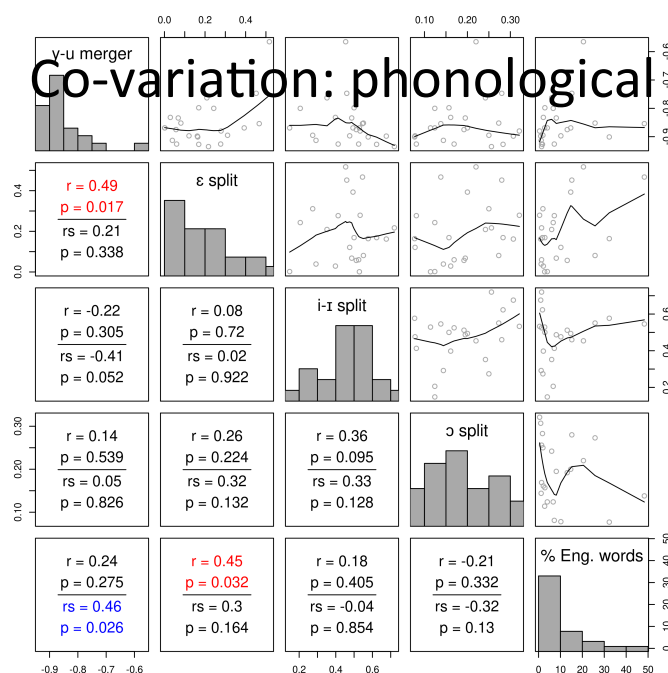
Co-variation: morphological



UKLVC 2019

17

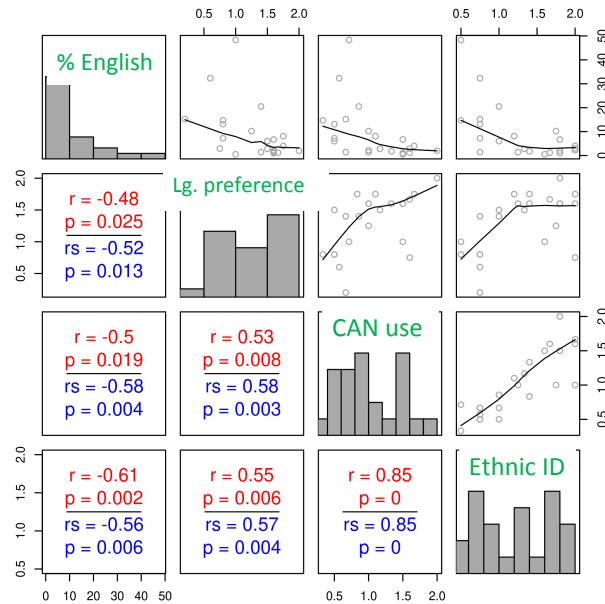
Co-variation: phonological



UKLVC 2019

18

Co-variation: Ethnic orientation



UKLVC 2019

19

Summary of Co-variation ... out of 92 tests (21+18+7)*2

Co-varying variables		Pearson correlation	Spearman correlation
Δ	/y/-/u/ merger and English words	No	Yes
	/y/-/u/ merger and /ε/-/e/ split	Yes	No
	/ε/-/e/ split and English words	Yes	No
Δ	classifiers and English words	Yes	No
	Pro-drop and English words	Yes	No
	/ɔ/-/o/ split and classifiers	Yes	Yes (but why?)

Δ = 1st variable listed is changing

UKLVC 2019

20

Which speakers are more often innovative?

Speaker	C2F22A	C2M22A	C2F41A	C2M21B	C1M46A	C1F50B	C1F58A	C1M52B	C2M21C	C1F54B	C2F20A	C1F83A	C2F21C	C1F50A	C2M27A	C1M52A	C1M59A	C2F21B	C2M21D	C2M44A	C1M61A	C1M87A	C1M58A
# variables	6	5	5	5	4	4	4	4	3	3	3	3	3	2	2	2	2	2	2	2	1	1	1
% English	X	X	X	X		X				X	X		X		X				X	X			
y.u merger	X	X	X	X	X	X			X	X				X							X	X	
e.split		X	X	X	X		X	X	X	X	X	X			X								
i.split	X			X	X		X	X					X	X		X	X	X	X				
open.o	X	X	X			X	X	X	X		X	X				X	X						
pro-drop	X	X	X	X	X	X	X					X	X					X		X			X
CLAS go3	X							X															

UKLVC 2019

21

Which speakers are more often innovative?

Women **Gen 2**

Speaker	C2F22A	C2M22A	C2F41A	C2M21B	C1M46A	C1F50B	C1F58A	C1M52B	C2M21C	C1F54B	C2F20A	C1F83A	C2F21C	C1F50A	C2M27A	C1M52A	C1M59A	C2F21B	C2M21D	C2M44A	C1M61A	C1M87A	C1M58A
# variables	6	5	5	5	4	4	4	4	3	3	3	3	3	2	2	2	2	2	2	2	1	1	1
% English	X	X	X	X		X				X	X		X		X				X	X			
y.u merger	X	X	X	X	X	X			X	X				X							X	X	
e.split		X	X	X	X		X	X	X	X	X	X			X								
i.split	X			X	X		X	X					X	X		X	X	X	X				
open.o	X	X	X			X	X	X	X		X	X				X	X						
pro-drop	X	X	X	X	X	X	X					X	X					X		X			X
CLAS go3	X							X															

UKLVC 2019

22

Conclusions

- We made poor predictions!
- 1) **Not much co-variation**
 - variable patterns are at a community level, not an individual level
 - Similar to majority language studies
- 2) **Little co-variation with rate of English use**
 - Little evidence of attrition (as cause...)
- 3) Co-variation is **NOT preferred among innovating variables**

UKLVC 2019

23

Thanks to the HLVC Cantonese RAs

Abigail Chan • Ariel Chan • Karen Chan • Kate Cheung •
 Mira Chung • Naomi Cui • Joyce Fok • Kei-Fung Ho • Teresa
 Kwok • Vina Law • Wilma Lee • Samuel Lo • Tiffany Luk •
 Jonathan Ng • Rita Pang • Valerie Pang • Andrew Peters •
 Samantha Pong • Mario So Gao • Katharine Sung • Ziwen
 Tan • Josephine Tong • Sarah Truong • Holman Tse • Elaine
 Wang • Ka-man Wong • Junrui Wu • Olivia Yu • Minyi Zhu

多謝

UKLVC 2019

24

References

- Baayen, Harald. 2011. LanguageR. R package version 1.4.1.
- Census and Statistics Department. (2014). Hong Kong Monthly Digest of Statistics: Use of Language in Hong Kong in 2012. <http://www.statistics.gov.hk/pub/B71406FB2014XXXXB0100.pdf>. Accessed April 15, 2017.
- Guy, G. R. (2013). The cognitive coherence of sociolects: How do speakers handle multiple sociolinguistic variables?. *Journal of Pragmatics* 52, 63-71.
- Montrul, S. 2012. Bilingualism and the Heritage Language Speaker. In T. K. Bhatia & W. C. Ritchie (Eds.), *The Handbook of bilingualism and multilingualism*. pp. 168-18. Chichester, UK & Malden, MA: Blackwell.
- Nagy, N. (2011). A Multilingual corpus to explore variation in language contact situations. *Rassegna Italiana di Linguistica Applicata*, 43(1-2), 65-84.
- Nagy, N. (2015). A sociolinguistic view of null subjects and VOT in Toronto heritage languages. *Lingua* 164B, 309-327.
- Nagy, N. (2017). Heritage Language speakers in the university classroom, doing research. In P. Trifonas & T. Aravossitas, eds. *International Handbook on Research and Practice in Heritage Language Education*. Springer.
[doi: 10.1007/978-3-319-38893-9_41-1](https://doi.org/10.1007/978-3-319-38893-9_41-1).

UKLVC 2019

25

References, cont.

- Nagy, N., N. Aghdasi, D. Denis, & A. Motut. (2011). Pro-drop in Heritage Languages: A cross-linguistic study of contact-induced change. *Penn Working Papers in Linguistics* 17.2.
- Nagy, N. & Lo, S. (2019). *Classifier use in Heritage and Hong Kong Cantonese*. *Asia-Pacific Language Variation & Change* 5(1), 84-108.
- Oushiro, L. (2016). Social and structural constraints in lectal cohesion. *Lingua* 172, 116-130.
- Statistics Canada. (2017). *Focus on Geography Series, 2016 Census* <https://www12.statcan.gc.ca/census-recensement/2016/as-sa/fogs-spg/Facts-CMA-Eng.cfm?TOPIC=5&LANG=Eng&GK=CMA&GC=535>
- Tse, H. (2019). *Beyond the Monolingual Core and out into the Wild: A Variationist Study of Early Bilingualism and Sound Change in Toronto Heritage Cantonese* (Doctoral dissertation, University of Pittsburgh). http://d-scholarship.pitt.edu/35721/1/2019-01-07_dissertation_tse-h_final_1.pdf
- Waters, C., & Tagliamonte, S. A. (2017). Is One Innovation Enough? Leaders, co-variation, and Language Change. *American Speech*, 92(1), 23-40.

UKLVC 2019

26

# of variables compared	# of speakers
6	15
7	8