

Immigrants' speech: is phonetic attrition a necessary precondition for phonological attrition to occur?

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Language Attrition*

Talk outline

- Teasing apart phonetic from phonological attrition
 - the role of phonotactics
 - phonetic & phonological attrition of heritage languages
- Current study
 - examine VOT production by Calabrian Italian immigrants in Toronto (HLVC project)
- Findings
 - evidence of cross-generational change in the phonotactic distribution of VOT contrasts
 - individual variability
- Discussion
 - phonological attrition without phonetics
 - heritage languages, first languages, attrition

Phonetics vs. phonology in first language attrition

L1 **phonetic** attrition

- in the speech of immigrants after longstanding exposure to the dominant language of the hosting community
(e.g. Major 1992, Bullock & Gerfen 2004, de Leew et al. 2013 etc.)
- in L2 learners a few weeks after the beginning of contact with an L2
(e.g. Chang 2012)
- among the principal factors:
 - word frequency / cognate status (e.g. Bullock & Gerfen 2004, Englstler & Goldrick)
 - speakers' age (e.g. Bylund 1999)
 - age of arrival / length of residence (e.g. Major 1992, Flores & Rauber 2011)
 - degree of contact with homeland (e.g. Nagy & Kochetov 2013)

L1 **phonological** attrition

- To access the phonological system(s) of attriters, one possibility is that of investigating the distribution of phonetic features across L1 **phonotactics**
- e.g. vowel epenthesis
(Dupoux et al. 2011, Parlato-Oliveira et al. 2010, Carlson et al. 2015)

Phonetic & phonological attrition of heritage languages

Table 1. Sketch of the languages included in the HLVC project with demographic statistics for the Greater Toronto Area

Language	# MT speakers	Ethnic population*	Date est.**	Place of origin of HLVC participants
Italian	186,000	< 466,000	1908	Calabria
Russian	65,000	≈ 59,000	1916	St. Petersburg & Moscow
Ukrainian	27,000	<< 122,000	1913	Lviv
Cantonese	170,000	< 537,000	1972	Hong Kong
Korean	49,000	= 55,000	1967	Seoul
	~100	= ~150	1950	Faeto & Celle St. Vito, Italy



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

HLVC Heritage Language Variation & Change

(Nagy 2011)

1ST GENERATION speakers lived for at least the first 18 years of their lives in the Homeland

2ND GENERATION speakers have parents that qualify as 1st generation speakers and were born in Toronto or arrived before the age of 6

3RD GENERATION speakers have 2nd generation parents and were born in Toronto

Phonetic & phonological attrition of heritage languages

Heritage Language speakers: heritage language as a mother tongue that is neither an official language, nor an indigenous language
(Canadian government, Harrison 2000, Cummins 2005)

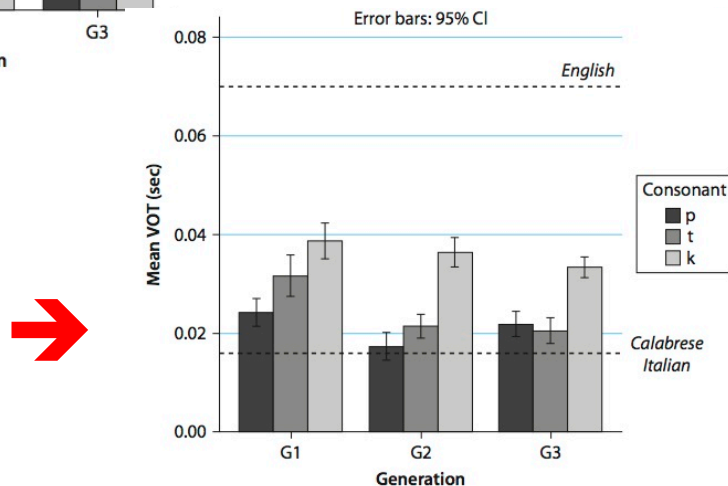
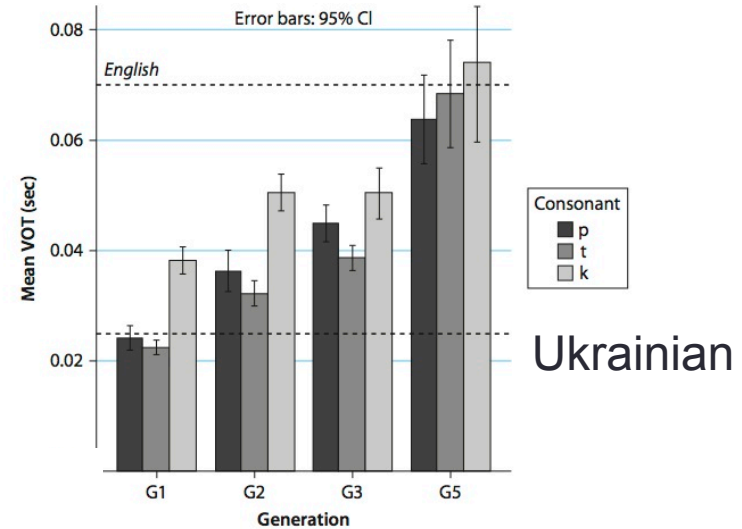
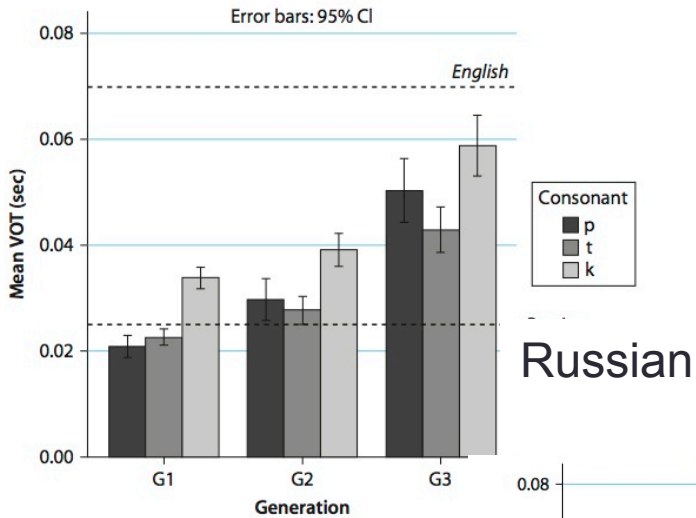
“[...] heritage speakers are exposed **naturalistically** to the heritage language, however, this language is by definition a non-hegemonic minority language within a majority language environment”
(Rothman 2007: 360)

“people who [...] have **cultural connections** to and know languages other than English. These languages **are not “foreign”** to particular individuals or communities; instead, they are **familiar** in a variety of ways”
(Kelleher 2010)

Long-lag VOT across the generations

Nagy & Kochetov (2013), Nagy (2015)

- Spontaneous conversation in three heritage languages (Russian, Ukrainian, Italian)
- word-initial /p t k/ in onset of stressed syllables with following /a/ or /o/



no attrition in L1 Italian immigrants?

Long-lag VOT across languages

Heritage language vs. dominant language

			Calabrian Italian	Toronto English
Stressed syllable	C.CV	gemination	[sta'kk ^h are] <i>staccare</i> 'to disconnect'	/
		cluster	[sta'ŋk ^h are] <i>stancare</i> 'to tire'	[In 't ^h end] <i>intend</i>
	CV	intervocalic	<i>short-lag VOT</i>	[pə 't ^h eɪtəʊ] <i>potato</i> , [p ^h ɪn] <i>pin</i>
Unstressed syllable	C.CV	gemination	['stakk ^h o] <i>stacco</i> 'I disconnect'	/
		cluster	['staŋk ^h o] <i>stanco</i> 'tired'	<i>short-lag VOT</i>

Long-lag VOT in Calabrian Italian vs. English, with examples (for Calabrian, see Nodari 2016 and bibliography therein). Green cells indicate the contexts that have been investigated in the present study.

Data

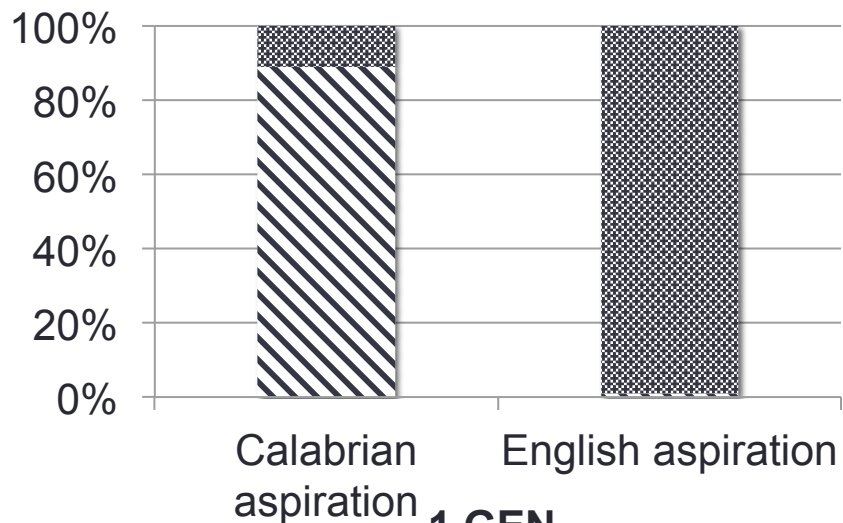
- **9 MALE SPEAKERS**, 3 for each generation
- **SPONTANEOUS CONVERSATION** (ca 1 hour long per speaker) in the heritage language (Calabrian Italian)
- **2767** word tokens

ANALYSIS:

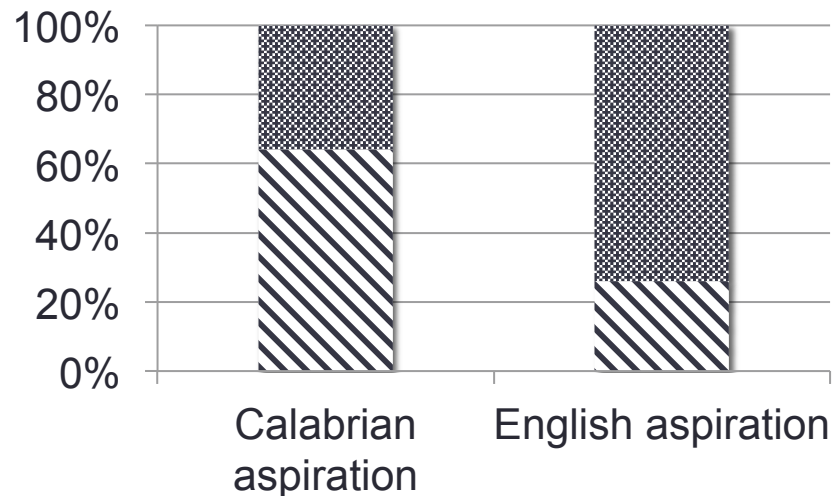
- **AUDITORY CODING**: stops impressionistically coded as aspirated and non-aspirated
- incidence of aspiration (= % of voiceless aspirated stops) in words where either English-wise or Calabrian-wise aspiration is possible:
 - **CALABRIAN-WISE**: unstressed geminate C:V and CCV clusters
 - **ENGLISH-WISE**: stressed CV

Results / 1

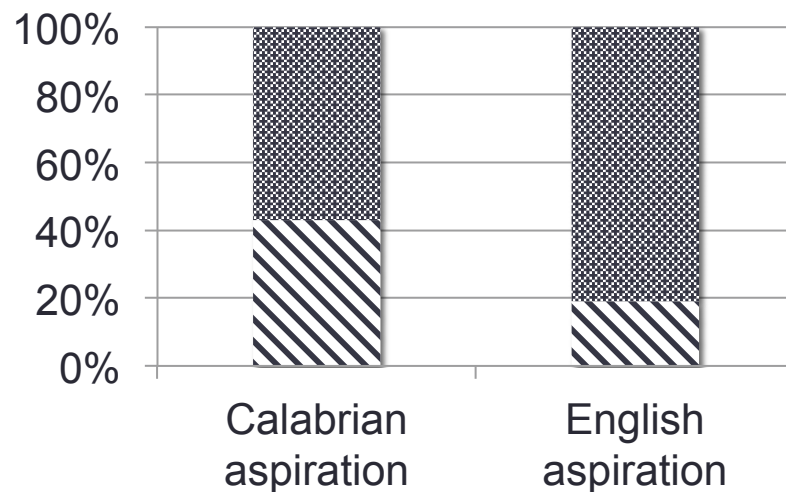
Cross-generation differences



1 GEN.



2 GEN.



3 GEN.

■ NO%

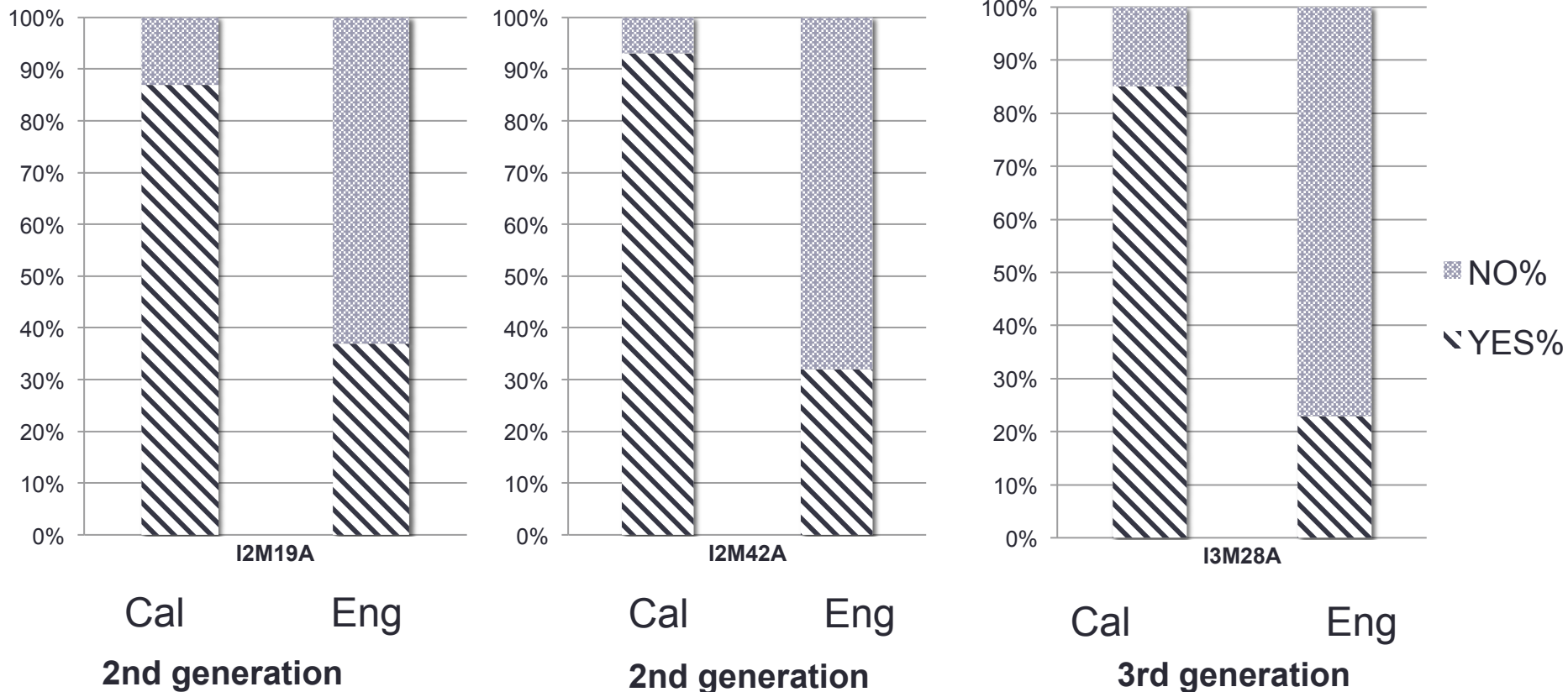
▨ YES%

Results / 2

Cross-subject variability: 2nd & 3rd generation

PATTERN 1

high rate of Calabrian aspiration (similar to 1st generation immigrants), but evidence of English aspiration too

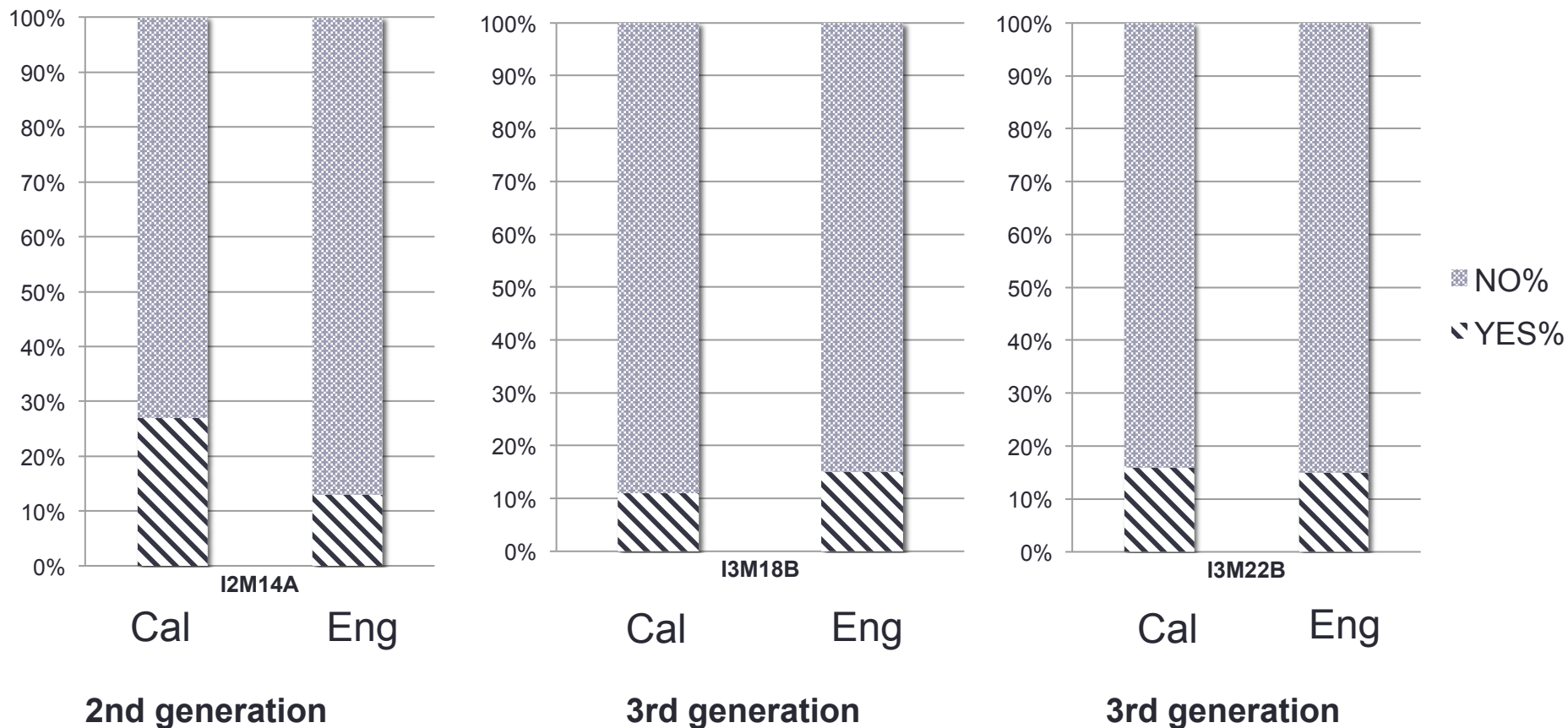


Results / 2

Cross-subject variability: 2nd & 3rd generation

PATTERN 2

low rate of Calabrian and English aspiration



Results / 3

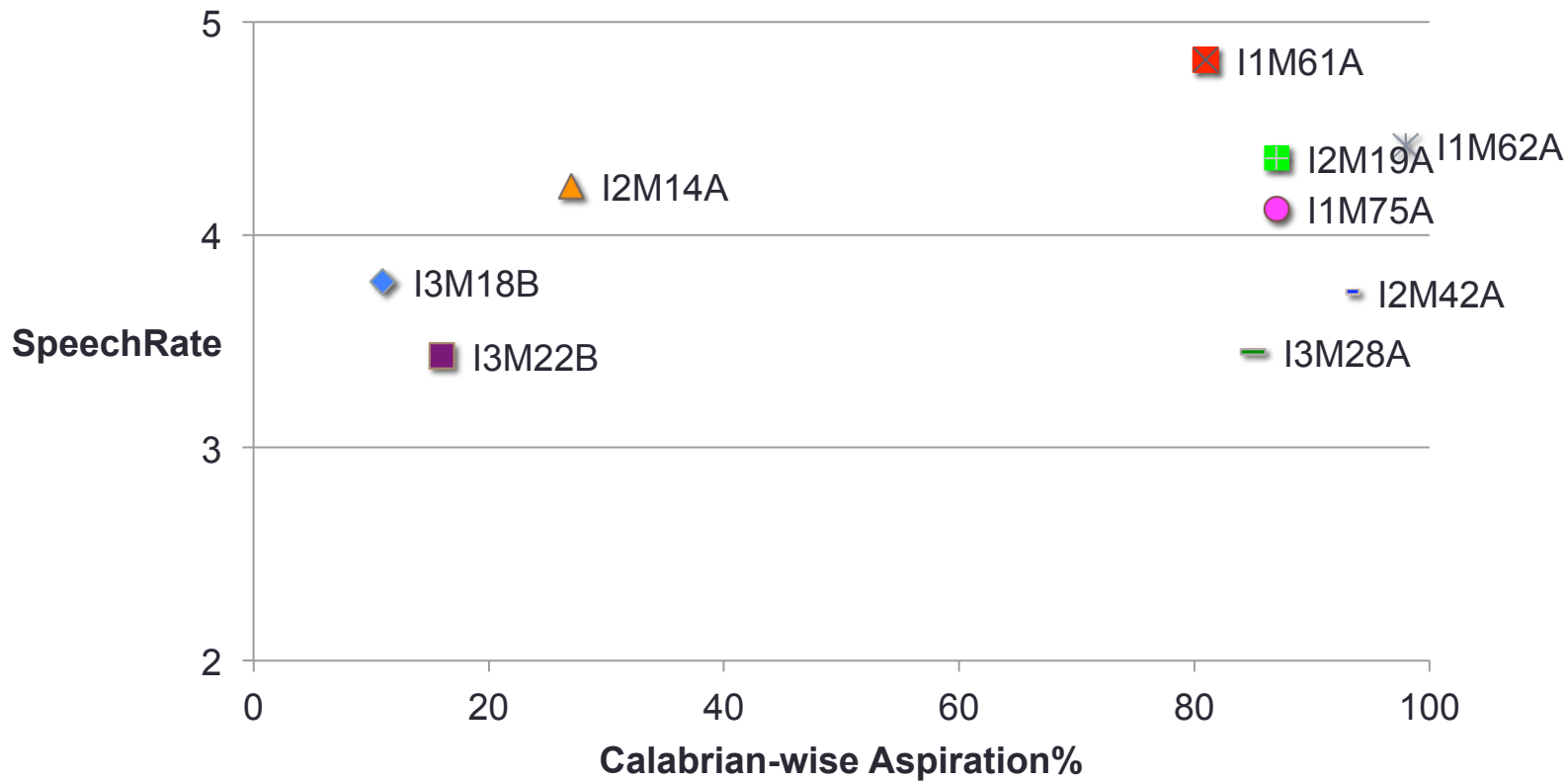
Speech rate as fluency indicator

Pattern	Generation	Speaker	Speech rate (syllables/sec)	% Calabrian aspiration	% English aspiration
	1	I1M61A	4.82	81%	0%
	1	I1M62A	4.42	98%	1%
	1	I1M75A	4.12	87%	2%
1	2	I2M19A	4.36	87%	37%
1	2	I2M42A	3.73	93%	32%
1	3	I3M28A	3.45	85%	23%
2	2	I2M14A	4.23	27%	13%
2	3	I3M18B	3.78	11%	15%
2	3	I3M22B	3.43	16%	15%

No correlation between fluency in Calabrian Italian and rate of Calabrian-wise and English-wise aspiration

Results / 3

Speech rate as fluency indicator



No correlation between fluency in Calabrian Italian and rate of Calabrian-wise and English-wise aspiration

Summary and discussion / 1

- Previous work showed that Calabrian Italian immigrants in Toronto did not change cross-generationally their VOT **durations** when speaking in their heritage language to approach the values of the dominant language
- However, Calabrian Italian also possesses stops with long-lag VOT, as opposed to short-lag VOT, although with a different phonotactic distribution compared to English

- This study:

in spite of the lack of phonetic attrition, Calabrian immigrants **did change the distribution** of long-lag VOT in the lexicon, shifting away from the Calabrian-wise distribution, and partly introducing an English-like use of stop aspiration, in stressed CV syllables.

- higher-order systematic properties of speech such as its **phonotactics** can shed light on the way attriters **restructure** phonetic features in their grammar, and use them accordingly.

Summary and discussion / 2

SPEAKERS		LONG-LAG VOT DISTRIBUTION IN THE LEXICON	PHONOLOGICAL ATTRITION
1° generation		virtually always Calabrian aspiration, virtually never English aspiration	NO
2° & 3° generation	pattern 1	interference from English	YES
	pattern 2	interference from English + reduction of Calabrian aspiration	YES

pattern 1 speakers:
still perceive unstressed syllable aspiration as a feature of Calabrian Italian



pattern 2 speakers:
do not perceive unstressed syllable aspiration as a feature of Calabrian Italian

- high degree of cross-individual variation
- need of large corpora and extensive investigation

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