

# **Non-local conditioning of variation: evidence and implications**

Laurel MacKenzie and Meredith Tamminga  
University of Manchester  
University of Pennsylvania

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# Overview

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Dissimilarity of variable processes to categorical rules → variation outside the grammar

# **Inherent variability & variable rules**

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## inherent variability

“the hypothesis that the human language faculty necessarily accommodates and generates variation, and that the workings of grammar have a quantitative, noncategorical, and nondeterministic component”

Guy & Boberg (1997:149), paraphrasing WLH

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## **variable rules**

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## variable rules

“enlargement of the concept ‘rule of grammar’”

Labov (1969:737)



# **Guy and Boberg and the OCP**

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Their motivation:

conditions on variable *t/d*-deletion resemble the effects of the Obligatory Contour Principle

deletion rate: **/nt/** > **/st/** = **/pt/** > **/ft/** > **/lt/**  
  
phonological similarity to /t/

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(Guy 1997:134)

This would result in “considerable duplication of formal machinery.” (Coetzee & Pater 2011:406)

# Variation in phonological theory



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“...the prospects of variation in mainstream generative phonology have changed dramatically. It now occupies a central place in the study of phonology, and to some extent dictates the architecture of phonological grammar”

(Coetzee & Kawahara 2012)

# Variation in phonological theory

**“grammatical overreach”:**

“if these purely grammatical models are accounting nearly perfectly for the data, then grammar is doing more than its fair share”

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- Subject length effects

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They consider the role of frequency; we pursue two other cases of extragrammatical variability:

- Subject length effects
- Persistence effects

# Auxiliary contraction

*is*

Yeah, **Salzburg's** nice. **Austria's** nice.

**Europe is** nice! (sw\_1151)

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If I walk, **it'll** be ten degrees warmer, but **it**  
**will** last twenty minutes. (sw\_1146)



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  - Sociolinguistic interviews carried out by Penn Linguistics students

# Coding



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**dependent variable**

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**contracted**

**uncontracted**

# Coding

## dependent variable

*is*

**contracted**

[z], [s]

**uncontracted**

[ɪz], [əz]

(MacKenzie 2012)

# Coding

## dependent variable

	contracted	uncontracted
<i>is</i>	[z], [s]	[ɪz], [əz]
<i>has</i>	[z], [s]	[hæz], [həz], [əz]

(MacKenzie 2012)

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<i>has</i>	[z], [s]	[hæz], [həz], [əz]
<i>will</i>	[əl]	[wɪl], [wəl]

(MacKenzie 2012)

# Coding

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The real estate out here's been pretty good 4

# Coding

## independent variables

length of subject in orthographic words

Salzburg's nice 1

The real estate out here's been pretty good 4

About the only thing I can do mechanically with  
a, a car is put gas in it 12

# Coding

## **independent variables**

length of subject in orthographic words  
*is* only: preceding vowel vs. consonant

# Coding

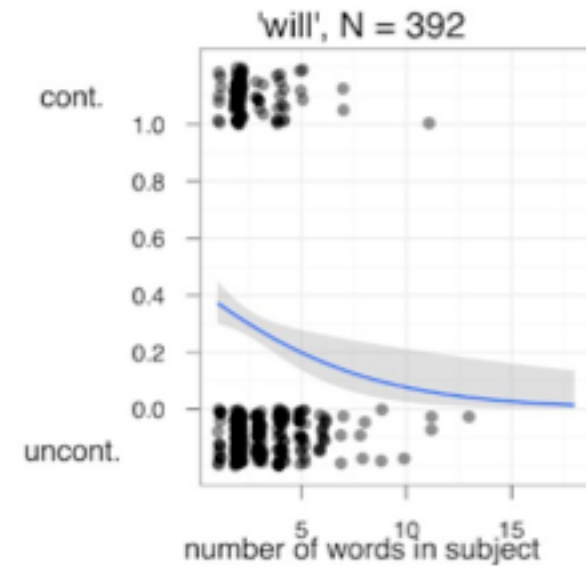
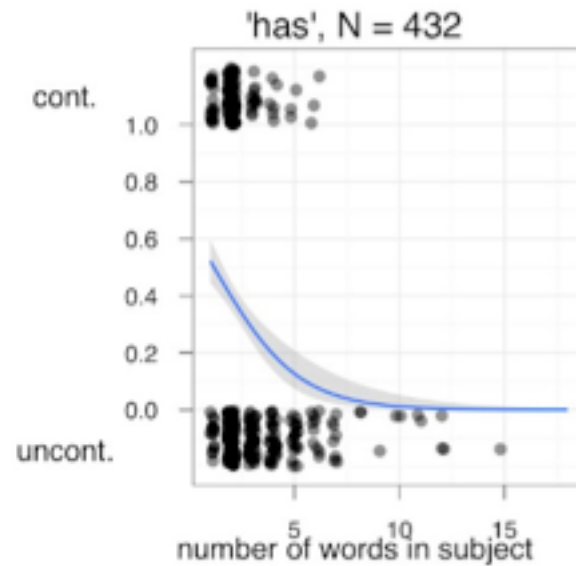
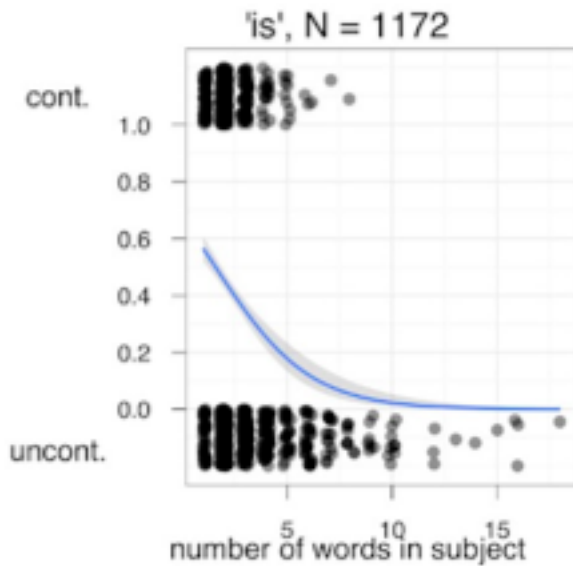
## **independent variables**

length of subject in orthographic words

*is only:* preceding vowel vs. consonant

*is only:* following grammatical class

# Subject length effect



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- “Grammars can't count”: categorical alternations don't make reference to quantities larger than 2 (Selkirk 1986)

# Subject length effect: implications

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- e.g. **preceding segment**: compare Korean allomorphy

But, **subject length is different**:

- “Grammars can't count”: categorical alternations don't make reference to quantities larger than 2 (Selkirk 1986)
- Yet auxiliary realization appears to be sensitive to precise subject word count

# Persistence

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Tendency for a recently-used linguistic form to be used again

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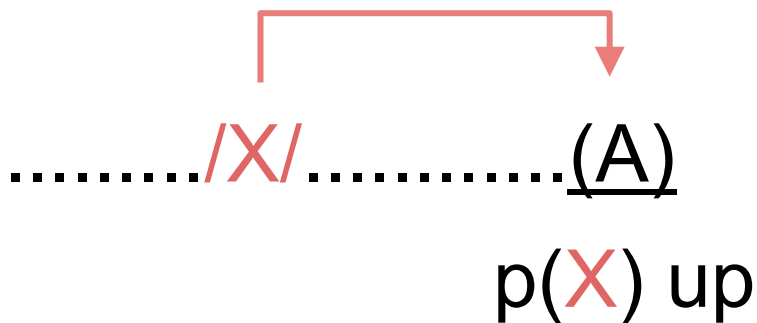
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Variable (A) with two variants /X/ and /Y/:

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<b>Birth year</b>	<b>Female</b>	<b>Male</b>
Before 1930	5	5
1930–1959	11	10
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<b>Birth year</b>	<b>Female</b>	<b>Male</b>
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Both DH and ING known to be stable in Philadelphia

(Labov 2001)

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ING: alternation between unstressed /ɪŋ/ and /ɪn/ (*working/workin'*)

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ING: alternation between unstressed /ɪŋ/ and /ɪn/ (*working/workin'*)

- proper nouns excluded

DH: alternation between fricative /ð/ and stop /d/ word-initially (*this/dis*)

- intermediate affricate variant included with fricative
- deletions excluded (*'em*)
- lexical item *the* excluded
- neutralized following apical stops

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Distance from previous token measured in seconds and log-transformed

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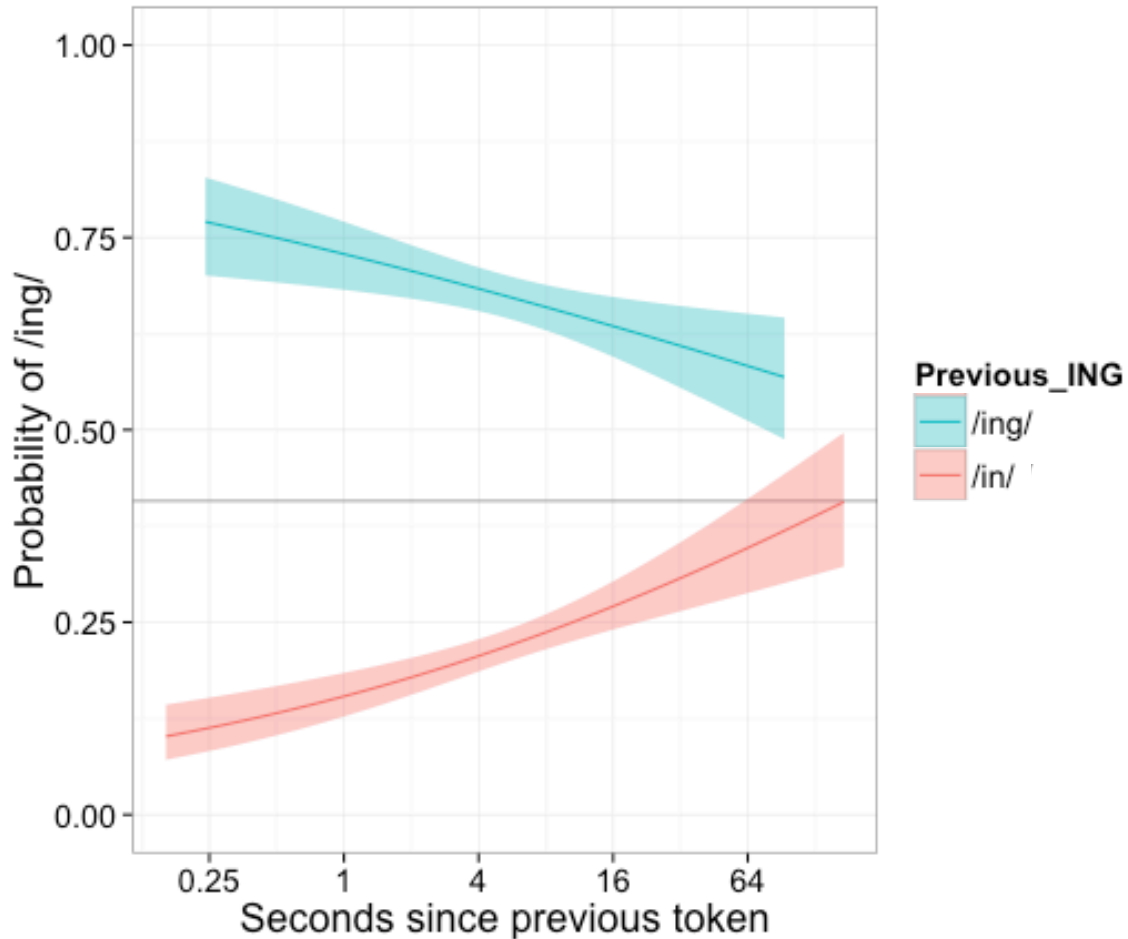
Each token coded for value of previous token

Distance from previous token measured in seconds and log-transformed

Previous tokens not coded across interruption by interlocuter

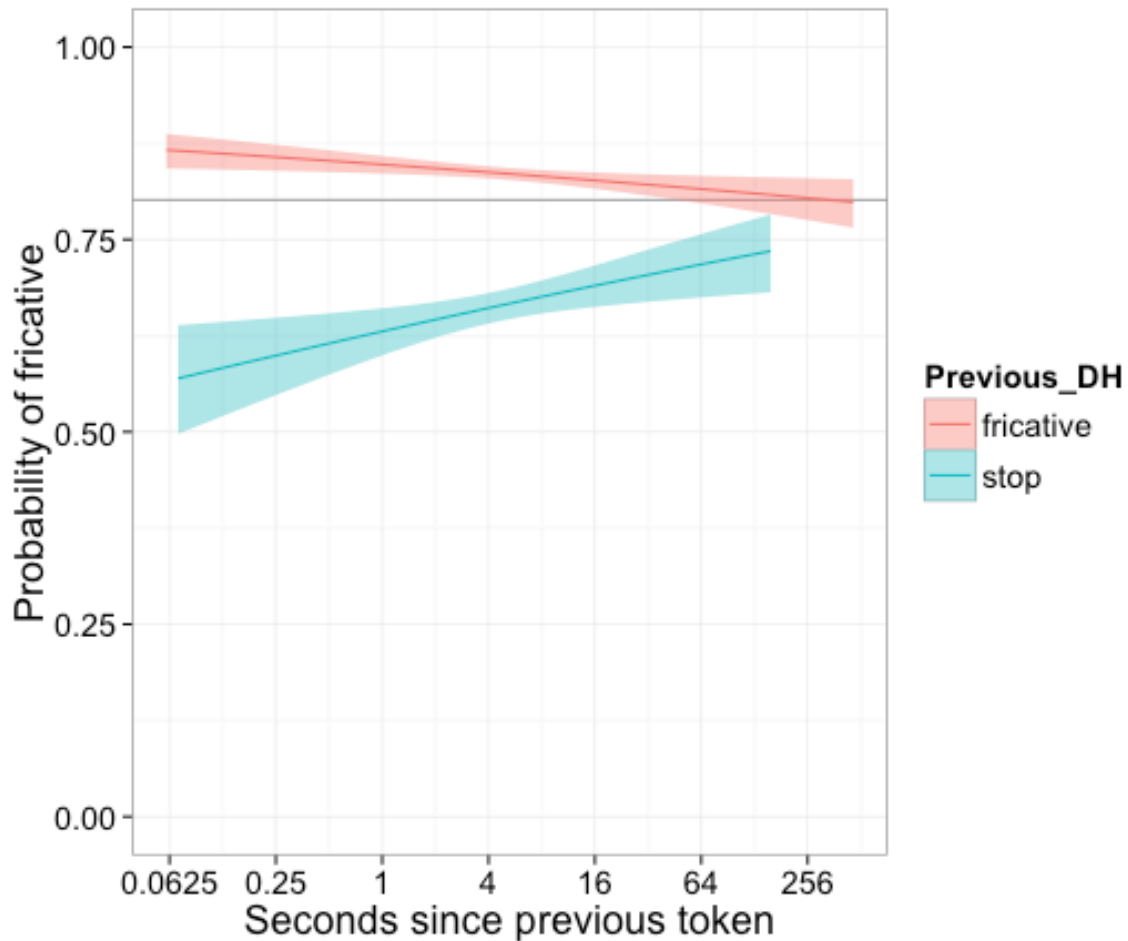
# Persistence effect on ING

N = 2671



# Persistence effect on DH

N = 11,172



# Persistence effect: implications

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But again, **persistence is different**:

- Conditions on allomorphy and phonological rules are locally-constrained (Embick 2010)
- Highly non-local; in effect for over a minute

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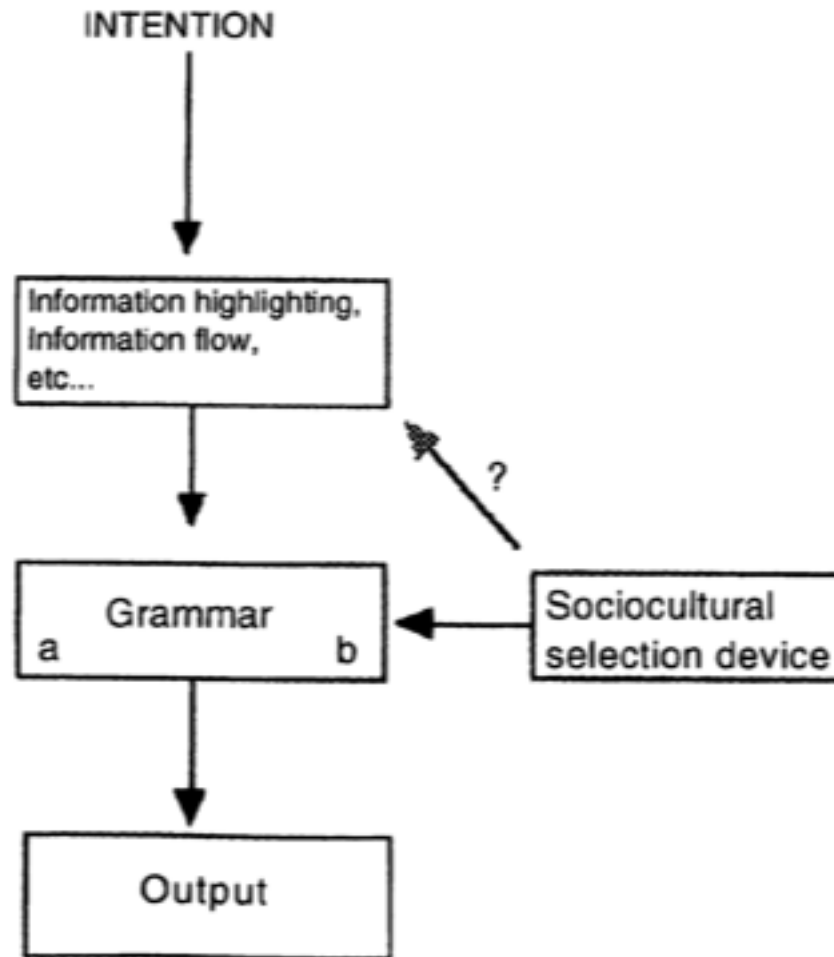
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Would need to constrain grammar to **not** allow such effects to operate on categorical processes if they were represented grammar-internally

# Modeling variation

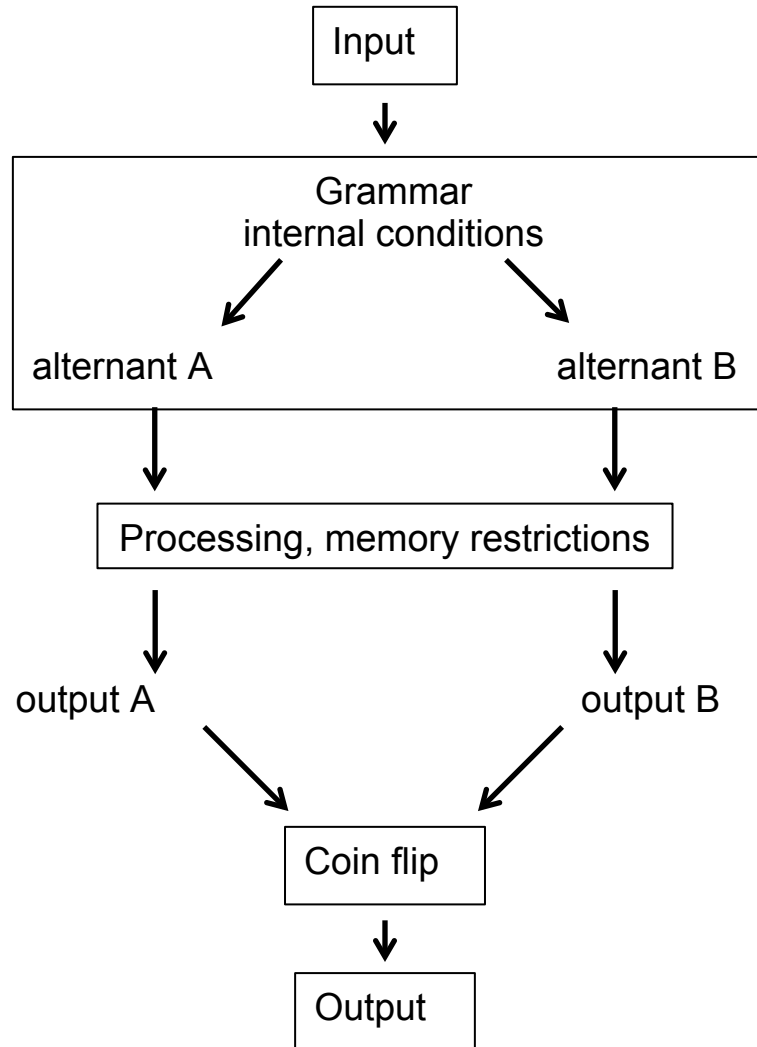
# Modeling variation



# Modeling variation

Grammar

Use



# Conclusion

Surface probabilities reflect variation originating within and outside of the grammar.

**Thank you!**



# Previous work

Demonstrated for many variables, but...

/s/-deletion, pro-drop:

tokens linked in grammar and discourse

Syntactic persistence:

debate over construct of “variable” in syntax

Variables here (ING, DH) never change referential meaning, each instance independent