

# **Linking-r in Eastern Massachusetts and Optimality Theory**

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# Background

- Early phonological analyses
  - ◆ Johansson (1973)
  - ◆ McCarthy (1993)
  - ◆ Harris (1994)
  - ◆ Anttila and Cho (1998)
- More current data-oriented work
  - ◆ Hay and Sudbury (2005) and references
  - ◆ Irwin and Nagy (2007)
  - ◆ etc.

# Background

- Some phonological patterns remain constant across dialects (e.g.  $\_C$  vs.  $\_V$ )
- Some phonological patterns vary across dialects (e.g. neighboring V quality)

# Our Goal

- Show how these two kinds of patterns can be separated in an Optimality Theoretic analysis
- We illustrate this by two case studies of linking-*r* variation in Bostonian English.

# Outline

- Data set 1: John F. Kennedy (1960)
- An OT model (Prince and Smolensky 1993)
- Data set 2: 7 more Bostonians (2005)

# Coding

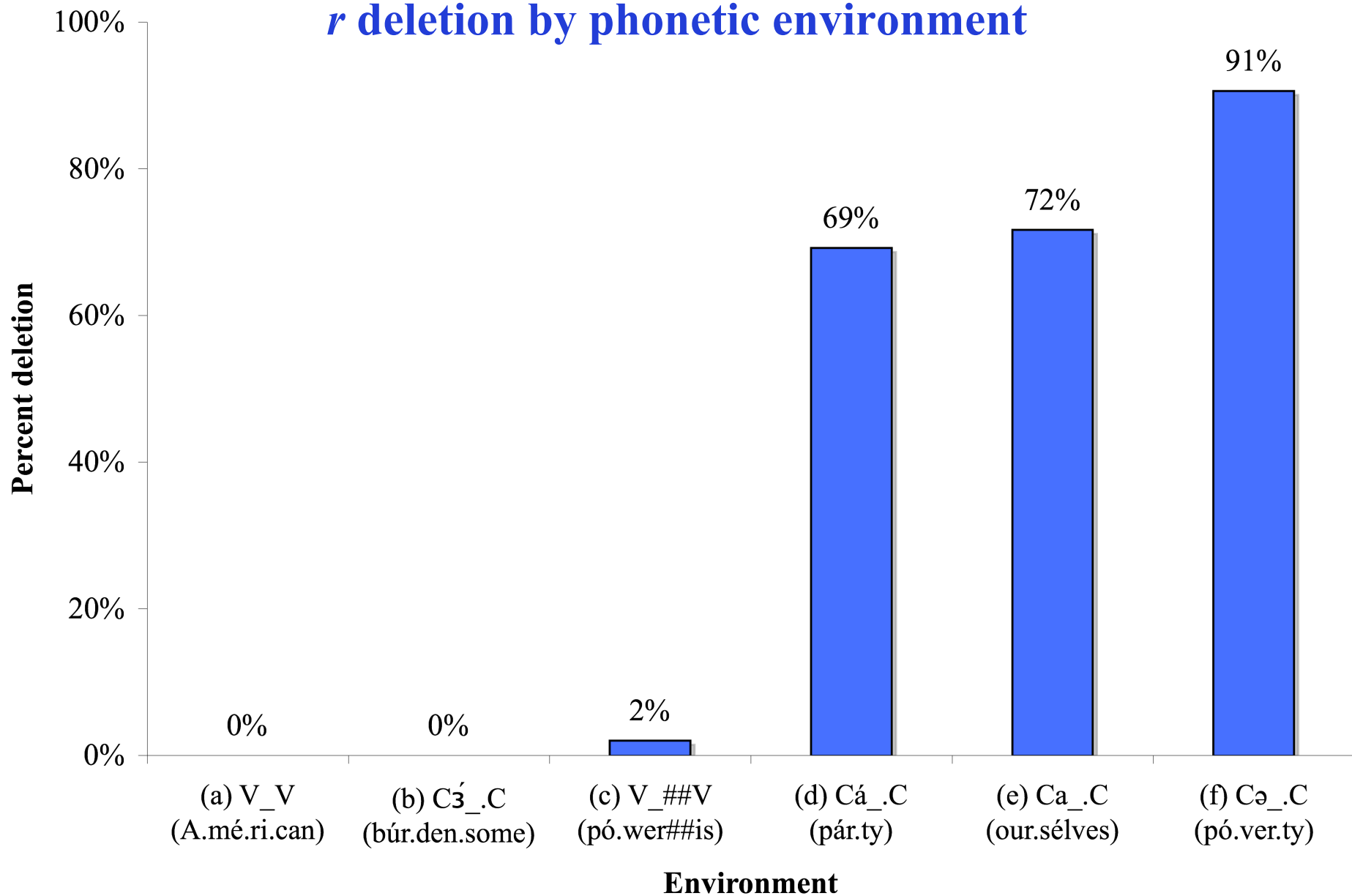
- Kennedy's (1960) nomination acceptance speech
  - ◆ Data coded impressionistically (Bernard 2007)
    - Presence vs. absence of *r*
    - Preceding V quality, level of stress
- 7 middle-aged to senior Bostonian speakers (2005)
  - ◆ Coded for several internal & external variables by course participants at LSA Institute (Eckert and Mendoza-Denton 2005)

# JFK: Results 1

Environment	Deletion frequency		Examples
(a) V_V, word-medially	0/41	0%	<i>Américan</i>
(b) _C, primary stress, after central vowel	0/13	0%	<i>búrdensome, prefér that</i>
(c) V_V, word-finally	1/49	2%	<i>pówer is</i>
(d) _C, primary stress, after non-central vowel	36/52	69%	<i>párty, yóur help</i>
(e) _C no primary stress, after non-central vowel	43/60	72%	<i>ourséives, your cíties</i>
(f) _C no primary stress, after central vowel	58/64	91%	<i>póverty, were bóld</i>

# JFK: Results 2

*r* deletion by phonetic environment





# **A Simple OT Model**

# OT Constraints

- **MAX:** No deletion
- **ONSET:** Have an onset
- The less prominent the syllable, the worse the coda
  - ◆ **\*C/U:** No coda in unstressed syllables
  - ◆ **\*C/US:** No coda in unstressed or secondary-stressed syllables
  - ◆ **\*C/USP:** No coda in unstressed, secondary-stressed, or primary-stressed syllables

# The Tableau

Underlying form	Candidates	Constraints				
		MAX	ONSET	*C/USP	*C/US	*C/U
(a) A.mé.ri.can	(1) A.mé.ri.can					
	(2) A.mé.[r]i.can	*	*			
(b) búr.den.some	(1) búr.den.some					
	(2) bú[r].den.some	*				
(c) pó.we.r##is	(1) pó.we.r##is					
	(2) pó.we.[r]##is	*	*			
(d) pár.ty	(1) pár.ty			*		
	(2) pá[r].ty	*				
(e) our.sélves	(1) our.sélves			*	*	
	(2) ou[r].sélves	*				
(f) pó.ver.ty	(1) pó.ver.ty			*	*	*
	(2) pó.ve[r].ty	*				

# Variation in OT

- Assumption 1: Variation arises from multiple grammars within/across individuals.
- Assumption 2: The number of grammars predicting a variant is proportional to that variant's output frequency.

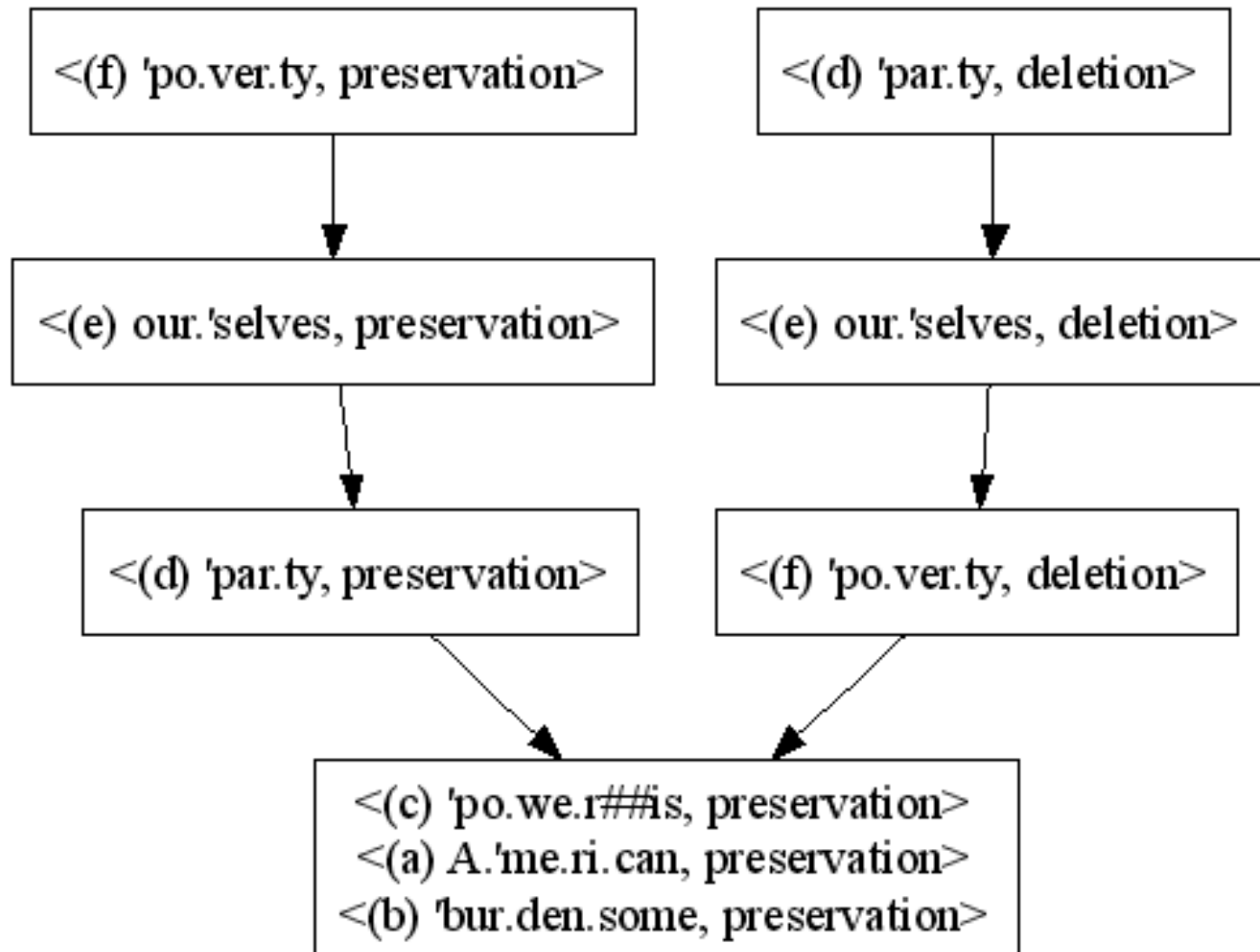
# 4 Possible Grammars

Generated by OTSoft (Hayes, Tesar, & Zuraw 2003)

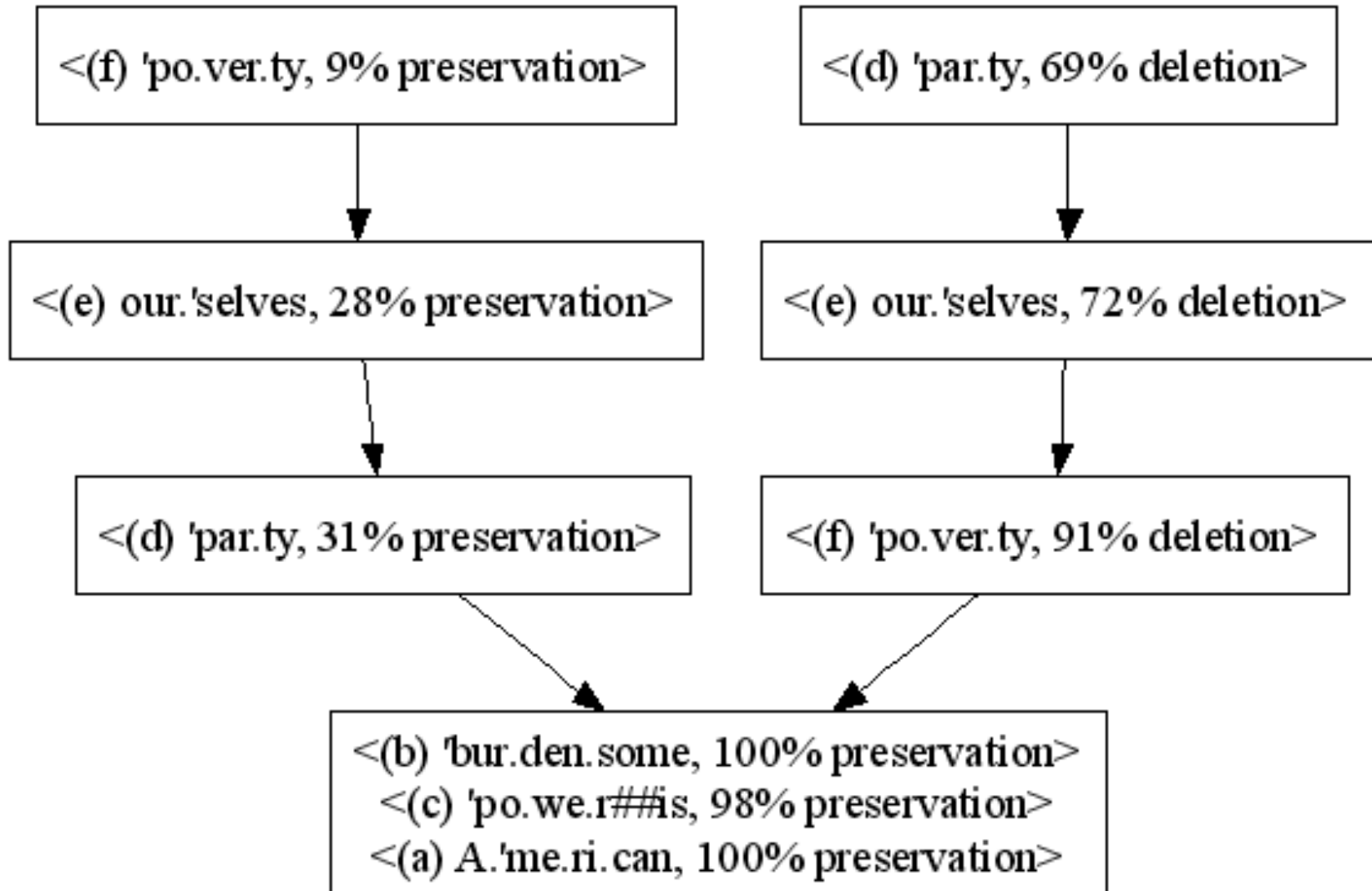
	<b>Env. A</b> <i>A.mé.ri.can</i>	<b>Env. B</b> <i>búr.den.some</i>	<b>Env. C</b> <i>pó.we.r##is</i>	<b>Env. D</b> <i>pár.ty</i>	<b>Env. E</b> <i>our.sélves</i>	<b>Env. F</b> <i>pó.ver.ty</i>
<b>Grammar 1</b>	r	r	r	r	r	r
<b>Grammar 2</b>	r	r	r	r	r	∅
<b>Grammar 3</b>	r	r	r	r	∅	∅
<b>Grammar 4</b>	r	r	r	∅	∅	∅

# Implicational Universals: a T-Order

(Anttila & Andrus 2006)



# Linking-*r* Frequencies: JFK



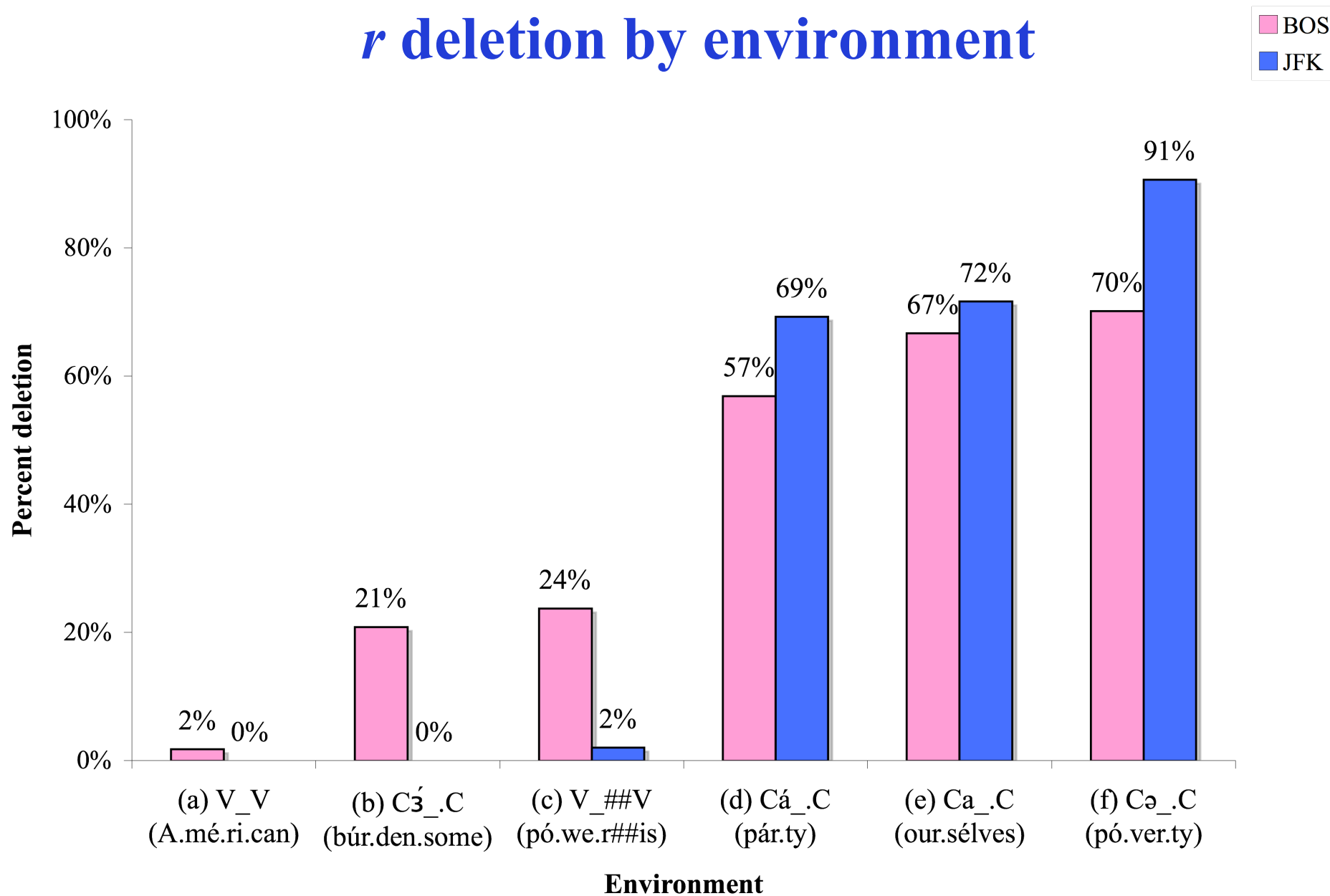
# 7 More Bostonians

Environment	Deletion frequency		Examples
(a) V_V, word-medially	1/56	2%	<i>Américan</i>
(b) _C, primary stress, after central vowel	58/279	21%	<i>búrdensome, préfér that</i>
(c) V_V, word-finally	126/532	24%	<i>pówer is</i>
(d) _C, primary stress, after non-central vowel	475/835	57%	<i>párty, yóur help</i>
(e) _C no primary stress, after non-central vowel	96/144	67%	<i>ourséives, your cíties</i>
(f) _C no primary stress, after central vowel	415/592	70%	<i>póverty, were bóld</i>

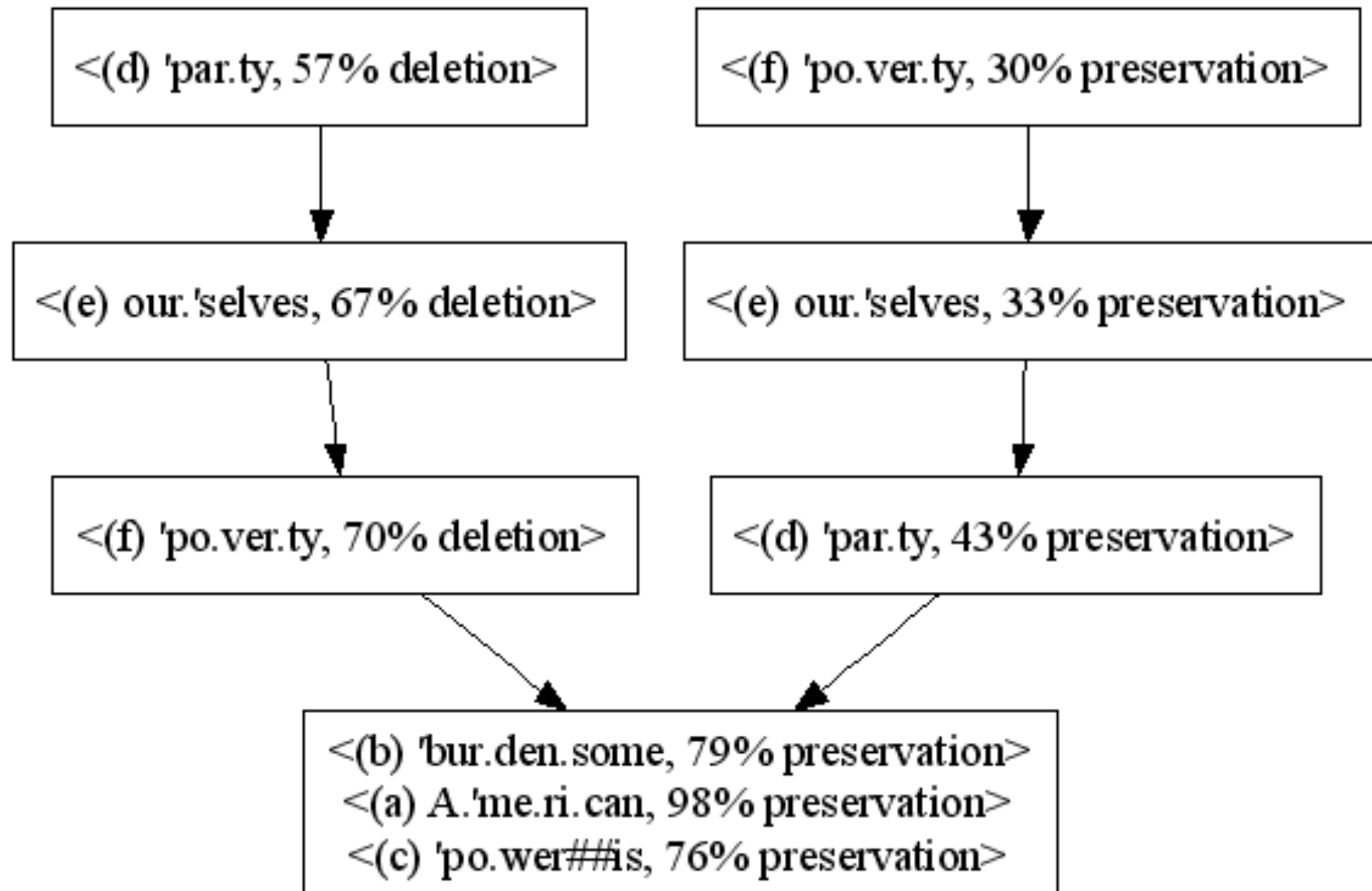


# BOS v. JFK:

## *r* deletion by environment



# Linking-*r* Frequencies: BOS



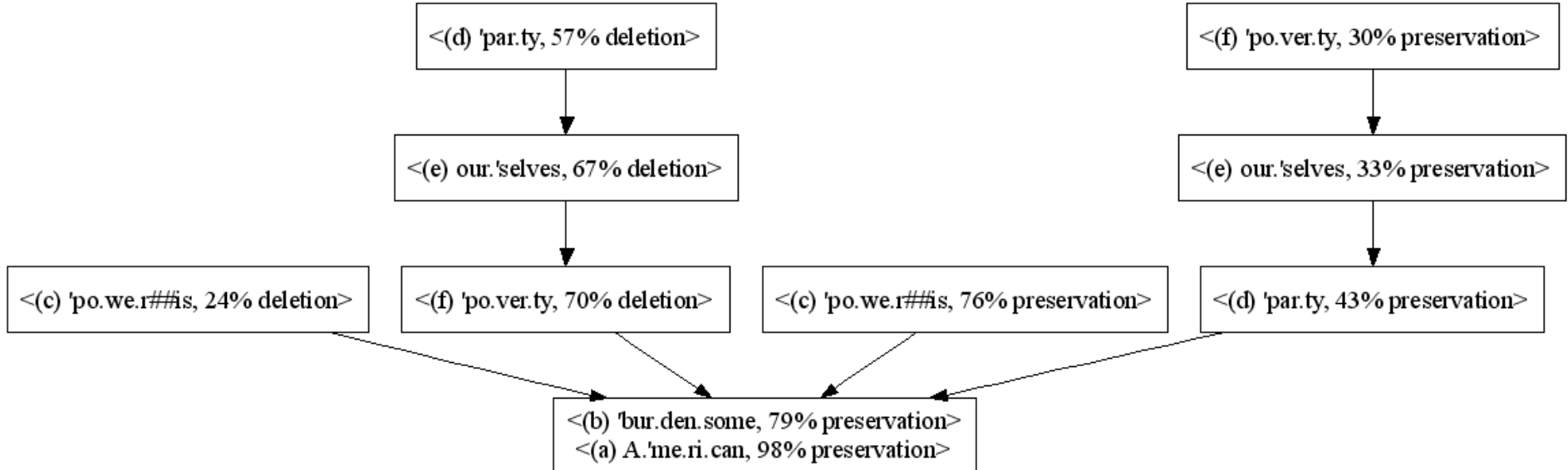
# Problem: Linking- $r$ preservation in environments (a) & (c)

	JFK	BOS
(a) <i>American</i>	100%	98%
(c) <i>power is</i>	98%	76%

- are predicted to behave identically

# Solution

**ALIGN-LEFT-WORD (McCarthy & Prince 1993)**  
will favor linking-*r* deletion word-finally.



# Conclusions

- We have suggested an explanation for why some phonological patterns remain constant across dialects, whereas others vary.
- An OT analysis predicts that some quantitative patterns are necessary, whereas some hold depending on the constraint ranking.

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