

Going, going, gone?

Devoicing of Unstressed Final Vowels in São Paulo Portuguese

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Reduction of Unstressed Vowels

- Range of realizations:
shortened >> devoiced >> deleted
- Other languages:
 - Korean (Beckman & Lee 1998), Greek (Dauer 1980, Arvaniti 1994), Japanese (Beckman & Shoji 1986)
 - Spanish: Peru, Ecuador, Mexico (Delforge 2008a, 2008b, Lipski 1990)
- Dialects of European Portuguese:
 - São Miguel (Silva 1998)



São Paulo 2010 Corpus

Sex	Age-Group	Level of Education	# Informants
Female	20-34	High School	5
		College	5
	35-59	High School	5
		College	5
	60+	High School	5
		College	5
Male	20-34	High School	5
		College	5
	35-59	High School	5
		College	5
	60+	High School	5
		College	5
Total:			60

Sub-Sample for this Study

Sex	Age-Group	Level of Education	# Informants
Female	20-34	High School	2
		College	2
	35-59	High School	2
		College	2
	60+	High School	2
		College	2
Male	20-34	High School	2
		College	2
	35-59	High School	2
		College	2
	60+	High School	2
		College	2
Total:			24

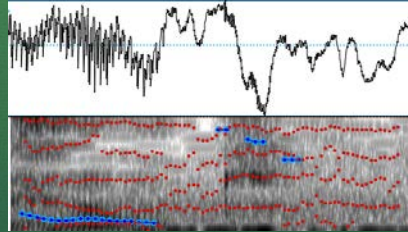
Variable Context

- Word-final unstressed vowels
- ~30 tokens/speaker extracted from recorded sociolinguistic interviews
 - Balanced for vowel
 - Balanced for preceding context (voiced/voiceless)
 - Maximum 2 tokens per lexical type per speaker
- 727 tokens
- Each token impressionistically coded as voiced or devoiced

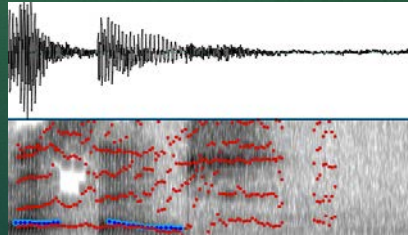
Examples



junto 'together'
Alberto 13:43



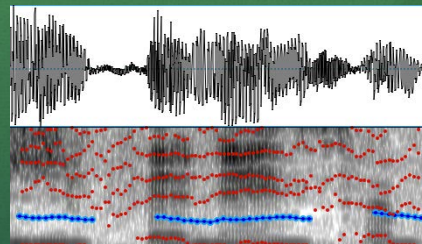
bastante 'a lot'
Júnior 20:23



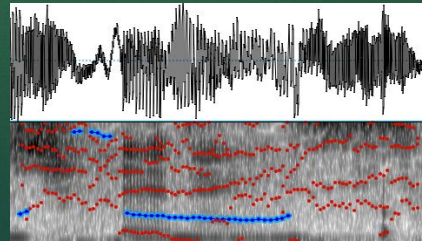
Examples



diferença 'difference'
Janaína 8:20



diferença 'difference'
Janaína 8:20



Examples



Lavando a roupa que ela tem uma filha né... filha tem o **marido**... ela fala “que descanso tem?” descansa um pouco no **domingo**... e uh... e fica aí o dia inteirinho ela vai embora daqui a **pouco** cinco hora(s) que **fecha**... é muito **cansativo**... (Edna 17:35-49)

‘Doing the laundry ‘cuz she has a daughter right... daughter the husband... she says “how can I rest”? rest a bit on Sunday... and she’s there all day long she leaves in a little bit at five when it closes... it’s very tiresome’

Multivariate Analysis

- Overall frequency
- Conditioning of features by contextual factors
 - Social factors
 - Linguistic factors
- Rbrul (Johnson 2009)
 - Logistic regression
 - Statistical significance of independent factors
 - Contribution of each factor to the variation
 - Factor weights (0 - 1, centered on .5)
 - Logodds ($-\infty$ - ∞ , centered on 0)
 - Mixed-effects model
 - Random effects (speaker, lexical item)
 - Fixed effects (independent factors)

Linguistic Factor Groups (Independent Variables)

- Vowel:
 - /e/ → [i]
 - /o/ → [u]
 - /a/ → [e]

Linguistic Factor Groups (Independent Variables)

- Preceding phonological context:
 - Voiced obstruent (+ /Cr/)
 - Voiceless obstruent (+ /Cr)
 - Nasal
 - /r/
 - /l/

Linguistic Factor Groups (Independent Variables)

- Following phonological context:
 - Pause
 - Vowel
 - Voiced consonant
 - Voiceless consonant

Social Factor Groups (Independent Variables)



- Social:
 - Sex
 - Female, Male
 - Age (group)
 - 21-34, 35-59, 60+
 - Education
 - High school, College
 - City zone
 - Center, South, East, West, North
 - City area
 - Center vs. Periphery

Linguistic Conditioning

Vowel

	logodds	factor weight
[i]	0.592	.64
[u]	0.551	.63
[e]	-1.103	.25

Preceding Phonological Context

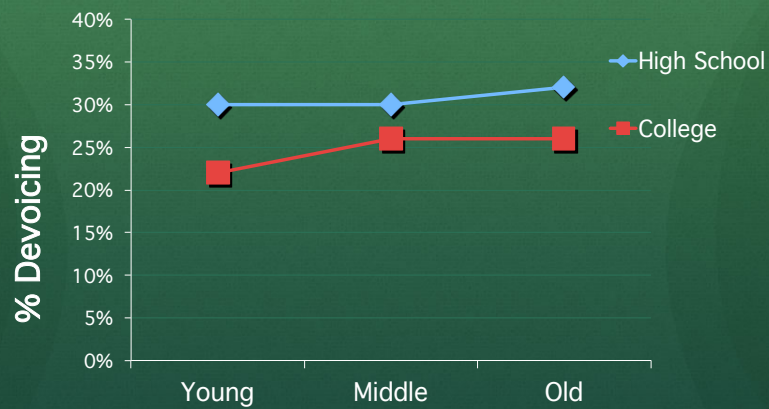
	logodds	factor weight
Voiceless obstruent	1.526	.82
Voiced obstruent	0.614	.65
Nasal	-0.052	.49
/r/	-0.300	.43
/l/	-1.788	.14

Following Phonological Context

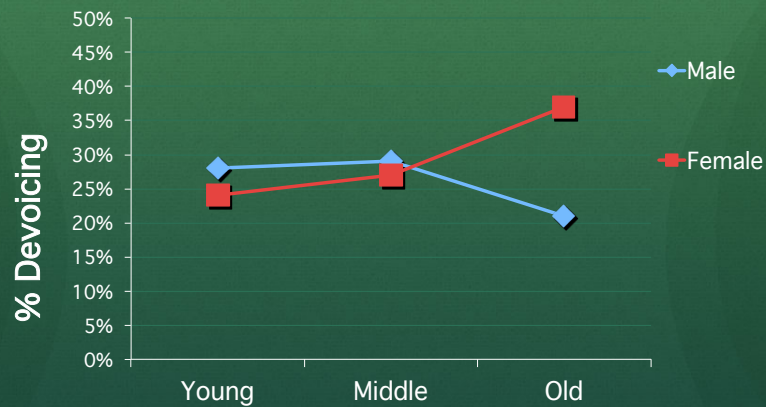
	logodds	factor weight
Pause	0.928	.72
Voiceless Obstruent	0.694	.67
Vowel	-0.321	.42
Nasal	-0.497	.38
Voiced Obstruent	-0.804	.31

Social Conditioning

Level of Education by Age-Group



Sex by Age-Group



Discussion

- Devoicing preferred by:
 - Older females, lower level of education
 - High vowels ([i], [u])
 - Preceding voiceless segments (/r/ “skipped”)
 - Following voiceless segments
- Results similar to those of other studies
 - Preference with high vowels may reflect articulatory and perceptual considerations
 - Effect of voiceless consonants can be explained by “gestural overlap” (Browman & Goldstein 1990; Delforge 2008a)
 - Tendency for certain phonological features to spread (voicing, nasalization, vowel harmony)

Future Work

- More data!
 - More tokens for each speaker
 - More speakers
 - Better representation of social groups
- More detailed acoustic analysis!
 - Shortening vs. Devoicing vs. Deletion
- More factors!
 - Prosodic position
 - Speech rate
 - Style

Obrigado!

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