Metaphony in Brazilian Veneto: a comparative markedness approach

Guilherme D. Garcia[1,2] Natália B. Guzzo[1]

[1]Université Laval

[2]Centre for Research on Brain, Language and Music

LSRL 55

Santo Domingo, September 2025

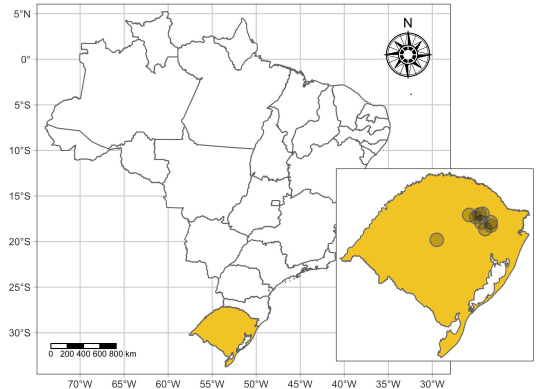
UNIVERSITÉ LAVAL

CRBLM
Centre for Research on Brain, Language and Music

Brazilian Veneto

- Veneto-based koiné
- Also called **Talian** (Frosi and Mioranza 1983)
- Italian immigration to Brazil (19th century)
- Stress system: rightmost trisyllabic window
- Vowels: 7 stressed, 5 unstressed (Guzzo 2022)

☞ Similar to Central Veneto



Metaphony in (Brazilian) Veneto

- In some varieties of Veneto (Italo-Romance), metaphony is observed:
  - Central Veneto
  - **Brazilian Veneto (BV)**

  Stressed /e o/ become [i u] when the final vowel is /i/
- Final vowel can be the masculine plural suffix or the second person inflection

☞ **Examples:**

[ˈpesi] ~ [ˈpisi] ‘fish.PL’

[ˈkori] ~ [ˈkuri] ‘run.2PRS.SG’

Metaphony in Brazilian Veneto

a. Variable process (not categorical)
b. Applies across stress positions

c. Observed in loanwords
d. Observed in suffixed words (DIM and AUG)

a. [ˈovi] ~ [ˈuvi] ‘egg.PL’
b. [ˈzoveni] → [ˈzuvini] ‘young.PL’
   [ˈbevi] → [ˈbivi] ‘drink.2PRS.SG’
   [faˈzoi] → [faˈzui] ‘bean.PL’
c. [ˈboli] → [ˈbuli] ‘cake.PL’
d. [kaˈɲeti] → [kaˈɲiti] ‘dog.DIM.PL’
   [formiˈgoni] → [formiˈguni] ‘ant.AUG.PL’

Corpus findings

Previous study (Garcia and Guzzo, 2023)

- 2,521 words in corpus of written BV with context for metaphony (Garcia and Guzzo 2021)
- Metaphony with penultimate stress: 18.3%
- /o/ more likely to undergo metaphony than /e/ (Garcia and Guzzo 2023)
- Asymmetry by word length (2 vs. 3 syl) and morphological domain (vowel in root or not)
  - 3-syl words tend to have more metaphony than 2-syl words, especially with /e/
  - this mirrors vowel distributions in the lexicon for penultimate position
  - interaction between target vowel and its position: metaphony more likely when /e/ **not** in root

Another asymmetry observed

☞ Metaphony generates [ui] strings but **not** [ii] strings

This talk

Focus: [e-o] asymmetry in BV metaphony: /oi/ → [ui] vs. /ei/ ↛ [ii]

- Even though [ii] sequences exist elsewhere

☞ **Goal:** explain and formalize this asymmetry via **Comparative Markedness** (McCarthy 2003)

Asymmetry

- /oi/ → [ui] stems from l-ending words that are pluralized (Guzzo 2024)
  [faˈzol] ‘bean.sg’ → [faˈzoli] → [faˈzoi] ~ [faˈzui]

- Two sources for /ei/ ↛ [ii]:
  - /e/ in root followed by theme vowel:
    [eˈbreo] ‘Jewish.sg’ → [eˈbrei], [*eˈbrii]
    [muˈzeo] ‘museum.sg’ → [muˈzei], [*muˈzii]
  - /e/ in l-ending words that are pluralized:
    [kaˈvel] ‘hair.sg’ → [kaˈveli] → [kaˈvei], [*kaˈvii]

Asymmetry

- [ii] sequences are attested in BV:
  - [ˈzio] ‘uncle.SG’ → [ˈzii] ‘uncle.PL’
  - [imbamˈbio] ‘stupid.SG’ → [imbamˈbii] ‘stupid.PL’
  - [fiˈnio] ‘finish.PART.SG’ → [fiˈnii] ‘finish.PART.PL’

☞ **Puzzle:** why *[ii] from metaphony is blocked, **but** attested elsewhere?

- Exclusive to BV? Related dialects don’t seem to display the same behavior (Walker 2005)

Adjacency constraint

- Metaphony blocked if trigger and target are adjacent and identical: *[kaˈvii]
- Allowed in variants with theme vowel: [kaˈvedʒi] → [kaˈvedʒi] ~ [kaˈvidʒi]

☞ Constraint resembles OCP (**Obligatory Contour Principle**) (Leben 1973; Goldsmith 1976)

Lookahead effects

- Must anticipate if OCP will be violated to determine if output surfaces
- Grammar **compares** procedures and evaluates their outcomes

☞ Similar to root fusion in **Sino-Japanese**: fusion is blocked if voiced geminates are generated

	betu	'different'
a.	bek-kaku	'different style'
	bes-soo	'separate mail'
b.	betu-bin	'separate carrier'
	(*beb-bin)	
	betu-goo	'separate issue'
	(*beg-goo)	

Comparative Markedness

- OCP split into $_{N}$OCP (new) vs. $_{O}$OCP (old)
- $_{N}$OCP blocks new identical vowels (from metaphony)
- $_{O}$OCP tolerates inherited identical vowels

☞ Explains [ˈzii] ($_{O}$OCP tolerated) vs. *[kaˈvii] ($_{N}$OCP blocked)

Analysis: /faˈzo-i/

- Faithful [faˈzoi] vs. metaphonic [faˈzui]
- $_{O}$Lic (license [+hi] post-tonic) favors metaphony (Walker 2005)
- Ident[hi] resists vowel change

☞ **Outcome:** metaphony applies

/faˈzo-i/	$_{N}$OCP	$_{O}$Lic([+hi] post-tonic, σ)	Ident[hi]	$_{O}$OCP
faˈzoi		*		
☞ faˈzui			*	

Tableau 1: Evaluation of /faˈzo-i/ → [faˈzui].

Analysis: /kaˈve-i/

- Candidate *[kaˈvii] blocked by $_{N}$OCP
- Faithful [kaˈvei] surfaces
- Comparative markedness **crucial** here

/kaˈve-i/	$_{N}$OCP	$_{O}$Lic([+hi] post-tonic, σ)	Ident[hi]	$_{O}$OCP
kaˈvii	*		*	
☞ kaˈvei		*		

TABLEAU 2: Evaluation of /kaˈve-i/ → [kaˈvei].

Analysis: /ˈzi-i/

- Candidate [ˈzii] violates $_{O}$OCP, but tolerated
- Faithfulness outranks $_{O}$OCP

☞ Ranking in question explains coexistence of [ˈzii] with blocked *[kaˈvii]

/zi-i/	$_{N}$OCP	$_{O}$Lic([+hi] post-tonic, σ)	Ident[hi]	$_{O}$OCP
☞ ˈzii				*
ˈziu			*	

Tableau 3: Evaluation of /ˈzi-i/ → [ˈzii].

From categorical to probabilistic

- Analysis above assumes categorical outcomes
- Empirical data: variation in application, which requires more flexible framework
- E.g., MaxEnt grammar better captures probabilities (Goldwater and Johnson 2003; Wilson 2006; Hayes and Wilson 2008)
- Constraints weighted, not ranked; output candidates are assigned **probabilities**

From categorical to probabilistic

MaxEnt simulation assuming $P(\textbf{ui\#}|\textbf{oi\#}) = 0.5$

	$w = 7.4$	$w = 2.8$	$w = 2.8$	$w = 1$			
/faˈzo-i/	$_{\text{N}}$OCP	$_{\text{O}}$Lic([+hi] post-tonic, σ)	Ident[hi]	$_{\text{O}}$OCP	$h(x)$	$P*(x)$	$P(x)$
faˈzoi		1			2.8	0.01	0.50
faˈzui			1		2.8	0.01	0.50

TABLEAU 4: Evaluation of /faˈzo-i/ → {[faˈzoi], [faˈzui]}.

	$w = 7.4$	$w = 2.8$	$w = 2.8$	$w = 1$			
/kaˈve-i/	$_{\text{N}}$OCP	$_{\text{O}}$Lic([+hi] post-tonic, σ)	Ident[hi]	$_{\text{O}}$OCP	$h(x)$	$P*(x)$	$P(x)$
kaˈvei		1			2.8	0.1	1.00
kaˈvii	1		1		10.2	0.00	0.00

TABLEAU 5: Evaluation of /kaˈve-i/ → {[kaˈvei], [kaˈvii]}.

From categorical to probabilistic

Simulations using the Fonology package (Garcia 2025)

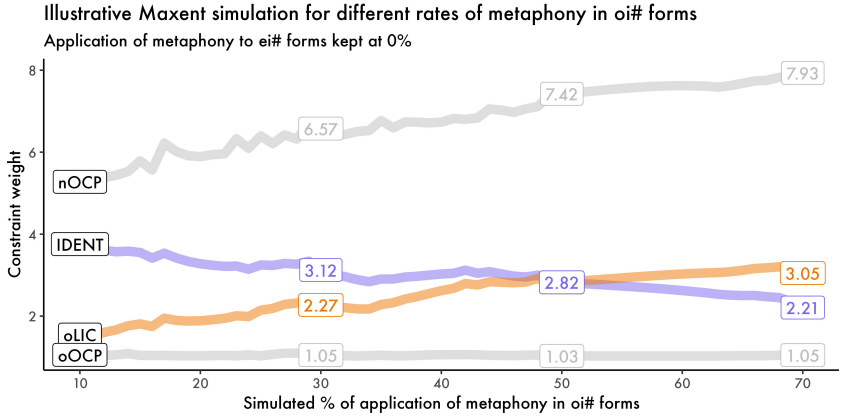


Figure 1: How the grammar changes with the rate of (attested) metaphony. Prior = $\mathcal{N}(0, 10)$.

Discussion and conclusion

- Metaphony blocked when **creating** identical-adjacent vowels
- Comparative markedness accounts for asymmetry:

  $_{\text{N}}$OCP vs. $_{\text{O}}$OCP distinction is essential to the context in question
- BV contrasts with other dialects, which allow [ii] stemming from metaphony
  - In such grammars, $_{\text{O}}$Lic $\gg$ {$_{\text{O}}$OCP, $_{\text{N}}$OCP}

☞ **Future/current work:** experimental + probabilistic modeling

References I

Frosi, V. M. and Mioranza, C. (1983). *Dialetos italianos: um perfil linguístico dos ítalo-brasileiros do nordeste do Rio Grande do Sul. [Italian dialects: a linguistic profile of the Italian-Brazilians in the northeast of Rio Grande do Sul].* EDUCS, Caxias do Sul, Brazil.

Garcia, G. D. (2025). *Fonology: Phonological Analysis in R.* R package version 0.9.6 (first released in 2023).

Garcia, G. D. and Guzzo, N. B. (2021). Talian corpus: a written corpus of brazilian veneto.

Garcia, G. D. and Guzzo, N. B. (2023). A corpus-based approach to map target vowel asymmetry in Brazilian Veneto metaphony. *Italian Journal of Linguistics*, 35(1):115–138.

Goldsmith, J. (1976). An overview of autosegmental phonology. *Linguistic Analysis*, 2:23–68.

Goldwater, S. and Johnson, M. (2003). Learning OT constraint rankings using a Maximum Entropy model. In *Proceedings of the Stockholm Workshop on Variation within Optimality Theory*, pages 111–120.

Guzzo, N. B. (2022). Brazilian Veneto (Talian). *Journal of the International Phonetic Association*, page 1–15.

Guzzo, N. B. (2024). Plural alternation and word-final consonant syllabification in Brazilian-Veneto. *Languages*, 9(8):1–21. Special issue: Phonetic and Phonological Complexity in Romance Languages, edited by Irene Vogel and Laura Spinu.

Hayes, B. and Wilson, C. (2008). A Maximum Entropy model of phonotactics and phonotactic learning. *Linguistic Inquiry*, 39(3):379–440.

References II

Leben, W. (1973). *Suprasegmental phonology*. PhD thesis, MIT, Cambridge, MA.

McCarthy, J. J. (2003). Comparative markedness. *Theoretical Linguistics*, 29(1–2):1–51.

Walker, R. (2005). Weak triggers in vowel harmony. *Natural Language and Linguistic Theory*, 23:917–989.

Wilson, C. (2006). Learning phonology with substantive bias: an experimental and computational study of velar palatalization. *Cognitive Science*, 30(5):945–982.

Acknowledgements

- Funding from the Social Sciences and Humanities (SSHRC) and Université Laval

THANK YOU!

¡GRACIAS!

Social Sciences and Humanities Research Council of Canada

Conseil de recherches en sciences humaines du Canada

Canada