

Going Romance XXXIV, November 26 2020

WHAT'S THE MATTER WITH |I| |U|?

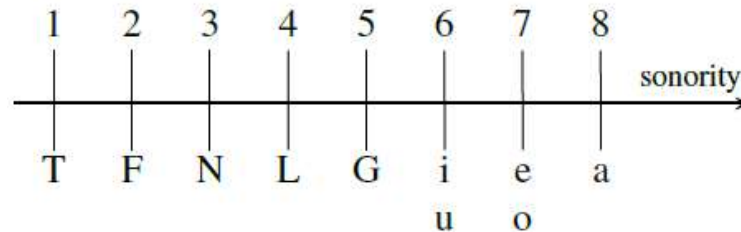
On element asymmetry in Portuguese (EP)

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ELEMENT THEORY AND ASYMMETRY

- Element Theory (ET) and similar approaches
 - **Aperture** |A| different from **coloring** |I U|
 - “|A| is naturally more vocalic than |I| or |U|.” (Backley 2012: 175)
 - |I| and |U| are equally vocalic
 - Which parallels the sonority scale



(Hyman 2008: 103)

- But are |I U| symmetric?

ELEMENT ASYMMETRY AND THE DIPHTHONGIZATION OF EP NASAL VOWELS

- Poorly studied phonological process
 - The diphthongization of lexical nasal vowels /ẽ ẽ õ/ in non-final position in **non-standard varieties**
- Standard EP
 - 5 lexical nasal vowels: /ĩ ẽ ẽ õ ã/
 - 4 lexical nasal diphthongs (all final): /ẽĩ, ẽõ, õĩ, ãĩ/
 - Except: *cãibra* ‘cramp’ [ˈkẽĩbrɐ], *zãibo* ‘lazy-eyed’ [ˈzẽĩbu], *muito* ‘a lot’ [ˈmũĩto]
- Dialectological data from ALEPG project (cf. Saramago 2006)
 - Lexical nasal vowels can diphthongize
 - E.g. *banco* ‘bench’ [ˈbẽku] ~ [ˈbẽõku]

ELEMENT ASYMMETRY AND THE DIPHTHONGIZATION OF EP NASAL VOWELS

- Q: When a nasal vowel diphthongizes
 - i. Which factors contribute to the color of the glide?
 - ii. Do |I| and |U| behave symmetrically?
 - iii. If they don't, what is the nature of their asymmetric behavior?

HOMORGANICITY OF THE OFF-GLIDE

- Can it be homorganic with the vowel that diphthongizes?
 - Yes

a)	/ẽ/	<i>amêndoa</i>	‘almond’	[ɐ¹mẽdo.ɐ]	[ɐ¹mẽ̃ɪdʊɐ]
b)	/ẽ/	<i>tempo</i>	‘time’	[¹tẽpu]	[¹tẽ̃ɪpu]
c)	/õ/	<i>conto</i>	‘tale’	[¹kõtu]	[¹kõ̃ũtu]
d)	/õ/	<i>lontra</i>	‘otter’	[¹lõtrɐ]	[¹lõ̃ũtrɐ]

HOMORGANICITY OF THE OFF-GLIDE

- Homorganicity with the vowel that diphthongizes

	/ẽ/	/õ/	/ẽ/
ĩ	98% (279)	65% (15)	48% (108)
ü	2% (6)	35% (8)	52% (116)
	285	23	224

- If the off-glide is not always homorganic with the vowel, what else can have an influence on its color?

HOMORGANICITY OF THE OFF-GLIDE

- Can it be homorganic with the following onset?
 - Yes: (ii)
 - But not necessarily: (iii)

			i.	ii.	iii.	
a)	labial	<i>alambique</i>	‘alembic’	[ʌlẽ ^h ˈbiki]	[ʌlẽ ^h ũ ^h ˈbiki]	[lẽĩ ^h ˈbiki]
b)	palatal	<i>concha</i>	‘shell’	[ˈkõʃɐ]	[ˈkõĩʃɐ]	[ˈkõũʃɐ]
c)	velar	<i>canga</i>	‘yoke’	[ˈkẽgɐ]	[ˈkẽũgɐ]	[ˈkẽĩgɐ]

HOMORGANICITY OF THE OFF-GLIDE

- Homorganicity with the following onset

	palatal	velar	labial
ĩ	97% (71)	55% (53)	62% (56)
ũ	3% (2)	45% (44)	38% (34)
	73	97	90

HOMORGANICITY OF THE OFF-GLIDE

- No homorganicity
 - Possible metaphony?
 - Yes

			i.	ii.	iii.
a)	<i>lenço</i>	‘tissue’	[ˈlẽsu]	[ˈlẽĩθu]	[ˈlẽũsu]
b)	<i>penso</i>	‘hay’	[ˈpẽsu]	[ˈpẽĩsu]	[ˈpẽũsu]
c)	<i>alambique</i>	‘alembic’	[ɐlẽˈbiki]	[ɐlẽũˈbiki]	[lẽĩˈbiki]

HOMORGANICITY OF THE OFF-GLIDE

- a) *camba* ['kɛ̃bɐ] ['kɛ̃ɪ̯bɐ] 'rim'
- b) *camba* ['kɛ̃gɐ] ['kɛ̃ɪ̯gɐ] 'yoke'
- c) *lombo* ['lõbu] [lõ̯ɪ̯bu] 'loin'

- Neither homorganicity nor metaphony
 - Front off-glide [ɪ̯]
 - Even in (c), where a back off-glide would be expected
 - Back nasal vowel
 - Labial in the following onset

COLOR OF THE OFF-GLIDE

- After every possible “coloring” source is taken into account

	Front off-glide		Back off-glide	
Possible metaphony	YES	NO	YES	NO
Homorganicity (with the vowel, the onset or both)	68	257	66	32
Non homorganic	27	50	32	0
Total n° of off-glides	402 [ɪ]		130 [ʊ]	

COLOR OF THE OFF-GLIDE

- **50 front off-glides** left unaccounted
 - 16 attested forms of *camba* ['kẽ̃ɪbɐ] 'rim'
 - 26 attested forms of *canga* ['kẽ̃ɪgɐ] 'yoke'
- Similar to the few words in **standard EP** with non-final lexical diphthong:
 - *cāibra* ['kẽ̃ɪbrɐ] 'cramp', *zāibo* ['zẽ̃ɪbu] 'lazy-eyed'
- How to explain the preference for a front off-glide over a back off-glide?

COLOR OF THE OFF-GLIDE

- When a nasal vowel diphthongizes in non standard EP, front and back off-glides **do not behave symmetrically**
 - 1) Why?
 - 2) Is this predicted by Element theory?
 - 3) Are there other examples of this asymmetry in the language?
- We'll start with the last one.

PHONOLOGICAL PROCESSES IN EP AND |U|-|I| ASYMMETRY

1. Homorganic (oral) diphthongs and resistance to monophthongization

/ou̯/		/e̯i/	
[ou̯]	[o]	[e̯i]	[e]
0%	100%	21%	79%
0	277	146	539

Pimenta (2019)

(ALEPG data, Evora district)

PHONOLOGICAL PROCESSES IN EP AND |U|-|I| ASYMMETRY

2. Distribution of /a u i/ in **lexical** nasal diphthongs in **standard EP**

/a/	
Nucleus	Off-glide
YES	
ẽĩ, ẽũ	NO

/u/	
Nucleus	Off-glide
YES	YES
ũĩ	ẽũ

/i/	
Nucleus	Off-glide
	YES
NO	ẽĩ, õĩ, ũĩ

- Not an accident...

PHONOLOGICAL PROCESSES IN EP AND |U|-|I| ASYMMETRY

3. Diachronic data: nuclei merge and the formation of final nasal diphthongs

Sonority: $V_1 > V_2 \rightarrow VG$			Sonority: $V_1 < V_2 \rightarrow V_1.V_2$		
G.-P.	EP	Examples	G.-P.	EP	Examples
-ão >	[ẽũ]	G.-P. <i>mão</i> > EP [mẽũ]	-õa >	o.ɐ	G.-P. <i>bõa</i> > EP [bo.ɐ]
-ãe >	[ẽĩ]	G.-P. <i>pães</i> > EP [pẽĩ]	-êa >	e¹.ɐ	G.-P. <i>vêa</i> > EP [ve¹.ɐ]

Mid-vowels: front vs back

G.-P.	EP	Examples
-õe >	[õĩ]	G.-P. <i>leões</i> > EP [li.õĩ]
-êo >	[e¹.u]	G.-P. <i>sêo</i> > EP [se¹.u]

Pimenta (2019)

Sonority: o > e

PHONOLOGICAL PROCESSES IN EP AND |U|-|I| ASYMMETRY

- |U| more sonorous than |I|
 - |I| more fit to occupy non-nucleic position

A	
Nucleus	Off-glide
YES	NO



More sonorous

U	
Nucleus	Off-glide
YES	YES

>

I	
Nucleus	Off-glide
NO	YES



Less sonorous

WHAT IS REQUIRED OF A (GOOD) DIPHTHONG?

- Sánchez Miret (1998):
 - **Difference in quality** between its two members
 - The principal factor involved is **sonority**
- Falling diphthongs (UPSID):
 - More front than back off-glides

Figure D1. diphthongs in UPSID (1992).

	i	u	ɪ	ʊ	e	o	ɛ	ɔ	æ	a	ɔ
i	—	iu (2)			ie (6)	io	ie		ia	ia (5)	iə
u	ui (8)	—				uo (4)				ua (3)	uə (5)
ɪ			—		ie						
ʊ	ui			—							
e	ei (7)	eu 3			—	eo (3)				ea	eə
o	oi (6)	ou 5			oe	—				oa (2)	
ɛ	ei (3)					ɛo	—				
ɔ	oi (6)							—			
æ	æi (3)								—		
a	ai (19)	au (18)			ae (3)	ao (4)	ae			—	
ɔ	oi (2)	əu (4)									

ELEMENT THEORY (ET) AND ASYMMETRY

- Asymmetry between |I| and |U| not predicted in Element Theory
- Even though typologically it manifests itself in several ways
- **Hyman (2008):**
 - a) *“Every phonological system contrasts at least two degrees of **aperture**.”*
 - b) *“Every phonological system has at least one **front vowel** or the **palatal glide** /y/.”*
 - The same cannot be said about **rounding**...

CONCLUSIONS

- Q: When a nasal vowel diphthongizes
 - i. Which factors contribute to the color of the glide?
 - Homorganicity with the nasal vowel or following onset
 - Metaphony
 - ii. Do | I | and | U | behave symmetrically?
 - No: More [ɪ̃] off-glides than [ʊ̃] off-glides
 - iii. What is the nature of their asymmetric behavior?
 - | I | it is the least vocalic / sonorous element: | A > U > I |
 - Which makes him a better off-glide
 - Better contrast with the vowel of the nucleus

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Thank you for your
attention!