Workshop of the project
Interactive Atlas of the Prosody of Portuguese
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Prosodic phrasing across varieties of European Portuguese: segmental evidence

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Outline

- Background

  - prosodic segmental phenomena across E. Portuguese (EP) dialects
  - prosodic domains and rules in EP
  - Glide insertion to break a hiatus and word final epenthesis
- Method: materials and data collection
- Results and discussion
- Main Conclusions

Prosodic phenomena across E. Portuguese dialects

Standard EP

- Syllable/morpheme final fricatives resyllabification

  BElas Obras> BEla[z] Obras

- Word-final vowel deletion

  GAto aMIgo > GAt aMIgo

- High V semivocalization (V V>G V)

  GAto aMIgo > Gat[w] aMIgo

- Syllable degemination

  CAMpo poluÍdo >CAM poluÍdo

(Sá Nogueira 1945, 1948; Andrade & Viana 1994; Frota 2000; Mateus & Andrade 2000)

Prosodic phenomena across E. Portuguese dialects

- Sandhi/prosodic processes are not among the typical phenomena observed in dialectal studies

more tuned to segmental, lexical, and also to a certain extent morphological and syntactic variation (Boléo & Silva 1962; Cintra 1971; Rodrigues 2003; Saramago 2006; Aguiar 2009; Carrilho et al. 2010)

- confined to observations disperse in the literature

→ the precise phonological conditions for sandhi phenomena often unknown;

→ exact geographical limits largely to be determined

Prosodic phenomena across E. Portuguese dialects

Prosodic phenomena in non-Standard dialects of Portuguese

Word final fricative [ʒ] (instead of [z]) when followed by word starting in a vowel

*as **a**ulas > a **[ʒ] a**ulas*

North (e.g. Trás-os-Montes - Aguiar 2009)

Glide insertion to break a hiatus (a_á)

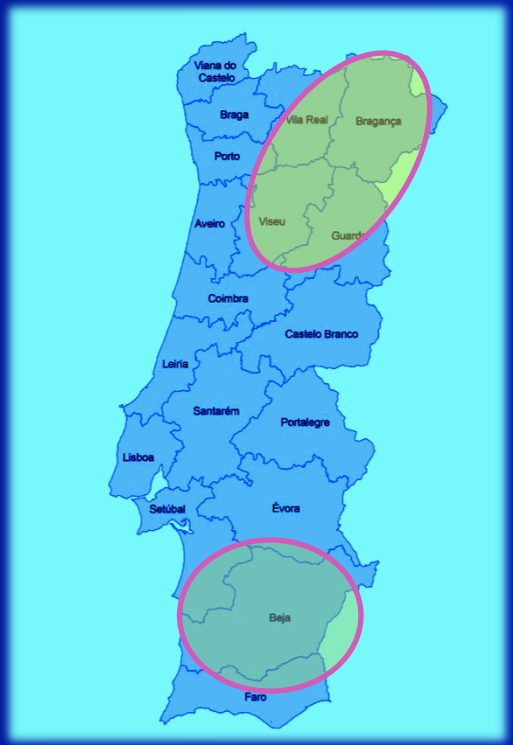
***a A**Ula> **a [j] A**Ula*

North (e.g. Vila Real Trás-os-Montes, Beira Interior Norte – Lopo 1895, Pereira 1908; Santos 1897)

[i] or [ɨ] insertion after oxitone word

caf**é** > *caf**é[i]***

Alentejo (Vasconcelos 1896, 1987; Paiva Boléo & M.H. Santos Silva 1959; Maia 1975; Florêncio 2001)



Prosodic phenomena across E. Portuguese dialects

- In this presentation we will be focusing on

→ [j] insertion to break a hiatus

a Aula > a [j] AUla

→ [i]/[ɨ]-insertion at the right edge of oxitone words

cafÉ > cafÉ[i]

- Based on speech samples collected in 3 Northern areas and 2 Southern areas

Prosodic phenomena across E. Portuguese dialects

Experimental study on sandhi phenomena in EP - Frota (2000) (Standard EP)

- Word-final fricatives
- Word-final vowel deletion
- High V semivocalization (V V > G V)
- Syllable degemination

Domains for sandhi phenomena

These sandhi phenomena are bound by the Intonational Phrase (IP)

→ domain for resyllabification

[É[z]s um á[ʃ]s]$_I$ [Adoro-te]$_I$

Compound IP

Short IP may group into a compound prosodic domain > the higher IP is the domain for sandhi rules

Compound IP

((As alunas)$_I$ (até onde sabemos)$_I$)$_I^{max}$ (obtiveram boas avaliações)$_I$

[z] [z] [ʃ] [z]

Prosodic phenomena across E. Portuguese dialects

- Domains for prosodic phenomena

  In addition to IP, the Prosodic Word Group (Vigário 2010)

  Word-final *e* deletion:

  → Obligatory within PWG [[… *e*]$_{PW}$…]$_{PWG}$ → [… _]$_{PW}$ …]$_{PWG}$

  → Stress clash avoidance within PWG > the rule is blocked if V2 bears PWG prominence

BEbe Água	>	BEb_]$_{PW}$ Água
BEbe a Água	>	BEb_]$_{PW}$ a Água
BEbe-a	>	BEb[j]-a]$_{PW}$
PEde-te Àgua	>	PEde-t_]$_{PW}$ a Água
SA (Esse-Á)	>	[Ess[j]]$_{PW}$- [Á]$_{PW}$]$_{PWG}$ (Acronyme=PWG)
um S (esse) Árabe	>	[Ess_]$_{PW}$]$_{PWG}$ [Árabe]$_{PW}$]$_{PWG}$(Words within ϕ)

Prosodic phenomena across E. Portuguese dialects

Sensitivity to prominence

→ Vowel deletion processes (optional) blocked under stress clash conditions

[… *o*]$_{PW}$ [V́…]$_{PW}$
[… *a*]$_{PW}$ [V́…]$_{PW}$

→ Phonological phrase (ϕ) prominence, not just PW

[[… *o*]$_{PW}$ [V́…]$_{PW}$]$_{\phi}$
[[… *a*]$_{PW}$ [V́…]$_{PW}$]$_{\phi}$

[o vestid_ anTIgo]$_{\phi}$ foi vendido ontem
[o vestIdo ÂMbar]$_{\phi}$ foi vendido ontem

s ϕ-prominence
[o vestIdo ÂMbar]$_{\phi}$ foi vendido ontem
s ϕ-prominence
[o dançarIno]$_{\phi}$ [Ama]$_{\phi}$ a bailarina russa
s ϕ-prominence
[o bailarIn_]$_{\phi}$ [ANda SEMpre]$_{\phi}$ de limusine

Frota (2000)

Prosodic phenomena across E. Portuguese dialects

> *e*-deletion blocking if V2 is the head of PWG (not word primary stress of ϕ-prominence)

BEbe Água

s ϕ
s s PWG
s s PW
[BEb_ Água]$_{\phi}$
PWG PWG

Levels of prominence

RFM
Erre Efe Eme Árabe

s ϕ
s s PWG
s s s PW
[Err_-Ef[j]-Em_]$_{PWG}$ [Árabe]$_{PWG}$]$_{\phi}$

Levels of prominence

- So far, only prosodic rules bound by the IP and the PWG in EP, not ϕ

Prosodic phenomena across E. Portuguese dialects

→ Conditions on I formation – size, balance weight, speech rate (Frota 2000; Elordieta, Frota & Vigário 2005)

e.g. long subjects tend to be phrased as an IP; slow rate may promote a ϕ to IP

→ Vowel insertion phenomena:

I-final; correlated with tonal speciafications →IP-internal: continuation rises > strategy of text-tune accommodation (segmental string is extended to cope with tonal realization - Frota 2000, 2002, in press; Frota & Cruz 2012)

Prosodic phenomena across E. Portuguese dialects

- Our questions:
- What is the prosodic domain of each process?
- Only word-level stress matters or higher levels of prominence are also relevant?
- What is the geographical distribution of each process? (a contribution)
- Are the processes equally active in younger and older generations? (a contribution)

Method: materials and data collection

- Data collection in loco, in a silent room
- Several taskes (at least 2h per speaker). Here, only reading task > specific corpora for the North (glide insertion to break a hiatus) and for the South (word-final epenthesis):
- set for the North: 27 sentences (x2 per speaker)
- set for the South: 140 sentences (x1 per speaker)
- Procedure:
- videotaped records in .mov format;
- audio captured by an external microphone;
- audio extraction from the video using *AoA – Audio Extractor Basic* (V. 2.2.8) – output in .wav format with a sample rate of 22050Hz, mono.

Method: materials and data collection

- Speakers:
- female
- 3-6 per area
- 2 age groups: 20-45 years-old and 60+ years-old

Method: materials and data collection

- Glide insertion to break a hiatus: 3 areas (Northern varieties)
  [Urban - U; Rural - R]

  Viana do Castelo — Arcos de Valdevez (U), Castro Laboreiro (R)

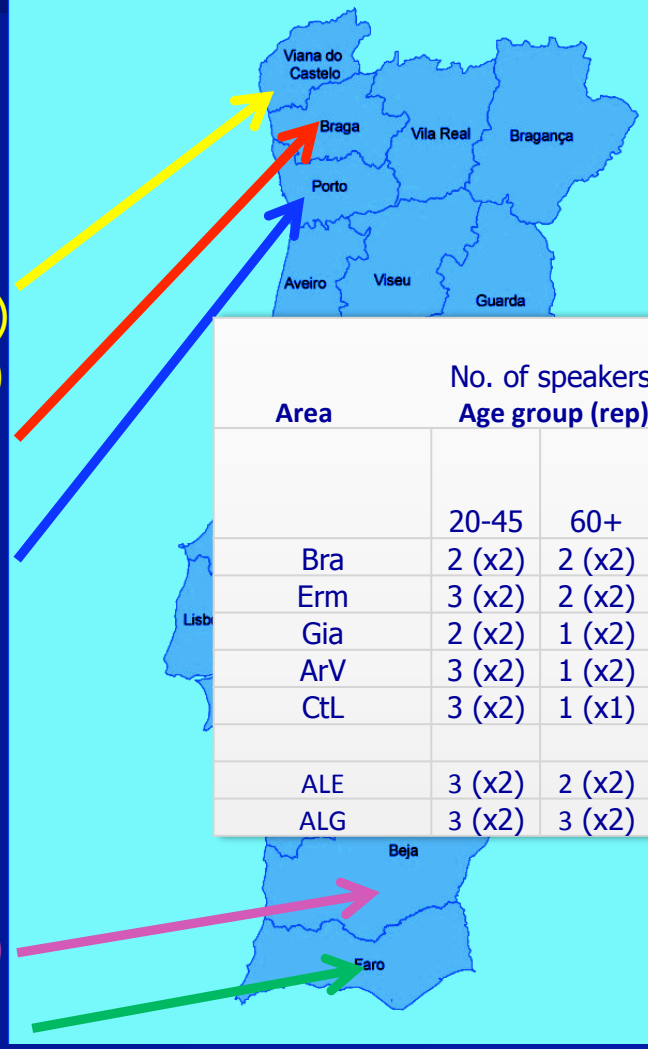
  Braga — Braga (U)

  Porto — Ermesinde (U), Gião (R)

- Word-final vowel epenthesis: 2 areas in the South

  Alentejo — Castro Verde (U)

  Algarve — Albufeira (U)



Area	No. of speakers Age group (rep)	
	20-45	60+
Bra	2 (x2)	2 (x2)
Erm	3 (x2)	2 (x2)
Gia	2 (x2)	1 (x2)
ArV	3 (x2)	1 (x2)
CtL	3 (x2)	1 (x1)
ALE	3 (x2)	2 (x2)
ALG	3 (x2)	3 (x2)

Method: materials and data collection

- Glide insertion to break a hiatus:

the corpus – eliciting data with various levels of V2 prominence and various positions for V1; not aiming exhaustivity; 7 instances of stressless V2 were also introduced (resulting in 252 productions)

V2 Promin V1 at right edge of	V́_PW	V́_PWG	V́_Phi
_____ (PW-internal)	Sim**aá**ri Cura (2|60)	_____	_____
CL	n**a á**-é-gê (AEG) (3|90)	pel**a Á**sia distante (4|120)	d**a á**guia (3|90)
PW	jot**a-á**-é (JAE) (2|60)	---	jot**a-á** (JA) (3|90)
PWG	---	---	montav**a a**sas (2|260)
Phi	---	importav**a a**ves raras (5|120)	---

Total number of sentences collected per area

Bra	Erm	Gia	ArV	CtL
132	198	132	176	154

Method: materials and data collection

- [i]-epenthesis – the same target word in ≠ prosodic positions (35 sentences X 4 prosodic conditions):

- internal position of the PhP ([._.]PhP) >> non-prominent
  [O **café** português]$_{PhP}$ lidera. [*The **coffee** portuguese*]$_{PhP}$ *leads (the market).*

- final position of the PhP ([.._]PhP) >> prominent of PhP
  [Aquele **café**]$_{PhP}$ desperta os sentidos. [*That **coffee***]$_{PhP}$ *awake our senses.*

- final position of the IP ([.._]IP) >> prominent of IP
  [O presidente tomava esse **café**]$_{IP}$. [*The president used to drink that **coffee***]$_{IP}$.

- final position of an internal IP ([.._]IP$_{min}$) >> prominent of IP
  Context: [O café verde é delicioso. Sabes o que tomava o presidente?]
  [Tomava esse **café**,]$_{IPmin}$ o presidente. [*Used to drink that **coffee**,*]$_{IP}$ *the president.*

Results and discussion
- Glide insertion to break a hiatus

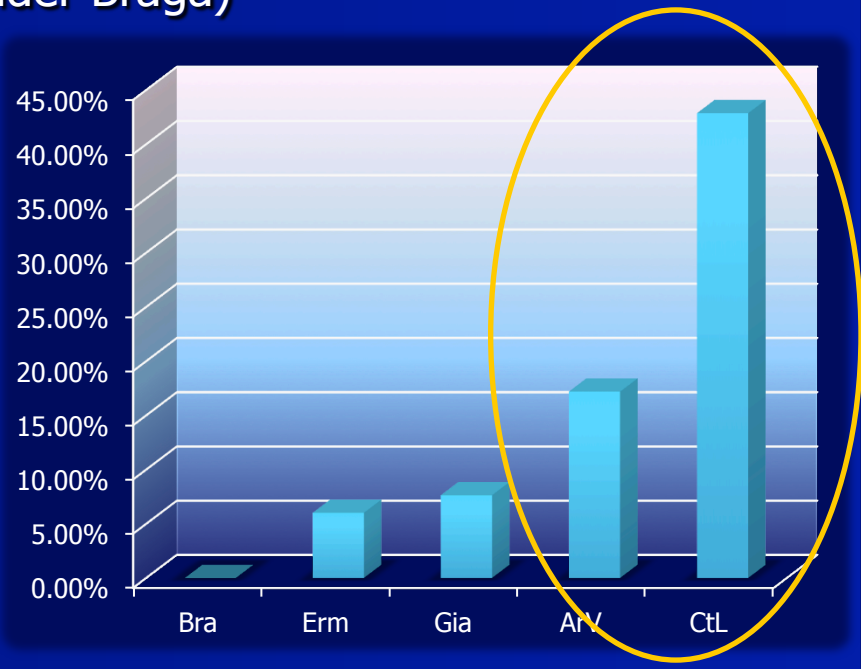
- Geographic distribution

→ [j]-insertion is attested in all areas, to the exception of Braga (U)
(from now on, we will no longer consider Braga)

→ Great variation in the amount of glide insertion:

- Erm (U) and Gia (R) (Porto) very few occurences

- ArV (U) and especially CtL (R) more [j] insertion.



Less or no glide closer to larger urban centers (Braga, Porto); more glide insertion in peripheral smaller village and especially in peripheral rural area

Results and discussion
- Glide insertion to break a hiatus

- The asymmetry in rate of glide insertion goes along with differences in the context where glide occurs.

Three parameters seem to be relevant:

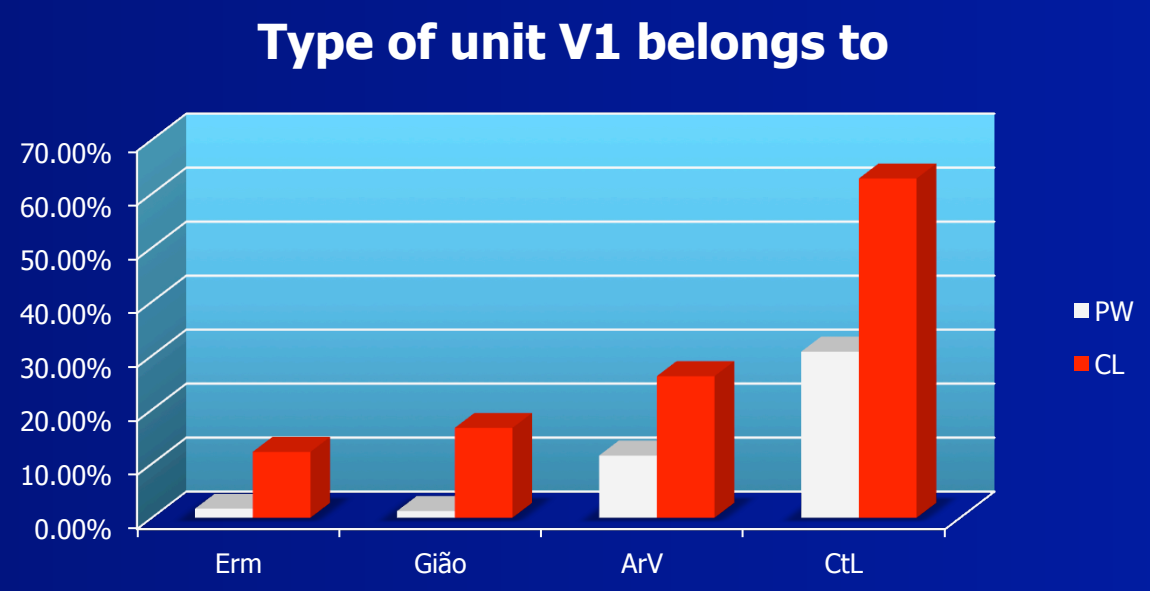
- ✓ Type of unit V1 belongs to – PW or CL
- ✓ Prosodic domain for the rule

  Within IP, within phi, within PWG, within PW
- ✓ Sensitivity to V2-level of prominence

  V2 head of: Phi, PWG, PW

Results and discussion
- Glide insertion to break a hiatus

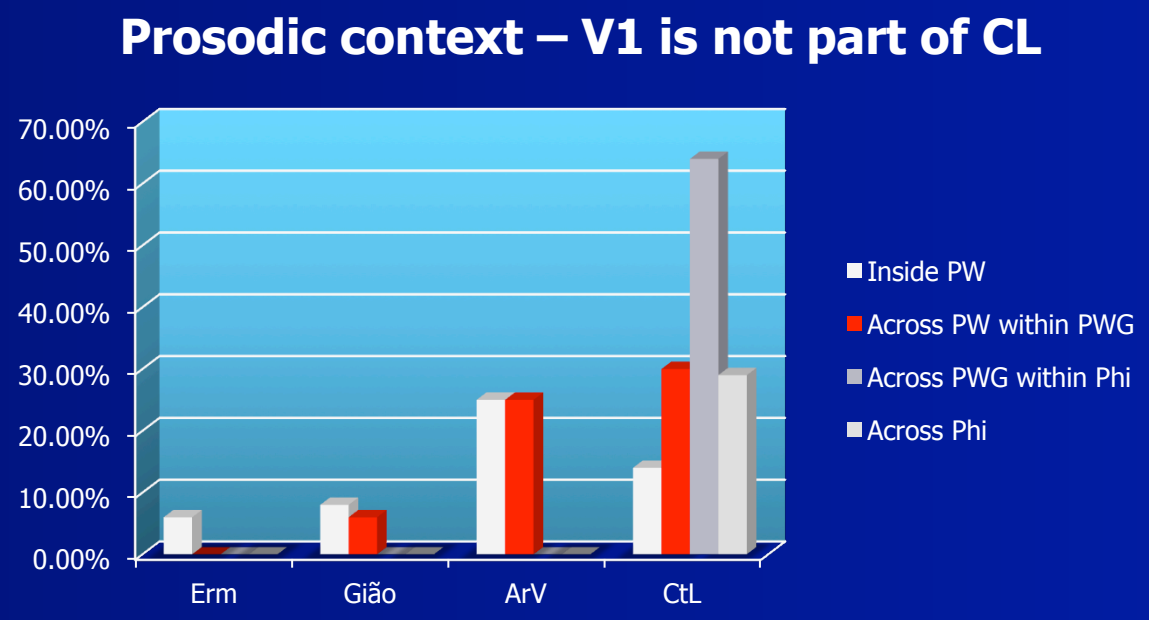
- Type of unit V1 belongs to: PW or CL



→ Erm, Gia> glide insertion only applies when V1 belongs to a CL

Results and discussion
- Glide insertion to break a hiatus

- Prosodic domain – V1 is not part of CL



→ Geographic variation in the domain of glide insertion: CtL – span rule within IP

ArV – span rule within PWG

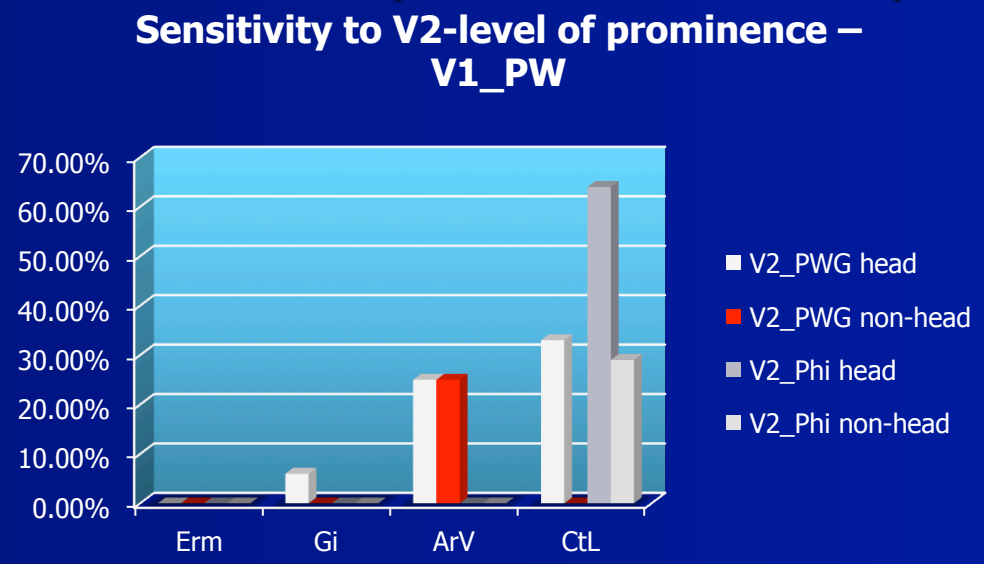
Results and discussion
- Glide insertion to break a hiatus

- Sensitivity to V2-level of prominence
- ✓ All 252 instances of stressless V2 there was no [j]-insertion
- ✓ All instances of glide insertion occurred with stress in V2 > stress matters

BUT
All levels of stress do not trigger glide insertion evenly

Results and discussion
- Glide insertion to break a hiatus

- Sensitivity to V2-level of prominence – V1 part of PW



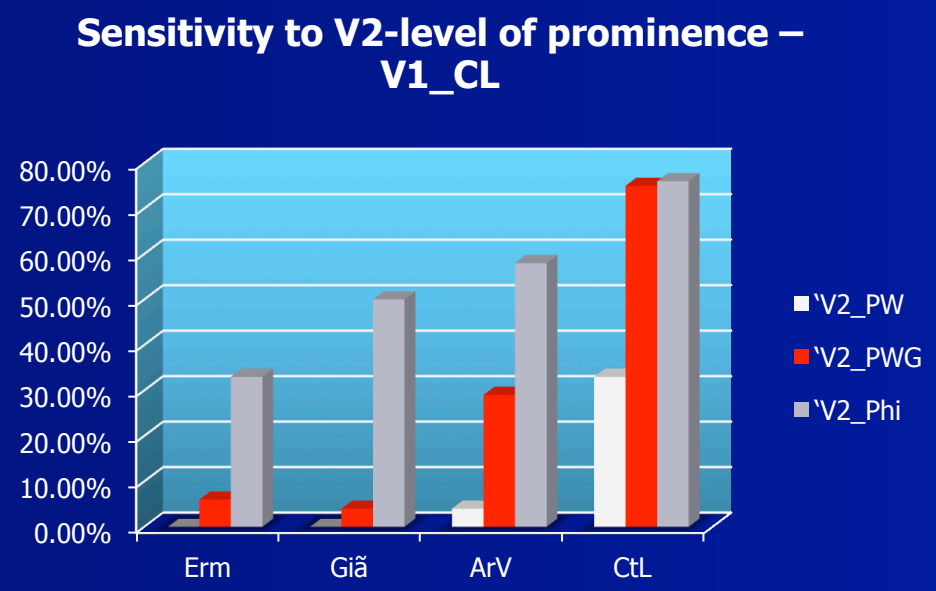
→ Variation in the sensitivity to V2-level of prominence

CtL: effect of domain and level of prominence – lower level>less glide insertion; non-head>less/no glide insertion

ArV: no effect of V2-level of prominence >PW prominence

Results and discussion
- Glide insertion to break a hiatus

- Sensitivity to V2-level of prominence – V1 part of CL



→ All areas show effects of V2 prominence, but not evenly:

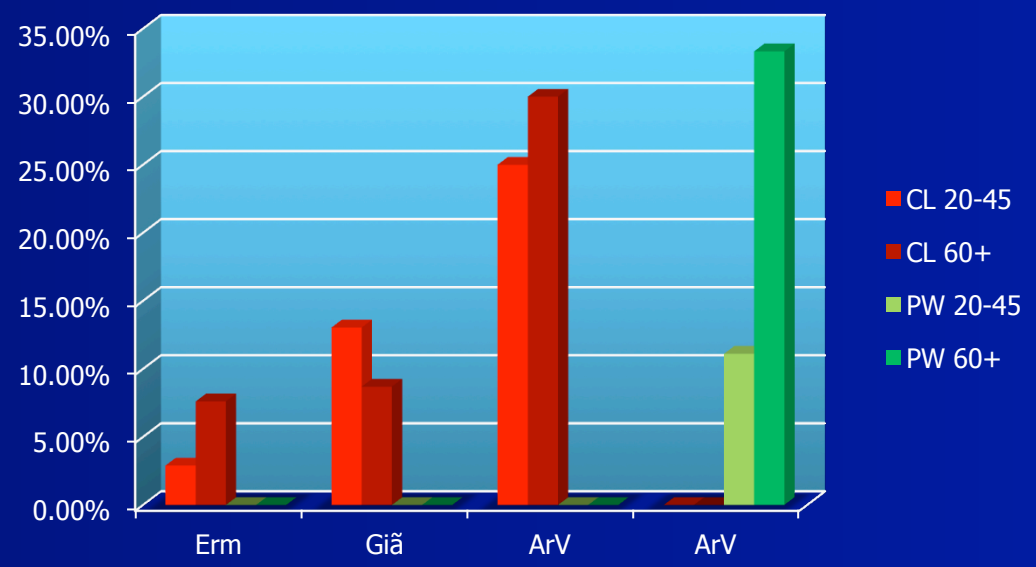
CtL: 'V2_InsidePW < 'V2_PWG, 'V2_Phi

ArV: ~NO 'V2_PW < 'V2_PWG < 'V2_Phi

Giã, Erm: NO 'V2_PW; ~NO 'V2_PWG < 'V2_**Phi**

Results and discussion
- Glide insertion to break a hiatus

- Age effects



→ In most areas and contexts younger subjects insert glide less (not enough data for CtL – only one 60+ speaker, 1rep; ~Giã)

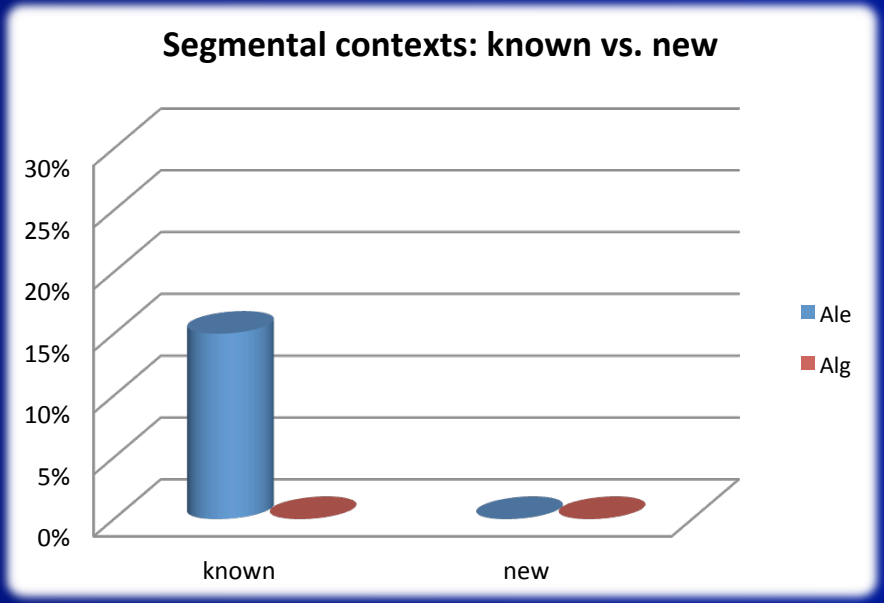
→ Some speakers in the lower-insertion area never inserted [j] > 3 of 5 of the younger group in the Porto area

Results and discussion

Word-final epenthesis (by segmental context)

- Only previously described contexts are attested (added segmental contexts not relevant).
- Paragoge does not occur in Alg

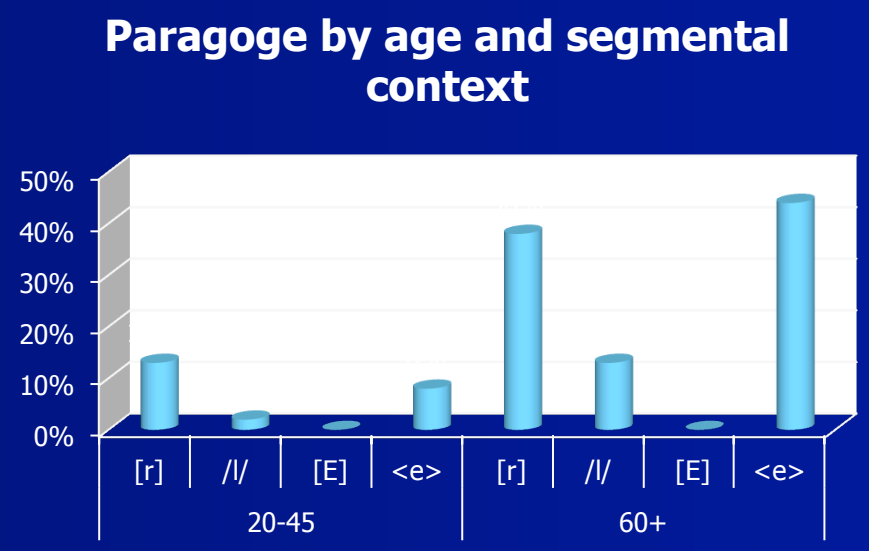
(from now on, we will no longer consider Alg).



Results and discussion

Word-final epenthesis (by segmental context)

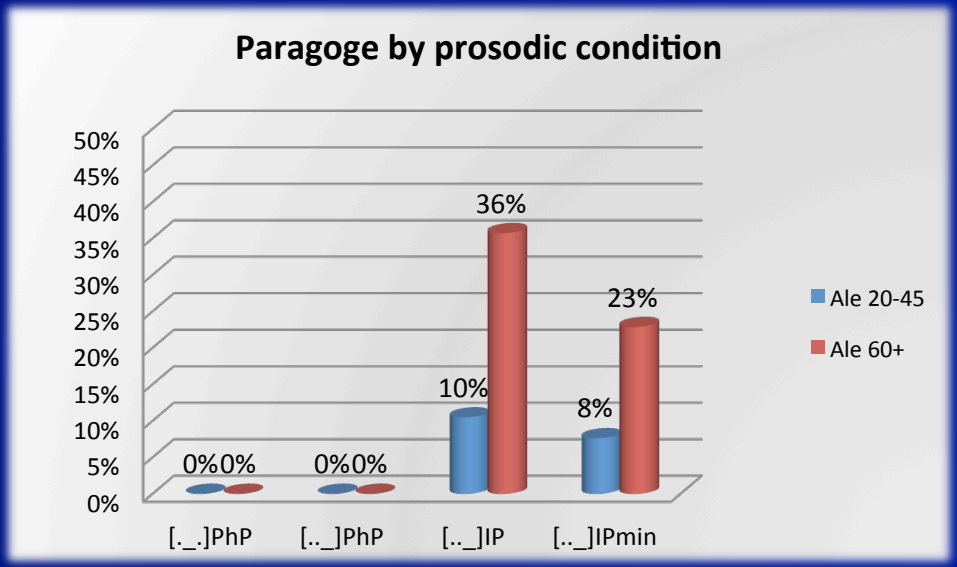
- Older speakers produce + paragogic V.
- Two contexts display more insertion in both groups [r]_ and <e>_
- no insertion after [E], unlike previous reports



Results and discussion

Word-final epenthesis (by prosodic condition)

- IP prominence: relevant for the word-final epenthesis (in both age groups).
- Although not so frequently, paragoge also occurs at the IPmin boundary, which allows to conclude that the IP (and not the U) prominence triggers word-final epenthesis.



Results and discussion

Word-final epenthesis (by prosodic condition)

- Word-final epenthesis also occurs in the Standard variety (SEP), both at IPmin and IPmax heads. However, the phenomenon is not the same.

SEP

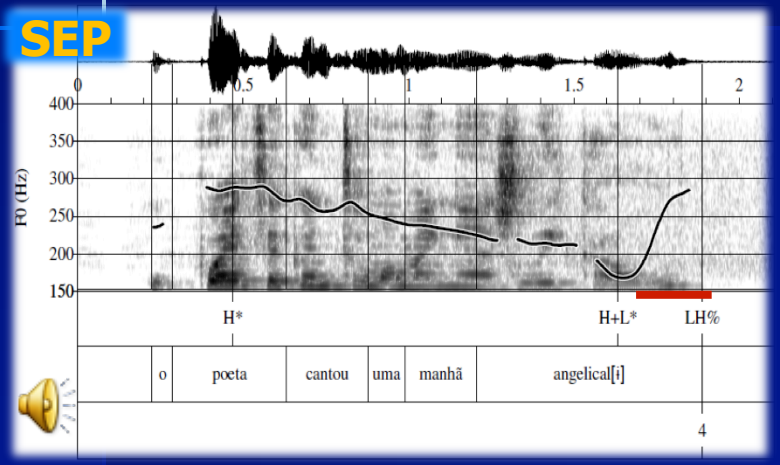
- IP-final position: only in interrogatives and voc. chants
- IPmin: only with continuation rises
- strategy of text-tune accommodation: when the tune is too complex for the text, the segmental string is extended to cope with tonal realization (Frota 2000, 2002, in press; Frota & Cruz 2012)

Ale

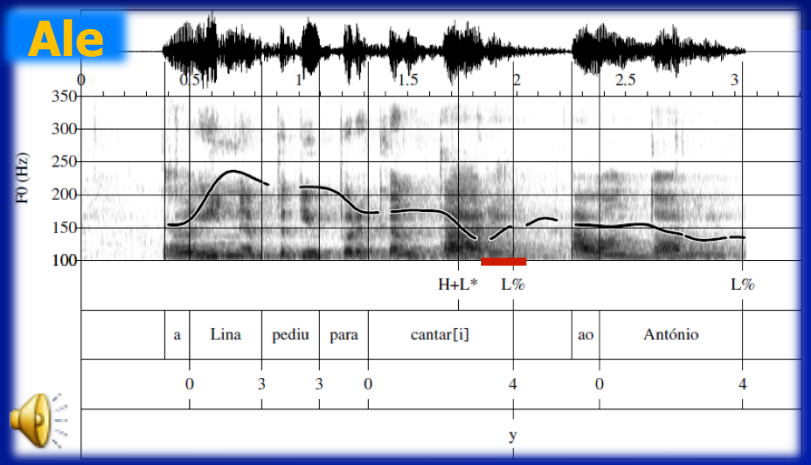
- IP-final position: also in declaratives
- IPmin: also with non-final falling contours
- not a strategy of text-tune accommodation: nuclear contour of declaratives is not complex.

Results and discussion

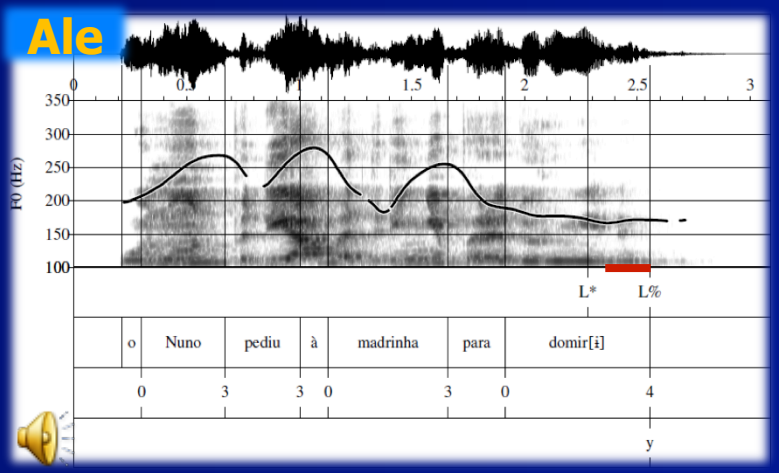
Word-final epenthesis (by prosodic condition)



Neutral yes-no question produced by AG (SEP). Epenthesis as a strategy of text-tune accommodation.



Neutral declarative with a topicalized complement in situ, produced by AC (Ale, 60+). Epenthesis with an IPmin nuclear falling contour.



Neutral declarative, produced by LM (Ale, 20-45). Epenthesis is not a strategy of text-tune accommodation (nuclear pitch accent and boundary tone are both monotonal).

Main Conclusions

Glide insertion to break a hiatus

- Glide insertion was not found in Braga

  In all other areas it is found when V1 belongs to a CL
- In all these areas there is an effect of the level of prominence of V2 with CL: glide insertion appear much more/only when V2 is the head of Phi
- The effect of prominence in other contexts is only confirmed in Castro Laboreiro

Main Conclusions

Glide insertion to break a hiatus

- Castro Laboreiro and ArV are the only areas where glide insertion seems to pattern like an active, fully prosodic process, but there are three main differences:

  - In CtL the domain for the rule is higher than that of ArV (IP vs PWG)

  - In CtL it is sensitive to the level of prominence of V2 (probably) in all contexts, whereas sensitivity to V2-level of prominence in ArV is already restricted to the contexts where V1 belongs to a CL

  - The overall amount of glide insertion is much higher in CtL than in ArV, and the same considering in each context

Main Conclusions

	Domain	PW	PW - Sensitivity V2 Prom	CL	Sensitivity V2 Prom
CtL	IP	✓	(PW<) PWG < Phi	✓	PW < PWG and Ph
ArV	PWG	✓	NO	✓	***PW**; PWG < Phi
Gi	NO	NO		✓	***PW; *PWG**; Phi
Erm	NO	NO		✓	***PW; *PWG**; Phi
Bra	NO	NO		NO	

Results suggest a pattern of rule loss/ change

1 – domain of the rule becomes lower: IP > PWG > no domain/no rule, only CL > no rule

2 – loss of sensitivity to V2-level of prominence (prosodic): sensitivity > non-sensitivity

3 – sensitivity to V2-level of prominence → at higher level (CL)

PW < PWG, Phi → PWG < Phi → Phi

4 – (only) in the area with less glide insertion and less contexts for glide insertion (Porto) some speakers never inserted glide (3/5)

5 – younger subjects tend to less glide than older subjects in all areas and in all contexts

6 – more important cities < urban peripheral < rural peripheral

Main Conclusions
Word-final epenthesis

- Evidence for IP (both prominence and prosodic level)

- it only occurs in Ale (not in Alg, also a Southern variety).
- frequently produced by the older group (retraction)
- IP-prominence (not Utt-prominence) triggers the phenomenon → also occurs at IPmin-head and non-final IP.

Acknowledgements

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PhD project funded by Fundação para a Ciência e a Tecnologia BD/61463/2009.

FCT Fundação para a Ciência e a Tecnologia
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Method: materials and data collection

- Based on previous segmental studies, target words were controlled in terms of:

- stress pattern (almost with final stress, except for the target words ending with the grapheme <e> - penult stress)
- final segmental context ([ɛ], [ɾ], [l], and the final grapheme <e> (<ponte>, *bridge*) that in SEP may be produced as a schwa [ˈpõtɨ], although vowel deletion applies frequently in this specific context – Mateus & d'Andrade 2000, Vigário 2003)
- number of syllables (monosyllables and disyllables)
- morphosyntactic category (verbs - <cantar> (*to sing*) - and nouns - <radar> (*radar*))

- Other segmental contexts were added: (i) low vowels ([ɔ], [a]), and the nasal vowel [ẽ]; (ii) target words with a final morphologic and non-morphologic [ʃ] (<rapaz>, *boy*, and <sofás>, *sofas*, respectively)

Results and discussion

Word-final epenthesis (by prosodic condition)

- Φ-prominent target words (3 cases produced by ≠ speakers) are restructured in IP-domains, and thus considered as IP-prominent >> already shown to be possible in EP (Frota & Vigário 1996; Elordieta et al. 2003; Elordieta, Frota & Vigário 2005; Frota et al. 2007).

  Target: Este príncip**e**]PhP pratica o bem.
  Produced: Este príncip**e**]IP_{min} pratica o bem.

- Although IP_{min} and IP_{max}-heads were not simultaneously controlled in terms of final segmental contexts, there are 2 cases showing that paragogic vowels may occur at both positions at a time.

  Target: O Lucas pediu para le**r**]IP_{min}, ao professo**r**]IP_{max}.