Prosodic structure and prominence constraints on epenthesis: evidence from hiatus resolution across Portuguese varieties

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General background

✓ In many languages adjacent vowels are dispreferred patterns; different means may be employed to avoid hiatus:
- deletion or semivocalization of one of the vowels; vowel coalescence (Casali, 1997, 2011; Frota, 2000; Cabré & Prieto, 2005)
- epenthesis (Lombardi, 2002; De Lacy, 2006; Casali, 2011; Hall, 2011, 2013)

✓ These processes tend to apply within particular prosodic domains and be constrained by stress clash configurations (Nespor & Vogel, 1986; Frota, 2000; Cabré & Prieto, 2005).

✓ Many segmental processes in European Portuguese (EP) apply within specific **prosodic domain**:

– Fricative voicing
– Syllable degemination
– High V semivocalization or deletion
– Vowel coalescence

} IP domain (Frota, 1995, 2000, 2014)

– Word-final *e*-deletion > PW-limit process, within PWG domain (Vigário, 2003, 2010)

✓ Several segmental processes in EP are constrained by **prominence patterns** at different levels of prosodic hierarchy (Frota, 2000; Vigário, 2010):

e.g. vowel deletion blocking due to stress clash at **φ** and PWG-levels:

(o bailarin_)$_{PhP}$ (anda sempre)$_{PhP}$ **PhP non-head** vs (o bailarin[u]/[w])$_{PhP}$ (anda)$_{PhP}$ **PhP head**
((jot_)$_{PW}$ (esse)$_{PW}$ (dê)$_{PW}$)$_{PWG}$ **PWG non-head** vs ((jot[ɐ])$_{PW}$ (esse)$_{PW}$)$_{PWG}$ **PWG head**

✓ Some segmental processes in EP are specific to highly frequent words or combinations of words, often involving clitics (Vigário, 2003: chap7)

e.g. *com a* > [kõɐ], [kɐ]	'with the'	high frequency	vs	som a > [sõa], *[sa]	'the *a* sound'	low frequency
espera > [ʃ]*spera, pera*	'wait'	high frequency	vs	esperança > [ʃ]spera, *perança	'hope'	low frequency

Prosodic variation in European Portuguese

Phrasing

(S)(VO) → Bra, ALE; (SVO) → SEP, ALG
(Frota & Vigário, 2007; Cruz & Frota, 2013; Cruz, 2013)

IP domain – SEP, ALE [z]; ALG [z, ʒ]
(Frota, 2000; Cruz, 2013)

[i] [i] → IP right edge (Cruz, 2013)

Glide insertion to break a hiatus

· Few references to the phenomenon (e.g. <*a aula*> [ɐjˈawlɐ] 'the class')
· Geographic distribution: Northern and Central varieties
· Phonological conditions reported so far (Lopo, 1895; Segura, 2013):
- two adjacent <*a*> ([a, ɐ])
- across words
- V2 must bear word-stress

Main goal

Identify the factors that condition glide insertion in EP and their relative weight.

Research questions

· What is the prosodic domain of [j]-insertion?
. Are higher levels of prominence also relevant?
(i.e. do they block or favour glide insertion?)
· Does the type of word to which V1 belongs matter?
(i.e. is glide insertion restricted to V1 in clitic final position?)
· Are there non-linguistic factors?
> region; age; speech style: read vs (semi-)spontaneous

Method

Speakers & Regions

- 3 northern varieties and 1 central variety included in the project *Interactive Atlas of the Prosody of Portuguese* (see http://www.fl.ul.pt/laboratoriofonetica/InAPoP/)

Arcos de Valdevez	(ArV)	– Urban (U)	Ermesinde	(Erm)	– U
Castro Laboreiro	(CtL)	– Rural (R)	Gião	(Gia)	– R
Braga	(Bra)	– U	Nisa	(Nis)	– R
Fiscal	(Fis)	– R			

- Six female speakers per variety, three 20-45 years-old and three 60+

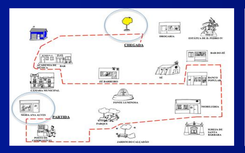
Recorded materials (in loco) – Read sentences; map task; interview

Selected examples:

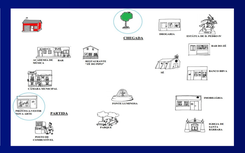
V1 V2 inside of PW	*Nunca tinha ouvido falar da região de (Simaari)$_{PW}$ Cura (…).*
V1 V2 inside of PWG	*Sabes se há algum campeonato onde se joguem os (trinta avos)$_{PWG}$ de final?*
V1 V2 across PhP	*Um amigo meu (importav)$_{PhP}$ (a aves raras)$_{PhP}$ do Brasil.*
V2 PWG head	*A matrícula do meu novo carro é ((jot[ɐ])$_{PW}$ (6)$_{PW}$)$_{PWG}$-18-18.*
V1 belongs to a PW	*Um amigo meu importava$_{PW}$ aves raras do Brasil.*

- Reading task: 24 sentences, produced twice by each speaker (24X2X6X7)
(total of 2016 potential contexts for insertion)

- Map task: 91 potential contexts for insertion obtained



Giver's map



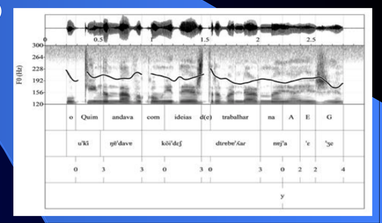
Follower's map

- Interview: 38 potential contexts for insertion obtained

Annotation

- 4 tiers of annotation, using *Praat 5.2.2* (Boersma & Weenink, 2007):

(i) orthographic transcription
(ii) phonetic transcription
(iii) break indexes (P_ToBI – Frota, 2014)
(iv) presence/absence of glide (y/n)



Results

Prosodic context: reading task

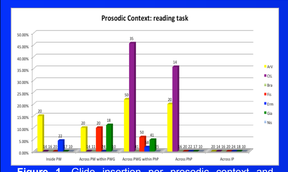


Figure 1. Glide insertion per prosodic context and region – Reading task (V1 belongs to PW).

- IP domain blocks insertion
- Insertion also inside PW
- Lower domains: ArV, Fis, Erm, Gia
- Higher domains: ArV, CtL

Prosodic context and V2 prominence: reading task

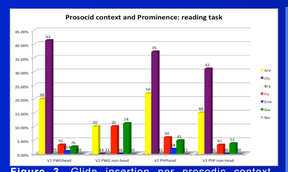


Figure 3. Glide insertion per prosodic context, prominence condition and region – Reading task (V1 belongs to PW).

- ArV and CtL: V2 being the head of PWG and PhP favours glide insertion
- Fis, Erm, and Gia: V2 being the head of PhP (only) favours glide insertion
- In Bra there is no insertion when V1 is part of PW (so any possible effects of V2 prominence cannot emerge)

Prosodic context: (semi-)spontaneous

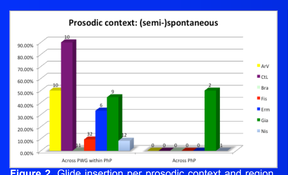


Figure 2. Glide insertion per prosodic context and region – (Semi-)spontaneous tasks (V1 belongs to PW).

- No data for domains lower than PWG
- Insertion mainly across PWG within PhP
- Gia: insertion across PhP, unlike in the reading task

Prosodic context and V2 prominence: (semi-)spontaneous

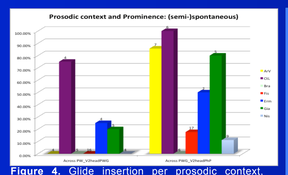


Figure 4. Glide insertion per prosodic context, prominence condition and region – (Semi-)spontaneous tasks (V1 belongs to PW).

- Significantly more insertion than in read speech
- PhP domain: all regions (to the exception of Bra)
- In Nis (the region with the lowest frequency of insertion): insertion only when V2 is the head of PhP
- The highest levels of prominence in V2 favour glide insertion

Phonological status of W1: reading task

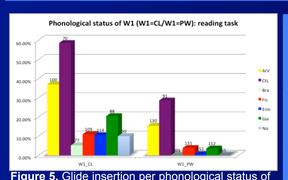


Figure 5. Glide insertion per phonological status of W1 (W1=CL /W1=PW) and region – Reading task.

- All regions: insertion mainly when V1 belongs to CL
- Bra and Nis: insertion only when V1 belongs to CL
- W1_PW: insertion tends to occur only in rural regions

Phonological status of W1: (semi-)spontaneous

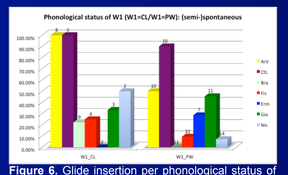


Figure 6. Glide insertion per phonological status of W1 (i.e. V1 belongs to CL or PW) and region – (Semi-)spontaneous tasks.

- Pattern similar to that found in the reading task
- Erm and Gia: higher frequency of insertion when V1 is PW
- ArV and CtL: W1_CL → ≅ 100%

Phonological status of W1: age group

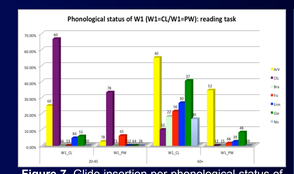


Figure 7. Glide insertion per phonological status of W1 (i.e. V1 belongs to CL or PW), region and age group – Reading task.

- Older speakers insert more than younger ones
- CtL is the exception: methodological limitations (only 1 fluent reader)?

Main conclusions

- Glide insertion: an IP span rule – insertion between words as previously described, but it may also apply within PW (e.g. *Faato*>*Fa*[j]*ato*); it does not apply across IP.
- Insertion is constrained by different prosodic factors (prosodic domain and levels of prominence) + speech style (different tasks) and age.
- PWG and PhP (in some regions): prosodic domains that mostly favour glide insertion to break a hiatus.
- Phonological category of W1 matters (more insertion when V1 belongs to CL): a frequency effect?
- More insertion in older speakers across all regions: a pattern of change or *dialect struggle* within bidialectal communities? → phonological constraints (prosodic domains and levels of prominence) favour epenthesis, while external constraints (i.e. Standard prestige) press towards inhibition of glide insertion.

Selected references

Cabré, T. & P. Prieto. 2005. Positional and metrical prominence effects on vowel sandhi in Catalan. In: Frota, S., M. Vigário & M. J. Freitas. (eds.). *Prosodies*. Mouton de Gruyter: The Hague.
Casali, R. 1997. Vowel elision in hiatus contexts: Which vowel goes?, *Language 73*. 493–533.
Casali, R. 2011. Hiatus resolution. In: van Oostendorp, M., C. Ewen, E. Hume & K. Rice. (eds.). *The Blackwell companion to phonology*. 5 vols. Malden, MA & Oxford: Wiley-Blackwell. pp. 1434–1460.
Cintra, L. 1971. Nova proposta de classificação dos dialectos galego – portugueses, *Boletim de Filologia* 22. Lisboa: Centro de Estudos Filológicos, pp. 81-116.
Cruz, M. 2013. *Prosodic variation in European Portuguese: phrasing, intonation and rhythm in Central-Southern varieties*. Unpublished PhD dissertation. University of Lisbon.
Frota, S. 2000. *Prosody and Focus in European Portuguese. Phonological phrasing and intonation*. New York: Garland Publishing.
Hall, N. 2013. Acoustic differences between lexical and epenthetic vowels in Lebanese Arabic, *Journal of Phonetics 41:2*, pp 133-143.
Hall, N. 2011. Vowel epenthesis. In: van Oostendorp, M., C. Ewen, E. Hume & K. Rice. (eds.). *The Blackwell companion to phonology*. 5 vols. Malden, MA & Oxford: Wiley-Blackwell. pp. 1576–1596.
Lombardi, L. 2002. Coronal epenthesis and markedness. *Phonology*, 19: 219-251.
Nespor, M. & I. Vogel. 2007. *Prosodic Phonology*. Berlin/New York: Mouton de Gruyter (2nd edition).
Segura, L. 2013. Variedades dialectais do Português Europeu. In: Raposo, E., M. B. Nascimento, M. A. Mota, L. Seguro & A. Mendes. (eds.). *Gramática do Português*, vol.1. Fundação Calouste Gulbenkian/Centro de Linguística da Universidade de Lisboa.
Vigário, M. 2003. *The Prosodic Word in European Portuguese*. (Interface Explorations Series 6). Berlin/New York: Mouton de Gruyter.
Vigário, M. 2010. Prosodic structure between the Prosodic Word and Phonological Phrase: recursive nodes or an independent domain?, *The Linguistic Review 27(4)*, pp. 485-530.

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http://www.fl.ul.pt/LaboratorioFonetica/

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