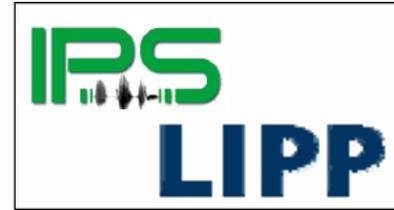




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# Syllable Structure and Language Typology

- Some Acoustic Evidence from European and Brazilian Portuguese



# Structure



- Vowel system in EP and BP
- Vowel deletion / vowel epenthesis in BP
- Goal, Data & Method
- Examples
- First results
- Syllable (distribution)
- Resyllabification
- Conclusion and Outlook

## stressed

['baβɐ]  
['kɐmɐ]  
  
['bɛβi]  
['beβu]  
  
['bibliku]  
  
['pɔðɐ]  
['posu]  
['publiku]

[a]  
[ɐ]  
  
[ɛ]  
[e]  
  
[i]  
  
[ɔ]  
[o]  
[u]

## unstressed

[ɐ]    [bɐβaðu]  
         [kɐmadɐ]  
  
[i]    [bi'βiðɐ]  
         [biβer]  
  
[i]    [bi'bliʃtɐ]  
  
         [pu'ðar]  
[u]    [pu'ðer]  
         [pu'bliku]



## Vowel Neutralisation

Vgl. Mateus & d'Andrade 2000, Vigário 2003, Veloso

2000

stressed

unstressed

['baβa]

[a]

[a]

[baβaðo]

['beβi]

[ε]

[e]

[beβiða]

['beβo]

[e]

[beβer]

['bibliku]

[i]

[i]

[bi'bliʃtɐ]

['pɔðɐ]

[ɔ]

[o]

[po'ðar]

['poso]

[o]

[po'ðer]

['publiko]

[u]

[u]

[pu'bliko]

Vowel Neutralisation

Vgl. Bisol 1999



# Vowel neutralisation



## Post lexical

Mateus & d'Andrade 2000

⇒ no minimal pairs

## Lexical

Vigário 2003

⇒ great number of exceptions

⇒ depends on morphological information

⇒ occurs with vowel deletion

⇒ before resyllabification

*lider* [ɛ]

*lideranca* [ɨ]

*lider adorado* [ɛ]

1. Diphthongs cf. Mateus & d'Andrade 2000, Vigário 2003  
*aurícula* [a]
2. Vowels of historical CVV  
*corado* [ɔ]
3. Nasal vowels (N in Coda)  
*campina* [ã]
4. Syllables with [ɾ] in coda  
*delgado* [ɛ]
5. Classical loan words [ɛ]  
recepção (not in captar, realised as /ɐ/)

„VR seems to apply *without true exceptions* only in post-tonic position“ (Vigário 2003:71)

(Cunha, in progress)

- ⇒ Just in open syllable ((C...)CV)
- ⇒ not CVV and CVC-Syllable (diachronically defined)

Ausnahme:

- -r in pretonic position *per*di*do*
- /s/ in coda *test*ar**

## Example

	<i>EP</i>	<i>BP</i>	<i>Syllable</i>
<i>cap<i>ta</i>r</i>	<i>/ɛpit/</i>	<i>/apit/</i>	<i>ca.ptar</i>
<i>factu<i>ra</i></i>	<i>/a(k)t/</i>	<i>/at/</i>	<i>fak.tu.ra</i>





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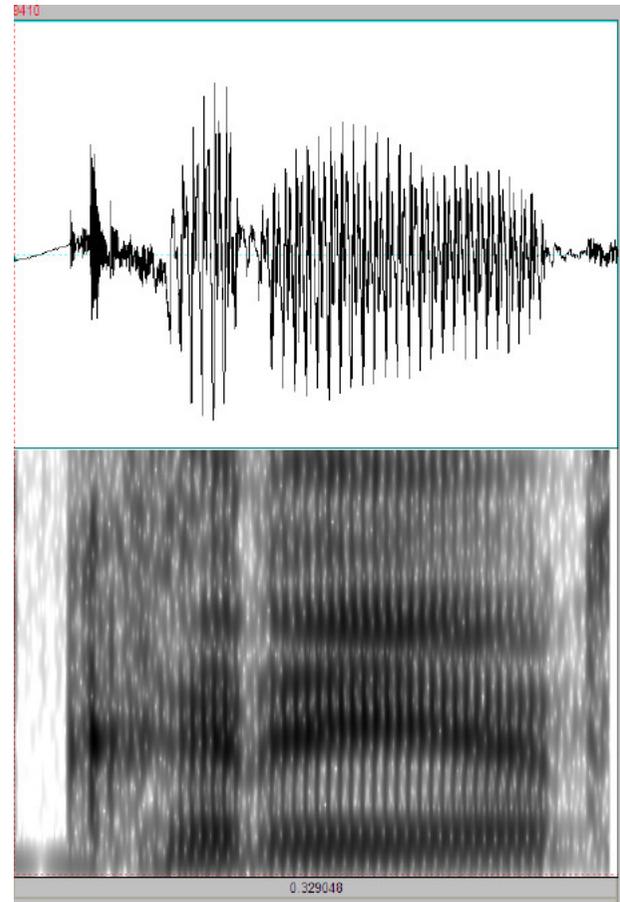
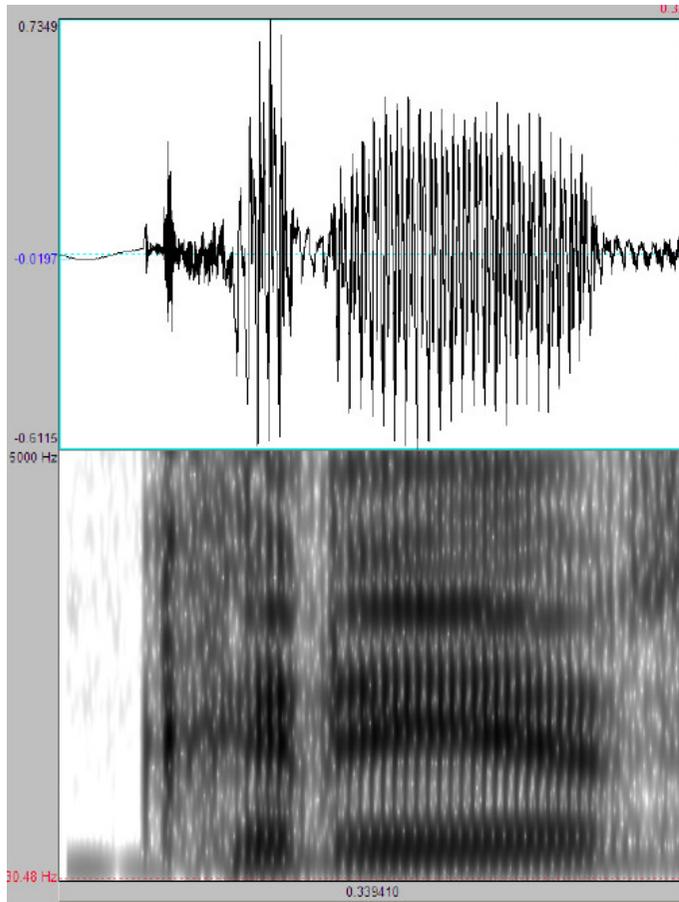
# lexical – postlex.

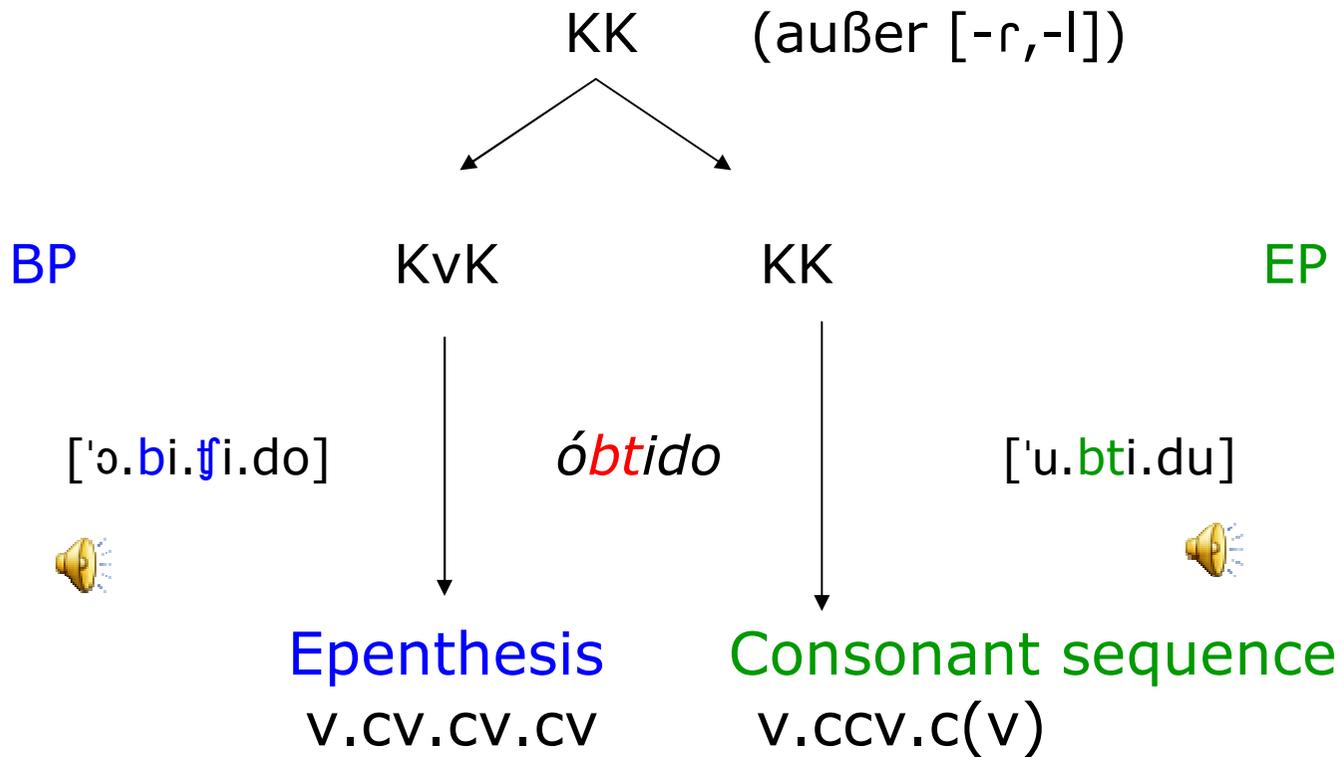


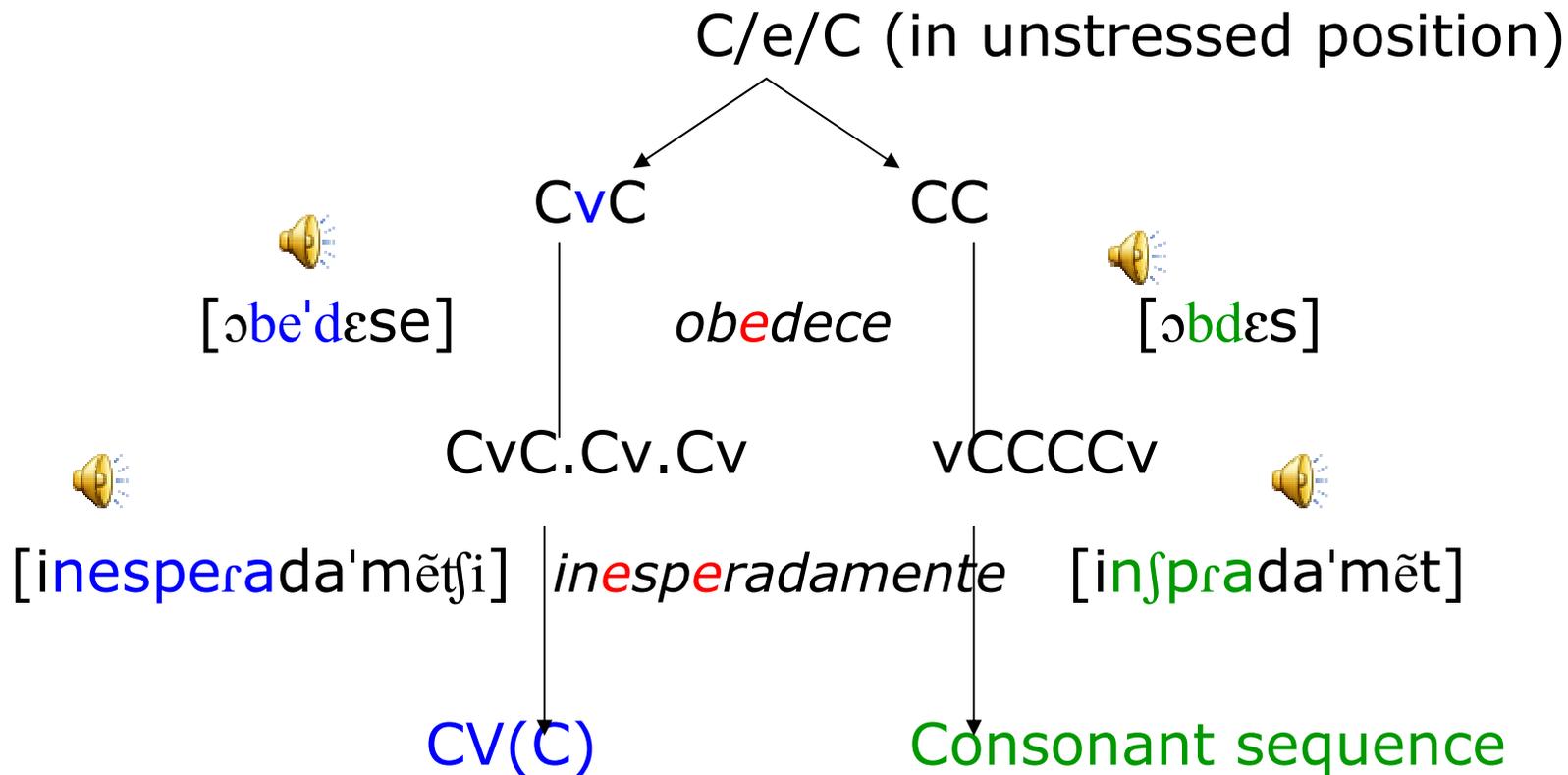
crer 'believe'

[krer]

querer 'want'







(cf. Mateus & Martins, 1996, 2000, Mateus et al 2005, Bisol 1999)



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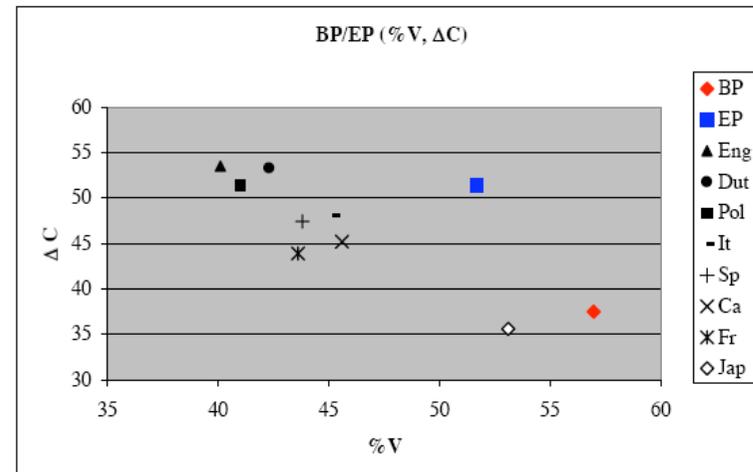
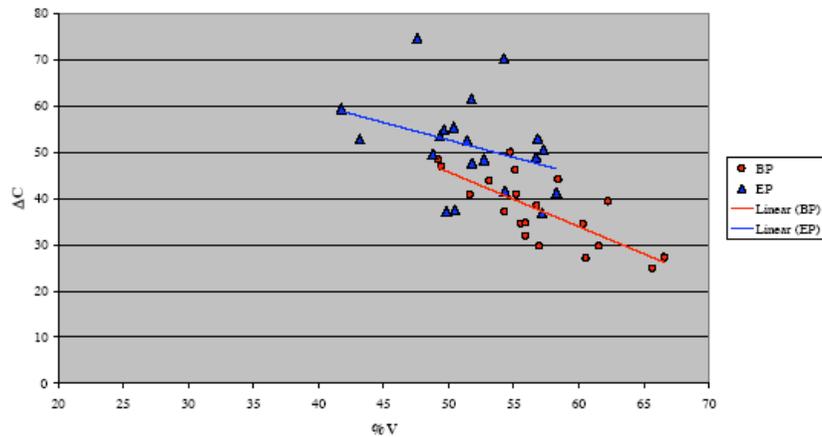
# Goal



Influence of vowel deletion and vowel epenthesis to the classification of Portuguese in the Word and Syllable Typology?

## Previous work

Frota & Vigário, 1999:9,10



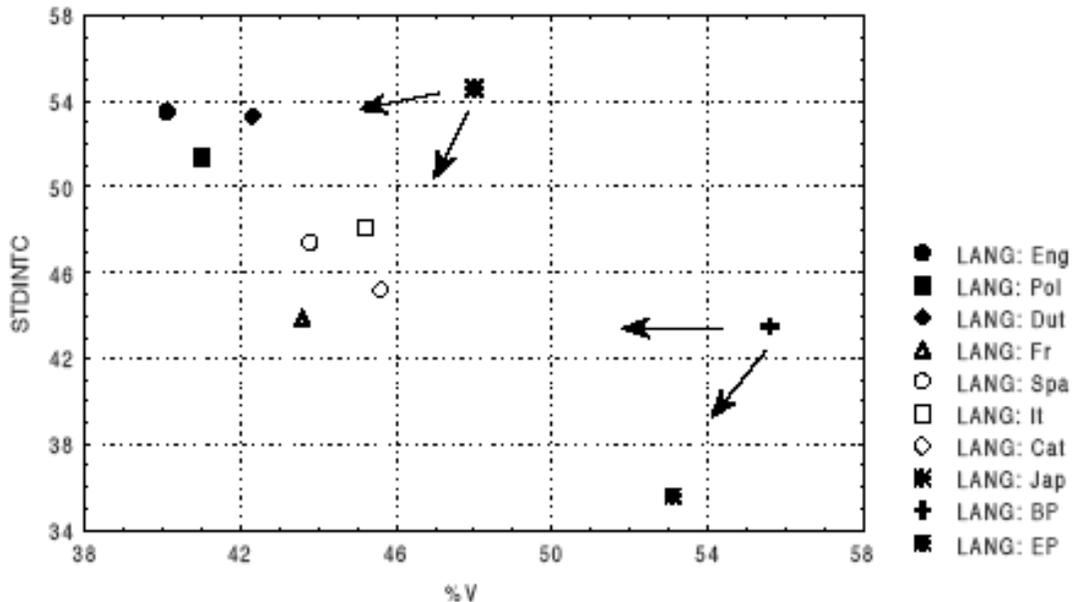


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# Previous work



Frota & Vigário 2001



BP Syllable Language

EP Syllable Language (phonological syllable structure and L1 Acquisition,

cf. Frota & Vigário (1999, 2001, 2002)



# Data & Method



## Data

- ⇒ 8 sentences with 2 repetitions
- ⇒ 5 speakers of each variety (EP Porto, BP São Paulo)
- ⇒ 2 speech rates
- ⇒ Speakers has been intructed to prepare the sentences before reading

## Method

- ⇒ Acoustic recordings with *Speechrecorder*
- ⇒ Annotation in *Praat*
- ⇒ Imported into *EMU*
- ⇒ Counting in *R (EMU-R)*



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# BP *lento*



BPI



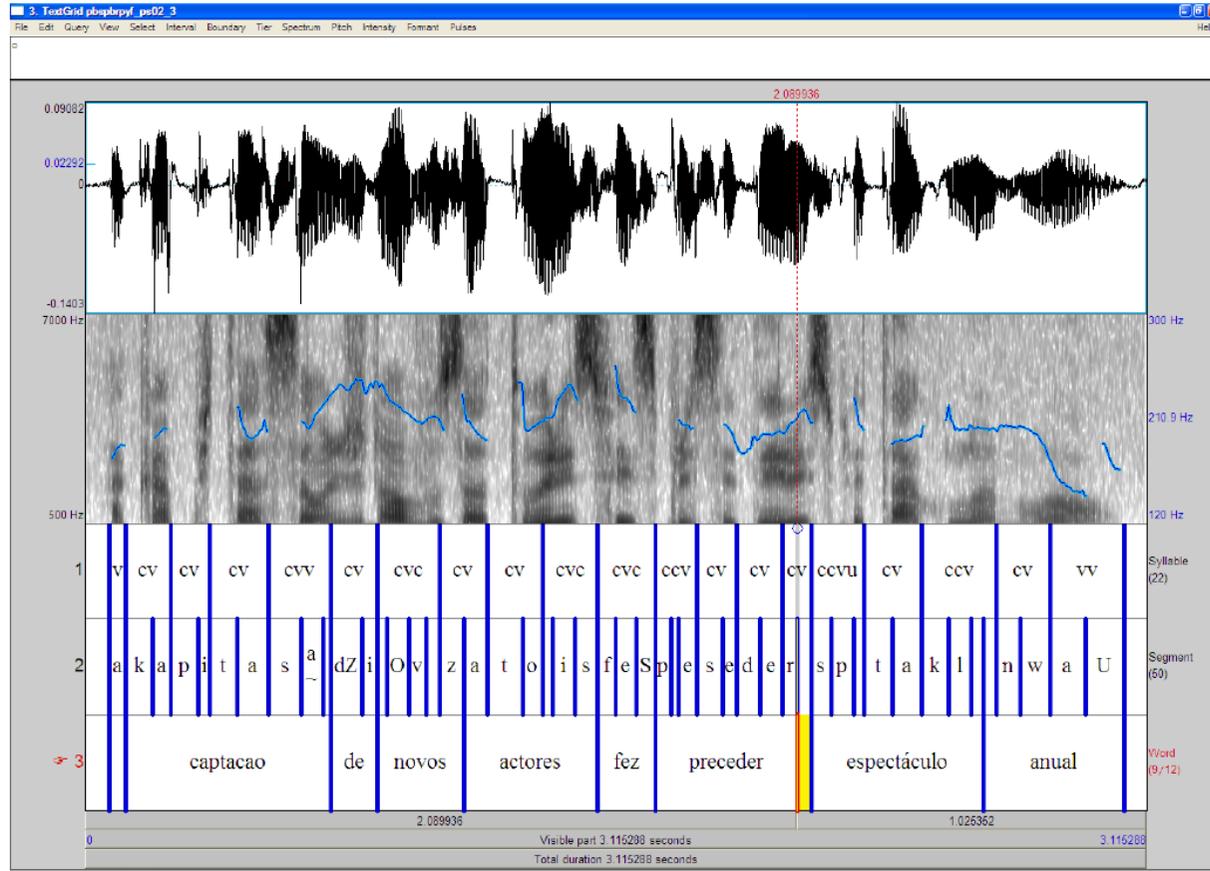
BPa



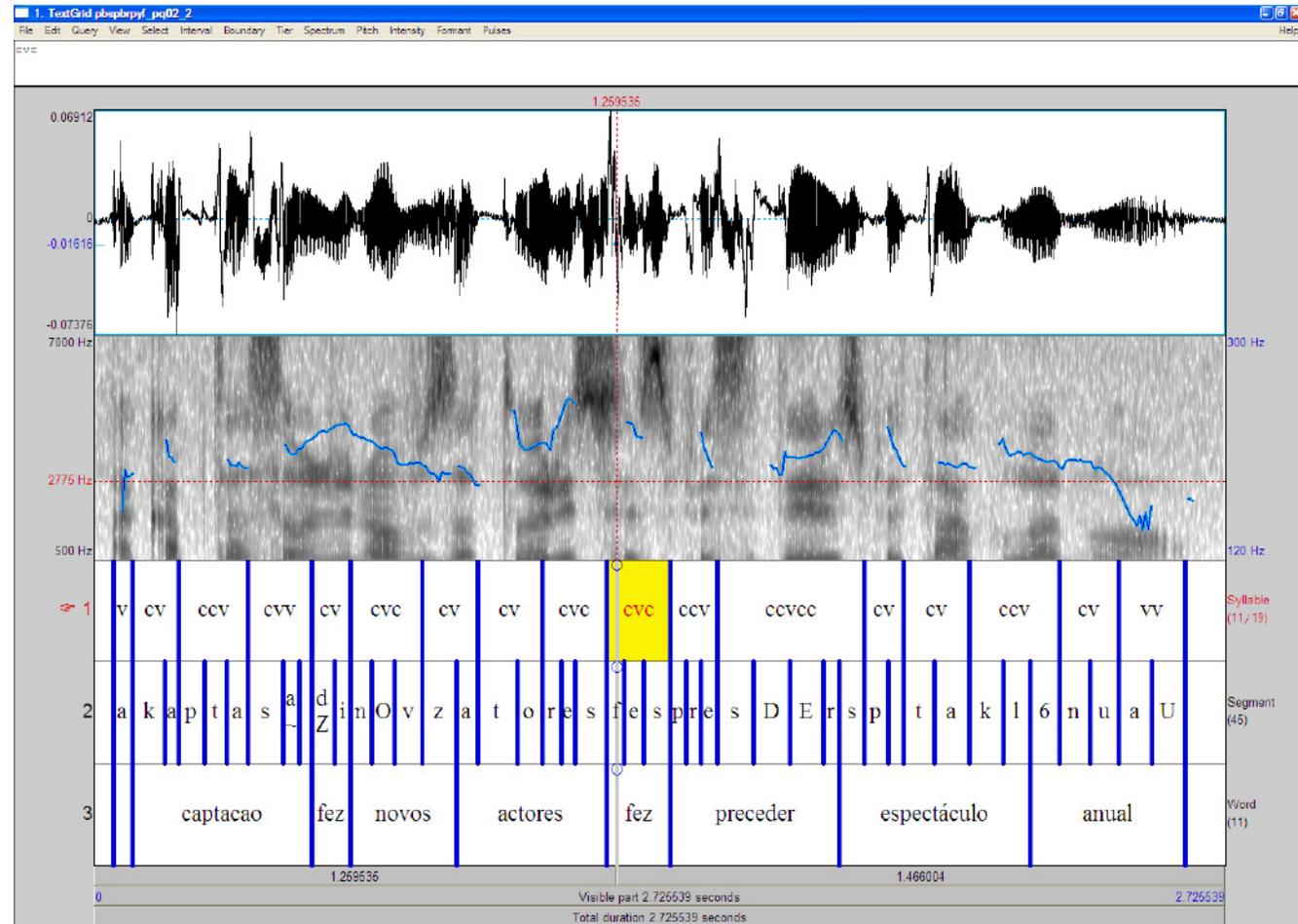
EPI



EPa



*“The captation of new actors moved the annual show forward”*

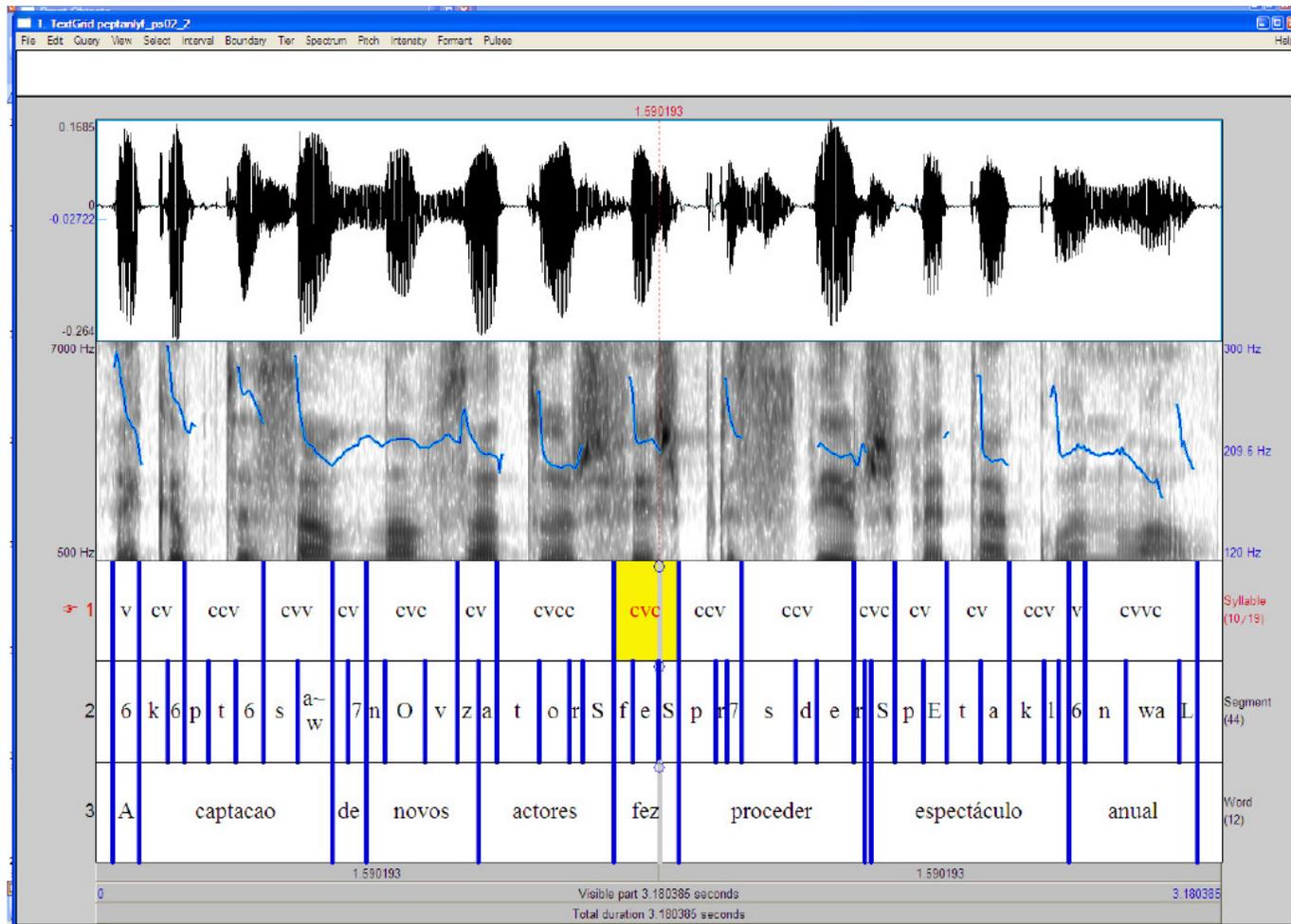


*“The captation of new actors moved the annual show forward”*



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# EP *lento*

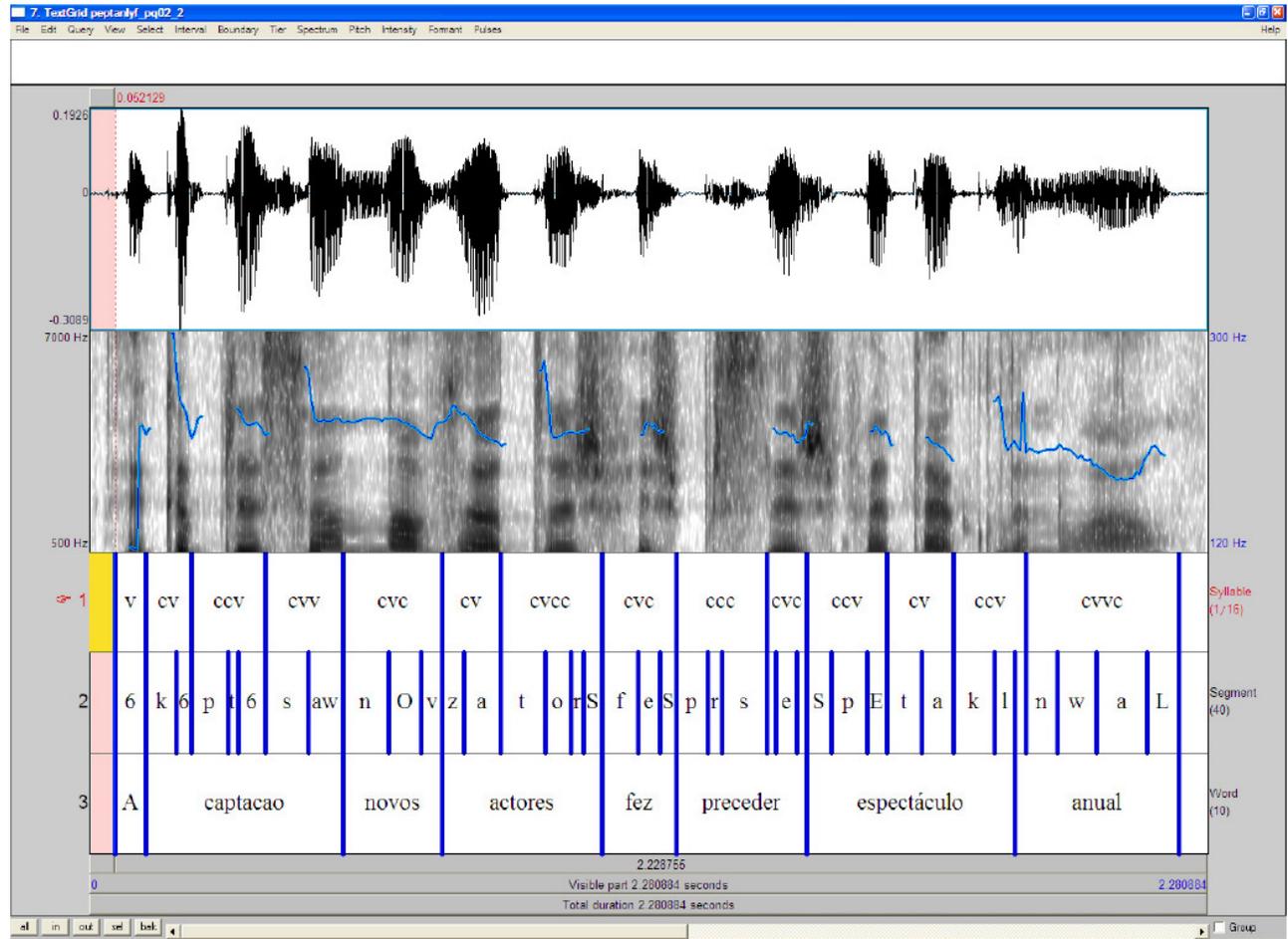


*“The captation of new actors moved the annual show forward”*



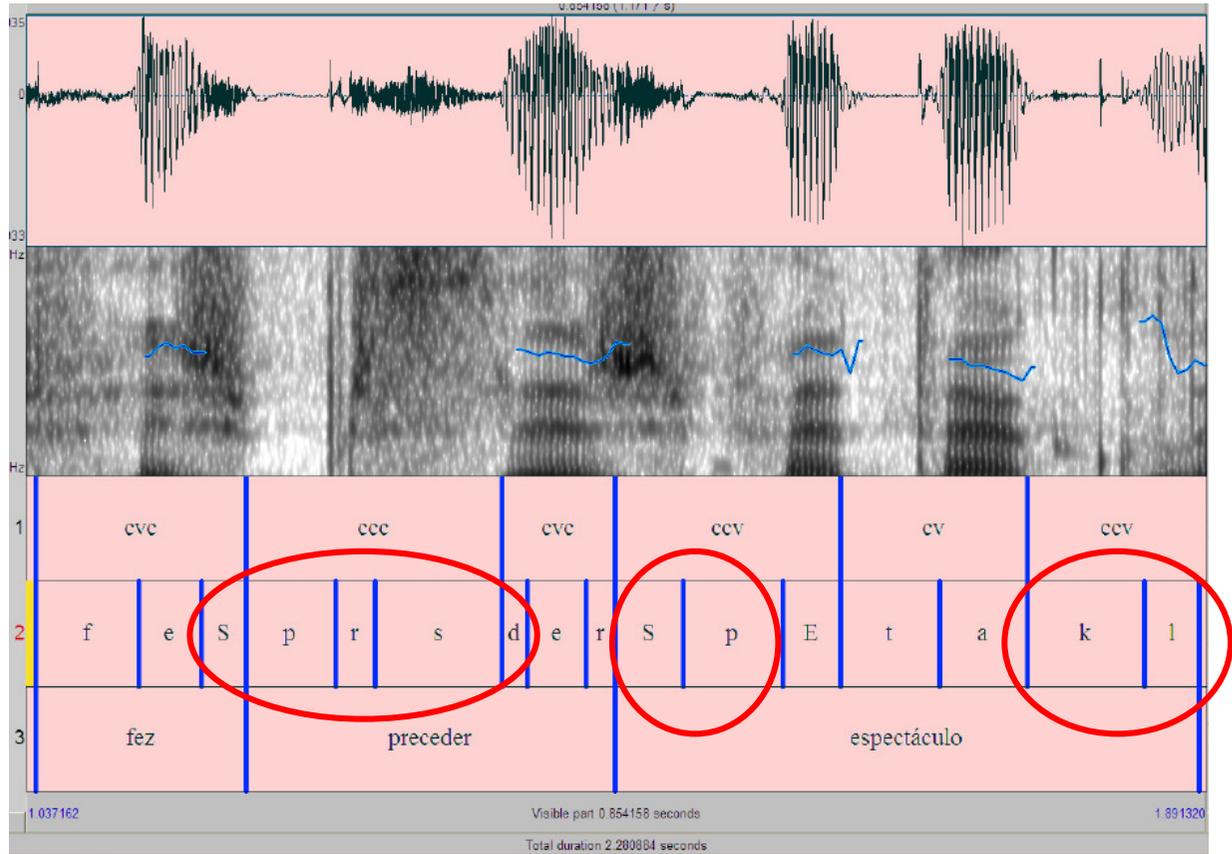
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# EP *allegro*



*“The captation of new actors moved the annual show forward”*

# Small cut



*...fez preceder o espectáculo*

*“moved the show forward”*



# First results



Ramus et al 1999, Grabe&Low 2002

**percent\_v** estimates the percentage of vocalic parts

	EP	BP
<i>allegro</i>	34.5	41.2
<i>lento</i>	37.8	48.1

**delta\_v** simply gives us the standard deviation (in ms) of all summed up vowel cluster durations

	EP	BP
<i>allegro</i>	25	29
<i>lento</i>	41	52



# First results



**delta\_c** simply gives us the standard deviation (in ms)  
of all summed up consonant cluster durations

	EP	BP
<i>allegro</i>	59	84
<i>lento</i>	61	47

## standard deviation

of Delta V

⇒ higher in BP than in EP

- unstressed vowels rather deleted than shortened

of Delta C

⇒ higher in BP allegro



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# Syllable



EP

BP

Total: 2348 syllables

	allegro	lento	allegro	lento
CV	221	264	356	423
CCV	102	89	76	58
CCCV	10	4	-	-
CC (-r)	12	10	-	-
CVCC	8	12	-	-

komplex syllables

[tlf]	telefone, telefonar, telefonema	
[mrs]	merecer	
[fvr]	fevereiro	
[vzt]	vegetariano	
[bðs]	obedece, obedecer, obedecido	
[dpnk]	depenicar	
[dʃpg]	despegar	
[dʃprʃ]	desprestígio, desprestigiar	
[dʃprvn]	desprevenir	
[prʃkrv]	prescrever	
[prsβt]	percebeste	
[ʃprmd]	espremedor	



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# Resyllabification



in BP and EP (if v)

BPI



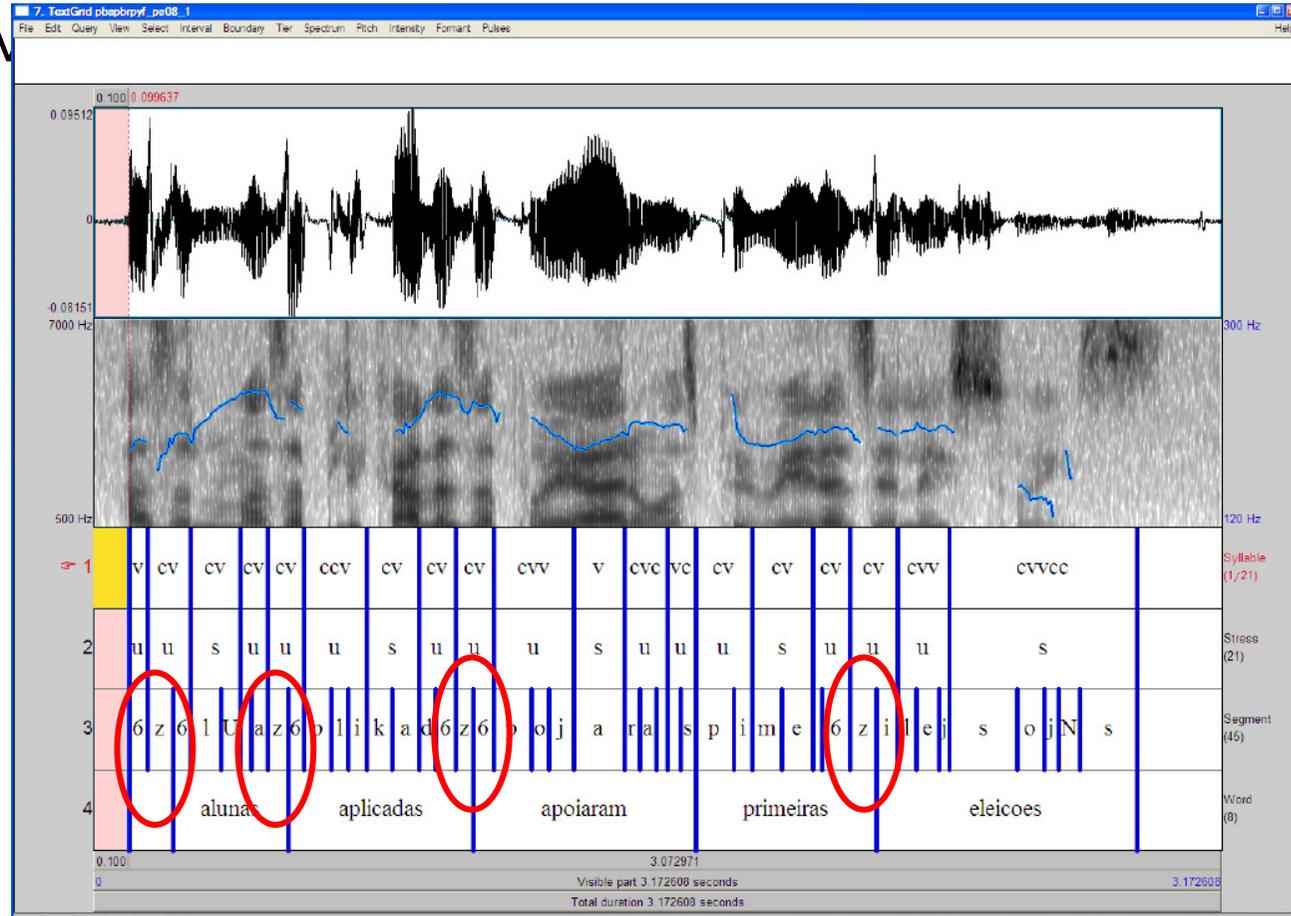
BPa



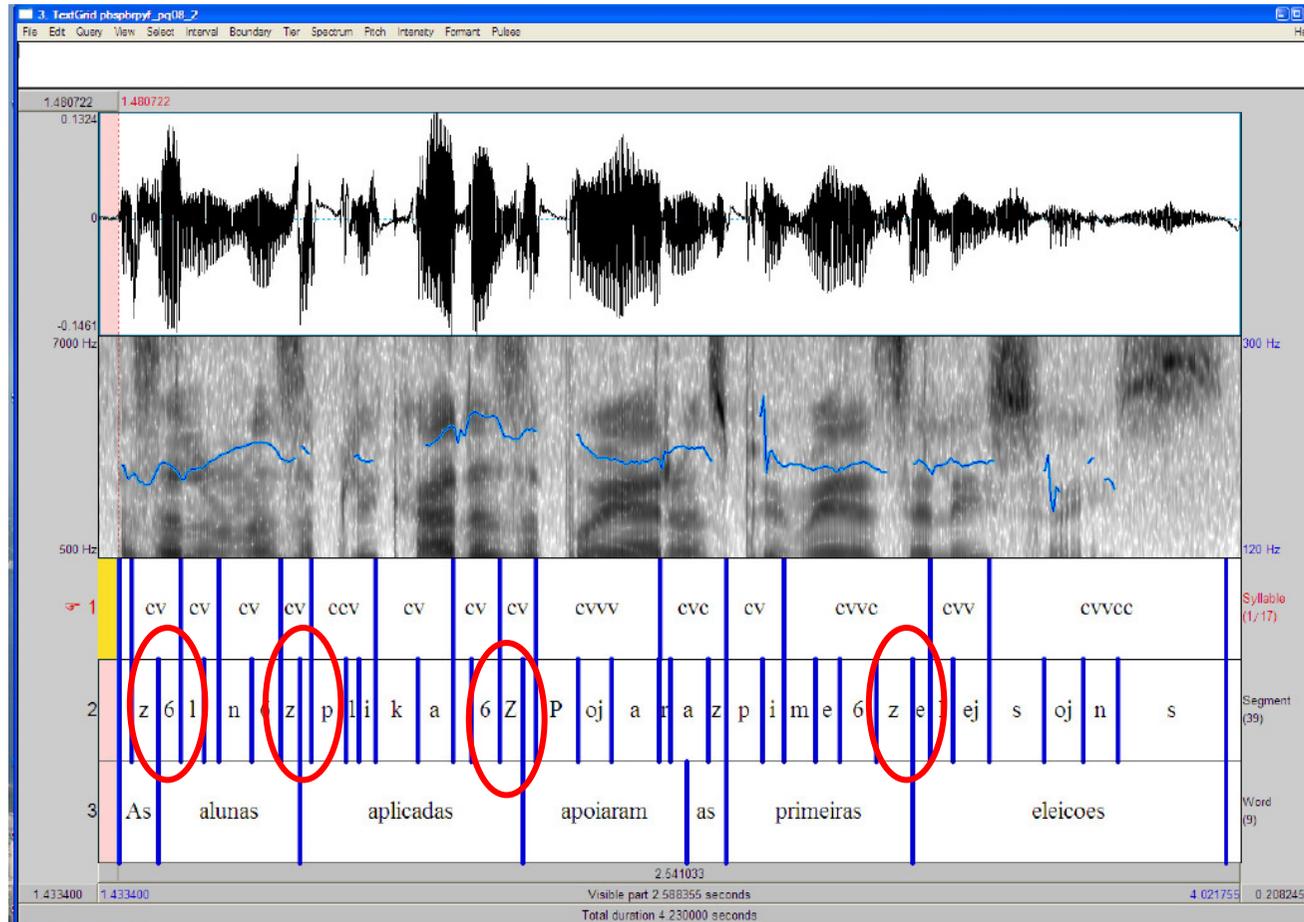
EPI



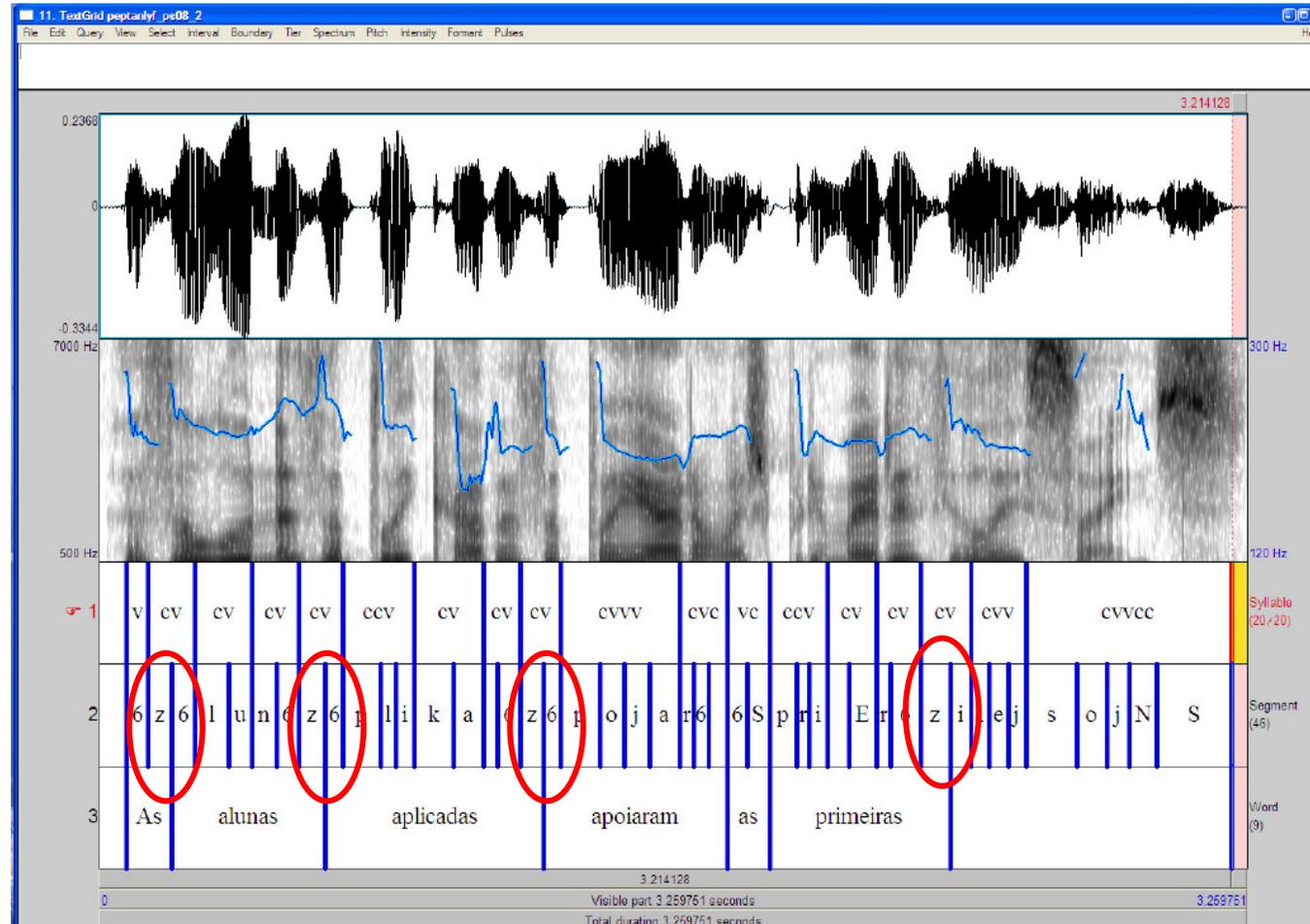
EPa



*The committed schoolgirls support the first elections“*



*“The committed schoolgirls support the first elections”*

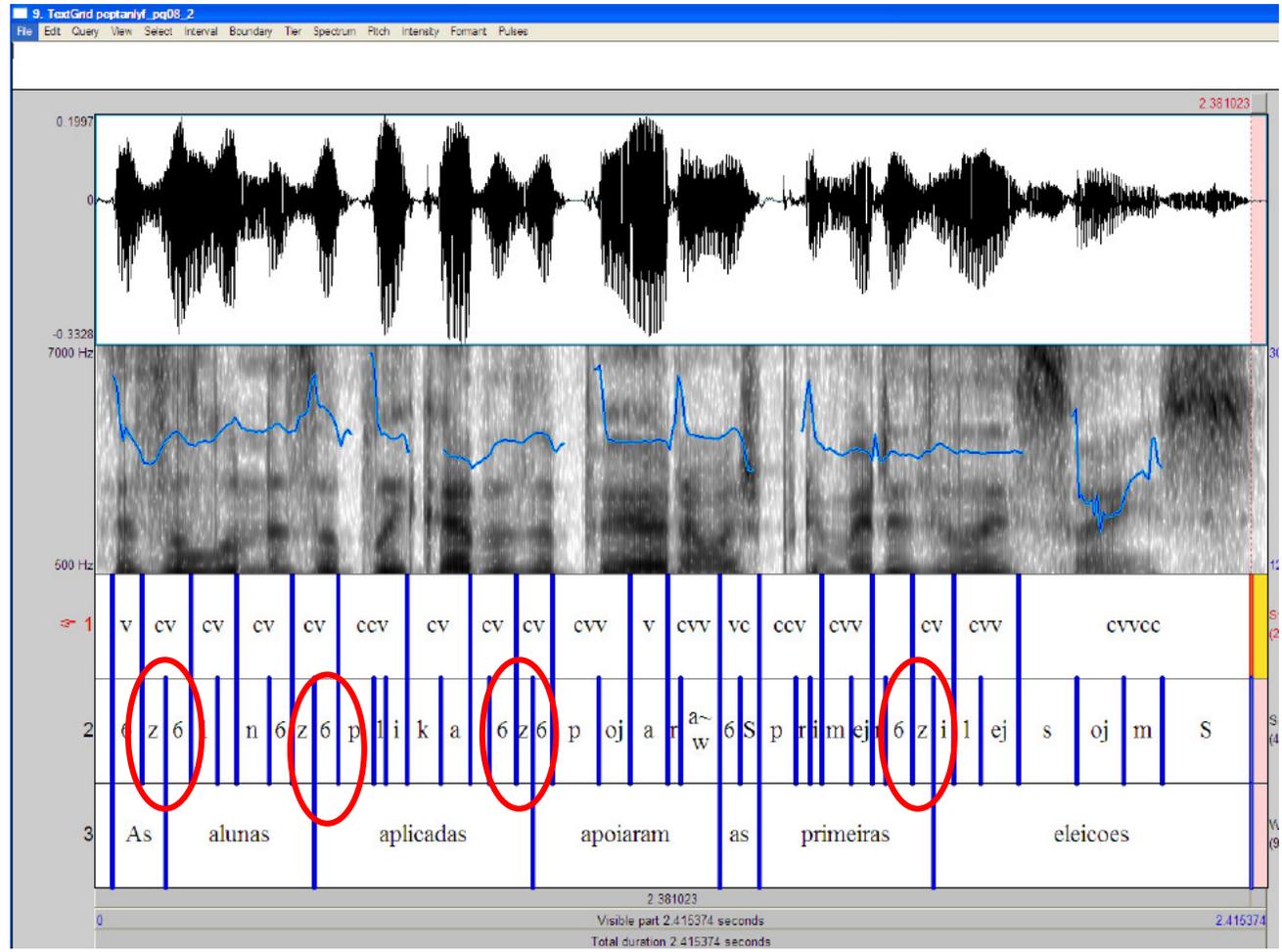


*The committed schoolgirls support the first elections“*



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# EP *allegro*



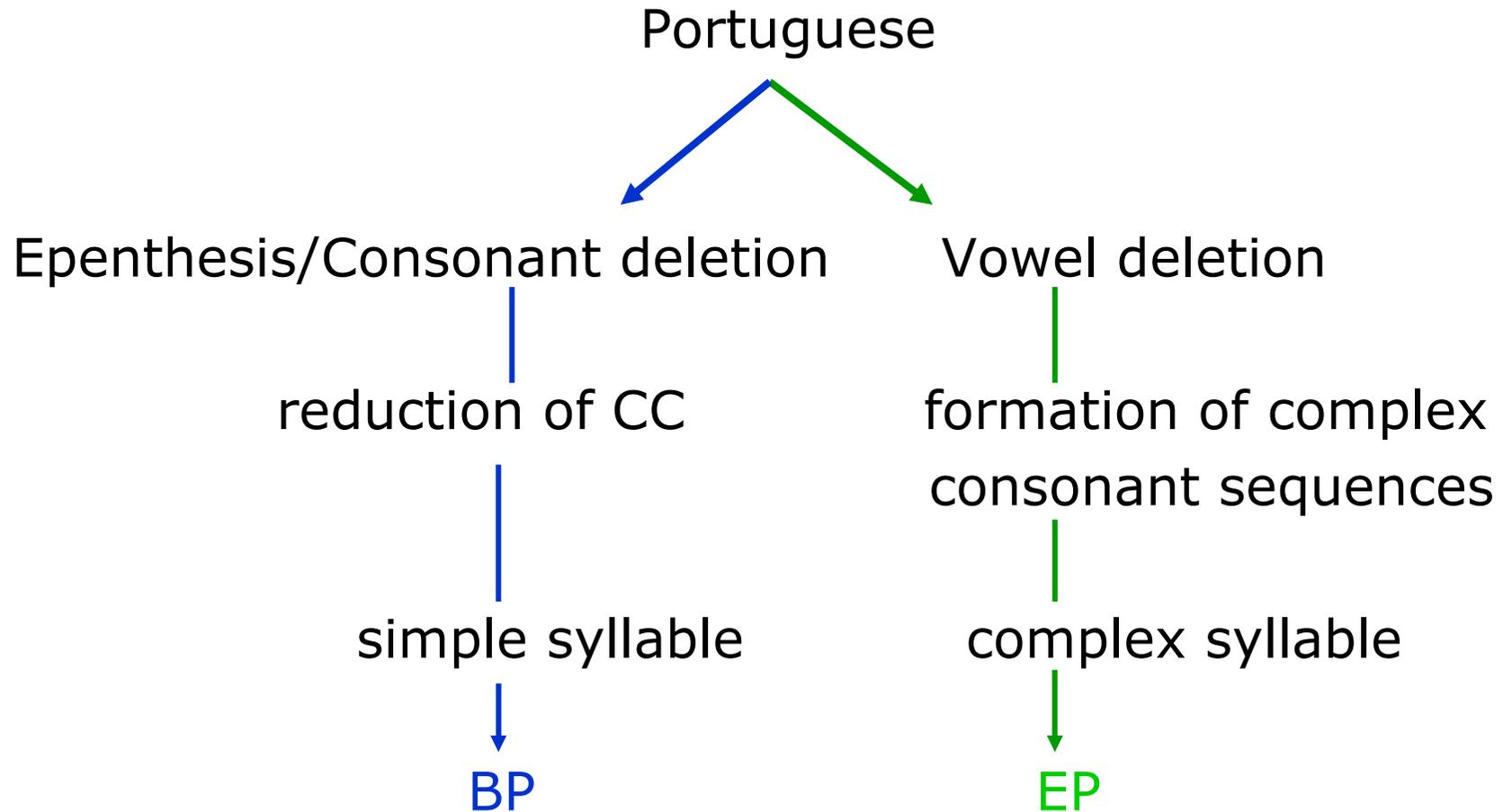
*“The committed schoolgirls support the first elections”*



## Conclusion (1)



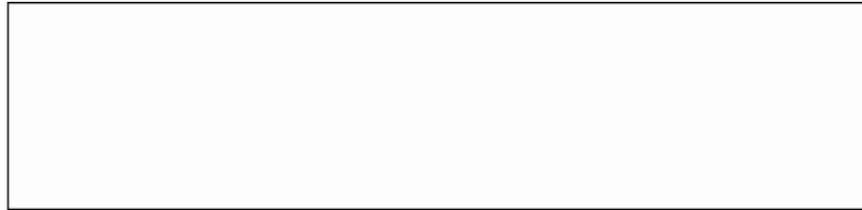
- ⇒ There is a lot of variation but the differences between EP and BP seem to be more pregnant than between speech rates in one variant
- ⇒ Vowel system in EP is neutralised in unstressed position
- ⇒ Vowel deletion is more frequent in *allegro* but occurs also in *lento*.







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# Thank you!