

To /b/ or not to /b/:

On the Production of the Graphemes <bv> in Heritage Spanish

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The Goal of this Study

- The present study seeks to quantitatively investigate acoustic differences between productions of the graphemes and <v> in Heritage Spanish.

 and <v> in Standard Spanish



Penny (2002)

 and <v> in Bilingual Spanish

- Studies using impressionistic and visual data report the presence of [v] in Spanish-English bilingual speech (see Philips, 1972-73; Timm, 1976; Torres Cacoullos & Ferreira, 2000).
- Categorical classifications of /b/ based on spectrograms revealed significant acoustic differences between and <v> for heritage (Rao, 2014-2015) and L2 speakers (Face & Menke, 2009).

Motive and Research Questions

Motive: The need for a quantitative acoustic measure that could be used to more efficiently and objectively investigate the graphemic distinction in future studies

Research questions:

- Does grapheme have a significant effect on...
 - the **intensity difference** between /b/ and the following vowel?
 - the **duration** of /b/?
 - the **center of gravity (COG)** of /b/?
 - the **band energy** of /b/ at different frequencies?
- How do heritage productions of <bv> differ from native productions?

Methodology & Codification

Participants:

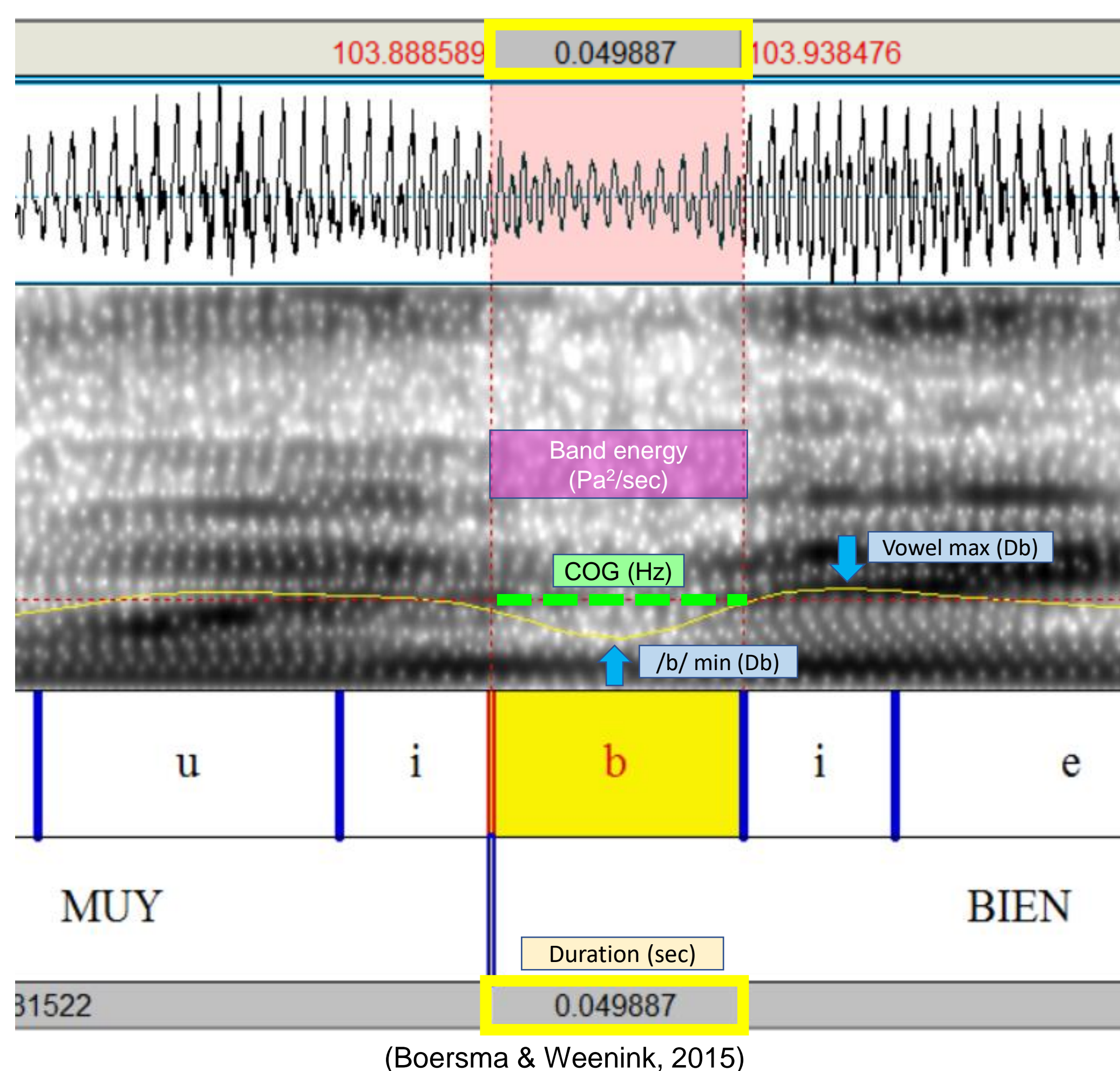
- 4 heritage speakers (2 males, 2 females)
- 4 immigrant speakers (4 males)
- Central Mexican heritage/origin

Task:

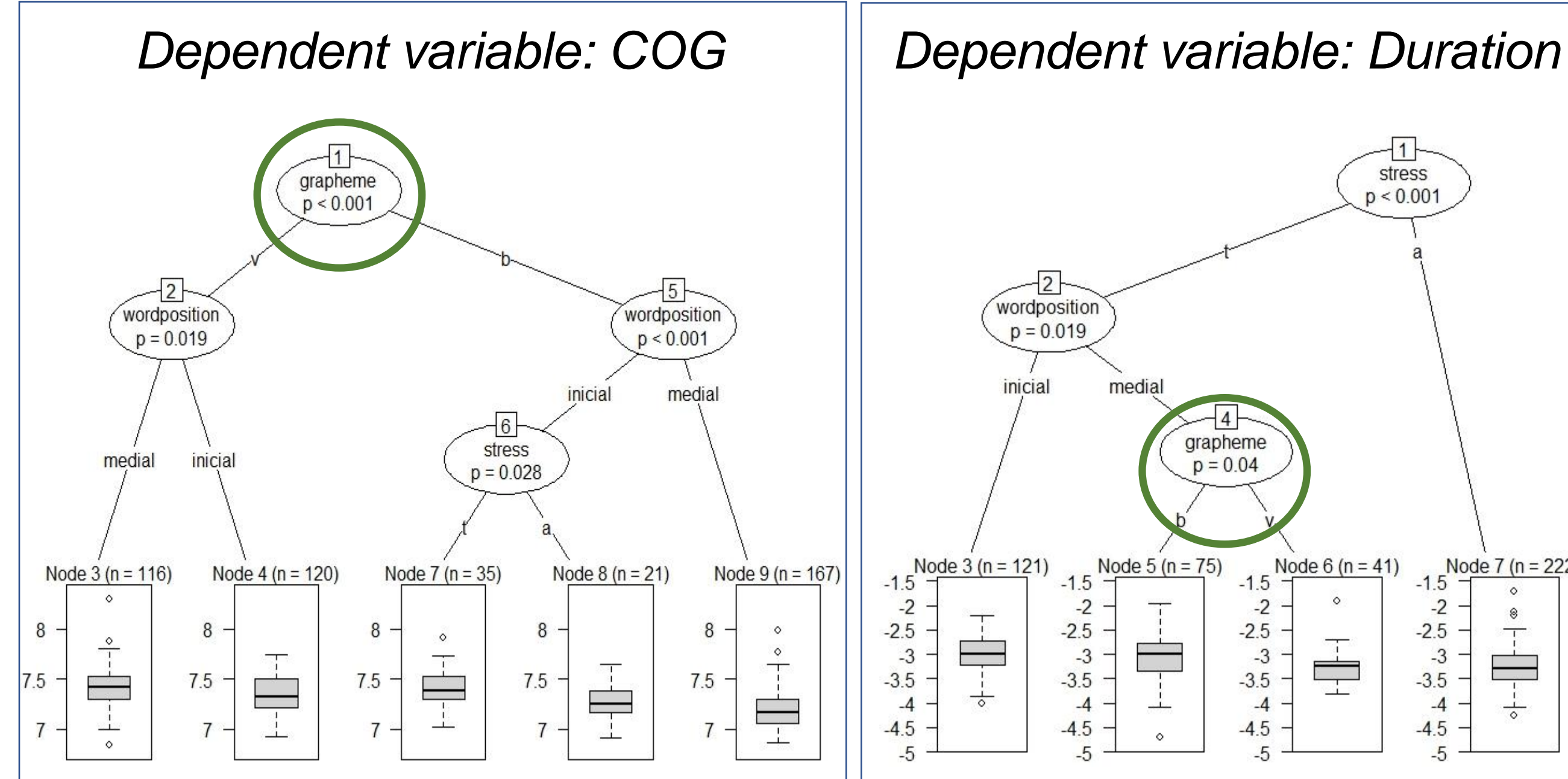
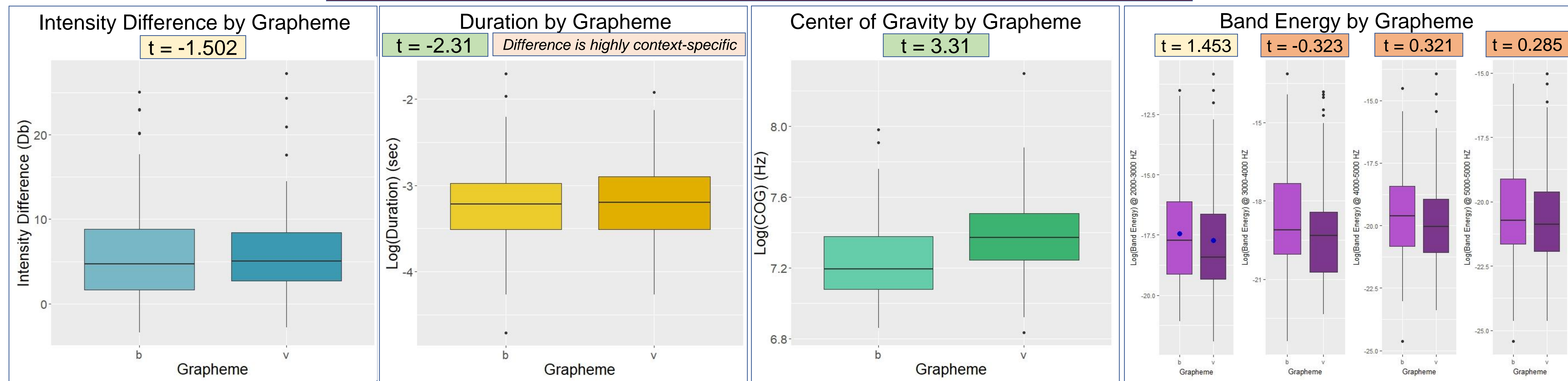
- Sociolinguistic interview
- Background questionnaire

Codification and analysis:

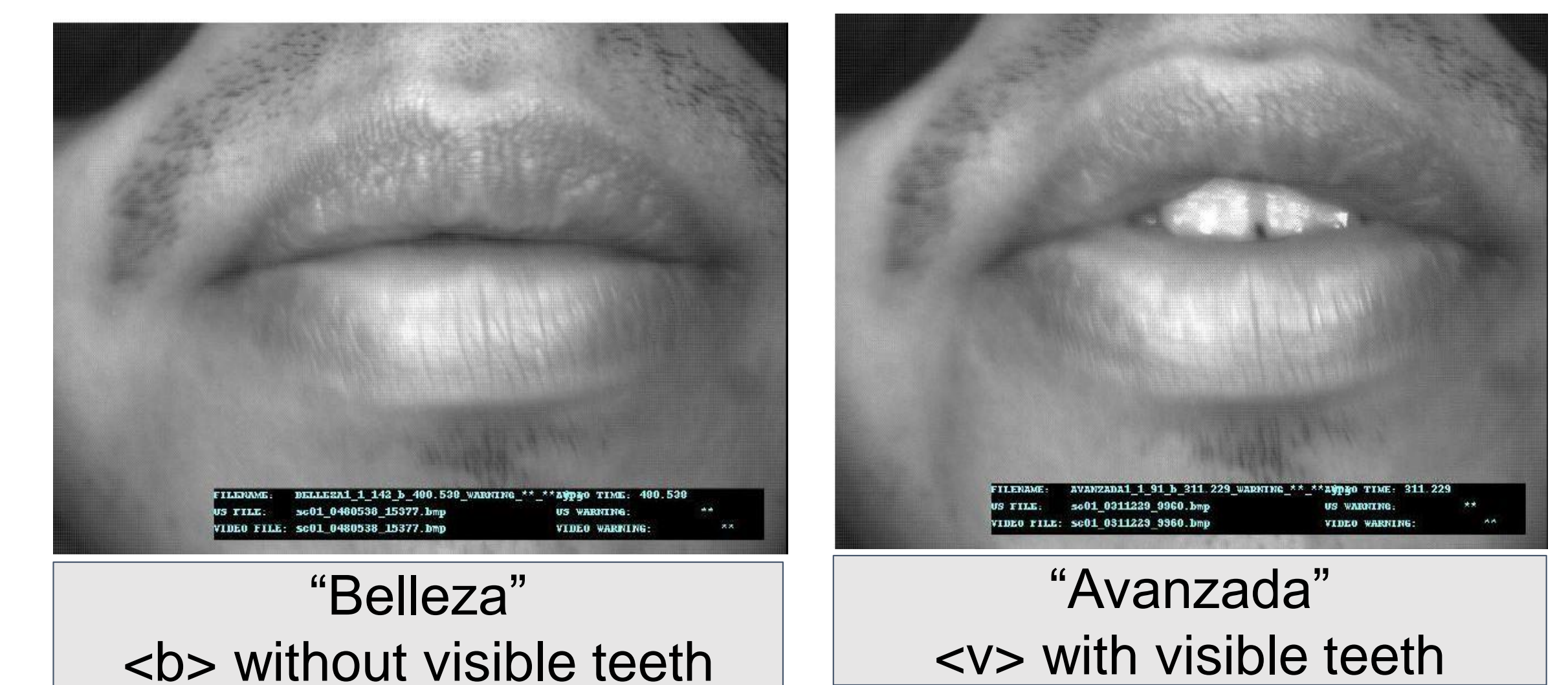
- Measurements made in PRAAT using scripts (Boersma & Weenink, 2015)
- Recordings segmented via FASE (Willbanks, 2015)
- Mixed effects linear regression models computed using RStudio (RStudio Team, 2016)
- Graphics generated using RStudio (RStudio Team, 2016)



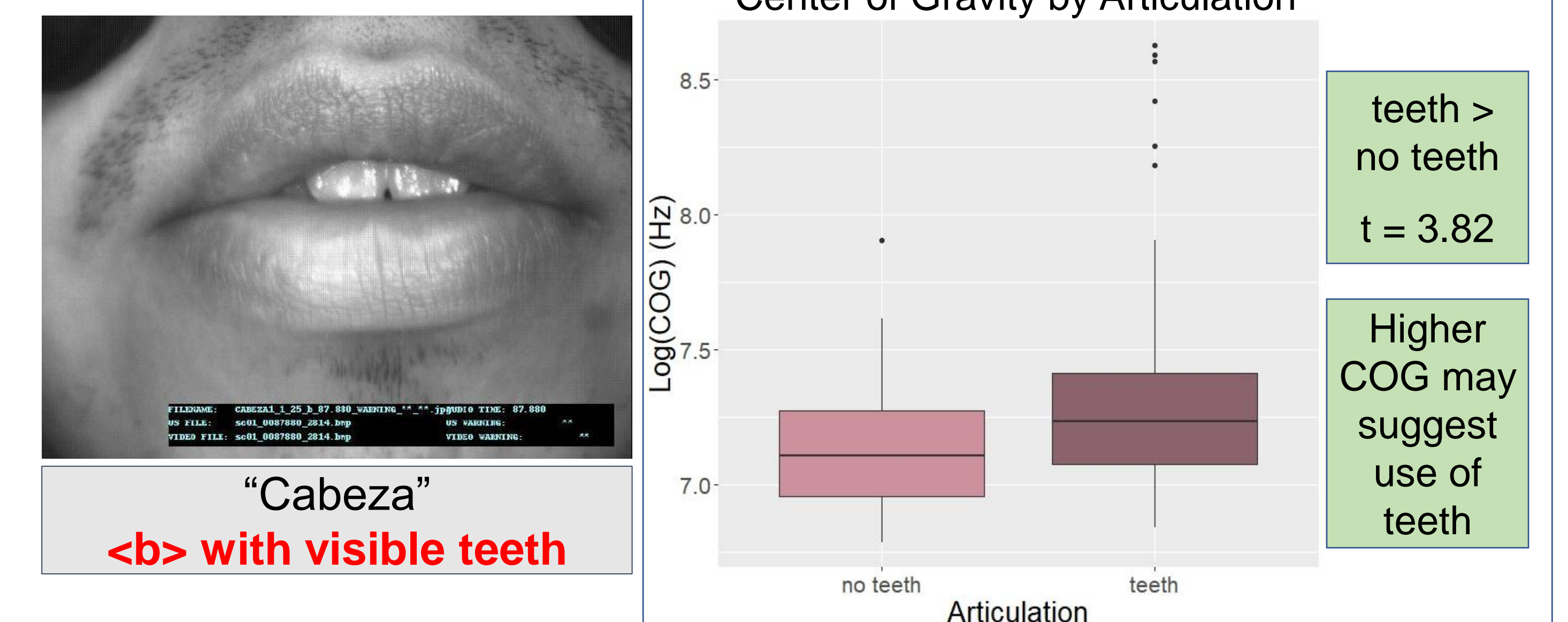
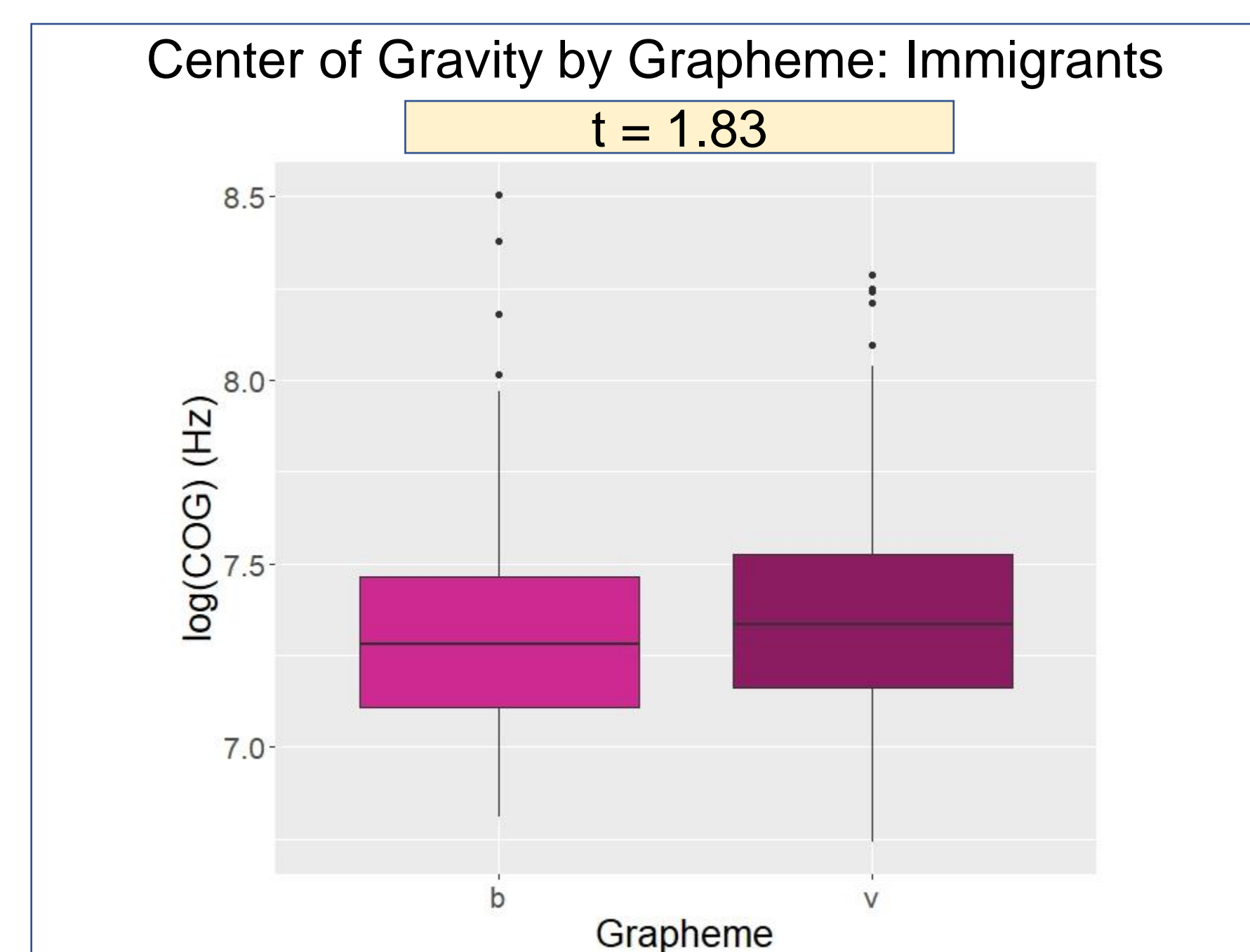
Results: Heritage Speakers



Pilot Articulatory Study



A Possible Incomplete Merger

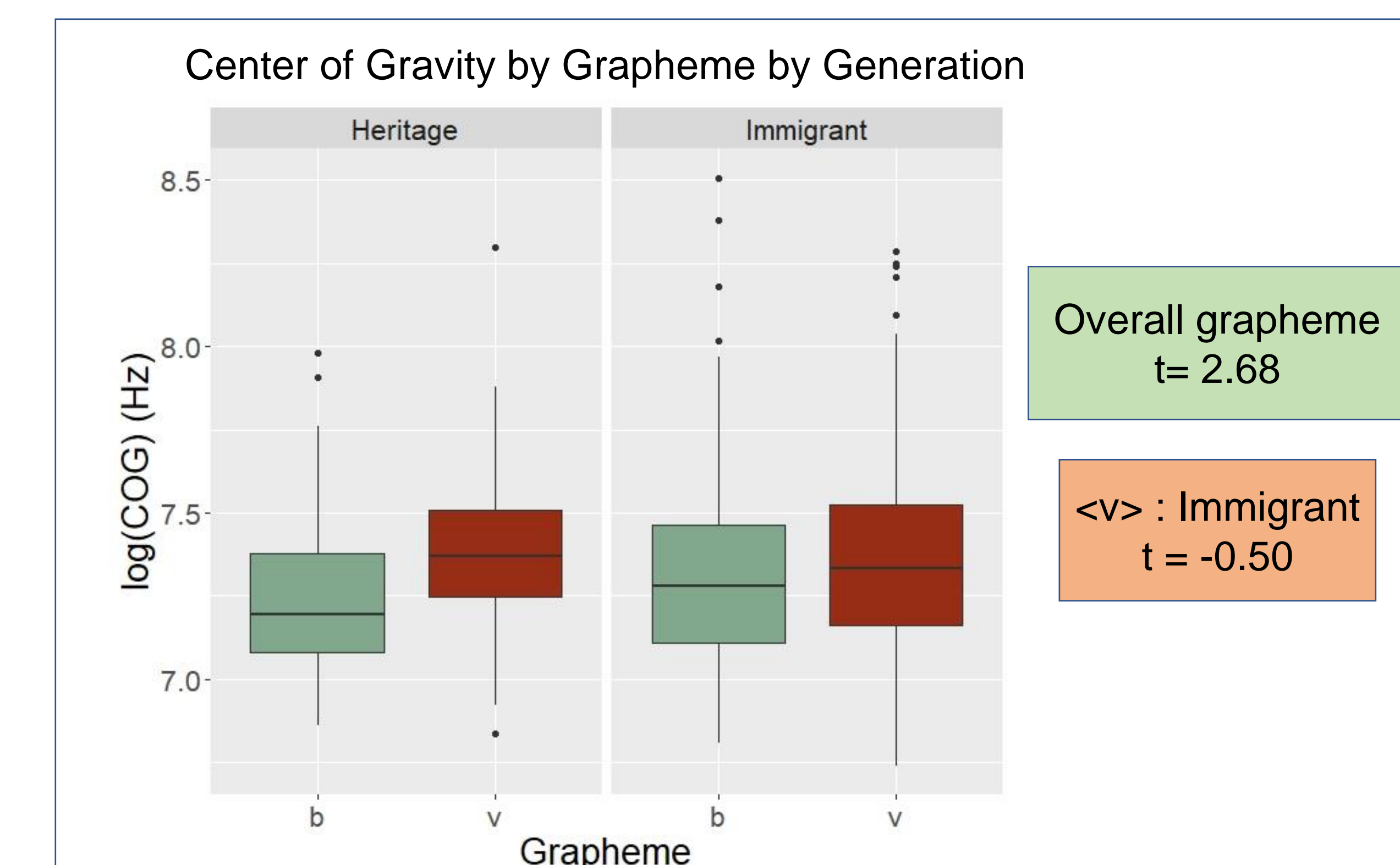


Conclusions

- Grapheme does not have a significant effect on the intensity difference between /b/ and the following vowel.
- has a significantly longer duration than <v>, though this difference is highly context-specific.
- <v> significantly favors a higher COG compared to .
- Grapheme does not have a significant effect on band energy between 2000-6000 Hz.
- and <v> may not be completely merged in native speech.

Future Directions

- Further explore native productions of and <v>
- Sociolinguistic question: To what degree are heritage <bv> productions influenced by English?



Selected References:
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