BACKGROUND

- Spanish and Portuguese, although related, diverge in their phonological inventory
  - Portuguese has a larger vowel inventory than Spanish and contrastive nasal vowels
    - e.g. ia [iَا] ‘there’ and id [iَا] ‘yarn’
    - Vowel nasality only allophonic in Spanish
    - e.g. pan [pa*n] ‘bread’ and bien [bi*n] ‘well’: no minimal pairs
  - Previous work has established acoustic and articulatory differences between nasal and nasalized vowels
    - Chen (1997): Measures of A1-P0 and A1-P1 revealed differences in nasality in English nasalized vowels and French nasal vowels, especially at onset
    - Fails (2011): Nasal airflow measures were greater for Brazilian Portuguese (BP) nasal vowels than Mexican Spanish vowels, except /i/ and /i:/
    - Medeiros (2011): Nasal airflow measures were greater in BP nasal vowels than nasalized (optional nasality) vowels; nasal airflow began sooner in nasal vowels
    - Aly Bailey (to appear): Spanish-English bilinguals (L3 BP) produced BP nasal vowels with longer durations than Spanish nasalized vowels, but similar formant frequencies

RESEARCH QUESTIONS

1. Do native and L3 BP speakers (L1 Spanish/L2 English) have similar levels of nasality (as determined by A1-P1/P0) when producing BP nasal vowels?

2. Do L3 BP speakers produce BP nasal vowels and Spanish nasalized vowels with similar levels of nasality?

PARTICIPANTS

- L1 BP speakers (n = 11)
  - 6 males, 5 females
  - From northwest, southeast, and southern regions of Brazil
- L3 BP speakers (n = 4)
  - 2 males, 2 females
  - Peninsular, Caribbean, and Latin American origin

EXPERIMENT

Tasks
- 1. Paragraph with Spanish tokens (nasalized vowels, n = 5)
  - Completed by L3 speakers only
- 2. Sentences with Portuguese tokens (nasal vowels, n = 10)
- 3. Carrier sentence with Portuguese tokens
  - Tasks 2 and 3 completed by all participants
  - Total tokens analyzed, n = 610

Data analysis
- Acoustic analysis: Praat (Boersma and Weenink 2013)
  - Script to measure A1-P0 and A1-P1 at three equidistant points in target vowels
  - A1: Amplitude of first formant (F1)
  - P0: Amplitude of extra formant before F1
  - P1: Amplitude of extra formant between F1 and F2
- Statistical analysis: Stata, version 12
  - Linear mixed models
    - Dependent variables: A1-P0, A1-P1
      - Fixed effects: L1 (between groups), nasal/nasalized vowel (within L3 BP group), vowel, time-point in vowel
      - Random effect: Speaker

REFERENCES


ACKNOWLEDGEMENTS

UCLA Department of Spanish & Portuguese, Department of Linguistics
Professors Pat Keating and Carlos Zacilli