



Investigating the Spectral and Temporal Properties of Modern Icelandic Vowels

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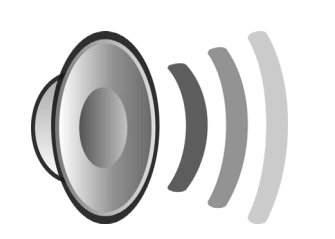
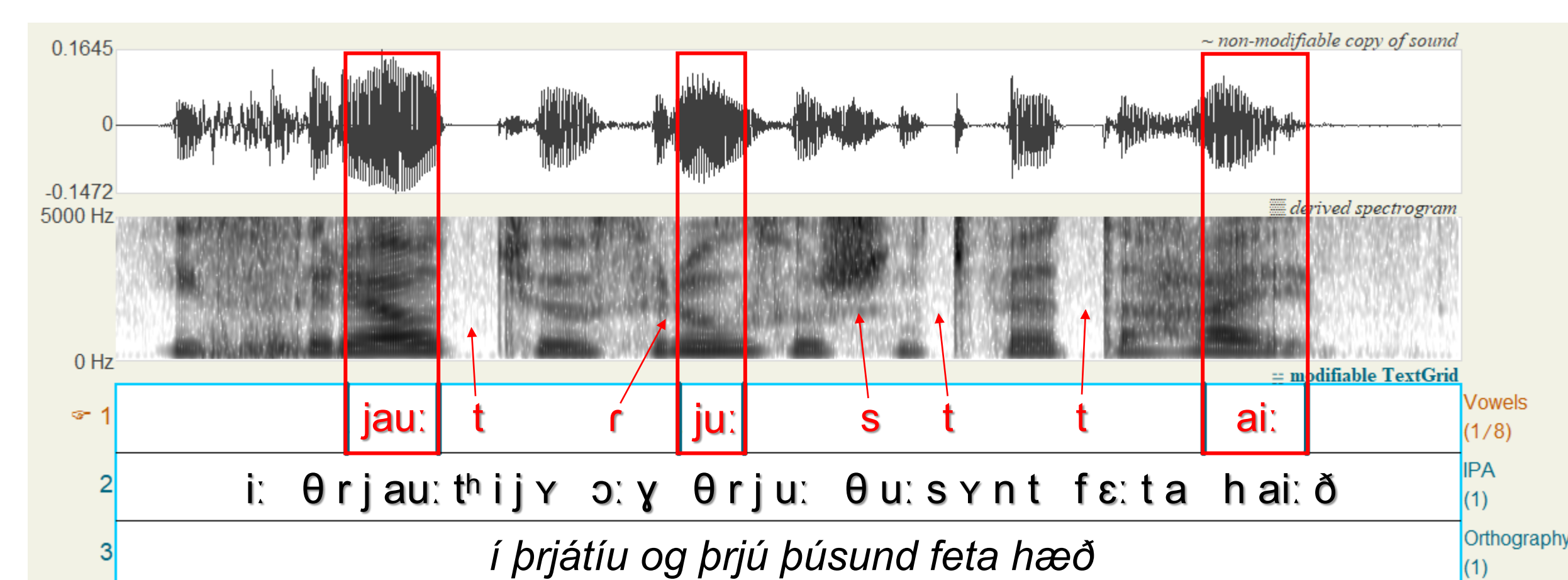
Icelandic Vowel System

- Rich system of vocalic contrasts:
 - /a ɔ ε i ɪ u ʏ œ/ 8 monophthongs
 - /ai au ei ou øi/ 5 closing diphthongs
 - /ja jɛ ju jœ jau jou/ 5 /j/-initial opening diph- & triphthongs
- Some previous acoustic description [1-3], but nothing on temporal dynamics of these vowels-- **that's what we're doing!**
- All 19 (!) of these categories behave as independent vowel classes:
 - Occur across most consonantal contexts
 - [stri:ka] 'draw line' vs. [strju:ka] 'escape,'
 - [silu:yr] 'silver' vs. [sjaulu:yr] 'selfies'
 - Alternate with one another in stem vowel change (think 'sing', 'sang', 'sung', 'song')
 - [pɔ:ð-] ~ [pjou:ð-] ~ [pøi:ð-] ~ [py:ð-], all forms of the verb 'invite' (cognate with 'bid')
 - Exhibit short and long values predictable by following consonantal environment
 - [fjœ:ðyr] ~ [fjœðrym] 'feather'.NOM.SG ~ DAT.PL
 - [plau:r] ~ [plauʰt] 'blue'.M.NOM.SG ~ N.NOM.SG

Materials & Methods

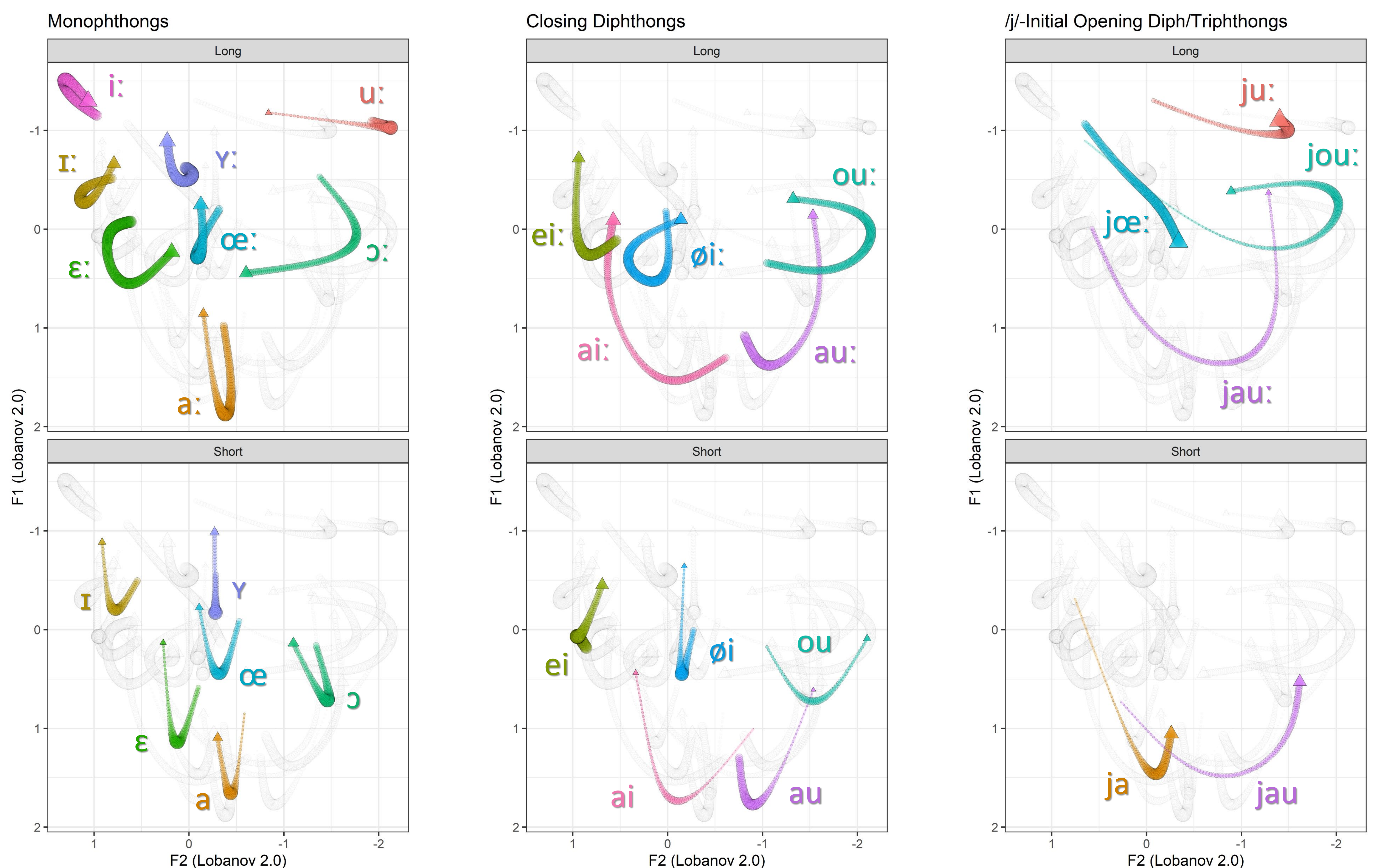
- Audio Recordings from *The Thor Corpus* [4]
 - Recorded 2005
 - 20 speakers (10 female), ages 19-35 at time of recording
 - Read sentences about weather queries
 - Approx. 200 sentences per speaker
- IPA transcriptions from *Icelandic Pronunciation Dictionary for Language Technology 22.01* [5]
- Preliminary results for 1 female and 1 male speaker below
 - (12 speakers currently partially annotated)

- No forced aligner for Icelandic-- must be segmented by hand!



- Formant measurements taken every 5ms from vowel onset to offset
- 247 total vowel tokens

Preliminary Results



References

