

Decay of Breathy Phonation in Austroasiatic Languages of Northeastern Thailand

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Acknowledgements

I would like to respectfully acknowledge that I study on the traditional, ancestral, and unceded lands of the Chochenyo Ohlone people

Acknowledgements



Sidawun
Chaiyapha
(Kuy)

Thongwilai
Intanai
(Kuy)

Kraisorn
Hardkadee
(Thro)

Sompong
Tonprathum
(So Thavung)





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- Most people above 20 have some command
- Children primarily use Thai in the home; many in the older generation self-report using Thai with their grandchildren

Kuy Language Vitality and Attrition



- Parents say teachers would say their children were ໄໂ່ເໜືອນຄວາມ [ŋô: miĕn kʰwa:j] ‘dumb as a water buffalo’ if they responded to teachers in Kuy

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- Many young people leave the village for college or work
- Few young speakers report knowing Khmer, some even report not being able to speak Lao; Kuy still regularly heard

Thro (Katuic)



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- Kraisorn Hardkadee teaches students how to write and teachers who speak Thro mix it with Thai with the children
- Gradually being lost elsewhere, especially in city of Kusumal

So Thavung (Vietic)



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So Thavung (Vietic)



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- Speaking their language often led to being severely punished or executed due to mistrust

So Thavung Language Vitality and Attrition

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- Only 3 historically isolated villages speak So Thavung
- Much exogamy, such that commonly heard languages in the villages are Tai languages such as Lao, Nyo, and Kaloe
- Nyo words mixed in for younger speakers (Premsrirat, 1996)
- Youngest speakers in their 40s—self-report speaking “impurely”, but have more pride in speaking than older speakers

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- So Thavung (Vietic; Tambon Pathumwapi, Sakon Nakhon)
 - Spoken by those 40 and up
 - No longer being passed on, stigma in usage
 - Rarely heard in villages, people primarily use Tai languages

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 - 3 tonal patterns for modal voice

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 - lu: ‘to howl’ vs. l_u: ‘thigh’
- Breathiness contrast in So Thavung sounds like a vowel quality difference, at least for mid-vowels
 - dɔ: ‘monkey’ vs. d_ɔ: ‘many’
 - təh ‘to give birth’ vs. t_{əh} ‘leech’

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- Lowered f0 can lead to a low tone
- Lowered F1 can lead to vowel raising or diphthongization (Wayland and Jongman, 2002)
- These changes may be pressured further by other mergers

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 - Merger between final /l/ and /n/: kahâ:n 'tiger' (cf. kaha:l in Lao Thavung)
 - Merger between final alveolars /t n/ and palatals /c ŋ/: kû:n 'male', k^hɔ:t 'to roll up' (cf. ku:n, k^hɔ:c in Lao Thavung)

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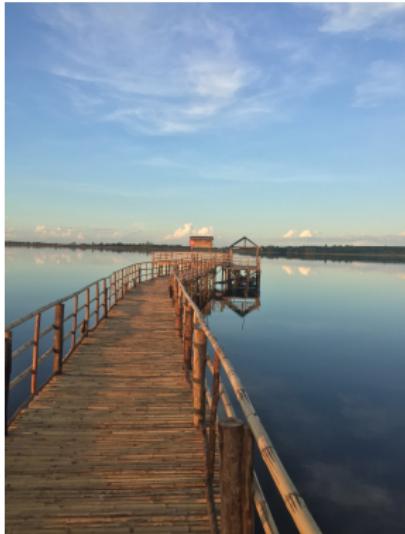
Social motivations for change

- Thailand has rapidly modernized and centralized in the past few decades
 - Greatly improved transportation system throughout country
 - Increased media access
 - More mobility for education and jobs
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- Younger speakers are increasingly dominant in Thai (or Lao), such that there may be imposition (Winford, 2005) of the Thai (or Lao) phonological system on the local language within a speaker

Hypothesis

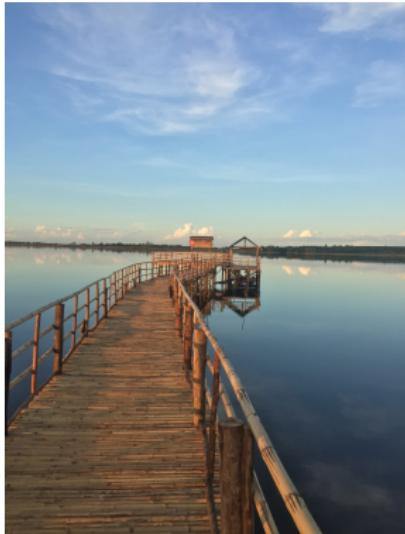
- As voice quality is not a phonemic distinction in any Tai language (the dominant languages, both nationwide and also at the local level), the **robustness of the breathiness distinction** will be linked to the **vitality** of the language

Audio recording



- Recordings for Thro and So Thavung taken with C544-L headset microphone, mostly in homes or outdoor settings

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- Elicitation of minimal pairs in wordlists (less controlled)

Production study



- Kuy speakers asked to embed target words in carrier sentences, recorded on C544-L headset microphone

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Production study



- Kuy speakers asked to embed target words in carrier sentences, recorded on C544-L headset microphone
- Carried out task on tablet screen in temple computer room or guest room
- More controlled than Thro and So Thavung elicitation

Measures

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 - H1*-A2* (proxy for open quotient)

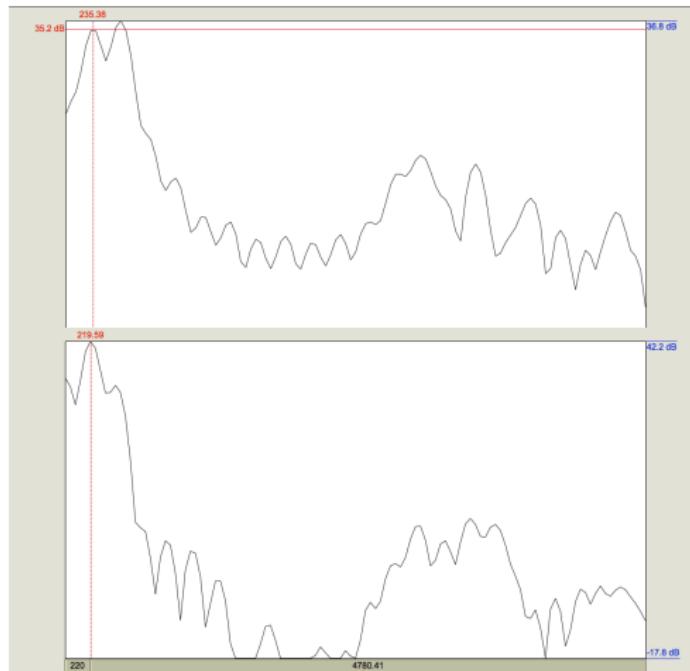
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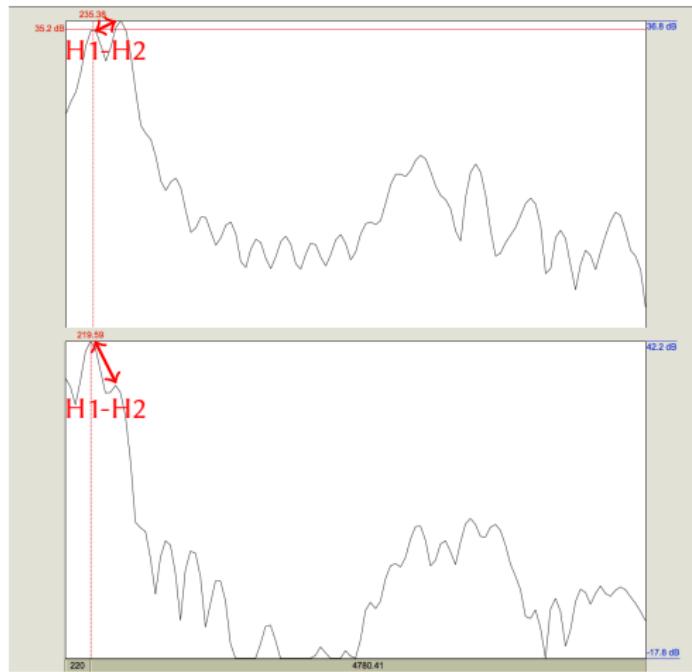
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 - H1*-A2* (proxy for open quotient)
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 - CPP (measure of aperiodic noise in spectrum)

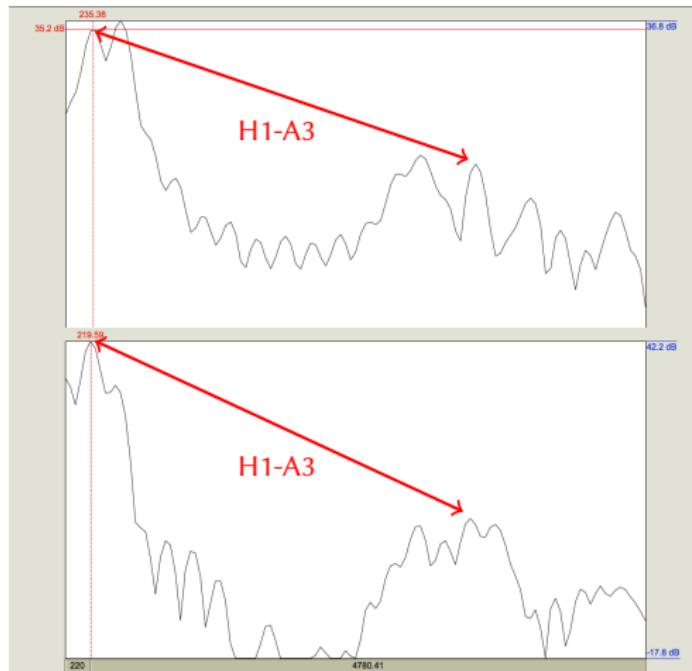
Modal (top) vs. Breathy (bottom) Spectra



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 - 20s for Kuy (1 M, 1 F) and Thro (2 F)
 - 40s for So Thavung (2 M)

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 - 2 old speakers for each language
 - Kuy: 60s (1 M, 1 F)
 - Thro: 1 M in 50s, 1 F in 60s
 - So Thavung: 1 M in 60s, 1 F in 80s

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 - Thro: 1 M in 50s, 1 F in 60s
 - So Thavung: 1 M in 60s, 1 F in 80s
- Modal-breathy vowels in minimal pairs measured
 - Kuy: 39 words; 151 modal, 153 breathy
 - Thro: 42 words; 160 modal, 171 breathy
 - So Thavung: 14 words; 167 modal, 194 breathy

Summary of Hypotheses

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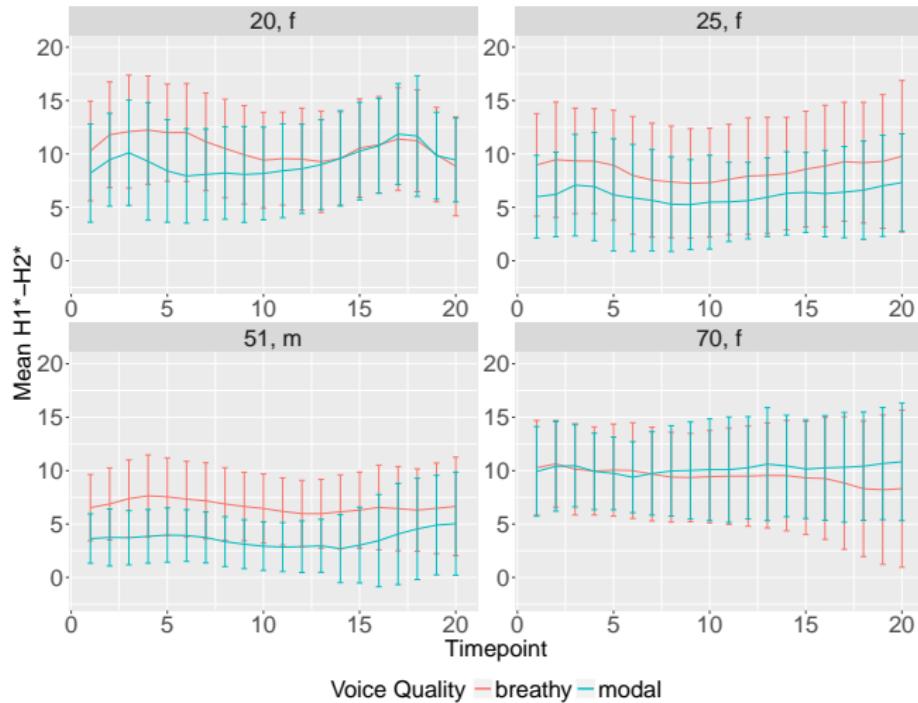
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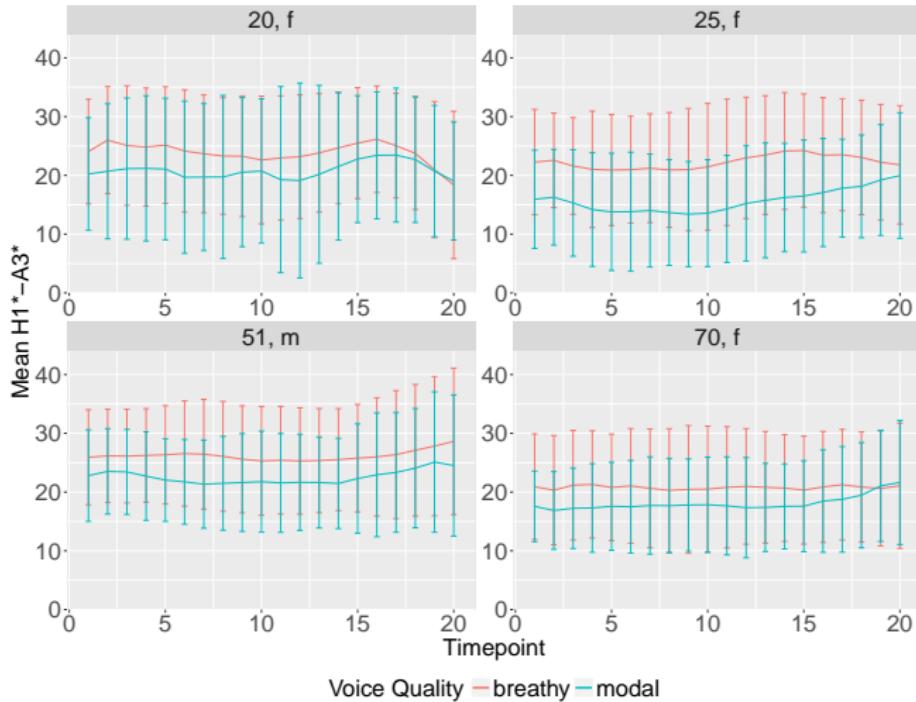
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 - Lower CPP (aperiodic noise in signal) = more breathy

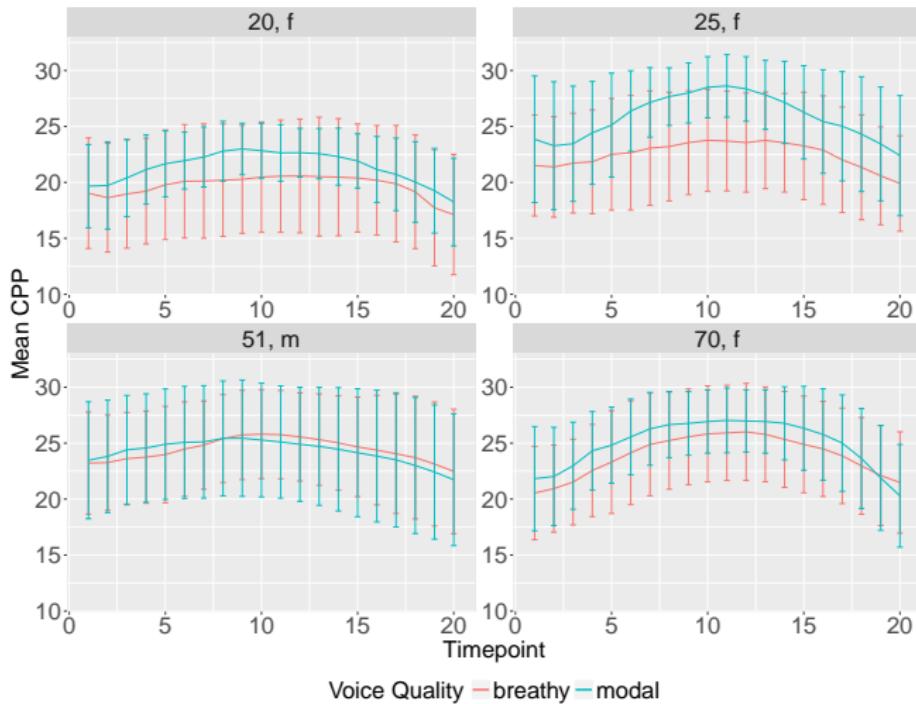
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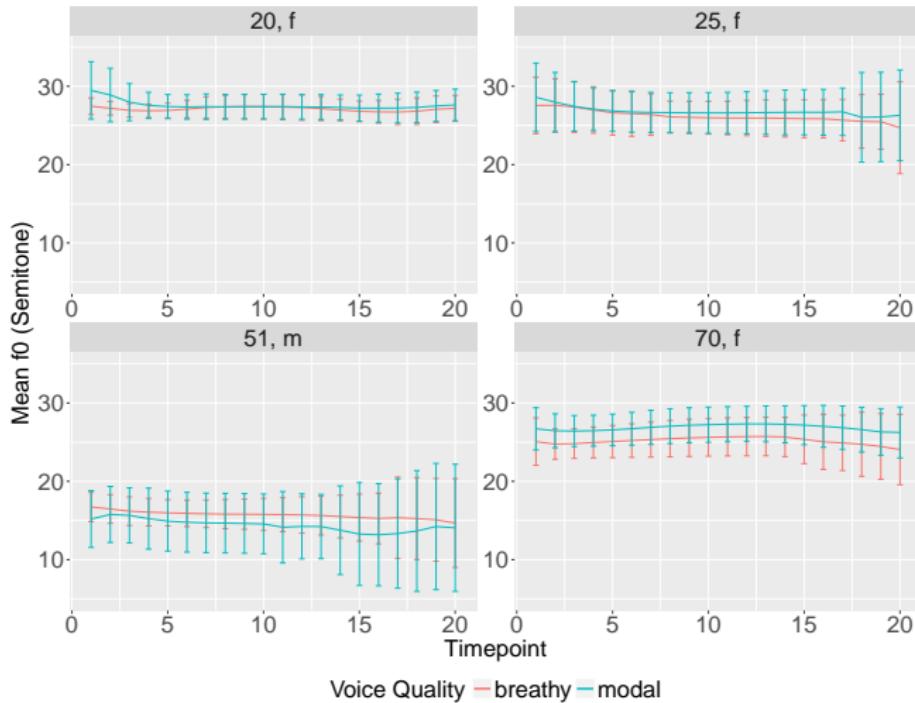
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CPP: Thro



f0: Throat



Voice Quality ■ breathy ■ modal

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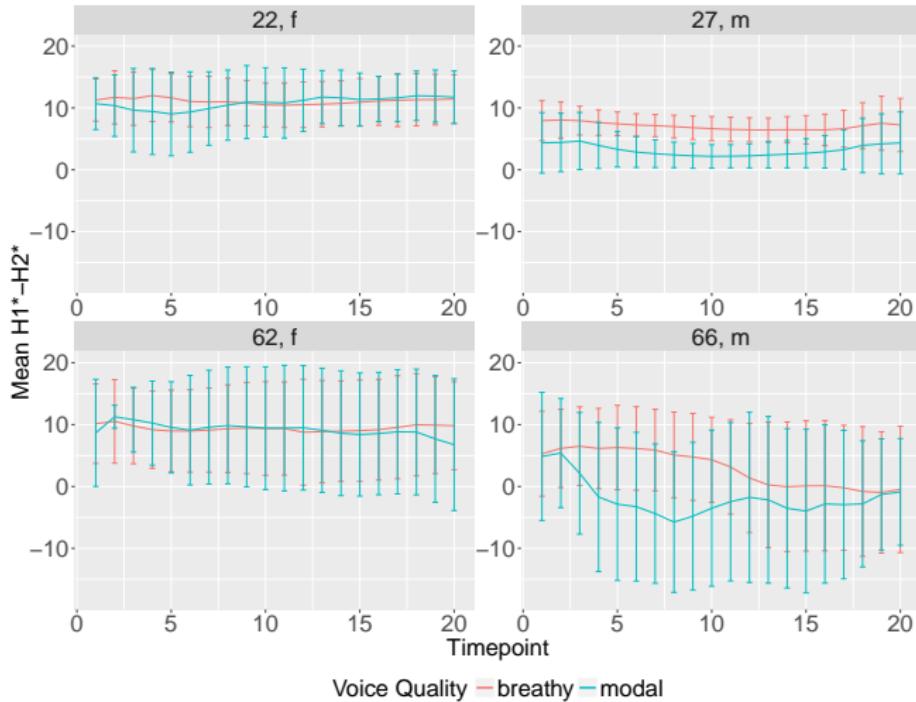
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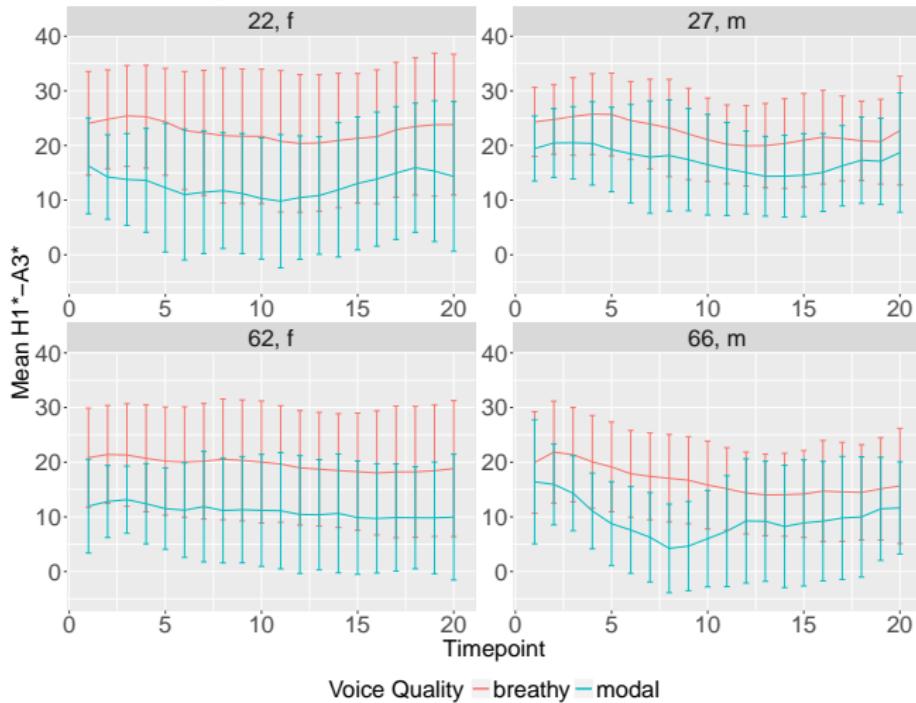
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- f0 is potentially a cue for the 70 F speaker

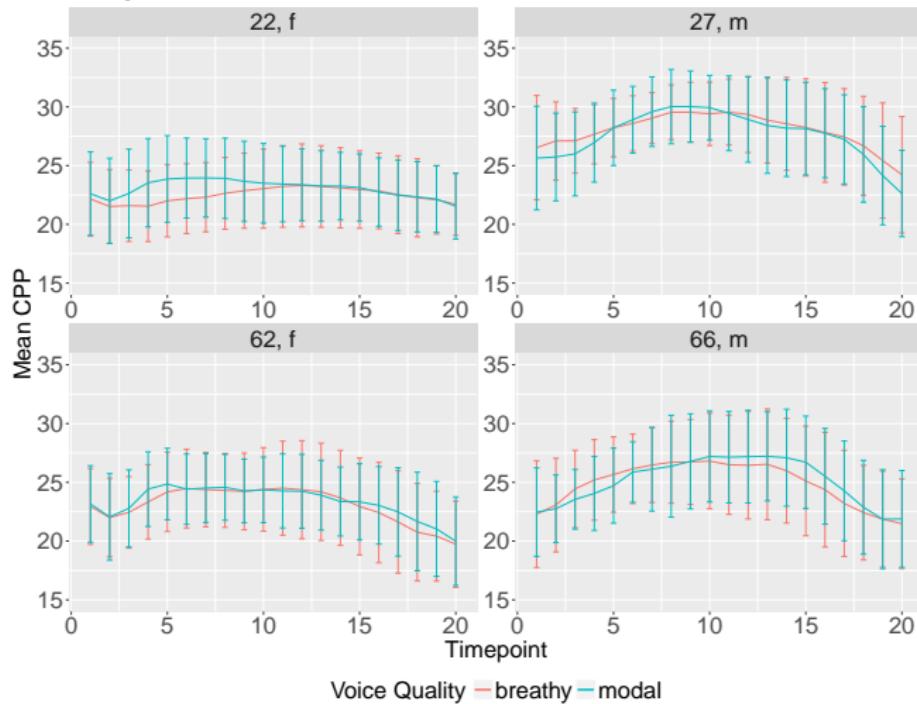
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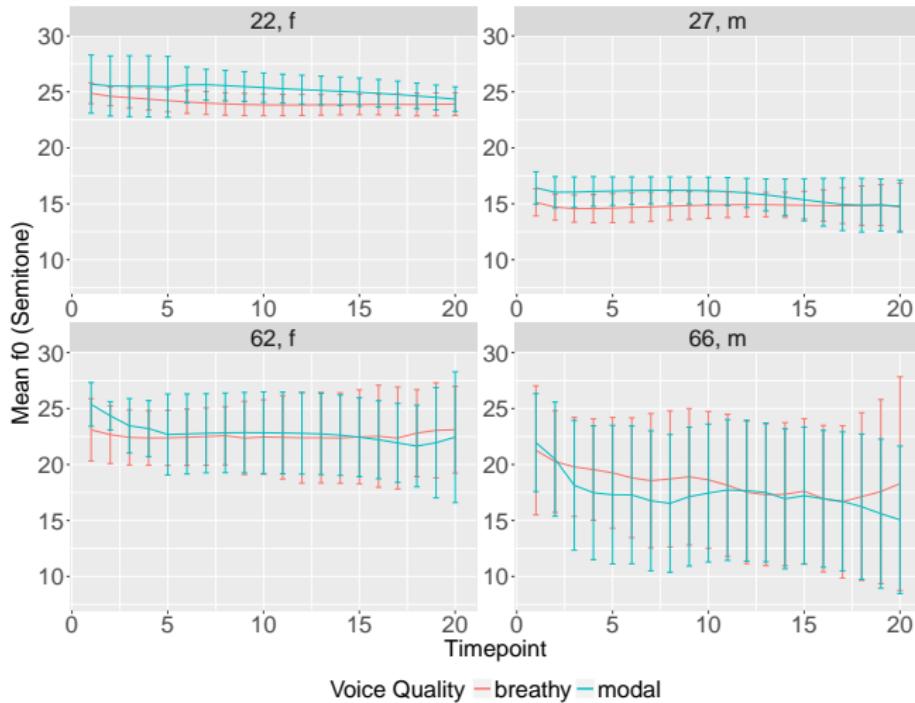
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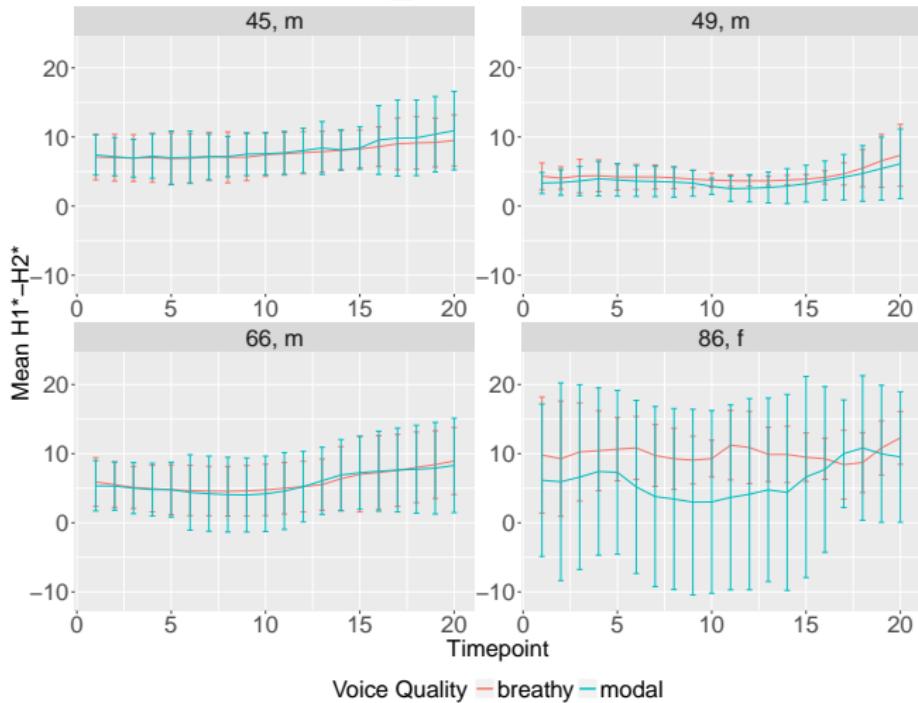
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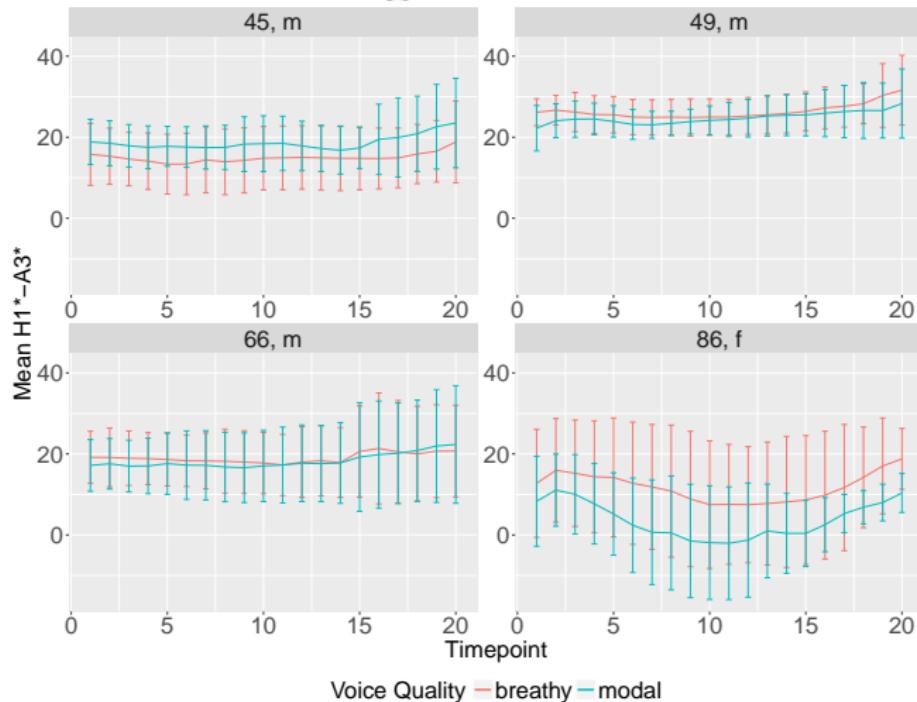
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- f0 seems to be consistently lower for breathy vowels for the younger speakers and also shows much less variation

H1*-H2*: So Thavung

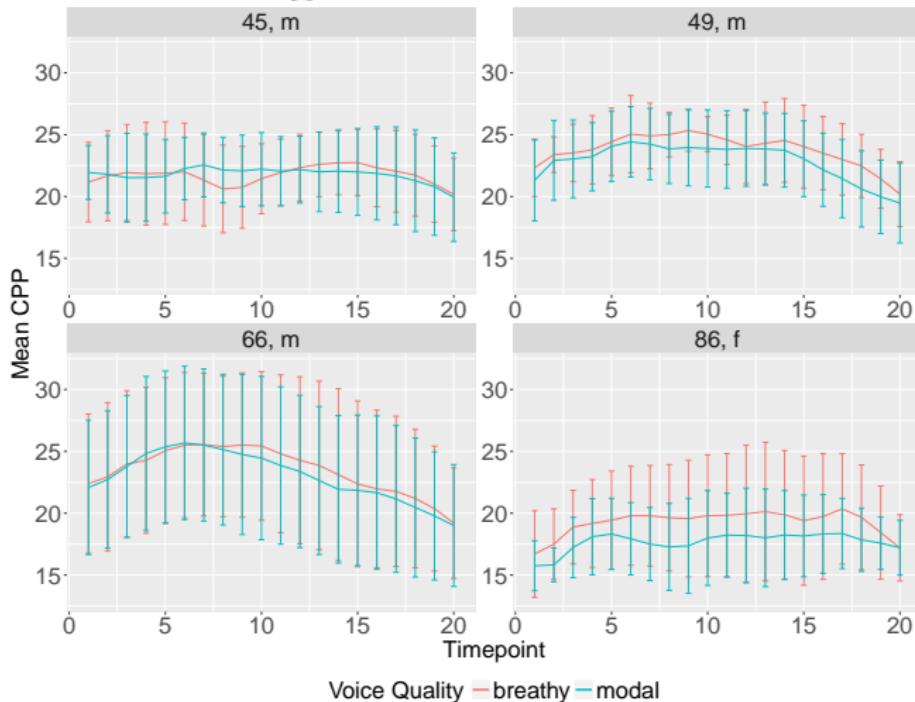


H1*-A3*: So Thavung

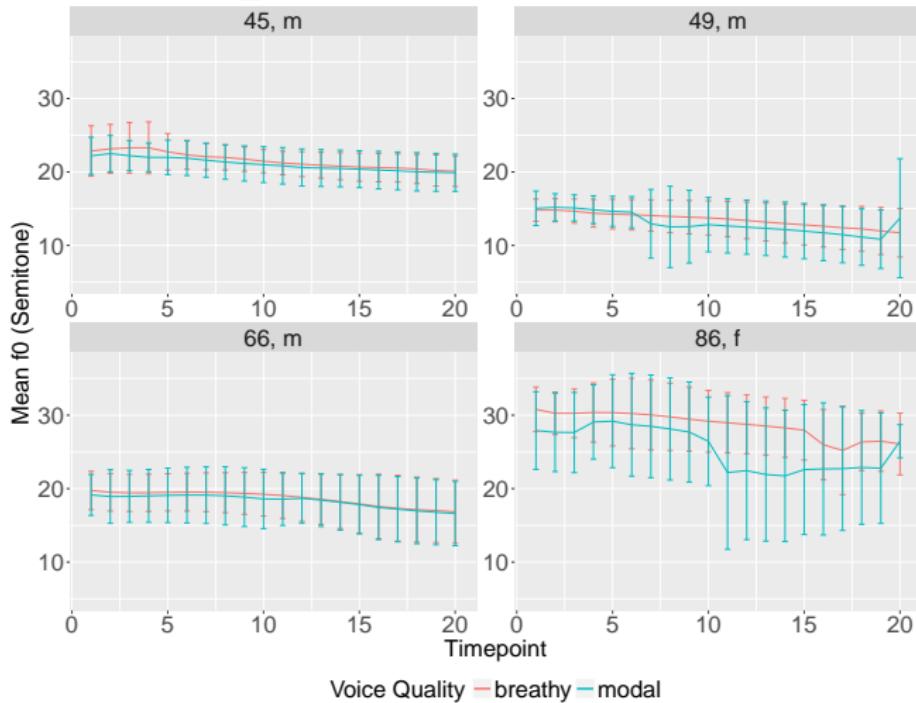


Voice Quality ■ breathy ■ modal

CPP: So Thavung



f0: So Thavung



So Thavung Summary

- Neither acoustic correlates of breathiness nor f0 are very reliable cues for breathiness

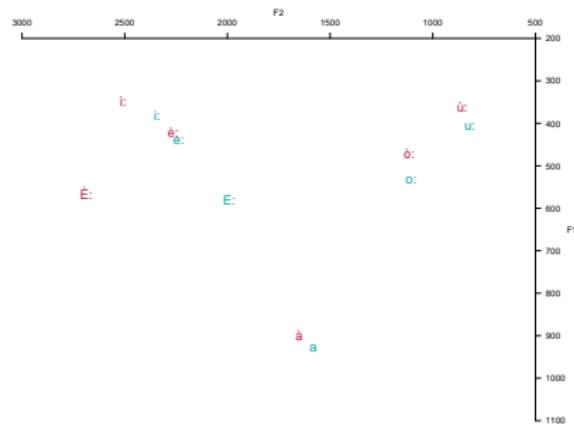
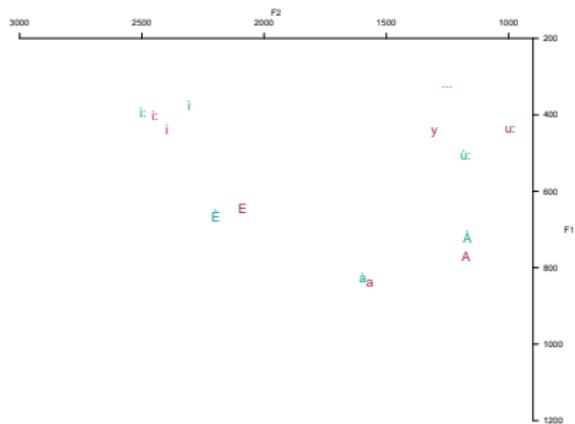
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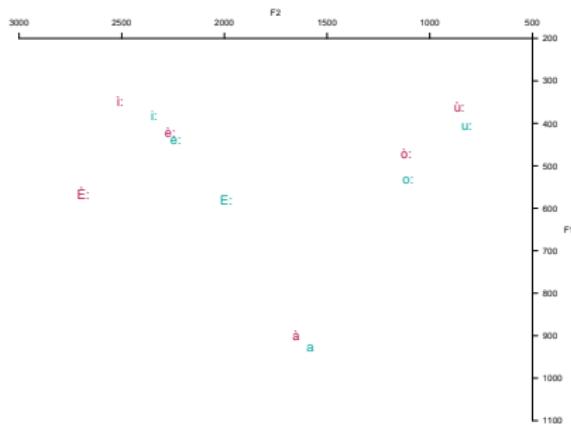
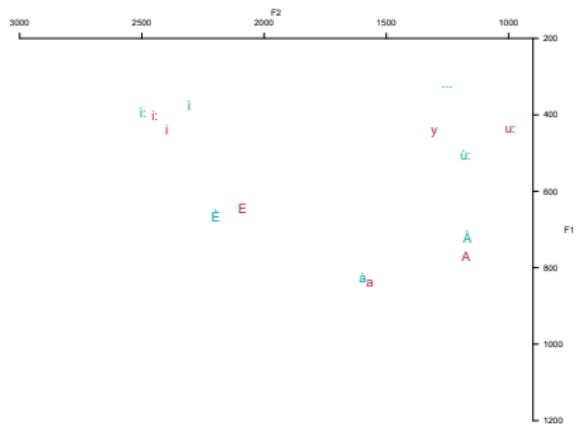
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- The other differences that exist are in the opposite expected direction

Vowel Spaces: Thro (left) vs. Kuy (right)



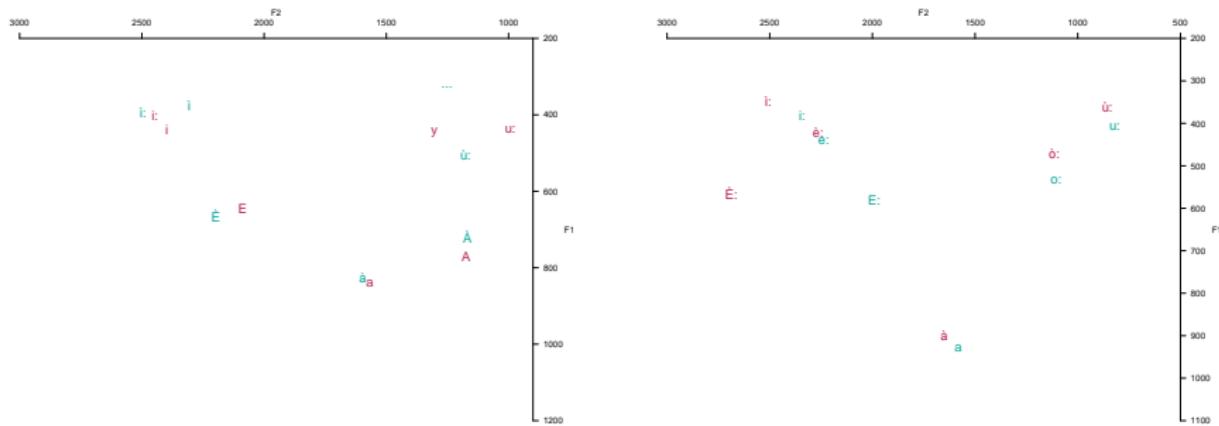
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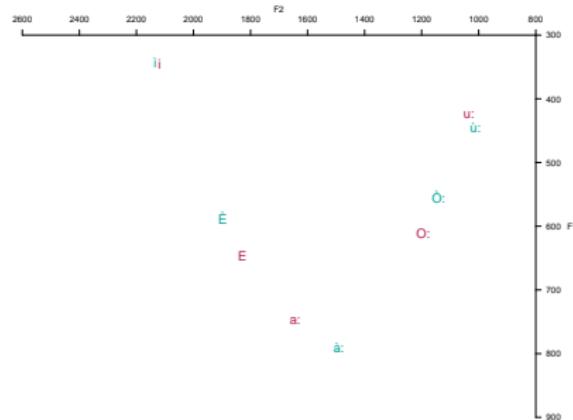
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- No clear height differences in mid-front vowels for either language, but difference for Kuy mid-back vowels
 - Thro /ɛ, a/ : $n = 77$, $t(66.83) = 0.09$, $p = 0.93$
 - Kuy /ɛ:, e:, o:/ : $n = 80$, $t(77.37) = 2.62$, $p = 0.011$ (but not significant if separate out front from back vowels)

Vowel Spaces: So Thavung



- Only So Thavung seems to have a relatively clear height difference for all mid vowels: $n = 51, t(47.92) = 2.5, p = 0.016$

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 - Neither f0 (except perhaps for the older female speaker) nor vowel height seems to be a robust cue
 - Each of the acoustic correlates of breathiness seem to be recruited here, but to varying extents by speaker

Directions

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- Thus, we see restructuring of the voice quality system interacting with the differing situations of language shift
- Plans: Analyze rest of speakers; get more controlled data for Thro and So Thavung

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[rɑ?a: kະ:na?kະ:daj]

Thanks everyone!
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