Stress and vowel quality in Chichicastenango K'iche'

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Sound Systems of Latin America 4

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English translation of slides

Introduction
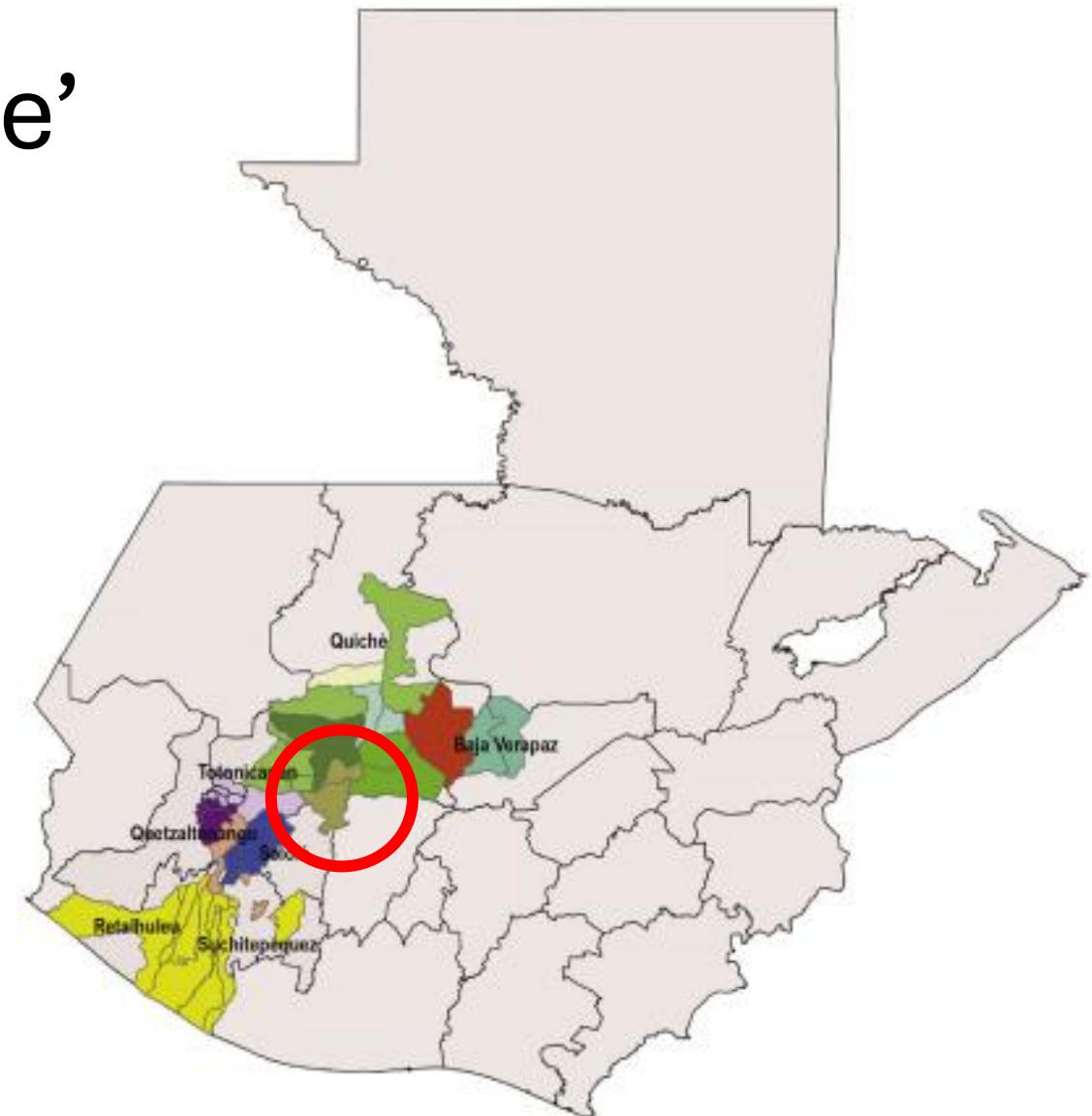
- Some languages have stress patterns that depend on vowel quality/sonority (Kenstowicz 1997)

- Recent studies have shown that some of these supposed patterns are perceptual illusions
  - E.g., Gujarati (Shih 2018)

- Today I will present the stress pattern of Chichicastenango K'iche', which depends on vowel quality (tense > lax)

Outline

1. Background: Chichicastenango K'iche' and the vowel inventory

2. Description: The stress pattern of Chichicastenango K'iche'
    1. Evidence used
    2. Generalization and examples

3. Context: Vowel quality, stress, and sonority

4. Conclusion

Chichicastenango K'iche'

- Mayan language family
- ~1 million speakers of K'iche' (Instituto Nacional de Estadística 2019)
- Highland area of Guatemala
- Chichicastenango dialect
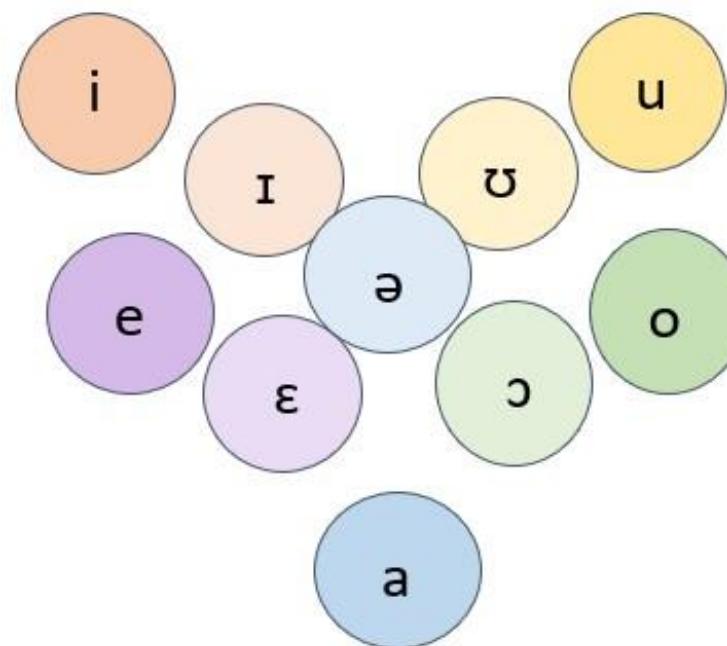
Mapa by Romero (2016)

Chichicastenango K'iche'

- Other dialects: long /i: u: e: o: a:/ and short /i u e o a/ vowels

- Chichicastenango: "**tense**" /i u e o a/ and "**lax**" /ɪ ʊ ɛ ɔ ə/ vowels

(López Ixcoy 1994; Par Sapón & Can Pixabaj 2000; Can Pixabaj 2017; England & Baird 2017; Wood 2020)

Chichicastenango K'iche'

- Other dialects: fixed word-final stress

(Henderson 2012; Baird 2014)

- Chichicastenango: word-final stress in non-verbs, stress depends on syllable type in verbs

Chichicastenango K'iche'
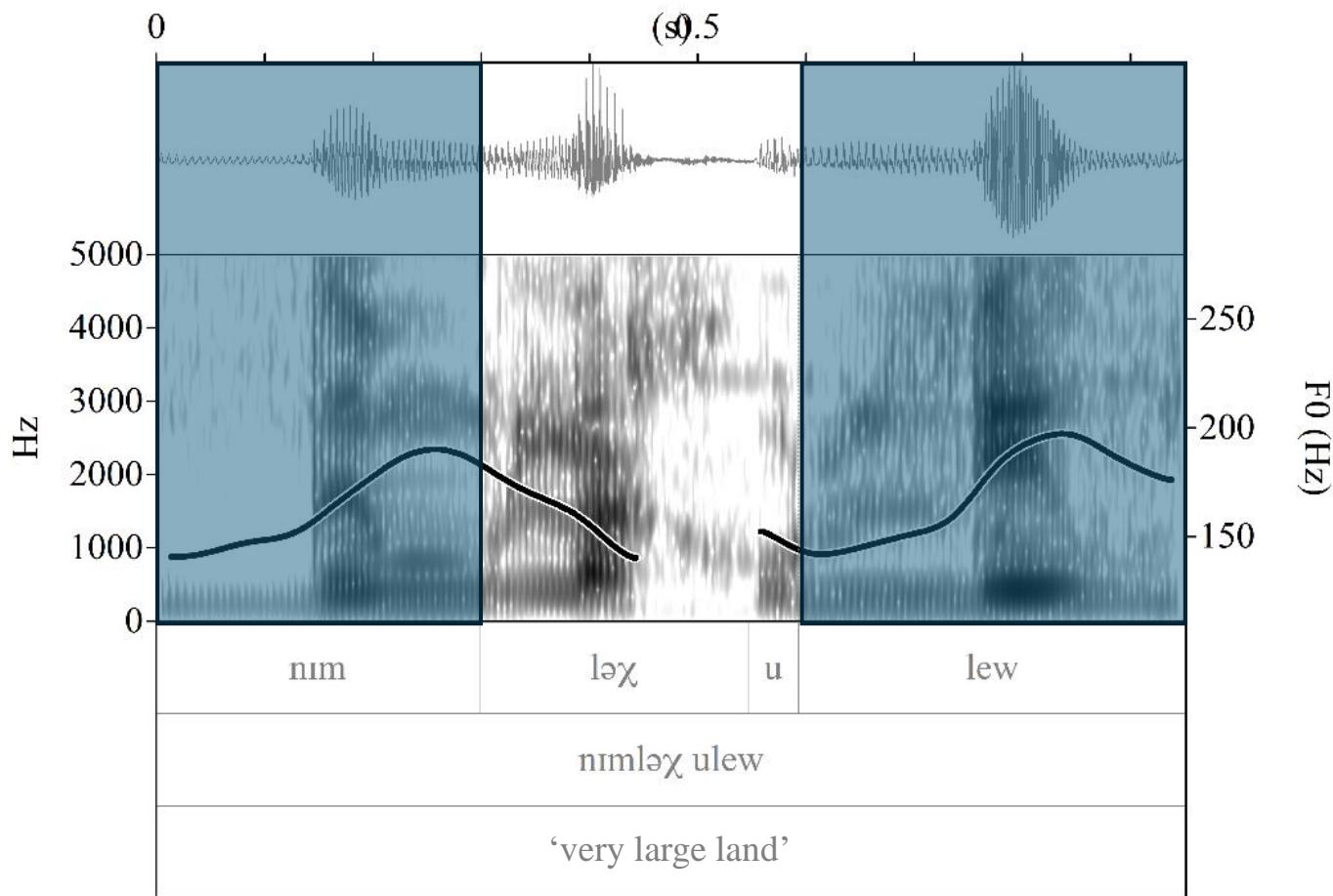
- Evidence for the position of (primary) stress:
  - Perceptual: acoustic prominence
  - Visual: tones associated with stressed syllables
  - Phonological: alignment with vowel deletion pattern

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Evidence: tones associated with stress

- Many stressed syllables appear with a high/rising pitch contour
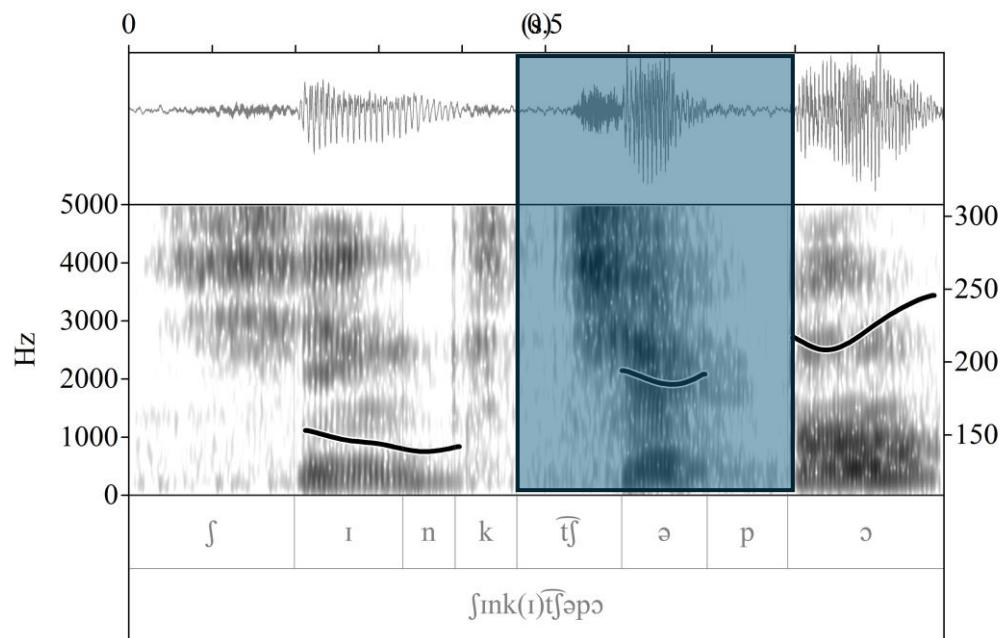
[ˈnɪm.ləχ]

'very large'

[u.ˈlew]

'land'
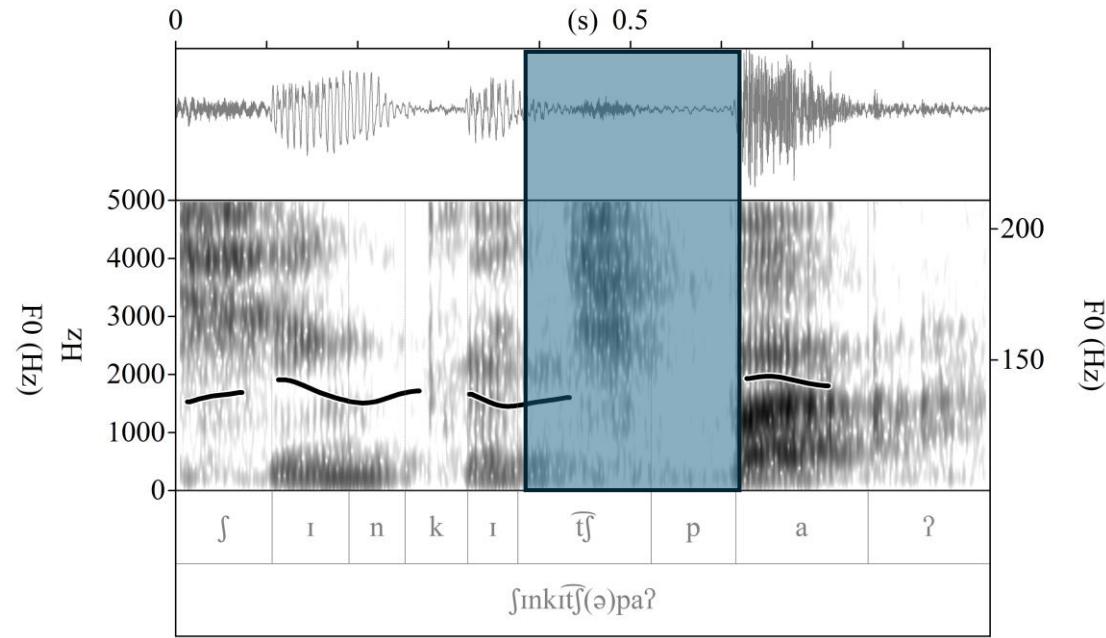
Evidence: vowel deletion

- **Lax** vowels are deleted in **non-final unstressed CV** syllables **adjacent** to the stressed syllable (Wood 2024)

[ʃɪn.k(ɪ).ˈt͡ʃə.pɔ]

'they caught me'

[ʃɪn.kɪ.t͡ʃ(ə).ˈpaʔ]

'they went to catch me'

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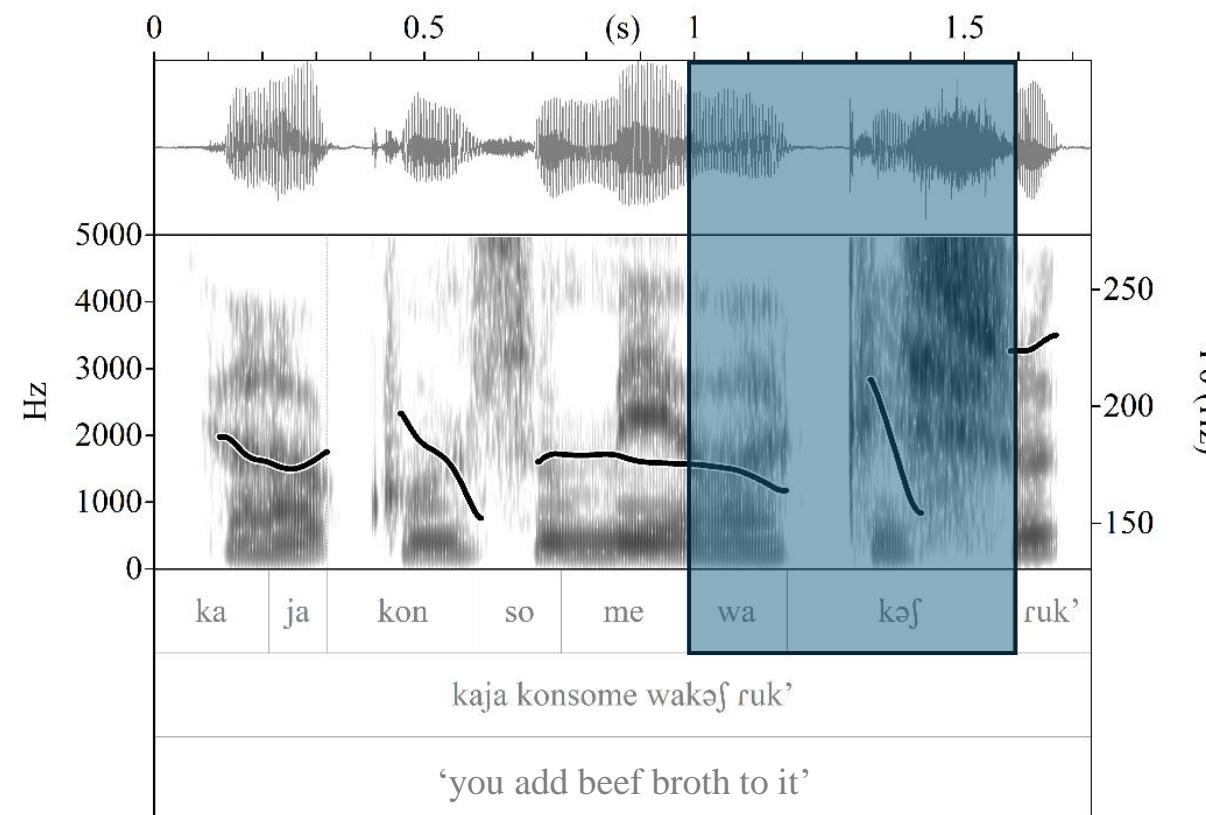
Chichicastenango K'iche' stress pattern

- Non-verbs: word-final
  - (Excluding certain inflectional affixes – stress domain is in [square brackets] in the examples)

Orthography	IPA	Translation
chanim	[t͡ʃa.ˈ**nim**]	'now'
wakäx	[wa.ˈ**kəʃ**]	'cow'
nab'e	[na.ˈ**ɓe**]	'first'
wächb'äl	[wət͡ʃ.ˈ**ɓəl**]	'image'
uptan	[u.p(ə).ˈ**tan**]	'its function'
aklab'	[a.k(ə).ˈ**laɓ**]	'children'

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Chichicastenango K'iche' stress pattern

Chichicastenango K'iche' stress pattern

- Verbs: depends on syllable weight
  - First heavy syllable (closed or with tense vowel)
  - If no heavy syllables, defaults to last syllable
  - (Excluding certain inflectional affixes – stress domain is in [square brackets] in the examples)

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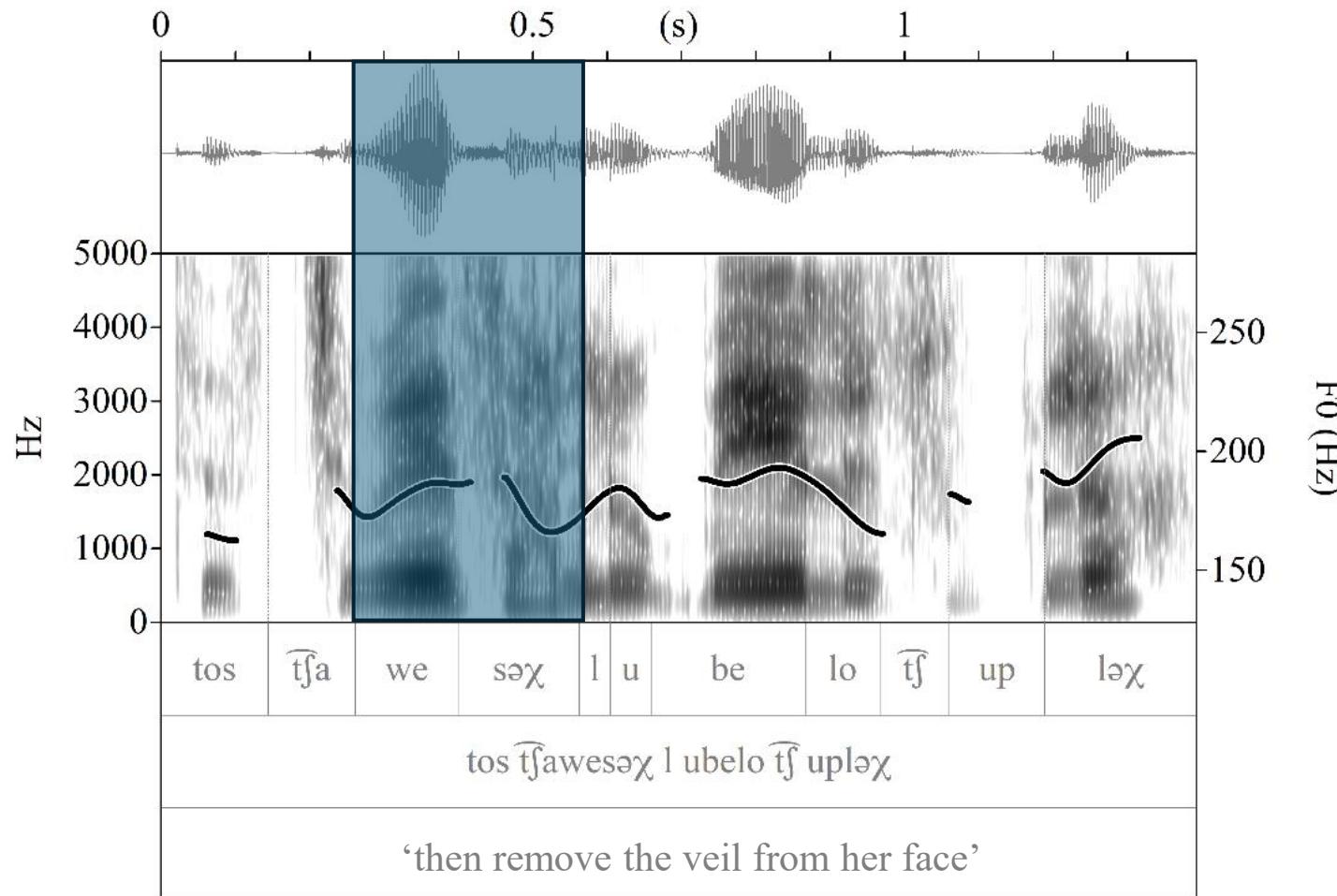
Chichicastenango K'iche' stress pattern

- Verbs: first heavy syllable(tense vowel)

Orthography	IPA	Translation
kasipäj	ka.[ˈ**si**.pəχ]	'you gift it'
knab'jïk	k[ˈ**na**.ɓ(ɛ).χ]ɪk	'he goes ahead'
kqkub'a	kq(ə).[ˈ**ku**.ɓa]	'we ask for her hand'
chawesäj	t͡ʃa.[ˈ**we**.səχ]	'remove it!'

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Chichicastenango K'iche' stress pattern
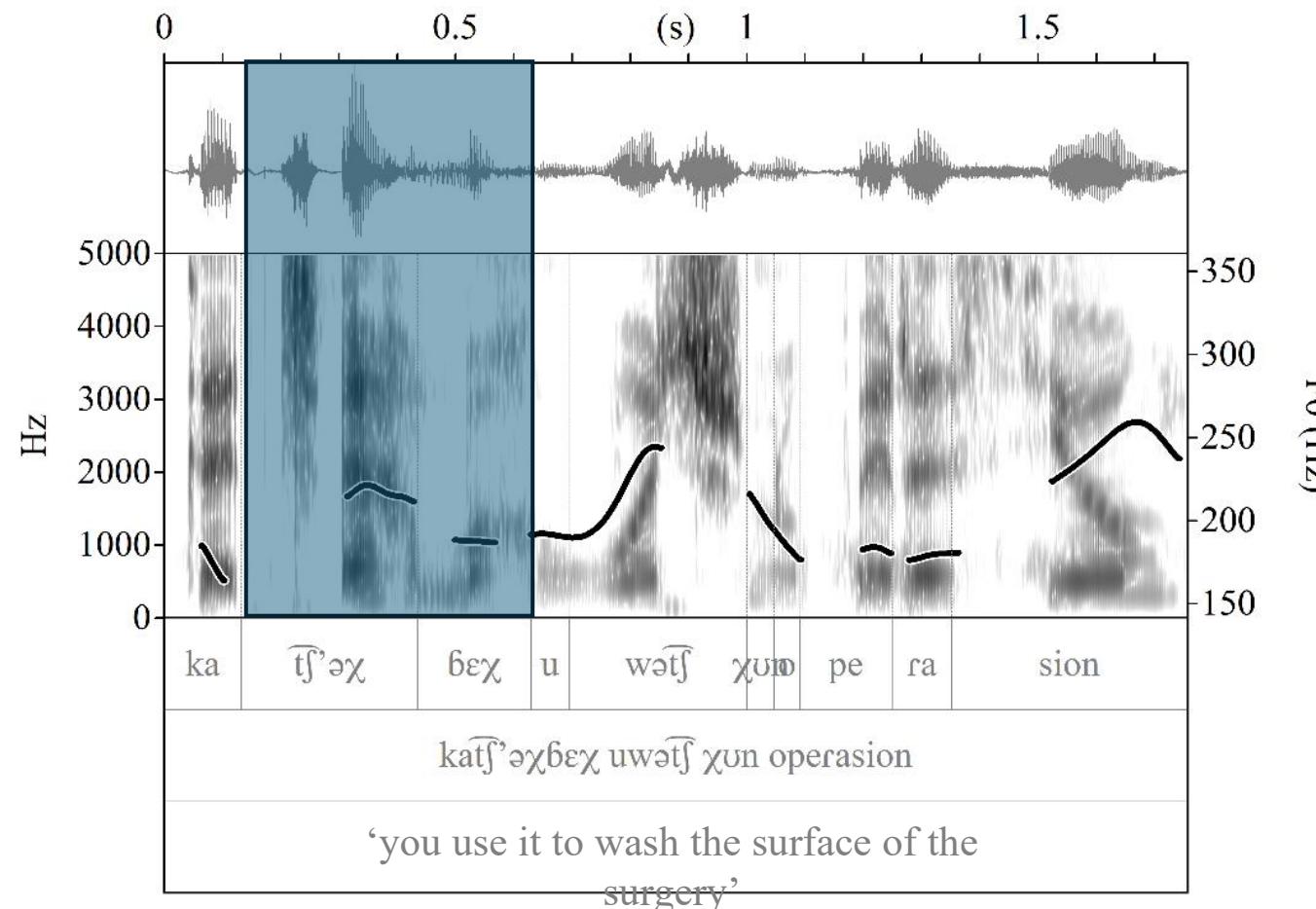
Chichicastenango K'iche' stress pattern

- Verbs: first heavy syllable (with coda)

Orthography	IPA	Translation
kalöqb'ëj	ka.[ˈlɔqˈ. ɓɛχ]	'you watch it'
xkämsxïk	ʃ[ˈkəm.s(ə).ʃ]ɪk	'he was killed'
kach'äjb'ëj	ka[ˈt͡ʃˈəχ.ɓɛχ]	'you use it to wash'
käqpq'öwsäj	kə.q(ə).[p(ɔ).ˈqˈɔw.səχ]	'we boil it'
kxëkb'a	k[ˈʃɛk.ɓa]	'they hang it'

Chichicastenango K'iche' stress pattern

Chichicastenango K'iche' stress pattern

- Verbs: only last syllable is heavy

Orthography	IPA	Translation
qächpa	qə.[t͡ʃ(ə).ˈ**pa**]	'let's grab it!'
chatja	t͡ʃa[t(ɪ).ˈ**χa**]	'eat it!'
xekla	ʃek[(ɪ).ˈ**la**]	'they went to see them'
chikchu	t͡ʃi.[k(ʊ).ˈ**t͡ʃu**]	'gather (the fire)!'
kïnchkün	kɪn.[t͡ʃ(ə).ˈ**kʊn**]	'I work'
katzküj	ka.[t͡s(ʊ).ˈ**kʊχ**]	'you look for it'

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Chichicastenango K'iche' stress pattern

- Verbs: final syllable stressed by default

Orthography	IPA	Translation
köjchkünïk	kɔχ.[t͡ʃ(ə).ˈ**kʊ**.n]ɪk	'we work'
xätzjöxïk	ʃə[t͡s(ɪ).ˈ**χɔ**.ʃ]ɪk	'it was said'

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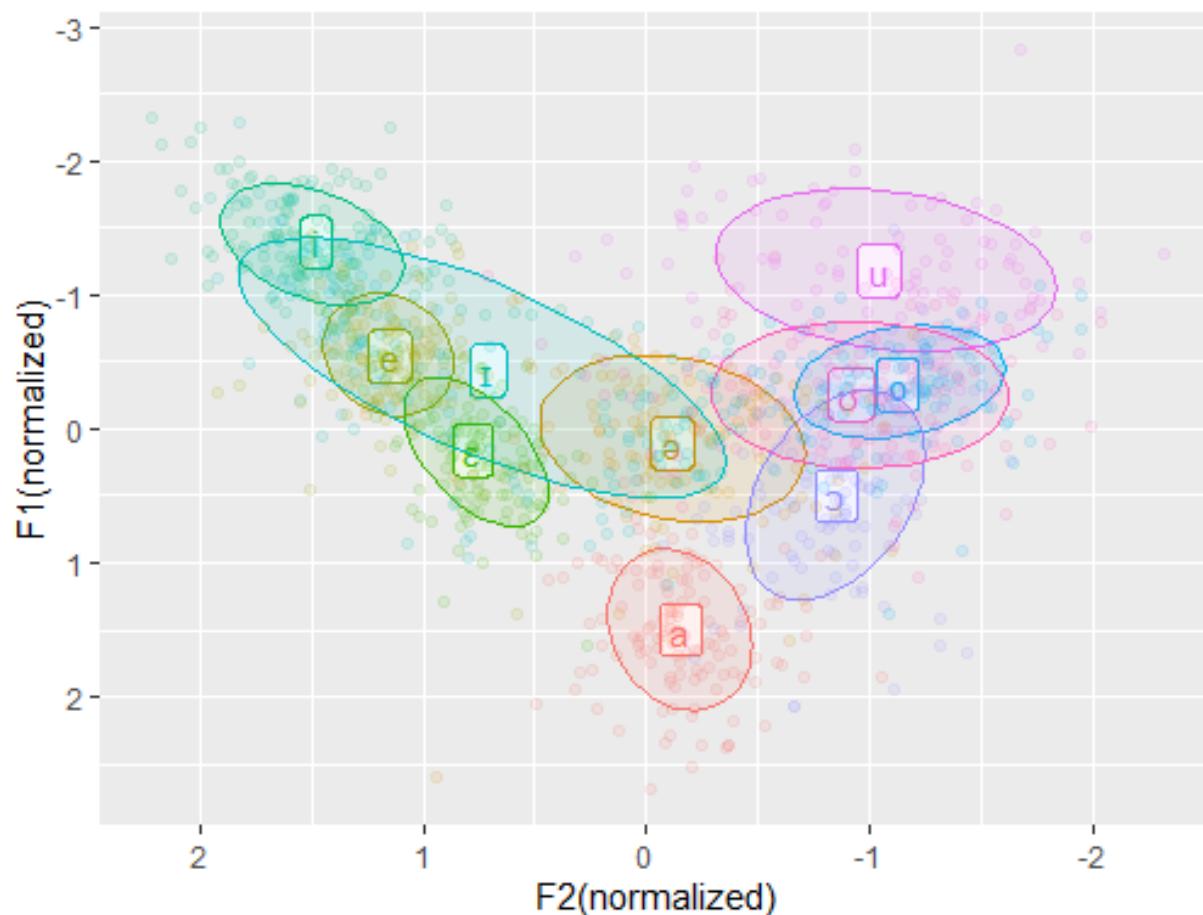
Vowel quality and sonority

- Works on vowel quality-sensitive stress take advantage of its relationship with **sonority** (Kenstowicz 1997; de Lacy 2002; Shih & de Lacy 2019)
  - Height (low > high)
  - Centrality (peripheral > central)

- Is there a contrast in sonority between tense and lax vowels?

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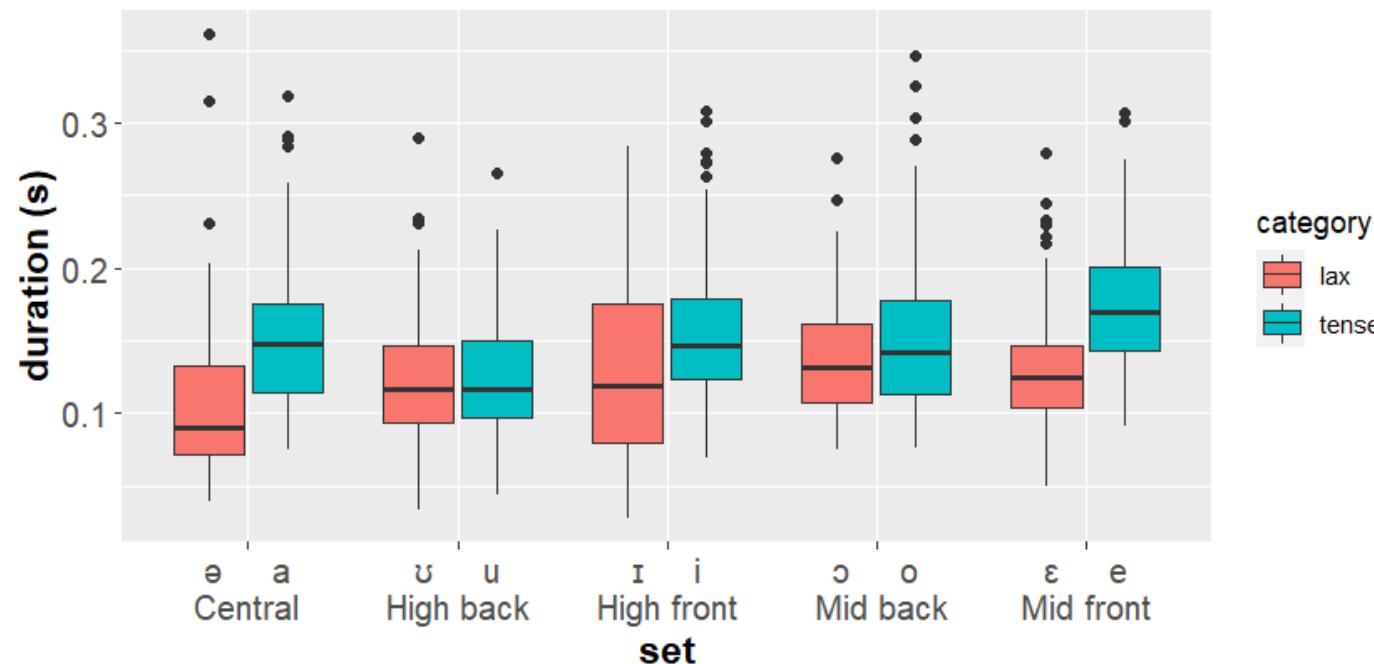
Vowel quality and sonority

- Frontness: no consistent difference between tense and lax

- Height: lax high and mid vowels are lower than their corresponding tense vowel, not the opposite

Vowel quality and sonority

- Duration: no consistent difference between tense and lax

Vowel quality and sonority
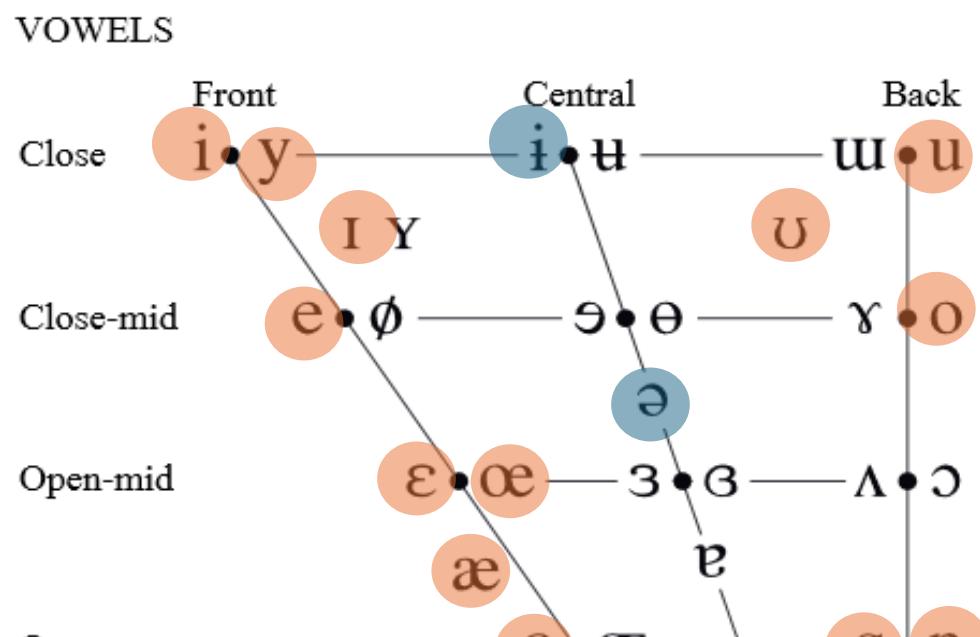
- In languages with sonority-driven stress, the vowels /**ɛ ɔ**/ are considered peripheral and stress-attracting
    - E.g.: Sakao (Guy 1974), Alamblak (Bruce 1984), Parisian French (Collins & Mees 2013)

- These vowels are of greater sonority than /e o/

| High central	Mid central	High peripheral	Mid-high peripheral	Mid-low peripheral	Low peripheral
ɨ ʉ	ɘ ɵ ə ɚ	i y ɯ u	e ø ɤ o	ɛ œ ʌ ɔ	æ a Œ ɑ ɒ
Lower sonority → higher sonority					
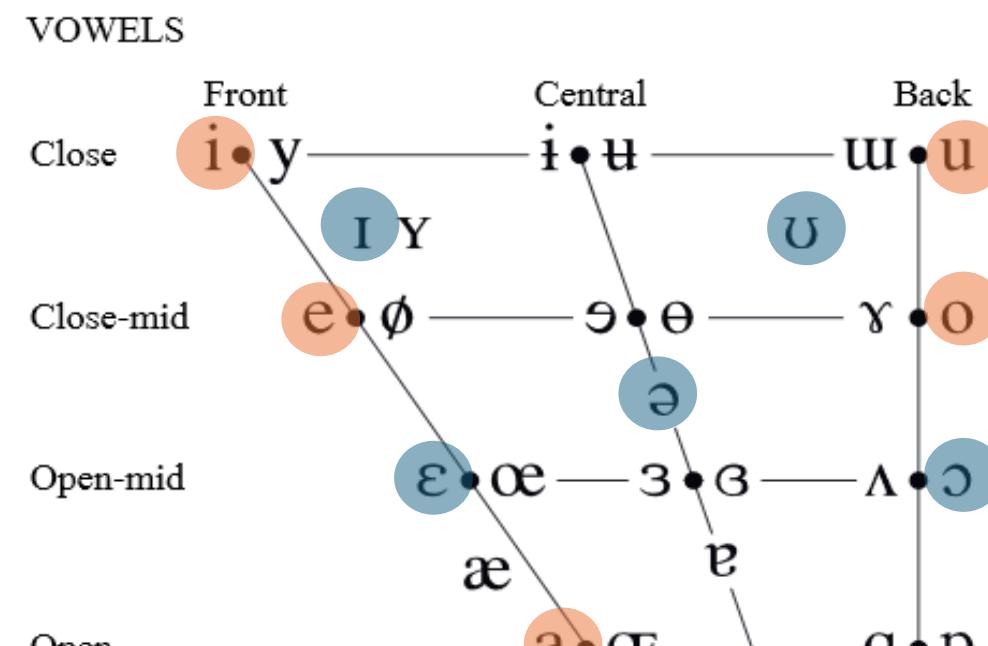
de Lacy's (2002) vowel sonority scale

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Vowel quality and sonority

Stress-attracting vowels (red) and stress-avoiding vowels (blue)

Sonority-driven stress

Tense > lax stress

Vowel chart diagram:https://www.internationalphoneticassociation.org/content/full-ipa-chart

Vowel quality and sonority

- Many (morpho)phonological processes distinguish tense and lax vowels in Chichicastenango K'iche'
  - Vowel deletion pattern
  - Neutralization to tense in onsetless syllables
  - Lax and tense vowels alternate in possessed and unpossessed nouns
  - Lax and tense vowels alternate in active and passive verbs
- The influence of this contrast on the stress pattern is not due to sonority, but to a phonological role specific to the language

Conclusion

- Some languages have stress patterns that depend on vowel quality – correlated to sonority

- In Chichicastenango K'iche' verbs, stress depends on vowel quality (tense > lax) as well as syllable shape (closed > open)

- Tense vowels are not of higher sonority tan lax vowels

- Not all quality-dependent vowel systems have to do with sonority

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Maltyox!
Thank you!

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Bibliography

Baird, Brandon O. 2014. Acoustic correlates of stress in K'ichee': a preliminary analysis. In: Proceedings of Formal Approaches to Mayan Linguistics II, pp. 21–34.

Bruce, Les. 1984. The Alamblak language of Papua New Guinea (East Sepik). Pacific Linguistics Series C Number 81. Department of Linguistics, Research School of Pacific Studies, The Australian National University. https://core.ac.uk/download/pdf/160608405.pdf.

Can Pixabaj, Telma A. 2017. K'iche'. In: The Mayan Languages, Aissen, Judith, Nora C. England, and Roberto Zavala Maldonado (Eds.). 1st edition. London: Routledge Ltd. Chapter 18: 461–499. https://doi.org/10.4324/9781315192345.

Collins, Beverley, and Inger M. Mees. 2013. Practical phonetics and phonology: A resource book for students. Routledge. https://doi.org/10.4324/9780203080023.

de Lacy, Paul. 2002. The formal expression of markedness. PhD thesis, University of Massachusetts, Amherst. http://ezproxy.lib.utexas.edu/login?url=https://www.proquest.com/dissertations-theses/formal-expression-markedness/docview/305525100/se-2?accountid=7118.

England, Nora C. and Brandon O. Baird. 2017. Phonology and phonetics. In: The Mayan Languages, Aissen, Judith, Nora C. England, and Roberto Zavala Maldonado (Eds.). 1st edition. London: Routledge Ltd. Chapter 7: 175–200. https://doi.org/10.4324/9781315192345.

Gordon, Matthew, Edita Ghushchyan, Bradley McDonnell, Daisy Rosenblum, and Patricia A. Shaw. 2012. Sonority and central vowels: A cross-linguistic phonetic study. In: The sonority controversy: 219-256.

Guy, J.B. 1974. A grammar of the northern dialect of Sakao. Pacific Linguistics Series B N° 33. Department of Linguistics, Research School of Pacific Studies, The Australian National University. https://core.ac.uk/download/pdf/160608384.pdf.

Henderson, Robert. 2012. Morphological alternations at the intonational phrase edge: The case of K'ichee'. Natural Language & Linguistic Theory 30.3, pp. 741–787.

Instituto Nacional de Estadística, Guatemala. 2019. XII Censo Nacional de Población y VII de Vivienda. https://www.ine.gob.gt/.

Kenstowicz, Michael. 1997. Quality-sensitive stress. Rivista di Linguistica 9(1), 157–187. http://lingphil.mit.edu/papers/kenstowicz/kenstowicz.1997.pdf.

López Ixcoy, Saqijix Candelaria Dominga. 1994. Las vocales en K'ichee'. Guatemala: Oxlajuuj Keej Maya' Ajtz'iib'.

Par Sapón, María Beatriz and Telma Angelina Can Pixabaj. 2000. Ujunamaxiik ri K'ichee' Ch'ab'al: Variación Dialectal en K'ichee'. Guatemala: Oxlajuuj Keej Maya' Ajtz'iib', Cholsamaj.

Romero, Sergio. 2016. Bill Gates speaks K'ichee'! The corporatization of linguistic revitalization in Guatemala. Language & Communication 47: 154-166.

Shih, Shu-hao. 2018. On the existence of sonority-driven stress in Gujarati. Phonology 35(2): 327–364. https://doi.org/10.1017/s0952675718000064.

Shih, Shu-hao, y Paul de Lacy. 2019. Evidence for sonority-driven stress. Catalan Journal of Linguistics 18: 9–40. https://doi.org/10.5565/rev/catjl.256.

Wood, Elizabeth Anne. 2020. Vowels and stress in Chichicastenango K'iche'. Masters thesis, University of Texas at Austin. https://repositories.lib.utexas.edu/items/30762c1c-ac02-4939-a443-4c422a46f990.

Wood, Elizabeth Anne. 2024. Prosodic structure in spontaneous speech: Phrase-final marking, word-initial glottalization and vowel deletion in Chichicastenango K'iche'. PhD thesis, University of Texas at Austin.