

METRICAL STRESS IN PATTANI MALAY

PITTAYAWAT PITTAYAPORN

JAKRABHOP IAMDANUSH

Department of Linguistics, Chulalongkorn University

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Metrical stress

- Stress is the linguistic manifestation of rhythmic structure (Lieberman 1975; Hayes 1995)
- Acoustic correlates of stress (e.g. Fry 1955, Bolinger 1958)
 - Pitch
 - Duration
 - Intensity (least reliable)
- Correlation with a particular acoustic property is language-specific

Onset-conditioned stress in PM?

- Yupho (1989) claims that PM had final stress except for initial geminates which attract (primary) stress

[ʝa. 'lɛ] 'path' [' ʝa.lɛ] 'to walk'

(SM *jalan*)

(SM *berjalan*)

[ma. 'tɔ] 'eye' ['mma.tɔ] 'jewelry'

(SM *mata*)

(SM *permata*)

[si. 'jɛ] 'Thai' ['ssi.jɛ] 'pity'

(SM *Siam*)

(SM *kesian*)

- Counterexample to Moraic Theory, which holds that onsets do not contribute to syllable weight (Hajek and Goedemans 2003, Topintzi 2008)

Hajek and Goedemans (2003)

- Every single syllable form a foot on its own
- /Ci/ is monomoraic
- CV is phonetically long, thus bimoraic
- CVC is bimoraic
- Geminate onsets CC- are moraic

[bu:.wɔh]	$(\sigma)_{\mu\mu}(\sigma)_{\mu\mu}$
[bbu:.wɔh]	$(\sigma)_{\mu\mu\mu}(\sigma)_{\mu\mu}$
[pɪ.ma.tɔ]	$(\sigma)_{\mu}(\sigma)_{\mu\mu}(\sigma)_{\mu\mu}$
[kɪ.da]	$(\sigma)_{\mu\mu}(\sigma)_{\mu\mu}$

Topintzi (2008)

- Every syllable, except /Ci/, form a foot on its own
- /Ci/ is monomoraic
- CV and CVC are both monomoraic.
- Geminate onsets CC- are moraic

[bu.wɔh] $(\sigma)_{\mu}(\sigma)_{\mu}$

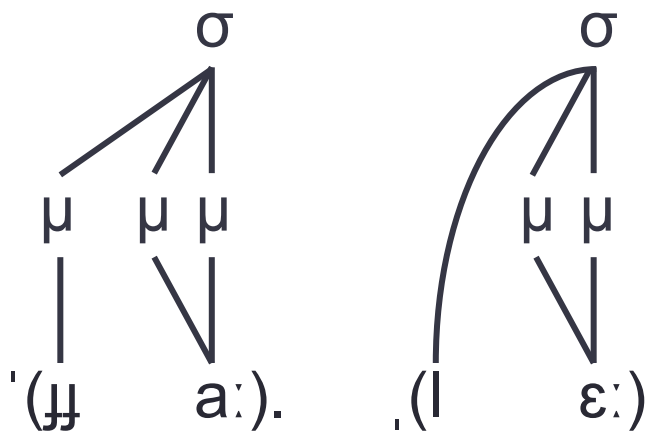
[bbu.wɔh] $(\sigma)_{\mu\mu}(\sigma)_{\mu}$

[pɪ.ma.tɔ] $\sigma_{\mu}(\sigma)_{\mu}(\sigma)_{\mu}$

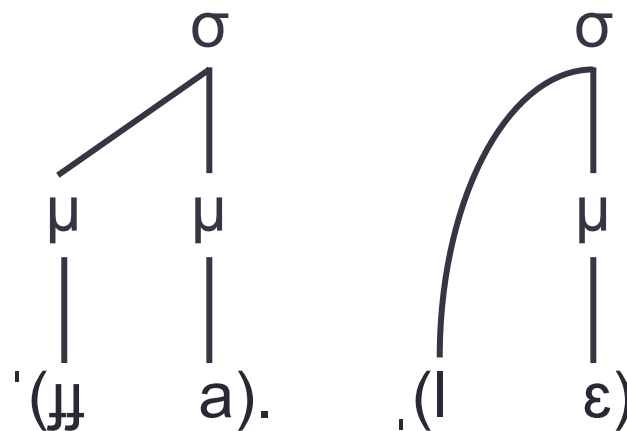
[kki.da] $(\sigma)_{\mu\mu}(\sigma)_{\mu}$

Onset-conditioned stress in PM?

Hajek and Goedemans (2003)



Topintzi (2008)



Problems

- Metrical analysis must resort to typologically unlikely structures
 - Monosyllabic feet are the most common
 - Bisyllabic feet are extremely rare
- Based solely on Yupho (1986), a very brief and impressionistic description
 - Not clear what stress means
 - No phonetic or phonological evidence for stress
 - Only a handful of examples included
- Disagreement on description of stress rule
 - Geminate onsets attracts stress (Yupho 1989, Krisnapan 1985)
 - Contrastive stress but predictable onset gemination (Chotikakamthorn 1981)
 - No onset-stress interaction (Wilding 1972, 1979)

Questions

- Does geminate in PM attract stress?
- How is stress assigned in PM prosodic word?

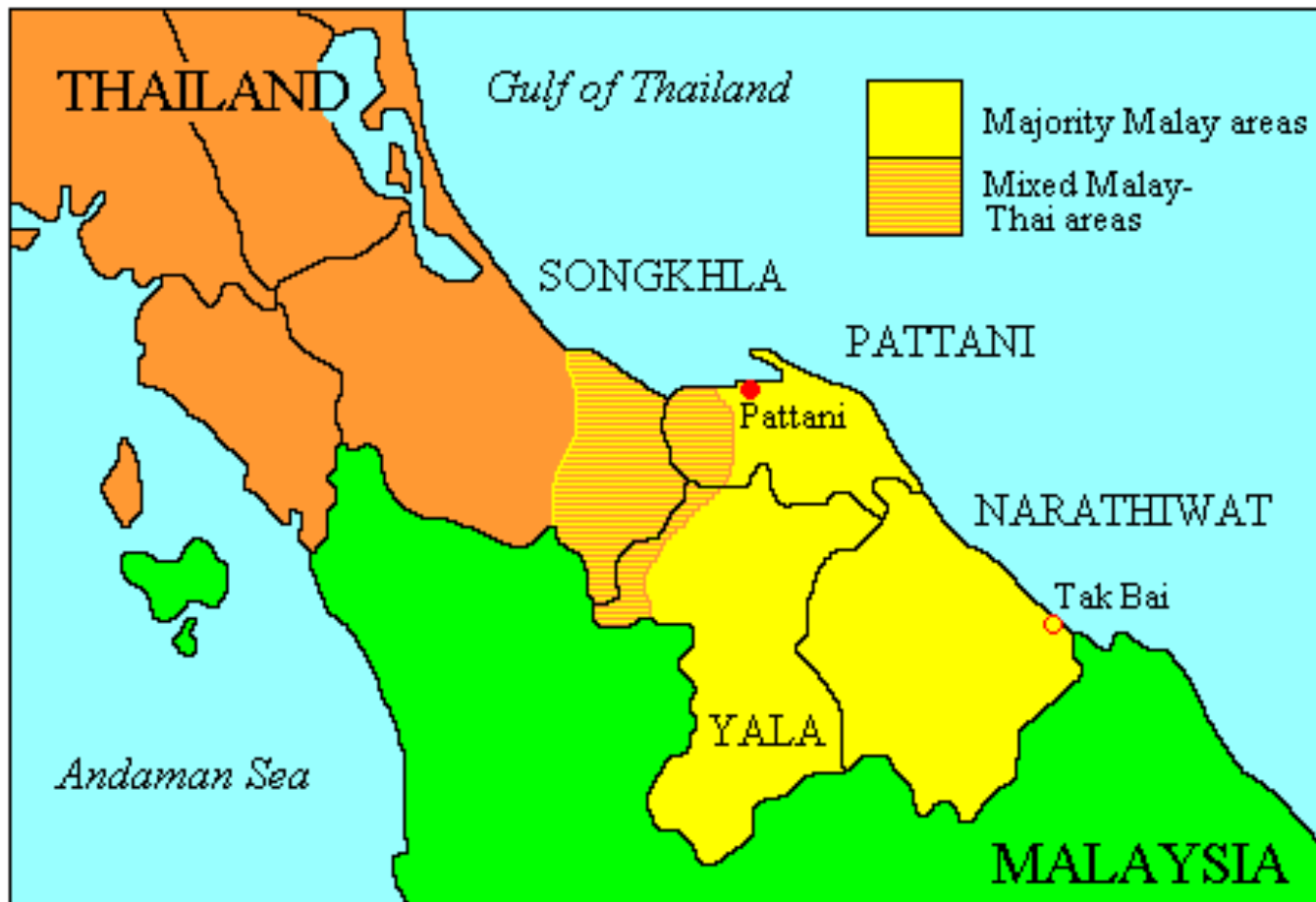
Proposals

- Geminate onsets do not attract stress
- Primary stress always falls on final syllable of the prosodic word

Outline

- Background to PM
- Acoustics of disyllables
- Phonological diagnostics for stress
- Revised stress rules in PM

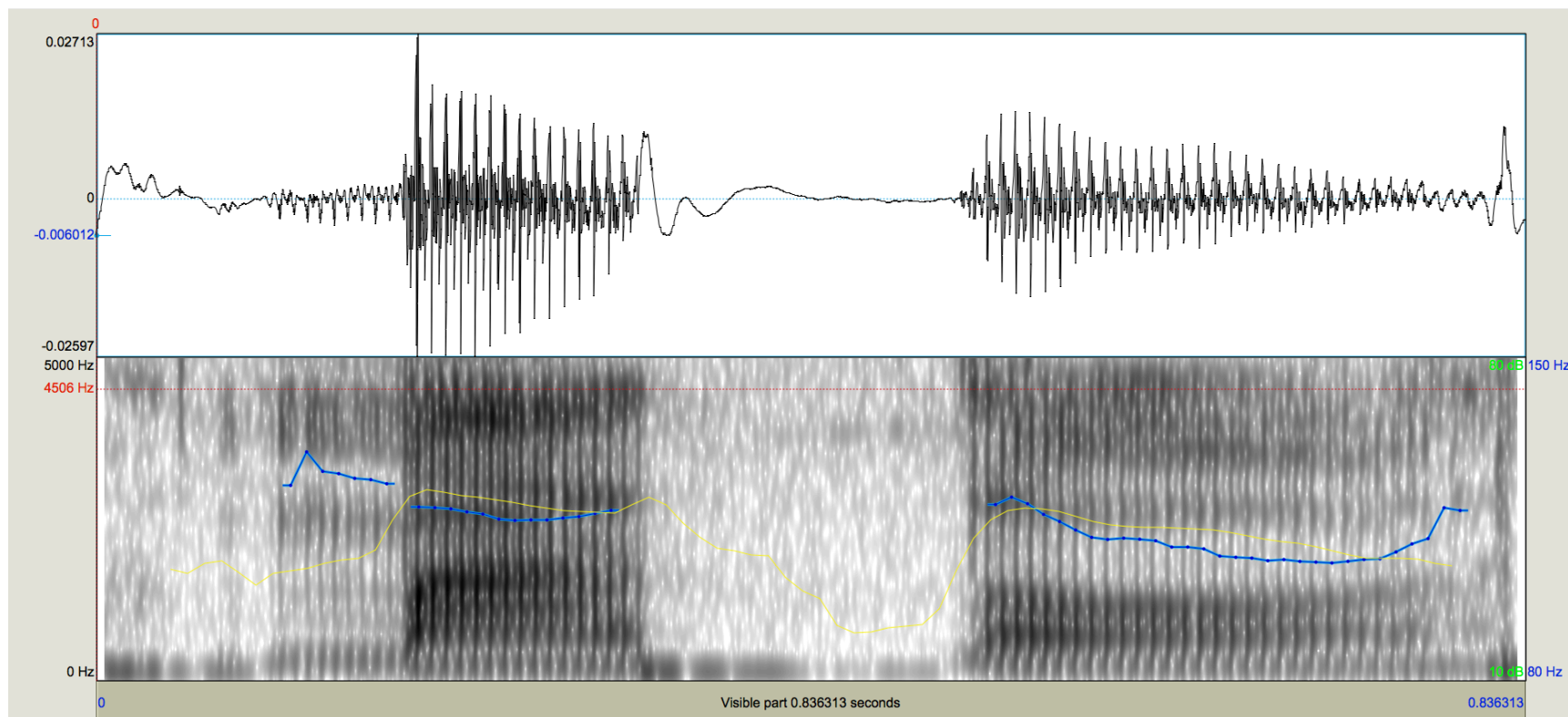
Background to PM



Background to PM

- Spoken in three southernmost provinces of Thailand: Pattani, Yala, and Narathiwat
- More than 1,300,000 speakers according to the latest census (National Statistical Office 2012a, 2012b 2012c)
- Used to be spoken as native language by communities in Bangkok and adjacent areas (Tadmor 1995)
- Closely related to Malay dialects of northeastern Peninsular Malaysia, i.e. Kelantan and Terengganu (Uthai 2011)
- Mainland SEA features found due to long-term contact situation (Uthai 2011), e.g.
 - 8-way contrast in vowel system
 - Less use of derivational morphology

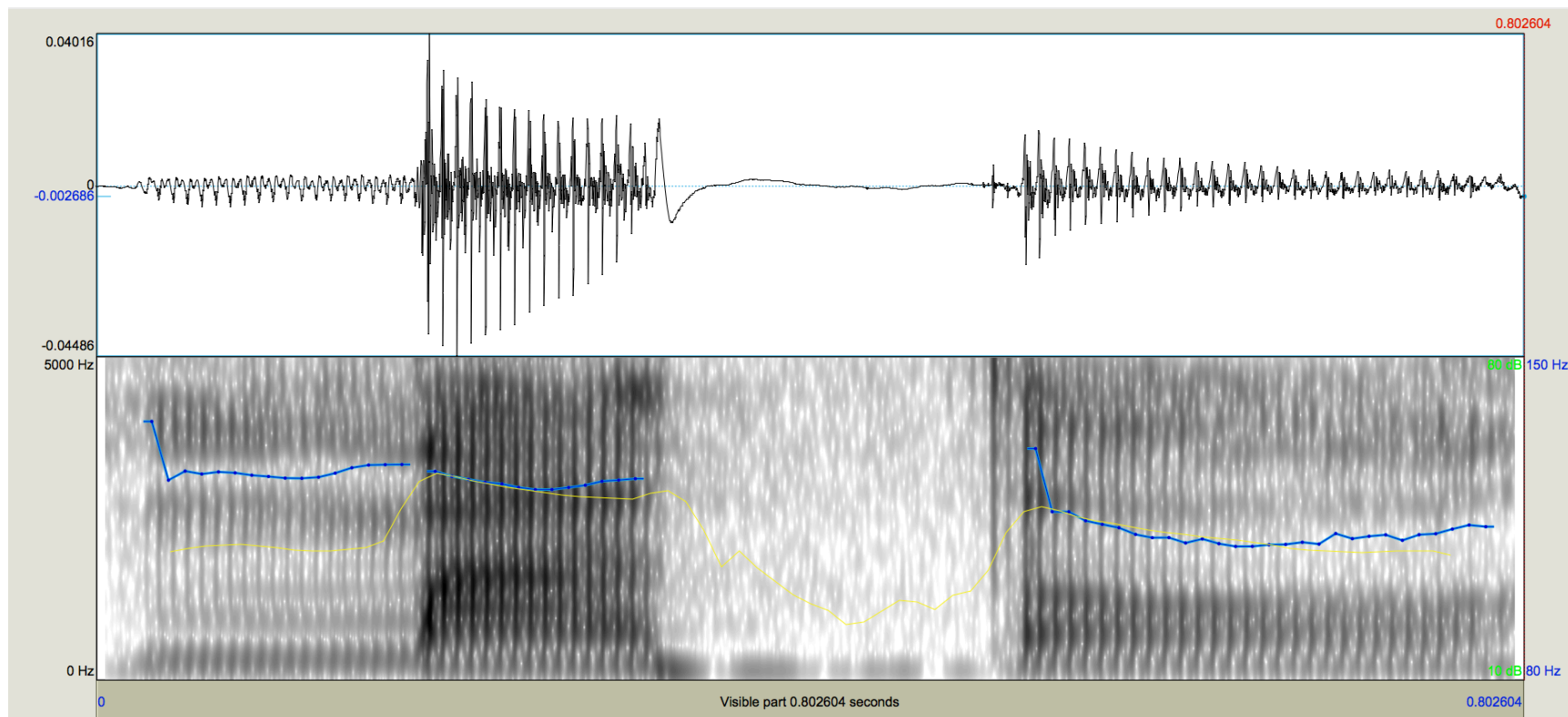
CV.CV(C)



[mato] 'eye'



CCV.CV(C)






[mmato] 'diamond'




CVCV(C) vs. CCVCV(C)

CV.CV(C)

- [matɔ] ‘eye’ 
- [gaji] ‘wage’ 
- [sijɛ] ‘Thai’ 
- [labɔ] ‘profit’
- [katɔʔ] ‘to hit’
- [kuyɔ] ‘spleen’

CCV.CV(C)

- [mmatɔ] ‘diamond’ 
- [ggaji] ‘saw’ 
- [ssijɛ] ‘sympathetic’ 
- [llabɔ] ‘spider’
- [kkatɔʔ] ‘frog’
- [kkuyɔ] ‘turtle’

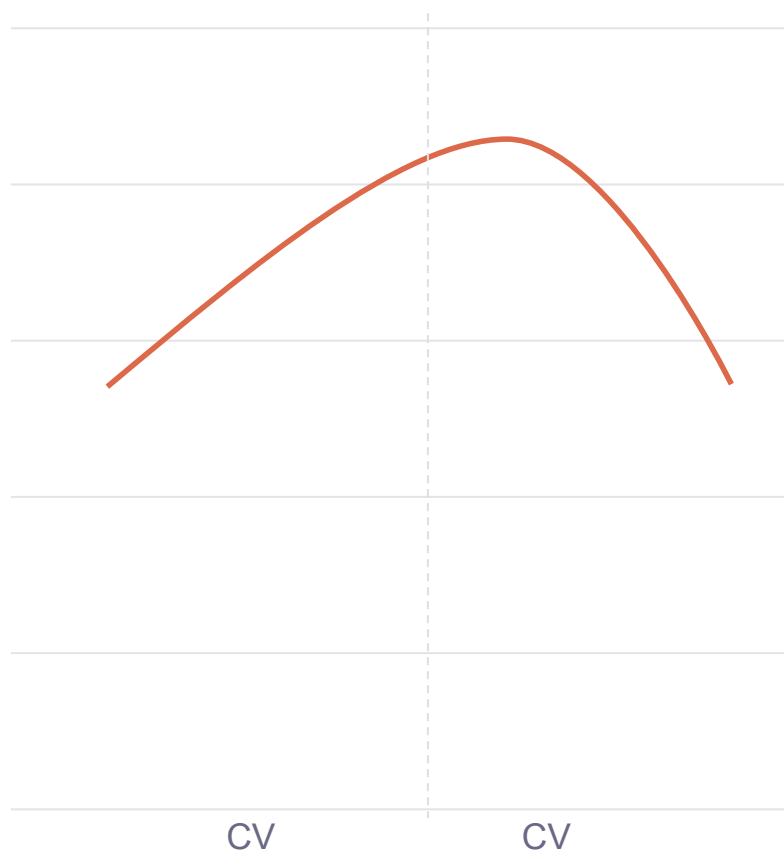
Acoustic predictions

- Claim that geminate onsets attract stress predicts differences in
 - Location of f0 peaks in CV.CV(C) and CCV.CV(C), or
 - Relative intensity between syllables in CV.CV(C) and CCV.CV(C), or
 - Relative duration between syllables in CV.CV(C) and CCV.CV(C)

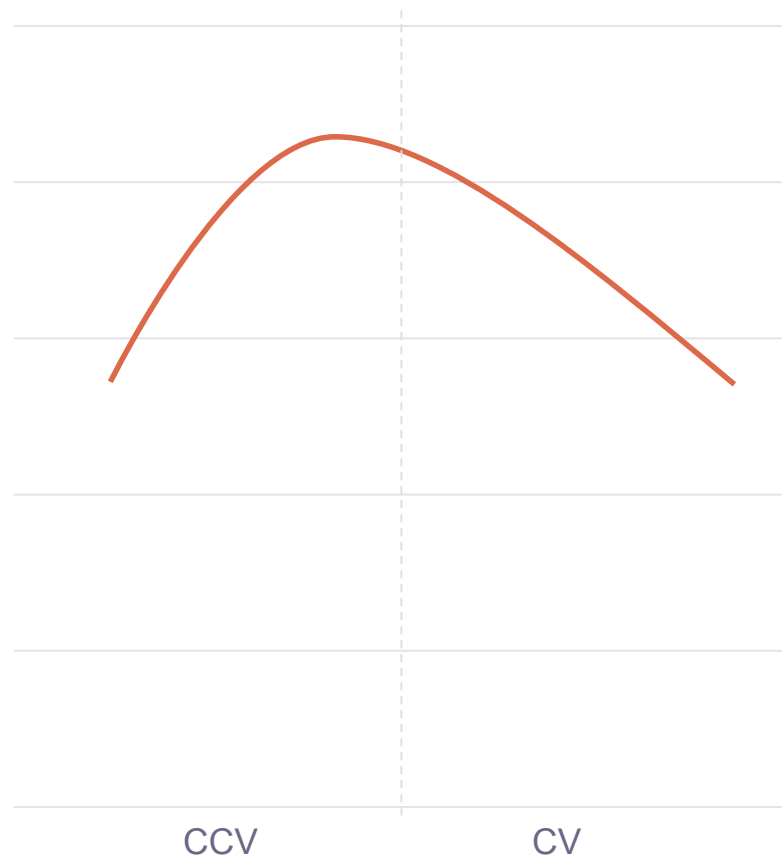
	first syllable	second syllable
CV.CV		higher intensity f0 peak longer duration
CCV.CV	higher intensity f0 peak longer duration	

Acoustic predictions

Pitch and intensity of CV.CV

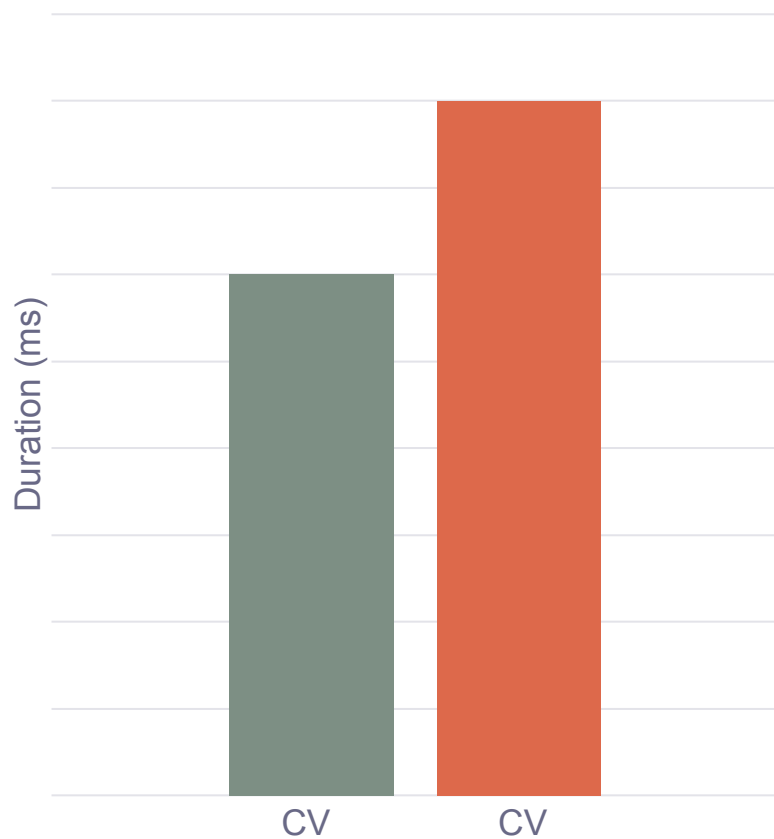


Pitch and intensity of CCV.CV

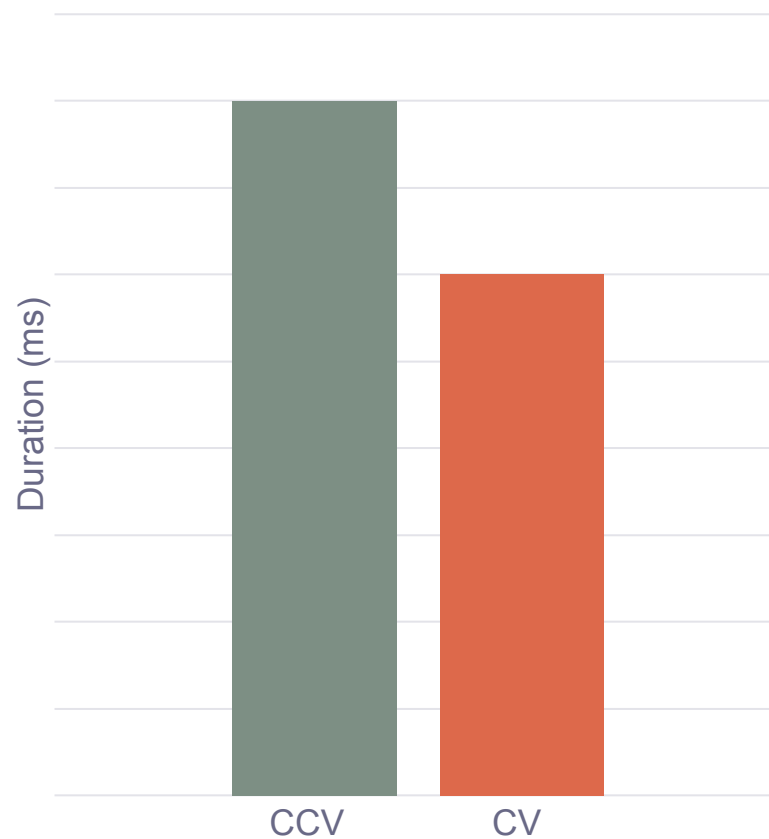


Acoustic predictions

Duration of CV.CV



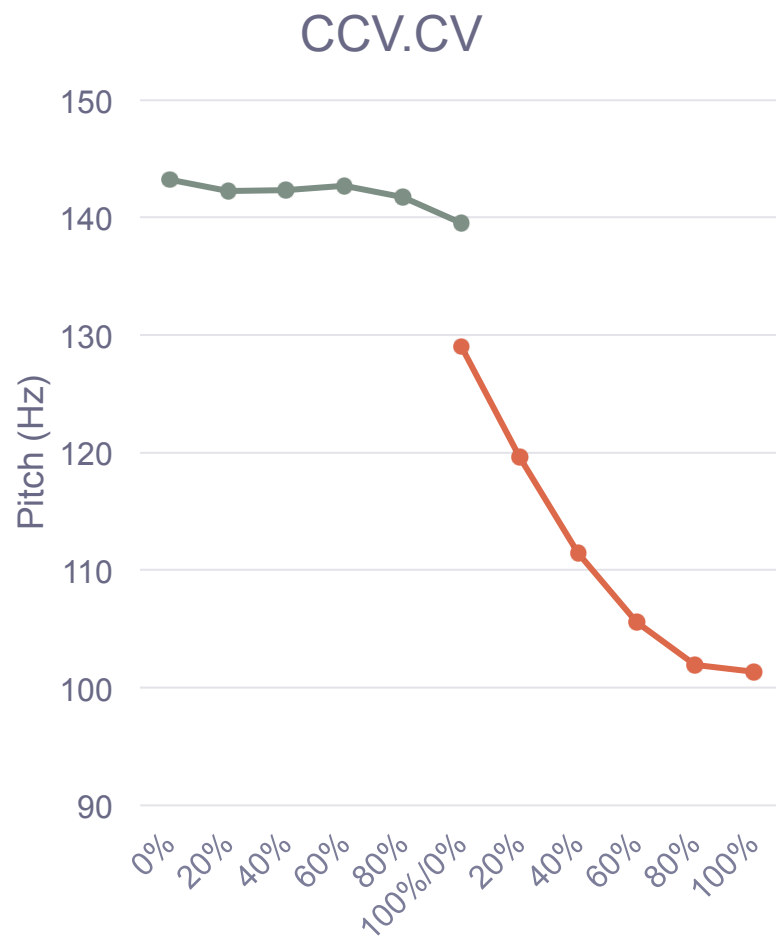
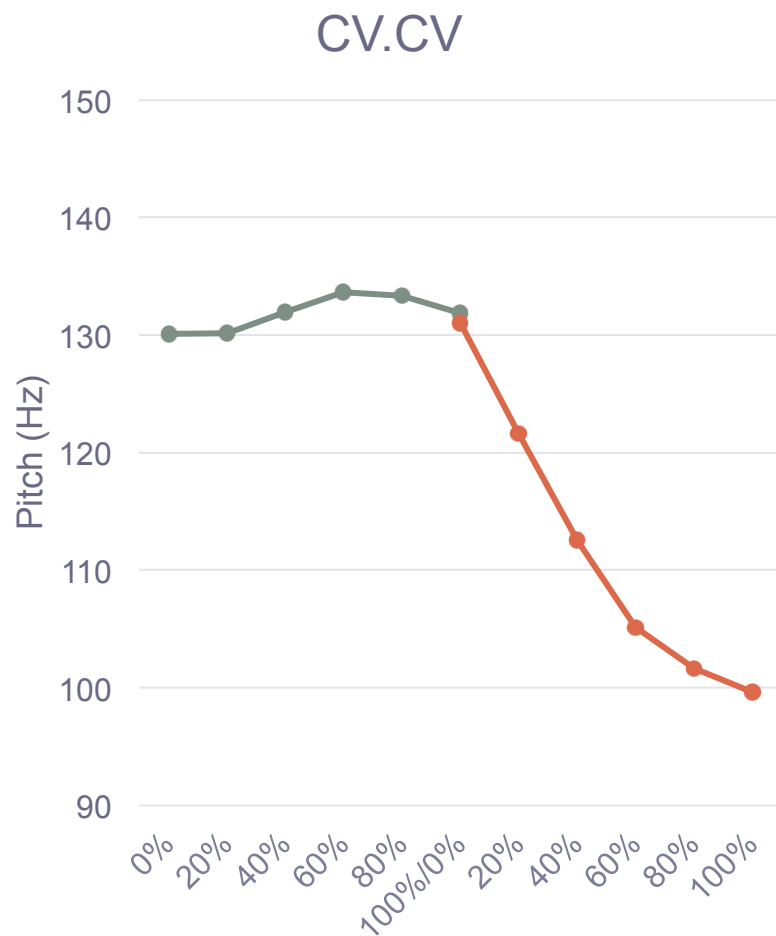
Duration of CCV.CV



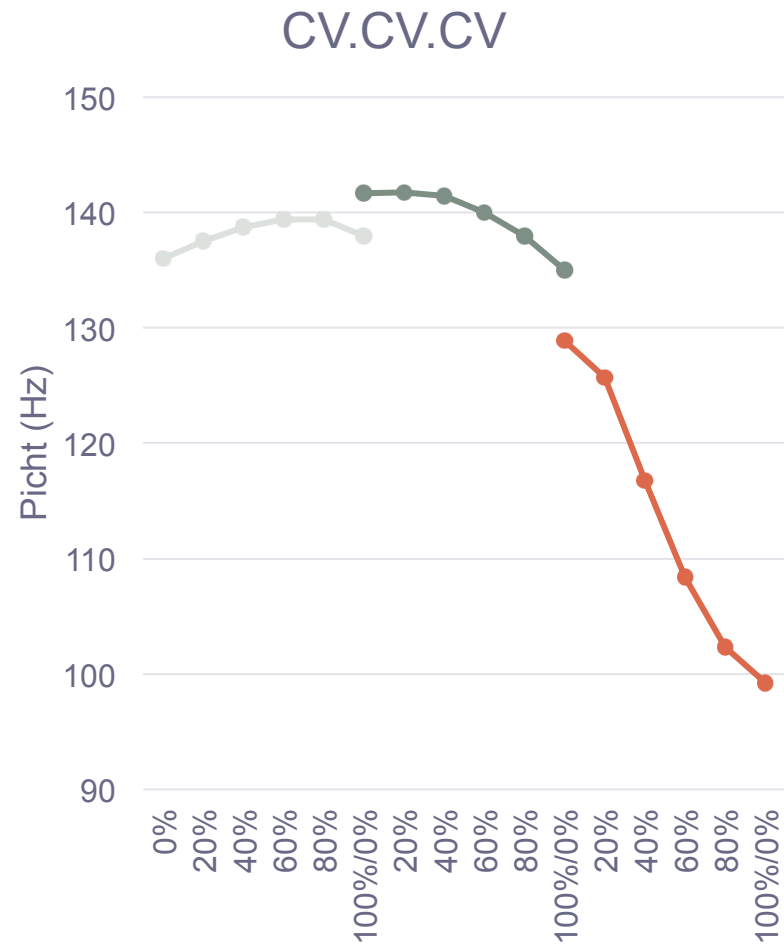
Pitch profiles

- Disyllables and trisyllables in citation forms all have falling f₀ contours (Phuengnoi 2010)
- First syllable of CCV.CC has higher f₀ than CV.CV but the f₀ peaks of both word types are located in the first syllables (Phuengnoi 2010)
- Higher pitch on CCV- is a correlate of geminate onset, not stress (Abramson 1998, 1999, 2003)
- Falling pitch patterns seem more related to intonation than stress

Pitch profiles



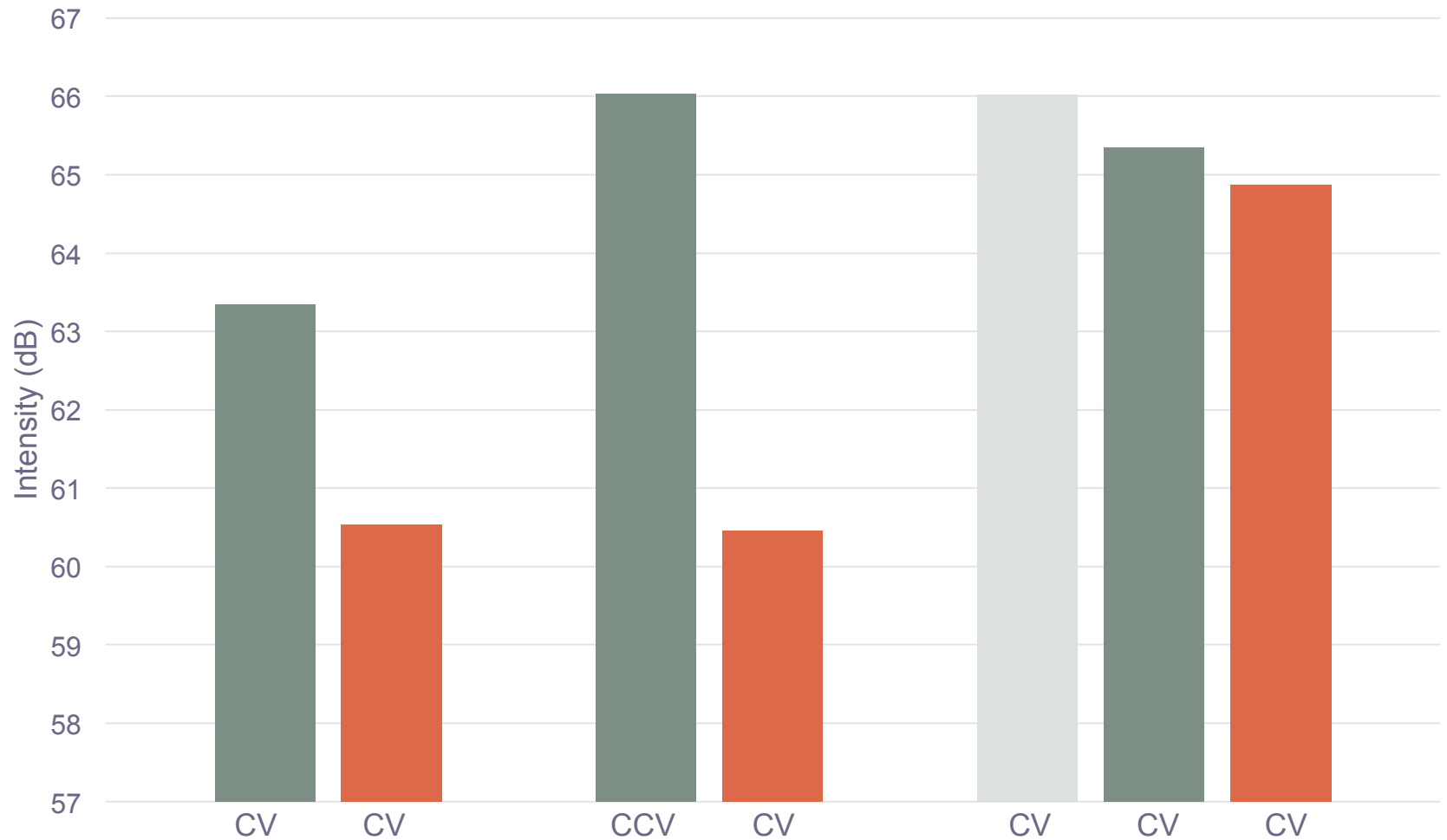
Pitch profiles



Intensity profile

- Disyllables and trisyllables in citation forms all have falling intensity contours (Phuengnoi 2010)
- First syllable of CCV.CV has higher intensity than CV.CV but the first syllable has higher intensity than the final in both word types (Phuengnoi 2010)
- Higher intensity on CCV- is a correlate of geminate onset, not stress (Abramson 1998, 2003)
- Falling intensity patterns seem related to intonation or automatic effects in speech production

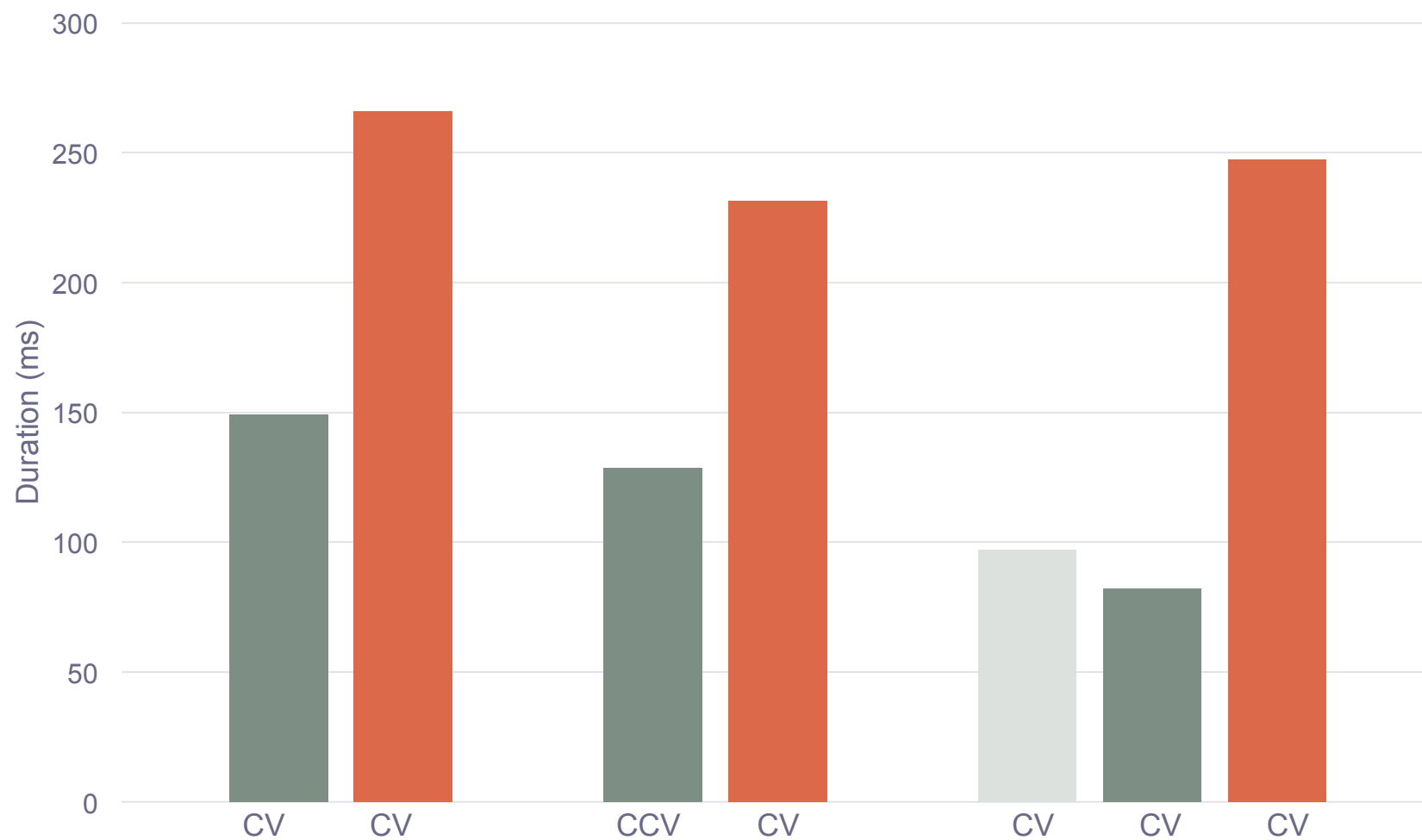
Intensity profiles



Duration profile

- Final syllables in disyllables and trisyllables are the longest (Phuengnoi 2010)
- First syllable of CCV.CV has **shorter** duration than CV.CV but the first syllable has shorter duration than the final in both word types (Phuengnoi 2010)
- **Shorter** duration on CCV- is a correlate of geminate onset, not stress (Abramson 1998, 2003)
- Duration might be a correlate of stress, or relates to final lengthening

Duration profiles



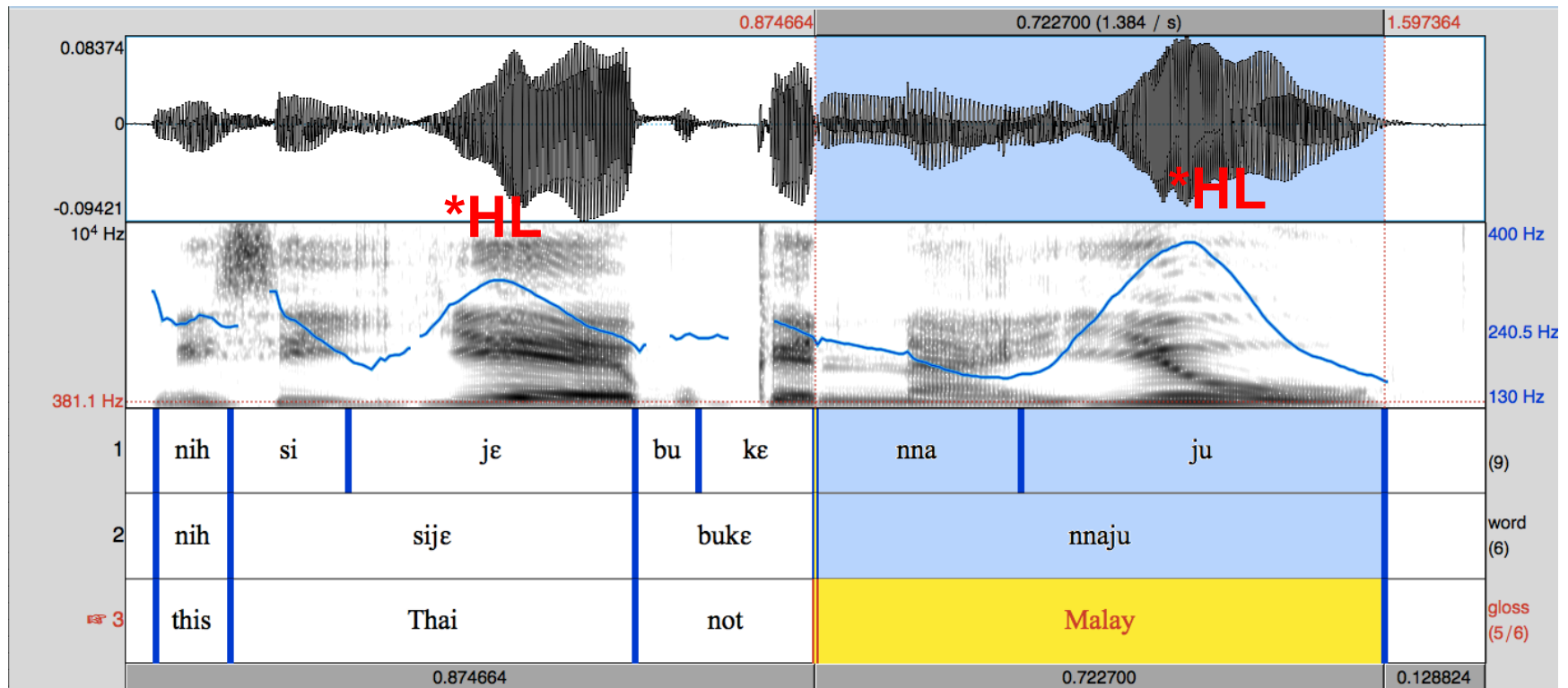
- Acoustic profiles of disyllables are not consistent with the predictions made by the claim that geminate onsets attract stress
- Abramson (1998) shows that vowels following geminate onsets have significantly higher pitch, higher intensity but shorter duration
- Acoustic/perceptual salience on CCV syllables is most likely property of the onset, not stress
- Stress does not seem to be attracted by geminate onsets

Phonological diagnostics

- Hayes (1996) discusses four diagnostics for stress
 - **Attraction of nuclear intonational tones**
 - **Vowel quality and segmental rules**
 - Non-nuclear intonational tones
 - Rhythm rule

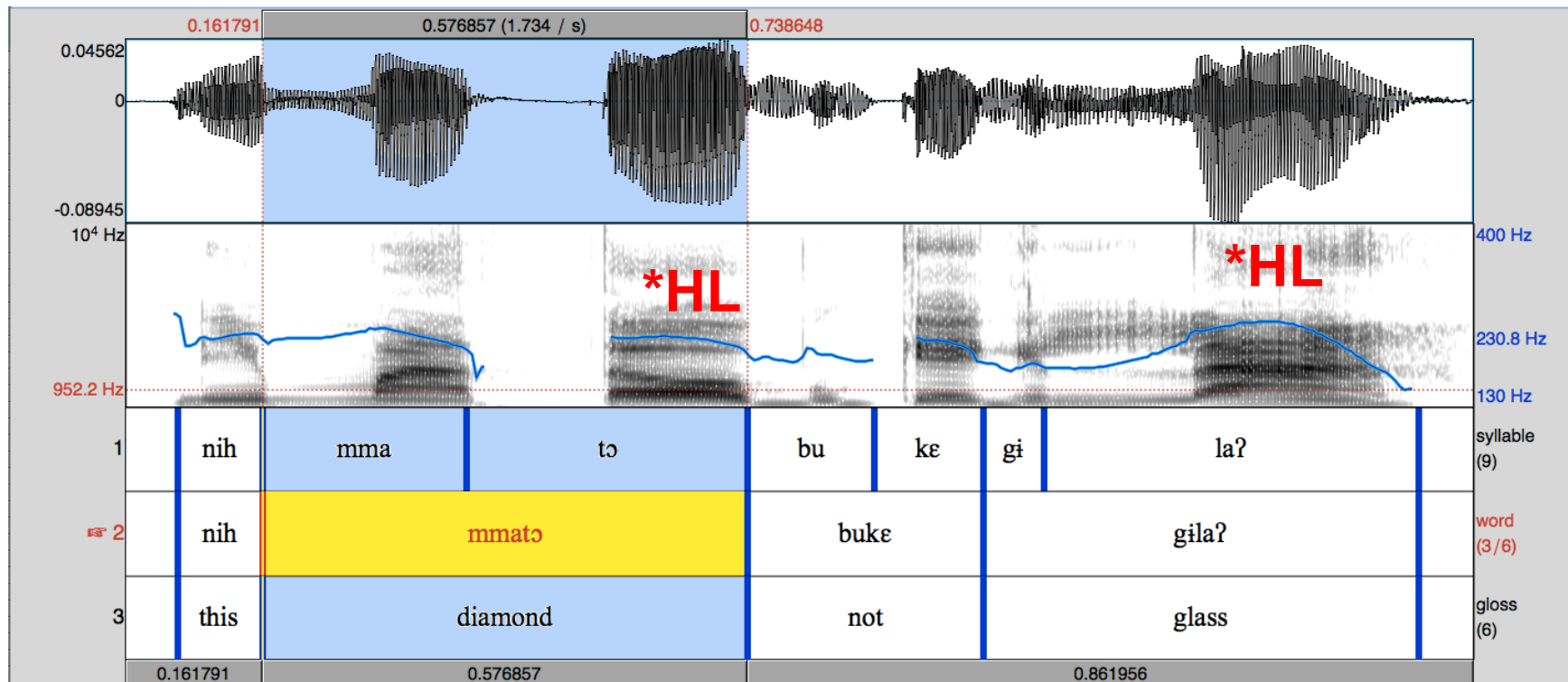
Location of nuclear tones

- Nuclear tones are pitch patterns attached to the nucleus of the intonation pattern and to any following syllables
- Nuclear tones should be aligned with the stressed syllables of the prosodic words that bears them



‘This is Thai, not Malay’





‘This is diamond, not glass’



- In PM contrastive focus, the nuclear tone *HL is clearly aligned with the final syllables
 - Location of F0 peak in final syllables
 - Phonetic lengthening of final syllable vowel
- Location of nuclear tones does not support the hypothesis that PM geminate onsets attract stress

Vowel quality

- Distribution of neutral vowel /ɨ/
- Distribution of mid vowel /e/ and /o/

Neutral vowel

- Neutral /i/ is phonetically very short, often not audible, and sometimes deleted

[k*i*.li]

‘catfish’ (SM *keli*)

[b*i*.yaʔ]

‘heavy’ (SM *berat*)

[l*i*. 'm^bεʔ]

‘softshell turtle’

[kk*i*. 'da]

‘to/at/from market’

(SM *ke/di/dari kedai*)

[p*i*. ,yεʔ. 'sɔ] ~ [ffεʔ.sɔ]

‘check’ (SM *periksa*)

[k*i*.yε. 'tɔ] ~ [xxε 'tɔ]

‘car’ (SM *kereta*)

- No /i/ in final syllable even in CCV.CV(C) suggesting that the final syllable is a specially strong position

Mid vowel

- Avoidance of /e, o/ in non-final open (=light) syllable
- Except in penultimate of trisyllables , especially words with “suffixes”

[pi.ke]	‘to think’ (SM <i>fikir</i>)	[pi.ke.ʏɛ]	‘thought’ (SM <i>fikiran</i>)
[a.de]	‘just’ (SM <i>adil</i>)	[ki.a.de.lɛ]	‘justice’ (SM <i>keadilan</i>)
[ku.ko]	‘to scrape’ (SM <i>kukur</i>)	[ku.ko.ʏɛ]	‘coconut scraper’ (SM <i>kukuran</i>)

- Lexical exceptions are possibly code-switches

[me.to]	‘cubic metre’
[ma.le.si.ja]	‘Malaysia’
[he.ro.iŋ]	‘heroin’
[re.da]	‘radar’
[ko.si.na]	‘advertisement’ (Thai khō:sanā:)
[tho.ra.saʔ]	‘telephone’ (Thai thō:rasàp)
[tho.ra.thaʔ]	‘television’ (Thai thō:rathát)
[ro.ha.ni]	‘spiritual’
[o.li.jaŋ]	‘iced black coffee’ (Thai ʔō:liəŋ)

- Acoustics of disyllables are not consistent with the prediction with the claim that geminate onsets attract stress
- Phonological diagnostics indicates that PM prosodic words are ALWAYS in the final syllable

Revised stress rule

- Data
 - Dictionaries
 - Elicitation from native speakers
 - Simplex prosodic words (no compound etc.)

Monosyllables

- Content monosyllables are always stressed regardless of syllable structure
 - ['gi] 'to go' (SM *pergi*)
 - ['caʔ] 'color' (SM *cat*)
 - ['bɔh] 'to flood'

Primary stress

- Primary stress always on the last syllable

[co. 'mɛ] 'beautiful' (SM *comel*)

[ta. 'noʔ] 'horn' (SM *tandok*)

[tu. 'leh] 'to write' (SM *tulis*)

[da. 'gin] 'meat, flesh' (SM *daging*)

[nna. 'ju] 'Malay' (SM *Melayu*)

[ɲna. 'laʔ] 'to bark' (SM *menyalak*)

[bbu. 'woh] 'to bear fruit' (SM *berbuah*)

[tta. 'nin] 'Pattani'

[bi. ,na. 'so] 'to perish' (SM *binasa*)

[tho. ,ra. 'saʔ] 'telephone'

Default secondary stress

- Penultimate of CV.CV.CV(C)
 - [bi.,**na**.'sɔ] 'to perish' (SM *binasa*)
 - [tho.,**ra**.'saʔ] 'telephone'
- Antepenultimate of CV.CV.CV.CV(C)
 - [ma.,**nu**.si.'jɔ] 'human' (SM *manusia*)
 - [mu.,**tu**.si.'ka] 'motorcycle'
 - [ma.,**sa**.ʔa.'lɔh] 'problem' (SM *masalah*)
- By default, even syllables from left

Syllable weight

- Heavy syllables always stressed

[,jah.'jɔ] 'Yahya'

[,daʔ.'waʔ] 'ink' (SM *dakwat*)

[,piŋ.'pɔŋ] 'ping-pong'

[mi.'lɛʔ.'kaʔ] 'angel' (SM *malaikat*)

[,moʔ.si.'jaʔ] 'vice' (SM *maksiat*)

[,maʔ.ti.la.'maʔ] 'goal' (SM *matlamat*)

- Stressed syllables need not be heavy

Invisible /ɨ/

- Syllable with /ɨ/ is never stressed

[kɨ. 'li] 'catfish' (SM *keli*)

[bɨ. 'yaʔ] 'heavy' (SM *berat*)

[kkɨ. 'da]
(SM *ke/di/dari kedai*)

[llɨ. 'm^bɛʔ] 'softshell turtle'

[kɨ.ma. 'ya] 'drought' (SM *kemarau*)

[,ben.ɡɨ. 'yaʔ] 'bankrupt'

[sɨ.tɨ. 'ɣu] 'enemy' (SM *seteru*)

[mɨ.na. ,sa. 'bɔh] 'reasonable' (SM *menasabah*)

[,mu.sɨ.tɔ. 'hɔʔ] 'important' (SM *mustahak*)

Explaining the “exceptions”

- Penultimate syllables in these “exceptional” cases receive secondary stress

[pi. **ke.** 'ʏɛ] (SM *fikiran*)

[ki.a. **de.** 'lɛ] ‘justice’ (SM *keadilan*)

[ku. **ko.** 'ʏɛ] ‘coconut scraper’ (SM *kukuran*)

- They are in fact not exceptions to the distributional restrictions of the mid vowels /e/ and /o/

Conclusion

- Geminate onsets in PM do not attract stress but primary stress always falls on final syllables
- Geminate onsets in PM do not contribute to weight
- PM is not an example of languages with moraic onsets



Acknowledgment

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