

Austronesian prosody and contrast preservation

Daniel Kaufman

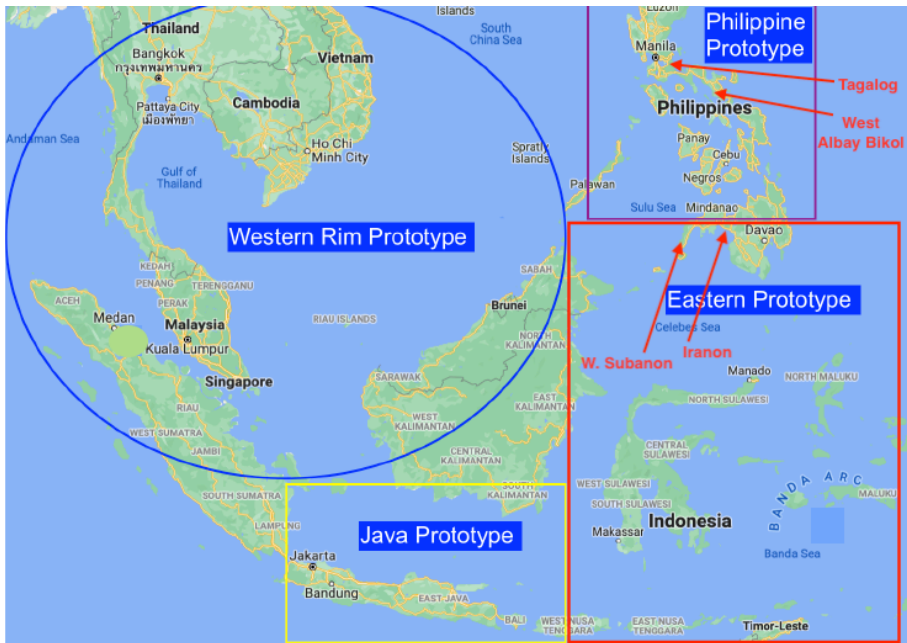
Queens College & ELA

June 14, 2024

- 1 Introduction
- 2 An Austronesian areal prosodic typology
- 3 Tagalog-type prosody: stress vs. length
- 4 Intonation and the role of contrast enhancement
- 5 Philippine languages outside the prototype
 - Iranon
 - Western Subanon
 - West Albay Bikol
- 6 Conclusion: A unified account of “default stress” and durational prominence

Austronesian prosodic typology (Kaufman and Himmelmann forthcoming)

- Four areal zones:
 - ▶ **Western Rim prototype:** Final prominence either on the word or phrase level.
 - ▶ **Philippine prototype:** Phonemic vowel length distinction in open penultimate syllables. Both initial and final phrase edges are tonal targets, with long vowels in penultimate position in a phrase attracting (intonational) edge tones. Suffixes but not clitics shift length rightwards.
 - ▶ **Java prototype:** No length distinctions and no other type of word-level prominence. Prominence in pitch, duration and intensity is inherited from higher prosodic levels (prosodic phrase and intonational phrase). Effects of suffixes and enclitics on prominence are highly variable and often difficult to discern.
 - ▶ **Eastern prototype:** No phonemic length/stress. Penultimate prominence on the phrasal or word level, commonly shifting to final position to avoid schwa.



Introduction

- In recent work with colleagues (Farinella et al. to appear, 2023; Kaufman and Farinella 2022) we've explored the Java prototype and Eastern prototype from an acoustic and multimodal perspective.
- Today, I explore certain margins of the Philippine prototype to fill in some descriptive gaps and make a hypothesis about how and to what extent Philippine languages vary in their prosodic systems.
- I aim to answer the following questions:
 - ▶ What are the Philippine patterns that fall outside of the Philippine prototype?
 - ▶ What happens when Philippine languages lose contrastive vowel length in roots?
 - ▶ What is the status of (default) trochaic stress and iterative footing in the Philippines?

Introduction

- On a deeper level, I would like to explore why the Philippine prototype is the way it is and why certain “parameter settings” are not found in Philippine languages. Specifically,
 - ▶ Why is contrastive vowel length only found on the penultimate syllable of roots?
 - ▶ Why is final syllable prominence the default pattern for languages that have contrastive vowel length?

Parameters

- Philippine prominence parameters:
 - ▶ Contrastive vowel length in roots?
 - ▶ Root length restricted to penult?
 - ▶ Root length restricted to open σ ?
 - ▶ Vowel length shifts with suffixation?
 - ▶ Vowel length shifts with enclitics?
 - ▶ Final prominence shifts with enclitics?
 - ▶ Morphological function for vowel length?
 - ▶ Default final prominence?
 - ▶ Penultimate closed σ attracts stress?
 - ▶ Iterative footing/prominence?
 - ▶ Vowel reduction in non-prominent syllables?

Parameters

- Philippine prominence parameters:
 - ▶ Contrastive vowel length in roots? **Cent. and N. Phil.**
 - ▶ Root length restricted to penult? **Almost always**
 - ▶ Root length restricted to open σ ? **Almost always**
 - ▶ Vowel length shifts with suffixation? **Almost always**
 - ▶ Vowel length shifts with enclitics? **Almost never**
 - ▶ Final prominence shifts with enclitics? **Almost always**
 - ▶ Morphological function for vowel length? **Cent. and N. Phil.**
 - ▶ Default final prominence? **Cent. and N. Phil.**
 - ▶ Penultimate closed σ attracts stress? **Bisayan**
 - ▶ Iterative footing/prominence? **Certain southern languages??**
 - ▶ Vowel reduction in non-prominent syllables? **Certain southern languages**

Parameters

- Few of these parameters are truly independent. Besides obvious dependencies, there are some unexpected entailments:
 - ▶ Penultimate closed σ attracts stress \models Contrastive V-length in roots
 - ▶ No contrastive V-length \models Default penultimate prominence
 - ▶ Contrastive V-length in roots \models Default final prominence
 - ▶ “ ” \models No iterative footing
- The best account of Philippine prosodic systems should predict these entailments.

What is stress?

- “Stress” is too often treated as a universal property realized in language X with duration, language Y with pitch, language Z with intensity, etc., a problem already noted by Bolinger (1958), among others.
- More careful analyses show the need to separate durational prominence, pitch movements and intensity levels, as these may all have their own organizing principles.
- A major problem in studies of stress is that speakers of canonical stress languages hear word stress where it doesn't exist (“stress ghosting”) and many of the relevant languages have been described by speakers of canonical stress languages.

What is stress?

- Himmelmann (2022:348): West Germanic stress as a “multi-dimensional cluster concept”.
 - ① acoustic and auditory prominence
 - ② phonotactic structure, phonological alternations
 - ③ metrical structure (foot structure)
 - ④ lexical structure
 - ⑤ function in text-tune alignment (intonational anchoring)
 - ⑥ function in conveying information-structural distinctions
- These properties are typically not linked outside of this language group/area! (cf. Gordon and Roettger 2017; Roettger and Gordon 2017).

What is stress?

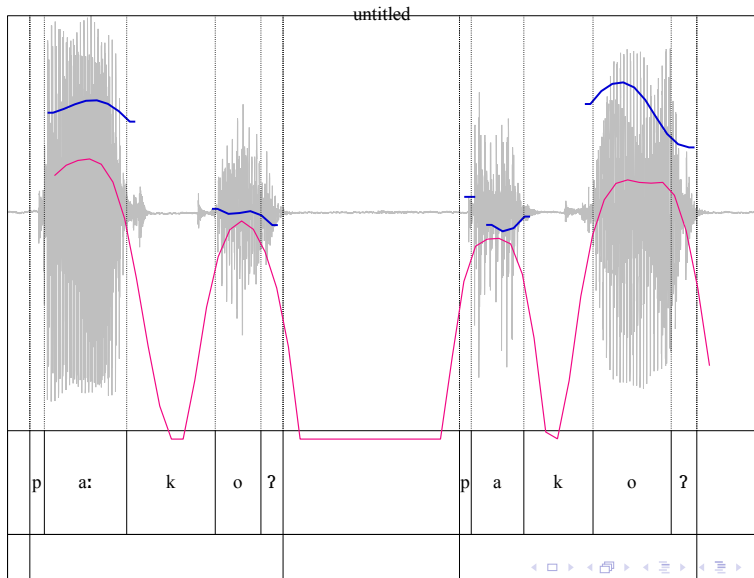
- Hyman (2006:231) identifies the following two key properties of stress systems, which I adopt as criterial:

- (1) “A language with stress accent is one in which there is an indication of word-level metrical structure meeting the following two central criteria:
 - a. **OBLIGATORINESS:** every lexical word has at least one syllable marked for the highest degree of metrical prominence (primary stress);
 - b. **CULMINATIVITY:** every lexical word has at most one syllable marked for the highest degree of metrical prominence.”

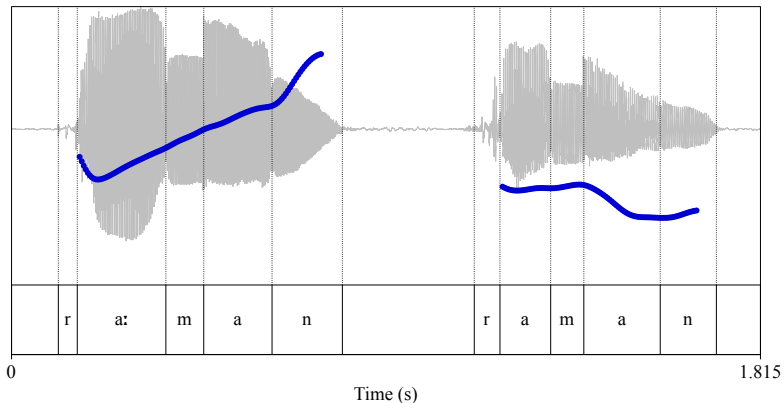
The deceptive nature of Tagalog “stress”

- Tagalog has been described as having contrastive stress in which some roots have penultimate (or “paroxytone”) stress, e.g. *sábi*, while others have final (or “oxytone”) stress, e.g. *bilí* ‘buy’.
- “Stress” even has a morphological function in Tagalog, e.g. *báyad* ‘payment’ *bayád* ‘paid’.
- As noted by several authors (Zorc 1972; Schachter and Otanes 1982; Wolff et al. 1991), penultimate and final stress are not phonetically symmetrical.
- **Penultimate stress but not final stress correlates with vowel length in Tagalog.**
- This pattern is found not only in Tagalog but in the majority of Philippine languages (hence the “Philippine prototype”).

Tagalog paroxytone vs. oxytone



Ilokano paroxytone vs. oxytone

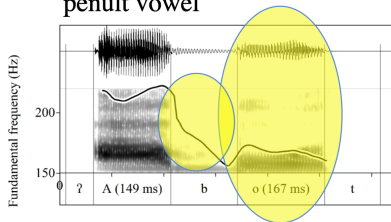


Two kinds of word in Tagalog

(Gonzalez 1970, Anderson 2006, Klimentko & al. 2010, Hwang & al. 2019, Reed 2022)

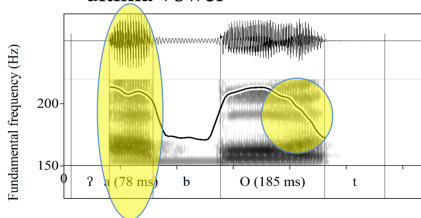
penult-prominent

- **ʔábot** ‘power, capacity’
 - penult & ultima both long
 - ultima quieter
 - citation form: pitch drop after penult vowel



ultima-prominent

- **ʔabót** ‘arrival’
 - penult short, ultima long
 - penult & ultima both loud
 - citation form: pitch drop late in ultima vowel



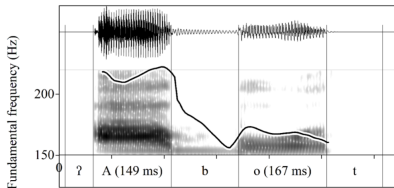
Stress analysis

(Bloomfield 1917, Ramos 1981, French 1988, French 1991, Sabbagh 2014, Richards 2017)

penult-prominent

• ʔábot = /ʔabot/

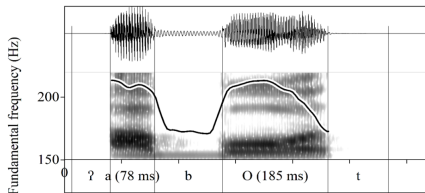
- explains pitch accent location
- stipulates post-accent syll. quiet
- penult long because stressed
 - ultima long because word-final



ultima-prominent

• ʔabót = /ʔa'bot/

- explains pitch accent location
- stipulates stressed ultimas aren't appreciably lengthened beyond general word-final lengthening



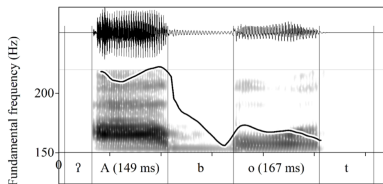
Vowel length analysis

(Constantino 1965, Schachter & Otones 1972, Soberano 1980, Himmelmann & Kaufman 2020)

penult-prominent

• **ʔábot** = /ʔa:bot/

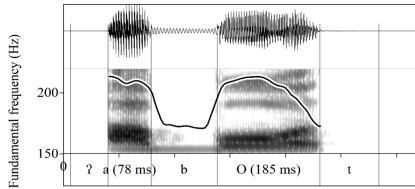
- explains why penult long
 - assume general word-final lengthening
- stipulates pitch accent attracted to long V:
 - citation form: H*L
- stipulates post-accent syll. quiet



ultima-prominent

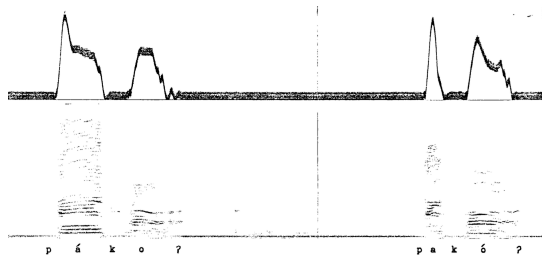
• **ʔabót** = /ʔabot/

- explains why penult short
- stipulates default phrase-final pitch accent



Acoustic cues

- Intensity has been investigated over many years and has never been found to be a significant correlate of prominence/stress in Philippine languages.
- Acoustic studies (Gonzalez 1970; Hwang et al. 2019; Llamzon 1976; Klimenko and San Juan 2010; Tantiangco 2010) have largely agreed that duration of the penultimate vowel is by far the most reliable correlate to the paroxytone-oxytone contrast.



(Brichoux 1972)

Vowel length analysis

(Constantino 1965, Schachter & Otones 1972, Soberano 1980, Himmelmann & Kaufman 2020)

penult-prominent

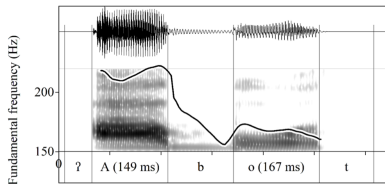
• **ʔábot** = /ʔa:bot/

- explains why penult long
 - assume general word-final lengthening

• stipulates pitch accent attracted to long V:

- citation form: H*L

• stipulates post-accent syll. quiet

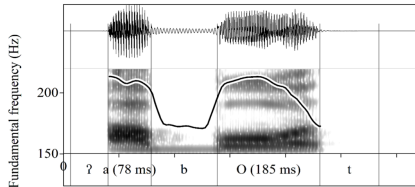


ultima-prominent

• **ʔabót** = /ʔabot/

- explains why penult short

• stipulates default phrase-final pitch accent



The deceptive nature of Tagalog “stress”

- The difference between *bayad* ['ba:jad] and *bayád* [ba'jad] should be represented:

/ba:jad/ → ['ba:jad]

/bajad/ → [ba'jad]

The deceptive nature of Tagalog “stress”

- The difference between *bayad* ['ba:jad] and *bayád* [ba'jad] should be represented:
/ba:jad/ → ['ba:jad]
/bajad/ → [ba'jad]
- This is strongly supported by the fact that penultimate stress cannot occur in native words when the penultimate syllable is closed!

	TROCHAIC	IAMBIC
OPEN PENULT	'CV.CV(C)	CV.'CV(C)
CLOSED PENULT	*'CVC.CV(C)	CVC.'CV(C)

Table: Tagalog syllable structure with word-level stress analysis

The deceptive nature of Tagalog “stress”

- The difference between *bayad* ['ba:jad] and *bayád* [ba'jad] should be represented:

/ba:jad/ → ['ba:jad]

/bajad/ → [ba'jad]

- This is strongly supported by the fact that penultimate stress cannot occur in native words when the penultimate syllable is closed!

	TROCHAIC	IAMBIC
OPEN PENULT	'CV.CV(C)	CV.'CV(C)
CLOSED PENULT	*'CVC.CV(C)	CVC.'CV(C)

Table: Tagalog syllable structure with word-level stress analysis

- This is true for a large number of not closely related Philippine languages, e.g. Rubino (1997:18): “Stress in Ilocano falls on the last syllable if the penultimate syllable is closed.”

The deceptive nature of Tagalog “stress”

- We can now explain why stress seems to avoid closed penultimate syllables: closed syllables cannot contain long vowels. (There can be no “super-heavy” syllables.)

The deceptive nature of Tagalog “stress”

- We can now explain why stress seems to avoid closed penultimate syllables: closed syllables cannot contain long vowels. (There can be no “super-heavy” syllables.)
- This also explains the assimilation of Spanish loans:

[ˈbala] ‘bullet’ > [ˈba:la]

[ˈlibro] ‘book’ > [libˈro]

The deceptive nature of Tagalog “stress”

- We can now explain why stress seems to avoid closed penultimate syllables: closed syllables cannot contain long vowels. (There can be no “super-heavy” syllables.)
- This also explains the assimilation of Spanish loans:

[ˈbala] ‘bullet’ > [ˈba:la]

[ˈlibro] ‘book’ > [libˈro]

- Broselow (2007) discusses a very similar case in Fijian where stress in loanwords on non-default syllables is reinterpreted as length.

Compensatory lengthening typology

- The fact that Tagalog shows compensatory lengthening to begin with is already strong evidence that the language has an underlying length contrast.
- As shown by Kavitskaya (2002), compensatory lengthening is structure preserving. In her survey of 80 languages with compensatory lengthening, 72 already had a length distinction.
- Therefore, if Tagalog did not have phonemic length, we would not expect glottal stop deletion to yield long vowels.

(2) [wala:na]
/walaʔ=na/
NEG.EXT=CMPLT

The deceptive nature of Tagalog “stress”

- There is another crucial difference between penultimate and final stress in Tagalog:

The deceptive nature of Tagalog “stress”

- There is another crucial difference between penultimate and final stress in Tagalog:
 - ▶ Penultimate prominence can shift one syllable to the right under suffixation, but final prominence is not bounded by the word at all (already hinted at by Bloomfield).

The deceptive nature of Tagalog “stress”

- There is another crucial difference between penultimate and final stress in Tagalog:
 - ▶ Penultimate prominence can shift one syllable to the right under suffixation, but final prominence is not bounded by the word at all (already hinted at by Bloomfield).

(3) a. [ta'ŋa]
stupid
'stupid'

b. [aŋ ta~taŋa~taŋa ni'la]
DET PL~INTNS~stupid 3P.GEN
'How stupid they are!'

(4) a. ['bo:bo]
stupid
'stupid'

b. [aŋ bo~'bo:bo~'bo:bo ni'la]
DET PL~INTNS~stupid 3P.GEN
'How stupid they are!'

Reed (2022): the prosody of reduplicated roots

PVL Predictions

a.	<u>Root</u>		<u>Σ-RED</u>
	/pa:gud/	UR	/pa:gud~pa:gud/
	pa:god	Low	pa:god~pa:god
	[pa:god]	SR	[pa:god~pa:god]
	‘tiredness’		‘exhaustion’

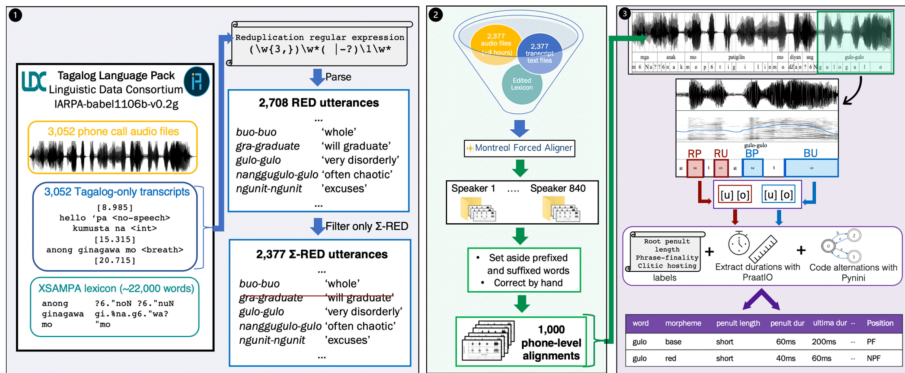
PS Predictions

	<u>Root</u>		<u>Σ-RED</u>
	/'pagud/	UR	/'pagud~'pagud/
	'pagod	Low	'pagod~'pagod
	['pagod]	SR	['pagod~'pagod]
	‘tiredness’		‘exhaustion’

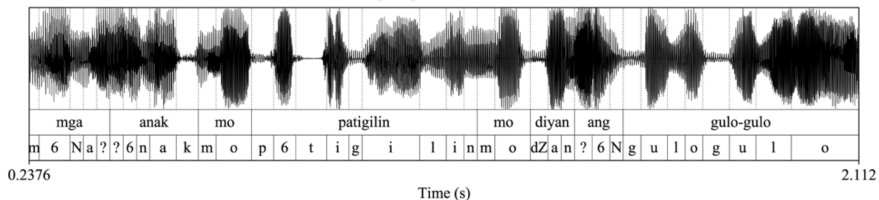
b.	<u>Root</u>		<u>Σ-RED</u>
	/pagud/	UR	/pagud~pagud/
	pagod	Low	pagod~pagod
	pa'god	PFL	pagod~pa'god
	[pa'god]	SR	[pagod~pa'god]
	‘tired’		‘tiredish’

	<u>Root</u>		<u>Σ-RED</u>
	/pa'gud/	UR	/pa'gud~pa'gud/
	pa'god	Low	pa'god~pa'god
	[pa'god]	SR	[pa'god~pa'god]
	‘tired’		‘tiredish’

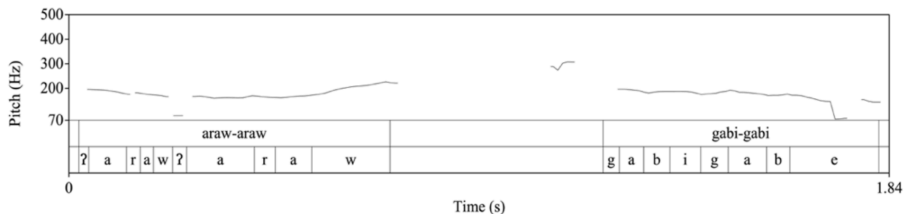
Reed (2022): the prosody of reduplicated roots



Reed (2022): the prosody of reduplicated roots



Reed (2022): the prosody of reduplicated roots



Reed (2022): the prosody of reduplicated roots

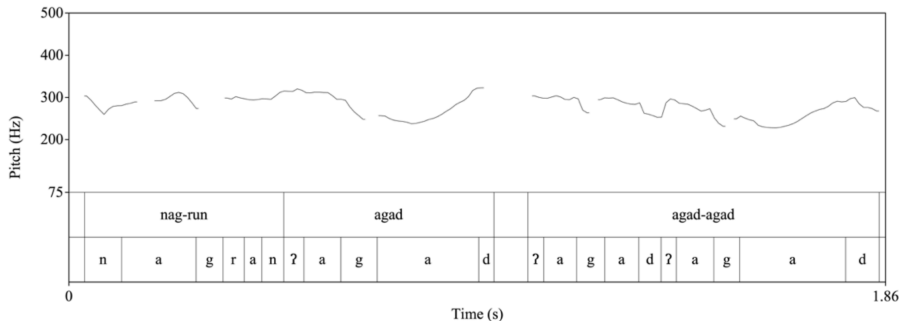
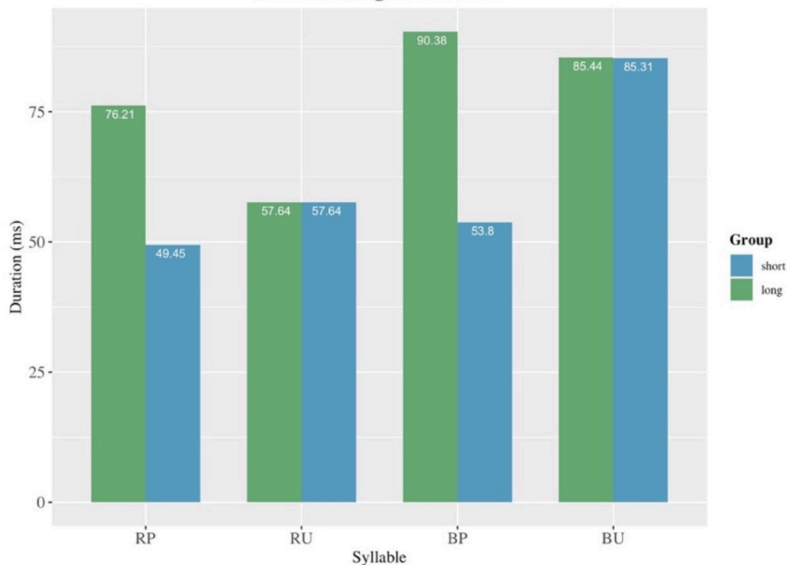


Figure 11: Pitch and duration track for *Nag-run agad. Agad-agad.*

nag-run agad agad-agad
AV.PRF-run right away INTNS≈right away
‘Ran right away. Immediately.’

Reed (2022): the prosody of reduplicated roots

Short vs. Long Penult Roots



Bloomfield's (mis)analysis: stress to length

- “In a word of more than one syllable at least one syllable is normally spoken with a greater degree of stress than the others.”
- “On a non-final open syllable the primary word-accent involves an increase of stress (less than in English), a pitch-rise of two notes, lengthening of the vowel to about one and one-half times the duration of an unstressed vowel, and open syllable-stress.”

Bloomfield's (mis)analysis: word final stress

- “The primary word-accent on a final syllable or on a closed non-final syllable, consists merely in greater stress than that of an unaccented syllable, accompanied by a pitch-rise of about half a note.”
- “Especially a final syllable often loses its accent before another word in the phrase:”

(5) aŋ malakíŋ báhay → aŋ malakiŋ báhay
 NOM big house
 ‘the big house’

(Bloomfield 1917:141-2)

Bloomfield's (mis)analysis: stress to length

- A crucial part of Bloomfield's concept of Tagalog stress can be written (and is written by Hayes and Abad (1989:358) for Ilokano) as:
- (6) $\acute{V} \rightarrow \acute{V}:/_CV$
- This fails to appreciate the fact that (i) not all long vowels attract pitch prominence and that (ii) pitch prominence typically attaches to the final long vowel in a particular domain.

Modern stress analyses

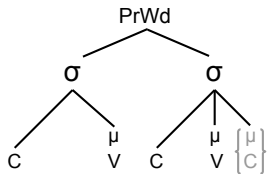
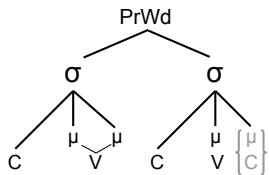
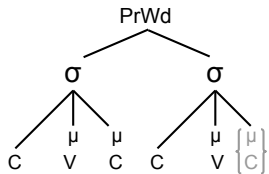
- French (1991, 1988) analyze Tagalog as a metrical stress language but without accounting for the crucial case of heavy σ stress avoidance.

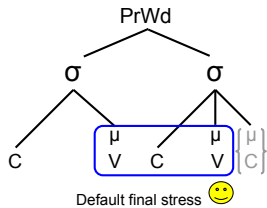
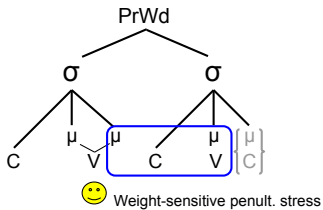
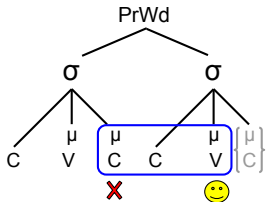
Modern stress analyses

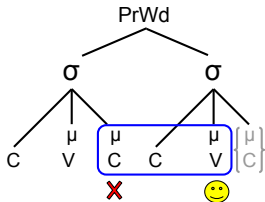
- French (1991, 1988) analyze Tagalog as a metrical stress language but without accounting for the crucial case of heavy σ stress avoidance.
- Zuraw (p.c.) suggests an analysis along these lines:

Modern stress analyses

- French (1991, 1988) analyze Tagalog as a metrical stress language but without accounting for the crucial case of heavy σ stress avoidance.
- Zuraw (p.c.) suggests an analysis along these lines:
- Certain roots are lexically specified as having bimoraic vowels in the penultimate syllable.

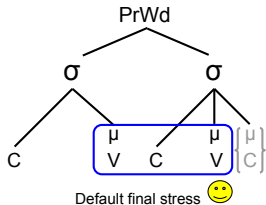
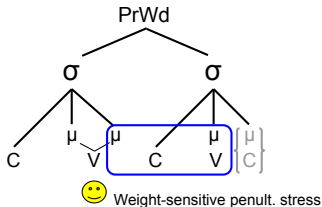


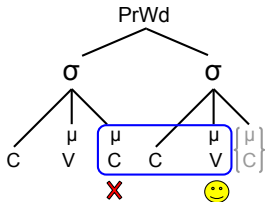




- Problems with the stress analysis:

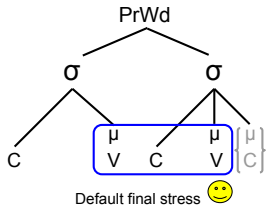
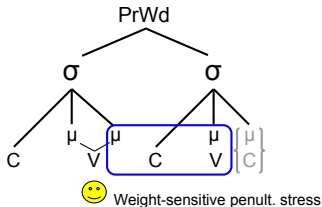
- Length is independently necessary in Tagalog to account for morphological alternations.

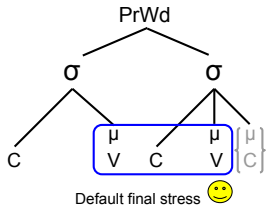
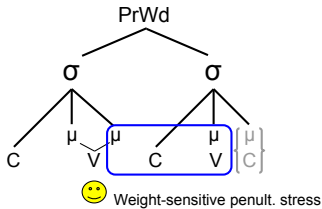
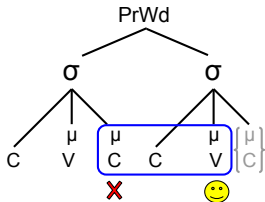




• Problems with the stress analysis:

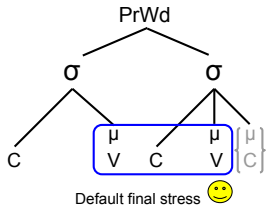
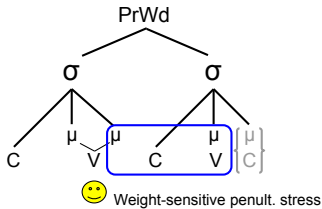
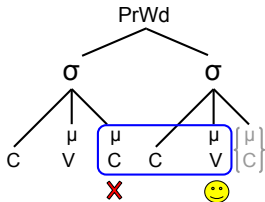
- ▶ Length is independently necessary in Tagalog to account for morphological alternations.
- ▶ What else could the bimoraic vowel be but a long vowel?





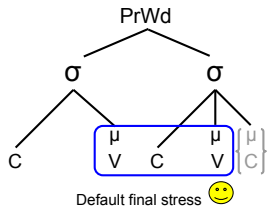
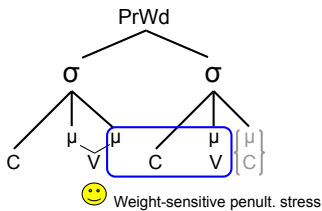
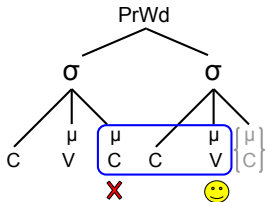
• Problems with the stress analysis:

- ▶ Length is independently necessary in Tagalog to account for morphological alternations.
- ▶ What else could the bimoraic vowel be but a long vowel?
- ▶ Compensatory lengthening is not compatible with extramoraicity of the root-final consonant.



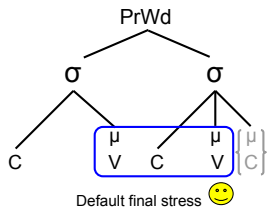
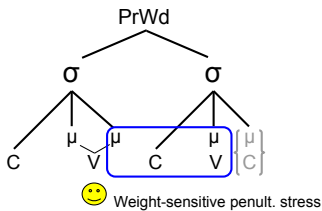
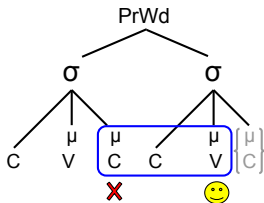
• Problems with the stress analysis:

- ▶ Length is independently necessary in Tagalog to account for morphological alternations.
- ▶ What else could the bimoraic vowel be but a long vowel?
- ▶ Compensatory lengthening is not compatible with extramoraicity of the root-final consonant.
- ▶ Cannot account for shiftiness of “iambic stress” with clitics and other phonological phrasemates.



• Problems with the stress analysis:

- ▶ Length is independently necessary in Tagalog to account for morphological alternations.
- ▶ What else could the bimoraic vowel be but a long vowel?
- ▶ Compensatory lengthening is not compatible with extramoraicity of the root-final consonant.
- ▶ Cannot account for shiftiness of “iambic stress” with clitics and other phonological phrasemates.
- ▶ Bisayan languages that differ minimally with Tagalog in stressing penultimate closed syllables entail a three mora window. They are then incorrectly expected to allow stress on the antepenultimate syllable of CV.CV.CV roots.



• Problems with the stress analysis:

- ▶ Length is independently necessary in Tagalog to account for morphological alternations.
- ▶ What else could the bimoraic vowel be but a long vowel?
- ▶ Compensatory lengthening is not compatible with extramoraicity of the root-final consonant.
- ▶ Cannot account for shiftiness of “iambic stress” with clitics and other phonological phrasemates.
- ▶ Bisayan languages that differ minimally with Tagalog in stressing penultimate closed syllables entail a three mora window. They are then incorrectly expected to allow stress on the antepenultimate syllable of CV.CV.CV roots.
- ▶ Stress-repellant closed syllables should be common on this account!

Morphological length

- Length is independently necessary in Tagalog to account for morphological alternations, e.g.

(7) a.	mag-na-na:kaw	b.	mag-na:-na:kaw
	AV-PROF-steal		AV-IMPRF-steal
	‘thief’		‘will steal’

- French (1988, 1991) treats this as morphologically conditioned secondary stress with only a cursory phonetic description.
- French (1991:162): secondary stress is “realized as phonetic length with optional pitch”.
- Pitch accent in fact depends on many other factors, such as the higher level intonation pattern and speech rate.
- Note also that morphological “secondary stress” from redup. corresponds to CVC-redup. in other languages; easily explained by C-loss with compensatory lengthening.

Morphological length and prominence

Hayes and Abad (1989:371) note that there is variability in which syllable receives main stress when the root is preceded by a reduplicated long syllable. They formalize this with the optional rule in (8).

(8) STRESS SHIFT
V:XV̂ → V̂:XV̂

- (9) a. /ag-ŋi:-ŋiaw/ → [agŋi:ŋjáv] ~ [agŋí:ŋjàw]
AV-IMPRF-meow
- b. /ag-sa:-saʔo/ → [agsa:saʔó] ~ [agsá:saʔò]
AV-IMPRF-speak
- c. /ag-da:-dáʔit/ → [agda:dá:ʔit] ~ [agdá:dà:ʔit]
AV-IMPRF-sew

How to define the Philippine Prototype?

- To my mild horror, I realize that I have been memorialized in perpetuity in the second edition of Blust's *Austronesian Languages* for a view that's not quite mine:

“The nucleus of an unstressed syllable is never long. The nucleus of a stressed syllable, however, is long in the penult, but not in the ultima. Daniel Kaufman (p.c.) suggests that in Tagalog oxytone stress is the default pattern, and paroxytone stress is triggered by vowel length. This analysis requires the recognition of both phonemic stress (in the ultima) and phonemic length (in the penult). Traditionally, however, only stress has been recognised and lexically marked, and although there appears to be marginal evidence that stress and length are independent in affixed words, these prosodic features are not contrastive in lexical bases.”

(Blust 2013:176)

How to define the Philippine Prototype?

- The idea that length is primordial has been around for a long time. Gonzalez (1970); Llamzon (1976); Zorc (1972); Schachter and Otones (1982); Wolff et al. (1991); Zorc (1993)
- It is even inherent to the Tagalog/Filipino terms for paroxytone *malumay* ‘gentle’ vs. oxytone *mabilis* ‘quick’.

Philippine Prototype and contrast enhancement

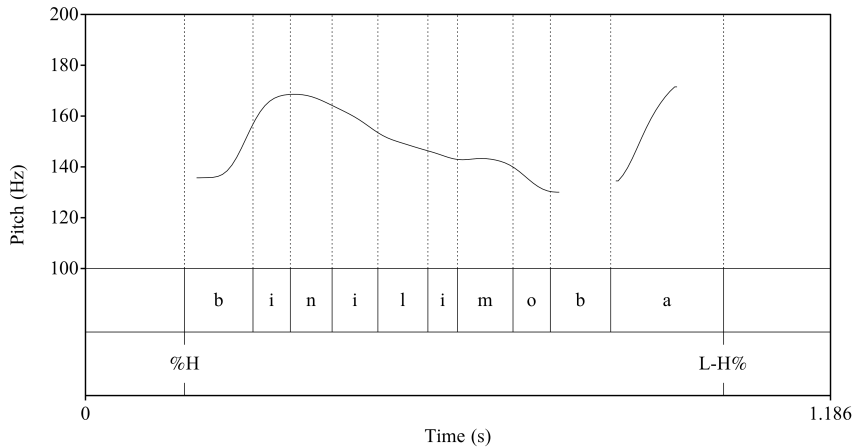
- Contrastive vowel length on penultimate syllable of roots, often but not always enhanced by pitch accent.
 - ▶ Why only on penultimate syllables? Because word final position is a horrible place to maintain durational cues, thanks to pervasive final lengthening (Gordon 2002).
- Final prominence on the level of higher prosodic categories (PrPh, iP).
 - ▶ Why final? Because F0 movement is recruited to enhance the length contrast when the penultimate syllable contains a long vowel.

The role of phonetic enhancement

- The role of contrast maintenance in phonology has been long recognized and has been incorporated into “functionalist” synchronic models of phonology in various ways (Stevens and Keyser 1989; Padgett 2003; Flemming 2004; Cohn 1990; Steriade 2009).
- A classic example is the lengthening of vowels before voiced obstruents in English.
- Similarly, it was recognized that the perception of pitch contour and duration are in a mutual relationship. Specifically, syllables with level contours are perceived to be shorter than those with pitch movements (Lehiste 1976; Pisoni 1976; Rosen 1977) and those with rising contours tend to be longer than those with falling contours (L. Blicher et al. 1990).

The intonational skeleton

- There are two nearly obligatory pitch movements in the Tagalog iP consisting of an initial rise and a final HL (in declaratives) or LH (in polar interrogatives).
- These can be seen in the following very unenthusiastically pronounced examples.

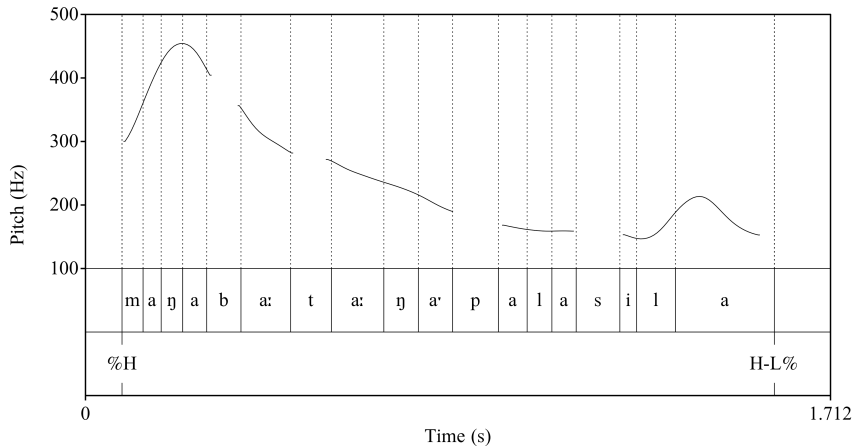


(10) [bínilimobá]

/b<in>ili=mo=ba/

<PERF>buy.PV=2S.GEN=QM

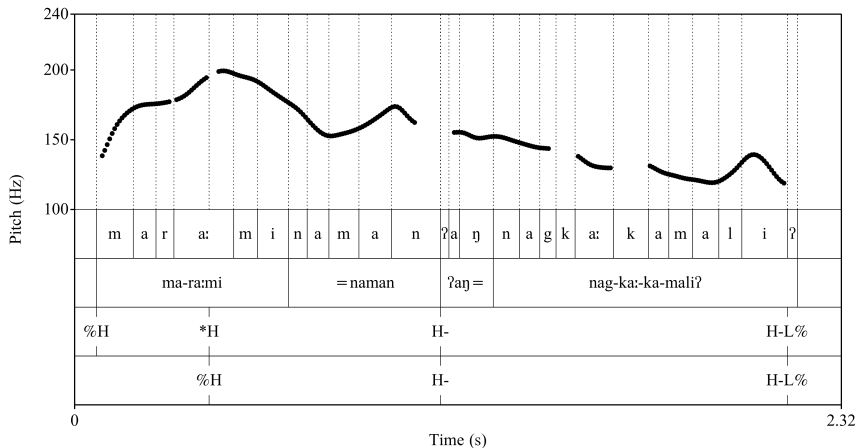
‘Did you buy (it)?’



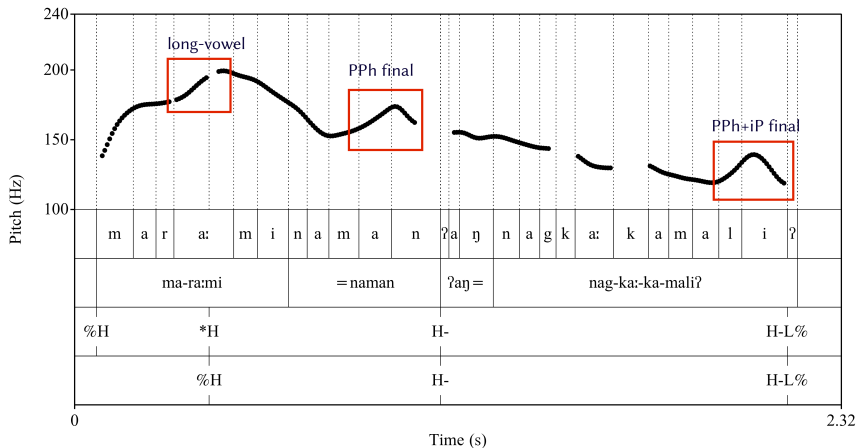
- (11) [máŋa ba:ta: ŋa: pala silá]
 /maŋa=ba:taʔ=ŋaʔ=pala=sila/
 PL=child=EMPH=MIRA=3P.NOM
 ‘They’re really children!’

The intonational skeleton

- With a bit more enthusiasm, we begin to see pitch movements at phrase edges and associating with syllables containing a long vowel.



- (12) [mará:mi namán] [aŋ nagka:kamalí?]
 [ma-ra:mi=naman] [aŋ=nag-ka:-kamali?]
 ADJ-many=SWITCH NOM=AV-PROG-mistake
 ‘It is many who make mistakes.’



- (13) [mará:mi namán] [aŋ nagka:kamalíʔ]
 [ma-ra:mi=naman] [aŋ=nag-ka:-kamaliʔ]
 ADJ-many=SWITCH NOM=AV-PROG-mistake
 ‘It is many who make mistakes.’

Resolving clash

(14) [dala]

/dala/

carry

‘carried’

(15) [dalana]

/dala=na/

carry=CMPLT

‘carried already’

(16) [dalanaba]

/dala=na=ba/

carry=CMPLT=QM

‘carried already?’

(17) [ma:na]

/ma:na/

inherit

‘inherited’

(18) [ma:nana]

/ma:na=na/

inherit=CMPLT

‘inherited already’

(19) [ma:nanaba]

/ma:na=na=ba/

inherit=CMPLT=QM

‘inherited already?’

Resolving clash

(20) [ḍála]

/dala/

carry

‘carried’

(21) [ḍaḷána]

/dala=na/

carry=CMPLT

‘carried already’

(22) [ḍalaṇába]

/dala=na=ba/

carry=CMPLT=QM

‘carried already?’

(23) [ṃá:ṇá]

/ma:na/

inherit

‘inherited’

(24) [ṃá:ṇána]

/ma:na=na/

inherit=CMPLT

‘inherited already’

(25) [ṃá:ṇanába]

/ma:na=na=ba/

inherit=CMPLT=QM

‘inherited already?’

Resolving clash

(26) [walaʔ]

/walaʔ/

NEG.EXT

‘none’

(27) [wala:na]

/walaʔ=na/

NEG.EXT=CMPLT

‘none already’

(28) [wala:naba]

/walaʔ=na=ba/

NEG.EXT=CMPLT=QM

‘none already?’

(29) [ta:maʔ]

/ta:maʔ/

correct

‘correct’

(30) [ta:ma:na]

/ta:maʔ=na/

correct=CMPLT

‘correct already’

(31) [ta:ma:naba]

/ta:maʔ=na=ba/

correct=CMPLT=QM

‘correct already?’

Resolving clash

(32) [wālaʔ]

/walaʔ/

NEG.EXT

‘none’

(33) [wālaːnā]

/walaʔ=na/

NEG.EXT=CMPLT

‘none already’

(34) [wālaːnāba]

/walaʔ=na=ba/

NEG.EXT=CMPLT=QM

‘none already?’

(35) [taːmāʔ]

/taːmaʔ/

correct

‘correct’

(36) [taːmāːnā]

/taːmaʔ=na/

correct=CMPLT

‘correct already’

(37) [taːmāːnāba]

/taːmaʔ=na=ba/

correct=CMPLT=QM

‘correct already?’

The role of contrast

(38) NO UNDERLYING CONTRAST (Javanese prototype)

$[C\overset{\bullet}{V}CVC] \sim [CVC\overset{\bullet}{V}C]$
/CVCVC/

(39) STRONG CONTRAST (Philippine prototype)

$[C\overset{\bullet}{V}:CVC] \leftrightarrow [CVC\overset{\bullet}{V}C]$
/CV:CVC/ /CVCVC/

(40) WEAK CONTRAST (unattested)

$[C\overset{\bullet}{V}:CVC] \leftrightarrow [C\overset{\bullet}{V}CVC]$
/CV:CVC/ /CVCVC/

Closed penults in languages w/contrastive length

- Variation both across and within languages.
- A prosodic hallmark of the Bisayan languages is prominence on closed penultimate syllables, e.g. /basbas/ Cebuano ['bas.bas] vs. Tagalog/Bikol [bas'bas].
- Hayes and Abad (1989:335) on Ilokano:

“Second, the distinction between closed and open syllables is referred to in the Ilokano stress system: all native words with closed penults have final stress (see Vanoverbergh (1955: 28-29)). [Footnote 3:] In the dialect we describe, this final stress may optionally retract to the penult, so that native words with closed penults have vacillating stress. In contrast, final stress in words with light (i.e. open) penults remains consistently on the final syllable.”

Closed penults in languages w/contrastive length

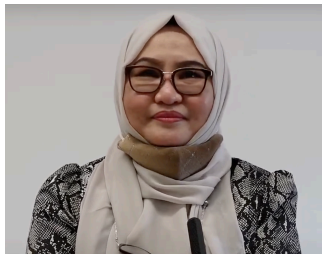
- In other words, we find variation in prominence (within and across Philippine languages) precisely where contrast is not at stake!

Philippine languages outside the prototype

- In most of the languages indigenous to Mindanao (e.g. Manobo, Subanon, Danao, Bilic subgroups), contrastive vowel length has been lost.
- Some of these languages have been summarily described as showing penultimate word stress although there have been no careful studies of this.
- Here we look at some phonetic data from Iranon and Western Subanon.

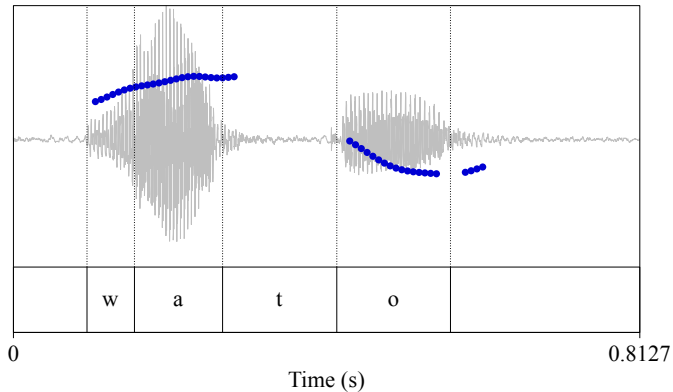
Iranon

- Iranon is a Danao languages spoken by roughly 250,000 people in the province of Maguindanao in western Mindanao. It is also spoken by an offshoot community in Sabah, Malaysia. It is closely related to Maranao and Maguindanao (Allison 1979), perhaps forming a subgroup with the Subanon and Manobo families (Walton 1979).
- The data shown here was recorded over the course of a fieldmethods course in 2022 with native speaker Inteshar Victor.

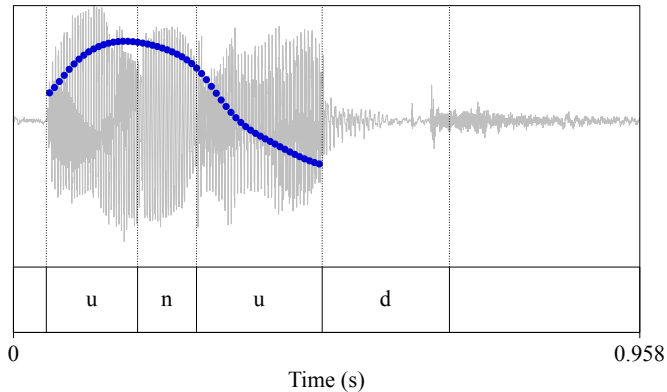


- Iranon, like all the Danao languages, has lost contrastive vowel length in roots.
- Words in their citation form show prominence on the penultimate syllable.

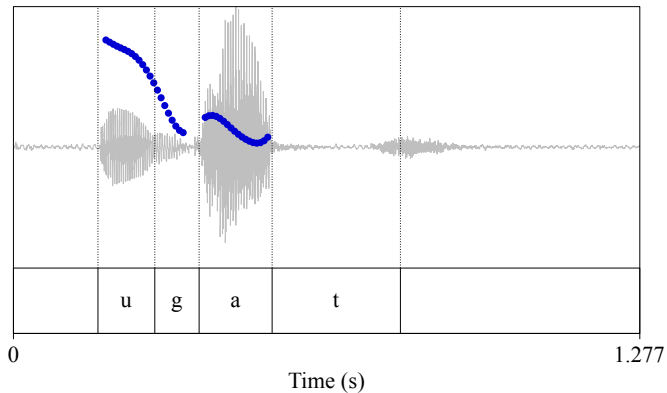
Iranon citation forms



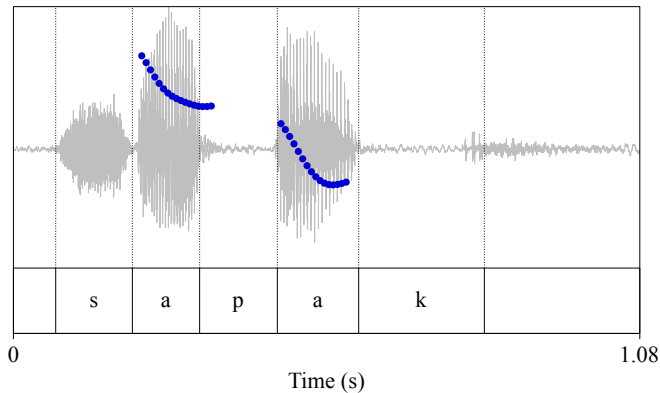
Iranon citation forms



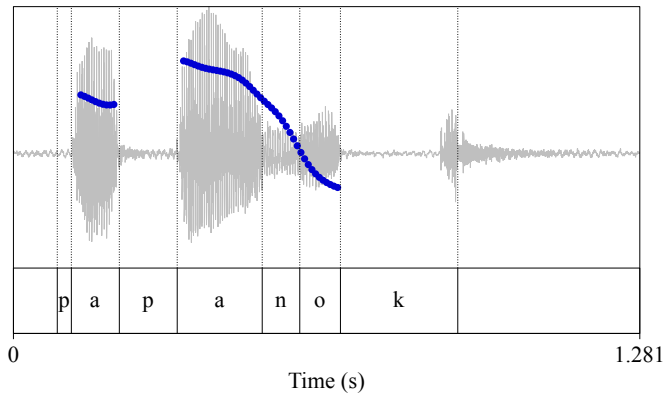
Iranon citation forms



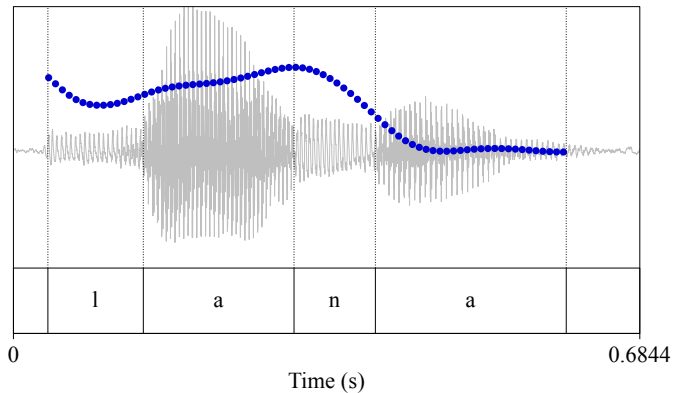
Iranon citation forms



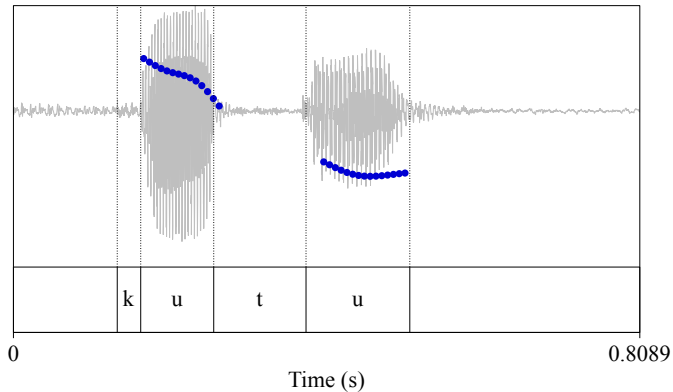
Iranon citation forms



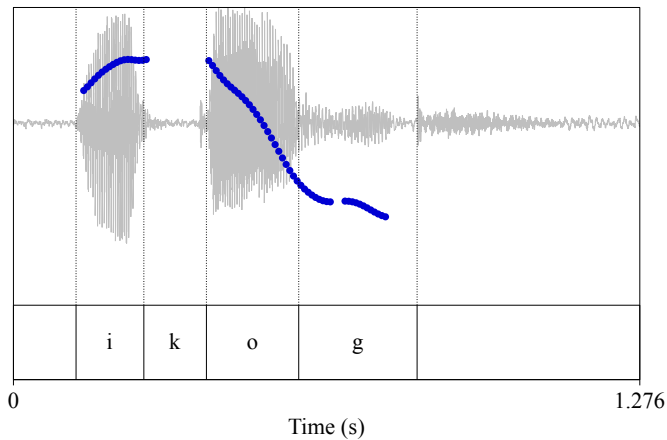
Iranon citation forms



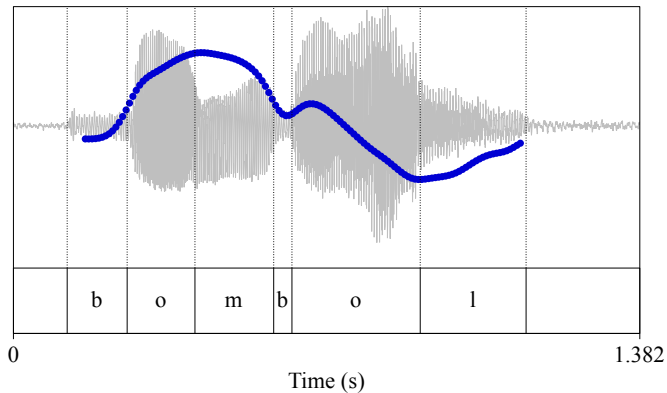
Iranon citation forms



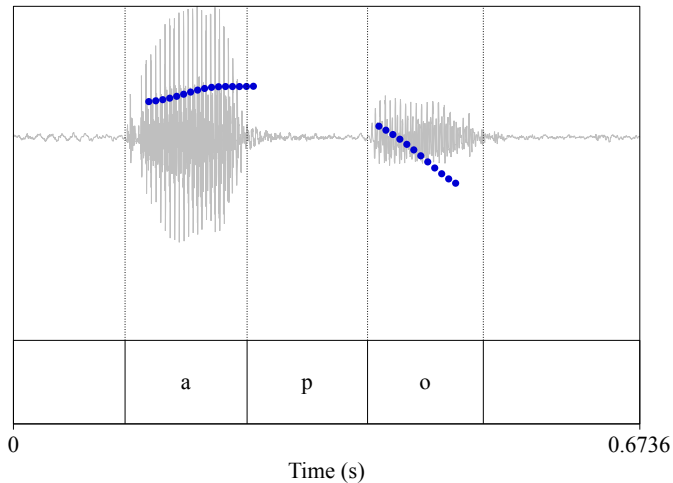
Iranon citation forms



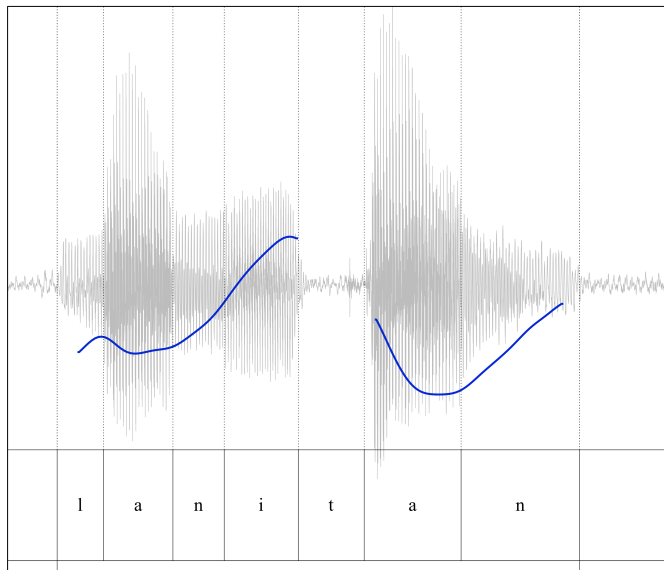
Iranon citation forms



Iranon citation forms



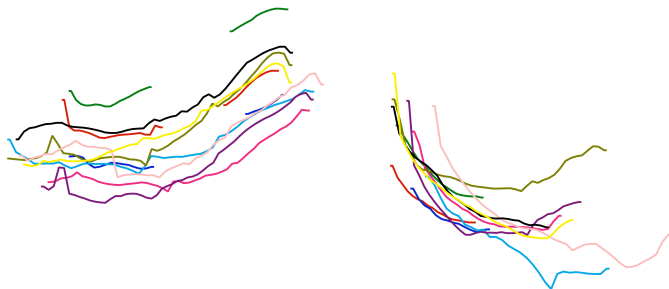
Iranon citation forms



Iranon citation forms

Iranon_words_2-24-22

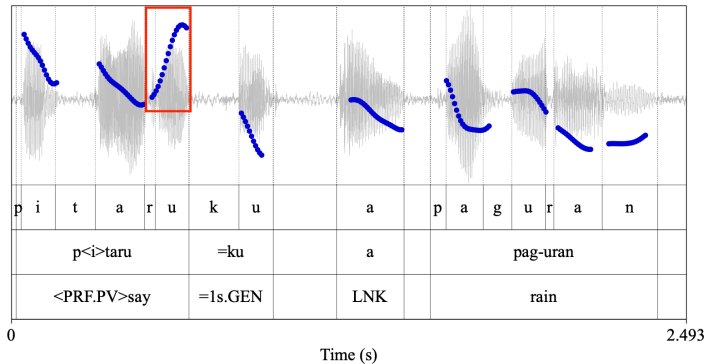
l a n i t a n



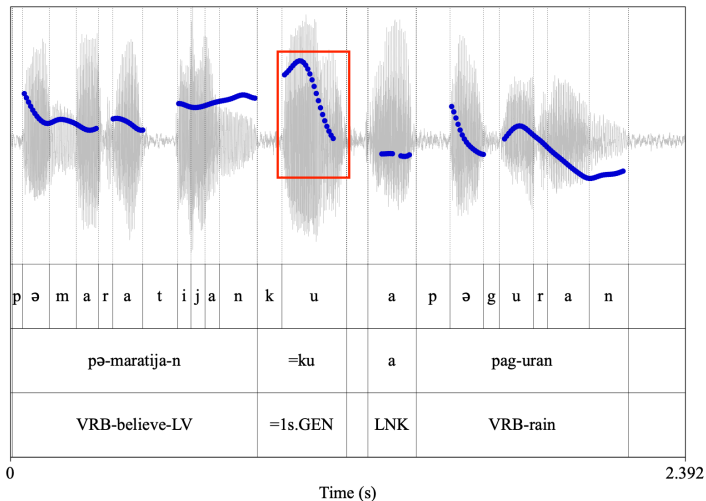
Indeterminacy

- While all indications point to prominence on the penultimate syllable in citation forms, the picture is more complex when we examine words in a larger context.
- Here, we often find intonational prominence on the final syllable or no asymmetries in prominence at all within the word.

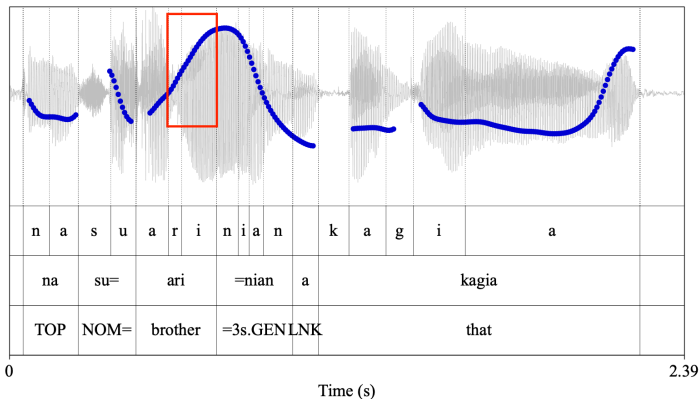
Indeterminate treatment of enclitics



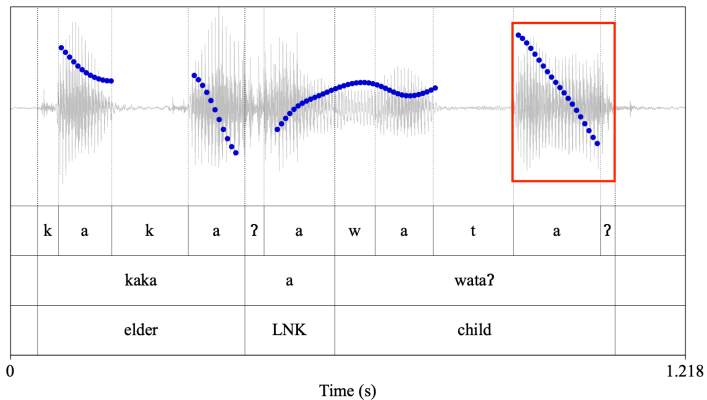
Indeterminate treatment of enclitics



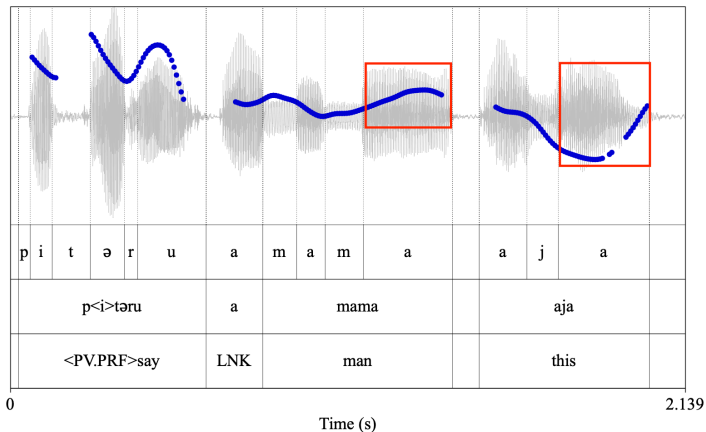
Indeterminate treatment of enclitics



Final prominence without enclitic



Final prominence without enclitic



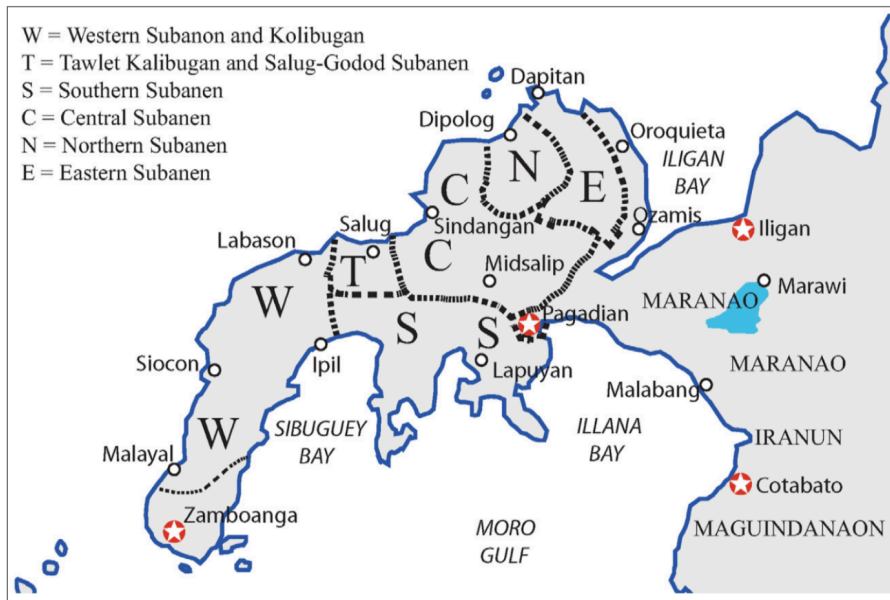
Iranon summary

- What is clear is that Iranon, like other Danao languages, has lost contrastive length.
- Stress/F0 prominence is reliably found on the penult in citation forms.
- Based on its unpredictably appearance on words in larger contexts, it seems that this prominence is coming from the phrasal level. In other words, Iranon fits better into the Javanese Prototype than the Eastern Prototype

Western Subanon

- Western Subanon is spoken in the Zamboanga Peninsula by roughly 125,000 people and described by a recent dissertation by Sharon Estioca.
- It neighbors Maranao, a Danao language, and Chavacano, a Spanish-based creole. Most speakers are multilingual in Chavacano and Cebuano, a Bisayan language.
- The examples shown here are from publicly available recordings from a fieldmethods class taught at the UH Manoa in which Sharon Estioca was the consultant.

The Subanon language area (Lobel and Hall 2010)



Descriptions of Subanon stress

Daguman (2004:33)

“In general, stress in Northern Subanen is assigned to the phonological word. Primary stress usually occurs on the penultimate syllable. However, if the nucleus of the penultimate syllable is occupied by a mid-central vowel, primary stress falls on the last syllable. Secondary stress can be recognised in phonological words consisting of more than three syllables. It falls on every alternate syllable to the left of the syllable that bears the primary stress.”

Estioca (2020:21)

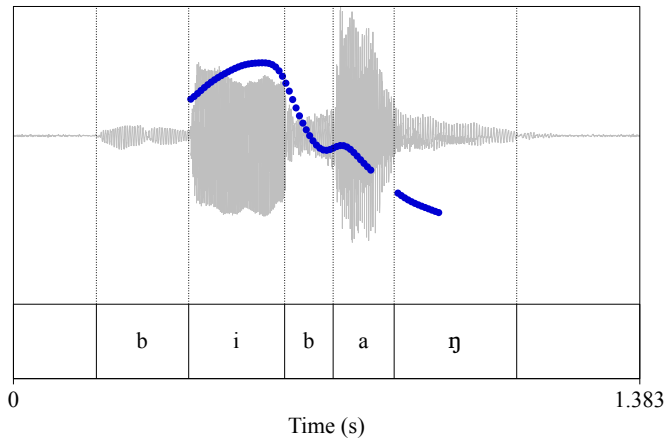
“Primary stress is typically on the penultimate syllable in both unaffixed and affixed words. [...] The secondary stress is only marked in words of four or more syllables. It falls on the alternate syllable of the syllable bearing the primary stress.”

Descriptions of Subanon stress

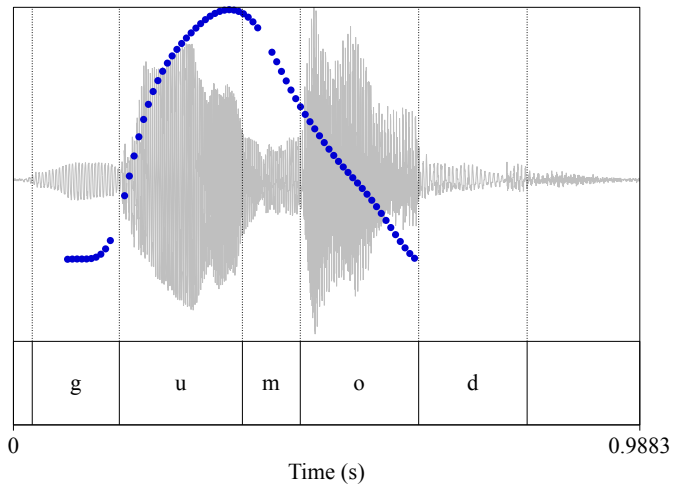
(41) Western Subanon (Estioca 2020:21)

- a. [kò.lom.bá.ɲoj]
/kolombaɲoj/
'butterfly'
- b. [ko.lom.bà.ɲoj.á.nan]
/kolombaɲoj-anan/
'butterflies'
- c. [tò.gi.lók.tok]
/togiloktok/
'gecko'
- d. [to.gi.lòk.to.ká.nan]
/togiloktok-anan/
'geckos'

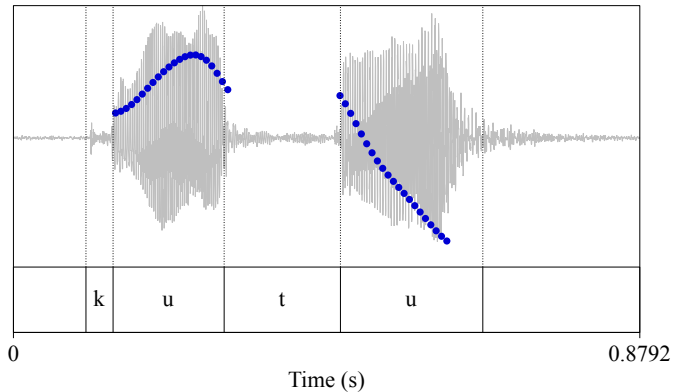
Western Subanon citation forms



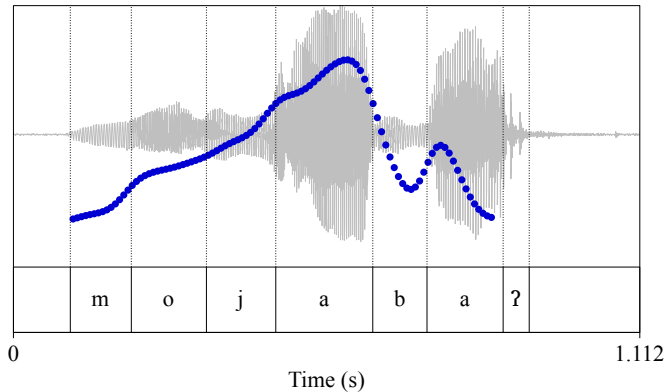
Western Subanon citation forms



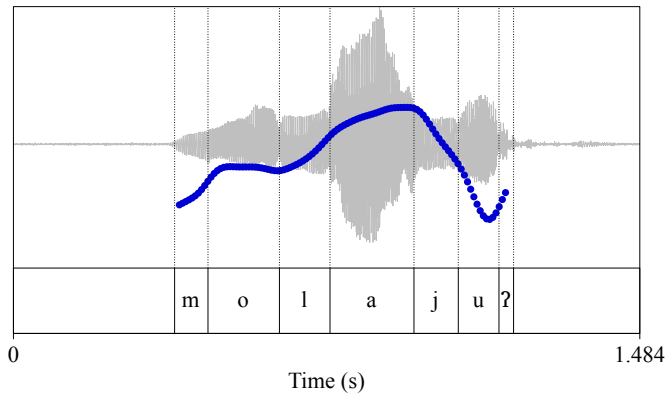
Western Subanon citation forms



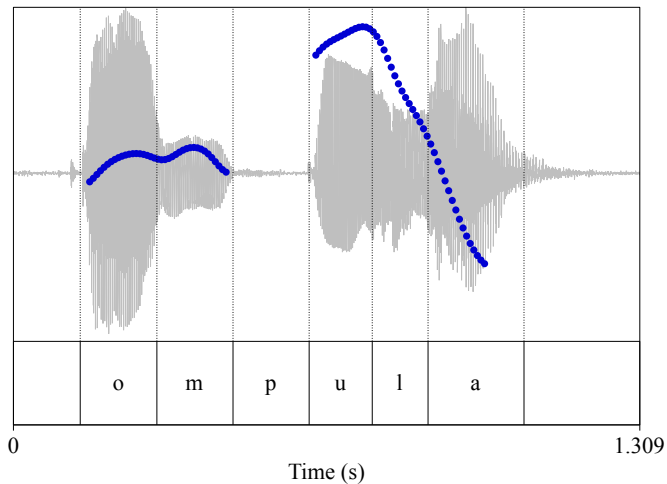
Western Subanon citation forms



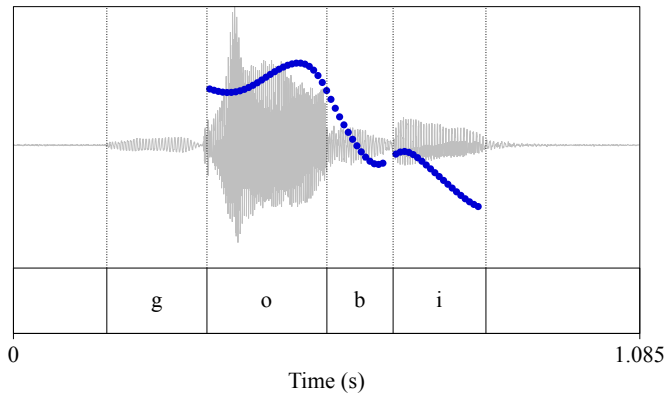
Western Subanon citation forms



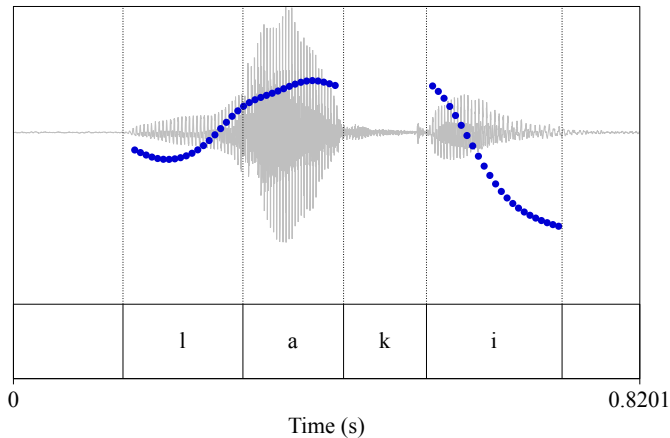
Western Subanon citation forms



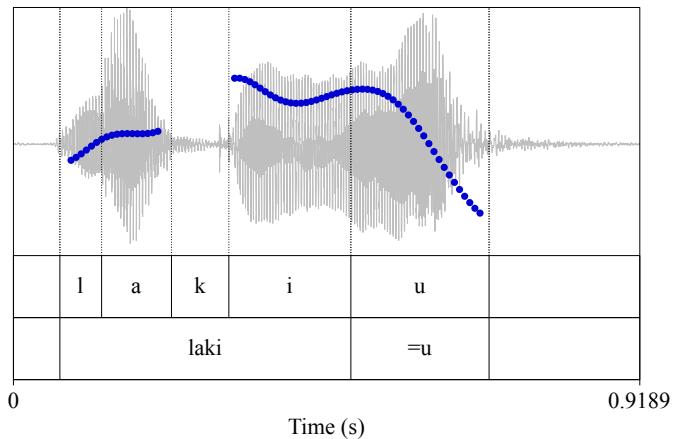
Western Subanon citation forms



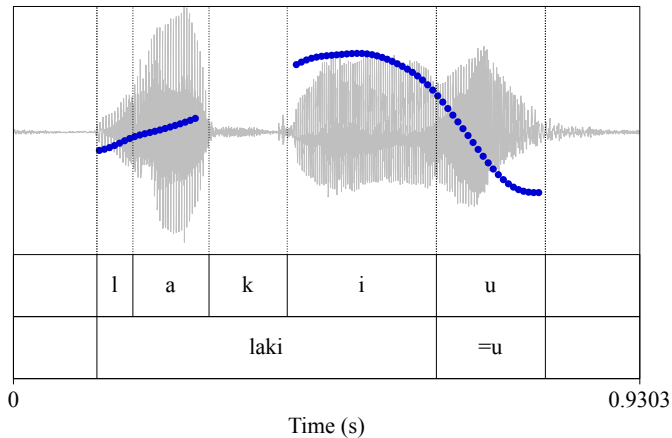
Enclitic integration (citation)

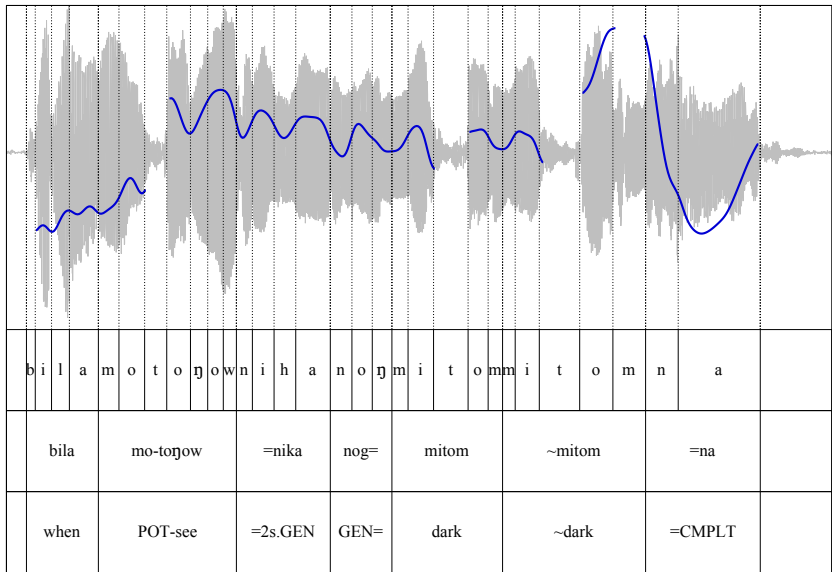


Enclitic integration (citation)



Enclitic integration (citation)



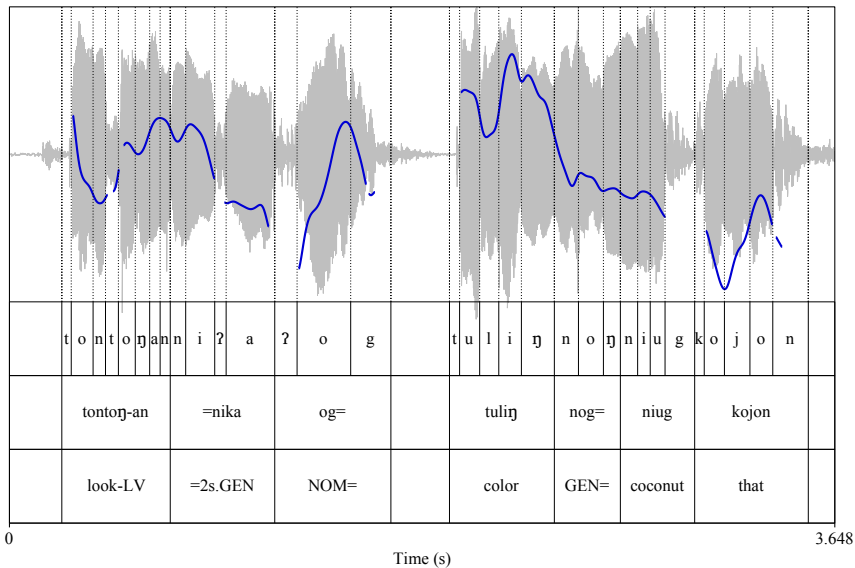


0

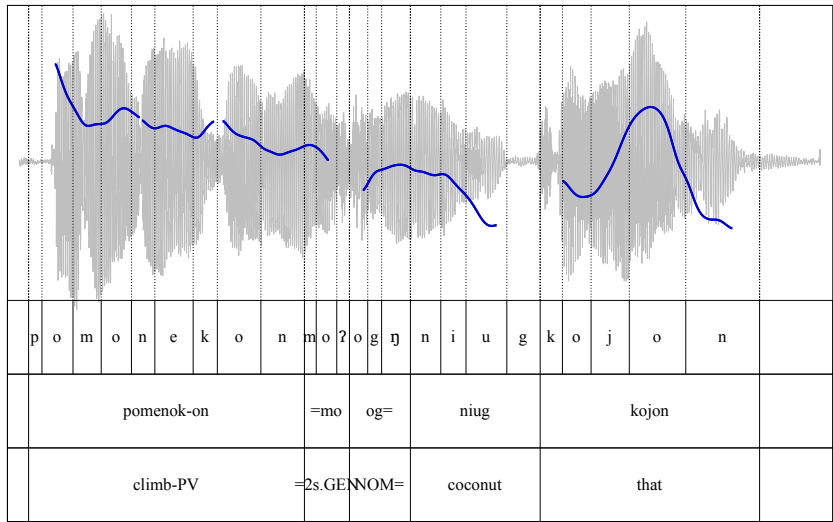
Time (s)

2.464





- (42) bila motoŋow niha noŋ mitom mitóm nà
a. /bila mo-toŋow=nika noŋ=m-itom≈m-itom=na/
when POT-see=2S.GEN GEN=STA-black≈STA-black=CMPLT
'When you see that it's already dark...'
- (43) toŋtoŋan ni?a og tulíŋ noŋ niug kojón
a. /toŋtoŋ-an=nika og=tuliŋ nog=niug kojón/
see-LV=2S.GEN NOM=color GEN=coconut that
'Look at the color of the coconut.'



0

Time (s)

2.022

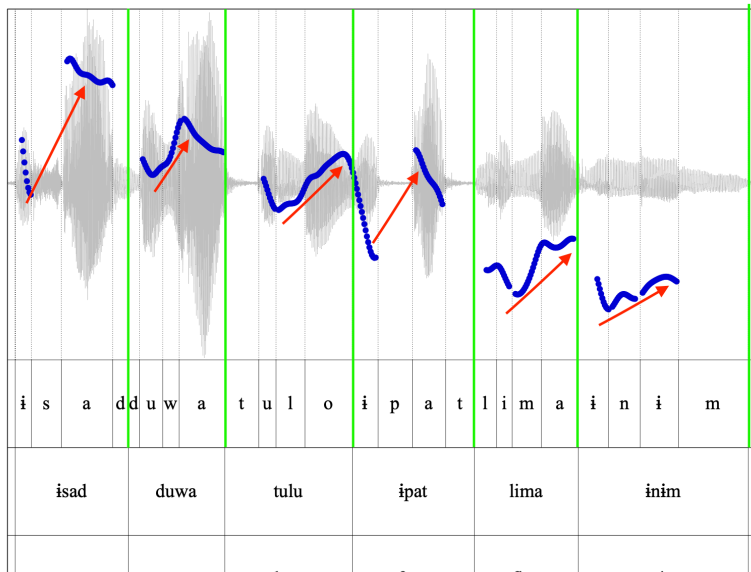
Mindanao summary

- Iranon and Western Subanon both show very clear penultimate prominence in citation forms.
- On closer inspection, this prominence is phrasal and subject to variation based on context, although this is not yet well understood.
- What is clear is that default (phrase or word-based) final prominence does not exist in these languages.

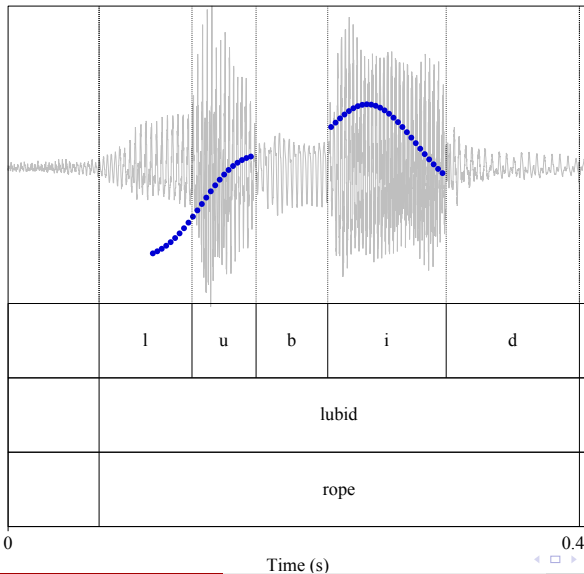
West Albay Bikol

- West Albay Bikol (WAB) consists of several dialects spoken in the Albay province of southern Luzon. Here we will focus on the varieties of Polangui and Balogo.
- The data reported on here are from (local) fieldwork conducted with Nhia Borja and Borja (2024).
- WAB has lost contrastive vowel length on roots, as seen in the following.

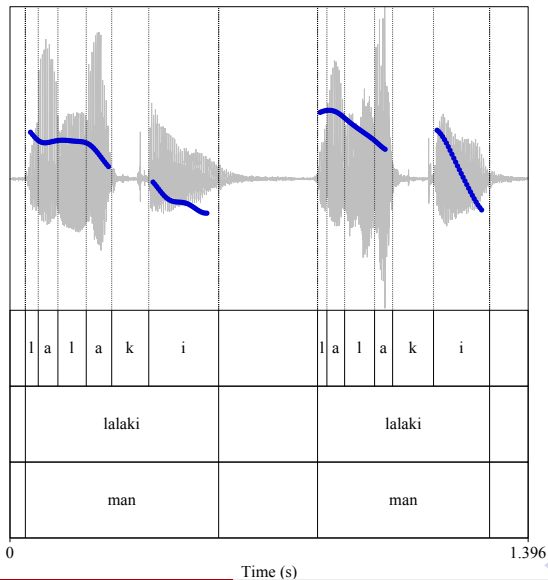
WAB citation forms ▷



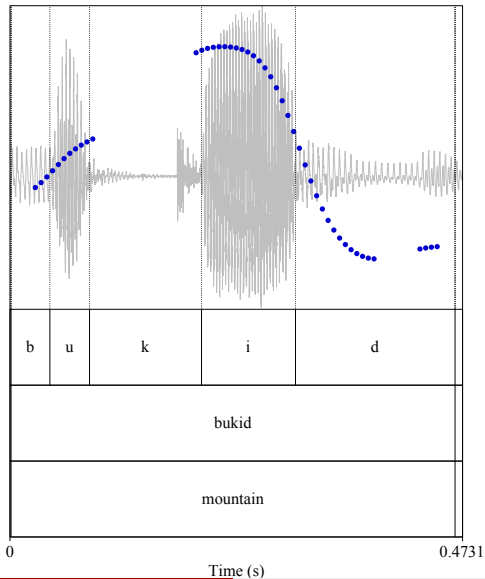
WAB citation forms ▷



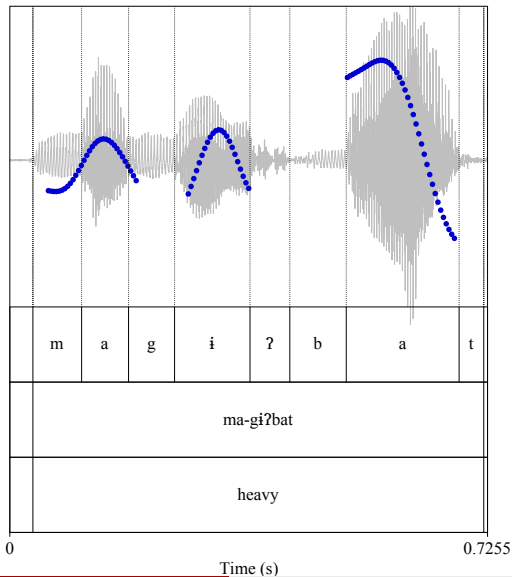
WAB citation forms ▷



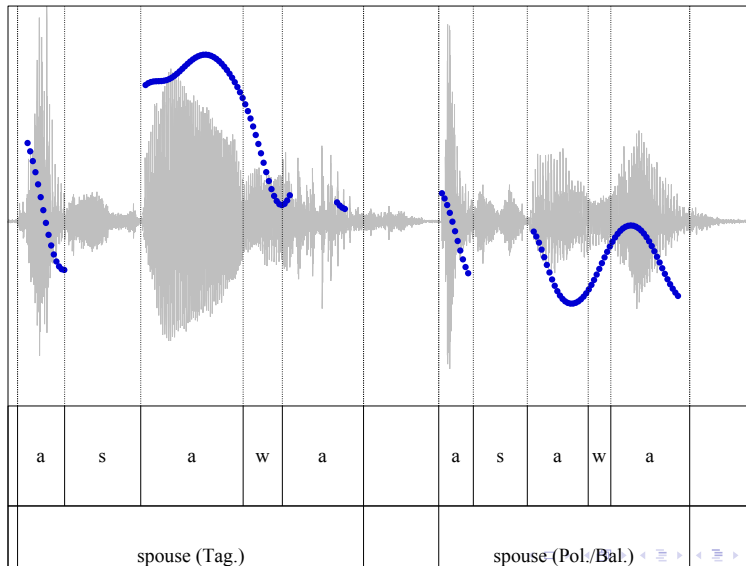
WAB citation forms ▷



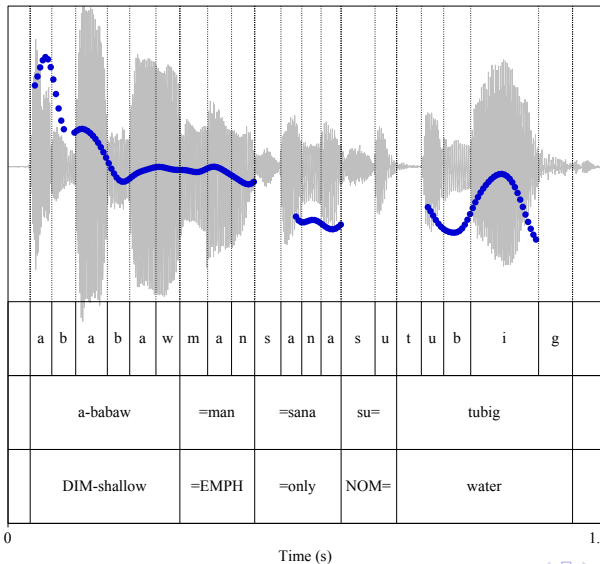
WAB citation forms ▷



WAB citation forms ▷



WAB citation forms



Final prominence in a lengthless language?

- WAB seems to contradict one of our entailments:
No contrastive vowel length \models Default penultimate prominence
- Why don't we find the same penultimate prominence in WAB or at least the same variation that we found in Mindanao languages?
- The answer is that WAB still makes use of vowel length for morphological purposes, giving rise to a secondary type of contrast.

WAB vowel-vowel sequences

- WAB has lost the glottal stop in prevocalic position and shows hiatus, which is relatively rare in the Central Philippine languages.
- This is resolved through diphthongization and assimilation:

(44) Borja (2024:24)

- a. /saimo/ → [sejmo] ‘to you’
- b. /pa-idtu/ → [peidto] ‘to go there’
- c. /pa-unu/ → [powno] ‘how’
- d. /ma-init/ → [mejnit] ‘warm’
- e. /daun/ → [down] ‘leaf’

Partial WAB inflectional paradigm

	ABILITATIVE	STATIVE	LOCATIVE
INFINITIVE	maka-turog	ma-turog	ma-turug-an
PERFECTIVE	naka-turog	na-turog	na-turug-an
PROGRESSIVE	naka:-turog	na:-turog	na:-turug-an
PROSPECTIVE	maka:-turog	ma:-turog	ma:-turug-an

Table: Potentive voice and aspect paradigm

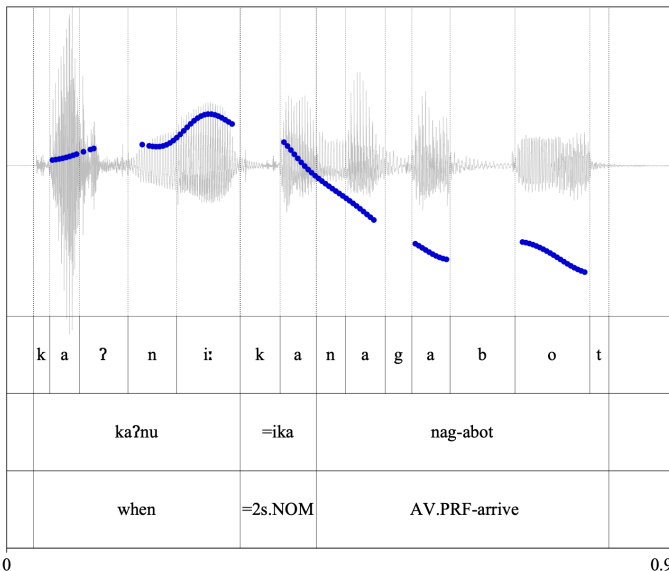
Vowel initial roots

- More importantly, vowel initial roots show the following variants in the imperfective:

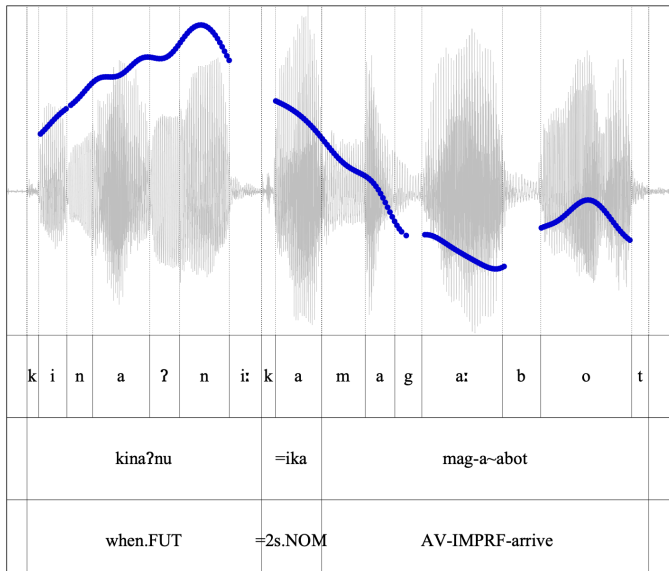
	ACTOR VOICE		
INFINITIVE	/mag-abut/	→	[maga'bot]
PERFECTIVE	/nag-abut/	→	[naga'bot]
PROGRESSIVE	/nag-i-abut/	→	[nagia'bot] ~ [na'ga:bot]
PROSPECTIVE	/mag-i-abut/	→	[magia'bot] ~ [ma'ga:bot]

Table: Aspect inflection for V-initial roots

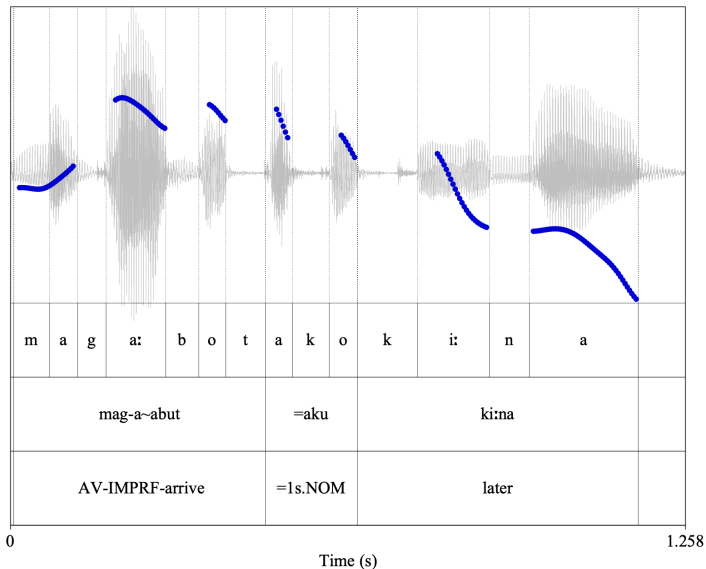
WAB vowel length in context



WAB vowel length in context



WAB vowel length in context



Explaining final prominence in WAB

- Even though V-length in roots has been disposed of historically in WAB, it gains an even larger functional load than in Tagalog through secondary developments.
- Contrast preservation predicts that default prominence should be on the final syllable in WAB, as opposed to the languages of Mindanao examined earlier.

Conclusion

- We began with a set of potentially independent parameters and noted certain a priori surprising entailments:
 - ▶ No contrastive V-length \models Default penultimate prominence
 - ▶ Contrastive V-length in roots \models Default final prominence
 - ▶ “ ” \models No iterative footing
- The total lack of iterative footing in length contrast languages suggests that we may not be dealing with a metrical pattern.
- The perfect relation between default final prominence and a length contrast suggests that it is the contrast itself which is pushing the default prominence to the end of the word.

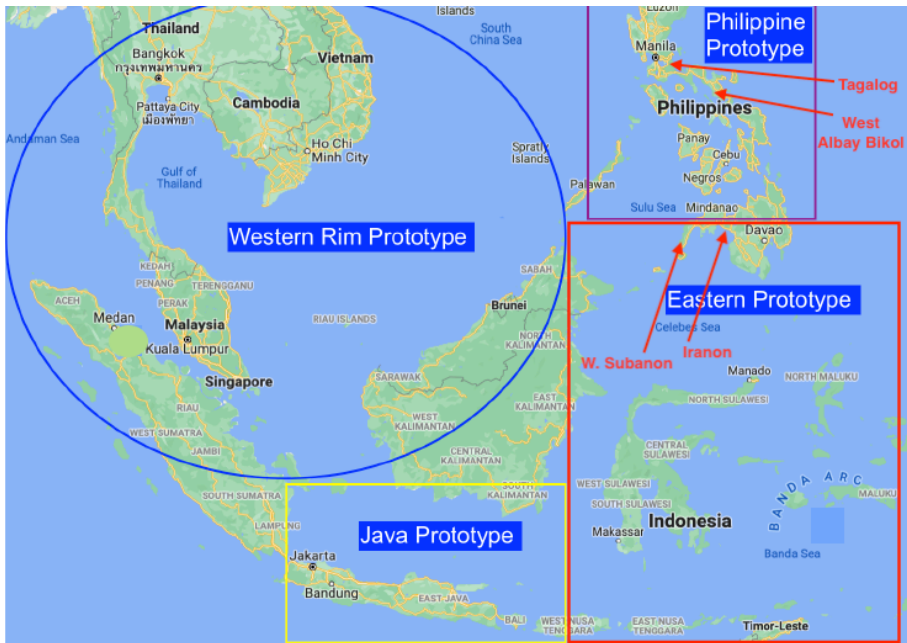
Reconsidering the independence of length and “stress”

*“The nucleus of an unstressed syllable is never long. The nucleus of a stressed syllable, however, is long in the penult, but not in the ultima. Daniel Kaufman (p.c.) suggests that in Tagalog oxytone stress is the default pattern, and paroxytone stress is triggered by vowel length. **This analysis requires the recognition of both phonemic stress (in the ultima) and phonemic length (in the penult).** Traditionally, however, only stress has been recognised and lexically marked, and although there appears to be marginal evidence that stress and length are independent in affixed words, these prosodic features are not contrastive in lexical bases.”*

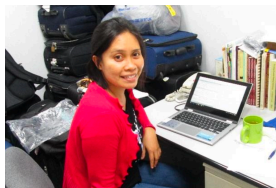
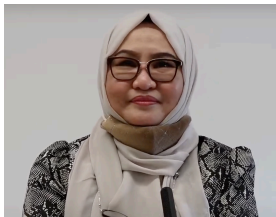
(Blust 2013:176)

Revising the map

- As a bonus, we were able to sharpen the areal typology. The languages of Mindanao are not really like the “Eastern Prototype” languages of Sulawesi. If anything, they may resemble Javanese more closely.



Mara:ming mara:ming sala:mat kina...



The Borja family (WAB), Inteshar Victor (Iranon) & Sharon Bulalang (Subanon) Nikolaus Himmelmann, Alessa Farinella and all the AFLA organizers.

Postscript

- Zuraw and Roca (2024) conducted a textsetting study of Filipino pop/folk music and found evidence for the stress view.
- Specifically, in word-enclitic combinations like *damit=ko* (clothes=1S.GEN), they found that the end of the word received a stronger beat than the end of the phrase. This suggests that the oxytone pattern behaves more like final word stress rather than phrasal prominence.
- I conducted a similar study (albeit small) on Tagalog hip-hop and found that those same syllables are dispreferred for strong beats.
- Hopefully, further investigation will show if this is a difference in genre or whether one of these patterns is really predominant in textsetting.

Postscript

- It should also be noted that some Philippine languages may really be moving towards a word stress system by reanalyzing the phrasal (or maximal PrWd) domain as a minimal PrWd domain.
- Ilokano *inted=ko* (give=1S.GEN) [in'tedko]

References I

- Allison, E. Joe. 1979. Proto-danaw: A comparative study of maranaw, magindanaw, and iranun. In *Papers in Philippine Linguistics*, 10, 53–112. Canberra: Research School of Pacific and Asian Studies, Australian National University.
- Bloomfield, Leonard. 1917. *Tagalog Texts with Grammatical Analysis*. Urbana: University of Illinois Press.
- Blust, Robert. 2013. *The Austronesian Languages*. Canberra: Pacific Linguistics, Research School of Pacific and Asian Studies, Australian National University, revised edition edition.
- Bolinger, Dwight L. 1958. A theory of pitch accent in English. *Word* 14:109–149.
- Borja, Nhia. 2024. Diaspora documentation of west albay bikol. Master's thesis, CUNY Graduate Center.
- Brichoux, Robert. 1972. Acoustic correlates of stress in tagalog: Spectrographic studies of relative amplitude, relative frequency, and length. *Seminar Papers Series, Paper, California State College, Fullerton* 18.
- Broselow, Ellen. 2007. Stress adaptation in loanword phonology: perception and learnability. In *Phonology in Perception*, ed. P. Boersma and S. Hamann. Mouton de Gruyter.

References II

- Cohn, Abigail C. 1990. Phonetic and phonological rules of nasalization. Doctoral Dissertation, UCLA.
- Daguman, Josephine Sanicas. 2004. A grammar of northern Subanen. Doctoral Dissertation, La Trobe University.
- Estioca, Sharon Joy. 2020. A grammar of western subanon. Doctoral Dissertation, University of Hawai'i at Mānoa.
- Farinella, Alessa, Constantijn Kaland, and Daniel Kaufman. 2023. Gesture alignment in Ambonese Indonesian. In *Proceedings of the 20th International Congress of Phonetic Sciences*, ed. Radek Skarnitzl and Jan Volín, 4195–4199. Guarant International.
- Farinella, Alessa, Constantijn Kaland, and Daniel Kaufman. to appear. Gesture, prosodic prominence and stresslessness in Indonesian. *Language & Cognition* .
- Flemming, Edward. 2004. Contrast and perceptual distinctiveness. In *Phonetically based phonology*, ed. Bruce Hayes, Robert Kirchner, and Donca Steriade, 232–276. Cambridge: Cambridge University Press.
- French, Koleen Matsuda. 1988. Insights into Tagalog: Reduplication, infixation, and stress from nonlinear phonology. *University of Texas at Arlington: Publication of the Summer Institute of Linguistics* .

References III

- French, Koleen Matsuda. 1991. Secondary stress in Tagalog. *Oceanic Linguistics* 157–178.
- Gonzalez, Andrew. 1970. Acoustic correlates of accent, rhythm, and intonation in Tagalog. *Phonetica* 22:11–44.
- Gordon, Matthew. 2002. A phonetically driven account of syllable weight. *Language* 78:51–80.
- Gordon, Matthew, and Timo Roettger. 2017. Acoustic correlates of word stress: A cross-linguistic survey. *Linguistics Vanguard* 3.
- Hayes, Bruce, and May Abad. 1989. Reduplication and syllabification in ilokano. *Lingua* 77:331–374.
- Himmelman, Nikolaus P. 2022. On the comparability of prosodic categories: why ‘stress’ is difficult. *Linguistic Typology* 341–361.
- Hwang, H. K., N. Nagaya, and J. Villegas. 2019. Cue weighting in the perception of Tagalog. *Journal of the Acoustical Society of America* 146:3052–3052.
- Hyman, Larry M. 2006. Word-prosodic typology. *Phonology* 23:225–257.
- Kaufman, Daniel, and Alessa Farinella. 2022. Gesture alignment in a “stressless” language. In *The Proceedings of the 28th Meeting of the Austronesian Formal Linguistics Association (AFLA)*, ed. Tallis Clark, Jacob Dussere, and Connie Ting, 29–46. University of Western Ontario. URL <https://ir.lib.uwo.ca/afla/aflaxxviii/aflaxxviii/4/>.

References IV

- Kaufman, Daniel, and Nikolaus P. Himmelmann. forthcoming. Suprasegmental phonology. In *Oxford Guide to the Malayo-Polynesian languages of Southeast Asia*, ed. Alexander Adelaar and Antoinette Schapper. Oxford: Oxford University Press.
- Kavitskaya, Darya. 2002. *Compensatory lengthening: phonetics, phonology, diachrony*. New York: Garland.
- Klimenko, Sergey B., and Maria Paz C. San Juan. 2010. Stressed out with stress: Perceptual recognition of acoustic correlates of stress in tagalog. In *The 1st Conference-Workshop on Mother Tongue-Based Multilingual Education, Capitol University, Cagayan de Oro City*.
- L. Blicher, Deborah, Randy L. Diehl, and Leslie B. Cohen. 1990. Effects of syllable duration on the perception of the Mandarin tone 2/tone 3 distinction: evidence of auditory enhancement. *Journal of Phonetics* 18:37–49.
- Lehiste, Ilse. 1976. Influence of fundamental frequency pattern on the perception of duration. *Journal of Phonetics* 4:113–117.
- Llamzon, Teodoro. 1976. *Modern Tagalog: A Functional-Structural Description*. The Hague: De Gruyter.
- Lobel, Jason William, and William C Hall. 2010. Southern subanen aspiration. *Oceanic Linguistics* 49:319–338.

References V

- Padgett, Jaye. 2003. Contrast and post-velar fronting in Russian. *Natural Language and Linguistic Theory* 21:39–87.
- Pisoni, D. B. 1976. Fundamental frequency and perceived vowel duration, research on speech perception progress report. Technical Report 3, Department of Psychology, Indiana University, Bloomington, Indiana.
- Reed, Stephanie. 2022. Prominence patterns in Tagalog foot reduplications as evidence for phonemic vowel length. Ms. CUNY GC.
- Roettger, Timo, and Matthew Gordon. 2017. Methodological issues in the study of word stress correlates. *Linguistics Vanguard* 3.
- Rosen, S.M. 1977. The effect of fundamental frequency patterns on perceived duration. *Speech Transmission laboratory-Quarterly Progress and Status Report* 1:17–30.
- Rubino, Carl R. Galvez. 1997. A reference grammar of Ilocano. Doctoral Dissertation, University of California, Santa Barbara.
- Schachter, Paul, and Fe T Otones. 1982. *Tagalog Reference Grammar*. University of California Press.
- Steriade, Donca. 2009. The phonology of perceptibility effects: the p-map and its consequences for constraint organization. In *The Nature of the Word: Studies in Honor of Paul Kiparsky*, ed. Kristin Hanson and Sharon Inkelas, 151–179. Cambridge: MIT Press.

References VI

- Stevens, K. N., and S. J. Keyser. 1989. Primary features and their enhancement in consonants. *Language* 65:81–106.
- Tantiangco, Carla Maria Katrina P. 2010. Acoustic correlates of stress in tagalog. In *1st Philippine Conference-Workshop on Mother Tongue-based Multilingual Education*.
- Walton, Charles. 1979. A Philippine language tree. *Anthropological Linguistics* 21:70–98.
- Wolff, John U., Maria Theresa C. Centeno, and Der-Hwa V. Rau. 1991. *Pilipino Through Self-Instruction*. Ithaca, NY: Cornell University Press.
- Zorc, David. 1993. Overview of Austronesian and Philippine accent patterns. In *Tonality in Austronesian languages*, ed. Jerold A. Edmondson and Kenneth J. Gregerson. Honolulu: University of Hawaii Press.
- Zorc, R. David. 1972. Current and proto tagalic stress. *Philippine Journal of Linguistics*, 1972, 3, 1, Jun 3:43–57. CD: PJLID6.
- Zuraw, Kie, and Paolo Roca. 2024. Stress in Filipino textsetting. Presentation at the annual meeting of the Linguistic Society of America.