



Week 3

Prosody and tone

Linguistics 460/560

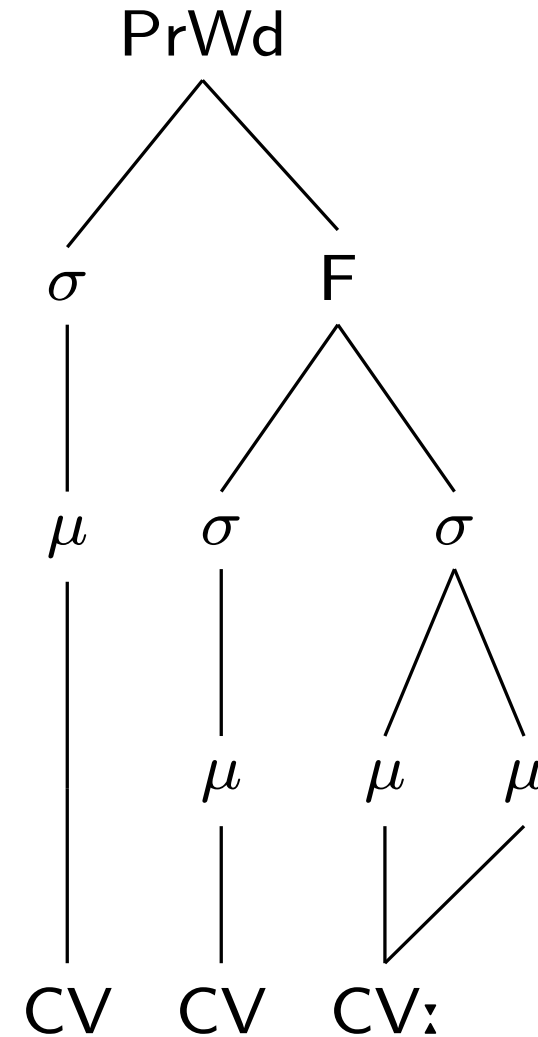
The Structure of Itunyoso Triqui

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A. Syllable structure and prosodic structure

- All non-final syllables in Triqui are open. Codas occur in root-final (stressed) syllables, the only two being /h, ʔ/.
- When *final* syllables are open, the vowel is long. In addition to other factors, this suggests that final syllables are bimoraic.



Minimal words

Shape	Content	Function	
V:	ũ: ²	‘nine’	
CV:	jã: ³²	‘salt’	
CVh	jãh ³	‘paper’	
CV?	jã? ³	‘tooth’	
CCV:	k:ã: ³	‘squash’	
CCVh	k:ãh ³	‘sandal’	
CCV?	k:ã? ³	‘masa/corn dough’	
		ã: ¹	‘yes’
		ta: ³	‘this (discursive)’
		jũh ¹	1S.ACC
		tfa? ⁴	‘really!, seriously!’
		ja ¹³	‘when’
		stah ³	‘at all (final particle)’
		stĩ? ⁴	‘perhaps’

Onset clusters

- Some onset clusters are permitted, but most of them are oddly *disharmonic* - /st̪, sk, sk^w, sm, sn, r̪t̪, rk, rk^w, rm/. The exception is /kj/. Clusters seem more common in word-initial position.

sta³re⁴

‘spider’

si⁴sno⁴³

‘man’

ske³?eh³

‘jaguar’

rku³tʃih³

‘purple’

a¹sk^wa¹?a³

‘a little
while ago’

kk^weh³² rta³?yã¹

‘hierbamora’

Solanum nigrescens

sma³t̪e³?e³

‘rat’

rk^we³tʃa?¹

‘tejamanil’

ni³kjãh⁵

‘Tlaxiaco’

jjah³² rma³u³

Begonia gracilis

How big can words get?

- Most roots (~65%) are disyllabic in the language. About 8-10% are trisyllabic.
- Up to two prefixes (each a CV syllable) may occur on verbs – an aspect marker preceding the verb root; and an iterative or causative prefix before this.
- Only one prefix may precede nouns – that marking POSSESSED status.
- With enclitics, words can be up to 6 syllables, but this is rare in actual speech.

- (1) $ku^3-tu^3-tʃu^{3ʔ}\beta i^?^3 = sih^3 = \tilde{u}h^3$
 PERF-CAUS-be.afraid = 3M = 3F
 ‘He scared her.’
- (2) $na^3-ru^3n\tilde{u}^4 = \tilde{u}h^3 \beta e^?^3$
 ITER-paint = 3F house
 ‘She repainted the house.’
- (3) $(ki^2)-na^2-ru^3n\tilde{u}^4 = \tilde{u}h^3 \beta e^?^3$
 (POT)-ITER-paint = 3F house
 ‘She will repaint the house.’

B. Foot structure?

- We are initially positing that final syllables are bimoraic, but the evidence for this comes from the tonal system, which we haven't gotten to describe much yet. We'll return to this.

- Possible analyses:

- 1) No feet

1σ 2σ 3σ 4σ

$\sigma_{\mu\mu}$, $\sigma_{\mu}\sigma_{\mu\mu}$, $\sigma_{\mu}\sigma_{\mu}\sigma_{\mu\mu}$, $\sigma_{\mu}\sigma_{\mu}\sigma_{\mu}\sigma_{\mu\mu}$

- 2) Iterative Iambic feet

$(\sigma_{\mu\mu})$, $(\sigma_{\mu}\sigma_{\mu\mu})$, $(\sigma_{\mu})(\sigma_{\mu}\sigma_{\mu\mu})$, $(\sigma_{\mu}\sigma_{\mu})(\sigma_{\mu}\sigma_{\mu\mu})$

- 3) Non-iterative iambic feet

$(\sigma_{\mu\mu})$, $(\sigma_{\mu}\sigma_{\mu\mu})$, $\sigma_{\mu}(\sigma_{\mu}\sigma_{\mu\mu})$, $\sigma_{\mu}\sigma_{\mu}(\sigma_{\mu}\sigma_{\mu\mu})$

2. Lexical tone



















- There are nine lexical tones in Itunyoso Triqui:
 - Five level tones: /1, 2, 3, 4, 5/
 - Three falling tones: /43, 32, 31/
 - One rising tone: /13/
- The distribution of tones is asymmetrical within the word. All tones occur on monosyllabic words, but when some of the tones occur on polysyllabic words, they are spread *across the word*.

Contrasts by final syllable type

Table 5: Tonal patterns on disyllabic words

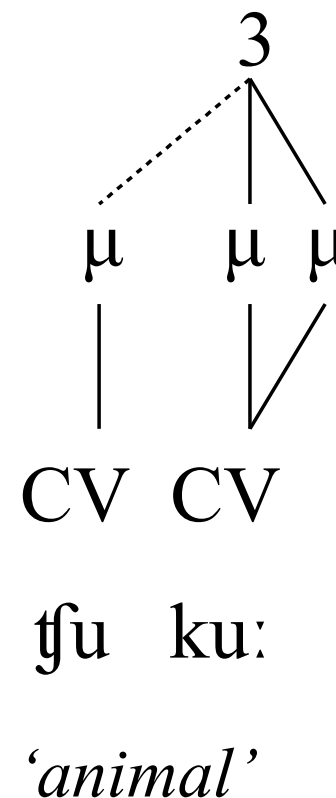
	Open σ	Coda /f/	Coda /ʔ/
4.4		tʃa ⁴ tʃif ⁴ `tarantula'	a ⁴ tʃiʔ ⁴ `we pass'
4.43	a ⁴ tʃi: ⁴³ `to pass'		
3.45		a ³ tʃif ⁴⁵ `to ask for'	
3.4	ti ³ tĩ: ⁴ `to roast'	ti ³ kif ⁴ `to shove in'	a ³ tʃiʔ ⁴ `we ask'
3.3	a ³ tʃi: ³ `to lack'	a ³ tʃif ³ `to grow'	a ³ tʃiʔ ³ `to bury'
3.2	ta ³ ʔngo: ² `each'	tʃa ³ tʃif ² `sheep'	
3.1	ka ³ tĩ: ¹ `hip'	k ^w e ³ ʔnif ¹ `Wednesday'	si ³ siʔ ¹ `sweet (N)'
3.43	ka ³ sti: ⁴³ `oil'		
3.32	ti ³ nĩ: ³² `nopal cactus'		
2.3	nu ² mĩ: ³ `tied'	ru ² mĩf ³ `bored'	ta ² kaʔ ³ `bent'
2.2	ku ² rã: ² `clear'	tʃi ² kof ² `jealous'	ka ² raʔ ² `wide'
2.32	ma ² re: ³² `green'		
1.3	ja ¹ ko: ³ `poor'	nu ¹ k ^w af ³ `hard, strong'	
1.1	ka ¹ si: ¹ `white'	ni ¹ tʃif ¹ `fried'	ni ¹ tʃũʔ ¹ `near'

Tone in monosyllables and disyllables

 ββeh ⁽³⁾⁵	‘straw mat / petate’	tʃi ^{3?} joh ⁵	‘swamp / ciénaga’	
 ββe ⁴	‘hair / pelo’	ka ³ to ⁴	‘shirt / camisa’	
 nne ³	‘plough / arado’	na ³ ra ³	‘refill / rellenar’	
 nne ²	‘to lie / mentir’	a ² mǎ ²	‘when / cuando’	
 nne ¹	‘naked / desnudo’	na ¹ ka ¹	‘new / nuevo’	
 nne ³²	‘water / agua’	a ³ βi ³²	‘leave / salir’	
 nne ³¹	‘meat / carne’	a ³ nĩ ¹	‘ explode / estallar ’	
 tʃe ⁴³	‘my father / mi padre’	a ⁴ ne ⁴³	‘chew / masticar’	
 ŋga ¹³	‘when (SUBORD) / cuando’	kǎ ¹ ?ǎ ³	‘ four (N) / cuatro ’	

Tonal association (DiCanio et al, 2020)

- *Moraic tonal specification*: A mora may be associated with only a single tone.
- *No floating tones*: Every tone must be associated with a mora.
- These principles mean that contours must only be possible on final syllables, as they are bimoraic.



Contours in polysyllabic roots

- Contour tones /13/ and /31/ do not surface on the final syllable of a polysyllabic word; *1.13, *3.31
- Instead, these tones are *spread across* the word.
- The other contour tones, /32, 43/, surface on the final syllable but the penult tone is a copy of the **leftmost tone level**, e.g. 4.43, 3.32.

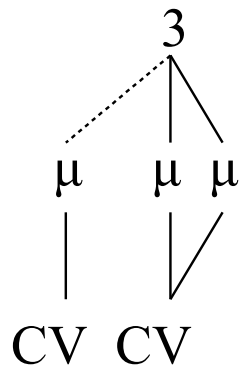
Leftward tonal association (a tonal rule)

- While there are words where penult tones are contrastive (especially with verbal aspect), in most words the penultimate syllable tone is predictable based on the final tone.
- Tones *associate* to penultimate syllables, but their default/underlying position is on the final syllable.
- This is true for *all* Triqui languages (DiCanio 2008, DiCanio et al 2020, Hernández Mendoza 2017, Hollenbach 1984).

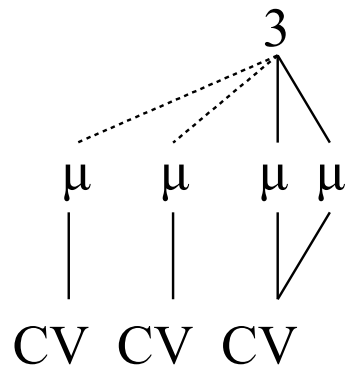
Leftward association convention:

Assign a tone or tone contour, right to left, starting on the rightmost mora (tone-bearing unit) of the word and then associate the leftmost tone in the word to all preceding moras within the word.

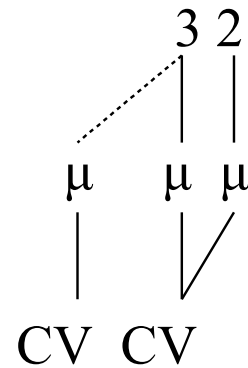
(DiCanio et al 2020)



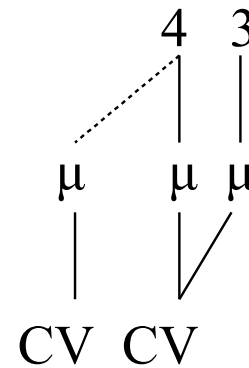
tʃu ku:
'animal'



tʃi ko yo:
'tadpole'



ru ne:
'bean'



ru ne:
'avocado'

Why is tone /13/ different?

- Rising tones take longer to produce than falling tones (Zhang 2004).
- Restrictions on the distribution of rising tones are more common than those on falling tones.
- One possibility is that the rise is “broken up” across syllables so that it is easier to perceive for listeners.

How is tone /31/ different?

- While we observe the leftward tonal association rule for all the tones, tone /31/ is different.
- Instead of /3.31/ or /3.3.31/ on polysyllabic roots, we observe /3.1/ and /3.1.1/. This is unlike all other contour tones.

nĩ³¹ ‘night’



ki³nĩ¹ ‘good night’



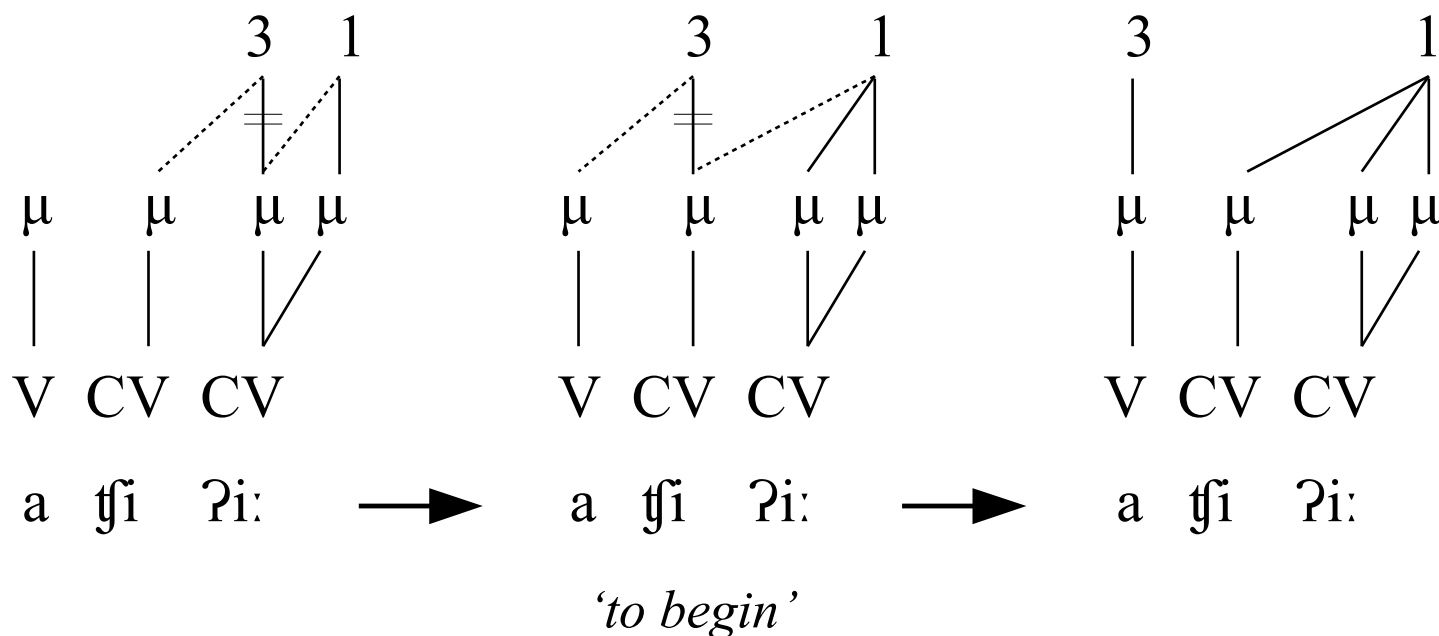
(anocheció)

a³tʃi¹?i¹ ‘to begin’



Low tone /l/ spreading (another tone rule)

Low tone spreading: A low /l/ tone associated to the rightmost mora must spread leftward iteratively to the leftmost edge of the phonological (prosodic) word (DiCanio et al. 2020).



What tones *can* occur in penultimate syllables?

Sometimes penultimate tones are *not predictable*. What patterns co-occur?
 Tone /3/ can occur, as can tone /2/, but many patterns are unattested.

final	5	4	3	2	1	43	32	31	13
penult									
4		yes				yes			
3	yes	yes	yes	yes	yes	yes	yes		
2			yes	yes			yes	yes	
1			yes		yes				

Tonal register and tonal distribution

- We never observe lower tones /2, 1, 32, 13/ co-occurring with higher tones /4, 5, 43/ on roots in Itunyoso Triqui.
- There is a general prohibition of *upper register* tones on the same root as *lower register* tones, e.g. *2.5, *4.1, *1.43...

Tone Feature		Level Tone	Falling Tone	Rising Tone
+Upper	+High	/4/	/43/	/45h/
	–High	/3/		
–Upper	+High	/2/	/32/	/13/
	–High	/1/		

Tone /3/ as a default tone

- About 30% of all roots in Itunyoso Triqui have tone /3/ on their final syllable.
- When the tone on the penult is not predictable via leftward tonal association, we usually observe tone /3/.

a⁴tʃĩ⁴³

‘to pass’






a³tʃĩ⁴³

‘I am asking’

















(< a³tʃĩh⁵ ‘to ask’)

Tone in /Vh/ final syllables

- Some of the tones sound different when the final syllable is /Vh/. Note that we do not observe contours *at all* on the final syllable of polysyllabic words, e.g. *CV³CVh³², *CV⁴CVh⁴³.
- There is a contrast between tone /4/ and /43/; and between /3/ and /32/ on monosyllables with a coda /h/.

 nnãh ⁴³	‘mom!’	ββe ³²	‘maguey cactus’ 
 nnah ⁴	‘to stay’	ββeh ³²	‘cave’ 
		βeh ³	‘already’ 

Some tones with coda /h/.


 a ³ tʃih ⁵	‘to ask for’				
 a ⁴ tʃih ⁴	‘to sneeze’		a ⁴ tʃi ⁴³	‘to pass by’	 
 a ^{3ʔ} βih ³	‘to prick’		a ³ tʃi ³	‘to lack’	 
 a ³ tʃih ²	‘to grow’		a ³ βi ³²	‘to leave’	 
 tʃi ² tʃeh ²	‘right(s)’				
 tʃi ¹ tih ¹	‘generally’				

The hardest contrast (for me) is between 3.3h and 3.2h.

Tones on words with final glottal stops

- Only tone levels /1, 2, 3/ contrast in roots with a coda /ʔ/ in Itunyoso Triqui, though morphology introduces additional contrasts.

 tsiʔ¹ ‘sweet’

 ttʃiʔ² ‘ten’

 sĩʔ³ ‘child’

but nnĩ³ ‘mother’ > nnĩʔ⁴ ‘our mother’



3. Prosodic structure and tone

Recapping the evidence for final stress (in roots)

1. Nasal vowels only occur in **final syllables**.
2. Glottal consonants only occur in **final syllables**.
3. Prenasalized stops only occur in **final syllables**.
4. Full tonal contrasts (all 9 tones) only occur in **final syllables**.
5. **Final syllables** license contrasts in pre-final syllables.

What about higher levels of prosodic structure?

- a) High tones (/4/) are restricted to the iambic foot.
- b) Spanish loanword adaptation prefers disyllabic structure.
- c) Variable deletion of extrametrical vowels
- d) Vowel shortening in extrametrical vowels

(a) The distribution of high tones

- Tones on most pre-tonic syllables *mostly* result from leftward association from the final stressed syllable.
- This predicts high tone /4/ will spread leftward across the word, but it **does not**. Instead, we get tone /3/ as a default here.

Table: Absence of tone /4/ on antepenults

Underlying tone	Surface tonal melody	Predicted tonal melody	Gloss
atʃini ⁴³	a ³ tʃi ⁴ ni ⁴³	*a ⁴ tʃi ⁴ ni ⁴³	'to get drunk'
tʃukuti ⁴³	tʃu ³ ku ⁴ ti ⁴³	*tʃu ⁴ ku ⁴ ti ⁴³	'basket (canasta)'
tuk ^w ãʔãh ⁴	tu ³ k ^w ã ⁴ ʔãh ⁴	*tu ⁴ k ^w ã ⁴ ʔãh ⁴	'pitchfork'
kɔh ³² tukutah ⁴	kɔh ³² tu ³ ku ⁴ tah ⁴	*kɔh ³² tu ⁴ ku ⁴ tah ⁴	'fern' (plant + fern)
kasiti ⁴³	ka ³ si ⁴ ti ⁴³	*ka ⁴ si ⁴ ti ⁴³	'oil' < Sp. <i>aceite</i>
skaleta ⁴³	ska ³ le ⁴ ta ⁴³	*ska ⁴ le ⁴ ta ⁴³	'bicycle' < Sp. <i>bicicleta</i>

- What is the domain that tone /4/ is permitted to spread? It appears to be just one syllable to the left.
- Tone /4/ is restricted to the final two syllables of the root – to a unit like an iambic foot.

(b) Spanish loanwords

- Words from Spanish with penultimate stress are almost always borrowed with tone /43/ on the final syllable and tone /4/ on the penult.

Spanish

pera ['pera]

queso ['keso]

Triqui

pe⁴ra⁴³

ke⁴su⁴³

‘pear’

‘cheese’

- Words from Spanish with *final* stress are borrowed with tone /43/ on the final syllable but tone /3/ on the penult.

Spanish		Triqui	
<i>cartón</i>	[kar'ton]	ka ³ rtũ ⁴³	‘cardboard’
<i>camión</i>	[ka'mjon]	ka ³ mjũ ⁴³	‘truck’

- But there is a strong preference for loanwords to be disyllabic.

What about words with more than 2 syllables?

Spanish name	Triqui loanword	Gloss
[fer'nando]	na ⁴ ndo: ⁴³	Fernando
[flo'rensja]	le ⁴ ntʃa: ⁴³	Florencia
[te'resa]	re ⁴ sa: ⁴³	Teresa
[apo'lonjo]	lo ⁴ ni: ⁴³	Apolonio
[mar'tin]	βa ³ ti: ⁴³	Martín
[isa'βel]	sa ³ βe: ⁴³	Isabél
[natiβi'ðad]	ti ³ ta: ⁴³	Natividad

- Longer words are shortened to a two syllable-sized unit.

What about words with one syllable?

Table: Spanish loanwords with final epenthesis or lengthening

Spanish word	Triqui loanword	Gloss
par [paɾ]	pa ³ ri: ¹	'pair'
dios [djos]	tjo ³ si: ¹ ~ tjo ⁴ si: ⁴³	'god, deity'
arroz [a'ros]	ro ³ si: ¹	'rice'
rey [rej]	re ⁴ .i: ⁴³	'king'

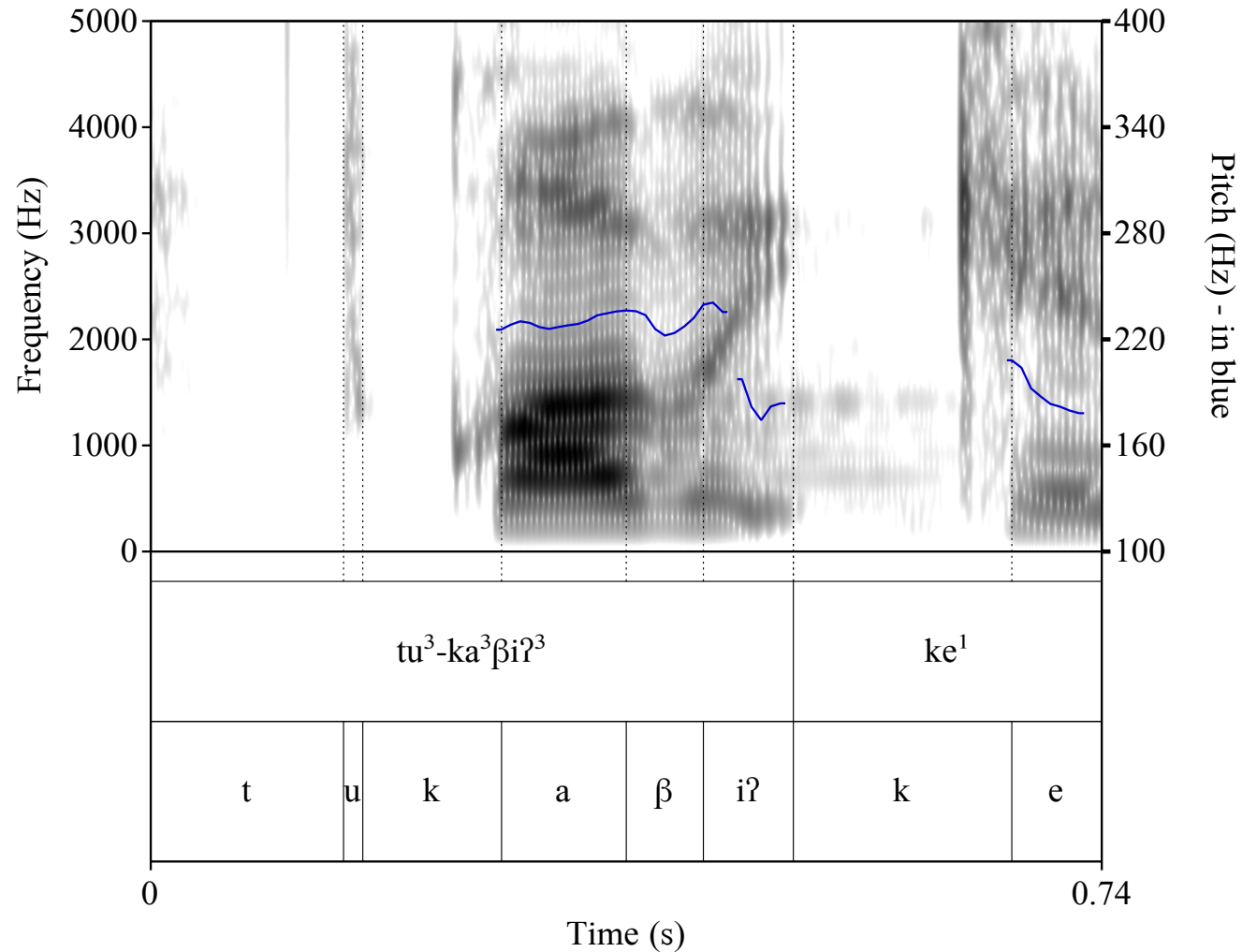
- Shorter words are **lengthened** to two syllables.

(c) Variable deletion and reduction of extrametrical (pre-penultimate) vowels

- In many Triqui varieties, there is a pattern whereby pre-tonic vowels are lost.

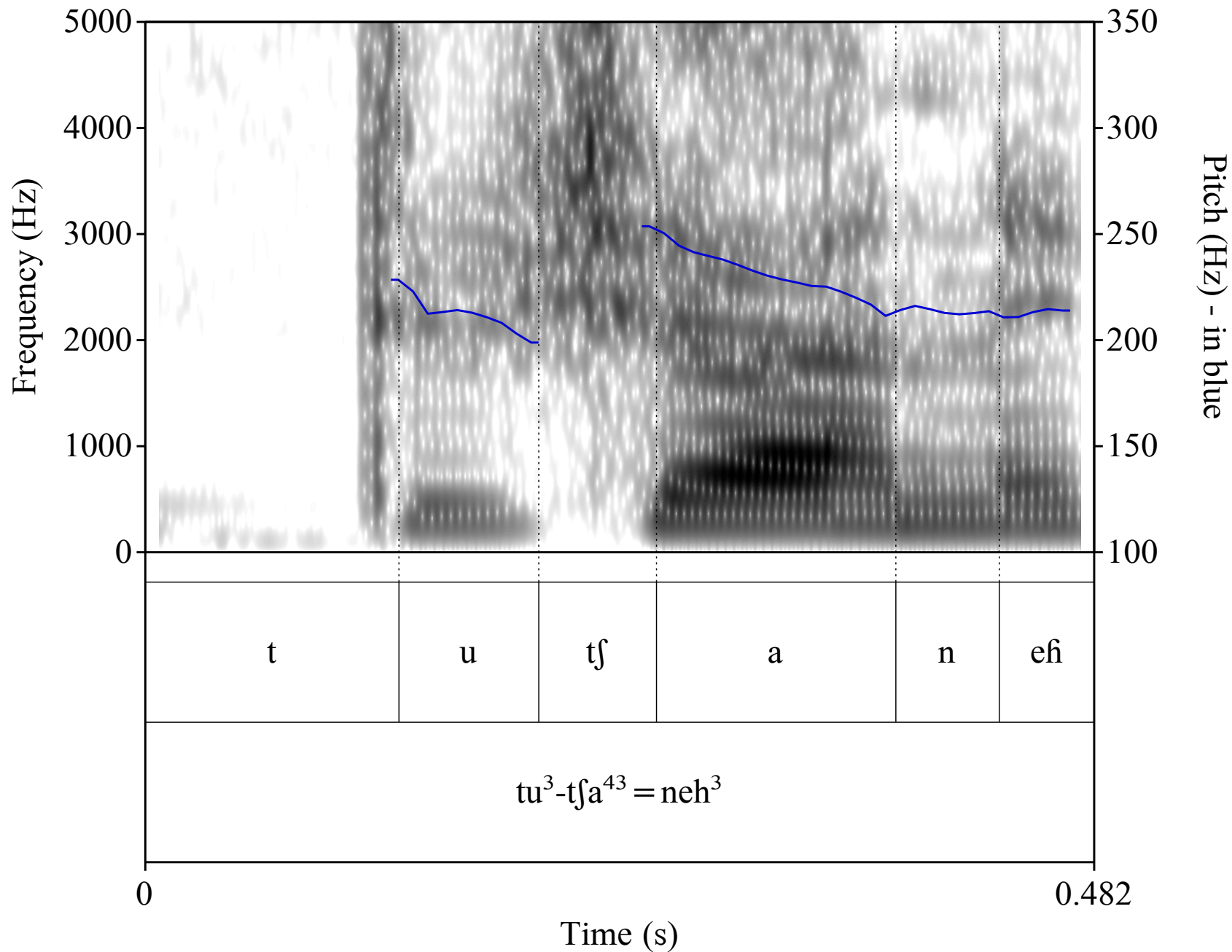
Itunyoso	Chichahuaxtla	Copala	Gloss
tʃu ³ k ^w ah ⁵	ʃu ³ k ^w a ⁵³	ʃk ^w a ⁵	'snake'
tʃa ³ .ĩ ³	ʃa ³ .ĩ ³	ʃĩ ³	'mosquito'
ru ¹ mĩ ¹	ru ¹ mĩ ³	rmĩ ¹	'lazy'
β:eh ⁵	w:ē ⁵³	ju ³ βe ⁵	'petate'
t:uh ⁵	tu ⁵³	i ³ tu ⁵	'knot'
?βi ¹	?wi ³²	ju ^{3?} βe ¹	'raw'

Causative prefix /tu³-/ in an antepenult before /k-a³βiʔ³/ 'to die.'



Extrametrical vowels (in antepenults) are variably deleted and reduced more than penults are.

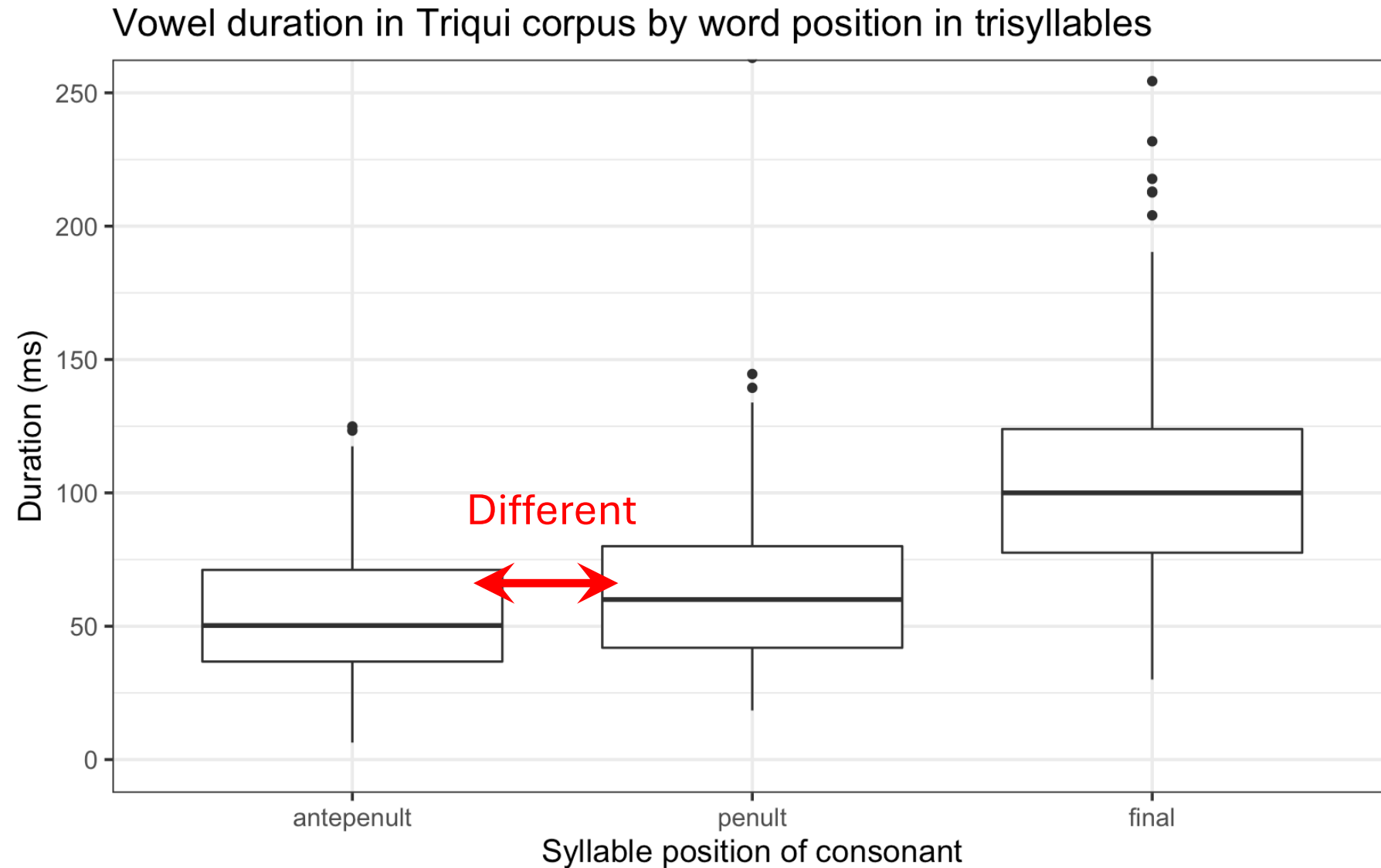
The vowel in /tu³-/ is almost gone here.



The same prefix is not reduced in
 $/tu^3-tfa^{43} = neh^3/$
 CAUS-eat = 3P
 ‘They made (her) eat...’

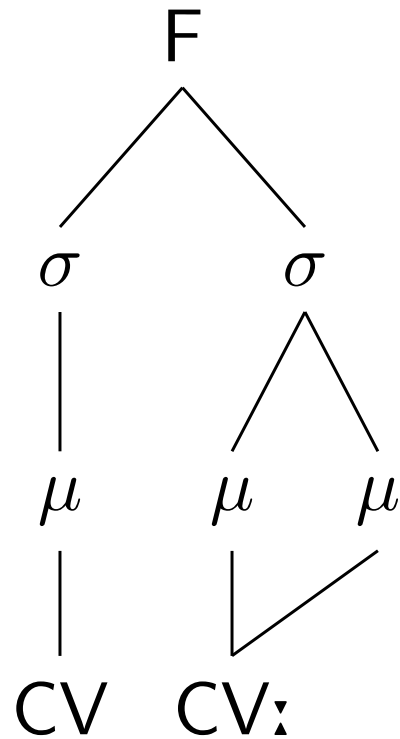
This is now a disyllabic stem.

Antepenults are shorter than penults in 1 hr spontaneous speech (just about 200 trisyllabic words) ($p < .05$).



Phonetic shortening of antepenults

All these pieces of evidence converge



- The evidence here converges on a two syllable unit being important in Triqui prosody
 - An iambic foot is the domain of high tone /4/
 - Spanish loanwords are preferably borrowed as single iambic feet.
 - Antepenults are reduced or deleted more than penults are.
- In addition to suggesting that Triqui words are mostly iambic feet, it seems like antepenults are *extrametrical*.

4. The prosodic word

- Is there evidence of any higher prosodic level in Itunyoso Triqui?
- To explore this, we have to examine the morphology of words.
- In the process, we'll introduce some basic patterns in the language's morphology. Though, we delve into this in greater depth next week.

Evidence for the prosodic word

- Prefixation can generate words with up to four syllables in Itunyoso Triqui. How are such syllables parsed on the left edge of the foot?
- The prosodic word is the domain of three types of tonal processes related to Triqui morphology.
 1. The prosodic word is the domain of possessed stems and **two** stem-level tonal changes associated with stem formation.
 2. The prosodic word is the domain of aspect-marked verbs and tonal changes associated with aspectual prefixes.

Nominal possession

(4) si³-ka³tofi⁵
POSS'D-shirt.1S

'my shirt.'

(5) si³-ka³to⁴=ũh³
POSS'D-shirt=3F

'her shirt.'

(6) si³-ka³to⁴ sĩŋ³
POSS'D-shirt child

'the child's shirt.'

- **Alienably-possessed** nouns require a possessed prefix /si³-/.
- This prefix is required regardless of whether the possessor is an *endoclititic* (4), an *enclitic* (5), or a separate noun phrase (6).

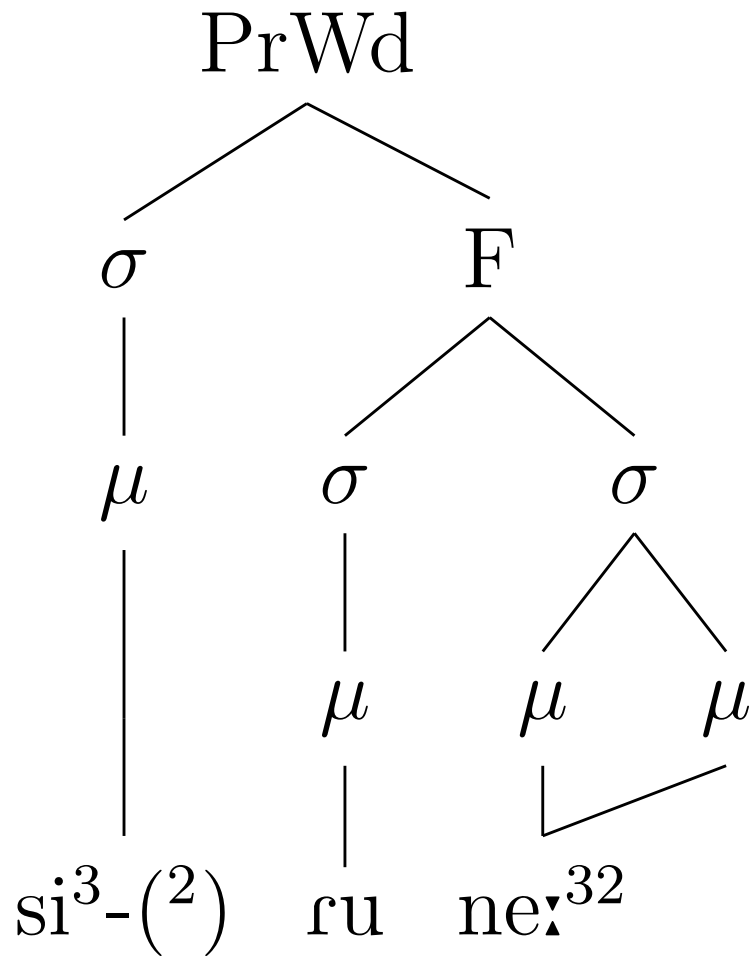
Prefix-conditioned tone changes

Root	Possessed stem	Gloss
ka ³ siʔ ³	si ³ -ka ² siʔ ³	'honey'
ku ³ ruh ³	si ³ -ku ² ruh ³	'large pot'
na ³ sĩ ³	si ³ -na ² sĩ ³	'tomato'
rã ³ ʔã ³	si ³ -rã ² ʔã ³	'mushroom'
tfo ³²	si ³ -tfo ²	'comal/griddle'
kk ^w eh ³²	si ³ -k ^w eh ²	'quelite/edible green'
ti ³ ni ³²	si ³ -ti ² ni ²	'nopal/edible cactus'
ru ³ ne ³²	si ³ -ru ² ne ²	'beans'
se ³ ʔeh ²	si ³ -se ² ʔeh ²	'ring'

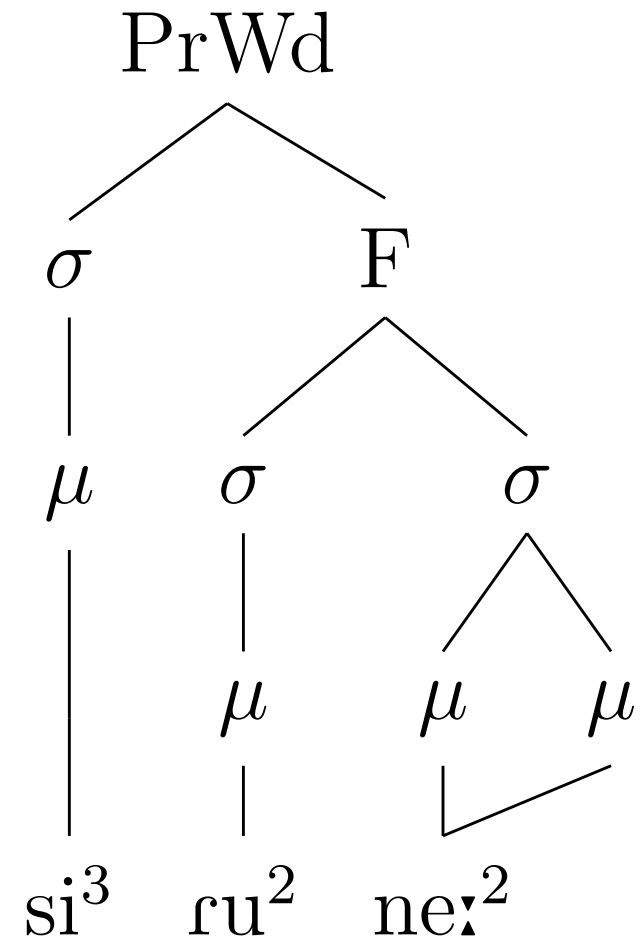
- This prefix conditions tone changes on roots with tone /3/ or /32/.

- Tone /3/ > 2.3

- Tone /32/ > 2

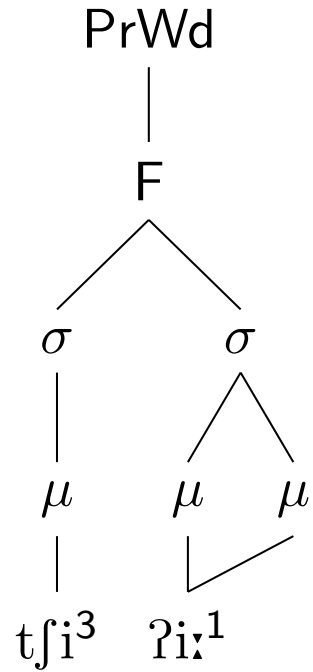


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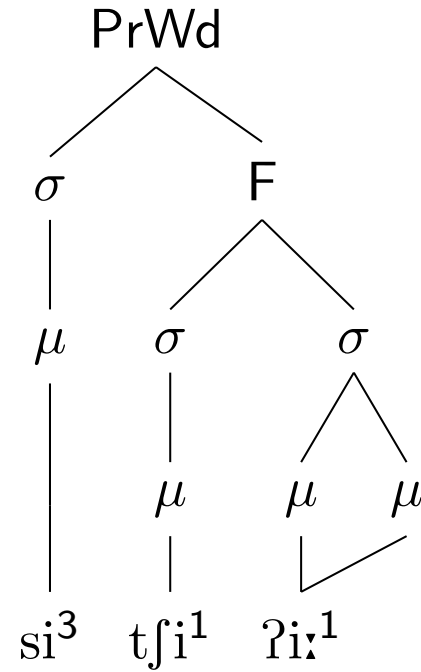
Representation of possessed stems as prosodic words with stem tonal alternations. The underlying roots do not show the output of the leftward tonal association rule. Thus, non-final syllables in roots are tonally-unspecified.

Prefixed stems as the domain of low tone spreading



‘illness’

→



‘illness of...’

Low tone spreading applies across not just morphemes, but prefixed nouns where tone /3/ is absorbed (DiCanio, 2008; DiCanio et al., 2020).

What is the domain here?

- It could be the *nominal stem*, but that's a morphological domain and not strictly-speaking a phonological one.
- It could also be a phonological domain like the **prosodic word**.

Verbal aspect marking as a prosodic domain

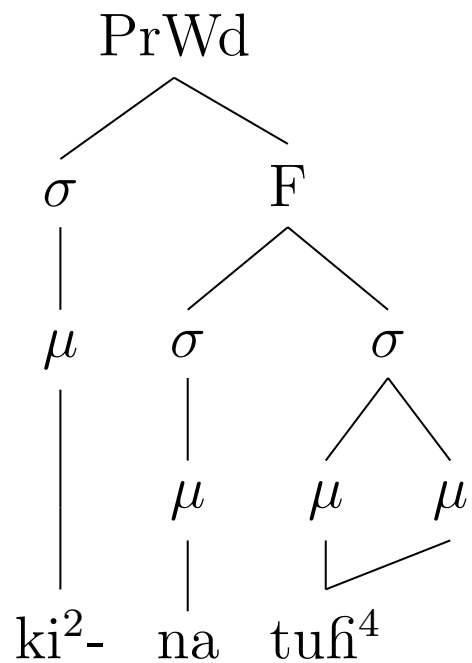
- Vowel-initial verbs take a /k-/ prefix for aspect marking and consonant-initial verbs take a /kV-/ prefix. Note the **potential aspect tone**.

Class	Root	Gloss	Potential form	Perfective form
V-initial	a ³ ni ³	'to expel'	ka ² ni ³	ka ³ ni ³
V-initial	a ³ tʃi ³	'to peel'	ka ² tʃi ³	ka ³ tʃi ³
V-initial	u ³ tã ³	'to suck'	ku ² tã ³	ku ³ tã ³
C-initial	tʃi ³ ?i ⁴	'to defecate'	ka ² -tʃi ³ ?i ⁴	ka ³ -tʃi ³ ?i ⁴
C-initial	ni ³ kah ²	'to carry'	ki ² -ni ³ kah ²	ki ³ -ni ³ kah ²
C-initial	ta ³ βi ³²	'to ascend'	ki ² -ta ³ βi ³²	ki ³ -ta ³ βi ³²

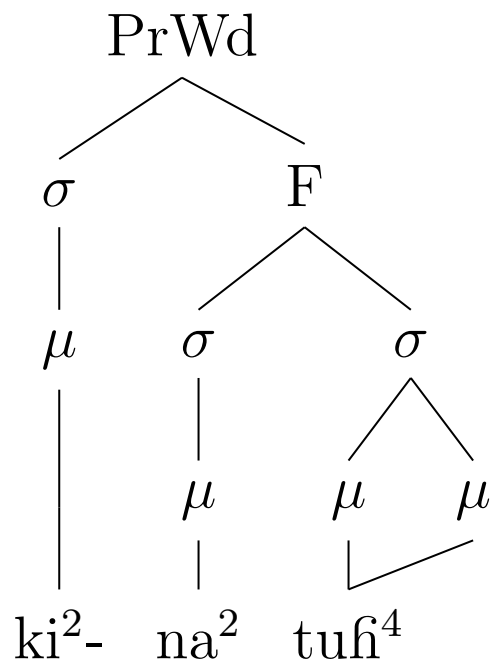
Overwrite with the potential aspect tone

Certain verbs undergo *complete tonal overwrite* with potential aspect tone /2/.

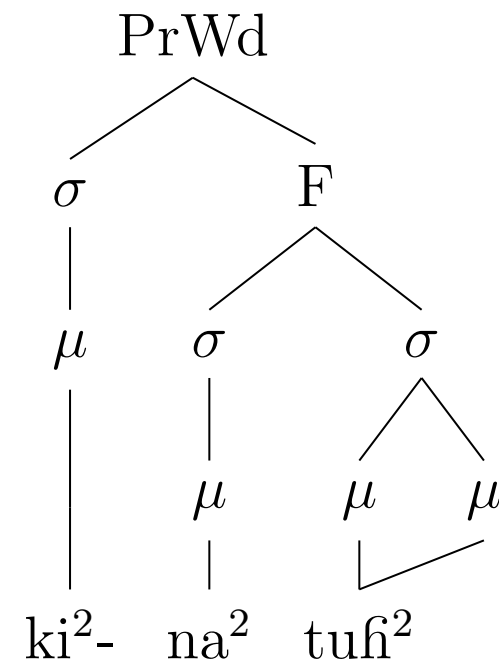
Root	Gloss	Potential form	Perfective form
a ³ tʃih ³	'to grow'	ka ² tʃih ²	ka ³ tʃih ³
a ⁴ tʃĩ ⁴³	'to pass by'	ka ² tʃĩ ²	ka ⁴ tʃĩ ⁴³
u ⁴ tʃũh ⁴	'to smell'	ku ² tʃũh ²	ku ⁴ tʃũh ⁴
tʃu ⁴ mã ⁴³	'to help'	ku ² -tʃu ² mã ²	ku ³ -tʃu ⁴ mã ⁴³
na ³ ri ³ yũ ³	'to measure'	ki ² -na ² ri ² yũ ²	ki ³ -na ³ ri ³ yũ ³
ʔnaʔ ³	'to come'	ka ² -ʔnaʔ ²	ka ³ -ʔnaʔ ³
nãh ⁵	'to wash'	ki ² -nãh ²	ki ³ -nãh ⁵



→



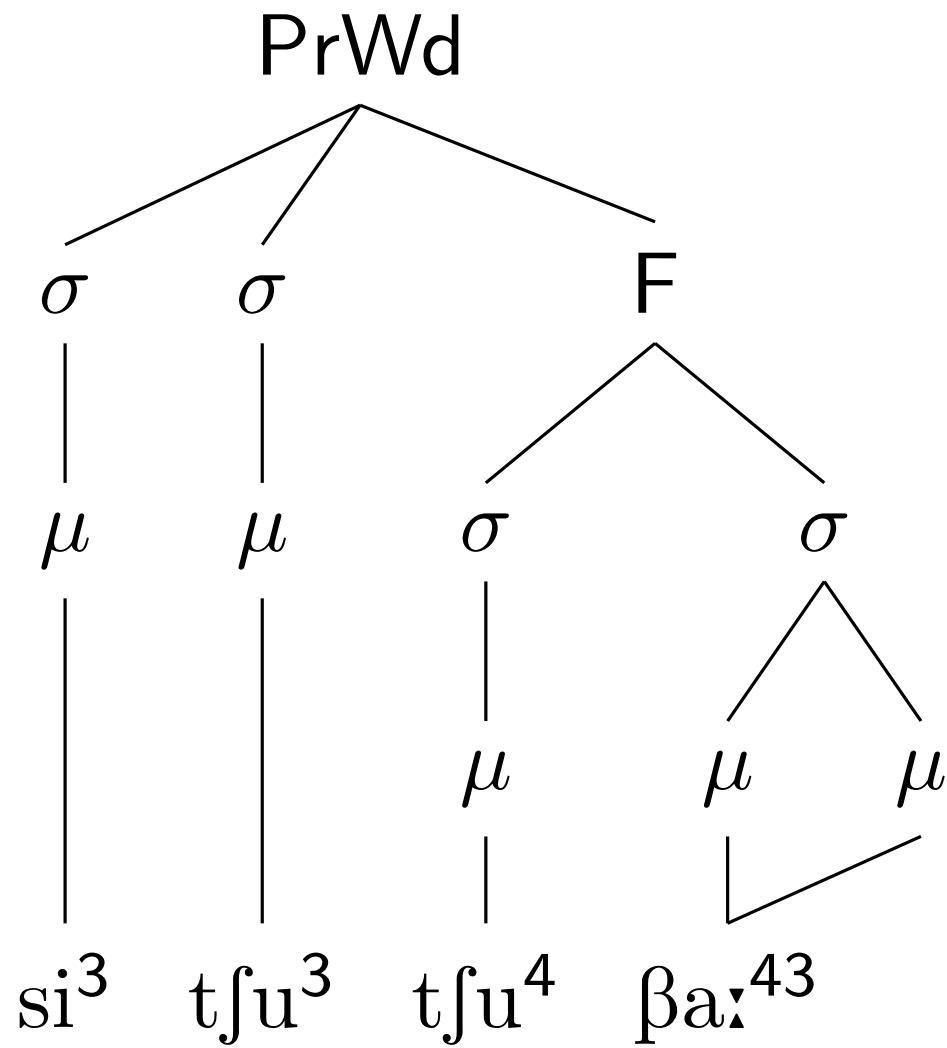
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Prosodic representation of /na⁴tuh⁴/ ‘to fall’ with potential aspect prefixation. Note that there is no underlying tone on the penult of the verb stem here, as the penult receives its tonal assignment via leftward tonal association when no potential prefix is present.

Parallelism across prefixed words

- Note the parallelism here between (a) nominal prefixation and tonal changes on stems and (b) verbal prefixation and tonal changes on stems.
- Both involves processes which overwrite roots with a low tone.
- The domain here could be disyllabic, trisyllabic, or quadrisyllabic.
- This appears to be a prosodic domain like the **prosodic word**.



In a trisyllabic root like /tʃu³tʃu⁴βa⁴³/ ‘peanut’, there would be two extrametrical syllables.

Summary of evidence for prosodic structure

	Phonetics	Segmental phonology	Tonal phonology	Structural
Stress	Lengthening	Maximal contrast	Maximal contrast and tonal licensing	
Iambic foot	No reduction	Minimal contrast	Tone /4/ licensed	Frequent template
Prosodic word	Extrametrical reduction	Minimal contrast	Domain of prefixal morphophonology	

Returning to our hypotheses

- Possible analyses:

- 1) No feet

1σ 2σ 3σ 4σ

$\sigma_{\mu\mu}$, $\sigma_{\mu}\sigma_{\mu\mu}$, $\sigma_{\mu}\sigma_{\mu}\sigma_{\mu\mu}$, $\sigma_{\mu}\sigma_{\mu}\sigma_{\mu}\sigma_{\mu\mu}$

- 2) Iterative Iambic feet

$(\sigma_{\mu\mu})$, $(\sigma_{\mu}\sigma_{\mu\mu})$, $(\sigma_{\mu})(\sigma_{\mu}\sigma_{\mu\mu})$, $(\sigma_{\mu}\sigma_{\mu})(\sigma_{\mu}\sigma_{\mu\mu})$

- 3) **Non-iterative iambic feet**

$(\sigma_{\mu\mu})$, $(\sigma_{\mu}\sigma_{\mu\mu})$, $\sigma_{\mu}(\sigma_{\mu}\sigma_{\mu\mu})$, $\sigma_{\mu}\sigma_{\mu}(\sigma_{\mu}\sigma_{\mu\mu})$

- Itunyoso Triqui has final iambic feet, but **stem formation processes** occur on prosodic words which may be longer.