Dissimilatory tone can be tonemic: Evidence from Mundurukú

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58th Annual Meeting of the Societas Linguistica Europaea
26–29 August 2025, Université Bordeaux Montaigne

Introduction

- How to account for the global diversity of tonal languages?
- ERC ThoT Project: **Toneme** – a basic unit of tonology, able to distinguish lexical and grammatical meanings.
- Dom (Nuclear Trans-New Guinean, PNG):
  - *gúmá-nà* 'my nose' → [HL gú.má.-nà] (cf. *gúmà-Ø* 'his nose')
- Jamsay (Dogon, Mali)
  - *gúmálà* 'hornless ram' → [H gú.má.][L là]

Introduction

- Not every tone is tonemic.
- Cf. default tone assigned to superficially toneless syllables.
- What about tone dissimilation?

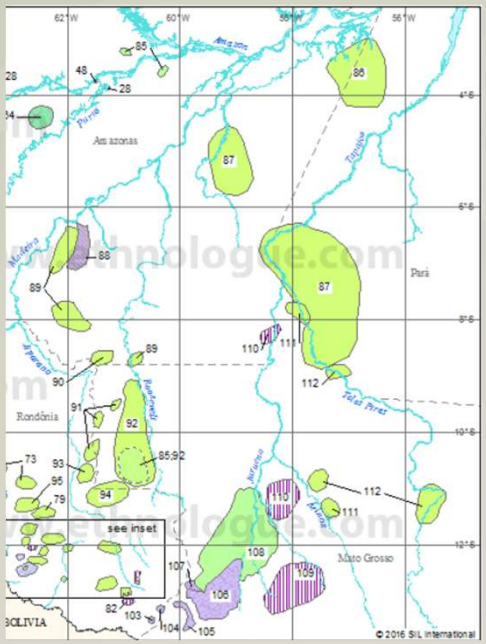
Introduction

- m1-m3: HH; m2-m3: LL
  - (m1, H), (m2, L), (m3, Ø)
  - [H m1-m3], [L m2-m3] – tone spreading.
- m1-m3: HL; m2-m3: LH
  - (m1, H), (m2, L), (m3, Ø)?
  - (m1, H), (m2, L), (m3, H/L)?
  - (m1, H), (m2, L), (m3, H)/(m3, L)?

  - [H m1]-m3, [L m2]-m3?
  - [H m1][L -m3], [L m2]-m3?
  - [H m1][L -m3], [L m2][H -m3]?
  - [H m1][H/L -m3], [L m2][H/L -m3]?

Mundurukú: basic facts

- Mundurukuic < Eastern Tupian < Tupian
- Central Brazil
  - Para: along r. Tapajos at the border with Amazonas and Mato Groso;
  - formerly (?) also Amazonas, between r. Madeira and r. Conumã.
- ca. 8000 speakers (Crevels 2012)



Mundurukú tone

- Traditional analysis (Brown & Crofts 1965; Crofts 1973; 1985): 4 “accents”:
  - 1: super-high (or high)
  - 2: high (or mid-level)
  - 3: low
  - 4: laryngealized

(1)*řat*^{3}*taŋ*^{2} ‘through a scorpion’ : *řat*^{4}*taŋ*^{2} ‘through vomitus’

pa^{3}*ɔi*^{2}*kɨŋ*^{2} ‘with fever’ : *pa*^{3}*ɔi*^{3}*kɨŋ*^{2} ‘with the priest’

(Brown & Crofts 1965: 27)

Mundurukú tone

- (Picanço 2002a,b; 2005): only two tonal level are required, H and L.
- “Super-high accent” (only found on a number of intensifying morphemes and at the right boundary of some focused constituents) is an intonational effect;
- “Laryngealized accent” is a separate phonemic feature of vowels (creaky voice) which is only compatible with L.

(1’) *řat*$^{\mathbf{3}}$*taŋ*$^{\mathbf{2}}$ ‘through a scorpion’ : *řat*$^{\mathbf{4}}$*taŋ*$^{\mathbf{2}}$ ‘through vomitus’

→ *dàt.táŋ* : *dą̃t.táŋ*

- This allows for a more accurate treatment of tonal processes.

Mundurukú tonal processes

- **Unstable H:** Final H tone of *some* morphemes is changed to L when followed by another morpheme within the same prosodic word.
- **Tonal Dissimilation:** L tone (of *some* morphemes) triggers dissimilation of the following L to H;
- **Tonal Polarity:** Some morphemes surface with the tone opposite to that of the preceding syllable.

(Picanço 2005: 312-313ff)

Mundurukú tonal processes

- **Unstable H:** Final H tone of *some* morphemes is changed to L when followed by another morpheme within the same word.

(2)	(a)	wenə́-y	L-H	→	wenə̃-ʔá	L-L-H
		nut-CL			nut-CL	
		'Brazil nut'			'Brazil nut pod'	
	(b)	ʤarə́́y	L-H	→	ʤarə́́y-ʔa	L-H-L
		orange			orange-CL	
		'orange (tree)'			'orange'	

(Picanço 2005: 312)

Mundurukú tonal processes

- **Tonal Dissimilation:** L tone (of *some* morphemes) triggers dissimilation of the following L to H;

(3)	(a)	e + diŋ	→	edíŋ	L-H
		tobacco-smoke			
		'tobacco smoke'			
	(b)	ka + diŋ	→	kadiŋ	L-L
		thing-smoke			
		'dust'			

(Picanço 2005: 312)

Mundurukú tonal processes

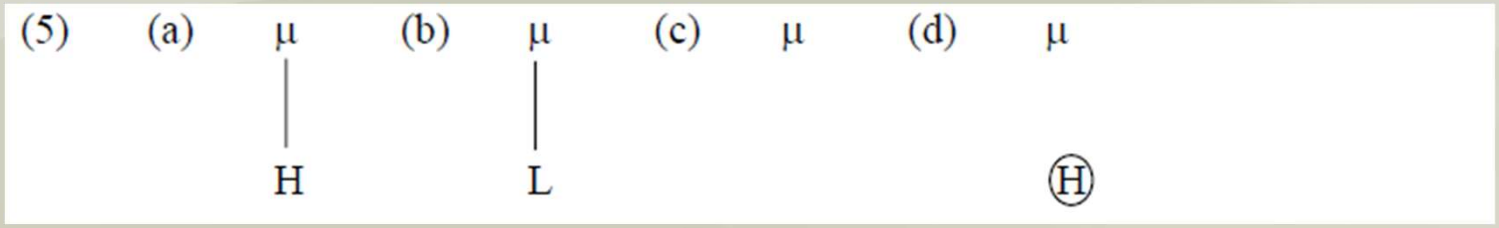
- **Tonal Polarity:** Some morphemes surface with the tone opposite to that of the preceding syllable.

(4)	(a)	áko + dəp	→	ákodə́p	HL-H
		banana-leaf			
		'banana leaf'			
	(b)	bórő + dəp	→	bórődəp	HH-L
		cotton-leaf			
		'cotton leaf'			

(Picanço 2005: 313)

Picanço's analysis in a nutshell

- **Tonal inventory:**



(Picanço 2005: 313)

- Ø syllables receive default L at the surface;
- L triggers dissimilation of the following L; Ø does not;
- Tonal Polarity and Unstable H are due to different docking of the floating H tone.

Picanço's analysis: an example

wenə̃-ʔa [+u] [+u]	HAVEREG	MAXPATH [+upper]	ALIGN(H)	*HH	MAX(H)	DEPH	DEPL
a. we nə̃ ʔa | | | [-u][+u][-u]			*!		*		**
b. we nə̃ ʔa | | | [-u][+u][+u]			*!	*			*
c. ☞ we nə̃ ʔa | | | [-u][-u][+u]					*		**
d. we nə̃ ʔa | | | [+u][-u][+u]			*!				*

Picanço's analysis: an example

ʤa rãy -ʔa [-r][+u] [+u]	HAVEREG	MAXPATH [+upper]	ALIGN(H)	*HH	MAX(H)	DEPH	DEPL
a. ☞ ʤa rãy ʔa [-u,-r][+u][-u]					*		**
b. ʤa rãy ʔa [-u,-r][+u][+u]				*!			*
c. ʤa rãy ʔa [-u,-r][-u][+u]		*!			**		**

A rule-based reinterpretation

- **Toneme inventory:** L, H (can float)
- The tone-bearing unit is **the syllable**.
- Underlyingly, any syllable is either L, H or Ø (toneless).
- In addition, some toneless morphemes have a floating H toneme at their right edge.

A rule-based reinterpretation

- **Tonal rules** (in order of application)**:**

1. Tone Dissimilation (OCP): Any syllable following a L tonal span receives a H toneme.

2. Floating H Association: A floating H tone docks to an adjacent syllable, provided that this syllable is (i) word-final; (ii) toneless: (iii) not preceded by a H tonal span; if these conditions are not met, the floating H tone is deleted.

3. Default L Insertion: Any remaining toneless syllables receive a default L tone.

Tonal rule ordering

- Consider the contrast in (6a,b), which exemplifies successive application of all three rules:

(6)	a.	*o̰-t-a*^{H}*-da*^{H}	→	[ò.tà.**dá**]	LLH
		1SG-3OBJ-CL-cook			
		'I cooked it.'			
	b.	*ò̰-t-a*^{H}*-da*^{H}	→	[ò̰.**tá.dà**]	LHL
		3-3OBJ-CL-cook			
		'S/he cooked it.'	(Picanço 2005: 332)		

Tonal rule ordering

(7)	a.	*o̰-t-a-da*	*ò̰-t-a-da*	underlying
			|	
		ⒽⒽ	L ⒽⒽ	
	b.	*o̰.ta.da*	*ò̰.tá.da*	syllabification/Tone Dissimilation
			| |	
		ⒽⒽ	L HⒽⒽ	
	c.	*o̰.ta.dá*	*ò̰.tá.da*	Floating H Association
		|	| |	
		H	L H	
	d.	*ò.tà.dá*	*ò̰.tá.dà*	Default L Insertion/loss of creakiness
		| | |	| | |	
		L L H	L H L	

- Not *[ò̰.tá.dá] in the right column.

The effect of dissimilatory H

- In (6a), which is underlyingly Ø.Ø^{H}.Ø^{H}, a floating H tone surfaces on the sole syllable of -*da* 'cook' because the latter satisfies all the necessary conditions.
  - (But not on the classifier, because the corresponding syllable is not word-final).
- In (6b), which is L.Ø^{H}.Ø^{H}, the initial L toneme triggers Tone Dissimilation, assigning H to the following syllable.
- This, in turn, blocks realization of the floating H toneme on the final syllable, since the latter is now preceded by another H syllable.

The effect of dissimilatory H

- By blocking realization of a floating H toneme on the subsequent syllable, the H tone in (6b) shows its active character (triggers a tonal process).
- This consitutes a decisive argument in favor of treating H tones arisen through Tone Dissimilation in Mundurukú as tonemes: [L *ọ̃.*-][H *t-á.*-]*dà*.
- So, dissimilatory tones **can** be tonemic.
- (Not to be read that any dissimilatory tone in any language that has them is necessarily a toneme).

Thank you!

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