The ten tonemes of Ticuna, an Amazonian oddity

Ticuna is a language isolate spoken by an approximate 50,000 ethnic Ticunas in Western Amazonia, across the borders of Peru, Colombia and Brazil. The language's unusually rich toneme inventory, consisting of 10 contrastive units in stressed syllables and 5 in unstressed syllables, makes it exceptional from both a typological and an areal point of view.

Except for epenthetic syllables, each and every Ticuna syllable is lexically attached one toneme – which in specific morphosyntactic contexts may automatically alternate with some other toneme. No complex sandhi-like realization rules apply: each toneme, whether lexical or morphosyntactically conditioned, is always realized as its corresponding tone in the syllable it belongs to. A relatively straightforward phonological analysis of firsthand data from the San Martín de Amacayacu (SMA; Colombia) variety collected in 2015-2017 yields the following toneme inventory:

Toneme inventory	
in stressed syllables	**in unstressed syllables**
36 pitch	5 pitch
52 —	4 —
34 —	3 —
43 —	1 —
33 —	creaky voice phonation[1]
31 —	
22 —	
21 —	
terminal creaky voice phonation[1]	
initial creaky voice —	

TABLE 1 | *SMA Ticuna toneme inventory (N.B.: 6 = highest F0; 1 = lowest F0)*

A comparably rich analysis probably holds for other Ticuna varieties, among others Caballococha and Cushillococha (Peru) Ticuna (Anderson, 1959, 1962; Skilton, pers. com.). In today's SMA Ticuna at the very least, there seems to be no way to account for minimal pairs (such as those presented in APPENDIX, TABLE 2) with a more economic toneme inventory (such as Montes, 1995's pioneering three-toneme analysis based on SMA Ticuna data collected from 1984 onwards).

A tenfold tonological contrast in segmentally –or at least structurally– identical syllables is typologically uncommon. A number of East and South East Asian languages (famously Cantonese) are sometimes said to feature an inventory of 9 or more "tonemes". In these languages however, all "tonemes" are usually not compatible with the same syllabic structure, so that strictly speaking no 9-or-more-fold tonological contrast may ever obtain (on Cantonese, see Bauer & Benedict, 1997). Kam, a Tai-Kadai language, and possibly some Hmongic languages, are the sole probable exceptions I have been able to find to this scheme so far (Tang, 2008:87; Yang & Edmondson, 2008:514). On the other hand, depending on how they are analyzed, a number of languages from a few subgroups of the Oto-Manguean family can be described as allowing such manyfold tonological contrasts in structurally identical syllables (such as Palantla Chinantec and Xochistlahuaca Amuzgo; see Merrifield & Edmondson, 1999, Bauernschmidt, 1965:473-474). Typological parallels between the phonology of Ticuna and that of some Oto-Manguean languages are indeed striking.

But even more noticeable than Ticuna tonology's typological oddity is its areal situation. Though not in the rest of South America, tones are a common feature in the Western Amazon (Hyman, 2010), which makes Ticuna being tonal little surprising. However, no South American language has been described to date as having more than "two contrastive tone heights" (Hyman, 2010). Thus Ticuna, by contrasting up to 10 tonemes in the same environment, is not only different, but *highly* different from all other Amazonian languages as far as its tonology is concerned.

[1] Creaky-voiced "tonemes", although they have a phonation trait as their major distinctive feature, pattern phonologically with the other tonemes into a single contrasting phonational-tonological paradigm, phonetically heterogeneous but functionally homogeneous. This is why I call them tonemes, which is what I call the units they immediately contrast with.

APPENDIX

Segments	Toneme									
	36	52	34	43	33	31	22	21	t.creaky.voice	i.creaky.voice
pa			'to be full'	'to be dry'	'dad !'			'to be tired'	'to cling on'	
mã			'to chop up'	'to be sad'	'mum !'		'to sprout'		'to kill'	
mũ			'to be numerous'		'to weave'	'to spear'	'to send'		'to eat (a fruit)'	
t̪o̪				'to plant'		'to fetch'	'to sit'	'other'	'kinkajou'	
t̪u		'to drag'				'to perch'	'to choke'		'tree sp.'	
n̪ãĩ̯	'other'		'to be hot'	'to be spicy'		'tree'		'other'	'to tie'	
tɕi			'to stand'	'to chew'				'tree sp.'	'to be tasty'	
tɕo̪			'to hang'	'to stay'					'to be white'	'to open'
ŋu		'owl sp.'			'to arrive'	'to fall'	'tree sp.'	'to ferment'	'to learn'	
ʔo̪				'to vanish'	'to die (a fire)'	'to be lazy'	'to fruit'		'to be wounded'	

TABLE 2 | *Sets of SMA Ticuna tonological minimal pairs (stressed monosyllables)*

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