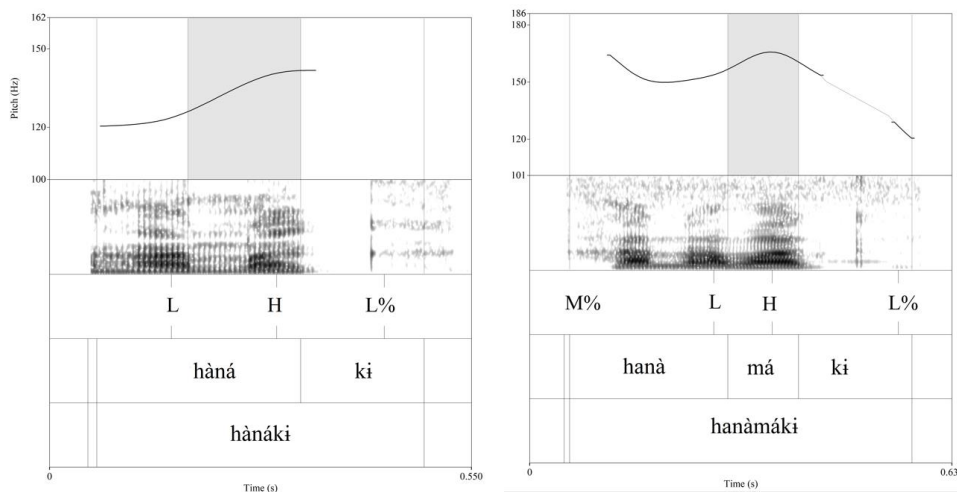


Grammatical tone, tone reduction and phonetic declination in Chácobo (Pano)

Chácobo is a southern Pano language of the northern Bolivian Amazon. Tone is lexically constrictive in Chácobo. Syllables can be either toneless, marked with a single H tone, or contain a bitonal LH unit. The L of the LH is realized either on a prior syllable (*ʃinǒ* ‘monkey’ → *ʃinó*) or deleted, if there is no utterance internal prior syllable to dock to. Chácobo has a number of constructions where tone appears to mark grammatical categories (Tallman & Elias-Ulloa 2020). First, a floating LH tone marks ergative, genitive, or instrumental/locative case docking to the final syllable of the marked noun phrase (*ina hošo=ʔ* ‘dog white=ERG’ → *ina hòşó*). Secondly, both copies in reduplication in Chácobo are marked with a final LH tone as well, which I will refer to as a linker (LNK) formative (e.g. *hana=ʔ hana=ʔ =ki* ‘leave=LNK ~leave =LNK =DECL:PAST’ ‘S/he kept leaving (things)’ → *hànáhànáki*). Finally, there are also morphemes that combine segmental content with floating tones. The morpheme *-ria* ‘augmentative, similitive’ (e.g., *hia=ʔ ria* ‘nice=AUG’ ‘really nice’ → *hiária*). Chácobo has been described as having a tone reduction process: when two adjacent syllables have LH tones, the H segment of the first LH deletes (LHLH → LLH) (Iggesen 2007; Tallman 2018b for details). This paper is concerned with the way in which tone reduction processes apply and do not apply to grammatical tones and whether they are phonetic or phonological in nature in Chácobo. Data are based on original fieldwork (Tallman 2018a).



The tone reduction process is categorical and obligatory in its application at junctures inside a stem and between certain stem-clitic and stem-stem junctures. An example is provided with the form *hanǎ=mǎ=ki* ‘vomit=CAUS=DECL:PAST’ ‘S/he made him vomit’.

Figure 1. Pitch tracks for *hànákí* ‘s/he vomited’ and *hanàmákí* ‘she made him vomit.’

Across larger domains the process of tone reduction is gradient: the first high tone is *undershot* rather than deleted. An example of this is provided in (1) below with an accompanying pitch figure. The relevant juncture is between the (transfer) object *ʃinǒ* ‘monkey’ and the (recipient) object *rǎʃi* ‘Rami’. Notice that the high tone is not completely deleted on *ʃinǒ* as one would expect from the normal application of the tone reduction rule. Rather the tone is undershot, not reaching the target H tone before moving down to hit the L tone portion of the LH tone on first syllable of *rǎʃi* (see Shih 2008 for relevant discussion). LHLH → LLH tone reduction behaves differently with grammatical tone markers. The tone reduction process is always optional when it might apply to a grammatical tone. This can be seen in (2). The tone either deletes or is fully realized, fact which speakers are able to pick up on as well being able to pronounce forms where the tone reduction applies and those where it does not. The relevant pitch tracks are provided in Figure 3. There is at least a strong tendency for a LH from a grammatical tone to be completely deleted in such contexts or to be retained.

- (1) [ʃinó rãmi hismá ràβí waki↓]
 ʃinó rãmi his=mã raβi =[∨] =wa=ki
 monkey Rami see=CAUS Rabi=ERG=TR=DECL:PAST
 ‘Rabi showed a monkey to Rami.’
- (2) [rá.βi.rá.mí.ʔã.ki↓] / [ra.βi.rà.mí.ʔa.ki ↓]
 rabi rãmi =[∨] ă(k)=ki
 Rabi Rami=ERG hit=DECL:PAST
 ‘Rami hit Rabi.’

Another type of tone reduction occurs LH tones become lower throughout the utterance as a consequence of declination. However, grammatical tones undergo the phonetic effects of declination to a lesser degree as illustrated in the uptick in pitch associated with the grammatical tone of *rãmí* ‘Rami-ERG’ in Figure 2.

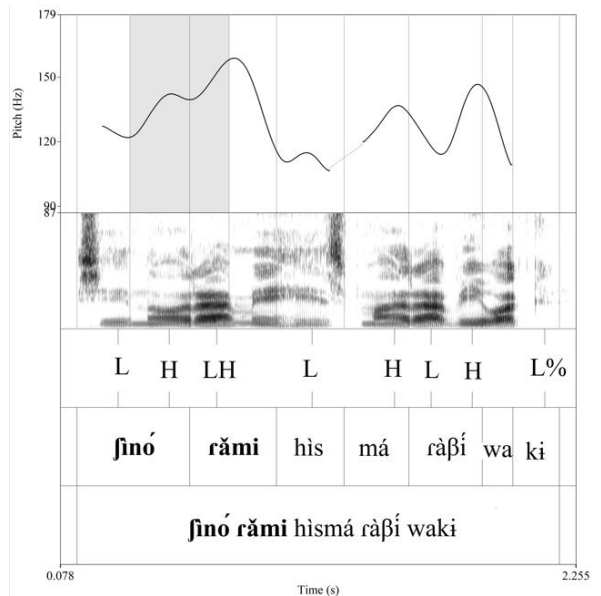


Figure 2. Pitch track for (1).

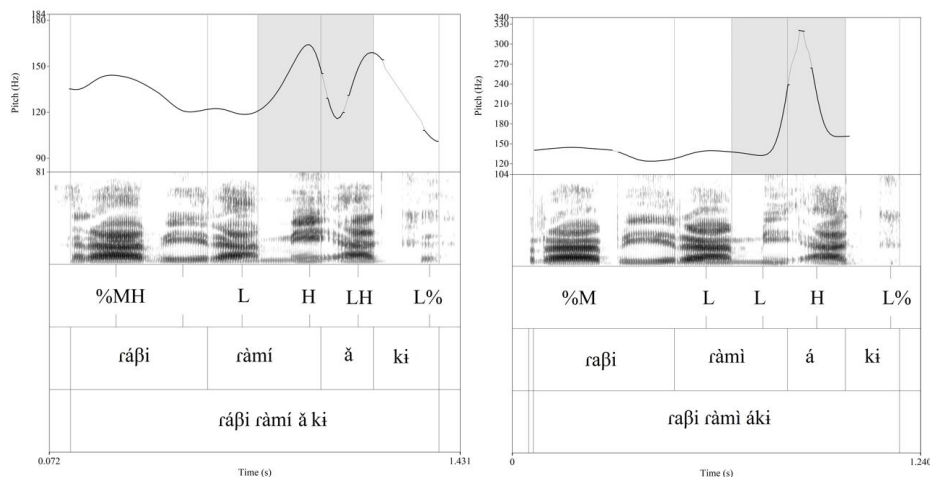


Figure 3. Comparison of application and nonapplication of tone reduction on ergative grammatical tone (see (3))

Apart from providing a detailed phonological and phonetic description of tone reduction processes, theoretical implications are also assessed. I ask whether, the the different degrees to which lexical versus grammatical tones are subjected obligatory/categorical versus gradient versus optional tone reduction and differential effects of phonetic declination requires

positing an extra layer of phonological structure (particularly a recursive phonological phrase, e.g. Féry 2017 to account for the different pitch levels of grammatical tones), or whether the difference should be attributed solely the functional importance of grammatical tone in coding grammatical relations (see Tallman 2018b for some discussion). The aim of this paper is primarily descriptive, however. I will also present some preliminary statistical analyses of the relevant phonetic patterns.

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