A new look at tone in Macuiltianguis Zapotec

Previous work on Macuiltianguis Zapotec (MacZ) (Otomanguean) assumes low (L), mid (M), high (H), falling (HL), and rising (LH) tones and a tonally dense, syllable-level system (Broadwell, Foreman, & Bickmore, 2008; Foreman, 2006). However, a thorough description of the MacZ lexical tone system was not the focus of this work, and clear evidence in favor of a such a system as opposed to the L, H, HL, and LH morpheme-level tone system proposed for other Zapotec languages was not provided (Chávez Péon, 2010; Mock, 1988; Sicoli, 2007). In this paper, I present the first detailed analysis of MacZ lexical tone and show that MacZ is best described as specifying only L, H, and HL tones. I also show that MacZ displays characteristics of both morpheme-level and syllable-level tone systems, but that only a syllable-level system can fully account for the data. All data for this paper come from a recording session conducted with one female speaker (age 58) and one male speaker (age 73) as part of a more extensive field work project in San Pablo Macuiltianguis (Oaxaca, Mexico).

The first part of this paper addresses the MacZ tone inventory. Figure 1 shows that, at a minimum, MacZ contrasts toneless (ø) syllables with three lexical tones: L [jà:]; ‘tree,’ H [tá:]; ‘Señor,’ and HL [sâː] ‘day.’ When stressed, toneless syllables are realized phonetically with a M tone, as in [lāː] ‘name.’ The HL contour tone is only allowed on long vowels (in open syllables or preceding lenis consonants). MacZ thus is not a “true contour tone” language in which the syllable is the TBU (as is argued for San Pablo Güilá Zapotec by Arellanes, 2009). Instead, the mora is the TBU and specified tones are realized across the two moras of a lengthened vowel. Figure 1 also shows that words in MacZ can exhibit complex tones with a variety of contours: Lø [dàː] ‘bean,’ LH [jiːùː] ‘wheat,’ LHL [jōː] ‘river,’ and HLL [tōː] ‘tepejilote.’ These complex tones are not attested in any other Zapotec language, and previous work on MacZ analyzes these tones as belonging to a single rising tone category. Duration measurements from a sample of 50 words showed that these tones are up to twice as long as the other tone types (n = 10, M = 565ms; SD = 41.1).

Notably, speakers write these tones using two vowels, whereas syllables of the type [CV:] are always written with one vowel. I therefore argue that these tones are realized across two syllables and are combinations of the four primitive tone types (ø, L, H, and HL) in MacZ.

The second part of this paper explores whether MacZ tones are best characterized as a feature of morphemes or a feature of syllables. I begin with the desiderata of a morpheme-level tone system. First, word roots should display a limited number of tonal melodies that are no more complex across disyllabic roots than across monosyllabic roots. Second, tone distribution should be restricted in a systematic way, such as to stressed syllables or aligned with a morpheme edge. MacZ exhibits evidence of both desiderata. The examples in (1) show that disyllabic roots, in addition to monosyllabic roots, display the tone patterns ø, L, H, and HL. Word roots of the type [CV:CV] or [CV:CV], which would be expected in a pure syllable-level system, are not found. Instead, H and L tones appear to spread across the first two moras of the stressed syllable, usually the first syllable of the root, and then the pitch “falls off” for the remainder of the word. These features are typical of a morpheme-level tone system such as that described for Isthmus Zapotec by Mock (1988). However, MacZ also exhibits crucial evidence against a morpheme-level system. Namely, tones are not always restricted to stressed syllables or morpheme edges. The examples in (2) show that H and L tones can appear on the ultimate, unstressed syllable of a word root, something that can only be accounted for in a

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1A one-way ANOVA and Tukey HSD post-hoc tests revealed a significant difference in duration between the complex tones and each of the primitive tone types (F(4,46) = 660.5, all p < .01).
syllable-level tone system. Furthermore, in a morpheme-level system, up to eight underlying tone melodies would be required in order to account for the complex tones shown in Figure 1. Having shown that MacZ displays some characteristics typical of a morpheme-level tone system and other characteristics of a syllable-level tone system, I argue in favor of a syllable-level tone system for MacZ. A morpheme-level system is incapable of accounting for the data in (2), which are typical of a syllable-level system and true counterexamples of a morpheme-level system. However, a syllable-level system is able to account for the data in (1) despite the fact that they are more typical of a morpheme-level tone system. The fact that MacZ lacks word roots of the type [CV:CV] or [CV:CV], which are expected in a syllable-level system, can be accounted for by appealing to an OCP effect that prevents the realization of two adjacent H or L-toned syllables. Future research using data from multimorphemic words can confirm whether this is the correct approach. In sum, this paper shows that MacZ is unique among Zapotec languages in that it has L, H, and HL tones that are specified at the syllable level and can combine to create complex tones across single morphemes. This work fills a gap in previous descriptive work on Zapotec languages by providing the first detailed account of the MacZ lexical tone system.

Figure 1. Macuiltianguis Zapotec Tones

Pitch (Hz)

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