Initial weakening in Mixtecan Languages?

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Prosodic boundaries have been shown to influence patterns of consonantal strengthening and weakening across a variety of languages (DiCanio et al, submitted, Fougeron & Keating 1997, Kakadelis 2018, Katz & Fricke 2018, Keating et al. 2003, White et al. 2020). The typical pattern one observes is for onset consonants in more prosodically-prominent positions to be lengthened and, in the case of obstruents and nasals, produced with greater contact between active and passive articulators (Fougeron & Keating 1997, Fletcher 2010, Keating et al 2003, Lavoie 2001). Utterance-initial and word-initial positions are locations of articulatory strengthening while word-medial position is typically one of articulatory weakening or consonant reduction (Katz & Fricke 2018). In this presentation, we provide phonetic evidence that consonants in *word-medial* (but pre-tonic) position are both lengthened and strengthened in Itunyoso Triqui, an indigenous language of Mexico. However, unlike most previous studies on the topic, consonants produced in word-initial position are neither lengthened nor strengthened.

Itunyoso Triqui possesses a fairly large consonant inventory, a large tonal inventory, and a robust pattern of fixed, stem-final stress (DiCanio 2010). All syllables are open with the exception of glottal consonant codas in stem-final syllables. In addition to distributional asymmetries in the phonology, final stress is primarily marked via lengthening. For our investigation, we examined 67 minutes of spontaneous speech from spoken narratives produced by nine native speakers. A total of 5,263 obstruents were analyzed, consisting of the plain consonants which occur in both non-final and final syllable position in disyllabic words (/t̪, k, kʷ, tʃ, t̪s̪, s̪, β/), and word-initial consonants contrasting in length in monosyllabic words (/t̪-t̪ː, k-kː, tʃ-tʃː, β-βː/) - the only context where this contrast occurs (DiCanio 2012). We measured duration and relative changes in intensity within a filtered low frequency band of the speech signal with scripts written for Praat (Boersma & Weenink 2019). The analysis of the durational data demonstrates that onset consonants are lengthened in pre-tonic position in stem-final syllables but shortened in word-initial penults, in line with some earlier findings (DiCanio, 2010) - see Figure 1 (left). Unsurprisingly, singleton consonants are systematically shorter than geminate consonants - see Figure 1 (right)

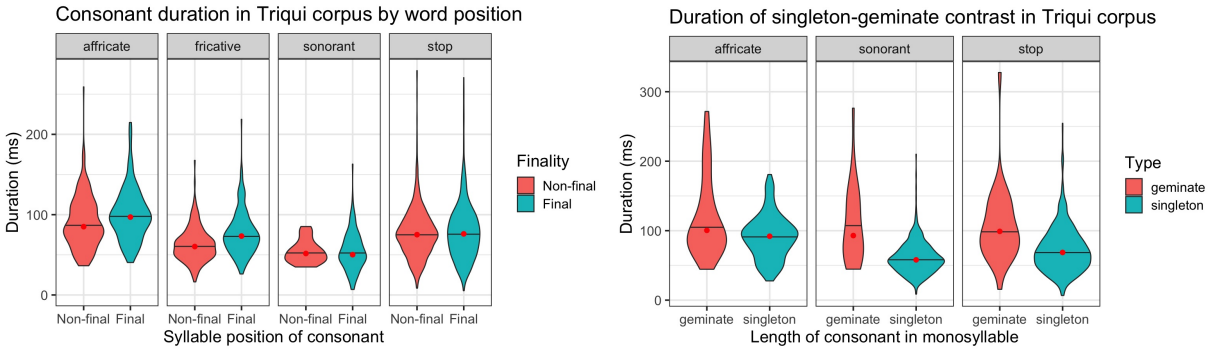

Figure 1: Durational measurements of Triqui consonants in polysyllabic words (left) and monosyllabic words (right). The category *sonorant* here is used only for the voiced bilabial fricative, which varies in its production.

Throughout the speech corpus, voiceless fricatives and affricates are variably realized with voicing or less constriction; and stops may be partially or fully voiced (c.f. DiCanio 2012). Though the

results vary substantially by consonant manner, word position and consonant length are two significant predictors of the lenition degree in the data. In Figure 2, we observe greater intensity differences (less lenition) in pre-tonic, stem-final position than in word-initial position and in geminates. Together, these findings suggest that stress and length are significant factors of lenition patterns and that word-initial position is not be the locus of prosodic strengthening.

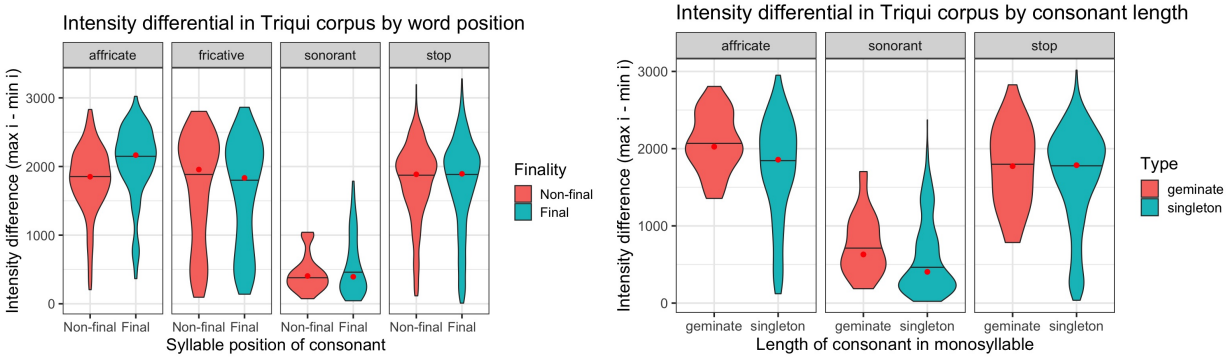

Figure 2: Intensity measurements of Triqui consonants in polysyllabic words (left) and monosyllabic words (right)

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