

# A novel three-way prosodic contrast in Amuzgo word-initial NC sequences

Yuni KIM (Essex; y.kim@essex.ac.uk), Bien DOBUI (Picardie Jules Verne; bien.dobui@u-picardie.fr),  
 Natalia HERNÁNDEZ (Independent Scholar; nats.ndha@gmail.com), Stephen NICHOLS (Oxford &  
 Essex; s.nichols@live.no); Jair APOSTOL POLANCO (CIESAS; jairap19@gmail.com)

Cross-linguistically, nasal-plosive sequences (NC) reflect a diversity of phonological structures (Browman & Goldstein 1986, Herbert 1986, Maddieson 1989, Maddieson & Ladefoged 1993, Iverson & Salmons 1996, Downing 2005, Durvasula 2009, Riehl & Cohn 2011, Stanton 2017). They may be unary contour segments (prenasalized stops [n̠d], postoralized nasals [n̠d̠]), or bisegmental sequences of various prosodic configurations (tautosyllabic [nd] or heterosyllabic clusters [n.d], or syllabic nasals followed by a simple onset [n̠.d]). In this paper, we examine a three-way contrast in word-initial NC sequences in Amuzgo (Oto-Manguean; southern Mexico), as illustrated in (1) with data from the variety of San Pedro Amuzgos, Oaxaca (SPA; ISO-639 azg). We describe the phonetic nature of the contrast, assess its typological consequences, and discuss the syllable structures involved.

(1)	Word	Gloss	Phonological type
a.	n <sup>d</sup> ia <sup>H</sup>	‘clothes’	N <sup>C</sup> Post-oralized nasal
b.	n-dĩō <sup>M</sup>	‘corral’, pl.	NC Nasal + obstruent cluster
c.	ṇ-dũã <sup>M</sup>	‘wash’, 3pl. fut.	Ṇ.C Syllabic nasal + simple onset

Previous sources vary widely in their characterizations of the NC sequences (Bauernschmidt 1965: 476-480, Smith-Stark & Tapia García 1984: 208, Buck 2000, Herrera Zendejas 2009: 154, Buck 2018, Hernández 2019, Dobui 2021, Kim & Hernández 2021). To investigate the phonetic facts, we analyzed acoustic data from one male speaker (b. 1936) of SPA and one male speaker (b. 1960s) of the Xochistlahuaca, Guerrero variety (XA; ISO-639 amu); further data is currently being collected.

The results confirm that the three-way distinction is not just a morphophonological abstraction (cf. Ladefoged & Maddieson 1986), but is also robust on the phonetic level. Monosegmental N<sup>C</sup> has a shorter overall duration than cluster NC. They have similar nasal durations, but NC has longer plosive duration (Figs. 1, 2). Meanwhile, in both varieties, the total durations of cluster NC and syllabic Ṇ.C are similar, but Ṇ.C has longer nasal duration (Figs. 2, 3). Consequently, syllabic Ṇ.C has a shorter plosive duration than cluster NC; we speculate that this may enhance the percept of nasal length.

Typologically, Amuzgo is the only language we know of with a three-way contrast in NC sequences, and it joins only a handful of other languages with a two-way contrast between monosegmental and bisegmental NC. Furthermore, due to allophonic voicing alternations before diphthongs and breathy-voiced nuclei (hV), the three-way contrast is available with both voiced and voiceless plosive phases. The examples in (2) show voiceless plosives, complementing the voiced plosives in (1).

(2)	Word	Gloss	Phonological type
a.	n <sup>h</sup> ia <sup>ʔH</sup>	‘flower’	N <sup>C</sup> Post-oralized nasal
b.	n-ta <sup>L</sup>	‘wall’, pl.	NC Nasal + obstruent cluster
c.	ṇ-tʰi <sup>ʔL</sup>	‘put in’, 3pl. fut.	Ṇ.C Syllabic nasal + simple onset

Amuzgo thus seems to be a strong counterexample to Riehl’s (2008) and Riehl & Cohn’s (2011) prediction that monosegmental and bisegmental NC of identical voicing can only contrast within a language that also makes a phonemic length distinction, which Amuzgo does not. However, we argue that Amuzgo can still be understood in the spirit of their proposal, which is that such contrasts must be supported by the language’s prosody. Considering that the putative phonological categories are morphologically heterogeneous, we investigated whether there were durational differences between monomorphemic and plural-prefixed NC words. We

found no notable differences (Fig. 3), and conclude that the various morphophonological sources converge on a limited number of phonological types which we argue to be independently attested in the language.

For Amuzgo, we propose that nasals participate in a broader syllabicity continuum that includes ‘minor’ syllables’ (Matisoff 1973, Thomas 1992) and extrasyllabic consonants (Vaux & Wolfe 2009) that have arisen through the diachronic compression of the Proto-Amuzgo-Mixtecan \*CVCV couplet (Longacre & Millon 1961) into monosyllables. We view the diversification of syllable types as one of several strategies that have mediated between the need for contrast, and the structural constraints resulting from the tendency toward monosyllabification.

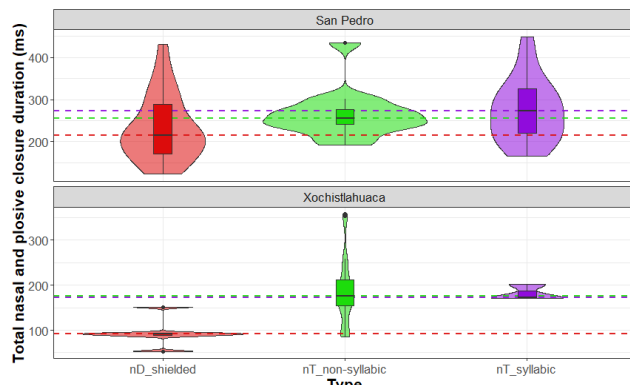


Fig. 1. Total durations of  $N^C$ ,  $NC$ ,  $\dot{N}C$  with medians.

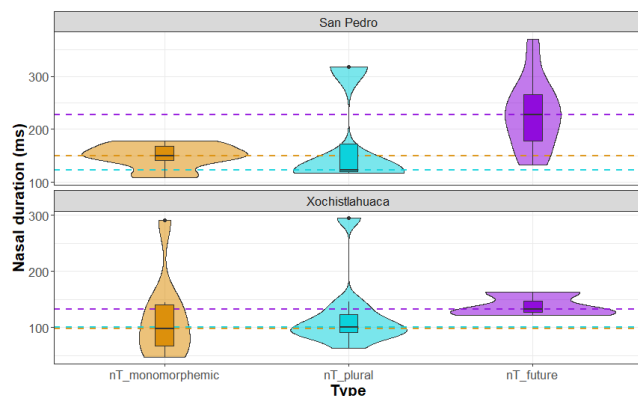


Fig. 2. Nasal durations across  $NC$  types with medians.

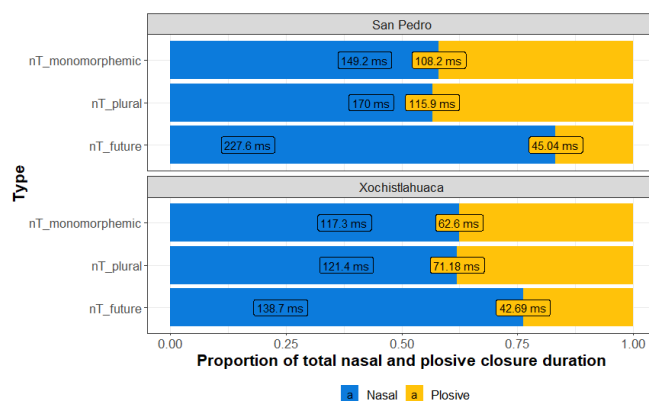


Fig. 3. Relative and raw mean component durations.

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