

# Prenasalised voiceless stops in Ngkolmpu

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Ngkolmpu, a Yam family language spoken in the border area near Merauke in the Indonesian province of Papua, is a language with phonemic voiceless prenasalised segments. Prenasalised voiceless segments are single segments that display a nasalised duration followed by a period of voicelessness following the oral release. The presence of prenasalised voiceless segments is a typological rarity and the Ngkolmpu pattern is especially remarkable since these do not occur contrasted with prenasalised voiceless segments.

Prenasalised segments are a common feature of languages of the New Guinea region and have been proposed as an areal feature (Donohue & Whiting, 2011). However, cross-linguistically they are relatively more rare occurring in just 17% of the 3776 languages listed in the World Phonotactic Database (Donohue, et al, nd.). Prenasalised voiceless segments, contrastingly, only occur in just 3% of languages in the database. More significantly the presence of prenasalised voiceless segments without any contrasting voiced segments, as we find in Ngkolmpu, reduces that number to 0.6%, of which around 35% are in the spoken in the New Guinea region.

The rarity of these segments suggests an interesting avenue of further investigation. This paper demonstrates the existence of prenasalised segments in Ngkolmpu and places this evidence within the broader context of the New Guinea area.

The argumentation comes from both phonetic and phonotactic evidence. First, prenasalised segments are established as phonetically voiceless for the stop duration of the articulation. Spectrographic analysis clearly demonstrates a visible voiceless period. Furthermore, the voice onset times (VOT) of the prenasalised segments correlate to their corresponding non-prenasalised voiceless segments. This includes the behaviour of VOT in the various allophonic realisations.

The evidence that prenasalised voiceless segments are a single segment, rather than a sequence of a nasal followed by the stop, comes from phonotactic data. Prenasalised voiceless segments occur word initially. If these were a sequence these would be in violation of the broader sonority hierarchy used in the definition of syllable structure in the language. More conclusively, nasal plus homorganic nasal plus stop sequences are typically separated through a process of epenthesis yet prenasalised sequences never are.

The presence of prenasalised voiceless segments is both a typological rarity and yet particularly relevant for the New Guinea region.

## References

- Donohue, M & Whiting, B. (2011). 'Quantifying areality: A study of prenasalisation in Southeast Asia and New Guinea', *Linguistic Typology*, vol. 15, no. 1, pp. 101 - 121.
- Donohue, M, Hetherington, R, McElvenny, J, & Dawson, V. (No Date). World phonotactics database. Department of Linguistics, The Australian National University. <http://phonotactics.anu.edu.au>.