

**Iterativity in morphophonological nasal induced tonal lowering: Voicing,
Nasality and Low tone in Element Theory**

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The interaction between voicing and nasality, and voicing and low tone, is well attested cross-linguistically, with nasals seen to trigger voicing, and the loss of voicing seen to result in the evolution of tone in different languages. This has led some theories, particularly Element Theory (Backley 2011), to posit that one phonological prime – element [L] – be used to capture all three oppositions, namely, voicing, nasality and low tone (Nasukawa 1998, 2005, Kula 2002, Botma 2004, among others). Liu & Kula (2020) and Liu (2020) however, note an asymmetry in the interaction of these three properties. While voicing and nasality are seen to interact in a number of processes (e.g. post nasal voicing, Japanese Rendaku) and voicing and low tone also seen to interact (e.g. Vietnamese tonogenesis, depressor effects) there is thus far virtually no discussion of the interaction of nasality and low tone, and importantly what implications this has for theory. Excluding nasal-tone interaction has led to element geometric representations where [L] in nasals is represented under a MANNER node in a structurally more embedded position that cannot directly interact with the tonal tier, in contrast to an outer LARYNGEAL node that more easily interacts with tone, e.g. Botma (2004) and Liu (2020) where MANNER dominates PLACE.

This talk will discuss the benefits of this unified approach to element [L] and by looking at depressor consonants in Southern Bantu languages (Doke 1967) show that more enriched representations are required to capture the different triggers of depression. Significantly, the talk will bring new data from the literature illustrating the illusive interaction of tone and nasality and which imply a recasting of current representations to allow a manner feature like nasality to interact with tone. Part of the motivation for currently assumed representations is that only elements in the LARYNGEAL node can interact/project to the tonal tier to satisfy strict adjacency, so that only the outermost part of the geometry, to the exclusion of MANNER, can interact upwards. This accounts for the fact that nasals are never depressors.

The empirical facts that provide an additional piece in the puzzle come from Western Grassfields Bantu languages (WGB) (Akumbu & Hyman 2016) and reconstruction data, where an interaction between nasality and low tone can be seen in particular morphological contexts. At least four alternations illustrate this: (i) While noun class prefixes in Narrow Bantu are (and reconstructed as) Low-toned, they are High in WGB apart from 6 nasal classes which are Low-toned (Meeussen 1967, Hyman 1980). (ii) In some WGB languages prefixes are categorized as CV with H tone, V with M tone and nasals with L tone (Asongwed and Hyman (1976: 32)). (iii) In [Noun - associative marker - Noun] structures rightward High tone spread from the associative marker is blocked only when there is a nasal in the nominal stem, and if N2 has no prefix and starts with an NC then downstep, absent in other cases, applies. (iv) Nouns with no prefix (particularly of class 10), that are otherwise marked by H, are L when an NC precedes e.g. in Babanki.

The analysis developed will argue for a correlation between cases of nasal induced tonal lowering and voicing, which captures almost all the data. Formally, a modification to the ROOT node in element geometry, that allows MANNER to be terminal will be proposed. This will allow an iterative application of terminal element [L] in MANNER with LARYNGEAL (that houses voicing), with LARYNGEAL in turn

interacting with the tonal tier to effect the observed nasal-tone interaction. The proposed representations imply both recursive structures as well as iterative phonological process application, both issues of interest in current linguistic thinking.

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