Nasal-obstruent sequences and the phonology-phonetics interface
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A variety of homorganic nasal-obstruent sequence-types (NC sequences) have been observed in the world’s languages. Phonologically, these sequences can be grouped into two broad categories—those that constitute clusters, such as the /nd/ sequence in English sender, and those that constitute unary segments, such as the prenasalized /nd/ in Fijian vudi [vu'di] ‘plantain’. When such a distinction exists in the phonology, an obvious question arises for the phonetics: Is there a phonetic difference between unary and cluster NC sequences? Although conflicting data in the literature on this point are often interpreted as a lack of evidence for such a difference (Maddieson and Ladefoged 1993, Downing 2005), I argue that this conclusion is premature, the result of both faulty phonological assumptions and insufficient phonetic studies.

In the first half of this talk, I illustrate that there is in fact a phonetic difference between unary and cluster NC sequences, based upon new phonological and phonetic studies of four Austronesian languages—Tamam bo and Erromangan (Vanuatu) and Manado Malay and Pamona (Indonesia). Specifically, the total duration of a unary NC sequence is equivalent to that of a corresponding plain nasal, while the total duration of an NC cluster is significantly longer than that of a corresponding plain nasal. This durational difference is manifested entirely in the nasal closure portion of the sequence. Importantly, other phonetic cues under investigation—including duration of preceding vowel and degree of nasalization in preceding vowel—do not consistently distinguish unary NC sequences from NC clusters.

In the second half of this talk, I argue that the nature of this phonetic difference is responsible for a gap in the phonology. There are very few attested cases of languages that contrast unary and cluster NC configurations, i.e. a hypothetical /anda/ vs. /a’d’a/ (an observation sometimes attributed to a presumed lack of phonetic difference between the two types). Given that the sole distinguishing phonetic characteristic is length of nasal closure, I argue that only in a language with an existing length contrast (i.e. one that contrasts singletons and geminates) would speakers be sensitive to the difference between the two NC sequence types. It therefore follows that in each of the two languages primarily cited as having a unary-cluster NC contrast—Sinhala and Fula—there is a phonemic length contrast more generally. Further, the unary-cluster NC patterns in these languages mirror singleton-geminate patterns, an observation that has already lead to a reanalysis of the unary-cluster NC contrast as a singleton-geminate contrast (Maddieson and Ladefoged 1993, Letterman 1997).

In short, the data reveal that the phonological structure of an NC sequence is reflected in the phonetics, and further that the nature of this phonetic difference shapes and constrains possible phonological inventories.