

Left-sided vs. right-sided phonology of labial-velars

Labial-velars are approximately simultaneous \widehat{kp} , \widehat{gb} , $\widehat{\eta m}$, and ${}^{\text{b}}g\text{b}$ (generalized as KP here), with the velar articulation slightly leading the labial, and the labial persisting slightly longer (Maddieson 1993). KPs exhibit a variety of patterns indicating they are units rather than sequences. But other processes are sensitive to left-or right-edge effects, and these indicate phonology operating on different levels.

KPs act as unitary phonemes in several ways. They occur in languages which only have CV or CVN syllables. Their duration is much closer to single stops than to clusters (Ladefoged & Maddieson 1996). In Ewe reduplication, KPs also act as single segments, e.g. *fle* ‘to buy,’ *fe-flee* ‘bought’ vs. *kplo* ‘to lead,’ *kpo-kplo* ‘leading’ (Ansre 1963). In some languages, /kp/ becomes not partially but totally voiced after a nasal, e.g. Kaanse *sàni kpógorò* ‘sheep-shelter’ but *súŋ gbógorò* ‘chicken-shelter.’ In Mano, labial-velars are not partially, but completely nasalized before a nasalized vowel (Welmers 1973).

However, nasal place assimilation, which can occur with nasals either preceding or following KP, shows sensitivity to the edges of KP, not the whole. A nasal preceding KP, whether as prenasalization, a distinct morpheme, or within a morpheme, is transcribed as ηKP or $\eta m KP$ in over 50 documented languages, sometimes with uncertainty as to which is correct. The few transcriptions as $m KP$ are dubious, with $\eta m KP$ a more likely possibility. Another example of phonology relating to the left side of KP is in Kɔnni (Cahill 2007), in which vowel epenthesis occurs between segmental morphemes with different place values (e.g. r-k, r-b, b-ŋ, and b-kp, as in *kàb-i-kpí'íŋ* ‘big bone’), but not between morphemes with the same place (e.g. r-t, b-b, n-r, and g-kp → kkp in *hàk-kpí'íŋ* ‘big woman’). These processes, involving sounds preceding KP, treat KP as velar.

Nasals occurring after KP are not as common as those preceding KP, but the documented ones mirror the above; i.e., KPm and $KP\eta m$ occur, but not $KP\eta$. This is even in languages with both patterns, e.g. Gwari *tʃiŋkpè* ‘stool’, *kpmàmí* ‘okra’ (Rosendall 1992). Another case of “right-sided phonology” is Nafaanra, which not only has syllabic and plain nasals (*ñtʰó:sì* ‘tomato,’ *mānā* ‘nose’), but also post-oralized nasals (*n^dú:* ‘to climb’). The post-oralized labial-velar releases into a labial, not a velar (*ŋm^ba* ‘him’) (Jordan 1980). These processes, involving sounds following KP, treat KP as labial.

How can these left- vs. right-sided processes be formalized, with KPs composed of both [dorsal] and [labial] features? In a Feature Geometry model, the [dorsal] and [labial] features are in separate planes, so assimilation to one but not the other is purely arbitrary, and the predominance of ηKP and KPm is not predicted. Likewise, representations in Articulatory Phonology and constraints in various instantiations of Optimality Theory can be formulated to describe the patterns above, but do not provide a principled and non-arbitrary account.

The conclusion is that nasal place assimilation, as well as other directional phenomena alluded to above, are better handled in a phonetically-sensitive component than in a deeper phonological one.