Labial-velars: Origins and reflexes

Michael Cahill
SIL International

Labial-velars (sometimes termed "labiovelars") include the doubly articulated /k͡p, g͡b, ŋ͡m/, and variants, which I abbreviate as KP here. These occur in hundreds of languages in Africa, but also in dozens in languages of the Pacific (Maddieson 1984). KPs have been reconstructed for a number of proto-languages in Africa (e.g. Dwyer 1989 for proto-Mande, Boyeldieu 2006 for Central Sudanic, Stewart 1983 for Volta-Congo), and so occur via genetic inheritance. They have been demonstrated to arise from multiple sources, but by far the most commonly is from *K^{w} (e.g. Shimizu 1971, Dimmendaal 1978, Mutaka and Ebobissé 1996/97, Connell 1998/1999). Two patterns of reflexes of KP are also common: first, voicing, so that *k͡p and *g͡b merge to /g͡b/ (Garber 1987, Cahill 2008), and second, the velar component is lost, with *KP > P (e.g. Mensah 1983, Connell 1991, 1994, Clements and Osu 2002).

Certain phonological models, as well as phonetic characteristics of KP, help explain these sound changes. (Other models relate to KP synchronic phonology, but not sound change.)

The change of *K^{w} > KP can be conceived of in terms of Articulatory Phonology, as developed by Browman & Goldstein (1986, 1989, 1991) which proposes gestures as basic abstract units rather than features. Browman & Goldstein (1991:320) very briefly schematize the difference between [g^{w}] and [g͡b], invoking the labial and velar gestures. In [g^{w}], the labial and velar gestures only minimally overlap, while in [g͡b] the gestures are realigned so there is almost total overlap. A more complete account than they present would also include the labial gesture changing historically from narrow constriction to complete closure.

For the reflexes of *KP, the merger of *k͡p and *g͡b to g͡b, unusual for other articulations, is natural in light of the detailed phonetics of k͡p. First, a [k͡p] is typically unaspirated, or less aspirated than other voiceless stops, and this lack of aspiration may be interpreted over time as voicing. (Cahill 2008) Second, many labial-velars have an ingressive air mechanism and so resemble true implosives, which are almost always voiced (Ladefoged and Maddieson 1996). This can lead speakers to interpret even "voiceless" k͡p as voiced. Finally, there is a tendency for even the "voiceless" labial-velars to have some pre-voicing, which simple stops lack (Connell 1994), and this partial voicing can extend into the entire consonant.

Lastly, we address the loss of the velar articulation in *KP > P. Though the two articulations of KP are mostly simultaneous, the velar is articulated first, and the labial articulation persists slightly (Ladefoged & Maddieson 1996). The release of KP is thus labial and more perceptually salient, which leads to speakers identifying KP as P, as indeed naïve non-native speakers often do.