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Love triangle: labials – /u, w/ – velars

In this paper I discuss the intimate relationship which cements the three peaks of the triangle: velars, labials and /u, w/. Since the close link between the last two actors, i.e. labials and /u, w/, does not pose any problems for any theoretical model of segmental structure, I cope with a more challenging task. In short, I discuss and explain the phonological interaction between two groups, i.e. velars on the one hand and labials and /u, w/ on the other. Although this relation is well-known in phonological circles, it has been present in the discussion at least since Jakobson and Halle (1956), it is still problematic especially for those who work in traditional articulation-based models such as, for example, Feature Geometry framework. In other words, even though velars and labials interact phonologically, they do not have much in common in terms of articulation. The latter observation made Jakobson and Halle (1956) postulate additional feature, i.e. [grave], in both velars and labials. Since then, the need to capture the relationship within the triangle is under constant discussion in various theoretical frameworks (Scheer 2004:49ff, Huber 2007). The interesting thing is that the phonological relatedness of velars, labials and /u, w/ is also problematic for more recent theoretical models. Thus, in Element Theory (Harris 1994, Harris and Lindsay 1995, Cyran 2010 among many others) both labials and the high, back vowel /u/ together with the glide /w/ are represented by the element (U) in opposition to velars which are either defined by the neutral element (Harris and Lindsay 1995:29) or empty-headed (Cyran 2010:9). Note, however, that Element Theory is a relatively new model where various competing theoretical proposals fight for dominance. It means that in opposition to the mainstream solution, where velars are empty-headed and so they do not have much in common with labials or /u, w/, there have been some attempts to establish a direct relationship between the three categories of the triangle, e.g. Broadbent (1996), Scheer (2004) or Backley and Nasukawa (2009). For example, a cross-linguistic survey and the solutions proposed by Lass (1984) and Rennison (1990) lead Scheer (1999, 2004) to a conclusion that velarity and roundness are two distinct phonological elements. Very briefly, Scheer (2004:48) claims that the prime defining velarity (U) is present in all velar articulations (rounded and unrounded). On the other hand, the prime that carries information concerning labiality/roundness, that is, (B) is present in all rounded and bilabial articulations. This fact may explain the reason why in certain systems /w/ interacts with both labials and velars. This is so because /w/ is claimed to include two elements: (U) and (B). Interestingly, Scheer (2004:50) is fully aware of the fact that the introduction of the additional element (B) may be problematic and on the same page he admits in a footnote that “the very existence of this prime may appear awkward, and I would myself prefer a system where one single prime covers labiality, roundness and velarity”. In the same footnote Scheer (2004:50) mentions the solution offered by Broadbent (1996) who argues for the presence of the element (U) in the content of both velars and labials. What differentiates both categories is the status played by this element, i.e. in labials (U) functions as the head, while in velars it is an operator. For some reason Scheer does not explore this idea leaving it for future studies. It is Backley and Nasukawa (2009) who follow that line of thought. Similarly to Broadbent (1996), the authors claim that both velars and labials share the same element (U) which plays a different function in both categories. They base their assumption on spectrograms which reveal the presence of a falling spectral pattern identifying both labial and velar resonance (Backley and Nasukawa 2009:7).

This paper advocates the solution put forward in (Backley and Nasukawa 2009). The data I analyse (mostly from the history of English) provide robust evidence that the triangular relationship may be easily captured if we postulate the presence of the element (U) not only in the content of labials and /u, w/ but also in velars. The analysis is couched in the recent development of Government Phonology known as the Strict CV model (Lowenstamm 1996, Rowicka 1999, Scheer 2004, Cyran 2010) and Element Theory which deals with the elemental make-up of phonological segments (Harris 1994, Harris and Lindsey 1995, Cyran 2010, Kijak 2010). More specifically, I look at the development of the *u*-glide in front of the velar spirant in OE, e.g. *furh* > *furuh* ‘furrow’ and the vocalic modification /ɑ:/ > /ɔ:/ in the vicinity of both velars and labials in the transition period from OE to ME, e.g. *dāh* > *dōh* ‘dough’, *lāng* > *lōng* ‘long’, *hwām* > *whōm* ‘whom’, *āc* > *ōc* ‘oak’, *cāld* > *cōld* ‘cold’ or *hlāf* > *lōf* ‘loaf’. In the latter phenomenon the presence of the prime (U) in velars and labials explains the appearance of the back mid-vowel /ɔ:/. However, it is ME that provides us with a plethora of examples illustrating the relationship within the triangle. For example, one of the large scale phenomena of that period was diphthongization before the velar fricative. It was preceded, in the case of the voiced velar fricative [ɣ], by the vocalization of the fricative, e.g. OE *dragan* > ME *dragen* > *drawen* ‘draw’, OE *boga* > ME *bohe*, *bowe* ‘bow’, OE *nāht* > ME *nauhte* ‘naught’, OE *dohtor* > ME *dohter* > *douhter*, *doughter* ‘daughter’ and OE *dāh* > ME *dōh* > *dough*. The same phenomenon affected vowels, both short and long, followed by the glide /w/ which resulted in the development of new diphthongs. Some schematically represented examples are: OE /ɑ/ + /w/ > ME /au/ or OE /ɑ:/ + /w/ > ME /ɔ:w/ > /ɔw/ > /ɔu/. Towards the end of ME the velar fricative tends to be eliminated from the segmental inventory, e.g. in the final position it is labialized to /f/ as in *laughen* > *laugh*, *laffe* ‘laugh’, *rough* > *rouf*, *ruff* ‘rough’ and *ynough* > *enoff* ‘enough’. Finally, I look at the historical vocalization of the pre-consonantal and word-final *l*, i.e. velarized or dark [ɫ]. The latter phenomenon has led to many later vocalic developments both qualitative and quantitative evident on the example of present-day pronunciation of words like *stalk*, *walk*, *calve*, etc. Moreover, I discuss 15th century diphthongization before the velarized *l*, e.g. /a, o, u/ + lC > /au/, /ou/, as in *balk* > *baulke* ‘balk, balk’, *bolster* > *boulster* ‘bolster’, and *shuldre* > *shoulder*. The conclusion I arrive at boils down to the idea that both vocalic developments occurring before velars/velarized consonants and various processes affecting them can be captured and explained straightforwardly if we postulate the presence of (U) not only in the content of labials and /u, w/ but, first and foremost, in velars.

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