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Labials, velars and velarised consonants – the element function revisited

The evidence from West Saxon and some Romance varieties indicates that velar and velarised consonants in these languages are represented by the element U. However, the distinction proposed by Backley (2011), i.e. headed U for labials vs. non-headed U for velars, is not sufficient to account for the disparate behaviour of velar plosives, fricatives, velarised liquids and labials. Various degrees to which U has the ability to interact in phonological processes can be more effectively expressed in the model proposed by Pöchtrager (2006), i.e. GP 2.0.

Problem:

(1) *West Saxon breaking*: Front vowels were diphthongised before: (ASPR 1932 / BT 2010)
   a. [l] or [r] followed by a consonant, e.g. *heolfor* 'blood', *deorc* 'dark',
   b. the voiceless velar fricative [x], e.g. *feoh* 'cattle', *geohðu* 'anxiety',
   c. the labial approximant [w], e.g. *hweowol* 'wheel', *cneowe* 'knee.DAT.SG.',

but not before velar and labial nasals and plosives, e.g. *engel* 'angel', *deman* 'deem', *rec* 'reek', *frecne* 'horrible', *gedrep* 'stroke', *gelefde* 'believe.PR.PPLE'

(2) *West Saxon back mutation*: Front vowels were diphthongised before a back vowel in the following syllable, provided that the intervening consonants were: (ASPR 1932 / BT 2010)
   a. [l], [r], e.g. *heorot* 'hart', *feolo* 'many', *teolað* 'strive for.3RD.SG.PRES',
   b. [v], [p] or [m], e.g. *cleofu* 'cliff', *cleopað* 'call.3RD.SG.PRES', *leomu* 'limb.PL',

but not the velar plosive [k], e.g. *secan* 'seek', *brecan* 'break'

(3) *Vattiz and Trun (Sursilvan)*: [a] is realised as [au]: (Savoia 2015: 166-7, 179)
   a. before [l] followed by a coronal consonant, e.g. [fault] 'scythe', [kault]/[ˈkaulda] 'hot.MASC/FEM',

but not when followed by a labial or a velar, e.g. [ˈpalma] 'palm',
   b. before the velar nasal, e.g. [mauŋ] 'hand', [ˈlɛuᵑna] 'wool',

but not before a velar plosive, e.g. [ˈvaka] 'cow'

(4) *Villa di Chiavenna, San Fedele Intelvi and Casorezzo (Lombardy, Italy):* [a] is realised as [o]/[ɔ] in closed syllables before [l] followed by a coronal consonant, e.g. [ˈvɔ:ltu]/[ˈvɔ:lta] 'tall.MASC/FEM', but not when the lateral is followed by a velar, e.g. [ˈmalgɛ] 'mountain cottage' (Savoia 2015: 179-180, 365)

As presented above, velars do not have a uniform influence on the preceding vowel. In West Saxon, the velar plosive [k] does not impact front vowels in the same way as the velar fricative [x] or the velarised liquids. The latter facilitate back mutation, just as labials. The Sursilvan varieties show that only the velarised lateral and the velar nasal affect the preceding [a] unless followed by a velar or a labial.

The assumption is that diphthongisation and rounding of the vowels is only possible if the following consonants are represented by the element U. The headed/non-headed distinction, however, does not allow us to explain why, in West Saxon, velar plosives do not produce the same effects as velarised consonant and the velar fricative [x] (1, 2), while some of the labials do (1c, 2b). Also, the diphthongisation in Sursilvan (3) aligns the velar nasal with the velarised lateral (but not with other velars). Both velars and labials (3a) can prevent this process.

Proposal:
The representations that involve structures inspired by the Minimalist Syntax give us the opportunity to encode the differences between labials, velars and velarised consonants and simultaneously to indicate similarities that lie behind their phonological behaviour.

In particular, we propose that structures where the element is lodged immediately under the maximal onset projection or in a non-projecting position (i.e. a single non-projecting head annotated with U for the labial approximant [w], a single-layered projection with U annotated to the complement for the voiceless velar fricative [x] and structures where the prime is annotated to the highest complements for the velarised liquids) are the representations of consonants that cause the preceding vowel to diphthongise ("break"). In other words, the distance between the nuclear projection and the annotated onset position is minimal. Other labials and velars involve double-layered structures whereby the prime is annotated to the head or the lower complement, respectively. Back mutation appears to be facilitated in contexts analogical to breaking and extended to those where U is annotated to the most prominent position (the head). Moreover, the processes can be accounted for without referring to a split root or an additional x-slot insertion.

In Sursilvan, the velarised lateral has a similar structure to the velar nasal, that is, they both have the relevant prime annotated to the peripheral complement. In West Saxon, the velar nasal seems not to bear such a melodic specification as it occurs only before a velar plosive defining its place of articulation, and hence no diphthongisation.

The element placement in the structure is less relevant in Romance varieties, as far as the consonants preventing diphthongisation and rounding are concerned. We would like to argue that, based on the identity of primes, the structures constituting a cluster are more strongly connected by licensing, which renders such an interaction with the preceding vowel impossible. Finally, annotation to a non-peripheral complement in plosives in all the above varieties makes the element interaction with other constituents more constrained.

Consequences for the model:
Elements annotated to the head and the most peripheral positions are more likely to affect the realisation of adjacent constituents. The former by prominence, the latter by structural closeness. The element placement is closely akin to the status in the standard GP, but due to a greater variety of positions within the structure it has a potential of accounting for more complex phenomena.

Selected references:
(1) ASPR = Krapp George Philip. (ed.) (1932). The Anglo-Saxon Poetic Records. New York: Columbia University Press. Last accessed September 12, 2018. Available at http://ota.ox.ac.uk/desc/3009. (2) BACKLEY Phillip. (2011). *An Introduction to Element Theory*. Edinburgh: Edinburgh University Press. (3) BT = Bosworth Joseph. (2010). An Anglo-Saxon Dictionary Online. Thomas Northcote Toller et al. (eds.) Comp. Sean Christ and Ondřej Tichý Faculty of Arts, Charles University in Prague. Last accessed September 12, 2018. Available at http://www.bosworthtoller.com. (4) CAMPBELL Alistair. (1959). *Old English Grammar*. Oxford: Clarendon. (5) HOGG Richard M. (2011). *A Grammar of Old English. Volume 1: Phonology*. Oxford, UK: Wiley-Blackwell. (6) PÖCHTRAGER Markus. (2006). *The Structure of Length*. PhD diss. University of Vienna. (7) SAVOIA Leonardo M. (2015). *I dialetti italiani. Sistemi e processi fonologici nelle varietà di area italiana e romancia*. Pisa: Pacini Editore.