

Proto-Indo-European glottalic stops: The evidence revisited

Elsewhere I have argued that the traditional unaspirated voiced occlusives of the Indo-European proto-language were actually glottalic lenes (e.g. 2010: 53-65 and *passim*). Martin Kümmel has rejected my argumentation in his comprehensive study of the Indo-European consonant shifts (2007, especially 303-309). It may therefore be useful to specify the origins of our disagreement.

My reconstruction is based on direct evidence from Indo-Iranian, Armenian, Baltic and Germanic and indirect evidence from Indo-Iranian, Greek, Latin and Slavic. Kümmel rejects the evidence from Indo-Iranian, Armenian, Latin, Germanic and Baltic and disregards the evidence from Greek (cf. Kortlandt 2010: 105-109) and Slavic (cf. especially Kortlandt 2009: 51-109). Following the traditional view, Kümmel reconstructs five voiceless, five voiced and five voiced aspirated stops (2007: 428), in spite of the fact that the third series is not found outside Indic and may therefore easily have originated under the influence of a substratum language. Since all other languages point to plain voiced stops except Greek, which has voiceless aspirated stops, and Italic, which has fricatives, it would be natural to reconstruct plain voiced stops instead of the voiced aspirates, especially because these are also found in the closest relatives of the aberrant languages (*viz.* Iranian, Phrygian and Celtic, respectively). The reason for the persistence of the traditional view is obviously the fact that Sanskrit, Greek and Latin belong to the aberrant languages and that scholars find it difficult to depart from the languages on which their reconstructions are primarily based (cf. Mayrhofer 1983). The main obstacle to the reinterpretation of the voiced aspirates as plain voiced stops is of course the assumption that the traditional voiced stops were indeed plain voiced stops. By giving up this assumption it has become possible to explain a whole range of phenomena in Indo-Iranian, Armenian, Slavic, Baltic, Germanic, Latin and Greek. The reason why earlier scholars did not take this possibility into account is the fact that glottalization was an unwritten feature before the rise of modern dialectology (cf. Kortlandt 2010: 12-18).

Alexander Lubotsky has proposed (1981) that in Indo-Iranian a laryngeal was lost before a glottalic obstruent when the latter was followed by another consonant, e.g. Vedic *paṛjá-* 'firm', *paṛṣá-* 'wing', *paṛṣín-* 'bird', *paṛṣas-* 'side' versus *páṛpaje* 'stiffened', *páṛjas-* 'frame', *páṛjasyà-* 'flank'. This development is understandable if a sequence of laryngeal plus glottalic stop **-Hg-* was realized as a glottal stop plus preglottalized voiced obstruent [?'g]. Though Lubotsky adduces fourteen roots in laryngeal plus glottalic stop with short root vocalism in Old Indic, five of which have Avestan correspondences with a short root vowel, Kümmel is not convinced.

I have argued that the Sindhi preglottalized voiced stops are an archaism (2010: 121-124). In this language, the unconditioned reflexes of the *d* and *dh* series are glottalic and aspirated, respectively, while dissimilation of the *dh* series before aspirates of recent origin has given rise to a plain voiced series, e.g. *'gāh* 'bait' < *grāsa-* versus *gāh* 'fodder' < *ghāsa-*. The glottalic articulation cannot be attributed to external influence because the surrounding languages do not present anything comparable. Kümmel objects that the older Indo-Aryan dissimilation of aspirates before aspirates yielded glottalic stops in Sindhi (2007: 189), e.g. *'badhō* 'bound' < *baddhá-*, *'dahī* 'curds' < *dádhi*. The objection is mistaken because it only shows that

the unaspirated voiced stops were glottalic at the time of the dissimilation. His idea that glottalization arose in anlaut and from gemination (ibidem) is incorrect because we find intervocalic *-j- < -yy-* versus *-ʔj- < *-Hy-* [ʔy] and dissimilation of initial *ʔj-* to *j-* before a following **-H-* [ʔ] (cf. Kortlandt l.c.).

The Panjabi material also requires the former existence of preglottalized voiced obstruents at a recent stage. In this language, the voiced aspirates have become voiceless and unaspirated, yielding a low tone on the following vowel, e.g. *kòṛā* ‘horse’, Hindi *ghoṛā*. Since the voiceless aspirates have been preserved as a separate category, it appears that the *dh* series was not phonemically aspirated at the time of the devoicing while the glottalic stops were preserved at that stage (cf. Haudricourt 1975: 271). Moreover, the *d* series did not lower the tone of a following vowel. This also points to the preservation of the glottalic feature. Note that there are no voiced aspirates in Kashmiri and Nuristani (cf. Kümmel 2007: 438), which may be an archaism of these languages.

A comparative analysis of the Armenian dialects shows that glottalization is ancient in the reflexes of the Indo-European unaspirated voiced stops (cf. Kortlandt 2003: 20-25 and 126-128, also 2010: 57-61). Kümmel attributes the glottalized obstruents in northern Armenian dialects to the influence of a Caucasian substratum without looking at the geographical distribution of the relevant features. Since the southern Armenian dialects are crucial for the reconstruction of the Proto-Armenian consonant system and Kümmel does not even mention the problems involved, I shall not go into the matter here. Note that the distinctive character of the glottalic articulation is evident from the use of aspirated, not glottalized plosives in 19th century Russian loanwords such as *p’ec’* ‘stove’ and *manet’* ‘rouble’ (cf. Pisowicz 1976: 18).

According to Lachmann’s law, the long root vowel in Latin *āctus* ‘driven’, *lēctus* ‘gathered’ of *agō*, *legō*, as opposed to the short root vowel in *factus* ‘made’, *vectus* ‘carried’ of *faciō*, *vehō*, originated from the following unaspirated voiced stop in the former verbs as opposed to the voiceless or voiced aspirated stop in the latter. Ferdinand de Saussure argued that such Proto-Italic forms as **agtos* must be of analogical origin because the root-final obstruent was devoiced in Proto-Indo-European times already (1889: 256). This argument is now invalidated by the theory that the unaspirated voiced stops were in fact glottalic (cf. Kortlandt 2007: 87-89, 121-123, 149-151). The problems with Lachmann’s law were largely solved by Maniet (1956) and Collinge (1975), who showed that various morphological explanations are untenable and that it was a phonetically conditioned development. Their work is evidently unknown to Kümmel, who still maintains the contrary (2007: 305).

In Balto-Slavic, the Indo-European unaspirated voiced stops dissolved into a sequence of glottal stop plus plain voiced stop. The former part merged with the reflex of the Proto-Indo-European laryngeals and the latter part with the reflex of the alleged voiced aspirates. This is Winter’s law (e.g. Kortlandt 2009: 65-76). The resulting sequences of vowel plus glottal stop remained distinct from the Indo-European lengthened grade vowels (cf. Kortlandt 2009: 51-64). Glottalization was preserved under the stress in the Žemaitian dialects of Lithuanian and outside the stressed syllable in Latvian (cf. Derksen 1991 and 1995). In Slavic, the glottal stop was lost with compensatory lengthening in pretonic and post-posttonic syllables and without compensatory lengthening under the stress and in the first posttonic syllable (e.g. Kortlandt 2011: 157-176, 277-309). Glottalization was preserved in Russian at the time

of the earliest borrowings into Latvian (cf. Kortlandt 2009: 46). There is a striking parallel of the Slavic developments in Athabaskan (cf. Kortlandt 2011: 413-415). It follows that Winter's law cannot be explained as simple lengthening before a voiced stop (thus e.g. Kümmel 2007: 307). Unlike the "broken tone" (=glottalization), the East Baltic tonal contours originated from retractions of the stress (cf. Derksen o.c.).

In Germanic, the hypothesis that the unaspirated voiced stops were preglottalized accounts for the origin of preglottalization in the western dialects of Danish (the *vestjysk stød*), the rise of preaspiration in Icelandic and elsewhere in Scandinavian, the origin of the younger *fupark*, the assimilation of nasal consonants to a following stop in the larger part of Scandinavia, various layers of gemination in North and West Germanic, the origin of preglottalization in standard English, the rise of affricates and geminated fricatives in High German, and the origin of the Franconian tone accents (cf. Kortlandt 2010: 165-199, 249-257, 293-318). There is an exact parallel for the rise of preaspiration from preglottalization after devoicing in Burmese $hp < *ʔp < *ʔb$ beside $p < *b$ (cf. Bradley 1979: 130). There is a strong correlation between preglottalization, preaspiration, gemination and sonorant devoicing in Scandinavia (cf. Hansson 2001 and Kortlandt 2010: 293-303). The English glottal stop gives the same auditory impression and appears to have the same articulation as the *vestjysk stød* (cf. Ringgaard 1960: 199). The High German consonant shift has a perfect analogue in the English dialect of Liverpool, where we find e.g. [kx] in *can't*, *back* (Hughes & Trudgill 1987: 66).

Kümmel objects that "einfache intervokalische Plosive keine Spuren von Glottalisierung zeigen" (2007: 305). This is a mistake because we actually find both preaspiration and preglottalization e.g. in Faroese *eta* [e:hta], *opin* [o:hpin], English *eating*, *open*, Old Northumbrian *eatta*, *brecca*, gemination in Old High German *ezzan*, *offan* (cf. Kortlandt 2010: 223, 267, 297). Kümmel regards preaspiration and preglottalization as recent innovations because they are also found in loanwords. As in the case of the Sindhi dissimilation, the objection is invalid because it only shows that at the time of borrowing the fortis stops were a better candidate for rendering the foreign voiceless plosives than the lenis stops, which were used to render the voiced plosives in borrowings. Kümmel mentions the possibility of attributing the rise of preaspiration to Saami influence. This is highly improbable, firstly because there was little contact between the Scandinavian seafarers who colonized the coasts and the Saami reindeer herders who roamed the interior, secondly because only a very small part of the Saami population lived south of the Ume river (cf. Sammallahti 1998: 6-38), and thirdly because the phenomenon could hardly spread as far as Iceland and Scotland without large-scale intermarriage for which there is no evidence.

Thus, I conclude that Kümmel's reconstruction is based on his rejection of Lubotsky's law, dismissal of the Sindhi evidence, disregard of the evidence from Panjabi, Armenian, Greek, Slavic and Baltic, his rejection of Lachmann's law as a phonetic development, and his dismissal of the Germanic evidence. It has a strong bias toward the traditional reconstruction of Proto-Indo-European and is at variance with the typologically normal sequence of developments $t > t' > 'd > d > d^h > t^h$, also $t > d > t > t^h$ (cf. Haudricourt 1975: 269). The supposed development $d^h > d$ which Kümmel assumes for all languages except Indic, Greek and Italic is not attested elsewhere. In my view, the Proto-Indo-European system $*t$, $*t'$, $*t$ which had arisen under the influence of a North Caucasian substratum (cf. Kortlandt 2010: 35-39) became $*t$, $*'d$, $*d$ except in Anatolian and Tocharian, then $*t$, $*d$, $*p/\delta$ in Italic, $*t$, $*d$,

*^h in Greek, later *^h, *^t, *^t in Germanic, *^h, *^t, *^d in Armenian, *^t, *^d, *^h in Indic, *^t, *^d, *^d in Balto-Slavic, and *^t, *^d in Iranian, Albanian, Phrygian and Celtic.

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