****COMMENTS WELCOME****

Proto-Indo-European Consonantism: Methodological and Further Typological Concerns

by

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Paper to be presented at ICHL VI

(Sixth International Conference on Historical Linguistics)

Poznán, Poland August 22-26, 1983

The traditional view of the consonantal inventory of Proto-Indo-European, as put forth, for example, by Brugmann 1904, posited four series of stops: a voiceless unaspirated series, a voiced unaspirated series, a voiceless aspirated series, and a voiced aspirated series. For instance, at the dental point of articulation, the sounds *t, *d, *th, and *dh were reconstructed, with similar sets posited for the other points of articulation as well. As is now well-known, the evidence for the voiceless aspirated series (*ph, *th, etc.) was not overwhelming--the number of "good" cognates with these elements was markedly small, with the best examples coming from Indo-Iranian, and in many cases the Indo-Iranian voiceless aspirates could be shown to be secondary developments of a sequence of voiceless unaspirated stop plus laryngeal. Similar problems were noted with regard to one member of the voiced unaspirated series, the labial stop *b. Because of such considerations, many scholars have now rejected these elements as part of the Proto-Indo-European segmental inventory and have worked instead with three series of stops with a gap (or near-gap) in the labials--this is the "3-way" system of, for example, Lehmann 1952: (ignoring the question of the gutturals)

p	t	k	k^w
(b)	d	g	g^w
b^h	d^h	g^h	g^{wh}.

Such a step, though, has presented other problems, especially the oft-made observation that the resulting system is unbalanced and worse yet, is typologically unparalleled (Jakobson 1958 and others following him). The major problem is the putative existence of a voiced aspirated series without a corresponding voiceless aspirated one. This particular problem has led to (at least) four types of responses:

a. attempts to restore the Brugmannian system (e.g. Szemerényi 1967)

b. redefinition, within a "3-way" system, of the voiced aspirated (*dh) series as voiced spirants (e.g. Prokosch 1938, Peeters 1971, and others)

c. denial of the relevance of typological information and thus the acceptance of either a 3-way or a 4-way system (e.g. Dunkel 1981)

d. revision of the phonetic reality of the 3-way system to yield a typologically suitable reconstruction (e.g. Hopper 1973, 1977a, 1977b, Gamkrelidze and Ivanov 1973, Gamkrelidze 1981).

The problem of the Proto-Indo-European consonantal inventory thus is a most complex one, and anyone wishing to take one of the above four positions--or any other conceivable one--has really to argue against all the other possible positions. In as short a paper as the present one, such detailed argumentation simply is not feasible. However, a few important methodological questions bearing on this

general issue can be examined. The importance of these questions lies in the fact that under one possible--and, I would argue, reasonable--resolution of them, the traditional reconstruction, i.e. that of Brugmann, can be maintained without (too much) further ado, thus rendering revisions and redefinitions unnecessary at least for Proto-Indo-European, the stage of the language reachable through the comparative method; speculations regarding the pre-Proto-Indo-European state-of-affairs would be largely unaffected.

The methodological side of the Proto-Indo-European consonant system issue has already received some attention in the literature. For example, Dunkel 1981, in a cogent discussion of possible methodological pitfalls in the typologist approach to the Proto-Indo-European consonantism question, criticizes those who take the rarity of *b in Proto-Indo-European to be equivalent to its complete absence and accordingly revise the phonetic reality of the reconsstructed system so as to make such a gap occur at a typologically natural spot (e.g. in a voiceless glottalic series at the labial point, in the schema of Hopper 1973). Similarly, he also takes to task those who rely too heavily on typological observations to provide checks on reconstructions, on the grounds that "typology will in fact never be in a position to make such statements [of absolute nonexistence for some feature], because it will never have studied all human languages" (p. 564). Szemerényi 1967, on the other hand (and

others, e.g. Hopper 1981, partly in his own defense), gives his general approval to the uses to which typology has been put in discussions of the Proto-Indo-European consonant system (up to 1967 at least) and even uses Jakobson's observation that languages with distinctive aspiration also have a phoneme /h/ to justify his reconstruction of a single "laryngeal" consonant with the phonetic value [h].

Despite remarks such as these, there are still further methodological questions to be addressed. In particular, two additional important issues can be identified:

1. the type of evidence which counts as relevant "input" for the comparative method
2. the type of units which the comparative method yields for the proto-language.

As the discussion to follow indicates, these two issues are interrelated, especially when their relevance to the question of the Proto-Indo-European consonant system is explored.

To start with the first issue, it must be noted that typically, onomatopoetic words, loan words, and expressive vocabulary are in general excluded from consideration in the comparative method. As is well-known, a good many of the reconstructed roots for Proto-Indo-European with a *b or a voiceless aspirate involve just these types of

words, for example: *kha- 'interjection of laughter' and basis for verbs, as in Sanskrit kakhati 'he laughs heartily' or Greek kakházō 'laugh' (Pokorny IEW 634); *phu-k- 'blow' (IEW 847); *pha^{x}mph- 'swell' (IEW 94, there labelled a "Lautnachahmung"); *baba-/*balbal-/*barbar- 'word for unarticulated, meaningless speech' (IEW 91); *ăbe/ŏl- 'apple' (IEW 1) where the vowel variations suggest the possibility of a loan. Accordingly, the usual practice has been to ignore forms such as these in compiling the phonological inventory of Proto-Indo-European, leaving the situation noted at the outset that there is just a small number of what most scholars would consider to be "good" cognates with these sounds.

It is fair, though, to question this practice. Loan words can certainly become so solidly entrenched in a language that native speakers are not aware of their origin, even if they contain "nonnative" sounds. The case of English words with /ž/ borrowed from French provides a clear instance of this type. Also, it is often hard to judge the age of loan words accurately, especially very old ones, so that it is not always clear if a given loan word should be excluded.

Similarly, Proto-Indo-European, like all known languages, must have had expressive forms, affective usages, and onomatopoetic words--the need for such elements in

a language seems simply to be a fact about the context in which human communication takes place and the nature of the humans engaging in that communication. Since it seems rather unlikely that human nature has changed considerably since Proto-Indo-European times, roughly 6500 years before present, it can safely be assumed that Proto-Indo-European had expressive vocabulary and onomatopoetic words.

Such elements are certainly notoriously irregular with regard to sound change and are susceptible to iconic recreation and reformation at any time as well as shaping by culture-specific "definitions" of iconicity. Nonetheless, certain aspects of these words can often enter into the normal transmission of language from generation to generation; to that extent, these words can show the same stability diachronically that the nonexpressive sectors of the lexicon do. This last fact was noted by Meillet, for example, who wrote (1967: 106) regarding the form *kha- for the noise of laughter "this is an onomatopoeia ... but this does not interfere with the application of phonological laws". Given all the foregoing, the comparative method provides the only possible way of gaining any insights into what those Proto-Indo-European expressive and onomatopoetic forms must have looked like. For that reason, they should not be discounted as potential input to the comparative method.

It is therefore quite likely that Proto-Indo-European had voiceless aspirates, and probably a b as well, at least in expressive and affective words and in onomatopoetic forms. Interestingly, this conclusion is accepted by Bomhard (1981) one of the leading proponents of the "glottalic hypothesis" under which the phonetic reality of a three series consonant system for Proto-Indo-European is revised to include a glottalic series (à la Hopper et al.). Bomhard (p. 354) states: "the voiceless aspirates found in the onomatopoeic words are probably the only ones that should be assigned to Indo-European and are to be regarded here simply as nonphonemic variants of the plain voiceless stops".

Bomhard's statement, however, merits a closer look. For one thing, it is important to note that it is not uncommon for certain sounds in a language to have a restricted, specifically expressive function. Such is the case with the labial stops in Iroquoian, as pointed out by Mithun 1982, with the voiced palatal aspirate jh in Sanskrit, as noted by Dressler 1969, and to a certain extent with the sounds ts and dz in Modern Greek as well, as argued by Joseph 1982a, b. The parallels between these restricted function sounds and the case of the Proto-Indo-European voiceless aspirates and b is instructive. Like Proto-Indo-European *b, Sanskrit jh fills what would be a gap in an otherwise symmetrical system; like the Proto-Indo-European voiceless

aspirate series, the Iroquoian expressive sounds range over a whole class of sounds, the labial stops, and are not just a single isolated sound. Even more striking parallels with Modern Greek are taken up in more detail below.

Moreover, what does it mean to say, as Bomhard does, that the voiceless aspirates in Proto-Indo-European were "nonphonemic variants"? This leads directly into the second issue mentioned above concerning the synchronic status of phonological elements reconstructed for the proto-language. Unless this is taken to mean that the voiceless aspirates were in free variation with unaspirated stops, a claim which is tantamount to begging the question of synchronic status since "free variation" is an inherently unexplanatory move, there seem to be (at least) two possible interpretations of Bomhard's statement.

Translating Bomhard's statement into classical phonemic terms, one would have to say that there was, for example, an allophone [ph] of the phoneme /p/, and that the occurrence of this allophone was conditioned not by some aspect of its surrounding phonetic environment, as is usually the case, but instead by a lexical fact, namely the fact that the word containing the /p/ was an expressive or onomatopoetic word. Similarly, translating Bomhard's statement into generative phonology and systematic phonemic units,

one would have to posit a rule converting an underlying /p/ into a surface [ph] in words marked with an appropriate feature, such as [+EXPRESSIVE]. Furthermore, this rule would have to be optional for at least some words, since unaspirated [p] seems to have occurred in such words in Proto-Indo-European as well, to judge from reconstructions such as *pū-, variant of *phu- 'blow' (Pokorny IEW 847), or *pa^{x}mp-, variant of *pha^{x}mph- 'swell' (Pokorny IEW 94). Thus in either framework, the appearance of voiceless aspirates in expressive words in Proto-Indo-European is really a lexical fact, not conditioned by anything other than the nature of the lexical item containing the appropriate sounds. Essentially, then, one is dealing with lexical instances of voiceless aspirates, whether they are "disguised" as "nonphonemic variants" or not. Accordingly, at the very least, some of these lexical voiceless aspirates should properly be considered to be systematic phonemes synchronically in Proto-Indo-European.

At this point, the interrelatedness of the two methodological issues discussed so far becomes important. Any loan words that may have been present in Proto-Indo-European with b or with a voiceless aspirate would have lent systemic support to the phonemic interpretation of b and voiceless as-

pirates in expressive words, since they would have constituted independent evidence for the status of these sounds as distinctive phonological elements. Some possible candidates here include *ă̆be/ŏ̆l- 'apple' (IEW 1), whose extreme vocalic variations suggest a nonnative word, and *math-/moth- in words for gnawing, biting worms and vermin (IEW 700), where the "non-core"-vocabulary nature of the word suggests the possibility of a loan (and note that Finnish matikka 'little worm' seems to be borrowed from an Indo-European language) and the distribution of the cognates (Armenian mat'il 'louse' and Germanic, e.g. Gothic maþa 'worm, mite') would point to a very early entry into Indo-European.

In addition, some instances of *b's that are allophonic (in the classical phonemic sense) might well be reassignable as underlying, i.e. phonemic, units, given the general approach being outlined here. One likely instance is the *b in *⌐-bd-⌐, the surface form of the zero-grade of the root *ped- 'foot; go, step' (IEW 790), i.e. underlying /pd-/, where the b has arisen via a regressive voice assimilation rule. This form is a good candidate for being considered to have been relexicalized with an underlying /b/, because, to judge from its occurrence in compounds in Indo-Iranian (Sanskrit upa-bd-a- 'trampling', Avestan fra-bd-a- 'forefoot') and Greek (epí-bd-ai 'day after a festival'), the

relationship in meaning between the full-grade forms of the root *ped- and the zero-grade *bd- may have been somewhat tenuous (cf. especially the Greek form).

Similarly, some allophonic voiceless aspirates, in particular those that appear to be conditioned by contact with a preceding *s, as in *skhel- 'stumble' (Sanskrit skhal-ate 'stumbles', Armenian sxal-ėm 'I stumble', Pokorny IEW 929), may also be analyzable as containing underlying voiceless aspirates. While the aspiration in these roots could be the result of independent developments in the individual languages--Burrow (1973: 72, 393) refers to several such roots in Indic as showing "spontaneous aspiration"--there are many cases where the forms in two or more languages agree in showing reflexes of aspiration, as with *skhel- noted above or with Sanskrit sphūrj-ati 'bursts forth' and Greek spharag-éomai 'burst with a noise' both from a root *(s)p(h)erəg- 'spring' (IEW 996). Thus the possibility cannot be ruled out that such allophonic aspiration was already present in Proto-Indo-European, conditioned by the preceding s in such roots.

Moreover, with many of these roots with an initial s plus voiceless aspirate cluster (12 of the 23 Pokorny lists) the s is the so-called "s-mobile"; since the conditions which favored the presence or absence of the s in these roots are not retrievable given our current state of know-

ledge (though many interesting possibilities have been put forward), it seems that we must accept it as likely that some surface aspirated forms of these roots would have lost the underlying s which conditioned the aspiration. Such a situation seems to occur with *(s)p(h)el- 'split' (IEW 985) attested in forms such as Sanskrit sphaṭ-ati 'tears' and Greek sphalássein 'to cut, to prick' but also, with aspiration but with no s, Sanskrit phal-ati 'bursts, springs apart' and the extended form Greek phel-g-únei 'be without understanding'. Such forms show that the originally allophonic aspiration, in some occurrences, was opaque and thus susceptible to reanalysis as being underlyingly present; such a reanalysis would have been facilitated by any independent instances of voiceless aspirates in expressive words, in loan words, and the like.

Similar considerations hold for voiceless aspirates which seem to be the result of a voiceless stop plus laryngeal, as in the second person singular perfect ending *-tha from the earlier and possibly synchronically underlying sequence */-tH_2e/; the equation of Sanskrit vet-tha with Greek ois-tha 'you know', where both languages show aspiration in the ending, suggests that the ending may have been aspriated on the surface already in Proto-Indo-European, and without strong synchronic support at that stage for

the internally reconstructed underlying morphological form */-tH$_2$e/ noted above, that surface voiceless aspirate would have been another candidate for emergence as an underlying segment through relexicalization.

Thus with just slight modifications to some of the standard assumptions that are made about the nature of the input to the comparative method and the synchronic status of the units arrived at by applying the comparative method, one reaches a very different picture of the consonant system of Proto-Indo-European, where this designation represents, by definition, that stage of the protolanguage just prior to the break-up into the individual branches. The view that emerges is of a language that indeed did have a *b and in addition had a voiceless aspirate series, just as the traditional reconstruction would have it. All that is different in this view is the recognition of special functional status for many occurrences of these sounds, just as is the case with certain (classes of) sounds in Iroquoian, Sanskrit, or Modern Greek. While it is fair to ask why just these sounds and not others should have had such a special status, it does not seem that we can ignore their existence anymore than we could say, for example, that there was no ts or dz in Modern Greek.

In fact, to close on a different sort of typological note, the parallel between the situation with Modern Greek

ts and dz and the Proto-Indo-European situation with *b and the voiceless aspirates is striking indeed. Modern Greek has ts and dz in numerous expressive and onomatopoetic forms such as the diminutive suffixes -útsikos, -ítsa and -ítsi, the adjectives kutsós 'lame' and tsevdós 'lisping', the verb tsak-ízo 'crack' derived from the noise word tsak, the sound symbolic verb tsimbó 'pinch', and others; in addition, these sounds are to be found in Greek in numerous relatively recent loan, such as dzudzés 'dwarf' and dzámba 'for free' from Turkish, klotsó 'kick' from Italian, and many more; finally, there is even one instance of a ts in Modern Greek which is derived historically from a reduction of -θis-, just as Proto-Indo-European had forms like the perfect ending *-tha derived from earlier *-tH_2e. The relevant form is kats- 'sit' which arose via syncope and spirantal dissimilation from the fuller form, the aoristic stem kaθis- (cf. Ancient Greek kathízō), and is now perhaps best treated as a new lexical stem with ts as an underlying element (cf. the imperative singular kátse 'sit!' or the first person plural subjunctive na kátsume 'let's sit'). The comparison of the Modern Greek phonological system with that of Proto-Indo-European, then, provides another case in which the present can guide us in understanding the past.

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