

*Linguistics*

## «Glottalic Theory» and Greek

Thomas V. Gamkrelidze

Academy Member, *Tbilisi*, Georgian National Academy of Sciences

**ABSTRACT.** *The principle of typological plausibility, both synchronic and diachronic, of a postulated model for a proto-language provides a new approach to comparative linguistic studies and calls for a revision of traditional views on reconstructed proto-linguistic systems, in particular of those on Proto-Indo-European and its daughter dialects. The article deals with PIE stop transformations in Ancient Greek. © 2011 Bull. Georg. Natl. Acad. Sci.*

**Key words:** *typological plausibility, reconstructed proto-linguistic systems.*

On the basis of comparative and typological evidence, the “classical” threefold system of Proto-Indo-European stops must be given a phonetic reinterpretation, whereby the traditional “plain voiced stops” should be viewed as “glottalized”.

The stop series in the new interpretation must be defined as: I. *glottalized*; II. *voiced (aspirate)*; III. *voiceless (aspirate)*, where aspiration is a phonetically relevant but phonemically redundant feature. This revision of the consonantism is known in current Indo-European Comparative Studies as “*Glottalic Theory*” and considered a new *Paradigm* in Indo-European Linguistics:

### Reinterpretation of the PIE system of stops

Traditional System  $\Longrightarrow$  Glottalic System

I	II	III	I	II	III
(p')	b <sup>h</sup>	p <sup>h</sup>	(p')	b <sup>h</sup> /b	p <sup>h</sup> /p
t'	d <sup>h</sup>	t <sup>h</sup>	t'	d <sup>h</sup> /d	t <sup>h</sup> /t
k'	g <sup>h</sup>	k <sup>h</sup>	k'	g <sup>h</sup> /G	k <sup>h</sup> /K

The Glottalic Theory takes a new look at the Proto-Indo-European linguistic model and its diachronic transformations into the historical Indo-European languages. Upon the glottalic analysis these transformations prove

to be totally different from those traditionally assumed. The archaic Proto-Indo-European stop inventory appears to be closer to those of languages traditionally viewed as having undergone later *Consonant Shift* (*Lautverschiebung: Grimm's Law*) – *Germanic, Armenian, Hittite...* Languages traditionally considered phonologically conservative (and especially *Old Indian*) prove thus to have undergone complex phonemic transformations in their consonantism. The typological approach to linguistic reconstruction necessitates, indeed, a radical reinterpretation of all the basic work in Comparative Indo-European Linguistics. One could recall in this connection *Winfred P. Lehmann's* words: “*What had seemed one of the most solid achievements of the 19<sup>th</sup> century linguistics is now modified in every section*” ...

\* \* \*

In the light of the *Glottalic Theory* the diachronic phonemic transformations undergone by Ancient Greek may be described in the following way:

Greek belongs to the group of Ancient Indo-European dialects that shifted the Indo-European *glottalized series* to *voiced stops*; other such dialects are *Celtic, Italic*, and *Balto-Slavic*. (cf. typologically the attested phonetic shift of *glottalized consonants* into respective *voiced*

stops in a number of historic languages with *glottalized consonants*). Greek reflects the original *glottalized series* as **b**, **d**, **g**. In typologically regular fashion, the resultant voiced series fills the originally defective labial slot with **b** from a variety of sources:

There are occasional instances of voicing of original voiceless *\*p<sup>h</sup>*, which must be relatively ancient in Greek: cf. *bósk* '(I) herd, feed; graze', *bot r* 'herdsman', *bósis* 'food, fodder' (*'pastum'*), *boú-botos* 'cow pasture', beside Lat. *p sc* '(I) herd', *p stor* 'herdsman', Hitt. *paḫṣ-* 'defend', Skt. *pâṅti* 'defends'.

Also ancient is the change of initial *\*mr-*, *\*ml-* to *br-*, *bl-*: Gk. *brotós* 'mortal', *ámprotos* 'immortal', *ambrosía* 'food of the immortals', beside Arm. *mard* 'mortal', Skt. *mrṅtá-h* 'dead', OPers. *martiya-*, Avest. *mərətā-* (Thieme 1952:24ff.); Gk. *brakhús* 'short' beside Avest. *mərəxu-* 'short', Goth. *ga-maurgjan* 'shorten', OHG *murg(i)* 'short': PIE *\*mrṅG<sup>h</sup>-u-*; Gk. *blítto* '(I) get honey from hive' from *\*mlitt*, cf. Gk. *méli* 'honey', Hitt. *melit* 'honey'.

In post-Mycenean Greek another source of **b** is the former labiovelar *\*g<sup>w</sup>* from *\*K<sup>o</sup>*: Gk. *boús* 'bull' (Myc. *qo-u-ko-ro* 'bull herder', Gk. *boukóloi*), Arm. *kov*, Skt. *gáuh*, Oícel. *kýr*, OE *c*, Toch. A *ko*; Gk. *baíno* '(I) go', Skt. *g - 'go'* (3sg. *jíg ti* 'he goes'), Latv. *gāju* 'I went'; Gk. *bíos* 'life', Skt. *gáyah* 'clan property', *j váh* 'alive', Avest. *gay* 'life', Lat. *u uus* 'alive', Arm. *keam* '(I) live'.

Another important source was foreign borrowings. These can be dated to a fairly early period in Greek: cf. Gk. *bāris* 'Egyptian type of flat-bottomed boat' (the source of Lat. *barca*), Late Egyptian *br*, Copt. *bari*; Gk. *bátos*, a measure of liquid, Hebr. *bat*; Gk. *bdéllion* 'bdel-lium', cf. Hebr. *b<sup>q</sup>d laḥ*; Gk. *búblos* 'papyrus', cf. Phoen. *gbl*, Akkad. *Gublu* 'Byblos', Hebr. *G<sup>q</sup>l* (the initial **g** was replaced in Greek by **b** before another **b**); Gk. *bēta*, letter name: West Semitic *\*bet*, etc. Other ancient loans are *baít* 'herder's clothing of animal skins', cf. Alb. *petkë*, *petëk* 'dress' (possibly from *Thracian*); *békos* 'bread', from *Phrygian* according to *Herodotus*.

An important source of Greek **b** was onomatopoeic formations, such as *bárbaros* 'barbarian', *ba z* '(I) cry, bark', *babráz* (a verb denoting the sound of dragonfly wings), *bambaínô* '(I) chatter, babble', and others. It is interesting to note that the majority of onomatopoeic formations and loans in Greek have **b**. This is a manifestation of a universally valid tendency to give priority in borrowings to forms containing phonological units, which are, for historical reasons, absent (or infrequent) in the borrowing language, but are typologically required by

the system. The result is that the gaps that are typologically impermissible are filled, and the resultant system is consistent with synchronic typological regularities. This can be shown by comparing Greek **b** and **g**: **g** is far less frequent in onomatopoeic and borrowed words than is **b**. In Greek, after *Series I* had been voiced, the velar **g** that continued the dorsal stops of that series had the status of marked member of the series. *Ab*, the unmarked member of the voiced series, was required in the system by the universal implicational laws for voiced consonants. The language begins an intensive process of filling the unmotivated gap in its system by forming new words or assimilating foreign borrowings.

The development of the Indo-European *Series II* of stops – voiced and allophonically aspirated – in Greek, as in Italic, Celtic, and Balto-Slavic, involves significant phonetic changes, which resulted in phonological restructurings. The phonetic changes are largely explained by the phonetic nature of voiced aspirates. The consonants known as *voiced aspirates* can be phonetically characterized as involving a position of the glottis that is not typical of plain voiced or plain voiceless consonants.

The original voiced aspirated allophones of the stops of *Series II* shift to respective voiceless aspirated units, while the unaspirated allophones of the PIE stops of the same *Series* merge with the voiceless phonemes of the PIE voiceless *Series III*, causing thus loss of aspiration in its aspirated allophones.

Such a merger of allophonic series means, at the same time, phonemic split of the PIE *Series II* (i.e. voiced stops with aspirated & unaspirated allophones) into two phonemic series of voiceless stops – an aspirated (II) and an unaspirated (III) that were opposed in Greek to *Series I* (coming from PIE glottalized stops).

The phonetically natural devoicing of the voiced aspirated allophones of *Series II* in Greek could have led to the devoicing of the unaspirated allophones, as well. The devoicing probably began with the aspirated allophones of this series and later also affected the unaspirated allophones. The spread of devoicing to the unaspirated allophones would have been facilitated when voiced unaspirated allophones appeared in the same word as a phoneme of the same series in its aspirated allophonic form. Then the phonetic devoicing of the voiced aspirates would produce simultaneous devoicing of an unaspirated allophone in the same word.

Thus the devoicing of the two allophones of *Series II* in Greek can be seen phonetically as an assimilative

change of a voiced aspirate and voiced non-aspirate within the same syntagmatic unit. In this we can see the operation in Greek of the Proto-Indo-European principle that stops within a single word must be homogeneous in voicing. The result of this combinatorily conditioned process was simultaneous devoicing of both allophones of the voiced Series II and their subsequent redistribution in the Greek phonological system\*.

As a result of the changes described above, the Greek phonological system gets a

three-stop-series: voiced **b, d, g** (from the Indo-European *ejectives*), voice-less aspirated **ph, th, kh** (from the Indo-European *voiced aspirates*), and plain voiceless **p, t, k** (from the Indo-European *voiceless* (and

*positionally aspirated*) stops and also from devoicing of the *unaspirated allophones* of Series II). As a result, the plain voiceless series of Greek includes both the reflexes of the PIE Series III and some of the reflexes of Series II (specifically, the reflexes of its *voiced unaspirated allophones*).

Thus, the assumed complex diachronic transformations of the PIE three-series-system of stops transform the original system into essentially different phonemic three-series-system of stops in Greek that can be described in terms of phonemic split & phonemic merger of the original PIE system.

The changes undergone by the Proto-Indo-European stops series in Greek are shown in the following Table:

#### Derivation of the Greek System from Proto-Indo-European

PIE	I	II	III
	(p')	<i>b<sup>h</sup>/b</i>	<i>p<sup>h</sup>/p</i>
	<i>t'</i>	<i>d<sup>h</sup>/d</i>	<i>t<sup>h</sup>/t</i>
	<i>k'</i>	<i>g<sup>h</sup>/G</i>	<i>k<sup>h</sup>/K</i>
	↓	↓ ↘	↓
Greek	<i>b</i>	<i>p<sup>h</sup></i>	<i>p</i>
	<i>d</i>	<i>t<sup>h</sup></i>	<i>t</i>
	<i>g</i>	<i>k<sup>h</sup></i>	<i>k</i>

\* The Greek aspirated series *p<sup>h</sup>, t<sup>h</sup>, k<sup>h</sup>*, which regularly reflects the allophones of Proto-European Series II *\*b<sup>h</sup>, \*d<sup>h</sup>, \*g<sup>h</sup>*, also includes occasional instances of the reflexes of the plain Series III, with aspiration preserved for reasons that are not entirely clear. An important example is the Greek *th* in the second person singular perfect ending *-tha* (cf. Skt. *-tha* from PIE *\*-t<sup>h</sup>Ha*). Here the preservation of aspiration could be explained as due to the influence of the laryngeal, as it is explained for Sanskrit. However, this explanation is weakened by the unaspirated *t* in other Greek forms with an adjacent laryngeal, e.g., Gk. *plátis* beside Skt. *práthú-*, Gk. *pátos* beside Skt. *pánth s*, etc.

Other relic aspirates going back to Series III without deaspiration include a number of Greek forms with aspirated *ph, th, kh* corresponding to *p, t, k* of other Indo-European languages, forms which have been regarded as of pre-Greek, although possibly Indo-European, provenience. They include *aphneió̄s* 'abundant', *áphenos* 'wealth': Hitt. *ḫappin-ant-* 'wealthy', *ḫappar* 'price', Skt. *ápnas-* 'possessions, goods', Lat. *ops* 'abundance', *Ops* 'goddess of abundance', from PIE *\*H<sup>o</sup>p<sup>h</sup>-*. Another example is Gk. *háph* 'act of touching' beside *hápt* '(I) touch' (possibly cognate to Avest. *fānte*). If such forms are borrowed from some pre-Greek language, then that hypothetical pre-Greek language must be assumed not to have undergone a consonant shift, but to have had an archaic stop system like that of *Armenian* or *Germanic*.

