

E.D. Polivanov and the Georgian language: synchronic questions and diachronic perspectives

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Abstract:

The present paper deals with a short contribution which E.D. Polivanov published in 1925 in the scientific journal of the Central Asia State University during his stay and work at the University of Taškent. Polivanov's text presents a phonological analysis of the Georgian consonant system and aims at making the transcription system devised by the academician N.Ja. Marr for the rendering of Georgian sounds comparable with the better known and more useful alphabet of the International Phonetic Association.

In addition to the synchronic description and classification of Georgian consonants, in which, contrary to the customary interpretation, weak aspiration of voiceless plosives is claimed, Polivanov offers an interesting diachronic explanation of the defective postvelar (uvular) series, which in contemporary standard Georgian features only the voiceless ejective member; his reconstruction of the former system is based on typological assumptions about the different behaviour of voiced and voiceless obstruents with respect to lenition (spirantisation).

Some years later, the Georgian linguist G.S. Axvlediani provided arguments, based on internal reconstruction, which confirmed and further developed Polivanov's hypothesis. Although he had reviewed Polivanov's contribution for a Georgian journal in 1926, Axvlediani did not mention it in his later work, probably because Polivanov in the meanwhile had become *persona non grata* in Soviet linguistics for his open criticism of Marr's linguistic theory.

In the appendix, Polivanov's text is reproduced in full and unchanged, except for the correction of evident misprints and some minor adjustments to the punctuation and the layout.

Keywords: E.D. Polivanov — N. Ja. Marr — G. S. Axvlediani — Georgian language — Phonology — Analytical transcription — Linguistic evolution

1. INTRODUCTION*

1.1. Among the numerous languages and dialects which Evgenij Dmitrievič Polivanov (1891-1938) actively spoke and/or investigated in his linguistic research¹, Georgian, a Caucasian language belonging to the South Caucasian (or Kartvelian) language family², occupies a rather peripheral position; this is undoubtedly due to the fact that his more detailed investigation on this topic, *Essay on Georgian phonetics* [*Ōčerġ gruzinskoj fonetiki*]³, has unfortunately been lost without leaving any trace, thus sharing this sad fate with a quite considerable part of his scientific production (Ivanov 1957: 73; see also Gorbanevskij 1991: 35).

1.2. During his time as a student in Saint Petersburg (1908-1912), Polivanov had the opportunity to attend lectures on Georgian held by the academician Nikolaj Jakovlevič Marr (1865-1934) at the Oriental Faculty. Their initial acquaintance proved quite fruitful at the beginning of Polivanov's academic career. In fact, after having graduated from the Faculty of History and Philology, Polivanov was appointed associate

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¹ In the interrogation after his arrest Polivanov claimed that he fluently knew, besides his mother tongue Russian, seventeen standard languages, namely French, German, English, Latin, Greek, Spanish, Serbian, Polish, Chinese, Japanese, Tatar, Uzbek, Turkmen, Kazakh, Kirghiz, Tadjik and Estonian (Ašnin, Alpatov, Nasilov 2002: 28); in addition, he wrote on Abkhaz, Azeri, Albanian, Assyrian, Arabic, Georgian, Dungan, Kalmyk, Karakalpak, Korean, Erzya, Tagalog, Tibetan, Turkish, Uyghur, Chechen and Chuvash (Leont'ev, Rojzenzon, Chajutin, 1974, p. 21 = 1968, p. 19; see also Leont'ev, 1983, p. 31-32, Gorbanevskij, 1991, p. 33 and Simonato, 2014, p. 14-15). These authors, as well as Ploskix (2001: 5), report the number sixteen, placing Estonian into the second group.

² A very informative overview on these languages is given in Boeder 2005.

³ It is not easy to ascertain whether this was the title of a special monograph on Georgian or of a chapter to be published in the second part of his *Introduction to Linguistics for Higher Institutions of Oriental Studies*, which was not only planned but also realised. In the foreword to the first part Polivanov himself promised to present illustrative material concerning the phonetics of different languages, among them Georgian (Polivanov, 1928, p. III).

professor at the Oriental Faculty; as graduates from one institution usually continued their professional career at the very same place, this circumstance represented a quite exceptional fact, decided by the then dean, who was Marr himself (Alpatov 2013: 9).

The personal and scientific relationship between Polivanov and his former teacher in Caucasian languages, which was doomed to tragic failure in the second half of the 1920s⁴, was initially characterised by deep reciprocal respect and trust. This is clearly shown by a letter dated October 18, 1924⁵, in which Marr wrote that he would be very pleased if Polivanov would support the Japhetic theory:

As concerns Japhetic linguistics, I will be very glad if the theory which is still developing will find you, and you particularly, among those who accept it, for it has already long ago begun to slip out of my hands, as I feel doomed to slip out of life into the depths of the earth whither leads the road of the peace that is for me the greatest of all. (Leont'ev, Rojzenzon, Xajutin, 1974, p. 23)

Even in his lengthy speech at the Communist Academy on 4th February 1929, in which Marr's linguistic doctrine, the notorious *Japhetic Theory* or *New Theory of Language* [*'novoe učenie ob jazyke'*], underwent strong criticism for lack of proper methodology and for the fanciful use of linguistic examples taken from various genetically unrelated languages, Polivanov did not fail to appreciate the doubtless merits of Marr as an archaeologist and philologist; also his descriptive work in the field of Kartvelian languages deserved serious consideration:

Beginning with the fact that 'after subtracting the Japhetic theory there remains much material which makes Marr a great schola', Polivanov pointed out that the 'healthy kernel' of Japhetic theory consisted of studying South Caucasian languages by means of comparative grammar (Leont'ev, Rojzenzon, Xajutin, 1974, p. 24; see also Vasil'kov, 2001, p. 395 and Lähteenmäki, 2013, p. 13)⁶

1.3. While working in Taškent at the Central Asia State University [*'Sredneaziatskij gosudarstvennyj universitet'*], Turkestan's first institution of higher education established after the October revolution in 1920

⁴ More precisely, the epistemological conflict between the two started in the years 1926-1927 (Leont'ev, 1983, p. 12).

⁵ Three letters sent by Polivanov to Marr have recently been published including a facsimile reproduction and a translation into French by Elena Simonato and Patrick Sériot (Polivanov, 2014, p. 238-249). The biographical context of Polivanov's correspondence is provided by Elena Simonato in the introduction of the same publication (Simonato, 2014, p. 18-20).

⁶ The Russian text can be read in Polivanov, 1991, p. 510.

(Krašeninnikov, Nečaev 1990: 56), Polivanov published a four-page article in the scientific journal of the University, with a two-page summary in French, in which he gave a very brief description of the Georgian consonant inventory (Polivanov 1925). In addition to a purely synchronic phonological and phonetic treatment, his analysis also contained some relevant and very intriguing diachronic insights.

The point of departure for his reflections was the so-called Japhetological alphabet, a quite awkward phonetic transcription and the respective idiosyncratic terminology developed by Marr, on account of which the 'genial' research carried out by the latter encountered mistrust and was not generally accepted (Polivanov 1925: 113). Marr had established a unified system of linguistic notation, namely an analytical alphabet employing mostly Roman letters with the addition of some Greek and Russian symbols, as well as diacritical marks, for the graphic representation and comparative description of the so-called Japhetic languages (Matthews 1953).

Polivanov was not driven by any polemical intent; his observations were merely aimed at establishing a reliable correlation between Marr's «staggeringly complex» system (Hewitt 1999: 173) and the linguistically more suitable International Phonetic Alphabet, in order to make the symbols used by Marr and his devoted pupils accessible to a broader readership. In a later work, which never appeared⁷, Polivanov overtly expressed his theoretical criticism and practical objections against this notational system, which in the meantime had been introduced as a practical alphabet in Abkhazia⁸.

1.4. Although he was presenting a synchronic description of Georgian phonology, Polivanov did not betray his background as a historical linguist and the theories of his beloved teacher, Baudouin de Courtenay (1845-1929); in the final part (see below § 3.) he showed a particular sensitivity for diachronic questions. Interestingly enough, the historical explanation of the contemporary situation in Georgian and its Kartvelian relatives, i.e. the emergence of current postvelar (uvular) fricative sounds from original pharyngeal voiced and voiceless aspirated obstruents, was given some years later by the famous Georgian linguist Giorgi Axvlediani (1887-1973)⁹.

While Polivanov made his assessment from a general perspective of phonetic development, Axvlediani, who knew Polivanov's contribution to

⁷ The manuscript is preserved in the Archive of the Russian Academy of Sciences in Saint Petersburg (Polivanov, 1968a, p. 43); an edition of this text is now being prepared by Elena Simonato and the author of the present article.

⁸ On the Abkhaz analytical alphabet see Sériot 2013 and Tomelleri 2016.

⁹ For biographical data on this versatile linguist see Žgenti 1963, Jijiguri 1969 and 1978.

this topic, but for some reasons did not make reference to it, framed his hypothesis exclusively within the Kartvelian language family, thus relying on internal reconstruction.

2. SYNCHRONIC DESCRIPTION

2.1. As we have already outlined in the introduction, the main aim of Polivanov's work was to concisely describe the Georgian consonant system; at the same time, the author considered it necessary to make the Japhetidological alphabet understandable. For this purpose, he featured the phonemes, according to their articulatory properties, by means of the more common and linguistically appropriate transcription of the International Phonetic Association, putting into brackets the notational sign, in many respects idiosyncratic, devised by N.Ja. Marr.

Анализ согласных яфетидологического алфавита.
 Более простого состава — грузинский язык¹.

С и л ь н ы е
 передне- и задне-язычные
 глухие звонкие средние
 t k d g ʒ q

С л а б ы е с и б и л ь н ы е	А ф ф р и к а т ы ṭ ḳ ʒ̣ q̣ ɖ̣ ɡ̣ ṭ̣ ḳ̣ ʒ̣̣ q̣̣ ɖ̣̣ [ɡ̣̣]	С л а б ы е с п и р а н т ы п л а в н ы е
s (s) z (z) ш (ʃ) J (ʒ)		h (h) r [ɣ] (ɣ) l [ʃ] (ʃ) n y (ʏ) Г у б н ы е w [f] v ↔ m
	Г у б н ы е p b ɸ	

¹ В квадратных скобках поставлены звуки, отсутствующие в грузинском алфавите.

Marr's analytical transcription of Georgian consonants
 (from Meščaninov, 1931, p. 9; see also Grande, 1936, p. 55 and Axvlediani, 1938, p. 132)

According to their distinctive features, here labelled «psycho-phonetic» in the vein of the terminology coined by Baudouin de Courtenay (Matthews 2001: 37; see also Stankiewicz 1976: 33-34, Alpatov 2012: 87 and Comtet 2013: 159-161), Georgian consonant phonemes can be divided into three groups (Polivanov 1925: 113):

2.2. – Consonants exhibiting a three-way laryngeal opposition between voiced, voiceless aspirated and voiceless ejectives, labeled тройственные (*dreiförmige Laute* in Tschenkéli, 1958, p. L, V.S.T.), like the obstruents *p*, *t*, *k*, *q* and the affricates *c* (= *ts*), *č* (= *tš*);

2.3. – Continuants with a double laryngeal opposition between voiced and voiceless, called *parnye* (*zweiförmige Laute* in Tschenkéli, 1958, p. LIII, V.S.T.), like the majority of spirants *s* – *z*, *š* – *ž*, *x* – *γ*;

2.4. – Unpaired consonants¹⁰ (*einförmige Laute* in Tschenkéli, 1958, p. LIV, V.S.T.), like the nasals *m* and *n*, the liquids *r* and *l*, the glides *w* and *j*, and finally the spirant *h*.

2.2. TRIADIC PHONOLOGICAL OPPOSITION

2.2.1. The first group within the three-way-opposition comprises *voiceless ejective* obstruents and affricates, the glottal stop (*coup de glotte*, *Stimm-bänderverschluss*) being indicated by means of the Arabic letter *hamzah* (Polivanov 1925: 113)¹¹:

Labial	}	Obstruents	p ^ʔ [p] ¹²
Coronal			t ^ʔ [t]
Affricates			c ^ʔ (= <i>ts</i> ^ʔ) [t̪], č ^ʔ (= <i>tš</i> ^ʔ) [t̪ʃ]
Velar			k ^ʔ [k]
Postvelar			q ^ʔ [k̠]

Such consonants are the product of a combined articulation, which involves a contemporary closure of both the oral cavity and the constricted glottis, so that the air from the lungs is stopped (Polivanov 1925: 114; see also Fallon 2002: 4).

2.2.2. The second group contains *voiced* obstruents and affricates (Polivanov 1925: 114).

¹⁰ On the linguistic terms *paired* (парный) and *unpaired* (непарный) see Trubetzkoy, 1971, p. 85 (German original Trubetzkoy, 1939, p. 77).

¹¹ The name of the Arabic letter (ء), *hamzah* (in Russian *gamza*), denotes the constriction of the larynx (Polivanov, 1928, p. 86); on the articulatory nature of these consonants see Polivanov, 1928, p. 108.

¹² In square brackets the rendition according to Marr's transcription system is given.

Labial and coronal obstruents	b [b], d [d]
Affricates	ჟ (= dz) [d͡ʒ], ჟჟ (= d͡ʒ͡ʒ) [d͡ʒ͡ʒ]
Velar	g [g]
Postvelar occlusive	absent (however, see § 3.1.)

2.2.3. The last group of the triad is represented by the *quasi aspirated voiceless* obstruents and affricates (Polivanov 1925: 114)¹³:

Labial and coronal obstruents	p ^c [p̚], t ^c [t̚]
Affricates	c ^c (= ts ^c) [t̚s̚], č ^c (= t͡ʃ ^c) [t̚ʃ̚]
Velar	k ^c [k̚]
Postvelar	q ^c [q̚]

Polivanov maintains that the postvelar voiceless aspirated stop [q^c], scarcely attested in Georgian, occurs only in loan words from other Caucasian (Japhetic) languages; however, as rightly pointed out by Axvlediani (1926: 245), this assertion is contradicted by the existence of this sound in Old Georgian (spelled ჟ), as well as in some contemporary mountain dialects (see below, § 4.2.).

2.2.4. Voiceless consonants (ejectives and quasi-aspirated) are in phonological opposition to the consonants of the second group because they are devoid of voicing. Unlike the ejectives, the quasi aspirated are produced with the open glottis; this articulatory feature distinguishes them from the voiceless consonants of the first group. Further, the absence of the glottic closure provides them with a light aspiration, which is however, in Polivanov's perception, significantly less strong than in the aspirated consonants of languages like German, Danish, Chinese, Mongolic languages, North-Eastern Japanese and others¹⁴; thus, the denomination «aspirated» can be used only conventionally (Polivanov 1925: 114).

Such a phonetic interpretation, which was completely rejected by Axvlediani (1926: 244-245), is surprising insofar, as Polivanov, as observed by Sergej Ignat'evič (Isaakovič) Bernštejn, was a «brilliant phonetician, well-versed in the use of voice recording technologies» (quoted according to Leont'ev, Rojzenzon, Xajutin 1974: 12 = 1968: 8; see also Leont'ev 1983: 8). As the same opinion was maintained by Marr in his *Old Georgian grammar* (Marr 1925: 8-9; see also Marr 1922: 3,

¹³ According to the IPA rules of his time, Polivanov here makes use of the symbol ^c to graphically denote the aspirated character of stops, now expressed by means of the supralinear letter ^h.

¹⁴ On the allegedly weak aspiration of voiceless aspirated consonants in the Caucasian languages see also Polivanov, 1928, p. 107.

Axvlediani 1938: 71-72), it is justified to assume that Polivanov's wrong statement depends here on the authority of his Georgian teacher.

2.2.5. Moreover, Polivanov did not even mention the tendency towards reduction of voicing in Georgian stops, which has been observed and described, among others, by Rousselot (1925: 867-868), Axvlediani (1938: 67-68), Robins, Waterson (1952: 66)¹⁵ and Abzianidze (1959: 144)¹⁶. Therefore, Polivanov's scheme does not match with the now accepted interpretation, according to which voicing is not the relevant feature of voiced obstruents, as in many Caucasian languages voiced obstruents and affricates can be easily distinguished from their voiceless correlates by the absence of both aspiration and glottalization (Klimov 1978: 90; see also Jakobson 1969: 48-49, Oniani 1973 and Kehrein 2002: 153, referring to Vogt 1958: 49 = 1988: 388)¹⁷.

This failure could be a clear example of what Robel has called *surdit  phonologique*, i.e. «phonological deafness» (Robel 1969: 115), moving from Polivanov's probably most quoted article, originally published abroad in French (Polivanov 1931)¹⁸. Curiously enough, in the just mentioned contribution Polivanov discussed a quite similar case, namely the semi-voiced character of non-aspirated obstruents at the beginning of a word in Northern Chinese (^pb, ^td and so on), this eventually being the reason for the discrepant perception of the Russian voiceless bilabial stop /p/ by Chinese speakers as ^pb¹⁹.

[...] the Russian phoneme – namely *p* – is perceived usually in the North Chinese linguistic consciousness not as the Chinese phoneme (*p*') which

¹⁵ «The unaspirated plosives and affricates are frequently referred to as 'voiced', but voice is not a constant feature of the members of this series. In normal utterance of isolated words these consonants were heard as wholly or partly without voice in initial and final position, and before voiceless fricatives and aspirated or glottalized consonants, especially in a final cluster».

¹⁶ «Thus, the degree of voice in voiced occlusives in literary Georgian pronunciation depends on position and surrounding. Voice is not the only trait distinguishing a consonant from other members of its triad».

¹⁷ Many years ago, when I got my library card at the National Parliamentary Library of Georgia in Tbilisi, I was really staggered to see that my surname, beautiful written in Georgian letters, began with the letter ϱ (doni), denoting the «voiced» dental obstruent /d/: the voiceless dental obstruent /t/, which in Italian lacks both aspiration and glottal constriction, was perceived by a Georgian speaker as "voiced" and therefore rendered as /d/.

¹⁸ See also the famous metaphor of the mother tongue as a phonological sieve in Trubetzkoy, 1971, p. 51-55 = 1939, p. 47-50.

¹⁹ Polivanov referred on many occasions to this case of phonological simplification (convergence), possibly reflecting substrate influence (see, for example, Polivanov, 1928 [1974], p. 76, fn. 12 = 1928 [1968], pp. 70, fn. 12).

corresponds to it (in the sense indicated above) but as a member of the Chinese pair of phonemes opposite to it (the pair “ p^c - p^b ”) – namely, as the Chinese phoneme p^b . (Polivanov, 1968 [1974a], p. 234)

2.2.6. As far as the place of articulation is concerned, besides the most common consonants, i.e. labial, coronal and velar obstruents, as well as coronal sibilants and hushings, we find two more velar series, the series of velars $k^?$, g and k^c , like in many European languages, and the series of postvelars $q^?$ and q^c , to which the fricatives x^s [ç] and γ^s [ç̣], taken from the second group, belong (Polivanov 1925: 114). The opposition between velar (series «k») and postvelar (series «q») is approximately the same as in Uzbek or Arabic ق-ق̣; the relationship between the voiced (/g/ : /g̣/) corresponds to the pair گ : گ̣ in Uzbek.

2.3. DOUBLE OPPOSITION

The opposition between *voiced* and *voiceless* pertains to the spirants (Polivanov 1925: 115):

Spirants	Labial	Coronal		Velar	Postvelar
		Hissing	Hushing		
Voiceless	(f)	s [s]	š [ʃ]	-	x more precisely x^s [ç]
Voiced	(v)	z [z]	ž [j]	-	γ more precisely γ^s [ç̣]

2.3.1. According to Polivanov, the Georgian hushing spirants are coronal, «soft», as they are not formed with the tip, but with the body of the tongue; acoustically, their characteristic tone is higher than in the Russian phonemes /š/ and /ž/; therefore, it would be more accurate to represent them with the symbols /ṣ̌/ and /ẓ̌/ (Polivanov 1925: 115).

2.3.2. Polivanov observes that the post-velar spirants differ from Russian /x/ (in the word *xama*) and /ɣ/ (e.g. the grapheme *ɣ* in the word *бога*, at least in the Moscow speech of the older generation) in the place of articulation, as the point of raising of the tongue is placed farther to the back, whereby the constriction occurs against the end of the soft palate and the uvula; in addition, when the air passes through this constriction, a certain friction of the air flow against the uvula is produced, whose acoustic result is reminiscent of the French *r grassayé* – uvular spirant without trill: voiced [ʁ] in the word *rose*, *mourrais* and voiceless [ʁ̣] in the word *le nôtre* (Polivanov 1925: 115; see also Polivanov 1928: 153). He also claims that from this a combined work and a combined result are obtained: the post-velar $x + \varkappa$ in the case of the voiceless sound, and the postvelar $\gamma + \varkappa$ in the case of the voiced one. In phonetic transcription, they can be denoted by the symbols [x] and [ɣ], with the caveat that both [x] and [ɣ] are to be con-

sidered as postvelars. For a comparison, one could mention Arabic \dot{x} and \dot{g} , especially the Shughni²⁰ sounds indicated by the symbols [ɣ] and [ɣ̣], which differ fundamentally from the corresponding velars [x] and [ɣ] (Polivanov 1925: 115).

2.4. UNPAIRED CONSONANTS

Finally, *unpaired consonants* are the nasals, the liquids, the approximants and the laryngeal spirant (Polivanov 1925: 115):

Unpaired	Voiced	Unpaired voiceless
Nasals	Liquids and approximants	Laryngeal spirant
m, n	r, l, w, j [ɣ]	h [h]

3. DIACHRONIC EXPLANATION

3.1. At the end of his exposition Polivanov turns to a historical excursus about the postvelar fricatives x^x [q̣] and γ^x [g̣]. From a systemic point of view²¹, he observes the ‘lonely’ character of the postvelar ejective stop ($q^?$), which contrasts with the trichotomic opposition in the series of bilabials (b-p^c-p[?]), dental (d-t^c-t[?]), velar (g-k^c-k[?]) stops and dental (ʒ-c^c-c[?]) or palatal (ʃ-č^c-č[?]) affricates.

<u>Obstruents</u>	Voiced	Voiceless Aspirate	Voiceless ejective
Bilabial	b	p ^c	p [?]
Alveolar	d	t ^c	t [?]
Velar	g	k ^c	k [?]

²⁰ This language, belonging to the North Pamir group of the Iranian family (Èdel'man, Jusufbekov, 2000), features a phonological opposition between velar and uvular fricatives: «The uvular phonemes x γ are opposed to the velar pair \dot{x} $\dot{\gamma}$. These are articulated with the back of the tongue raised high, while the remainder of the tongue remains flat, or its tip is lowered. Therefore, those sounds could be considered single-focus, or double-focus phonemes with pronounced front focus: $\dot{x}ac$ ‘water’, $w\dot{o}\dot{x}$ ‘grass’» (Edelman, Dodykhudoeva, 2010, p. 790); on the uvular articulation of backlingual spirants see Polivanov, 1928, pp. 153-154.

²¹ On the necessity of ‘keeping in mind the phonetic system as a whole’, see Polivanov, 1968 [1974b], p. 99-100 = 1968c, p. 97-98.

<u>Affricates</u>	Voiced	Voiceless Aspirate	Voiceless ejective
Alveolar	ʒ	c ^h	cʰ
Alveopalatal	ʒ̟	ç ^h	çʰ
Postvelar	–	–	qʰ

(Adapted from Fähnrich, 1971, p. 269)

He therefore advances a diachronic interpretation of the postvelar fricatives /xʰ/ and /ɣʰ/²², the first going back to the uvular voiceless aspirated *q^h, the second having developed from the uvular voiced plosive *G (Polivanov 1925: 115-116; see also Ivanov 1956: 61). Out of the three phonemes of the reconstructed uvular series /qʰ/ /g/ /q^h/, in Georgian only /qʰ/ [k] has preserved its occlusive character, and only in a relative way²³; the two others underwent a process of spirantisation, namely /g/ → /ɣʰ/ and /q^h/ → /xʰ/. On the other hand, the aspirated voiceless sound /q^h/ [q], scarcely attested in Georgian, occurs in loan words from other Caucasian (Japhetic) languages, where the change /q^h/ → /xʰ/ did not happen, and, consequently, /q^h/ could maintain its occlusive character (Polivanov 1925: 116)²⁴.

3.2. In Polivanov's view, the fact that the voiced uvular stop *G has undergone a process of lenition, called by him 'spirantisation' (Polivanov 1931 [1974]: 85, fn. 10 = 1931 [1968]: 80, fn. 10), whereas /qʰ/ still retains its occlusive character, together with the plausible assumption that probably *G became a spirant earlier than /q^h/, can be predicted from a law of phonetic evolution, according to which the process of spirantisation of obstruents occurs rather in voiced than in voiceless sounds. This phonetic law, in its turn, can be explained with a physiological consideration: if in the case of voiced obstruents the air flow per unit time is lower than in the case of voiceless, the pressure too (from the oral cavity) is lower: the lower is the pressure, the less is the resistance, which is the energy of the occlusion. Thus, the occlusion of voiced consonants is less energetic and therefore historically less stable, as demonstrated by the Russian spirant ж

²² In Georgian grammars, the voiced uvular fricative [ɣ] is usually represented as [ɣ] (Chitoran, 1998, p. 122, fn. 1).

²³ For a detailed discussion of this question Polivanov refers to the quoted above and unfortunately lost *Essay on Georgian phonetics*. This statement about the fricative character of this phoneme is very important (see below, § 4.3.).

²⁴ This statement is clearly wrong, as was remarked by Axvlediani, 1926, p. 245 (see also above § 2.2.3.).

vs. the affricate ɟ, the Japanese ʒ (= dz) / z (affricate in combinatory alternation with a spirant) vs. c, coming from *d (u) and *t (u) respectively, the Arabic *g > ǰ (ج in the word *algebra* جبر) vs. k (ك), as well as *g > ǰʷ (غ) vs. q (ق) (the same happened in the Turkic languages) and so on (Polivanov 1925: 116).

3.3. Polivanov discusses an alleged counterexample to this lenition rule, namely the phonetic change $p > \varphi > h$ in Japanese, where the voiced *b* has long preserved its stop character. This “unexpected” development depends on the specific properties of the voiced consonant; in fact, it can be explained historically with reference to the situation in common Japanese, where *p* was a simple sound, while *b* represented a complex one, namely the half nasal **mb*, derived from the complex “nasal + *p*”: *abari* ← *a^mbari* ← *ambari* ← *am(i)pari* „weaving shuttle“ **am-i-pari*. Otherwise, the phonetic change $p \rightarrow h$ in Armenian, where the voiced *b* preserves its stop character, represents an exception to the said rule (Polivanov 1925: 116).

3.4. The following table synoptically shows the correspondences between the Georgian consonants, here given in alphabetic order (first in *mxedruli* and than in scientific transliteration), Marr’s analytical alphabet and Polivanov’s phonetic transcription:

Georgian	Marr's analytical alphabet	Polivanov's phonetic transcription
ბ – b	b	b
გ – g	g	g
დ – d	d	d
ვ – v	v	v
ზ – z	z	z
თ – t	θ	t ^c
კ – k	k	k ^ʔ
ლ – l	l	l
მ – m	m	m
ნ – n	n	n
პ – p	p	p ^ʔ
ჩ – č	j	ž
რ – r	r	r
ს – s	s	s
წ – t	τ	t ^ʔ
ფ – p	φ	p ^c
ქ – k	q	k ^c
ც – γ	ǰ	r
ყ – q	ḳ	q ^ʔ
შ – š	ш	š
ჩ – č	ǰ	č ^c
ც – c	Ɔ	c ^c

ǰ - j	ǰ	ǰ
ǰ̃ - ǰ̃	i	cʰ
ǰ̃ - ǰ̃	t	čʰ
b - x	ǰ	x
ǰ̃ - j̃	ǰ̃	ǰ̃
ǰ̃ - h	p	h

4. INTERNAL RECONSTRUCTION

4.1. While pointing out the linguistic relevance of Hittite for the reconstruction of Indo-European, the Soviet iranist Aleksandr Arnol'dovič Frejman praised Saussure's brilliant hypothesis about the existence of laryngeals in the Indo-European protolanguage and underlined the fruitfulness of his methodologically correct approach, allowing him to make assumptions which would subsequently be confirmed by concrete facts (Frejman 1947: 208)²⁵. Moving from this observation, Ivanov drew a parallel between Saussure's laryngeal hypothesis and Polivanov's historical explanation of the existence of a single pharyngeal ejective in contemporary Georgian, which was later confirmed by scholars working on the Kartvelian languages (Ivanov 2007: 27, fn. 5).

4.2. In fact, a very similar interpretation was arrived at by the Georgian scholar Giorgi Axvlediani, but not independently, as wrongly stated by Ivanov (1957: 61); actually, Axvlediani was well acquainted with Polivanov's article, which he had reviewed in Georgian one year after its publication (Axvlediani 1926; see also Nebieridze 1969: 27-28). The main difference between the two scholars consisted in their methodology: Axvlediani did not rely on typological data from different languages, preferring instead to deal with the internal reconstruction and the inner comparison within the Kartvelian language family.

First of all, Axvlediani established two sets of decessive harmonic clusters in Modern Georgian (Axvlediani 1951: 113). The terms decessive and harmonic point to the fact that these clusters consist of a prelingual obstruent or affricate followed by a backlingual stop, where both elements, patterning phonologically as a single segment because of their alleged simultaneity of closure and release²⁶, share the same laryngeal specification, i.e. voiceless, voiced or ejective (Aronson 1997: 936).

²⁵ This article, conducted in the framework of historical-comparative linguistics, was sharply attacked by Marr's supporters for its traditional orientation (on the difficult relationship between Frejman and Marr's school see Tomelleri, 2013, p. 85-89).

²⁶ See, however, Chitoran, Goldstein, Byrd (2002, p. 427): «[...] harmonic clusters have been impressionistically described as being simple segments, with only one closure and one release. However, acoustic evidence [...] indicates that they are sequences of two stops, each

In the second set, labelled system B, the articulatory correspondence according to the manner of articulation is not realised, because the series of the postvelar stops presents only the ejective member /q'/²⁷; in the other cases, instead, fricative phonemes, /ɣ/ and /x/ respectively, are featured (Axvlediani 1951: 113)²⁸:

System A (C + stop)			System B (C + fricative)		
[+ voi]	[- voi]	[+ glot]	[+ voi]	[- voi]	[+ glot]
ბგ bg	ფკ pk	ჰკ p'k'	ბღ bɣ	ფხ px	ჰყ p'q'
დგ dg	თკ tk	ტკ t'k'	დღ dɣ	თხ tx	ტყ t'q'
ძგ jg	ცკ ck	წკ c'k'	ძღ jɣ	ცხ cx	წყ c'q'
ჯგ jg	ჩკ čk	ჭკ č'k'	ჯღ jɣ	ჩხ čx	ჭყ č'q'

(adapted from Butskhrikidze, van Heuven 2011, p. 27 and Chitoran 1998, p. 123)

Compared with Old Georgian and some mountain dialects, which have still retained the voiceless aspirated [q^h] (Uturgaidse 2003: 404)²⁹, in Modern standard Georgian a simplification of the original system is observed³⁰. Therefore, such fricative sounds can be traced back to the Proto-Kartvelian corresponding pharyngeal stops, that are only partially attested in the modern Kartvelian languages and/or dialects.

4.3. On the basis of a diachronic comparison of the Kartvelian languages, Axvlediani postulated the existence of pharyngeal sounds in Proto-kartvelic, featuring the customary three-way contrast «voiced, voiceless aspirated and voiceless ejective»³¹. The voiced and voiceless aspirated

with its own closure and release. There is therefore no structural difference between them and the other stop sequences investigated here».

²⁷ Here and further ejectives are indicated by an apostroph following the consonant; this transcription sign corresponds to the ʔ used by Polivanov or Axvlediani's infralinear dot.

²⁸ This often-quoted article was published as chapter III in the second part of his major work on phonetics, written in Georgian (Axvlediani, 1949 [1999], pp. 304-309), under the title “პარმონიულ სმუშთა ორი სისტემა ქართულ ენაში” [‘Two systems of harmonic clusters in Georgian’]; on this see also Kutelia 2012.

²⁹ The plain (non-ejective) uvular stop /q^h/, spelled in the Old Georgian form with the already mentioned letter ჰ, merged in modern Georgian with the fricative /x/ (Sarjvelaje, 1984, p. 294; on these consonants see also Ardoteli 2009). This fact, pointing to the diachronic development of spirantisation, was probably unknown to Polivanov.

³⁰ The gap in the system of postvelar consonants has been interpreted in terms of markedness, the voiced being the most marked, and hence the weakest member (Gamkrelidze, 1978, p. 18-19).

³¹ In 1971, the German scholar Heinz Fähnrich proposed the same diachronic scenario, extending his reflections to other Caucasian languages; however, he referred neither to Polivanov 1925 nor to Axvlediani 1949 or 1951.

were spirant-like in character and therefore tended to develop, within the decessive harmonic clusters, into fricatives, first the voiced and then the voiceless aspirated; the voiceless ejective, on the other hand, preserved its articulatory feature, the sound change being thus hindered by the fact that Georgian does not possess ejective spirants:

One has to think that the second components of the B-clusters were initially homogeneous: they were all pharyngeal stops q q γ , but with the gradual transformation first of γ and then of q , they were replaced in the clusters by the corresponding postvelar fricatives. The potential for such a change was inherent in their spirant-like character. Only one pharyngeal stop did not develop into a spirant, namely q . As an ejective, this phoneme can not spirantise, as Georgian does not know ejective spirants (Axvlediani, 1951, p. 115, translation mine, V.S.T.; see also Axvlediani, 1949/1999, p. 308-309).

Thus, Axvlediani maintains that in the case of the phoneme / q' / the spirantisation was blocked by its ejective character, being incompatible with the spirant manner of articulation. It should be borne in mind, however, that the phonetic interpretation of what is usually transcribed as [q'] is quite problematic, as this phoneme «combines properties of stop and fricative articulation; nevertheless it functions as a fricative» (Butskhuridze, van Heuven, 2001, p. 36, fn. 1, who prefer to represent it as / χ' /) and can be pronounced as a uvular stop with a strong burst [q'], a burst plus a fricative [q'^{χ}], a uvular fricative alone [χ'], or a glottal stop [ʔ] (Shosted, Chikovani 2006: 256); this seems to be in line with Polivanov's assessment of the fricative character of the ejective postvelar «stop» (Polivanov 1925: 116; see above, § 3.1.).

CONCLUSIONS

To sum up, in spite of some disputable interpretations, Polivanov's article proves extremely stimulating in that it combines a synchronic analysis with a diachronic approach; its thematically rather peripheral collocation and brevity is therefore rather deceptive.

Further, the sharpness of the author's insights once again demonstrates how problematic it is to classify Polivanov's production precisely; indeed, works dealing with general linguistics contain interesting concrete data, while detailed language-specific investigations usually provide very important insights of more general value (Leont'ev 1983: 16).

Last but not least, quite surprising and somehow disturbing is Axvlediani's silence about Polivanov's contribution in 1949 and 1951, as they both shared not only common interests, but also ideas and life experiences (they had worked under the supervision of the academician

Lev Vladimirovič Ščerba). This curious omission could represent a typical case of *damnatio memoriae*, as since 1929, because of his overt criticism of Marr's doctrine, Polivanov had been branded as a «bourgeois scientist» and ostracised from Soviet linguistics until his posthumous rehabilitation in 1963. This, however, will be the topic for another article.

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Краткая классификация грузинских согласных¹

Е.Д. Поливанов

[стр. 113] Одной из причин недоверия и не общепринятости гениальных изысканий акад. Н. Я. Марра являются его своеобразные транскрипция и фонетическая терминология (наименования согласных в роде «сибилянтов», «спирантов», «аффрикат» – не совсем в том значении, в каком эти термины приняты на Западе, и т. п.).

Потому в качестве предварительного сообщения, предшествующего подготовленному мною «Очерку грузинской фонетики», я счел бы полезным дать краткую классификацию грузинских согласных фонем, обозначив их символами международного фонетического алфавита и общепринятыми терминами – в соответствии транскрипции Н. Я. Марра.

По психофонетическому признаку (наличию или отсутствию «междуфонемических» категорийных ассоциаций между фонемами) грузинские согласные располагаются в следующие классы:

I. *Тройственные*, т. е. противопоставляющиеся друг другу в виде трех категорий, отличных по гортанной работе. Это будут смычные в широком смысле (собственно смычные – типов р, т, к, q, и аффрикаты – типов с = ts, č = tš).

II. *Парные*, т. е. противопоставляющиеся лишь по двум категориям (по моменту гортанной работы), т. е. делящиеся лишь на глухие и звонкие. Сюда относится большинство спирантов², напр. s – z, š – ž, x – γ.

III. *Непарные* – остальные согласные (носовые m, n, сонорные г, l, w, j, и из спирантов h).

Тройственные

Категории, по которым противопоставляются друг другу тройственные – смычные (в широком смысле) согласные, суть следующие:

¹ Cet article, avec son résumé en français, fut publié pour la première fois dans: *Bulleten' Sredneaziatskogo Gosudarstvennogo Universiteta* (Taškent), 1925, 8, p. 113-118 (NdEd).

² Спирантами приходится называть и «сибилянты» и «спиранты» Марра.

1. Глухие с гортанной смычкой с взрывом – «гамзированные»:

Губной	
и переднеязычный смычные:	pʔ [p] ³ , tʔ [t]
Из аффрикат:	čʔ (= tsʔ) [tʃ], č̣ʔ (= tʃʃ) [tʃ]
Из неглубокого заднеязычного ряда:	kʔ [k]
Из глубокого заднеязычного ряда:	qʔ [k̠]

[стр. 114] Характерный для этой категории момент гортанной работы состоит в одновременном со ртовой смычкой образовании гортанной смычки с последующим взрывом (coup de glotte, Stimm-bänderverschluss, гамза). Это, следовательно, – категория согласных с комбинированной работой: ртовой и гортанной смычкой. При этом взрыв гортанной смычки может обыкновенно опережать ртовый взрыв (– взрыв губной, respect. – переднеязычной, respect. – заднеязычной смычки), т. е., иначе говоря, ртовая смычка взрывается напором воздуха, вышедшего из гортани (– в рот) благодаря гортанному взрыву.

Поэтому я позволю себе называть эту категорию «гамзированными».

2. Звонкие

Губной	
и переднеязычный смычные:	b [b], d [d]
Из аффрикат:	z (= dz) [d̥], ž (= dź) [d̥]
Из неглубокого-заднеязычного ряда:	g [g]

В глубоко-заднеязычном ряду – соответствующего (т.е. звонкого) смычного нет.

3. Глухие с открытой гортанной щелью (quasi-придыхательные)

Губной и переднеязычный смычные:	p ^c [p̥], t ^c [t̥]
Из аффрикат:	č ^c (= ts ^c) [t̥ʃ], č̣ ^c (= tʃ ^c) [t̥ʃ]
Из неглубоко-заднеязычного ряда:	k ^c [k̥]
Из глубоко-заднеязычного ряда:	q ^c [q̥] – звук, редкий в грузинском (в словах из других яфетических языков).

В отличие от «гамзированных» согласные данной категории произносятся с открытой голосовой щелью, что придает им оттенок придыхательности (значительно меньший, однако, чем в придыха-

³ Чтобы не повторять каждый раз предложное сочетание «у Марра», в квадратных скобках указывается лишь на графический символ марровской транскрипции [V.S.T.].

тельных немецких, датских, китайских, монгольских, сев.-восточно-японских и пр.). Потому наименование *придыхательных* приложено к этой категории лишь в условном смысле. Существенным моментом звуко различия является, как сказано, открытость гортанной щели, и следовательно – отсутствие той гортанной смычки и взрыва, которые характеризуют 1-ю категорию («гамзированных») при наличии, конечно, глухости, отличающей данную категорию от 2-й («звонких»).

Что касается места ртового образования, то в грузинских смычных мы находим – сверх нормальных (с обще-фонетической или, по крайней мере, европейской точки зрения) рядов: губных смычных, переднеязычных смычных, переднеязычных свистящих аффрикат и переднеязычных шипящих аффрикат – еще 2 ряда (а не один, как в европейских языках) заднеязычных. Именно неглубоко-заднеязычные $k^?$, g , k^c , и глубоко-заднеязычные $q^?$, q^c , к которым кроме того из *парных* (спирантов) относятся x^s [q̣] и γ^s [ǰ]. Противоположение неглубоко-заднеязычного ряда («ряд k») глубоко-заднеязычному («ряду q»), в общем, приблизительно таково же, как в турецких (например узбекском) или арабском (ﻉ - для звонких соотношение $g : \gamma^s$ то же ;ﻉ, что для узбекск. ﻉ: ﻉ).

[стр. 115] *Парные*

С п и р а н т ы	Г у б н ы е	П е р е д н е я з ы ч н ы е С в и с т я щ и е Ш и п я щ и е	Н е г л у б о к о з а д н е я з ы ч н ы е	Г л у б о к о з а д н е я з ы ч н ы е
Г л у х и е	(f)	s [s] š [ш]	Н е т	х
З в о н к и е	(v)	z [z] ž [j]	Н е т	точнее x^s [q̣] γ точнее γ^s [ǰ]

Из них, с точки зрения ртового образования, требуют замечаний:

1. š и ž (звуки типа *ш* и *ж*). В грузинском они дорсальные, «мягкие» (т. е. образуются не кончиком, а стенкой языка, и

Errata corrige (p. 77)

Что касается места ртового образования, то в грузинских смычных мы находим – сверх нормальных (с обще-фонетической или, по крайней мере, европейской точки зрения) рядов: губных смычных, переднеязычных смычных, переднеязычных свистящих аффрикат и переднеязычных шипящих аффрикат – еще 2 ряда (а не один, как в европейских языках) заднеязычных. Именно неглубоко-заднеязычные $k^?$, g , k^c , и глубоко-заднеязычные $q^?$, q^c , к которым кроме того из *парных* (спирантов) относятся x^v и γ^v [q̣ и ğ]. Противоположение неглубоко-заднеязычного ряда («ряд k») глубоко-заднеязычному («ряду q»), в общем, приблизительно таково же, как в турецких (например узбекском) или арабском (ج - ğ; для звонких соотношение $g : \gamma^v$ то же, что для узбекск. گ : ğ).

[стр. 115] Парные

Спиранты	Губные	Переднеязычные		Не глубоко заднеязычные	Глубоко заднеязычные
		Свистящие	Шипящие		
Глухие	(f)	s [s]	š [ш]	Нет	x точнее x^v [q̣]
Звонкие	(v)	z [z]	ž [j]	Нет	γ точнее γ^v [ĝ]

Из них, с точки зрения ртового образования, требуют замечаний:

1. š и ž (звуки типа ш и ж). В грузинском они дорсальные, «мягкие» (т. е. образуются не кончиком, а стенкой языка, и

акустически характерный их тон – значительно выше, чем в русских *ш, ж*). Потому можно было бы их обозначать для большей точности: $\xi \zeta$.

2. Глубоко-заднеязычные спиранты. Отличаясь от русских *х* (в *хата*) и *γ* (*г* в слове *бога* – по крайней мере у старшего поколения в Московском говоре) местом образования, т. е. более задней (на языке) точкой под'ема, благодаря чему с'ужение происходит против конца мягкого неба и увулы (– маленького язычка), они присоединяют сюда еще одно отличие, обусловленное именно этим приближением точки под'ема к увуле: при проходе воздуха через данное с'ужение, происходит известное трение струи об увулу, акустический результат которого напоминает французское *г* *grassayé* («г *grassayé*» – увулярный недрожащий спирант: звонкое *в* в *rose, mourrais* и глухое *я* в *le nôtre*). Получается, таким образом, комбинированная работа и комбинированный акустический результат: «глубокое *х + я*» при глухом, и «глубокое *γ + в*» – при звонком. Транскрипционно их можно передать через *х* и *γ* (с оговоркой, что *х* и *γ* – глубокозаднеязычные).

Аналогией в других языках могут служить: арабские $\dot{خ}$ и $\dot{ج}$, и особенно шугнанские *я* и *в* (так я транскрибирую эти звуки в шугнанском, где они принципиально отличны от не-увулярных, не глубоко-заднеязычных фонем *х* и *γ*). Сравни, напр., эти звуки в шугнанских словах: *хас* „вода“, *яот* „сырой“, *тау* „овца“, *тавз* „мозг“, *вик* „люлька“. Сходное явление (различение неглубоких и глубоких заднеязычных спирантов) встречалось мне также в карачаевском (где оно очевидно, яфетического происхождения) и аварском*.

Непарные

Не-парные	звонкие	Не-парный глухой
Носовые	Сонорные	Спирант гортанный
m, n	г, л, w, j [y]	h [h]

Историко-фонетическая характеристика может быть дана фонемам x^a [стр. 116] [q̇] и γ^a [ġ]. Первый восходит к архаическому

* Употребляя – на психофонетических основаниях – символы *я* и *в* в шугнанской транскрипции для данных звуков, я их отнюдь не могу отождествить с французским (парижским) *в* (в *rose*) и с его оглушенным вариантом *я* (в *le nôtre*): при наличии момента сходства (увулярное трение без [стр. 116] дрожания) есть и очень большая разница, – как физическая, так и психофонетическая (по месту занимаемому данными фонемами (франц. *в*, с одной стороны, шугнанск. *я в* = $x^a \gamma^a$, с другой стороны) в данных фонетических системах.

*q^c, второй – к глубоко-заднеязычному смычному звонкому *g. Таким образом в грузинском из трех элементов (фонем) ряда «смычных глубоко-заднеязычных»: q^ʔ g q^c, сохранил смычный характер (и то, как будет показано в «Фонетическом очерке грузинского языка», только относительно) лишь один – q^ʔ [k]; другие же:

$$\begin{array}{l} g \rightarrow \gamma^{\text{в}} \\ q^c \rightarrow x^{\text{н}} \end{array}$$

Что же касается до наличия в грузинском современном редкого звука q^c [q], то это уже случаи заимствования из других яфетических языков, где перехода q^c → x^н не было, и следовательно q^c сохраняло смычный характер*.

* Примечание: То обстоятельство, что *g спирантизовалось, тогда как q^ʔ сохраняет до сих пор (cum grano salis) смычный характер (а также то, что вероятно *g спирантизовалось в более раннюю эпоху, чем q^c, которое сохранено все-таки некоторыми языками, попав из них даже в грузинский), объясняется общим законом фонетической эволюции, по которому спирантизация (и аффрикатизация) смычных проходит в звонком ряду скорее, чем у глухих. Этот же закон, в свою очередь, объясняется физиологическим соображением: если при звонких расход воздуха в единицу времени меньше чем у глухих, то и давление (из внутренней ротовой камеры) на смычку – меньше, чем это давление у глухих. Чем меньше же давление, тем меньше и сопротивление, т. е. энергия смычки. Отсюда смычка при звонких менее энергична а потому исторически менее устойчива (скорее разрушается). Сравни рус. ж (спирант) при ч (аффрикате), японское z/z (аффриката в комбинаторном чередовании со спирантом) при с (из *d (u) и *t (u)), арабское *g > ǰ (ج – сравни ج-ج-ج и алгебра) при k (ك), а так же *g > ǰ (ج) при q (ق) (– то же в турецких), и т. д. и т. д. Исключения из этого закона объясняются, обыкновенно, каждый раз специфическими свойствами данного звонкого: например, японское p > φ > h, тогда как b сохранило смычку (вплоть до диалектической центрально-японской эпохи), но это объясняется тем, что общепонское p – было простым, а b – сложным (полу-носовым) звуком, *mb (происходя из комплекта «носовой + p»: abarǰ ← a^mbarǰ ← ambarǰ ← am(i)rarǰ „ткацкий челнок“ *am-i-rarǰ); равным образом находит себе специальное объяснение (в качестве исключения из названного закона) и армянское p → h при b, сохранявшем смычку.

La classification des consonnes géorgiennes⁴

E. Polivanov

[p. 117] Une des causes de la méfiance commune à la théorie japhétique de l'académicien camarade N. Marr – sont sa transcription et sa terminologie particulières qui ne sont point intelligibles au lecteur habitué aux termes qui sont acceptés dans la science européenne. C'est pourquoi l'auteur considère comme utile de donner l'abrégé de la classification et de la description des consonnes géorgiennes qui vont être publiées dans son travail achevé «Le système phonétique du géorgien».

Les consonnes de la langue géorgienne contemporaine sont divisées – selon les principes psycho-phonétiques – en trois classes: 1) triples, 2) doubles et 3) non doubles. A la première appartiennent les consonnes explosives (orales) et les affriquées conclues, à la seconde – la grande part des spirants, et à la troisième – toutes les autres consonnes (nasales, sonantes *r l w j* et le spirant *h*).

Les phonèmes «triples» se distinguent parmi elles par le travail laryngal qui peut avoir trois variétés: 1) en catégorie des sourdes accompagnées avec la coup de glotte (arabe ء) – c'est la plosure et l'explosion des cordes vocales (cette explosion prévient l'explosion orale qui va être produite par l'air sorti de la glotte au moment de l'explosion gutturale). Ici nous allons trouver les phonèmes suivants:

$p^?$ (chez Marr *p*), $t^?$ (chez Marr *t*)

L'affriquée sifflante $c^?$ (= $ts^?$) [Marr *t̃*]

L'affriquée chuintante $č^?$ (= $tš^?$) [Marr *ṭ̃*]

L'explosive arrière-linguale non profonde («palatale»):

$k^?$ [Marr *k*]

L'explosive arrière-linguale profonde («vélaire»):

$q^?$ [Marr *ḳ*]

2) en catégorie des sonores («voiced») c'est la vibration des cordes vocales.

b [Marr *b*], *d* [Marr *d*]

z (= dz) (Marr *ḍ*)

$ž$ ($dž$) [Marr *ḍ̣*]

g (Marr *g*)

⁴ Dans ce texte en français de Polivanov, nous n'avons fait que corriger les coquilles ou les fautes d'orthographe; nous n'avons touché ni au style ni à l'expression (*NdEd*).

L'explosive correspondante dans la rangée arrière-linguale profonde («vélaire») est absente dans le géorgien contemporain (quoiqu'elle existait jadis s'étant changée en spirant γ).

3) en catégorie des sourdes articulées avec l'ouverture de la glotte (qui leur donne l'effet des «aspirées»); cette aspiration n'est pas si marquée comme dans les aspirées **[p. 118]** allemandes, danoises, mongoles, chinoises, et japonaises dans les patois du Nord-Est).

p^c (Marr ϕ), t^c (Marr θ)
 c^c (= t_s^c) (Marr ϑ)
 \check{c}^c (= t_s^c) [Marr ϑ]
 k^c (Marr q)
 q^c (Marr q) – le son rare en géorgien.

Quant à la classe «Doubles» nous y trouvons presque tous les spirants:

Sourdes (f) $s\ s$ (Marr \mathfrak{m})	Arrière-linguales profondes
Sonores $v\ z\ z$ (Marr j)	x [= x^h] (Marr \dot{q})
	γ (= γ^h) [Marr \check{g}]

$\check{s}\ \check{z}$ – sont dorsales; $x^h\ \gamma^h$ – vélaire-uvulaires (cf. $\check{c}\ \check{c}$ arabes et surtout $\mathfrak{h}\ \mathfrak{h}$ dans la langue iranienne de Chouguenan).

Toutes les autres consonnes n'ayant qu'une variété (ou sourde ou sonore) sont nommées: Non doubles. Ce sont $n\ m\ r\ l\ j\ w$ et le spirant laryngal sourd h .

