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Phonologic system of the Proto-Kartvelian radical-language
(paradigmatic analysis)

General characterization of the consonantal system. The first stage in studying a phonological system of any language includes a paradigmatic analysis of a sound system. On the basis of paradigmatic analysis of consonants in reconstructed phonological system of Common Kartvelian language there is singles out four core classes of member phonems of a sound system:

1. stop-plosives; 2. fricatives; 3. sonors; 4. sonants. The listed consonant classes are conditionally marked as thus: C - stop-plosives and affricates, F-fricatives (spirants), S-sonors, S°- sonants.

Local zones of consonants of the Kartvelian languages are defined according to motion of a tongue and lower lip towards the inactive bodies of a speech organ. A tongue moves towards the different directions of a mouth, a lower lip – towards an upper lip and upper teeth. If the named consonants are grouped according to local zones, they will create ten groups of homorganic/heterogenic consonants:

1. bilabial
2. dental
3. front alveolar
4. mid alveolar
5. back alveolar
6. palatal
7. mid lingual
8. back lingual
9. pharyngeal
10. laryngeal.

The following consonant system is reconstructed for the Common Kartvelian language unity period:

Common Kartvelian consonant system
stop-plosives: b p p̪ d t̪ t ɡ ɡ k ɡ̆
affricates: ʒ c č ʒ č ʒ' q ɣ
spirants: z s ž ʃ γ x ω h,
sonors: r l m n
sonants: j w

If a consonant system of a Proto-Kartvelian language is compared with Common Kartvelian relevant data it will come out that from the Proto-Kartvelian to Common Kartvelian period an initial system has undergone considerable changes, i.e. transformation. A common trend of extinction and disappearance of certain phonemes is firstly observable:

1. On the Common Kartvelian chronological level there are no longer occurs mid alveolar - so called whistling-hushing sibilants ʒ, ɕ, ʑ, z, s, which should have been characteristic of a phonological system of Proto-Kartvelian radical language. These phonemes transferred into relevant hushing sibilants, i.e. from Proto-Kartvelian to Common Kartvelian development process the whistling-hushing and hushing sibilants have merged with each other and the correlation according to this marker disappeared - ʒ č ɕ ʑ ʃ / ʒ, ɕ, ʑ, z, s, → / ʒ č ɕ ʑ ʃ.

2. Shifting of intensive consonants which took place in a proto language is clearly observable, as well: bi-phonemic realization of relevant articulation of Proto-Kartvelian intensive consonants is observable in Common Kartvelian - *t: → st, *c: → cx, *č: → čx, ɕ: → ɕq, ĺ: → ĺq. The same process took place in sibilant-spirants s: → sx, ŝ: → ŝx. As it is clear, intensive voiced sibilant-affricates and voiced sibilant-spirants didn’t function in Proto-Kartvelian as well as in the other groups of the Iberian-Caucasian languages group.

3. In Proto-Kartvelian there functioned a certain type of consonants which form the correlation according to velarization in hushing sibilants in the Apkhaz-Adygean languages. In Proto-Kartvelian the correlation functioned according to velarization in whistling as well as hushing sibilants. Velarized sibilants underwent a relevant transformation on a Common Kartvelian level: ʒ o ɕ o ʑ o s o ʒ o ɕ o ɻ o ʃ o, they turned into bi-phonemic groups, were realized in Common Kartvelian radical language and formed harmonic-decesive
complexes, as Giorgi Akhvlediani termed, i.e. Proto-Kartvelian ʒ ɕ ɬ ʃ Z ʃ → Common Kartvelian ž č ʃ ž ž sk ž č čk čk žk žk.

4. Apparently, in Common Kartvelian the pharyngeal spirants *ω → γ/g, *hʃ → x/k which have been preserved unchanged in the Nakh-Dagestanian languages till present, is broken up. A voiced pharyngeal affricate of the same zone Common Kartvelian */γ*/ voiced pharyngeal affricate Geo. q : Zan k : Svan γ are reconstructed on the basis of correspondent. From other standpoint an initial phonemic system appeared to be stable in a Common Kartvelian stem.

5. Considering the foregoing, a reconstructed variant of a consonant system of a Proto-Kartvelian radical language is presented as thus:

a. bilabial *b *p *p *v
b. dental *d *t *t: *t
  c. front alveolar *ʒ *ɕ *c: ɕ *ç: *z *s *s: *ʒ ɕ ɕ ʃ s Z ʃ ʃ ʃ
  d. mid alveolar *ʒ *ɕ *c: ɕ *ç: *z *s,
  e. back alveolar *ʒ *ɕ *ç: ɕ *ç: *z *s *s: *ʒ ɕ ɕ ʃ s
  f. back lingual *g *k *k *γ *x
  g. pharyngeal */γ'/ *q *q *ω *hʃ
  h. laryngeal *h
  i. sonors *m *n* *l
  j. sonants *j *w

which means that in the Proto-Kartvelian radical-language dramatically different from Common Kartvelian system functioned and the following correlations were relevant: 1. intensive / non-intensive; 2. whistling / whistling-hushing; 3. velarized sibilants / non-velarized sibilants.

Common Kartvelian sibilant consonant system. The issue of evolution and reflexion of front and back velar sibilants is a cardinal issue in the historical-comparative phonetics studying of the Kartvelian languages. It is an universally known fact that Georgian whistling sibilants correspond with Zan and Svan hushing allophones [N. Marr, Arn. Chikobava, V. Topuria, G. Rogava, G. Machavariani...] – Geo. ʒ ɕ ʒ ʃ s : Zan ž č ɕ ž š : Svan ž→ž ɕ→ś ɕ→/h ž š, Georgian hushing sibilants-
consonant-complexes **whistling sibilants** + **back lingual stop-plosives** in Zan and Svan (resp. in western Kartvelian) – Geo. ʒ č č ž š : Zan ʒg → /ʒg čk→/ck čk→/čk (žg) šk→/sk : Svan ʒg→/sg čk→/šg čk→/šk (žg) šk→šg/sg. Both models of represented correspondences: 1. **whistling** : **hushing**; 2. **hushing** : **hushing** + **back lingual stop-plosive** is explained in the Kartvelian languages as articulation shifting, i.e. **velarization of hushing sibilants**. As it is said in the professional literature “**discussing according to tongue participation it is a basis, which defined Chan-Megrelian hushing instead of Georgian whistling**. Differentiation between these consonants have been caused by an **articulation changing – motion of a tongue back instead of a tongue tip**”. Transformation of above mentioned sibilant consonants is supported by the correspondences in Zan, as well: “**a and o are characterized by rising of a tongue back than the Georgian vowels e and a, Articulation changing is of same type as it is in consonants**”.

Along with sibilant correspondence of Geo. **whistling** : Zan-Svan **hushing** type an identic type Geo. **whistling** : Zan-Svan **whistling** is rightly singledout which should be discussed as historically developed phonemic correspondences. The latter - sibilantcorrelation **whistling** : **whistling** is discussed as the third evolution stage of initial sibilants in Zan and Svan: ʒ ć č ž š (**whistling**) → ʒ č č ž š (**hushing**) → ʒ ć ć ž š (**whistling**); cf. Geo. čvet-i : Zan čvat-i | čvet-i ‘drop’, but čvatan-s ‘drips’.

Finally, I’d like to say, that Givi Machavariani’s theory of three zones in sibilants in some cases, rightly explains the sibilant correlations among the Kartvelian languages, but chronologically the whistling-hushing sibilants formed a special group in Proto-Kartvelian, while on Common Kartvelian chronological level, they have been combined with hushing sibilants and due to their absence they could not derive any kind of variant in sound correspondences.