

Kartvelian and Lexical Contact in the Ancient Caucasus

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This paper will survey what kinds of lexical contact affected the Kartvelian languages in the ancient Caucasus: what kinds of lexical items were borrowed, and when; and what light such patterns shed on phonological and morphological developments within Kartvelian.

Though less studied and sometimes overshadowed by its much larger neighbors, the Kartvelian language family occupies a unique place in the linguistic history of western Eurasia. By virtue of its geographical location, it has experienced nearly constant contact and interaction with the languages of the Pontic-Caspian Steppe, the languages of Central Asia, as well as Anatolia, Mesopotamia and Iran. Some like Semitic and Hurro-Urartian are amongst the earliest attested language families of mankind, while others such as the vast Indo-European phylum became the foundation for many of the most widely spoken languages today. Kartvelian is, in some sense, a literally pivotal language, interacting with languages on all sides from the phylogenetic center of Eurasia. At the same time, almost uniquely within its region, the Georgian language has been attested since late antiquity, longer than any other non-Indo-European language of the region. These two facts, when taken together, mean that Georgian can provide an important window into the evolution and change of the languages of the region with which it was in contact. This paper will survey many of the different kinds of lexical contact and demonstrate that such patterns not only illustrate patterns of lexical exchange, but also deeper evidence for the timing and character of phonological and morphosyntactic shifts in Kartvelian and beyond.

§1 Phylogenetic prolegomena

The Kartvelian language family constitutes one of three so-called autochthonous language families long indigenous to the Caucasus region, alongside Abkhaz-Adyghean and Nakh-Daghestanian, each present in this region since at least the Middle Bronze Age.



Map 1. Autochthonous languages of the Caucasus (Koryakov 2002)

Though many have tried to argue for deep phylogenetic connections amongst these families (especially in the form of a so-called ‘Ibero-Caucasian’ and ‘North Caucasian’ macrophyla: Chikobava 1965, Starostin and Nikolaev 1994), the consensus of most area specialists today is that the three families share no common traits demonstrably ascertainable by regular sound-law and traditional methods of reconstruction (Tuite 2008). As a consequence, patterns of language contact and wider questions of linguistic typology loom large in explaining how these languages stand out from neighboring regions in its phonological and morphosyntactic profiles (see Wier 2024 for discussion).

The Kartvelian family in particular resists integration into such larger groupings. It has, as far as anyone can tell, been spoken in roughly its current distribution (Nichols 1992: 14) since at least the 3rd millennium BCE, if not earlier, with a probable *Urheimat* in the middle-upper Colchidian plain straddling the Rioni River¹, close to the current

¹Though note Nichols (1992: 236; 313), who suggests that Kartvelian’s typological affinities suggest it as a possible sole relic of an ancient pre-Indo-European expansion from Central Asia: “Kartvelian, with its personal pronouns **me(n)*- ‘first singular’, **sen*- ‘second singular’, belongs to the dozen or so north

Phylum	Approximate date of protolanguage
Abkhaz-Adyghean	1000-500 BCE ²
Hurro-Urartian	2000-1750 BCE ³
Kartvelian	2500-2000 BCE ⁴
Nakh-Daghestanian	3500-3000 BCE ⁵
Semitic	4000-3750 BCE ⁶
Indo-European (Indo-Anatolian)	4200-4000 BCE ⁷

Table 1. Estimated ages of linguistic phyla.

nexus of three of its sub-branches: Svan, Megrelian (i.e. Zan) and Georgian. Within the wider region, Kartvelian has a middling time-depth of some four to five millennia before present, based on Klimov's glottochronological estimate, and this estimate is accepted by most scholars (Klimov 1964: 34-35; Nichols 1992: 14). The consequence of this timing is that lexical loans into Kartvelian sometimes represent borrowings not from the earliest neighboring protolanguages, but from their daughter phyla, and because Proto-Kartvelian has no uncontroversial links to other language families, extremely ancient loans of the fourth and fifth millennia and earlier can also sometimes only be identified by internal reconstruction from the perspective of the Proto-Kartvelian protolanguage itself.

There is however substantial agreement about Kartvelian's internal phylogeny. Most scholars (Klimov 1964, 1998; Fähnrich and Sarjveladze 1990, 1995, 2007) argue for a model in which Svan branches off first, creating a residual grouping of Georgian-Zan, which separates into Georgian on the one hand and the Zan languages Megrelian and Laz on the other. This phylogeny is based on a number of sound-changes specific to each clade. Vowels mostly retained conservative values except in Zan, where vocalic

Eurasian stocks with what can be called "me"-"thee" pronoun systems. Kartvelian is the sole exception to the generalization that stocks with such systems can be traced to proto-homelands in the vicinity of the eastern steppe or the north Mongolian region. If Kartvelian survives from a pre-Indo-European expansion, then it has spread from the usual center along the usual route, its pronouns reflect the usual type of the original center, and the generalization about pronoun systems in northern Eurasia is without exception." Note that Janashia (1940) proposes an alternative Caucasian *Urheimat* in the Chorokh river basin.

²Kassian (2010: 314)

³Wilhelm (2008: 105)

⁴Klimov (1964: 34-35)

⁵Nichols (1992: 14)

⁶Kitchen et al. (2009: 2703)

⁷Anthony and Ringe (2015: 208)

Proto-Kartvelian	Georgian	Megrelian	Laz	Svan
*a	a	o	o	a (ä)
		u (by labials)		
*e	e	a	a	e
*i	i	i	i	i
*o	o	o	o	o (ö)
*u	u	u	u	u (ü)

Table 2. Kartvelian regular vowel reflexes.

shifts included *a > /o/ (or *a > /u/ by labials) and *e > /a/⁸ – this was likely a pull-chain shift – and in Svan, which underwent a fairly late series of umlaut rules (Table 2). A few reflexes (**barcʼ*-, **lağw*-, etc.; Fähnrich 2007: 14) also hint at the existence of one or more possibly sporadic umlaut processes in the prehistory of Georgian and Zan; these can be identified only by their otherwise regular analogues in the other sister languages.

In most cases, Kartvelian consonants bear a straight-forward one-to-one correspondence across the four languages: voiceless (aspirate) /p t k/, voiced /b d g/ and glottalized /pʼ tʼ kʼ/ obstruents all stand in regular correspondence, as do nasals. In individual languages some reflexes undergo special shifts: Kartvelian aspirated *q^h shifts to /x/ in Georgian and Zan during the attested historical period (between the 11th and 16th centuries CE), never coming fully to completion in some especially eastern dialects such as Khevsur, Tush and Fereidianian in Iran; in Zan languages, accented syllables anciently underwent nasal epenthesis: cf. Georgian ეკვსი *ekvsi* ‘six’ vs Megrelian ამშვი *amšvi* ‘six’, from Kartvelian **eksʼw*- ‘six’ (Fähnrich 2007: 151).

It is however amongst sibilants where real complexities arise (see Table 3 below). All the modern languages maintain a contrast between a dental and a post-alveolar series of sibilants, but their reflexes suggest at least one additional series once existed that contrasted with both of them, probably a palatalized series. The postalveolar reflexes in Georgian correspond with what was probably once not merely not palatalized, but actually velarized or perhaps labialized, as the Zan and Svan reflexes have corresponding clusters of consonants, e.g. Georgian *čerči* ‘pod’ vs. Megrelian *čkarčk-al-ua* ‘grind coarsely’. This has been the source of considerable debate between on the one hand Machʼavariani and Gamqʼrelidze (1965) and Fähnrich (2007), who argued these clusters realize single phonemes in the protolanguage, and on the other hand Schmidt (1962) and Thorsø (2023) who argue that the latter series of sibilants go back to

⁸ There is some reason to believe these Zan vowel shifts applied in stressed syllables only; see the discussion of მაღალი *mağali* below.

underlying clusters, and thus that Georgian underwent cluster simplification. In addition to this broader debate, Fähnrich (2007) has also argued for the specific presence of several laryngeal (probably lateral) consonants with sibilant reflexes, notably **l* and **λ*⁹. These are used to account for cognate sets like Old Georgian *sze*, Megrelian *bža* (< **mža* < **ža*), Laz *mža*, Svan *ləže*, all from Kartvelian **lʒe* ‘milk’ (Fähnrich 2007: 723); and Georgian *čaic’vereba* ‘sink, go under’ and Svan *lihwer* ‘sink, go down’, from **λ’wer-* ‘sink’ (Fähnrich 2007: 726). To this list of sibilant correspondences might be added the rhotic **rʲ*, which becomes /ʒ/ in the Zan languages (possibly via a sound like the Czech trilled fricative [r̥]), but merges with **r* in Georgian and Svan¹⁰: cf. Georgian *č’uri* ‘vessel’ vs. Megrelian *č’k’uži* ‘vessel’, from Georgian-Zan **č’urʲi* (see (34) below for more discussion of that item).

Proto-Kartvelian	Georgian	Megrelian	Laz	Svan
<i>*s</i>	s	s	s	s
<i>*z</i>	z	z	z	z
<i>*c</i>	c	c	c	c
<i>*c’</i>	c’	c’	c’	c’
<i>*ʒ</i>	ʒ	ʒ	ʒ	ʒ
<i>*sʲ (= *s_l)</i>	s	š	š	š
<i>*zʲ (= *z_l)</i>	z	ž	ž	ž
<i>*ʒʲ (= *ʒ_l)</i>	ʒ	ž	ž	ž
<i>*cʲ (= *c_l)</i>	c	č	č	č
<i>*c’ʲ (= *c’_l)</i>	c’	č’	č’	č’
<i>*rʲ¹¹</i>	r	ž	ž	r
<i>*čʲ (= *č)</i>	č	čk	čk	čk
<i>*ʒʲ (= *ʒ)</i>	ž	žg	žg	žg
<i>*čʲʲ (= *č’)</i>	č’	č’k’	č’k’	č’k’
<i>*šʲ (= *š)</i>	š	šk	šk	šk
<i>*l (= l^e)</i>	s / #_	- / #_	- / #_	l / #_
<i>*l (= l^e)</i>	l / elsewhere	r / elsewhere	r / elsewhere	š / elsewhere
<i>*λ’ (= L)</i>	c’	č’	č’	h

Table 3. Kartvelian regular sibilant correspondences.

⁹ Fähnrich makes fairly precise phonetic descriptions of what he posits for his reconstructed forms. Here I use a modified form of the standard Caucasological notation system, but note his own distinct notation system above in parentheses.

¹⁰ Note that Thorsø (2023: 44) argues this was a phonetic and not a phonemic contrast in the protolanguage. However, because it is possible to reconstruct minimal pairs distinguished only by this sound (**pur-* ‘heat, dryness’ vs. **purʲ-* ‘cow’; see Fähnrich 2007: 444-45), the sound must have been contrastive in the protolanguage.

¹¹ This phoneme contrasts with regular **r*, which is preserved in each daughter language fairly conservatively.

Since cluster reduction is a common crosslinguistic process, what evidence argues in favor of reconstructing single-segment velarized consonants instead? The main objection to this is that there are a number of lexical items which must be reconstructed with clusters in Georgian of the same nature as the clusters in Zan and Svan, contrary to the expectation that such clusters would have been simplified in these specific sibilant complexes (Table 4):

	Georgian	Megrelian / Laz	Svan	Documentation
*čkal-	čkleta ‘tear to pieces’	čkolua ‘tearing, ripping’ (M)		Fähnrich(2007: 544-5)
*čkep-	čkepa ‘fizz, bubble’		ličkpe ‘fizz, bubble’	Fähnrich(2007: 545)
*čkwep	čkvepa ‘be excited, run disturbingly’	čkvapua ‘strike, beat’ (M)		Fähnrich(2007: 545)
*č’k’u-	č’k’ua ‘understanding’	č’k’ua ‘understanding’ (M)	č’k’u-, č’k’ə- ‘think’	Fähnrich(2007: 670)
*č’k’rn-	č’k’noba ‘wilt’	č’k’ironua ‘wilt’ (M)	ič’k’ni ‘it wilts’	Fähnrich(2007: 669)

Table 4. Reconstructed clusters in Proto-Kartvelian

So, quite aside from the fact that all Kartvelian languages famously show high tolerance for initial syllable-onset consonant clusters, there is thus direct evidence against the cluster analysis. But if the cluster analysis might be doubted because it requires irregular simplification of clusters to single segments in Georgian, there are few typological analogues to the alternative analysis of velarized consonants. Since secondarily velarized consonants are not commonly found in the Caucasus, one possible explanation is that such consonants were in fact originally labialized, and underwent a commonplace shift of fortition of $*C^w$ to $*C$ with a velar consonant with the same laryngeal features. Nearly identical changes are attested in Old French, with Frankish loans of /w/ becoming /gw/; in Gothic, with $*w$ becoming –ggw- after short vowels (Wright 1910: 71); in Welsh, where $*w$ from Proto-Celtic and even Latin loans becomes /gw/ (Willis 2009); and in Armenian, in which Proto-Indo-European $*w$ shifted to /g/ (probably through intervening stages $*ğ^w$ and $*ğ$; Beekes 2003: 164). While secondary labialization is rare cross-linguistically (Maddieson 2013), it is common in the Caucasus, and is widely found throughout the other two autochthonous families of Abkhaz-Adyghean and Nakh-Daghestanian. It is thus also a potential piece of evidence for possible language contact with these other families. But for purposes of this paper I

will continue to treat these segments as velarized $*C^r$; for more discussion, see (34), (44) and (52) below.

Finally, Fähnrich (2007: 15; 23-24) discusses several cognate sets which pose a number of problematic sound-correspondences that do not fit into the regularly reconstructed items, primarily based on evidence from Svan (see Table 5). Because these do not seem to be conditional variants of the other reflexes, he tentatively proposes reconstructions of laryngeal consonants of various kinds, including a voiced pharyngeal plosive $*G$, a voiced pharyngeal fricative $*\omega$, a voiced prevelar fricative $*\gamma_1$, and a voiceless prevelar fricative $*x_1$ (using his notation). Although I am adopting Fähnrich's reconstruction, I consider these very much provisional, subject to further evaluation. *Contra* Fähnrich, I also analyze $*x_1$ as a voiceless pharyngeal fricative $*h$, which both balances the system and, as we shall see, has some direct evidence in the form of language contact with Semitic (see (33) below).

	Georgian	Megrelian	Laz	Svan
$*\mathcal{G} (= *G)$	ğ	q'	-	q'
$*\zeta (= *\omega)$	-	-	-	g
$*j (= *\gamma_1)$	-	-	-	ğ
$*h (= *x_1)$	-	-	-	h

Table 5. Sound-correspondences and Fähnrich (2007)'s proposed laryngeal reconstructions

§2 Lexical loans within, into and out of Kartvelian

We now turn to the lexical comparanda themselves. Lexical loans fall into several broad categories based on the source language, date of attestation, semantic class and relative reliability of contact. Such loans not only allow us to understand otherwise unreconstructible facets of the material history of the south Caucasus, they also provide direct evidence for the relative chronology of language changes over time. We can show for example in some cases that a sound-change in one language must have chronologically succeeded a sound-change in a sister source language because the latter was the necessary input for the former. With enough such cases we can even begin to pinpoint within a century or two the time around which the sound-change began to come into effect. For each of the following proposed etymologies, I provide the date of first attestation in Old (or sometimes Middle) Georgian. While in some cases the words are attested only very late, their structural features sometimes point to an ancient provenance.

2.1 Lexical loans within Kartvelian

Both by virtue of its rather compact geography and of the historically dominant role Georgian has played in the family, loans between Kartvelian languages have been extremely frequent throughout history. These are however not always recognized as such, either because they are themselves loans from some third language, or because their historical phonology has not been fully recognized or taken into account. Among them are:

(1) Georgian მადალი *maḡali* ‘high, tall’ [early 6th c.]. From Megrelian მადალი *maḡali* ‘high, tall’, from Greek μεγάλη ‘great, large’. Both Georgian and Megrelian share an identical form, so it cannot descend from the protolanguage because of the Zan raising rule **a > /o/* and the lowering rule **e > /a/*; otherwise we would see Georgian **meḡali* and Megrelian *maḡali*, or Georgian *maḡali* and Megrelian **moḡali*. This word must have been borrowed after Greek spirantization of voiced obstruents /b d g/ to /β δ ḡ/, ca. the 4th century BCE, but before the Zan vowel shifts.

(2) Georgian მანქანა *mankana* ‘machine, device, car’ [786-790]. Usually said to be a direct borrowing from Greek μηχανή, in fact it shows signs of medial transmission through Zan: lowering of **e > /a/*, and nasal epenthesis in accented syllables. The Georgian and Zan forms both bear /k/, which is also an aspirated stop. If we take this as an indication of the Greek contact form, the word must have been borrowed from Greek into Zan before the 4th century BCE, when Greek /k^h/ spirantized to /x/ (Allen 1968: 23-26).

(3) Georgian ბერძენი *berzeni* ‘Greek person’ [853-856]. This word is usually said to come from Georgian ბრძენი *brzeni* ‘wise’ (Rapp 1997: 207; Rapp 2003: 421), but without direct attestation in context, this is semantically implausible, and it is temporally unlikely on the grounds that the former is attested already one century before the latter word, which is likely of Daghestanian origin (cf. Udi *biliž* ‘wise’). A more likely origin for ბერძენი *berzeni* is that it reflects the name of one of the most important ancient Greek city-states of the Black Sea region, Βυζάντιον (see also Gippert et al 2009 (II): 84). In Old Georgian, this root was one of two words for Greek persons, the other being იონი *Ioni*, literally ‘Ionian’. Like many words for Greeks – including the Latin word *Graecus* and the Greek word Ἕλλην themselves – these two Georgian words reflect the fact that the Greek-speaking world consisted of many individual Greek-speaking tribes, and the

names of individual tribes often became the generalized way to refer to Greeks for outside non-Greek-speaking groups.

If taken from Greek Βυζάντιον, ბერძენი *berzeni* must have been borrowed before the disaffrication of Greek zeta /ʒ/ to /z/ in the fourth century BCE (Teodorsson 1979). Furthermore, it bears the hallmarks both of Zan sound-changes and of morphological reanalysis. As noted above, Zan undergoes epenthesis of nasal consonants in accented syllables, which in some varieties (especially Megrelian) dissimilate to a liquid if the word contains a following nasal consonant: thus **bezenti* > **benzenti* > **berzenti*. The word must have also reanalyzed the stem final /t/ as the oblique plural suffix -თ(ა) *-t(a)*, and in fact our earliest attestation is in precisely the oblique form: განამტკიცა ღუაწლი ბერძენთა *gan-a-mt'k'ic-a ġuac'l-i Berzen-ta-y* 'he strengthened the forces of the Greeks'¹². Thus **berzent-ta* was reanalyzed as *berzen-ta*. The most plausible explanation for this etymon, in other words, is that it was borrowed from Greek before the latter's rule of disaffrication in the 4th century BCE, and before the rule of nasal epenthesis in Zan languages, and *after* the lowering rule of **e* > /a/.

(4) Georgian მაგარი *magari* 'strong, firm, solid' [8th-9th c.]. This form possibly comes ultimately either from Greek μέγαρον 'great hall; palace' or an early form of pre-Proto-Armenian **megh₂-r-* (> մեծարեմ *mecarem* 'respect, honor, venerate'), as filtered through some form of Zan, since it underwent the typical Zan raising rule of **e* > /a/. Note however the existence of an alternative dialectal Greek form μάγαρον of unexplained provenance. If borrowed from Armenian instead, this word must reflect a form borrowed before the Armenian palatalization of **ǵ* > /c/.

(5) Georgian კუნძული *k'unzuli* 'island', from Old Georgian კუნძული *k'unzuli* [10th c.]. Though ultimately from Aramaic ܩܙܪܬܐ *gazarta* / ܩܙܪܬܐ *gazirtā* 'island', the word was likely mediated through some form of Zan: it underwent nasal epenthesis exclusive to Zan and reanalysis of the final /ta/ as the Kartvelian oblique plural suffix **-t(a)*.

(6) Georgian ფოთი *Poti*, town near the mouth of the Rioni river [1066-1068]. From PK **Pat-*, possibly from earlier PK **patk-* 'fishery, fish weir'. This represents a substrate toponym which lies in a now Georgian-speaking part of the Colchidian coast, but which once was home to Zan speakers. The word was borrowed extremely early into Greek: it is attested in Hesiod's *Theogony* as Φᾶσις, which reflects earlier **P^hatis*; Greek

¹²The Martyrdom of Konstantine-Kakha (Ch 1: 14; Georgian National Corpus).

underwent a rule assibilation of **ti > si* around the late archaic period (ca. 6th-7th centuries BCE; XX). The Georgian form however reflects the raising rule of PK **a > /o/* in Zan. This means Greek must have borrowed the word both before its own rule of assibilation and before the Zan vowel shift, and only after the latter shift did Georgian borrow this word from a Zan substrate form.

(7) Georgian სურდო *surdo* ‘common cold (viral infection)’ [1100-1150]. The lexeme is clearly ultimately a borrowing from Classical Persian سردی *sardi* ‘common cold’, which is found as loans in Turkic and Indic languages throughout the Middle East and South Asia, though it bears a typical Kartvelian nominalizing suffix *-o*. This root’s /u/-vowel is however not found in any of these contact languages. Both Georgian and Megrelian share this form, and if Megrelian had borrowed **sardo*, it must have undergone its regular shift of **a* to /u/ when adjacent to labial consonants or when a rounded vowel follows.

(8) Georgian ბურთო *burti* ‘ball’ [12th-13th c.]. This Middle Georgian form is attested in Old Georgian as *birtwi* ‘ball’ (9th c.) and *burtwi* ‘ball’ (10th c.). The forms with /u/ may reflect loans from preliterary Megrelian, which underwent rounding of **a* (and perhaps other vowels?) to /u/ when adjacent to labial consonants. The form with /i/ likely reflects the older loan into Georgian from some form of Nakh-Daghestanian **irɁwV* ‘roll, be round’ in which the initial /b/ of the Georgian represents a fossilized gender prefix: cf. Hunzib *Ɂirtəna* ‘roll’, Bezhta *Ɂirtina* ‘roll’.

(9) Georgian ფოთლო *potoli* ‘leaf’ [17th c.]. This word was borrowed from Greek πέταλον ‘leaf’ and underwent a number of sound-changes specific to Zan and others which seem to have occurred only in Georgian: Zan raising of **a > /o/*, Zan lowering of **e > /a/*, Georgian vowel assimilation, reanalysis of the final syllable as the plural suffix *-ni*, and apocope of the final /o/: **petaloni > *patoloni > *potoloni > *potolo-ni > potol-i*. Parts of this chain of shifts are preserved in Megrelian ფალონი *paloni* ‘leafy’ (< **patloni* < **patoloni*), which underwent syncope and cluster simplification but not vowel assimilation.

(10) Svan ზონჩხი *čönčx* ‘skeleton’ [18th century CE; not attested in Georgian until 1840]. From Megrelian ზონჩხი *čončxi* ‘liver, innards’, itself from Georgian-Zan **čačx-* ‘visceral meat’, likely an ancient reduplicated loan into Georgian-Zan of Nakh-Daghestanian

*čax- ‘belly, crop’ (Starostin & Nikolaev 1994). The word is cognate with Georgian შაში *šašxi* ‘dried meat’, while in Zan the word underwent the regular raising of *a > /o/ and the epenthesis of a nasal consonant in accented syllables. Because the Svan form undergoes *o > /ö/ umlaut, the Svan rule of umlaut must temporally postdate the Megrelian raising rule.

(11) Georgian ბურაზი *buraxi* ‘kvass, rye-beer’, earlier Middle Georgian ‘tall grass’ [1713]. From Megrelian ბურაზი *buraxi* ‘grass’. The word is first attested in Sulkhan-Saba Orbeliani’s lexicon with the meaning ‘tall grass’; its modern meaning derives from the practice of traditional medicine using such grasses to treat blood-pressure and convulsions. The word is cognate with Georgian ბალაზი *balaxi* ‘grass’ (from PK **balaxi*), but underwent Zan sound-changes shifting *t to /r/ in noninitial position, and the raising of *a > u when adjacent to a labial consonant.

(12) Georgian ლორი *lori* ‘ham’ from late Middle Georgian [1713]. From Megrelian ლორი *lori* ‘ham’, itself from Greek λαγός ‘pleasingly fattened’. The Georgian word is first attested in Sulkhan-Saba Orbeliani’s dictionary with the specific meaning ‘extra fattened ham’, in contrast to the earlier attested შაში *šašxi*, which then referred to a leaner, dried meat. ლორი *Lori* reflects the Zan raising rule of *a > /o/, and so must have been borrowed from Greek before that rule went into effect.

2.2. Lexical loans from Hellenic

Like the even more numerous Iranian loanwords into Kartvelian (see §2.3 below), loans from Hellenic are numerous throughout the history of Kartvelian. Loans from Hellenic however constitute a special class, in that the phonological history of Greek is far better understood than most languages with which Kartvelian languages have been in contact. Borrowed lexical items can thus be linked to specific sound changes in Greek more precisely than most other contact groups. Among them are:

(13) Georgian პური *p’uri* ‘bread’, from Old Georgian პური *p’uri* ‘wheat bread’ [476-482]. Likely a loan from Greek πυρός ‘wheat, spelt’, from PIE **péh₂wr* ‘fire’, a semantic shift due to the use of fire to dry the grains before processing. This word reflects the pre-Classical value of Greek upsilon as /u(:)/, and so was likely borrowed before ca. the 5th century BCE.

(14) Georgian გემო *gemo* ‘taste’ from Old Georgian გემო *gemo* ‘taste’ [476-482]. From Greek γεῦμα ‘taste’. The Georgian word is attested in the earliest Georgian work, the *Martyrdom of Queen Shushanik*, already with /e/ and not /eu/. This reflects the regular loss of /u/ before labial consonants. The final /o/ is a Kartvelian nominalizing suffix. The initial stop consonant is /g/ and therefore must have been borrowed before the spirantization of Greek voiced stops in the 4th century BCE.

(15) Georgian რუ *ru* ‘ditch’, from Old Georgian რუვი *ruvi* [9th c.]. Since Acharian (1971 [1926]: 265; Thorsø 2022: 100-101; Thorsø 2023: 71), it has been widely assumed that რუ *ru* is a prehistoric loan from Old Armenian առն *aṛn* ‘brook, channel, ditch’, lacking the latter’s prothetic /a/-vowel. This does not however take into account that the oldest attested form in Old Georgian ends in /v/, not a vowel; it also does not account for the absence of any regular rule of apheresis in Kartvelian¹³. The likely explanation is that this reflects a loan not from Armenian but from Greek ῥόφος ‘stream’, which lacks the prothetic vowel and whose attested digamma preserves the semivowel. Because most Greek dialects lost the digamma before the Classical period, this word was likely borrowed into Georgian very early, before ca. 5th century BCE.

(16) Georgian კიდობანი *k’idobani* ‘ark, chest’, from Old Georgian კიდობანი *k’idobani* [9th c.]. Though the earliest attested form includes voiced stops in the order /d...b/, we can be sure this represents long-distance metathesis of earlier **k’ibodani* because that alternative order is preserved in the old loan into Svan კიბდუენ *k’ibduen* ‘ark, chest’. The Georgian word reflects borrowing from Greek κιβωτός ‘ark, chest’, probably in its accusative form κιβωτόν, which was reanalyzed as the Georgian plural **k’iboda-ni*, which was subsequently reanalyzed *again* as a singular stem **k’ibodan-i*. Because the Georgian word borrows Greek <β> as /b/ and not /v/, the word must either be an early loan from before the Koine shift of spirantization (c. 4th c. BCE), or alternatively a loan from a nonstandard dialect of Greek such as Pontic which did not undergo the shift.

(17) Georgian რქა *rka* ‘horn’, from Old Georgian რქა *rka* ‘horn’ [9th c.]. This root is found in both Megrelian რქა *rka* ‘horn’ and Laz ქრა *kra* ‘horn’, but not Svan, and so is

¹³ Alternatively, as Thorso (XX) notes, it could reflect a loan from a stage of Armenian lacking a prothetic vowel. This still would not account for the Georgian stem-final /v/.

reconstructible only to Proto-Georgian-Zan **kVra*. Though the Georgian base word suggests a possible counter-reconstruction of Georgian-Zan **rVka*, other related forms preserve the earlier order, indicating Megrelian and Georgian underwent metathesis from **kr* to /rk/ and that Laz is conservative: Megrelian კრახხ *karaxa* ‘drinking horn’, Old Georgian კრახჴს *karaq^hsa* ‘drinking horn; bagpipe’. The Georgian-Zan form is in turn likely a loan from some reflex of Indo-European **kerh₂* ‘horn’. Because the borrowed form of PIE **k̑* is reflected as aspirated /k^h/ and not an affricate of some kind, the most likely candidate is Greek κέρας ‘horn’, though in principle the loan could antedate Hellenic.

(18) Georgian დიახ *diax* ‘yes’, from Middle Georgian დიაჲ *diağ* ‘certainly, indeed’ [1459] From Greek διάγω ‘keep on, manage, continue’. The word’s earliest attestations in Georgian are adverbial, and it appears to have undergone final devoicing, a regular process in Georgian. The word must have been borrowed from Greek after the latter languages’ spirantization of voiced obstruents ca. 4th century BCE, though the date of attestation makes it likely this is a medieval and not an ancient loan.

2.3 Lexical loans from Armenian

Like Iranianisms, Armenian loans have been present since long before the first attestation of Kartvelian languages. In many cases, these loans have undergone morphological, phonological or semantic shifts not found in Armenian, or contrarily have not shifted while their Armenian source forms did. They thus provide important information about unattested evolution in both languages.

(19) Georgian აგარაკი *agarak’i* ‘dacha, country house’, from Old Georgian აგარაკი *agarak’i* ‘arable land, village’ [786]. The word was borrowed from Old Armenian ագարակ *agarak* ‘estate’, itself of uncertain origin. The Armenian word cannot be a direct descendant of PIE **h₂éǵros* ‘field’ plus the nominalizing suffix *-ak* (of Iranian origin), because otherwise it would have undergone the standard Armenian palatalization shift of **ǵ* to the affricate /c/, or an analogous shift in Iranian. For this reason, some scholars (Greppin 1982: 118) have suggested the word was borrowed into Armenian from Hurrian *awari* ‘field’ before Armenian underwent its regular shift of **w > g*. If so, the Georgian loan must postdate that shift within Armenian. The related Georgian word აგარა *agara* ‘summer lodge; field’ is likely from the same source.

(20) Georgian ტარი *t'ari* 'shaft, handle', from Old Georgian ტარი *t'ari* 'shaft, handle' [8th-9th c.]. This is a loan from Armenian տարր *tarr* 'element, matter, substance' which however preserves some aspect of its older meaning 'wood' from PIE **dóru* 'tree, wood'. Cf. the same semantic shift in Greek ὕλη 'wood, tree, stuff, matter', from PIE **s(w)el-* 'firewood, wood'. The Georgian loan must postdate the Armenian shift of **d > t* (Beekes 2003:).

(21) Georgian გოდოლი *godoli* 'stone-tower', from Old Georgian გოდოლი *godoli* 'stone-tower' [853]. The root is found in a number of derivatives of Georgian-Zan **godol-* 'stone-tower, cylindrical shape', which have likely been loaned back and forth between languages: Megrelian გოდორი *godori* 'roundhouse, stone tower', Georgian გოდორი / გოდორას *godori / godora* 'basket; cylindrical-shaped', Svan კუიდილ *k'widol* 'cylindrical'. The Megrelian form with final /r/ reflects Georgian-Zan **l*, which shifted to /r/ in noninitial position. This form was in turn borrowed back into Georgian with semantic shift, while the Svan form likely reflects borrowing from Georgian after the split from Georgian-Zan, as Kartvelian **l* regularly yields /š/ in noninitial position (cf. Georgian ასული *asuli* 'daughter' vs. Svan ასუმ *asuš* 'daughter').

The Georgian-Zan form in turn reflects ancient borrowing from (pre-)Old Armenian կոթող *kot'ot*, or, given its form and its presence in Georgian-Zan, its immediate predecessor form before the first attested forms of Armenian in the first millennium BCE. Notably this must have occurred before the shift of Old Armenian /l/ to its modern value /ɤ/ -- a frequent occurrence in Georgian loans from Old Armenian. The fact that Armenian /l/ was borrowed into Georgian-Zan as voiceless **l* and not voiced **l* likely reflects final-devoicing in Georgian-Zan, a process that still operates in Georgian.

(22) Georgian შუკი *šuki* 'light, ray, electricity', from Middle Georgian შუკი *šuki* 'radiance' [11th c.]. A loan from Old Armenian շուք *šuk* 'shadow, veil, splendor', it underwent a well-attested kind of semantic shift in which a word for light evolves from one meaning darkness, cf. English *shimmer* from Germanic **skimo* 'shadow', and Finnish *kuvo* 'image, reflection' from Germanic *skuwwo* 'shadow'.

(23) Georgian ჯგუფი *igupi* ‘group’, back-formation of Middle Georgian ჯგუფთი *igupti* ‘group’ [17th c.]. The latter form was itself a back-formation of ჯგუფდება *igupdeba* ‘become a group, herd’, compound of Old Georgian ჯოგი *jogi* ‘herd’ and უფ- *up-* ‘have, possess, control’ (cf. უფლება *upleba* ‘right’, დაეუფლება *daeupleba* ‘own, possess’, ultimately an ancient loan from PIE **h₂ep-* take). The incorporated root ჯოგ- *jog-* is a loan from Armenian յոկ *jok* ‘herd, squad’, and undergoes loss of the syllabic vowel, a relic of the much older mobile stress shift, which later became morphologized in Georgian truncating stems (cf. the recent loan გენერალი *generali* ‘general.NOM’ vs. გენერლის *generlis* ‘general.GEN’).

(24) Georgian პარკი *p’ark’i* ‘bag, sack’, from late Middle Georgian [1 August 1798]. This late loan is most likely from Armenian պարկ *park* ‘sack’, or from the same source language. The Armenian form is not inherited, and is likely ultimately from some form of Nakh-Daghestanian **ɁwirqV-* ‘sack, shirt’ (Starostin & Nikolaev 1994) with a fossilized gender agreement prefix *b-* borrowed as /p/. Also found in Ossetian as *bark’i*.

2.4 Lexical loans from Iranian

So great has the influence of Iranian loanwords been in Kartvelian that it is hardly possible to overstate their significance. Loanwords from Indo-Iranian languages have entered the language at every stage of the history of Georgian, from the Indo-Iranian protolanguage to the modern Persian language of today’s Iran (Chkheidze 2001). Proper names like მირიან *Mirian* (< *Mihrān*), ვახუშტი *Vaxušt’i* (< *OIrvaḥišta* ‘paradise; excellent’), ლუარსაბ *Luarsab* (< *Luhrâsp*), თამაზ *Tamaz* (< *Tahmâsb*), ზურაბ *Zurab* (< *Sohrâb*), ქეთევან *Ketevan* (< *Katâyûn*), ზაალ *Zaal* (< *Zâl*), and გივი *Givi* (< *Gêv*) all come from Middle or Classical Persian (often specifically inspired by the Persian epic *The Shah-Name*). In religion came words like ეშმაკი *ešmak’i* ‘devil’ (< *xēšm* ‘anger’), დევი *devi* ‘ogre’ (< *dêw* ‘evil spirit’), ნიშანი *nišani* ‘miracle, sign’ (< *nīšān* ‘sign, mark, banner’), ტაძარი *tazari* ‘cathedral, sanctuary, temple’ (< Parthian *tažar* ‘palace’) and ჯოჯოხეთი *jojoxeti* ‘hell’ (< **dojoxeti* < Middle Persian *dōžax* ‘bad existence’ plus the Kartvelian gentilic suffix *-et*). Iranian or Persian words suffuse Georgian terminology referring to the military and to social classes: აზნაური *aznauri* ‘free, noble’ (< *āznāwar* ‘noble’), ვაჭარი *vač’ari* ‘merchant’ (< NW Iranian **vačar*), ბაზარი *bazari* ‘market’ (from the same source word), გუნდი *gundi* ‘team, unit’ (< Middle Persian *gund* ‘army, troop, gathering’), სპასალარი *spasalari* ‘general’ (< Middle Persian *spāh-sālār* ‘lord of the army’),

and სარდალი *sardali* ‘commander’ (< Middle Persian *sārdār* ‘commander’). The vast majority of these loans come from West Iranian, while a few must be of specifically East Iranian (Scytho-Sarmatian or Alanic) origin. In some cases, such words are apparent only after morphological analysis; they often provide evidence for the timing of specific sound-changes, such as:

(25) Georgian მართალი *martali* ‘true’, from Old Georgian მართალი *martali* ‘true’ [476-482]. Formally an agentive participle (*m-...-al-*) with a root *-art-*, from Middle Persian *ardā* righteous, truthful.

(26) Georgian ვახტანგი *Vaxt’angi* ‘personal name’, from Old Georgian ვახტანგი *Vaxt’angi* [9th c.]. Compound of Scythian **warx-* ‘wolf’ and Middle Persian *tanig* ‘bodily, corporeal’ (or its East Iranian equivalent). The initial element of the compound must be East Iranian because Middle Persian had already undergone fortition of **w > g*.

(27) Georgian სპილო *sp’ilo* ‘elephant’, from Old Georgian სპილო *sp’ilo* [9th-10th c.]. Though it resembles Middle Persian *pīl* ‘elephant’, at least two features suggest it was mediated from that language indirectly through some other northwest Iranian language. First, like several other words (სპარსი *Sp’arsi* ‘Persian person’ < Middle Persian *Pārs*; სპილენძი *sp’ilenzi* ‘copper’ < Parthian *plinj* ‘bronze, brass’), it begins with prothetic /s/, which likely reflects preaspiration of the following stop consonant in the contact language. Second, the final /o/ likely reflects reanalysis of a NW Iranian plural suffix *-ho*, cf. Tati *fil-ho* ‘elephants’ (XX)¹⁴.

(28) Georgian ამახანგი *amxanagi* ‘companion, comrade’ from Old Georgian ამახანგი *amxanagi* [10th c.]. Borrowed from Middle Persian **ham-xānag*, lit. ‘same-house’, it must have been borrowed before the loss of initial /h/ in Georgian.

2.5 Lexical loans from Anatolian

Loans from Anatolian are rare, but can mostly be identified by three traits. First, they are directly attested in the Hittite corpus. Second, they are absent in other geographically adjacent IE branches which might plausibly be sources of IE lexemes

¹⁴ An alternative analysis is that this final *-o* reflects a Kartvelian derivational suffix *-o*, although this is unlikely as it is usually applied to inanimate or abstract nouns.

into Kartvelian. Third, they are reconstructible to Georgian-Zan or Proto-Kartvelian, meaning we can rule out later loans from Indo-European or other tertiary languages. They are also generally attested in the very earliest forms of Old Georgian, from the fifth or sixth centuries. A few examples include:

(29) Georgian სომეხი *Somexi* ‘Armenian person’, from Old Georgian სომეხი *Somexi* [476-482]. This gentilic noun likely reflects originally not Armenians in general, but specifically the population of people inhabiting the Bronze Age regions to the west of Lake Van, known in Hittite sources as *Suḫmu* or *Zuḫmu*, in modern Bingöl Province, Turkey (Diakonov 1968: 234); or alternatively, and somewhat more likely, the people inhabiting the more important northwesterly site of *Šamuḫa*¹⁵, in modern Sivas Province. Both locations were immediately adjacent to regions of northeastern Anatolia inhabited by Kartvelian tribes since the early Bronze Age (XX). Laz სუმეხი *Sumexi* shows the Zan raising of **a* to /u/ before a following labial, which indicates this form must be reconstructed to the Georgian-Zan period, or at least before the latter rule went into effect.

(30) Georgian ველი *veli* ‘field, steppe’, from Old Georgian ველი *veli* ‘field, steppe’ [476-482]. Cognate with both Megrelian ვე *ve* ‘field, clearing’ and Svan უაღურ *wälür* ‘wild, savage’ (with an adjectival suffix *-ur*). Zan undergoes a regular rule of word-final loss of **l* (cp. Megrelian ხე *xe* ‘hand’, from Kartvelian **q^hel-*), and Svan undergoes its regular rule of lowering-umlaut (Tuite 1997). If the Svan form is not a later borrowing of Georgian ველური *veluri* ‘wild, untamed’, we must reconstruct the form **wel-* for at least Georgian-Zan if not Proto-Kartvelian. This form may still thus be an ancient borrowing from Hittite *wellu-* ‘pasture, meadow’ (Kloekhorst 2008: 998) into the Kartvelian protolanguage.

(31) Georgian კაკაბი *k’ak’abi* ‘partridge’, from Old Georgian კაკაბი *k’ak’abi* ‘partridge’ [8th-9th c.]. The word must be reconstructed to Georgian-Zan, as it underwent the regular **a* > /o/ raising rule in Zan: cf. Megrelian კოკობი *k’ok’obi*. The same root is found in Hittite as *kakkabi-* ‘partridge’ (XX).

¹⁵ Hittite <š> in modern transcriptions reflects the Assyriological tradition based on Standard Babylonian values for given cuneiform signs. In Assyrian dialect of Akkadian and languages influenced by that dialect, the actual phonetic value was probably /s/, exactly as with სომეხი *Somexi*.

2.6 Lexical loans from Semitic

In comparison to some source language families, many loans from Semitic languages often involve reanalysis of a source word in terms of Kartvelian nominal morphology, or involve reconstructed phonologies no longer present in any of the daughter languages. Some examples are:

(32) Georgian ხატო *xat'i* 'icon, shrine', from Old Georgian ხატო *xat'i* 'graven image' [476-482]. An early loan from some form of Semitic, most likely Aramaic *ḥatt* 'dig out, carve'. Akkadian *ḥatātum* 'dig out, dredge, make an incision' is also a possible source language.

(33) Georgian ეზო *ezo* 'courtyard', from Old Georgian ეზო *ezo* 'courtyard' [476-482]. Cognate forms are found in both Megrelian ოზე *oze* 'courtyard' and Svan ჰაზუ *hāzw* 'courtyard', making it securely reconstructible to Proto-Kartvelian **hezo*. The Megrelian form underwent an irregular vocalic metathesis. The Svan form reflects regular lowering umlaut and a regular rule of reduction of final **o* (Tuite 1997: 9-10), while its initial /h/ reflects one of the rare examples of Fährnich's **x₁* (= **h*) reflexes. While reconstructible to the protolanguage, it is likely this reflects an ancient loan from some form of Northwest Semitic, cp. Ugaritic *ḥVzVr* 'courtyard'. If so, and if we can equate **x₁* with the initial /h/ of the Ugaritic form, this would constitute direct evidence for Fährnich's hypothesized laryngeal consonant through contact (see §1 above).

(34) Georgian ჭური *č'uri* 'wine amphora or pithos', from Old Georgian ჭური *č'uri* 'drinking vessel' [476-482]. The word has a cognate in Megrelian ჭკუჯი *č'k'uži*, a regular reflex of Georgian-Zan **č'uri-*. In Zan **č'* underwent its regular shift to /č'k'/, while **r_j* shifted to /ž/; in Georgian **č'* became plain /č'/ and **r_j* merged with **r*. The Georgian-Zan form is a loan from Akkadian *šurru* 'drinking vessel', where <š> likely reflects a glottalized affricate /c'/. Because the Akkadian source form does not have any initial cluster, this item can be taken as direct confirmation of the single-phoneme theory of Zan sibilants, as against the cluster-theory.

(35) Georgian თაფლი *tapli* 'honey', from Old Georgian თაფლი *tapli* 'honey' [786]. Surely reconstructed to Proto-Kartvelian **tapl-*: Megrelian თაფური *topuri*, Laz

თოფური *topuri*, and Svan თუ *tu* (< **tupw*- < **tapw*- < **tapl*-) (Fähnrich 2007: 189). The reflex of noninitial **l* as /r/ in Zan is regular. This is likely an ancient loan from Northeast Semitic **daṭpu*-, attested as Akkadian *dašpum* ‘sweet like honey’ (Black et al. 2001: 57), from Proto-Semitic **dVbār*- ‘bee’ (XX). This not only constitutes direct evidence from language contact of the reconstruction of a Proto-Semitic lateral fricative **l* (Steiner 1977, 1991), which is now widely accepted, it also confirms Fähnrich’s hypothesized reconstruction of the same sound in Proto-Kartvelian.

(36) Georgian მიზანი *mizani* ‘aim, goal’, from Old Georgian მიზანი *mizani* ‘aim, goal’ [10th-11th c.]. This reflects long-distance metathesis of Georgian-Zan **nizVm*- ‘target’, which was used as the basis for a nominal root: **nizam*- > *mizan*-. **nizam*- was also separately reanalyzed as bearing a nominalizing prefix *ni*- (also found in indigenous words like ნიკაპი *ni-k’api*-i ‘chin’ and ნიკარტი *ni-sk’art*-i ‘beak’) and a verbal root -ზამ *-zam*- (e.g. Georgian უზამს *u-zam*-s ‘do for someone’) or -ზიმ *-zim* (e.g. Megrelian გეზიმავა *ge-zim-ap-a* ‘aim, use as a target’). The Georgian-Zan root **nizVm*- was in turn a reanalysis of the Akkadian loan *nizmātu(m)* ‘desire, objective’ in which the Akkadian stem-final /t/ was reinterpreted as the Kartvelian oblique plural suffix *-t(a)*.

(37) Georgian ლომი *lomi* ‘lion’ from Old Georgian ლომი *lomi* ‘lion’ [786]. The word is securely reconstructible to Proto-Kartvelian **lom*- as it is found with regular sound-reflexes in Laz ლომი *lomi* and Svan ლომ *löm*. It has long been recognized however that this root spread widely across language families of the ancient Near East and adjacent Indo-European languages of Europe (Gamkrelidze and Ivanov 1995: 430), including Akkadian *lābum*, Arabic *labu’a*, Hebrew *lābī’*, Ugaritic *labi’u*, Mycenaean Greek *re-wo-te-jo*, and (in reduplicated form) as Hittite *walwa*. There is some reason to believe a Semitic form **laβum* with both final mimation and intervocalic spirantization once existed, as this is attested as loans in both Hittite and Greek λέων (from earlier **λέβων*). If so, in Kartvelian such a form may have undergone loss of the intervocalic consonant and coalescence of the two vowels: *lābum* > **laβum* > **laum*- > **lom*-. In Kartvelian loss of **w* before /u/ is a regular feature in many periods and languages of the family, but it likely happened soon after borrowing as a form with /w/ or /v/ is not found in any of the daughter languages. On the Semitic side, mimation is a feature of Proto-Semitic (XX) but was lost in most daughter languages within the historical period, so the contact form was most likely a very early West or East Semitic language.

(38) Georgian საწნახელი *sac'naxeli* 'winepress', from Old Georgian საწნახელი *sac'naxeli* 'winepress' [9th c.]. The word is found with regular reflexes of Georgian-Zan **la-c'i'nex-el-* 'winepress' in Megrelian and Laz ოჭინახუ *oč'inaxu* 'winepress', all from the Georgian-Zan root **c'i'nex-* 'press out, squeeze, exude': word-initial **l* regularly becomes /s/ in Georgian, but is lost in Zan, while **c'* merges with **c* in Georgian but regularly becomes /č/ in Zan. Svan lacks this root, so it cannot be reconstructed to Proto-Kartvelian. This root is in turn likely an ancient loan from Akkadian *šanaḫum* 'press out, excrete' into Georgian-Zan. Since Akkadian <š> likely represented a glottalized affricate [c'] (XX), this correspondence is fairly exact.

(39) Georgian ომი *omi* 'war', from Old Georgian ჰომი *homi* 'war' [10th c.]. The modern form of the word reflects the regular loss of initial /h/ beginning ca. the 12th century CE. It is also found in the related form მეჰომე *mehome* 'warrior' (with a *me-...-e* agentive circumfix) and Megrelian ლუმა *luma* / ლიმა *lima* 'war'. Both the Megrelian and Georgian stems reflect back-formations with (differential) cluster simplification from Georgian-Zan **melhome* 'warrior': Georgian **melhome* > *mehome*, >> *homi*; Megrelian **melhome* > **melome* >> **loma* > *luma* (raising rule **o, a* > *u* by labial consonants).

This form was itself a loan from a Semitic language form with the trilateral root LHM 'war': Ugaritic *mlḥmt* 'war', Hebrew *milḥāmā* 'war', Arabic *malḥama* 'war'. The timing of attestation makes an Arabic source most likely, but an earlier Hebrew or unattested Aramaic source cannot be ruled out. Morphosemantic reanalysis was likely possible in this case because Georgian already possessed an agentive circumfix *me-X-e* coincidentally similar to Arabic nominalizing circumfix *ma-lḥam-a*, though the Kartvelian circumfix is reconstructible to at least Georgian-Zan as **me-X-e* and has no connection to the Semitic morphology.

(40) Georgian დათვი *datvi* 'bear' from Old Georgian დათჴ *datwi* 'bear' [9th-10th c.]. The word appears with regular reflexes in each of the daughter languages: Megrelian თუწთი *tunti*, Laz მთუთი *mtuti*, Svan დაშდუ *dæšdw*, descended from Kartvelian **da(s)tw-*. Megrelian and Laz both undergo regular raising of **a* to /u/ by labial consonants or when preceding such a syllable, and each undergoes its specific kind of nasal epenthesis and assimilation of **d* to the following **t*. The status of the medial

sibilant in Svan may either reflect the loss of **s* before **t* in Georgian-Zan or, alternatively, an internal development in Svan (see Fähnrich 2007: 123).

The Proto-Kartvelian form **da(s)tw-* in turn may reflect a loan from Akkadian *dabītu* ‘she-bear’, which has wide-spread cognates across that family from Proto-Semitic **dubb-* ‘bear’. As noted for ლომი *lomi* ‘lion’ above in (37), some dialects of Akkadian probably underwent a rule of intervocalic spirantization of /b/ to [w]/[v] to produce **dawītu*. This form may have undergone metathesis to produce **datw-*.

(41) Georgian მავა *maža* ‘wrist, pulse, strength’, from Middle Georgian მავა *maža* ‘pulse-point’ [1190-1210]. A loan of Arabic مجسة *mažassa* ‘pulse-point’, before its first attestation, it had already undergone reanalysis as a noun stem მავა- *maža-* plus the dative singular suffix -სა *-sa*. This reanalyzed form was borrowed from Georgian into Megrelian as მანჯა *manža*, which indicates the Megrelian rule of nasal epenthesis in accented syllables occurred only after this borrowing event. For the same reason, the Zan shift of **a* > /o/ must have already come to completion before Megrelian borrowed this word from Georgian, otherwise we would see ***monža*.

2.7 Lexical loans from Nakh-Daghestanian

Loans from this more easterly Caucasian language family constitute a deep, sometimes almost invisible and certainly underappreciated stratum of loans into Kartvelian. This reflects at least two idiosyncracies of Nakh-Daghestanian languages. First, languages of this family often have radically different phonologies from Kartvelian languages, making the mapping of phonology between the source word in Nakh-Daghestanian and Kartvelian nontrivial. Second, such languages have radically different morphosyntactic categories, including especially agreement for gender, which often manifests itself as word-initial prefixes which can sometimes become fossilized in a contact form. These two facts combined make it harder to see commonalities in lexical loans. Among possible ancient candidates are:

(42) Georgian ბეჭედი *beč’edi* ‘ring, seal’, from Old Georgian ბეჭედი *beč’di* ‘ring, seal’ [476-482]. This is an ancient nominal back-formation of a nominal ბეჭე- *beč’-* ‘seal’ incorporated into the verb დვ- *dv-* ‘put’; the verb *beč’dva*, originally meaning to impress a seal into wax, now more often means to print or press books, pamphlets, etc. While the underlying verb *dv-* is *ur*-Kartvelian, from **dew-/dw-* (Fähnrich 2007: 130), the incorporated noun is a borrowing from a Nakh-Daghestanian, probably Lezgian, source

root **ɔc*- ‘ring, bracelet’: cp. the reduplicated noun in Udi *ba-boč’-a’l* ‘ring’. As with many Nakh-Daghestanian roots, the stem-initial *b*- represents a fossilized gender marker in that family.

(43) Georgian ჭიქა *č’ika* ‘cup’, from Old Georgian ჭიქა *č’ika* ‘cup’ [476-482]. The same stem is found in Megrelian ჭირკა *č’irka* and ჭირკურა *č’irkura*, both meaning ‘cup, vessel for drinking’. The Megrelian forms point to metathesis and morphological extension of original Georgian-Zan **č’ikra*, an ancient loan from some descendant of Nakh-Daghestanian **čäq’wa* ‘scoop, spoon, wooden vessel’ (Starostin & Nikolaev 1994), likely from specifically its Avar-Andic or Lezgi branches: cp. Avar *č’ik’á-ro* ‘spoon’¹⁶, Archi *č’aq’w* ‘spoon’. Although today the word ჭიქა *č’ika* is most frequently used for glass vessels, this is clearly a recent convention for a time when glass-ware is ubiquitous. In previous centuries, most drinking vessels were made of wood, bone or horn. Also the shape of the vessel was likely more spoon-like: to this day, in the south Caucasus people often use large ladles for drinking, especially wine *azarpešas*.

(44) Georgian ჯვარი *žvari* ‘cross’, from Old Georgian ჯვარი *žvari* ‘cross’ [476-482]. The word has regular cognates in Megrelian ჯგუნჯი *žgunžgi* ‘beam, pole’ and Laz მზგუჯი *mzguji* ‘post, pole’, both the regular reflexes of Georgian-Zan **žvarj*- ‘pole, post’ due to Zan nasal epenthesis, shift of **ž* to /*žg*/, and shift of **rj* to /*ž*/. Because Laz undergoes the regular affrication of **rj*, while Megrelian shows an unexpected /*žg*/ at the end of the stem, we are likely seeing evidence that affrication of **rj* preceded the shift of **ž* to /*žg*/ because it allowed long-distance assimilation specifically in Megrelian: **žvarj*- > **žvaž*- > **žvažj*- > **žgvažg*- > **žgužgi* > *žgunžgi*. Georgian on the other hand collapsed **rj* and **r* together.

The Georgian-Zan form is possibly a loan from Nakh-Daghestanian **čhwitū*- ‘beam’ (Starostin & Nikolaev 1994), which has cognate descendants across several subbranches of that family, indicating its antiquity there: Avar *čālu* ‘beam’, Hunzib *čelu* ‘cross-beam’, Lak *čula* ‘beam’, Lezgi *čul* ‘beam’, Rutul *čil* ‘log’, Tsakhur *čil* ‘pole’. If this Nakh-Daghestanian protoform is correct, this might constitute direct evidence that the velarized series of consonants **C^v* in Kartvelian were in fact labialized consonants, **C^w* (see §1 above).

¹⁶ This Avar form is specifically based on the oblique stem; it seems this specific oblique stem suffix survives in the Georgian-Zan **č’ikra*.

(45) Georgian ხორცი *xorci* ‘meat’, from Old Georgian ჰორცი *q^horci* ‘meat’ [476-482]. Because Georgian and the Zan languages separately underwent spirantization of **q^h* to /x/ within the historical period (starting in the late 9th or early 10th centuries), the word can be securely reconstructed to Georgian-Zan **q^horc-*; Svan lacks this stem.

The Georgian-Zan form is most likely an ancient loan with semantic shift from a Nakh-Daghestanian root **ḂHwōr[č]o-* ‘deer, game’ (Starostin & Nikolaev 1994), or possibly specifically from an Avar-Andic source form: we find parallels in Tindi *Ḃ^warča* ‘deer’, Bagvalal *Ḃ^warča* ‘deer’, Lezgi *Ḃürč* ‘game’, Tabasaran *χIurč* ‘game’, Agul *ḂIurč* ‘game’ and Khinalug *Ḃäč* mountain goat. Because these forms exist across subfamily groups with regular sound-shifts, we can rule out borrowing from Kartvelian or from each other. The semantic shift required is straight-forward: species names often shift to mean the flesh of that species name, consider e.g. Old French *porc* ‘swine, pig’ to modern English *pork*, Old French *boef* ‘ox’ to modern English *beef*, etc. Formally, Georgian and the Zan languages also undergo regular conflation of **wa* to /o/.

(46) Georgian მიწა *mic’a* ‘earth, ground, soil’, from Old Georgian მიწა *mic’a* ‘earth, ground’ [786]. The word has no cognates in other Kartvelian languages. It is however securely reconstructible in Nakh-Daghestanian, being found in every branch there, and is likely an ancient loan from either Tsezic **mōče/mičV-* or Lezgi **mäč’-*: cf. Tsez *moči-* ‘place, ground, field’ (oblique stem: *meče-*), Archi *mač’* ‘place’ (Starostin & Nikolaev 1994).

(47) Georgian მდოგვი *mdogvi* ‘mustard’, from Old Georgian მდოგვი *mdogvi* ‘mustard’ [9th c.]. The earliest attested forms of this word already feature an initial /m/, but this must be a late development, as it is lacking in all forms of Megrelian დოგი *dogi* / დონგი *dongi* / დონგვი *dongvi*, as well as many Georgian dialects, such as Gurian დოგვი *dogvi*. This results from ‘m-mobile’: the reanalysis of the final /m/ of an oblique-case demonstrative pronoun *im* ‘that.OBL’ as part of a following head noun: **im dogvsa* [that.OBL mustard.DAT] > *im mdogvsa*.¹⁷

¹⁷Cp. Proto-Kartvelian **(m)c’q’aw-* ‘cherry laurel’: Georgian მწყავი *mc’q’avi*, Megrelian წყვი *c’q’ei*, Laz წყ’u, Svan წყ’u *c’q’aw*. If we assume an initial **m*, then Megrelian, Laz and Svan all must independently lose the initial nasal. Other roots that may reflect *m*-mobile are **(m)c’er-* ‘insect’, **(m)t’ver-* ‘dust’, and perhaps **(m)sxal-* ‘pear’.

This is in turn a borrowing of Nakh-Daghestanian **d=ōgwV-* ‘burn’ (Starostin & Nikolaev 1994), with a fossilized /d-/ gender prefix. Historically many cultures referred to the mixture of grape must and ground mustard seeds as a ‘burning’ or painful condiment: cp. Latin *mustum ardens* ‘burning must’, the origin of English ‘mustard’, and Russian *горчица* ‘mustard’, cognate with *горький* ‘painful, bitter’. Note that in Georgian this same Nakh-Daghestanian root was also borrowed as a verb stem *დაგვ-* *dagv-* ‘burn down’; cf. Chechen *daga* ‘burn’ vs. Udi *bok'-sun* ‘burn’, where the initial *d-* and *b-* are respectively fossilized gender markers in separate branches of the family.

(48) Georgian *ასო* *aso* ‘letter of the alphabet; body part’, from Old Georgian *ასო* *aso* ‘body part, limb’ [864]. The word can be securely reconstructed to Proto-Kartvelian **asʰo*, having regular cognates not just in Georgian constructions like *ასო-ასოდ* *aso-asod* ‘part by part’ but also Megrelian *აშო-აშო* *ašo-ašo* ‘hither and yon’ and Svan *აში-აში* *āši-āši* ‘gradually’. Considering that Kartvelian undergoes frequent loss of coda /r/ throughout its history (cf. Georgian *ვერცხლი* *vercxli* ‘silver’ and dialectal *ვეცხლი* *vecxli*) and regular conflation of **wa > o*, the Kartvelian root is possibly an ancient loan from or to Nakh-Daghestanian **Vrs^w-* ‘cut, shear, clip’, perhaps specifically its Lezgian branch **ʔars:wa-* ‘rip up, cut into parts’ (Starostin & Nikolaev 1994).

(49) Georgian *ხვლიკი* *xvlik'i* ‘lizard’, diminutive (*-ik'*) of Old Georgian *მხულოვი* *mxulivi* ‘lizard’ [10th c.]. The Georgian form is a nominalization in *-iv* of an old Kartvelian agentive participle **m-xuw-il-*, from Proto-Kartvelian **xu(w)-* ‘rustle, sweep’. It has regular reflexes in Megrelian *ხვილარი* *xvilari* ‘lizard’, Laz *მხულული* *mxululi* ‘lizard’, and Svan *ფხელ* *pxel* ‘lizard’ (< **mpxel* < **m-xuw-il-*). This makes the Kartvelian participial construction exactly analogous to English *snake*, a nominalization of Proto-Germanic **snakaną* ‘crawl’, from Indo-European **(s)neg-* ‘crawl, creep’ (XX). Although this thus means the Georgian word is securely reconstructible to the protolanguage, it is likely that this ancient verbal root is either a loan from or into Nakh-Daghestanian **=ixwV* ‘go, flow’ (Starostin & Nikolaev 1994), which is widely attested in various branches of that family: cp. Avar *x^wá-d-* ‘walk’, Akusha Dargwa *-ix* ‘go, flow’, Batsbi *iχ-* ‘walk, go’, Lezgian *fi-* ‘go’.

(50) Georgian *სოკო* *sok'o* ‘mushroom’, from Old Georgian *სოკო* *sok'o* ‘mushroom’ [10th c.]. Found in near-identical form throughout Kartvelian (Georgian and Zan *სოკო* *sok'o*,

Svan სოკჳ *sok'w*), it is often thought to be a loan from Armenian սոճկն *sunkn* (Acharian 1971-79, 4: 252; Thorsø 2022: 104). However, the Armenian word itself has no clear Indo-European etymology, and the Kartvelian form is more likely an ancient loan from some descendant of Nakh-Daghestanian **shwVmK'V*- 'mushroom' (Starostin & Nikolaev 1994), as it is found in numerous daughter languages of different branches, assuring its antiquity there: Avar *s:ak*, Andi *s:eku*, Chamalal *sekʷ*, Tsez *ziķu*, Bezhta *sako*, Udi *šamk-al*. It may have entered Georgian early on because it underwent the regular rule of Georgian-Zan **wa* > Georgian /o/. If so, this further undermines an Armenian origin.

(51) Georgian რკო *rk'o* 'acorn', from Old Georgian რკო *rk'o* 'acorn' [10th c.]. A number of conservative Georgian dialects including Tush კურკო *k'urk'o* and Pshav გორკო *girk'o*, indicating the current form is haplology of an earlier preliterate Georgian form **k'rk'o*; also cognate with Megrelian კო *k'o* / კჲ *k'a*, which indicates a likely Georgian-Zan form of **k'rk'o*.

This form is in turn likely a loan from either an Indo-European or Nakh-Daghestanian source (Gamkrelidze and Ivanov 1995: 531, fn 1). Indo-European **pérkus* 'oak' (genitive stem **prkʷéws*) had daughter language forms which underwent long-distance assimilation in Italic **kʷerkʷus* (Latin *quercus*) or loss of **p* in Celtic **kʷerkʷus* (Irish *ceirt*). These are however unlikely sources for the Georgian-Zan form for geographical reasons: they are found exclusively in those two far-western branches of Indo-European, neither of which is found close enough to the Caucasus during the period of common Georgian-Zan. A more likely local source for Georgian-Zan **k'rk'o* is some form descended from Nakh-Daghestanian **χwīrkV*- 'oak' (Starostin & Nikolaev 1994): Avar *hirk* 'acorn', Rutul *xuk* 'tree, oak', Archi *χ:ʷak* 'forest'.

(52) Georgian მჭადო *mč'adi* 'corn-bread', from Middle Georgian მჭადო *mč'adi* 'millet-bread' [1578]. Though attested only quite late, this root has regular cognates of Proto-Kartvelian *(*m*)čʷad- in Megrelian ჭკადო *č'k'idi*, Laz (მ)ჭკუდო (*m*)čʷk'udi and Svan ჭკოდ *č'k'id*. In Zan languages, *čʷ regularly produces /č'k'/, while **a* regularly shifts to /u/ near labial consonants. The initial /m/ reflects another ancient example of 'm-mobile': the rebracketing of the final /m/ of the demonstrative pronoun *im* 'that.OBL' as the initial onset of the head noun: **im čʷad-sa* 'that.OBL bread.DAT' > *im mč'ad-sa*. This would explain the absence of the initial /m/ in Svan, Megrelian and several Laz dialects.

This would also allow us to compare it further afield to several cognates of Nakh-Daghestanian *čʷāti ‘bread’ (Starostin and Nikolaev 1994): Chechen *čuda* ‘meat-cake’, Avar *čed* ‘bread’, Bezhta *šōti* bread¹⁸, and Lak *č:aṭ* bread. Because this is found in several different branches of that family with regular reflexes of known sound-laws, we can be sure of its antiquity there. If we can take Kartvelian *čʷ to reflect the Nakh-Daghestanian labialized affricate *čʷ, this example may provide an explanation for why Zan raises *a to /u/ (as per regular sound-law) and, even more importantly, another direct indication that the Kartvelian series *Cʷ was in fact labialized (see §1 above).

2.8 Lexical loans from other non-Indo-European sources

One final category of loans into Kartvelian lies in forms borrowed from the more poorly attested ancient non-Indo-European languages of the ancient Near East, including Hurrian, Urartian, and Hattic, as well as the third still extant family of Abkhaz-Adyghean. The first set of languages is rarely a demonstrable source of direct borrowing, e.g. Hurrian *awari* (see (x) above) is only a possible source for Georgian აგარა *agara* as mediated through sound-changes specific to Armenian. Abkhaz-Adyghean languages likewise rarely seem to be the source of lexical items in Kartvelian or Georgian-Zan, though they are numerous in Megrelian specifically (Chirikba 2006). Among possible ancient candidates are:

(53) Georgian დიდი *didi* ‘big, great’, from Old Georgian დიდი *didi* ‘big, great’ [476-482]. The word is found across Georgian, Megrelian and Laz, and because no subsequent sound-laws would apply, it is found in identical form in each; Svan lacks this root, and so the form can be reconstructed only to Georgian-Zan **did-* ‘great, big’. The root may be an ancient borrowing from Abkhaz-Adyghean **da* ‘big’, which appears in reduplicated form in Adyghe *dad* ‘most’ and Kabardian *dāda* ‘most’, though that branch (dating to ca. 500 CE) is probably too recent to be the source for Georgian-Zan, and indeed may rather be a loan from Kartvelian.

An ancient alternative comes from a surprising source: Hattic *tete/teti* ‘big, great, mighty’ (Soysal 2002: 314). This poorly attested language of Bronze Age Anatolia was geographically centered on the northcentral region of Anatolia in sites like Nerik and Turumiyara, not far from the eastern Pontic coast and Corokh River valleys which have

¹⁸ This Bezhta form may instead be a loan from Georgian შოთი *šoti* ‘shoti-bread’, though Georgian შოთი *šoti* is itself likely a Nakh-Daghestanian loanword.

long been home to Kartvelian speaking peoples. Whether either of these two possible sources is the source of Georgian-Zan **did-* is not certain. Hattic was probably extinct by the time Georgian-Zan split from common Kartvelian, and a single reduplicated syllable is liable to be a crosslinguistic accidental homophony.

(54) Georgian ვერცხლი *vercxli* ‘silver’, from Old Georgian ვე(რ)ცხლი *ve(r)cxli* ‘silver’ [786]. Securely reconstructible to Georgian-Zan **werɔxil-*, it has a regular reflex in Megrelian and Laz ვარჩხილი *varčxili* ‘silver’, reflecting the **a > /o/* shift in Zan (Svan *warčxil* ‘money’ is a loan from Megrelian). Diakonoff and Ivanov (1986: 45-46) argue that this Georgian-Zan form was borrowed from Hurro-Urartian **Hwercχ-* ‘silver’, which subsequently underwent regular sound-change of **we > /o/* and of **rc > *rcχ > *cχ > šχ* to produce the attested *ošχo*; the final **-l* of the Georgian stem would be a Kartvelian nominalizing suffix. They further argue that the Hurro-Urartian form is related to Nakh-Daghestanian **Iercō* ‘silver’¹⁹.

(55) Georgian ყურძენი *q’urzeni* ‘grape’, from Old Georgian ყურძენი *q’urzeni* ‘grape’, საყურძენი *saq’urzeni* ‘vineyard’ [864]. Found with regular reflexes of Kartvelian **q’urɔ-* ‘grape; vineyard’ in Megrelian ჭურზენი *ɕurzeni*, Laz (ყ)ურძენი (*q’*)*urzeni*, and Svan ყუნზელ *qunz-el* ‘grape’ and საყუნზელა *saq’unzela* ‘vineyard’. Though clearly ancient within Kartvelian, this root represents ancient reanalysis of the Urartian loanword *ulde-ni* ‘wine, vineyard’ (Arutunian 2001: 472)) as **q’urɔe-* plus the nominal plural suffix **-n-* plus the nominative case **-i*, and then reanalyzed as an entire stem in Georgian-Zan (but not Svan). Diakonoff and Starostin (1986: XX) compare the Urartian form ultimately with the Proto-Nakh root **ɤurd-* ‘arable land’ and Starostin and Nikolaev the same to Kartvelian **xved-* ‘allot, meet, happen’ in ხვედრი *xvedri* ‘lot, share’ (Starostin and Nikolaev 1994). Though shift of Kartvelian **q’* to /ʔ/ is systematic only in later periods in Zan, it may have been sporadically operant in earlier periods of the family, as

¹⁹ Few scholars of Nakh-Daghestanian would today agree with this reconstruction, mostly due to the general uncertainty of reconstructing Nakh-Daghestanian as a whole. On S. Starostin’s online database StarLing, this root is reconstructed as **hərVcwi-*, with the note that some ND languages (including the Avar-Andic and Dargwa branches) betray the influence of ‘floating labialization’ and require **hwərVcī*. It is to the latter that Diakonoff and Ivanov argue the Hurro-Urartian form belongs. Whatever the truth of the matter, it is clear that Svan lacks a regularly inherited root, and so the Georgian-Zan form cannot be reconstructed to Proto-Kartvelian and thus it is most likely a loan from some other source. See <<https://starlingdb.org/>> for more details.

it has been later in Georgian dialects (Jorbenadze 1989), and so allowed this root to be borrowed phonetically relatively straightforwardly.

(56) Georgian თოვლი *toqli* ‘snow’ from Old Georgian თოვლი *toqli* ‘snow’ [864]. Nominalization in *-l* of თოვ- *toṡ-* ‘to snow’. Each daughter language shows regular reflexes: Megrelian თუ *tu*, Laz მთუ *mtu* and Svan შდუ *šdu*. This root may be an ancient loan into or out of Abkhaz-Adyghean **tʷəχʷV-* ‘hoarfrost, snowstorm’ (Starostin & Nikolaev 1994): Abkhaz *a-sə-tʷhʷa* ‘snowstorm, blizzard’ and Kabardian *sə-tχʷ* ‘hoarfrost’. If the loan is from Kartvelian into Abkhaz-Adyghean, it would likely confirm Gamkrelidze’s (1965) contention that Kartvelian word-initial **sʰt-* clusters systematically became **t* in Georgian-Zan but */šd/* in Svan.

On the other hand, if the loan is from Abkhaz-Adyghean into Kartvelian, it would be evidence that the numerous Svan initial */šd/* clusters that correspond to word-initial */t/* in the rest of Kartvelian (e.g. **(sʰ)tawal-*: Georgian თოლია *tolia* ‘gull’ vs. Svan *šdawal* ‘dove’; **(sʰ)twal-*: Georgian თვალი *tvali* ‘eye’ vs. Svan *šdul* ‘arrow slit’; **(sʰ)txil-*: Georgian თხილი *txili* ‘hazelnut’ vs. Svan შდობ *šdix* ‘hazelnut’, etc.) in fact underwent some other kind of phonological shift, perhaps preaspiration of the Svan aspirated stop being reinterpreted as frication: **tʰ > *hʰ > *št > šd*. Thus borrowing in either direction would provide important evidence for the reconstruction of Kartvelian sibilant phonology.

(57) Georgian ზამთარი *zamtari* ‘winter’, from Old Georgian ზამთარი *zamtari* ‘winter’ [864]. The word is an ancient compound of Kartvelian **za* ‘year, season’ and **mt/nt-* ‘cold weather’ plus a nominal suffix *-ari-* (Fähnrich 2007: XX). Georgian ზამთარი *zamtari* corresponds regularly to Megrelian ზოთონჯი *zotonǰi* (Zan **a > /o/* shift; nasal epenthesis; Zan **rʰ > ǰ*); Svan lacks the compound but preserves **za* as ზაჲ *zäw* ‘this year’ and **nt-* as *li-ntw* ‘winter’ (where *li-* is a nominal prefix). Kartvelian **za* is in turn likely a loan out of or into Proto-Abkhaz-Adyghean **žʷə-* ‘old’, or more specifically Proto-Adyghe-Kabardian **žə-* ‘old’.

(58) Old Georgian სერი *seri* ‘evening meal, feast’ [864]. The word has a cognate in Megrelian ოსარუ *osaru* ‘nightshirt’ reflecting the Zan **a > o* shift (Megrelian and Laz სერი *seri* ‘night’ are ancient loans from Georgian), thus reconstructible to Georgian-Zan

**ser-* ‘night’. This is likely an ancient loan from Hurrian <*še-e-ri*>²⁰ /*seri*/ ‘evening, night’, which itself is likely a borrowing of Akkadian *šeri* ‘morning, morning watch, last hours of the night’.

§3 **Loanwords and the reconstruction of Kartvelian languages**

3.1 **Evidence of ancient episodes of language contact**

What do such lexical comparanda tell us? The first important generalization from the above evidence of contact between Kartvelian and other language families comes from the contact events themselves.

- For some external families such as Indo-European and Semitic, we can show that Kartvelian must have experienced deep, long-lasting lexical exchanges dating back to its very earliest reconstructible forms, quite aside from the impact languages of those other families have had in later attested periods;
- For other families, such as Nakh-Daghestanian, loanwords were likewise extremely frequent in antiquity, but were often obscured by the differing phonological and morphosyntactic systems of the source languages, especially the presence of gender-prefixes;
- For some families that were geographically adjacent to the presumptive Kartvelian *Urheimat*, such as Abkhaz-Adyghean, Hurro-Urartian and Hattic, few tangible or identifiable traces of contact can be found.

These generalizations are important by themselves, because they provide a context for understanding extralinguistic cultural practices and ecologies, as well as potential evidence for how and when Kartvelian-speaking tribes established their historically attested geographical extent. The relative absence of words of the third category above is particularly salient and unexpected, and leaves several questions unanswered:

- Was Kartvelian somehow geographically or sociolinguistically separated from speakers of these language phyla in such a way to prevent contact?
- Did Kartvelians engage in patterns of trade with Indo-Europeans, and Nakh-Daghestanian and Semitic groups to the exclusion of the less well-attested phyla?

²⁰ Hurrian /s/ is often transcribed with <š> to reflect the Babylonian value of that cuneiform sign. In languages that borrowed from Assyrian (which includes most written languages of Bronze Age Anatolia) the value of this sign was more often an alveolar /s/ rather than a palatal /š/.

- Did Kartvelian undergo rapid language expansion from its Urheimat at the expense of these other groups in a rapid enough fashion that little or no evidence of substrate remained?

Or perhaps some combination of these trends.

3.2 Evidence for the phonological reconstruction of Kartvelian languages

The lexical borrowing however data provide much stronger evidence for specific language-internal traits of the languages in contact. We have seen that a number of phonological or morphosyntactic changes must have occurred in specific orders to produce the attested outcomes in Kartvelian languages. The chart in **Table 6** lists some of the sound-changes discussed above in the roughly approximate order in which they must have applied.

PHONOLOGICAL SOUND-CHANGE	RELEVANT LEXICAL ITEMS
Georgian-Zan loss of * <i>h</i>	ეზო <i>ezo</i>
Shift of Georgian-Zan * <i>wa</i> > /o/	ასო <i>aso</i> , სოკო <i>sok'o</i> , ხორცი <i>xorci</i> , თოვლი <i>tovli</i>
Georgian-Zan loss of * <i>s</i> before * <i>t</i>	თოვლი <i>tovli</i> , დათვი <i>datvi</i>
Zan shift of * <i>r</i> to /ʒ/; Georgian merger of * <i>r</i> and * <i>r</i>	ჯვარი <i>ǰvari</i> , ზამთარი <i>zamtari</i>
Zan shift of * <i>C</i> to homorganic CK	მჭადი <i>mč'adi</i> , ჟური <i>ǰ'uri</i> , ჯვარი <i>ǰvari</i>
Zan vowel shift of * <i>a</i> > /o/	ვერცხლი <i>vercxli</i> , ზამთარი <i>zamtari</i> , კაკაბი <i>k'ak'abi</i> , ფოთი <i>Poti</i> , ფოთოლი <i>potoli</i> , სერი <i>seri</i> , თაფლი <i>tapli</i> , Svan ჩონჩხ <i>čončx</i>
Zan vowel shift of * <i>a</i> > /u/ before labials	სურდო <i>surdo</i> , ბურახი <i>buraxi</i> , ბურთი <i>burti</i> , დათვი <i>datvi</i> , ომი <i>omi</i>
Zan vowel shift of * <i>e</i> > /a/	მაღალი <i>maǰali</i> , მანქანა <i>mankana</i> , მაგარი <i>magari</i>
Zan shift of * <i>t</i> to /r/ in noninitial position	ბურახი <i>buraxi</i> , გოდოლი <i>godoli</i> , ვერცხლი <i>vercxli</i> , თაფლი <i>tapli</i>
Megrelian loss of stem-final /l/	ველი <i>veli</i>
Georgian loss of coda /r/	ასო <i>aso</i> , ვერცხლი <i>vercxli</i> , ჭიქა <i>č'ika</i>
Georgian loss of /u/ before/after labials	გემო <i>gemo</i> , რუ <i>ru</i>
Megrelian nasal epenthesis in accented syllables	ბერძენი <i>berzeni</i> , დათვი <i>datvi</i> , მანქანა <i>mankana</i> , Svan ჩონჩხ <i>čončx</i>
Svan rules of umlaut	Svan ჩონჩხ <i>čončx</i>
Georgian loss of initial /h/	ამხანაგი <i>amxanagi</i>
Georgian shift of <i>q^h</i> > <i>x</i>	ხორცი <i>xorci</i>

Table 6. Some phonological rules for which loanwords provide relative chronology

Triangulating between the date of attestations, and the relevant sound-changes of the borrowing language, and that of the loaning language, we can begin to estimate absolute dates for when particular intra-Kartvelian sound changes must have occurred:

- The **Georgian-Zan loss of *h** probably occurred at or after the separation of Georgian-Zan and Svan, as it is preserved in Svan /h/. The Kartvelian form *hezo could not have been borrowed from Ugaritic *ḥVzVr* ‘courtyard’ after the final destruction of that city in the terminal Bronze Age ca. 1180 BCE, though clearly such a loan could come from some other Northwest Semitic source.
- The **Zan shift of *rⁱ to /ž/** must have occurred after the Zan languages became distinct from Georgian (at least, there is no trace of it in Georgian). However, because a form *č^vurⁱi can be reconstructed for Georgian-Zan and this form is a loan from Akkadian *šurru* ‘drinking vessel’, the loan must have occurred before ca. the 7th c. BCE with the destruction of the Assyrian Empire: after that date, but possibly considerably long before, there were probably no significant populations of Akkadian speakers in eastern Anatolia. The *rⁱ to /ž/ shift therefore could only have occurred *after* that date.
- The same logic applies to the **shift of *C^v to clusters in Zan**: such clusters could not have arisen before the borrowing of *č^vurⁱi from Akkadian. This sound-change must have occurred no earlier than about the second quarter of the first millennium BCE.
- The **Zan raising rule *a > /o/**: must have occurred in the middle to late first millennium BCE because it does not appear in extremely early loans of Zan *Pat- into archaic Greek – this provides a *terminus post quem*. It does not however apply to late loans such as Megrelian *ოსჯა manža*, and so must not have been operative by the time of the Arab conquests ca. 8th c CE. – a *terminus ante quem* – but probably significantly earlier.
- **Zan lowering rule *e > /a/**: must have been operative late(r?) in the first millennium BCE because
 - (a) it does not apply to the output of the raising rule (i.e. phonemic contrast is maintained between *a and *e in Zan, albeit in altered form), and
 - (b) it also applies to loans from Greek words that have been spirantized, such as *mağali* from *μεγάλη* (this may be an indication that the two rules were a pull-chain shift)
- The **Zan shift of *l to /r/ in noninitial position** must have occurred before around the second quarter of the first millennium BCE

- **Georgian *u*-loss before/after labials:** before the first written texts, ca 5th century AD
- **Zan nasal epenthesis:** must have occurred after the lowering rule came to completion, probably no earlier than about the 8th-10th centuries CE, because it applies to late loans such as Megrelian მანჯა *manža* (a loan from Georgian მაჯა *maža*, itself from Arabic *mažassa*) which do not undergo the lowering rule.

3.3 Evidence for morphological reanalysis of Kartvelian languages

The lexical loans also indicate a very considerable amount of morphological reanalysis of the borrowed items in terms of the inherited Kartvelian morphology:

BASIS OF REANALYSIS	RELEVANT LEXICAL ITEMS
‘M-mobile’: rebracketing of the final /m/ of a demonstrative pronoun as the first segment of a following head noun	მჭადი <i>mč’adi</i> , მდოგვი <i>mdogvi</i>
-t(a) oblique plural suffix	ბერძენი <i>berzeni</i> , კუნძული <i>k’unzuli</i> , მიზანი <i>mizani</i>
-ni nominative plural suffix	კიდაბანი <i>k’idobani</i> , ფოთოლი <i>potoli</i> , ყურძენი <i>q’urzeni</i>
ni- nominalizing prefix	მიზანი <i>mizani</i>
me-X-e agentive circumfix	ომი <i>omi</i>
-sa dative singular suffix	მაჯა <i>maža</i>

Table 7. Forms of morphological reanalysis in loans into Kartvelian

Several of these rely on uncontroversial morphological analysis of Georgian-Zan forms: oblique plural *-t(a)*, nominative plural *-ni*, dative singular *-sa* and so forth. Less often recognized, but possibly not infrequent in the history of Georgian was **‘m-mobile’**, or the rebracketing of the final /m/-segment of an oblique case demonstrative pronoun (ამ *am* [this.OBL] or იმ *im* [that.OBL]) before a following head-noun. Like the similarly-named phenomenon of ‘s-mobile’ in Indo-European languages (Shields 1996), this phenomenon is motivated by the fact that a number of lexical items exist in Georgian exhibiting alternations in initial-/m/ segments for which no plausible systematic phonological motivation has been made, including **(m)c’q’aw-* ‘cherry laurel’, **(m)t’wer-* ‘dust’, **(m)šwil-* ‘bow’, and others. These have usually been taken as evidence that Georgian preserves an older state of the language, when in fact the evidence from lexical language contact discussed above shows this may not be the case.

3.4 Evidence for the phonetic reconstruction of source languages

The lexical loans into Kartvelian not only demonstrate such important aspects of the internal history of how the sound system and word structure of Kartvelian languages functioned in times before the first written attestations, they also provide information about the languages with which they had contact.

- Greek assibilation of **ti* > /si/ in **P^hatis* > Φᾶσις ‘Phasis’ occurred no later than about the time of Homer, so this loan into Greek must have been very early; it did not undergo the Zan **a* > /o/ shift. This provides another demonstration (if such were needed) that early Greek <φ> was an aspirated stop, since no Kartvelian languages acquired fricative /f/ until very recent times.
- The borrowing of Semitic **daṭpu* ‘honey’ as Kartvelian **tapl* - ‘honey’ provides direct evidence for the reconstruction of the Semitic lateral **l*, and this contact event must have occurred before the shift to /š/ in East Semitic, e.g. in Akkadian *dašpum* ‘sweet (of honey)’.
- At least two ancient loans, Georgian-Zan **čʼuri-* ‘drinking vessel’ and **čʼnex-* ‘press out, squeeze, exude’ from Akkadian *šurru* ‘drinking vessel’ and *šanaḫum* ‘press out, excrete’, respectively, provide additional direct evidence for the reconstruction of Akkadian <š> as a glottalized affricate.
- A range of Georgian loans from Iranian languages in or near ancient Azerbaijan suggest that initial Iranoid /p/ may have been preaspirated:
 - Georgian სპილო *spʼilo* ‘elephant’ < Middle Persian *pil* ‘elephant’
 - Georgian სპილენძი *spʼilendzi* ‘copper’ < Parthian *plinj* ‘brass’
 - Georgian სპარსი *spʼarsi* ‘Persian person’ < Middle Persian *Pārs* ‘Persia’

This might suggest that ancient Georgians were exposed not only to attested forms of neighboring languages such as Parthian or Middle Persian, but rather also nonstandard or otherwise unattested contact languages or dialects, such as the ancestor of Talysh and Tat.

§4 Conclusion

This paper has examined the history of lexical language contact between and within Kartvelian and other language families. We have seen that lexical loans into Kartvelian are much more salient from language phyla more distant from the putative Urheimat than from the ancient phyla immediately adjacent to it. We have also seen

how lexical loans provide *termini post/ante quem* for the reconstruction of the phonological and morphosyntactic history of the individual Kartvelian languages as well as the family as a whole. These lexical loans also provide new data for language change in the contact languages as well, in most cases reaffirming and enriching our prior understanding of such languages.

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