

Georgian Scripts

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Abstract

Georgian writing is presented by three historical development steps: 1. *asomtavruli* (the earliest ‘capitals’), 2. *nusxa-xucuri* (later ‘minuscule’), and 3. *mxedruli* (modern Georgian).

The standard and headline printed forms of *mxedruli* shapes are based on the Computer Modern Georgian font designed by Nana Glonty (1994). The standard *mxedruli* font is extended with several letters that were formerly used for Georgian and some other languages in the Caucasus; a modified definition (co-ordinate transformation) is used in the font for headlines and titles. Fonts for two old historical scripts and a handwriting form of *mxedruli* with numerous letter connections (no ligatures are used in printed forms) are presented here as designed by the author of this paper.

Introduction

Five alphabetic writing systems (and their adaptations) denoting consonants and vowels and written from left to right are used today for modern literary languages, in chronological order of their creation: Greek, Roman (Latin), Armenian, Georgian, and Cyrillic.

The first Georgian alphabet was invented in the 5th century, presumably influenced by the Aramaic script and the Greek alphabet. The earliest inscriptions are written (or graven in stone) in inscriptional capitals, in the ancient Georgian script known as ასომთავრული¹ *asomtavruli* ‘capital letter’, ‘majuscule’ (also called მრგვალი *mrglovani* ‘rounded’), and can be found in Palestine and Georgia. The earliest example dating from 430 AD, is in the Georgian monastery in Bethlehem. Its text is presented in Example 3a. Another sample is given in Example 3b.

Another script, known as ნუსხა-ხუცური *nusxa-xucuri* ‘priest (church) minuscule’ or ნუსხური *nusxuri* ‘minuscule’ (also called კუთხოვანი *kutxovani* ‘angular’) appeared in the ninth century.

The modern Georgian script, მხედრული *mxedruli* (from მხედარი *mxedari* ‘warrior’, i.e., secular) started its development in the eleventh century. It is used for writing the modern Georgian literary

¹ A Georgian script used implicit inside the English text is *mxedruli*. The transliteration of the Georgian words follows in *IKE* (in *italic*); see Table 1 for phonetic values to determine how to read it.

language; it has been used also for writing (and transliterating) other Georgian dialects, and other languages in the Caucasus, related and unrelated to Georgian: Mingrelian, other Kartvel languages (without a literary form), Ossetic, Abkhaz.

All three scripts continued in a parallel existence for several centuries. While *mxedruli* prevailed for secular functions and everyday handwriting, the two older scripts, *nusxa-xucuri* and *asomtavruli* (often together called ხუცური *xucuri*; from ხუცესი *xucesi* ‘priest’), continued to be used in religious writing, *nusxa-xucuri* being more convenient for manuscript texts, and *asomtavruli* for initials and titles (see Example 4 with both scripts).

More information about the languages and references to further sources can be found in the book “The World’s Writing Systems” [1]. Letter shapes and samples were taken from [2–5, 7, 8].

Alphabet

Table 1 presents the characters of the Georgian alphabet: the regular and headline forms of *mxedruli*, the two old scripts, phonetic values, two more usual transliteration systems, Greek and Armenian equivalents. None of the Georgian scripts have capitals; more accurately, there are no uppercase/lowercase pairs — *asomtavruli* (‘majuscule’) and *nusxuri* (‘minuscule’) may be assumed to be the names of two “historical” stages of evolution like Roman Square Capitals or Carolingian Minuscule, i.e., two distinct scripts.

Georgian Alphabet Table 1.

m	LETTER			IPA	LETTER NAME		TRANSLITERATION		NUMERAL	EQUIVALENT	
	h	a	n		mn	u	<i>IKE</i>	<i>LC</i>		grk	arm
ა	ⴀ	ⴁ	ⴂ	[a]	ან	AN	a	a	1	Aα	Աա
ბ	ⴃ	ⴄ	ⴅ	[b]	ბან	BAN	b	b	2	Bβ	Բբ
გ	ⴆ	ⴇ	ⴈ	[g]	გან	GAN	g	g	3	Γγ	Գգ
დ	ⴉ	ⴊ	ⴋ	[d]	დონ	DON	d	d	4	Δδ	Դդ
ე	ⴌ	ⴍ	ⴎ	[e]	ენ	EN	e	e	5	Eε	Եე
ვ	ⴏ	ⴐ	ⴑ	[v]	ვინ	VIN	v	v	6		Վվ
ზ	ⴒ	ⴓ	ⴔ	[z]	ზენ	ZEN	z	z	7	Zζ	Զզ
ც	ⴕ	ⴖ	ⴗ	[ej,e]	ცე	HE	ey,ē	ē	8	Hη	Էէ
თ	ⴘ	ⴙ	ⴚ	[t ^h]	თან	TAN, THAN	t	t ^h	9	Θθ	Թթ
ი	ⴛ	ⴜ	ⴝ	[i]	ინ	IN	i	i	10	Ιι	Իի
კ	ⴞ	ⴟ	ⴠ	[k ^h]	კან	KAN	k	k	20	Κκ	Կկ
ლ	ⴡ	ⴢ	ⴣ	[l]	ლას	LAS	l	l	30	Λλ	Լլ
მ	ⴤ	ⴥ	⴦	[m]	მან	MAN	m	m	40	Μμ	Մմ
ნ	ⴧ	⴨	⴩	[n]	ნარ	NAR	n	n	50	Νν	Նն
ო	⴪	⴫	⴬	[j]	ოე	HIE, YE	y, j	y	60		Յյ
პ	ⴭ	⴮	⴯	[o]	ონ	ON	o	o	70	Οο	Օո
ჟ	ⴰ	ⴱ	ⴲ	[p ^h]	პარ	PAR	p, p ^h	p	80	Ππ	Պպ
ჭ	ⴳ	ⴴ	ⴵ	[ʒ]	ჭან	ZHAN, JAN	ž	ž	90		Ջճ
რ	ⴶ	ⴷ	ⴸ	[r,r ^h]	რან	RAE	r	r	100	Ρρ	Րր
ს	ⴹ	ⴺ	ⴻ	[s]	სან	SAN	s	s	200	Σσς	Սս
ტ	ⴼ	ⴽ	ⴾ	[t ^h]	ტარ	TAR	t	t	300	Ττ	Տտ
კ	ⴿ	ⵀ	ⵁ	[wi]	კე	WIE	wi,ü	w	400	Υυ	Ը
უ	ⵂ	ⵃ	ⵄ	[u]	უნ	UN	u	u	(400)	ΟΥου	Ու
ფ	ⵅ	ⵆ	ⵇ	[p ^h]	ფარ	PHAR, FAR	p	p ^h	500	Φφ	Փփ
ქ	ⵈ	ⵉ	ⵊ	[k ^h]	ქან	KHAN	k	k ^h	600	Χχ	Բբ
ღ	ⵋ	ⵌ	ⵍ	[ɣ]	ღან	GHAN, RAN	ğ,ɣ	ğ	700		Ղղ
ყ	ⵍ	ⵎ	ⵏ	[q ^h]	ყარ	QAR, KAR	q,q ^h	q	800		
შ	ⵏ	ⵐ	ⵑ	[ʃ]	შინ	SHIN	š	š	900		Շշ
ჩ	ⵒ	ⵓ	ⵔ	[tʃ]	ჩინ	CHIN	č	č ^h	1000		Չչ
ც	ⵖ	ⵗ	ⵘ	[ts]	ცან	CAN, TSAN	c	c ^h	2000		Յყ
ძ	ⵙ	ⵚ	ⵛ	[dʒ]	ძილ	JIL, DZIL	j,ʒ	ž	3000		Ձა
წ	ⵜ	ⵝ	ⵞ	[ts ^h]	წილ	CIL, TSIL	ç	c	4000		Շծ
ჭ	ⵟ	ⵠ	ⵡ	[tʃ ^h]	ჭარ	CHAR	č	č ^h	5000		Ճճ
ხ	ⵣ	ⵤ	ⵥ	[x]	ხან	XAN, HAN	x	x	6000		Խխ
ჯ	ⵦ	ⵧ	⵨	[q]	ჯარ	HAR	q	q ^h	7000		
ჟ	⵩	⵪	⵫	[tʃ]	ჟან	JHAN, DJAN	ž,ž ^h	j	8000		Ջջ
პ	⵬	⵭	⵮	[h]	პან	HAE	h	h	9000		Վჟ
მ	ⵯ	⵰	⵱	[ow]	მე	HOE, OH	ow,ō	ō	10000	Ωω	

^m standard (regular) *mxedruli*, ^h headline form of *mxedruli*, ^a *asomtavruli*, ⁿ *nusxa-xucuri*;
^{mn} letter name in *mxedruli*, ^u in English (the first one is Unicode);
IKE transliteration as presented in *Annual of Ibero-Caucasian Linguistics*,
LC the Library of Congress transliteration;
^{grk} Greek equivalents, ^{arm} Armenian equivalents.

The Georgian alphabet is phonemic, i.e., it follows a one-to-one correspondence between phonemes (sounds) and characters (with only rare exceptions). The alphabetical order agrees with that of the Greek alphabet; letters that are not present in Greek are located at the end.

The alphabet originally contained 38 characters (see Table 1) but only 33 letters after 1860, when five letters (Ɑ ē [e(j)], Ɱ y [j], ჳ w [w(i)], ჲ q [q], and ღ ო [o(w)]) were dropped. The letter უ u [u] was composed as a ligature ო+ჳ o+w [o]+[w]. As can be seen in Example 4 (specified by boxes) u was represented by the digraph **ოჳ** in *asomtavruli* or the ligature **ჟ** (= **ჟ**+**ჲ**) in *nusxa-xucuri*. The symbol **ო** was introduced later also for *o*. The sound *u* was denoted formerly by **ოჳ**, then written **ოჳ**, and only later **ო** became *u* corresponding to Table 1.

Additional letters are designed for other languages than Georgian (only for printed *mxdedruli*; the Cyrillic equivalents are shown after slashes): **ფ**/ⱦ *f* [f], **ღ**/Ы *shwa* [ə], **ს**/æ *æ* [æ] for Ossetic and/or Abkhaz [5], **ჲ** '(glottal stop) [ʔ], **ც** *uo* [u] for Mingrelian (Megrelian) [6].

Alphabetic numeral notation was used formerly (similarly to other alphabets). Arabic numerals as well as Roman numerals and typical European punctuation are used today.

Two Unicode names are corrected here: ZHAN and KHAN (not ZHAR, KHAR).

Fonts

METAFONT sources for printed forms of *mxdedruli* and *asomtavruli* were designed using the “Computer Modern technology” (**cmbase.mf** and commands like **penpos**, **filldraw**, etc.) with modifications and extensions similar to those used for defining “DC/EC fonts” (parameter files as tables).

Table 2. Additional letters for <i>mxdedruli</i> (not present in original font designed by Nana Glonty, 1994)	
Ɑ Ɱ ჳ ჲ ღ	Old Georgian
ⱦ ჲ ⱡ	Ossetic, Abkhaz, Mingrelian

There is one variant for *asomtavruli* (not listed in Table 1): The letter **ჟ** *b* has a variant **ჟ**.

Nusxa-xucuri was created in a simple way and is very plain. There are tens of letter shape variants in manuscripts and I decided that the simple font design can be “topologically” similar to many of them.

Handwritten form of *mxdedruli*

The handwritten form of *mxdedruli* (see Table 3) is also drawn by a simple pen. On the other hand, it contains numerous letter connections (see Example 2). Not all letters in a word should be joined, so only parts of words are continuous. Five obsolete letters are omitted.

Table 3. Handwritten form of <i>mxdedruli</i>		
Long and short variants (may not be obvious to everyone)		
Printed Form	Handwriting Long	Short
Ɱ		
Ɱ		
Ɱ		
Ɱ		

Examples

The next few pages show several short examples of all Georgian scripts.

Example 1. Printed *mædruli*

აკაკი წინათელი
სულიკო

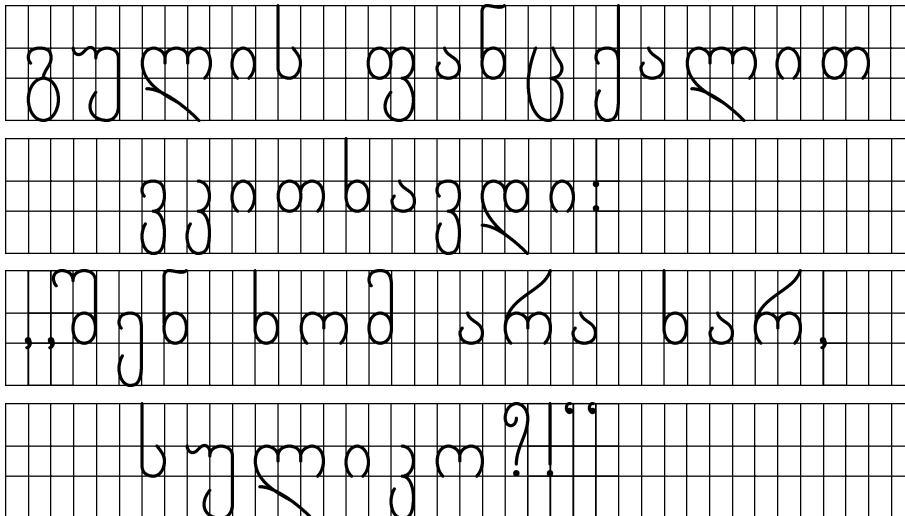
საყვარლის საფლავს ვეძებდი,
ვერ ვნახე... დაარგულიყო!...
გულამოსევნილი ვჩიოდი:
„სადა ხარ, ჩემო სულიკო!“

Headline form (the same
height and the zero depth)
and regular form of
printed *mædruli* მხედრული.

Handwritten forms taught in Georgian schools

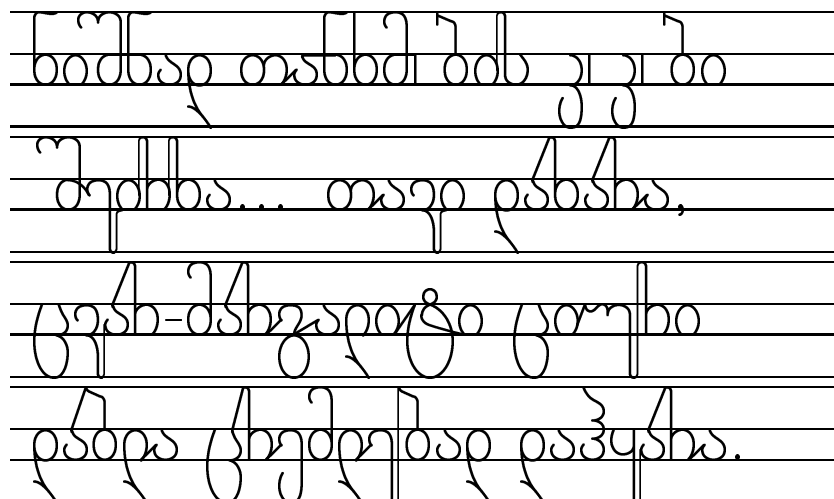
Exercise books for the beginning years of a Georgian school are preprinted with special grids, especially the books for the first year. The second year needs only four horizontal lines. These represent “visualized” imaginary upper-, middle-, lower-, and baseline. Pupils (or students) of Georgian handwriting learn to fill the characters into boxes bounded by frames or between the lines. Starting in the third year, pages with one baseline are used; letter heights and depths may be more free.

Example 2.a Hand-written *mædruli*



პირველი
კლასი

(The first
year)



მეორე
კლასი

(The second
year)

Example 2.b Hand-written *mædruli* (cont.)

სუღგანაბური ბუღბური
 თუ თრქმში მიმარორიყ; ;
 შუეუქმატკაბიდე ჩიჭუნას:
 „შენ ხემ აჩა ხანი, სურდუ ?!“
 შერთქითხიარა მუღსანმა,
 ყუაჟიდს ნისკაჩიჭი შუქხლ,
 ჩაიკუნქს-ჩაიჭიკუჭი ჟა,
 თითქუს სთქუჟა: „ღიან, ღიანლ!“

მესამე
 კლასი
 (The third
 year)
 “Free
 form”

Example 3.a *Asomtavruli* and transliteration in *mædruli* and *IKE*

ჟ u is denoted by **ⴒⴓ** *ow* (in *IKE*). The letter **ⴒ** *b* has a variant **ⴒ**.

ⴒⴓⴓⴒⴒⴒⴒⴒⴒⴒⴒⴒ ⴒⴓⴒⴒⴒⴒⴒⴒⴒⴒⴒⴒ ⴒⴒⴒⴒⴒⴒⴒⴒⴒⴒⴒ	წმიდაო თეოდორ- ე მარ უ ან და ბუ- 'რზენ..... ენ ანი	<i>čmidao teodor- e marowan da bo- wrzen..... en ani</i>
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პალესტინას უღაბნოს ქართული მონასტრის II წარწერა, V ს-ის I ნახ.
palestinas udabnos kartuli monast'ris II čarčera, V s-is I nax. [2], p. 3 (430 AD, cf. [1], p. 367).

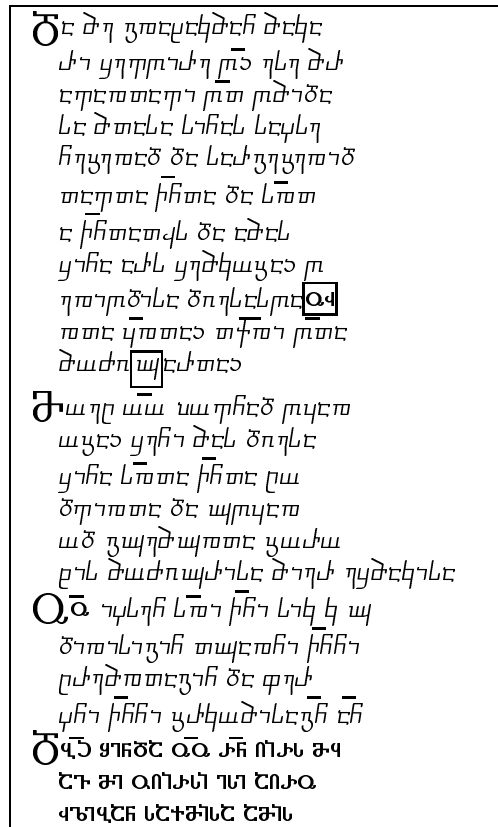
Example 3.b *Asomtavruli* (cont.)

Upper horizontal bars mark conventional abbreviations of specific words known to scholars in the manuscript or in the inscription (tilde (~) in *mædruli* and the *IKE* transliteration).

ႻႻႻႻႻႻႻႻႻႻႻႻ ႻႻႻႻႻႻႻႻႻႻႻႻ ႻႻႻႻႻႻႻႻႻႻႻႻ ႻႻႻႻႻႻႻႻႻႻႻႻ	შეწევნითა ქ~მსითა დამ ეოხებითა წმიდისა თ~ეასითა მ~ნ ანგონი აბაა და იოსია მო- მსხმელი ამის სეფისა და მა- მა დეღაა იოსიაჲსი ამენ	<i>šečevnita k~ėsitā dam eoxebita čmidisa t~eysita š~n anṭoni abay da iosia mo- msxmeli amis sephisay da ma- ma deday iosiaysi amen</i>
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პალესტინას უღაბნოს ქართული მონასტრის I წარწერა, 532–552 წწ.
palestinas udabnos kartuli monast'ris I čarčera, 532–552 čč. [2], p. 11.

Example 4. *Nusxa-xucuri*



სინური მრავალთავი, 864 წ., ანდერძი, 274გ, *sinuri mravaltavi*, 864 წ., *anderji*, 274გ, [2], p. 83.

The text in *nusxa-xucuri* has initials and appendix in *asomtavruli*. The digraph **Q4** or the ligature **აჟ** denotes the sound [u] (ჟ *u*). Upper horizontal bars mark conventional abbreviations of specific words.

Conclusion

An extension of the modern Georgian font and other Georgian fonts (including the old scripts) were created in the first release.

Acknowledgements

I would like to thank Nana Glonty for her excellent font design of the modern Georgian script and all authors of free fonts (listed in the references) for possibility to print the Greek and Armenian equivalents, IPA values and other texts.

References

- [1] The World's Writing Systems. Edited by P.T. Daniels and W. Bright. Oxford University Press, New York – Oxford, 1996.
- [2] ი. აბულაძე. ქართული წერის ნიმუშები. მეცნიერება, თბილისი, 1973. [I. Abuladze. Samples of Georgian Script. Mecniereba, Tbilisi, 1973.]
- [3] Г.И.Цибыхашвили. Самоучитель грузинского языка (элементарный курс). Изд. 4-е, Тбилиси 1981.
- [4] Ю.Н. Марр и И.В. Мегрелидзе. Пособие для авторов и наборщиков восточных шрифтов. Мецниереба, Тбилиси, 1984.
- [5] Р.С. Гиляревский, В.С. Гривнин, ‘Определитель языков мира по письменностям’, Издательство восточной литературы, Москва, 1960.
- [6] A. Kharchilava, personal message.
- [7] International Organization for Standardization. Information technology – Universal Multiple-Octet Coded Character Set (UCS) – Part 1: Architecture and Basic Multilingual Plane. ISO/IEC 10646-1 : 1993, (First edition, 1993-05-01), Geneva, 1993. (Unicode version 1.0)
- [8] <http://charts.unicode.org/charts.html> Unicode 2.1 Character Charts, 1998.
- [9] /CTAN/fonts/greek/cb/ Greek font – C. Beccari, 1997.
- [10] /CTAN/fonts/armenian/ Armenian font – S. Dachian, V. Hakobian, 1997.
- [11] /CTAN/language/cyrillic/ WN Cyrillic font – B. Beeton, T. Ridgeway, 1987–1995.
- [12] /CTAN/fonts/tipa/ phonetic font – F. Rei, 1996.