

Extract from L2/98-190

Information and documentation — Glagolitic alphabet coded character set for bibliographic information interchange

1 Scope

This International Standard establishes a coded character set for the Glagolitic alphabet for use in bibliographic information interchange.

The character set is intended for use with the Old Slavonic language.

This International Standard contains code tables, and a combined legend for the Glagolitic alphabet showing each graphic character with its Cyrillic alphabet equivalent, its position in the code table, its name, and comments on its use.

NOTE — For the benefit of the users of this International Standard the order of the Glagolitic character set has been arranged to match the corresponding Basic Cyrillic character set for bibliographic use registered as number 37 in the ISO International Register¹⁾ and those of ISO 5427 registered as number 54 in the ISO International Register²⁾. Furthermore, guidance on the use of some characters is given in annex A as additional information.

2 Normative reference

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO/IEC 2022:1994, *Information technology — Character code structure and extension techniques*.

*International register of character sets to be identified by means of escape sequences.*³⁾

1) *Escape sequences:*

G0: ESC 2/8 4/14
G1: ESC 2/9 4/14
G2: ESC 2/10 4/14
G3: ESC 2/11 4/14

2) *Escape sequences:*

G0: ESC 2/5 5/1
G1: ESC 2/8 5/1
G2: ESC 2/10 5/1
G3: ESC 2/11 5/1

³⁾ Available on application to the Secretariat of the Registration Authority: ECMA, 114 rue du Rhône, CH-1204 Genève, Switzerland.

3 Implementation

3.1 The implementation of this coded character set in physical media and for transmission, taking into account the need for error checking, is the subject of other International Standards (see annex B).

3.2 The implementation of this International Standard is in accordance with the provisions of ISO/IEC 2022⁴⁾ and is identified by the escape sequence. (To be assigned.)

3.3 The unassigned positions in the code tables are not to be utilized in the international interchange of bibliographic information.

4 Code tables of Glagolitic coded characters

The Glagolitic character set is given in tables 1 and 2. This character set consists of a G0 and a G1 set in accordance with ISO/IEC 2022.

NOTE — Columns 3, 6 and 7 contain upper case equivalents of the corresponding characters in columns 2, 4 and 5.

⁴⁾ G0: ESC 2/8 F; G1: ESC 2/9 F; G2: ESC 2/10 F; G3: ESC 2/11 F ("F" represents the final character of the escape sequence).

Table 1 — Basic set G0

					b ₇	0	0	0	0	1	1	1	1
					b ₆	0	0	1	1	0	0	1	1
					b ₅	0	1	0	1	0	1	0	1
						0	1	2	3	4	5	6	7
b ₄	b ₃	b ₂	b ₁										
0	0	0	0	0	▒	▒	▒			ᄀ	ᄁ	ᄂ	ᄃ
0	0	0	1	1	▒	▒				ᄄ		ᄅ	
0	0	1	0	2	▒	▒				ᄆ	ᄇ	ᄈ	ᄉ
0	0	1	1	3	▒	▒				ᄊ	ᄋ	ᄌ	ᄍ
0	1	0	0	4	▒	▒				ᄎ	ᄏ	ᄐ	ᄑ
0	1	0	1	5	▒	▒				ᄒ	ᄓ	ᄔ	ᄕ
0	1	1	0	6	▒	▒				ᄖ	ᄗ	ᄘ	ᄙ
0	1	1	1	7	▒	▒				ᄚ	ᄛ	ᄜ	ᄝ
1	0	0	0	8	▒	▒				ᄞ	ᄟ	ᄠ	ᄡ
1	0	0	1	9	▒	▒				ᄣ		ᄤ	
1	0	1	0	10	▒	▒					ᄦ		ᄧ
1	0	1	1	11	▒	▒				ᄨ	ᄩ	ᄪ	ᄫ
1	1	0	0	12	▒	▒				ᄬ		ᄭ	
1	1	0	1	13	▒	▒				ᄮ		ᄯ	
1	1	1	0	14	▒	▒				ᄱ	ᄲ	ᄳ	ᄴ
1	1	1	1	15	▒	▒				ᄶ	ᄷ	ᄸ	▒

Table 2 — Extension of basic set G1

					b ₇	0	0	0	0	1	1	1	1
					b ₆	0	0	1	1	0	0	1	1
					b ₅	0	1	0	1	0	1	0	1
						0	1	2	3	4	5	6	7
b ₄	b ₃	b ₂	b ₁										
0	0	0	0	0							ᐃ		ᐃ
0	0	0	1	1			ᐃ	ᐃ			ᐃ		ᐃ
0	0	1	0	2			ᐃ	ᐃ			ᐃ		ᐃ
0	0	1	1	3			ᐃ	ᐃ			ᐃ		ᐃ
0	1	0	0	4			ᐃ	ᐃ			ᐃ		ᐃ
0	1	0	1	5			ᐃ	ᐃ	ᐃ	ᐃ	ᐃ	ᐃ	ᐃ
0	1	1	0	6			ᐃ	ᐃ	ᐃ		ᐃ		ᐃ
0	1	1	1	7							ᐃ		ᐃ
1	0	0	0	8									
1	0	0	1	9							ᐃ		ᐃ
1	0	1	0	10							ᐃ		ᐃ
1	0	1	1	11					ᐃ		ᐃ		
1	1	0	0	12									
1	1	0	1	13									
1	1	1	0	14									
1	1	1	1	15								ᐃ	

5 Legend

A legend for tables 1 and 2 is given in table 3.

Table 3 — Legend

G0 sets	Columns 2, 3 and 4			Old Slavonic name	Modern Russian name	Comments
	Graphics					
	Glagolitic (Glagolica)	<i>n</i> ¹⁾	Modern Cyrillic ²⁾ (Graždanka)			
2/1 to 2/15						(Unassigned)
3/0 to 3/15						(Unassigned)
4/0	Ѡ	8 000	Ю	ju	ju	
4/1	Ѣ	1	а	az	a	
4/2	Ѥ	2	б	buki	be	
4/3	Ѧ	900	ц	cy	ce	
4/4	Ѧ	5	д	dobro	de	
4/5	з	6	е	esi'	e	
4/6	Ѣ	(500)	Ѣ	fert	f	See also G1 set 2/2
4/7	Ѧ	4	г	glagol'	ge	
4/8	Ѧ	6 000 (later 600)	х	hër	ha	See also G1 set 2/2
4/9	Ѧ	10	и	ize	i dvojnoe i vos' meričnoe	See also G1 set 2/5
4/10			й		i s kratkoj (i kratkoe)	
4/11	Ѧ	40	к	kako	ka	
4/12	Ѧ	50	л	ljudi	el'	
4/13	Ѧ	60	м	myslite	em	
4/14	Ѧ	70	н	naš	en	
4/15	Ѧ	80	о	on	o	

1) *n* = numerical value

2) For reference only. Taken from the *International Register of coded character sets for use with escape sequences*, registered No. 37.

Table 3 (continued)

G0 sets	Column 5					
	Graphics		Modern Cyrillic ²⁾ (Graždanka)	Old Slavonic name	Modern Russian name	Comments
	Glagolitic (Glagolica)	n ¹⁾				
5/0	Ɀ	90	П	pokoj	p	
5/1			Я		ja	
5/2	Ѣ	100	р	r'ci	èr	
5/3	Ѥ	200	с	slovo	ès	
5/4	Ѧ	300	т	tverdo	te	
5/5	Ѩ	(400)	у	uk	u	See also G1 set 5/13
5/6	Ѭ	7	ж	živéte	že	
5/7	Ѯ	3	в	vedi	ve	
5/8	Ѳ	3 000	ь	er'	er' (mjagkij znak)	Soft sign. See also G1 set 2/4
5/9			Ы	ery	ery	
5/10	Ѵ	9	з	zemlja	ze	
5/11	Ѷ	2 000	ш	ša	ša	
5/12			э		é oborotnoe	
5/13			щ		šča	
5/14	Ѹ	1 000	ч	červ'	če	
5/15	Ѻ	4 000	ѣ	er	er (tverdyj znak)	Hard sign (lower case)

1) n = numerical value

2) For reference only. Taken from the *International Register of coded character sets for use with escape sequences*, registered No. 37.

Table 3 (continued)

G0 sets	Column 6		Old Slavonic name	Modern Russian name	Comments
	Graphics				
	Glagolitic (Glagolica)	Modern Cyrillic ²⁾ (Graždanka)			
		<i>n</i> ¹⁾			
6/0	Ɀ		Ю		Capital equivalents to column 4 of G0 set
6/1	Ȿ		А		
6/2	ⱽ		Б		
6/3	ⱼ		Ц		
6/4	ⱼ̇		Д		
6/5	ⱼ̇̇		Е		
6/6	ⱼ̇̇̇		Ф		
6/7	ⱼ̇̇̇̇		Г		
6/8	ⱼ̇̇̇̇̇		Х		
6/9	ⱼ̇̇̇̇̇̇		И		
6/10	ⱼ̇̇̇̇̇̇̇		И		
6/11	ⱼ̇̇̇̇̇̇̇̇		К		
6/12	ⱼ̇̇̇̇̇̇̇̇̇		Л		
6/13	ⱼ̇̇̇̇̇̇̇̇̇̇		М		
6/14	ⱼ̇̇̇̇̇̇̇̇̇̇̇		Н		
6/15	ⱼ̇̇̇̇̇̇̇̇̇̇̇̇		О		

1) *n* = numerical value (See G0 set, column 4, for details.)
 2) For reference only. Taken from the *International Register of coded character sets for use with escape sequences*, registered No. 37.

Table 3 (continued)

G0 sets	Column 7		Old Slavonic name	Modern Russian name	Comments
	Graphics				
	Glagolitic (Glagolica)	Modern Cyrillic ²⁾ (Graždanka)			
		<i>n</i> ¹⁾			
7/0	Р		П		Capital equivalents to column 5 of G0 set
7/1			Я		
7/2	Б		Р		
7/3	В		С		
7/4	Г		Т		
7/5	Д		У		
7/6	Е		Ж		
7/7	З		В		
7/8	И		Ь		
7/9			Ы		
7/10	К		З		
7/11	Л		Ш		
7/12			Э		
7/13			Щ		
7/14	Ф		Ч		

1) *n* = numerical value (See G0 set, column 5, for details.)2) For reference only. Taken from the *International Register of coded character sets for use with escape sequences*, registered No. 37.

Table 3 (continued)

G1 sets	Columns 2 and 3		Old Slavonic name	Modern Russian name	Comments
	Graphics				
	Glagolitic (Glagolica)	Modern Cyrillic (Graždanka)			
		n ¹⁾			
2/1	Ɑ	7 000			
2/2	Ɱ	(500)	jo		Variant of G0 set 4/6
2/3	Ɐ	4 000	fert		Variant of G0 set 5/15
2/4	Ɒ	3 000	er		Variant of G0 set 5/8
2/5	ⱱ	10	er'		Variant of G0 set 4/9
2/6	Ⱳ	600	ize		Equivalent of G0 set 4/8; very rare
2/7 to 2/15			her		(Unassigned)
3/1	ⱳ	7 000			} Capital equivalents to 2/1 to 2/6 above
3/2	ⱴ	(500)			
3/3	Ⱶ	4 000			
3/4	ⱶ	3 000			
3/5	ⱷ	10			
3/6	ⱸ	600			
3/7 to 3/15					(Unassigned)

1) n = numerical value

Table 3 (continued)

G1 sets	Column 4		Old Slavonic name	Modern Russian name	Comments	
	Graphics					
	Glagolitic (Glagolica)	Modern Cyrillic ²⁾ (Graždanka)				
4/0		n ¹⁾	Г		Ukrainian hard g ⁺ ; obsolete	
4/1		1	ђ		Serbo-Croatian đe	
4/2		2	ѓ		Macedonian g'e	
4/3			є		Ukrainian soft e	
4/4			ë		ë	
4/5	Ѣ	8	С	zělo	zelo	See also G1 set 2/7
4/6	Ѣ	20	і	і	і s točkoj (i desjate-ročnoe)	
4/7			ї		і s dvumja krapkami	
4/8			ј			Serbo-Croatian je
4/9			ѣ			In M.C.: Serbo-Croatian elj; in O.C.: a rare variant of G0 set 3/1 and 4/12
4/10			ѣ			In M.C.: Serbo-Croatian enj; in O.C.: a rare variant of G0 set 3/1 and 4/14
4/11	Ѣ		ћ	g'erv'		In M.C.: Serbo-Croatian će
4/12			ќ			Macedonian k'e
4/13			ў			Belorussian u karotkae
4/14			ѣ			Serbo-Croatian and Romanian dže
4/15						(Unassigned)

1) n = numerical value

2) For reference only. Taken from the *International Register of coded character sets for use with escape sequences*, registered No. 54.

Key:

+ = obsolete

M.C. = Modern Cyrillic

O.C. = Old Cyrillic

Table 3 (continued)

G1 sets	Column 5			Old Slavonic name	Modern Russian name	Comments
	Graphics		Modern Cyrillic ²⁾ (Graždanka)			
	Position in table 2	Glagolitic (Glagolica)				
5/0	Ѧ	5 000	Ѧ	jat'	jat'	
5/1	Ѧ	500	Ѧ	fita	fita	
5/2	Ѧ	400	Ѧ	ižica	ižica	
5/3	Ѧ		Ѧ	as	jus bol'soj	Bulgarian goljam jus
5/4	Ѧ	700		omega	omega	
5/5	Ѧ	800		šta	šta	
5/6						(Unassigned)
5/7	Ѧ	9 000		es	jus malyj	Bulgarian malak jus.
5/8						(Unassigned)
5/9	Ѧ			jes	jotirovannyj jus malyj	
5/10	Ѧ			jas	jotirovannyj jus bol'soj	
5/11 to 5/15						(Unassigned)

1) n = numerical value
 2) For reference only. Taken from the *International Register of coded character sets for use with escape sequences*, registered No. 54.

Table 3 (continued)

G1 sets	Column 6		Old Slavonic name	Modern Russian name	Comments
	Graphics				
Position in table 2	Glagolitic (Glagolica)	Modern Cyrillic ²⁾ (Graždanka)			
6/0			Г		Capital equivalents to column 4 of G1 set
6/1			Ґ		
6/2			Ґ́		
6/3			Є		
6/4			Є̇		
6/5	Ѣ		С		
6/6	Ѣ		І		
6/7			ї		
6/8			Ј		
6/9			Љ		
6/10			Њ		
6/11	Ѧ		Ѧ		
6/12			Ќ		
6/13			Ћ		
6/14			Ѡ		
6/15	Ѡ		Ѣ		Capital equivalent of G0 set 5/15

1) *n* = numerical value (See G1 set, column 4, for details.)
 2) For reference only. Taken from the *International Register of coded character sets for use with escape sequences*, registered No. 54.

Table 3 (concluded)

G1 sets	Column 7		Old Slavonic name	Modern Russian name	Comments
	Graphics				
	Glagolitic (Glagolica)	Modern Cyrillic ²⁾ (Graždanka)			
		<i>n</i> ¹⁾			
7/0	Ɑ		Ѡ		Capital equivalents of column 5 of G1 set (Unassigned)
7/1	Ɱ		Ѳ		
7/2	Ⱳ		Ѵ		
7/3	ⱳ		Ѷ		
7/4	ⱴ				
7/5	Ⱶ				
7/6					
7/7	ⱶ				
7/8					
7/9	ⱷ				
7/10	ⱸ				
7/11 to 7/14					(Unassigned)

1) *n* = numerical value (See G1 set, column 5, for details.)
 2) For reference only. Taken from the *International Register of coded character sets for use with escape sequences*, registered No. 54.

6 Explanatory notes

6.1 Contents of the G0 and G1 sets

The G0 set contains Glagolitic equivalents of 53 of the "Russian" letters (27 lower case and 26 upper case) given in GOST 13052-74;

The G1 set contains Glagolitic equivalents of 37 of the letters (18 lower case and 19 upper case) given in ISO 5427;

Thus the whole set is a compilation of 90 Glagolitic letters in which equivalent Cyrillic letters are coded in exactly the same way.

6.2 Coding of lower and upper case forms

The coding of lower case and upper case letters is in conformity with GOST 13052-74 and ISO 5427, and is at variance with ISO/IEC 646 and other International Standards for coded character sets.

6.3 Rendering of characters

The rendering of graphic characters is intended solely to identify letters of the Glagolitic alphabet uniquely. The graphics used do not necessarily represent the most desirable calligraphic forms.

Annex A (informative)

The Glagolitic and Cyrillic alphabets

A.1 Origin

In the ninth and tenth centuries two alphabets were invented for the Old Slavonic language: the Glagolitic alphabet and the Cyrillic alphabet. Although different in character design, both alphabets are built up in almost exactly the same way.

Both alphabets are based on the Greek alphabet to which some letters were added to represent Slavic sounds. The origin of these letters is far from clear.

A.2 Glagolitic alphabet

The Glagolitic alphabet was developed from a Greek lower-case script. To the 24 Greek letters many other letters were added, some of them based on Greek ligatures, others from a foreign and still mysterious provenance. Originally there were probably 36 letters and two digraphs⁵⁾, but more letters were added.

The alphabet occurs in two shapes: an older, round shape, occasionally referred to as "Bulgarian-Macedonian" but mostly "Bulgarian", and a younger, angular shape, called "Croatian". The latter shape was influenced by the Gothic Latin letters (block letter). Graphic variants of some Croatian letters are lacking in the Bulgarian letters.

Unlike Bulgarian Glagolitic, capital letters are used in Croatian Glagolitic although the difference between upper case and lower case is limited to size.

Many ligatures are used, especially in "Croatian" manuscripts⁶⁾. The 36 original letters have a numerical value, but the value of the thousands is uncertain. As numerals, the letters are written under a horizontal stroke (i.e. ISO 5427:4/5) or under a tilde (i.e. ISO 5427:4/4 or 5/14 + 5/15), or between periods (i.e. ISO/IEC 646:2/14).

Very little use has been made of the Glagolitic alphabet, although religious books in the Old Slavonic language were printed in Croatian Glagolitic even at the beginning of the twentieth century.

A.3 Cyrillic alphabet

The Cyrillic alphabet (in Russian "kirillica") was developed from ninth-century Greek uncial. To the 24 Greek letters many others were added, most of them derived from Glagolitic letters corresponding to the same phoneme. Originally there were probably 40 letters and two digraphs⁷⁾. In Old Slavonic writings some diacritics were used: a palatalizing sign⁸⁾ and accents derived from Greek. The latter present stylistic differences⁹⁾ and their value is not always clear. It should be noted, however, that the macron sign may take the shape of a classical "breve" (see GO set 2/5).

5) Namely ѿѿ (i.e. Old Cyrillic ѿѿ; see extension 5/13 and 7/13) and ѿѿѿ (i.e. Old Cyrillic ѿѿѿ; see extension 5/14 and 7/14).

6) For example: ѿ = ѿѿ + ѿѿѿ (i.e. 5/4 + 5/7);

7) Namely ѿѿ (later ѿѿ; see extension 5/13 and basic set 5/5) and ѿѿѿ (later ѿѿѿ; see extension 5/14 and basic set 5/9).

8) Namely ˇ on г, к, л, н and ѿ, or rather slightly to the right: г̣, к̣, л̣, н̣, ѿ̣. This sign is sometimes attached to л and н: л̣̣, н̣̣ (see 3/1, extension 4/9 and extension 4/10).

9) See Old Cyrillic and Romanian Cyrillic.

When the former Cyrillic alphabet of Old Slavonic (synonyms are "Old Bulgaro-Macedonian" and "Old Bulgarian") evolved and ramified into the present-day Slavonic languages, the Old Cyrillic alphabet evolved with it. For the Russian, Ukrainian, Belorussian (or Byelorussian or White Russian), Bulgarian, Serbo-Croatian and Macedonian languages a few peculiar letters were created, and, gradually in the eighteenth and nineteenth centuries, all the alphabet took a "Romanized" shape, forming the Modern Cyrillic alphabet (in Russian: "Graždanka" = civil script). But the Old Cyrillic remained in usage for many years and is still used in liturgical books or in decorative forms (see the use of Gothic characters in Latin script).

As for the other present-day Slavonic languages: Polish (the Kashubian idiom included), Czech, Slovak, Slovenian and Sorabian (Lusatian or Wendic), they are written in Latin script, as was the now extinct Polabian language. It should be noted, however, that there are many Belorussian and a few Ukrainian texts in Latin script, and that both Latin and Modern Cyrillic alphabets are officially used in writing Serbo-Croatian. (Arabic script was also used in writing Serbo-Croatian from the sixteenth to the nineteenth century.)

A very remarkable adaptation of the Old Cyrillic alphabet was made in the thirteenth century for a non-Slavonic language: the Romanian language. It was used in Romania until 1860, when it was replaced by the Latin alphabet.

The Modern Cyrillic alphabet was adapted to other non-Slavonic languages in the former Russian Empire and especially, later, in the Soviet Union.

Some letters were abolished in this century in the Soviet Union and Bulgaria, when simplifying the spelling of the Russian, Ukrainian and Bulgarian languages and for a few years the "hard sign" (= tverdyj znak) was replaced by a kind of heavy apostrophe in Russian texts.

The punctuation signs are the same as the Latin ones, with the exception of the Russian "tire", which can have a peculiar syntactic value.

In Old Slavonic, 27 of the original letters have a numerical value different from the corresponding Glagolitic letters, as the former are closer to their Greek model. There are also signs multiplying such letters used numerically by 1 000, 10 000, 100 000 and 1 000 000 (see G0 sets 2/10, 2/11, 2/12 and 3/3).