

Slavonic Computing Initiative Shafarik Font Documentation

Compiled by Nikita Simmons and Aleksandr Andreev. Beta Version 1.0, February 27, 2020.

The Shafarik¹ font, named after Pavel Jozef Šafárik (1795–1861), Slovak-born scholar and one of the founders of modern Slavic philology, is a specialized Unicode font intended for an academic presentation of **Old Church Slavonic (OCS)** texts written in both the Cyrillic or Glagolitic alphabets.² Since OCS texts have several differences in presentation from the methodology used for later **Church Slavonic (CS)** texts, the user should become familiar with these particular details of font usage.

One of the convenient flexible features of the Shafarik font is the ability to graphically represent variant letter forms without changing the base values of individual letters. This allows for more accurately reproducing OCS texts where there is a diversity of textual forms, without sacrificing the ability to alphabetically sort the text or search for a word using base letter values. This is accomplished by typesetting a letter (or number) or even a whole word or paragraph, and then applying a **Stylistic Set** (ss01, ss02, etc.) or a **Stylistic Alternate** (salt). (In LibreOffice, in the small window at the top which displays the active font “Shafarik”, one can apply the Stylistic Sets or Stylistic Alternate by adding a suffix, so that the font name is changed to “*Shafarik:ss01*”, “*Shafarik:ss02*” or “*Shafarik:salt*”, etc.)

Since the Cyrillic and Glagolitic alphabet scripts each have their own specific characteristics, this documentation will be divided into two parts.

PART 1: CYRILLIC

1. Numbers

One of the most notable differences between OCS and CS typography is the formation or composition of numerals, which are derived from the forms of Byzantine Greek numerals. The numerals are divided into lower and higher numerals, with the “teens” being an exceptional category. (Please note that the formation of numbers in the Glagolitic script is more complex and variable than the Cyrillic numbers, and there is not a consistent correspondence of letter values used in the two systems. Glagolitic numbers are treated as a separate system.)

1.i. The Lower Numerals (1-999, except the “Teens”)

Lower numerals in OCS Cyrillic texts can be typeset in two different ways, using either the **Titlo** or **Vzmet** symbol.³ It is strongly advised that the user should closely examine the original manuscript or text source to determine which symbol is authentically used. While the use of one symbol over another

1) The stress is placed on the first syllable, Shafarik. See: *Словарь собственных имён русского языка*. Ed. by F. Algeenko. Moscow, 2010.

2) The initial design of this font was based on several freeware fonts available on the Internet, but all original designs have undergone significant development during the course of our work with a wide variety of period manuscripts and incunabula.

3) Unicode considers U+0483 Combining Cyrillic Titlo and U+A66F Combining Cyrillic Vzmet to be functionally equivalent, differing only in their visual appearance: [ѿ versus ѿ] (see Section 7.4 of the Unicode standard: “In Old Church Slavonic manuscripts, ... pokrytie, titlo, and its archaic typographical alternate vzmet are all used more or less interchangeably”). Note that while the Titlo (ѿ) is used in both OCS and CS typography, the Vzmet (ѿ) should only be used with OCS texts.

may not be semantically different, we should always strive to avoid introducing an anachronistic feature into a period text.

In the majority of OCS period manuscripts, the Titlo or Vzmet symbol is stretched all the way across three or four letters in the formation of larger numbers. *(This feature will be presented below.)*

a) Using the Combining Cyrillic Title: U+0483 ъ. OCS numerals can be formed with the Title symbol in the same manner as they are typeset in later CS texts.

b) Using the Combining Cyrillic Vzmet: U+A66F Ҁ. In general, OCS numbers are more commonly formed by using the Vzmet symbol.

OCS numerals between 1 and 9,999 are often bounded or enclosed by the Middle Dot (U+00B7 Middle Dot ·). The use of the Middle Dot as a number marker is not attested with numbers above 9,999.

The following lower case letters are used as numerals when they are presented together with the Vmet, and are enclosed by the Middle Dot. Note the historical variant forms for some letters.

1	· $\overline{\text{A}}$ ·	10	· $\overline{\text{I}}$ · · $\overline{\text{J}}$ ·	100	· $\overline{\text{P}}$ ·
2	· $\overline{\text{B}}$ ·	20	· $\overline{\text{K}}$ ·	200	· $\overline{\text{C}}$ ·
3	· $\overline{\text{F}}$ ·	30	· $\overline{\text{L}}$ ·	300	· $\overline{\text{T}}$ ·
4	· $\overline{\text{A}}$ ·	40	· $\overline{\text{M}}$ ·	400	· $\overline{\text{V}}$ · · $\overline{\text{V}}$ ·
5 ⁴	· $\overline{\text{E}}$ ·	50	· $\overline{\text{N}}$ ·	500	· $\overline{\text{F}}$ ·
6	· $\overline{\text{S}}$ · · $\overline{\text{Z}}$ ·	60	· $\overline{\text{Z}}$ ·	600	· $\overline{\text{X}}$ ·
7	· $\overline{\text{Z}}$ · · $\overline{\text{Z}}$ ·	70	· $\overline{\text{O}}$ ·	700	· $\overline{\text{T}}$ ·
8	· $\overline{\text{H}}$ ·	80	· $\overline{\text{P}}$ ·	800	· $\overline{\text{W}}$ · · $\overline{\text{W}}$ ·
9	· $\overline{\text{O}}$ ·	90	· $\overline{\text{Y}}$ · · $\overline{\text{Q}}$ · · $\overline{\text{C}}$ ·	900 ⁵	· $\overline{\text{U}}$ · · $\overline{\text{A}}$ · · $\overline{\text{A}}$ · · $\overline{\text{A}}$ ·

In the cases where the Titlo or Vzmet in numerals needs to balance across multiple characters, the font offers some solutions.

4) OCS uses U+0435 Cyrillic Small Letter Ie “**ѐ**” for the numbers 5, 15, etc., rather than the wide “**ѐ**” (U+0454 Cyrillic Small Letter Ukrainian Ie) which is used in modern CS texts.

5) The alternate letter used for the numeral 900 represents the influence of the Glagolitic script. “**▲**” is a Stylistic Alternate (*salt*) of the letter “**Ѧ**” (U+A659 Cyrillic Small Letter Closed Little Yus).

a) Titlo or Vzmet over Two Characters. For 2-letter numeric formations, a double version of the Titlo or Vzmet may be used. Though Unicode does not encode a double titlo or a double vzmet, we have encoded these glyphs as follows: for a double titlo, use U+0360 Combining Double Tilde; for a double vzmet, use U+0361 Combining Double Inverted Breve. Note that the combining character is placed between the two letters.

Titlo:	2-letter	• $\overline{\overline{\text{TM}}}$ •	Vzmet:	2-letter	• $\overline{\overline{\text{TM}}}$ •
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b) For Titlo over Multiple Characters. Combining characters spanning three and four letters are not encoded in Unicode. However, Unicode encodes portions (components) that can be placed over each individual character. To form a “multiple” titlo, U+FE2E Combining Cyrillic Titlo Left Half $\overline{\text{͜}}$ is placed over the first letter, U+FE26 Combining Conjoining Macron $\overline{\text{͝}}$ is placed over any middle characters, and U+FE2F Combining Cyrillic Titlo Right Half $\overline{\text{͞}}$ is placed over the last character:

$$\text{а} + \overline{\text{͜}} \text{ (titlo left half)} + \text{в} + \overline{\text{͝}} \text{ (conjoining macron)} + \text{г} + \overline{\text{͞}} \text{ (titlo right half)} \rightarrow \overline{\text{авг}}$$

This method can often produce poor results, especially if the characters under the titlo have different heights or widths. **Note:** There is also at present no method to display a vzmet (rather than a tilto) over multiple characters. **Note Further:** The implementation of Titlo Halves in LibreOffice seems to be buggy.

c) “Fall-back” Solutions. It is possible to use the standard default Titlo or Vzmet symbol, placed over only *one* of the letters (as in later CS usage), or over *each* of the letters (although this solution tends to look “amateurish”). For example:

$$\text{•}\overline{\overline{\text{а}}} \text{•} \quad \text{•}\overline{\overline{\text{а}}} \text{•} \text{•}\overline{\overline{\text{в}}} \text{•} \quad \text{•}\overline{\overline{\text{а}}} \text{•} \overline{\overline{\text{͝}}} \text{•} \quad \text{•}\overline{\overline{\text{а}}} \text{•} \overline{\overline{\text{͞}}} \text{•}$$

1.ii. The “Teens” (11-19)

The numerals 11-19 in OCS texts are typeset in the same manner as in modern CS, with the numeral 10 following the lower numbers.

Note that where CS fonts place a Titlo over the first of the two letters, OCS stretches the Vzmet so that it balances evenly over both letters, using a system of contextual substitution lookups that are built into the font so that the user doesn’t need to be concerned with their implementation ($\text{а} + \overline{\text{͝}} + \text{и} \rightarrow \overline{\text{аи}}$). (The Cyrillic “teens” are the only set of double letters in the Shafarik font which are provided with precomposed forms which include the Vzmet.)

11	• $\overline{\overline{\text{аи}}}$ •	14	• $\overline{\overline{\text{аи}}}$ •	17	• $\overline{\overline{\text{ѳи}}}$ • • $\overline{\overline{\text{ѳи}}}$ •
12	• $\overline{\overline{\text{вѣ}}}$ •	15	• $\overline{\overline{\text{ѣи}}}$ •	18	• $\overline{\overline{\text{ѣи}}}$ •

13 ·ṫ·	16 ·ṣ̣· ·ṣ̣̣·	19 ·ṭ̣·
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NB: in the rare instance if the user does not want the vzmet to automatically stretch over the characters (ṫ), the character U+200C Zero Width Non Joiner may be inserted between the characters to prevent ligation.

1.iii. The Higher Numerals (1,000 and above)

Most of the higher numbers have variant historical forms, since there was a lack of consensus and uniformity in the presentation of these infrequently-used (and often theoretical) numerals. These alternative forms are provided via Stylistic Sets (*ss01* and *ss02*). **[NOTE:** The use of the Stylistic Sets is the preferred method of text display, as these pre-composed forms have been designed to be absolutely precise in the combination of the two elements and to be more visually compact. The “ss” forms have less ascent and descent, making them more “printer friendly” and less prone to overlap with preceding and proceeding lines of text. For example: 𐍺𐍽; (with “ss”) versus 𐍺𐍽; (composed normally).]

The higher numbers are as follows:

A) The Thousands Sign (Ϡ/͵) can be rendered in two different ways: as a separate character (as it is always done in CS texts: ϠA), or attached (ligated) to the following letter (i.e., numeral) which it “modifies”. The attached form is provided via Stylistic Set 1 (͵A), while an alternate attached form is provided via Stylistic Set 2 (ͶA). *(See the table below.)*

As discussed *above*, most period manuscripts stretch the Titlo or Vzmet all the way across three or four characters in the formation of larger numerals, but there is no official rule in this matter.

The Middle Dot can be used with the numerals 1,000-9,999, but the original source should always be one's guide for usage. When an authentic model is lacking, we offer the following generic guideline: It makes more sense to use the Middle Dot only at the end of the character sequence (for example: **•ᄀᄁᄂᄃ**), since it it appears to be visually redundant as an initial numeral marker (**•ᄀᄁᄂᄃ•**); the Thousands Sign and the Titlo or Vzmet already indicate that this is a numeral.

<u>Thousands Sign: U+0482 Cyrillic Thousands Sign</u>											⸀
ss01: (just apply the ss01 to get ligated forms)											⸁
ss02: (alternate ligated forms)											⸂
Value:	1,000	2,000	3,000	4,000	5,000	6,000	alt.	7,000	alt.	8,000	9,000
<u>a) With the Titlo:</u>											
default:	⸀̑	⸁̑	⸂̑	⸃̑	⸄̑	⸅̑	⸆̑	⸇̑	⸈̑	⸉̑	⸊̑
ss01:	⸀̑̐	⸁̑̐	⸂̑̐	⸃̑̐	⸄̑̐	⸅̑̐	⸆̑̐	⸇̑̐	⸈̑̐	⸉̑̐	⸊̑̐
ss02:	⸀̑̒	⸁̑̒	⸂̑̒	⸃̑̒	⸄̑̒	⸅̑̒	⸆̑̒	⸇̑̒	⸈̑̒	⸉̑̒	⸊̑̒
<u>b) With the Vzmet:</u>											
default:	⸀̑̕	⸁̑̕	⸂̑̕	⸃̑̕	⸄̑̕	⸅̑̕	⸆̑̕	⸇̑̕	⸈̑̕	⸉̑̕	⸊̑̕

SSO1:											
SSO2:											

B) The Ten Thousands Sign (тма̀, тьма̀), as well as all of the following symbols, are entered following the character that they modify, since they combine with (or attach to) the preceding character.

Stylistic Set 1 offers a slightly more compact or “tighter” version; these optimized forms are of benefit to publishers who find that the added enclosing symbols may ascend and descend too far beyond the default “line leading” of the paragraph.

<u>Ten Thousands Sign: U+20DD Combining Enclosing Circle</u>											○
SSO1:											○
default:											
SSO1:											

C) The Hundred Thousands Sign (лѣгѣѡнѣ or нескѣѣдѣ) functions analogously to the previous character.

<u>Hundred Thousands Sign: U+0488 Combining Cyrillic Hundred Thousands Sign</u>											⦿
SSO1:											⦿
default:											
SSO1:											

D) The Millions Sign (лѣѡѡѡѣ) is similar to the others, but has an additional alternate form, accessed using Stylistic Set 2.

<u>Millions Sign: U+0489 Combining Cyrillic Millions Sign</u>											⦿
SSO1:											⦿
SSO2:											⦿
default:											

SSO1:										
SSO2:										

E) The Ten Millions Sign (врънѣ or вѣронѣ) likewise has two alternate forms (Stylistic Sets 1 and 2).

<u>Ten Millions Sign: U+A670 Combining Cyrillic Ten Millions Sign</u>										
SSO1:										
SSO2:										
default:										
SSO1:										
SSO2:										

F) The Hundred Millions Sign (колѡда) also has two alternate forms (Stylistic Sets 1 and 2).

<u>Hundred Millions Sign: U+A671 Combining Cyrillic Hundred Millions Sign</u>										
SSO1:										
SSO2:										
default:										
SSO1:										
SSO2:										

G) The Thousand Millions Sign (ѣмѣ́ тѣмѣ́, ѣмѣ́ тѣмѣ́) also has two alternate forms (Stylistic Sets 1 and 2). While these numbers can be found in a few grammar books, there is disagreement regarding their usage. (It appears that the only original textual evidence of its use is in a list of numbers, where one thousand million is oddly presented as ѣмѣ́.)

<u>Thousand Millions Sign: U+A672 Combining Cyrillic Thousand Millions Sign</u>											
SSO1:											
SSO2:											

default: $\overset{+}{\text{A}}^-$ $\overset{+}{\text{B}}^-$ $\overset{+}{\text{Г}}^-$ $\overset{+}{\text{A}}^-$ $\overset{+}{\text{E}}^-$ $\overset{+}{\text{S}}^-$ $\overset{+}{\text{Z}}^-$ $\overset{+}{\text{Z}}^-$ $\overset{+}{\text{H}}^-$ $\overset{+}{\text{O}}^-$

SSO1: $\overset{+}{\text{A}}^{\equiv}$ $\overset{+}{\text{B}}^{\equiv}$ $\overset{+}{\text{Г}}^{\equiv}$ $\overset{+}{\text{A}}^{\equiv}$ $\overset{+}{\text{E}}^{\equiv}$ $\overset{+}{\text{S}}^{\equiv}$ $\overset{+}{\text{Z}}^{\equiv}$ $\overset{+}{\text{Z}}^{\equiv}$ $\overset{+}{\text{H}}^{\equiv}$ $\overset{+}{\text{O}}^{\equiv}$

SSO2: $\overset{+}{\text{A}}^{\equiv}$ $\overset{+}{\text{B}}^{\equiv}$ $\overset{+}{\text{Г}}^{\equiv}$ $\overset{+}{\text{A}}^{\equiv}$ $\overset{+}{\text{E}}^{\equiv}$ $\overset{+}{\text{S}}^{\equiv}$ $\overset{+}{\text{Z}}^{\equiv}$ $\overset{+}{\text{Z}}^{\equiv}$ $\overset{+}{\text{H}}^{\equiv}$ $\overset{+}{\text{O}}^{\equiv}$

6) When typesetting texts in LibreOffice, it seems that adding the Zero Width Joiner from the character picker does not work (a bug in LibreOffice!). One can enter the character by codepoint by typing Ctrl+Shift+U, then 200D, Enter, or from the Russian Extended Keyboard layout by typing Alt+Shift 1. See the keyboard documentation for more information.

3. Additional OCS Symbols

In addition to the standard punctuation symbols used in later periods of Church Slavonic, OCS also makes use of several additional symbols, some of which are stylistic variants (which may have been encoded in Unicode or may be accessible in the font as stylistic alternates), and some of which are ornamental punctuation forms. In many instances, these symbols are used merely as text or page decoration, but they may also be used in place of standard punctuation. These symbols are used in both Cyrillic and Glagolitic scripts.

		Punctuation Symbols	
U+00B7	.	Middle Dot	The Elevated Period or Middle Dot (·), which is derived from Greek use, signifies a type of pause or stop or line separation in stichometry. It is also used as a numeral marker (see above). It is not recommended to use the U+2027 Hyphenation Point · or U+2219 Bullet Operator ·, as these have different properties and functions in Unicode.
U+2022	•	Bullet	Manuscripts often make use of a heavier version of the elevated period (the Bullet •) when a full stop or period is intended.
U+2E34	,	Raised Comma	
U+2E49	;	Double Stacked Comma	This can be combined with the Raised Comma: „
U+205A	:	Two Dot Punctuation	
U+205D	:	Tricolon	
U+205E	:	Vertical Four Dots	
U+2056	:	Three Dot Punctuation	
U+10FB	:	Georgian Paragraph Separator	Used in Cyrillic and Glagolitic, not just Georgian.
U+2E2A	..	Two Dots Over One Dot Punctuation	
U+2E2B	..	One Dot Over Two Dots Punctuation	
U+2058	..	Four Dot Punctuation	
U+205B	..	Four Dot Mark	
U+2E2C	::	Squared Four Dot Punctuation	
U+2059	::	Five Dot Punctuation	
U+2E2D	..	Five Dot Mark	
		Introductory Symbols	

U+00A7	§	Section Sign	
U+00B6	¶	Pilcrow Sign	
U+F0135	⌘	Decorative Section Sign	Only available in the PUA
U+F0136	⌚	Decorative Section Sign	Only available in the PUA
U+261E	☞	White Right Pointing Finger	
		Ending Symbols	
U+007E	~	Tilde	The Ending Symbols are typically paired with a Colon or Three Dot Punctuation for a decorative effect: :~ ::~
U+2053	~	Swung Dash	:~ ::~
U+223B	≈	Homothetic	:≈ ::≈
U+223C	∼	Tilde Operator	:∼ ::∼
U+223D	↯	Reversed Tilde	:↯ ::↯
U+2241	≉	Not Tilde	:≉ ::≉
U+2E43	↵	Dash With Left Upturn	May be used alone or as :↵ ::↵
	↵	Decorative End Mark (<i>salt</i>)	Available as <i>salt</i> of U+2E43 or via PUA at U+F0111 May be used alone or as :↵ ::↵
		Crosses	
U+203B	※	Reference Mark	
U+205C	⦿	Dotted Cross	
U+2626	✝	Orthodox Cross	
U+271A	✚	Heavy Greek Cross	
U+2720	✠	Maltese Cross	
U+F0134	✳	Decorative Cross	Only available in the PUA
U+EDFF	✴	Decorative Cross	Only available in the PUA
		Other Symbols	
U+2E46	⌘	Inverted Low Kavyka With Kavyka Above	
U+2E48	◦	Low Kavyka With Dot	

PART 2: GLAGOLITIC

1. Introduction

There are several resources available on the Internet to help the font user become familiarized with the Glagolitic script. While it is not the purpose of this documentation to list these resources, we recommend the following documents, which provide a good start:

Glagolitic Script: https://en.wikipedia.org/wiki/Glagolitic_script

Glagolitic (Unicode Block): [https://en.wikipedia.org/wiki/Glagolitic_\(Unicode_block\)](https://en.wikipedia.org/wiki/Glagolitic_(Unicode_block))

List of Glagolitic Manuscripts: https://en.wikipedia.org/wiki/List_of_Glagolitic_manuscripts

Relationship of Cyrillic and Glagolitic Scripts:

https://en.wikipedia.org/wiki/Relationship_of_Cyrillic_and_Glagolitic_scripts

See also:

Omniglot: Glagolitic alphabet and pronunciation: <https://www.omniglot.com/writing/glagolitic.htm>

Test for Unicode support in Web browsers: <http://www.alanwood.net/unicode/glagolitic.html>

<http://www.croatianhistory.net/etf/et03.html>

<https://sites.google.com/site/seesscm/glagolitic-script>

Глаголица - Многоочитая азбука - <http://www.rbardalzo.narod.ru/4/glag.html>

<https://www.garshin.ru/linguistics/scripts/alphabet/vocalic/hellenic-abc/cyrillic/glagolic.html>

2. Glagolitic Script Styles

a) The standard Glagolitic character set is the **Round Glagolitic** script (*Okrugla glagoljica*), which is an idealized reproduction of a style of handwriting used in Glagolitic manuscripts from the late 10th to early 12th centuries, mostly from Bulgaria. This is encoded at U+2C00 through U+2C5F.

b) A style used in Croatian manuscripts starting in the 13th century and known as the **Angular (or Square) Glagolitic** script (*Uglata glagoljica*) has been encoded in the Private Use Area at U+F0200 through U+F025F. These glyphs may be accessed by turning on the font feature *Stylistic Set 3 (ss03)*.

c) The version of the Angular Glagolitic Script used in printed editions in Koinje and Venice in the 15th and 16th centuries is known as “**Angular Glagolitic Missal Script**” or “**Missal Angular Glagolitic Script**”. These glyphs have been encoded in the Private Use Area at U+F0270 through U+F02CF, and may be accessed by turning on the font feature *Stylistic Set 4 (ss04)*.

For a comparison of the Round, Angular and Missal Angular scripts, see Table A below.

d) In addition, there is a “Triangular Script” (*Trokutasta glagoljica*) used for stone inscriptions and other decorative uses, based on a geometric combination of lines going through a circle to form triangular shaped letters. (For a methodical presentation, see:

<https://repozitorij.ffos.hr/islandora/object/ffos%3A2944/datastream/PDF/view>). This form of Glagolitic is not supported in the Shafarik font.

e) In later periods of the use of Glagolitic, two types of miniscule evolved (*Knjiška kurzivna glagoljica*, *Kancelarijska kurzivna glagoljica*), both of which include the use of ligatures. See <https://glagoljica.stin.hr/> for a presentation of the lettering styles of Glagolitic: *Okrugla glagoljica*,

Uglata glagoljica, Trokutasta glagoljica, Knjiška kurzivna glagoljica, and Kancelarijska kurzivna glagoljica. See also:

www.zigh.at/fileadmin/user_upload/media/Platforma_za_mlade/FBA-novo_2_.pdf

f) A true Cursive lettering style likewise evolved, but documentation is difficult to find. (For an example, see: <http://www.croatianhistory.net/gif/razvod.jpg>). Skoropis and cursive forms are likewise not provided in the Shafarik font.

3. Standard set of characters





Glagolitic Range: 2C00–2C5F (Capital Letters and Small Letters, Round Glagolitic Script)



<u>Glagolitic Capital Letters</u>			<u>Glagolitic Small Letters</u>		
U+2C00	AZU	ⱦ	U+2C30	AZU	ⱦ
U+2C01	BUKY	Ⱨ	U+2C31	BUKY	Ⱨ
U+2C02	VEDE	ⱨ	U+2C32	VEDE	ⱨ
U+2C03	GLAGOLI	Ⱪ	U+2C33	GLAGOLI	Ⱪ
U+2C04	DOBRO	ⱪ	U+2C34	DOBRO	ⱪ
U+2C05	YESTU	Ⱬ	U+2C35	YESTU	Ⱬ
U+2C06	ZHIVETE	ⱬ	U+2C36	ZHIVETE	ⱬ
U+2C07	DZELO	Ɑ	U+2C37	DZELO	Ɑ
U+2C08	ZEMLJA	Ɱ	U+2C38	ZEMLJA	Ɱ
U+2C09	IZHE	Ɐ	U+2C39	IZHE	Ɐ
U+2C0A	INITIAL IZHE	Ɒ	U+2C3A	INITIAL IZHE	Ɒ
U+2C0B	I	ⱱ	U+2C3B	I	ⱱ
U+2C0C	DJERVI	Ⱳ	U+2C3C	DJERVI	Ⱳ
U+2C0D	KAKO	ⱳ	U+2C3D	KAKO	ⱳ
U+2C0E	LJUDIJE	ⱴ	U+2C3E	LJUDIJE	ⱴ
U+2C0F	MYSLITE	Ⱶ	U+2C3F	MYSLITE	Ⱶ
U+2C10	NASHI	ⱶ	U+2C40	NASHI	ⱶ
U+2C11	ONU	ⱷ	U+2C41	ONU	ⱷ
U+2C12	POKOJI	ⱸ	U+2C42	POKOJI	ⱸ
U+2C13	RITSI	ⱹ	U+2C43	RITSI	ⱹ
U+2C14	SLOVO	ⱺ	U+2C44	SLOVO	ⱺ
U+2C15	TVRIDO	ⱻ			
U+2C16	UKU	ⱼ			


U+2C17	FRITU	𐌱	U+2C45	TVRIDO	𐌴
U+2C18	HERU	𐌲	U+2C46	UKU	𐌵
U+2C19	OTU	𐌳	U+2C47	FRITU	𐌱
U+2C1A	PE	𐌴	U+2C48	HERU	𐌲
U+2C1B	SHTA	𐌵	U+2C49	OTU	𐌳
U+2C1C	TSI	𐌶	U+2C4A	PE	𐌴
U+2C1D	CHRIVI	𐌷	U+2C4B	SHTA	𐌵
U+2C1E	SHA	𐌸	U+2C4C	TSI	𐌶
U+2C1F	YERU	𐌹	U+2C4D	CHRIVI	𐌷
U+2C20	YERI	𐌺	U+2C4E	SHA	𐌸
U+2C21	YATI	𐌻	U+2C4F	YERU	𐌹
U+2C22	SPIDERY HA	𐌼	U+2C50	YERI	𐌺
U+2C23	YU	𐌽	U+2C51	YATI	𐌻
U+2C24	SMALL YUS	𐌾	U+2C52	SPIDERY HA	𐌼
U+2C25	SMALL YUS WITH TAIL	𐌿	U+2C53	YU	𐌽
U+2C26	YO	𐍀	U+2C54	SMALL YUS	𐌾
U+2C27	IOTATED SMALL YUS	𐍁	U+2C55	SMALL YUS WITH TAIL	𐌿
U+2C28	BIG YUS	𐍂	U+2C56	YO	𐍀
U+2C29	IOTATED BIG YUS	𐍃	U+2C57	IOTATED SMALL YUS	𐍁
U+2C2A	FITA	𐍄	U+2C58	BIG YUS	𐍂
U+2C2B	IZHITSA	𐍅	U+2C59	IOTATED BIG YUS	𐍃
U+2C2C	SHTAPIC	𐍆	U+2C5A	FITA	𐍄
U+2C2D	TROKUTASTI A	𐍇	U+2C5B	IZHITSA	𐍅
U+2C2E	LATINATE MYSLITE	𐍈	U+2C5C	SHTAPIC	𐍆
U+2C2F	CAUDATE CHRIVI	𐍉	U+2C5D	TROKUTASTI A	𐍇
			U+2C5E	LATINATE MYSLITE	𐍈
			U+2C5F	CAUDATE CHRIVI	𐍉






4. Remarks on Problematic Characters in the Unicode Glagolitic Block


1) The letter “Fert” in the later *Angular* Glagolitic is patterned directly after the Cyrillic form and has a vertical middle line [Cyrillic: **Ф ф** , Glagolitic: **𐌱 𐌲**]; this is the form accessible via *ss03* and *ss04*. On the other hand, the older *Round* Glagolitic script (the default character set in the Shafarik font)

usually did not exhibit a significant difference between the shape of the letter “Fert” and “Fita”; in general usage, the shape of “Fert” was a more squared-off version of “Fita”, and the center line was horizontal for BOTH letters (Fert: , Fita: ); this is the form provided by default. However, some Glagolitic documents (such as the Assemani Gospel) used the Greek-derived sign *Phi* () instead of the ‘’ form; this form is available via the Stylistic Alternates (*salt*) feature or from the PUA at U+EC66/U+EC77.

2) The *Shtapic* () is an alternate form of the “yers” (the semi-vowels or “poluglasny”), and can signify either a hard or soft sign. It can be transliterated into OCS Cyrillic as U+A64E Cyrillic Capital Letter Neutral Yer, U+A64F Cyrillic Small Letter Neutral Yer (), or into modern Cyrillic or Latin text as U+02B9 Modifier Letter Prime, U+02BA Modifier Letter Double Prime to indicate an indefinite mutation of the preceding consonant⁷. It is essentially a Glagolitic *Yerok/Payerok*.

3) The *Trokutasti A* () is an unfortunate addition of an alternate letter form (a Stylistic Alternative) which is found in the *Trokutasti* (Triangular) style of lettering.

4) The *Latinate Myslite* () is another unfortunate addition of an alternate letter form. Observing that the regular character form of the *Myslite* (Round: , Angular: , Alt-1: , Alt-2: ) is overly complex, it seems likely that scribes grew weary of trying to execute it with feather pens, choosing instead to substitute the simpler form of the “M” from the Cyrillic or Latin alphabet. Though it is merely a Stylistic Alternative of the base character, it has been encoded in Unicode as a standalone character.







5) The *Caudate Chriveri* (“Tailed Cherv”, ) has been recently accepted for inclusion in Unicode. (See L2/19-288R). When used with U+0303 Combining Tilde, it indicates an abbreviation for “et cetera”.⁸ It appears in a few manuscripts and early printed books.

Three other characters are likewise controversial or worthy of comment, and the student of Glagolitic can benefit from reading the following documents:

6) [Unicode 2CIA – Glagolitic “Pe”: Fact or Fiction?](#) by Sebastian Kempgen

7) [Why OT? Why nOT? A Note on the Development of a Cyrillic Letter](#) by Sebastian Kempgen. (See also Section 6 below: Glagolitic Superscript Characters.)

8) [The Glagolitic ‘spidery kh’ <Ѣ>, its origin and relatives](#) by Sebastian Kempgen

9) In the vowel system of Old Church Slavonic, the “yers” (,  and , ) recorded ultra-short reduced vowels *[ǔ] and *[ǐ]. The degree of their reduction depended on their position within a word. Around the 11th century, in many Slavic dialects yers in the “weak position” were lost, which resulted in the orthographic confusion of  and  in manuscripts or the omission of “weak yers” entirely. At the

7) The characters U+0027 Apostrophe, U+0022 Quotation Mark should not be used to transliterate the Soft Sign and Hard Sign (“yers”), because these characters are treated as a word boundary, rather than as a part of a word. See Sections 6.2, subsection “Apostrophes”, and 7.4, subsection “Cyrillic” – “Palatalization”, of the Unicode Standard for more information.

8) While the characters U+0483 Combining Cyrillic Titlo and U+A66F Combining Cyrillic Vzmet are technically not intended to be used for Glagolitic, since their script property is set to *Cyrillic*, there is currently no other available choice.

same time, perhaps due to the loss of the “weak yers”, the yers in the strong position became fully vocalized, resulting in the confusion of **ѣ**, **ѧ** and **Ѧ**, **ѧ** in manuscripts. Since the orthographic usage of a scribe tends to reflect local dialectic peculiarities, information on the usage of yers is helpful in localizing and dating manuscripts and / or texts. Editors should strive to faithfully reproduce the usage of the yers in editions. The characters U+A64E, U+A64F Cyrillic Letter Neutral Yer **ѣ** was encoded in Unicode to transcribe yers in instances where it is impossible to tell the difference between **ѣ** and **ѧ**, but this is mostly an issue in later Russian documents. (See also the *Shtapic* above). The following resources will provide a sufficient introduction to the Old Slavic yers:

Yer: <https://en.wikipedia.org/wiki/Yer>

Proto-Slavic: <https://en.wikipedia.org/wiki/Proto-Slavic>

History of Proto-Slavic: https://en.wikipedia.org/wiki/History_of_Protoslavic

Havlík's law: https://en.wikipedia.org/wiki/Havl%C3%ADk%27s_law

History of the Russian language: https://en.wikipedia.org/wiki/History_of_the_Russian_language

History of the Slavic languages: https://www.wikiwand.com/en/History_of_the_Slavic_languages

5. Glagolitic Casing

Glagolitic used in manuscripts was generally not a bicameral script; in other words, it did not have a modern upper case. The upper case forms included within the font are intended to be used for decorative drop-caps and for titling.

Glagolitic scripts, unlike modern Cyrillic scripts, do not traditionally align the bottom of their upper and lower case characters on top of the “base line”, but instead they hang from a shared “top line”. However, since this font is intended for academic use and must have a harmonious pairing of both Cyrillic and Glagolitic scripts, we have unfortunately had to compromise on this principle.

6. Glagolitic Superscript Characters

Combining Glagolitic letters have been encoded in Unicode in the Glagolitic Supplement Range: U+1E000–U+1E02F. These are used in the default Round Script, but seem not to be used much in the Angular Script tradition. Even within the Round Script tradition, it seems that superscript characters were used far less frequently than with Cyrillic texts.

Here, each of the combining superscript letters are placed above their corresponding base character:

[illegible][illegible]

Note that five of the characters above are [bracketed] because they are not attested; these have not been encoded in Unicode and should not be used. They have been encoded in the font for the sake of completeness. They may not be correctly supported by software since they are not valid codepoints.

One particular pairing that is frequently seen is the preposition and prefix “ot” (which can be formed with either the “omicron” or “omega” forms of the letter “o”). Unlike the Cyrillic Unicode block, which includes the definitive digraph ѿѿ, the same combination in Glagolitic scripts must be composed of the “o” plus a “superscript t”, since a separate character for “ot” has not been encoded. The following table demonstrates the variant valid representations of this pairing. Note that the “superscript t” is the only superscript character which has an alternate Angular form:

Round Script (default):	ѿ	ѿ	or with omega:	ѿ	ѿ	[ѿ]
Angular Script (sso3):	ѿ	ѿ	or with omega:	ѿ	ѿ	[ѿ]
Angular Missal Script (sso4):	ѿ	ѿ	or with omega:	ѿ	ѿ	[ѿ]

The precomposed forms of the Ot have been encoded in the Private Use Area at the codepoints U+ECE0 to U+ECE9 for use in settings where OpenType is unavailable or unsupported.

For more information, see the Proposal to Encode Combining Glagolitic Letters in Unicode: <http://std.dkuug.dk/JTC1/SC2/WG2/docs/n4608.pdf>. The combining Glagolitic characters are listed:

Combining Glagolitic Characters					
U+1E000	AZU	◌ ⁺	U+1E014	SLOVO	◌ ^o
U+1E001	BUKY	◌ ^u	U+1E015	TVRIDO	◌ ^{uo}
U+1E002	VEDE	◌ ^u	U+1E016	UKU	◌ ^{uu}
U+1E003	GLAGOLI	◌ ^o	U+1E017	FRITU	◌ ^{uo}
U+1E004	DOBRO	◌ ^{uo}	U+1E018	HERU	◌ ^{uo}
U+1E005	YESTU	◌ ^u	U+1E01B	SHTA	◌ ^u
U+1E006	ZHIVETE	◌ ^{uo}	U+1E01C	TSI	◌ ^{uo}
U+1E008	ZEMPLJA	◌ ^{uo}	U+1E01D	CHRIVI	◌ ^{uo}
U+1E009	IZHE	◌ ^u	U+1E01E	SHA	◌ ^u
U+1E00A	INITIAL IZHE	◌ ^u	U+1E01F	YERU	◌ ^{uo}
U+1E00B	I	◌ ^o	U+1E020	YERI	◌ ^{uo}
U+1E00C	DJERVI	◌ ^{uo}	U+1E021	YATI	◌ ^{uo}
U+1E00D	KAKO	◌ ^u	U+1E023	YU	◌ ^{uo}
U+1E00E	LJUDIJE	◌ ^{uo}	U+1E024	SMALL YUS	◌ ^{uo}
U+1E00F	MYSLITE	◌ ^{uo}	U+1E026	YO	◌ ^{uo}
U+1E010	NASHI	◌ ^u	U+1E027	IOTATED SMALL YUS	◌ ^{uo}
U+1E011	ONU	◌ ^u	U+1E028	BIG YUS	◌ ^{uo}
U+1E012	POKOJI	◌ ^{uo}	U+1E029	IOTATED BIG YUS	◌ ^{uo}
U+1E013	RITSI	◌ ^{uo}	U+1E02A	FITA	◌ ^{uo}

7. Glagolitic Numerals and Word Abbreviations (Letters with Titla)

a. Numerals

Glagolitic numerals are formed in several variant ways, without any “standard” or “official” method of presentation. Users should represent numerals as they are given in the original texts. In the absence of an original text, we recommend following the formation of Cyrillic numerals. See the section on the presentation of Cyrillic numerals, above, for examples.

9) Note that the upper case form of the Angular Missal Script has an anomalous Round Script form.

Note: It seems that Glagolitic texts should use U+0303 Combining Tilde to encode the overline character above numerals. This is provided in the font as a wavy line; if a “titlo” or “vzmet” form is desired, the characters U+0483 Combining Cyrillic Titlo and U+A66F Combining Cyrillic Vzmet can be used, even though their script property is set to *Cyrillic*, rather than *Glagolitic* or *Inherited*. A separate Glagolitic Titlo or Vzmet has not been encoded in Unicode. For example:

		<i>normal</i>	<i>ss03</i>	<i>ss04</i>
U+0303	Combining Tilde	ƴ	Ṳ	Ṵ
U+0483	Combining Cyrillic Titlo	҃	҃	҃
U+A66F	Combining Cyrillic Vzmet	҃	҃	҃

Note: The usage of Cyrillic Titlo or Vzmet with Glagolitic characters is not supported in LibreOffice.

b. Word Abbreviations

A number of precomposed letters with U+0303 Combining Tilde are encoded in the PUA in the block U+ECA0 through U+ECFF. These precomposed forms have been included because they require a wider or narrower version of the tilde symbol than the default width. All of these are Angular Glagolitic forms, and are formed automatically when Stylistic Set 3 (or Stylistic Set 4) is turned on. They may be accessed from the PUA if OpenType features are unsupported.

Description	Form	PUA Codepoint
Glagolitic Vede (U+2C32)	Ѡ	U+ECA3
Glagolitic Glagoli (U+2C33)	ѡ	U+ECA4
Glagolitic Dobro (U+2C34)	Ѣ	U+ECA5
Glagolitic Zhivete (U+2C36)	Ѥ	U+ECA6
Glaolitic Zemlja (U+2C38)	Ѧ	U+ECA7
Glagolitic Izhe (U+2C39)	ѧ	U+ECA8
Glagolitic Initial Izhe (U+2C3A)	Ѩ	U+ECA9
Glagolitic Djervi (U+2C3C)	Ѭ	U+ECAA
Alternate form of U+2C3C (<i>salt</i>)	ѭ	U+ECAB
Glagolitic Ljudije (U+2C3E)	Ѯ	U+ECAC
Glagolitic Myslite (U+2C3F)	ѯ	U+ECAD
Glagolitic Tvrido (U+2C45)	ѵ	U+ECAE

Description	Form	PUA Codepoint
Glagolitic Heru (U+2C48) (ss04)	ᚿ	U+ECAF
Glagolitic Otu (U+2C49) (ss04)	ᚾ	U+ECBo
Glagolitic Yu (U+2C53)	ᚾ̇	U+ECB1
Glagolitic Shtapic (U+2C5C)	ᚿ̇	U+ECB2

A number of pre-composed ligatures with the tilde are also offered. These are formed automatically when Stylistic Set 5 is turned on:

Description	Form	PUA Codepoint
Buki Ritsi	ᚿ̇	U+ECCo
Vedi Tvrido	ᚾᚾ	U+ECC1
Vedi Tvrido Ritsi	ᚾᚾ̇	U+ECC2
Mysliti Ljudije	ᚾᚿ	U+ECC3
Mysliti Zhivete	ᚾᚿ̇	U+ECC4
Mysliti Izhe Ljudije	ᚾᚿ̇	U+ECC5
Mysliti Slovo	ᚾᚿ̇	U+ECC6
Mysliti Chrivi	ᚾᚿ̇	U+ECC7
Tvrido Vedi	ᚾᚾ	U+ECC8
Tvrido Vedi Ritsi	ᚾᚾ̇	U+ECC9
Glagoli Ritsi	ᚿ̇	U+ECCA

c) Additional Variant Shapes of Overlines for Word Abbreviations

The font includes several variant forms of U+0483 Combining Titlo, U+A66F Combining Vzmet, U+0487 Combining Pokrytie and U+0303 Combining Tilde, which may be used for Cyrillic or Glagolitic, to represent various supralineation characters that occur in manuscripts. These are invoked by turning on the relevant Stylistic Alternative (*salt*). To access the *salt* forms in LibreOffice, change the font name to “Shafarik:salt=x”, where ‘x’ is the number. The first *salt* form may be accessed without a numerical value, as both “Shafarik:salt” and “Shafarik:salt=1”. The PUA codepoint is also given for reference.

Unicode	<i>Stylistic Alternate</i>		<i>PUA codepoint</i>	<i>Shape</i>	<i>Cyrillic example</i>	<i>Glagolitic example</i>
U+0303		Combining Tilde		̃	ѣ̃	ꙗ̃
	salt=1	Alternate Combining Tilde (flipped variant)	U+ECA1	̃	ѣ̃	ꙗ̃
	salt=2	Alternate Combining Tilde (narrow flipped variant)	U+ECA0	̃	ѣ̃	ꙗ̃
	salt=3	Alternate Combining Tilde (wide flipped variant)	U+ECA2	̃	ѣ̃	ꙗ̃
	salt=4	Alternate Combining Tilde (narrow variant)	U+E010	̃	ѣ̃	ꙗ̃
	salt=5	Alternate Combining Tilde (wide variant)	U+E011	̃	ѣ̃	ꙗ̃
	salt=6	Combining Galgolic Tilde (plain variant)	U+E012	̃	ѣ̃	ꙗ̃
	salt=7	Combining Galgolic Tilde (ornamental variant)	U+E013	̃	ѣ̃	ꙗ̃
	salt=8	Combining Galgolic Tilde (another ornamental variant)	U+E014	̃	ѣ̃	ꙗ̃
U+0304		Combining Macron		̄	ѣ̄	ꙗ̄
U+0305		Combining Overline		̄	ѣ̄	ꙗ̄
U+0360		Combining Double Titlo		̈́	ѣ̈́	ꙗ̈́
	salt=1	Alternate Combining Double Tilde	U+E015	̈́	ѣ̈́	ꙗ̈́
U+0361		Combining Double Inverted Breve		̈́	ѣ̈́	ꙗ̈́
U+0483		Combining Cyrillic Titlo		̈́	ѣ̈́	ꙗ̈́
	salt=1	Alternate Combining Cyrillic Titlo (wide variant 1)	U+E016	̈́	ѣ̈́	ꙗ̈́
	salt=2	Alternate Combining Cyrillic Titlo (wide variant 2)	U+E017	̈́	ѣ̈́	ꙗ̈́
	salt=3	Alternate Combining Cyrillic Titlo (wide variant 2 reversed)	U+E018	̈́	ѣ̈́	ꙗ̈́

8. Alternate Forms of Characters

In the PUA, block U+EC60 through U+EC9F is dedicated to Stylistic Alternatives (*salt*) for Round and Angular Glagolitic. These include significant character shape variants that are found in both manuscripts and printed editions. The PUA codepoints are also indicated for reference.

<i>Codepoint:</i>	<i>Main Form</i>	<i>Variant Form (Description)</i>	<i>PUA Codepoint</i>
ROUND SCRIPT			
U+2C03	Ꝥ	ꝥ (Alt Round Capital Glagoli)	U+EC60
U+2C33	Ꝥ	ꝥ (Alt Round Small Glagoli)	U+EC61
U+2C04	Ꝧ	ꝧ (Alt Round Capital Dobro)	U+EC62
U+2C34	Ꝧ	ꝧ (Alt Round Small Dobro)	U+EC63
U+2C0F	Ꝩ	ꝩ (Alt Round Capital Myslete)	U+EC64
U+2C3F	Ꝩ	ꝩ (Alt Round Small Myslete)	U+EC65
U+2C17	Ꝫ	ꝫ (Alt Round Capital Friti)	U+EC66
U+2C47	Ꝫ	ꝫ (Alt Round Small Friti)	U+EC67
U+2C19	Ꝭ	ꝭ (Alt Round Capital Otu)	U+EC68
U+2C49	Ꝭ	ꝭ (Alt Round Small Otu)	U+EC69
U+2C20	Ꝯ	ꝯ (Alt Round Capital Soft Sign)	U+EC6A
U+2C50	Ꝯ	ꝯ (Alt Round Small Soft Sign)	U+EC6B
U+2C22	ꝰ	ꝱ (Alt Round Capital Spidery Ha)	U+EC6C
U+2C52	ꝰ	ꝱ (Alt Round Small Spidery Ha)	U+EC6D
U+2C24	ꝲ	ꝳ (Alt Round Capital Small Yus)	U+EC6E
U+2C54	ꝲ	ꝳ (Alt Round Small Small Yus)	U+EC6F
ANGULAR SCRIPT			<i>SS03, SS04</i>
U+2C30	ꝴ	salt=7: ꝴ Alt Angular Small Azu (tall variant) <i>[salt=7 is used here because salt=2...6 are used for the Baromić ligatures; see Table B.]</i>	U+EC76
U+2C02	ꝶ	ꝷ Alt Angular Capital Vedi (connected variant)	U+EC77
U+2C05	ꝸ	Ꝺ Alt Angular Capital Yest (uncrossed variant)	U+EC78

U+2C35	Ე	Ე Alt Angular Small Yest (uncrossed variant)	U+EC79
U+2Co8	Ა	Ა Alt Angular Capital Dzelo	U+EC7A
U+2C38	Ბ	Ა Alt Angular Small Dzelo	U+EC7B
U+2CoC	Გ	Გ Alt Angular Capital Gerv	U+EC7C
U+2C3C	Დ	Გ Alt Angular Small Gerv	U+EC7D
U+2CoF	Ე	Salt=2 Ე Alt-1 Angular Capital Myslete	U+EC7E
U+2CoF	Ე	Salt=3 Ე Alt-2 Angular Capital Myslete	U+EC7F
U+2C11	Ვ	Ვ Alt Angular Capital Onu	U+EC80
U+2C16	Ზ	Ზ Alt Angular Capital Ouk	U+EC81
U+2C46	Თ	Თ Alt Angular Small Ouk	U+EC82
U+2C1D	Ი	Ი Alt Angular Large Chrivi	U+EC8E
U+2C4D	Კ	Ი Alt Angular Small Chrivi	U+EC8F
U+2C1F	Ლ	Salt=1 Ლ Alt-1 Angular Capital Hard Sign	U+EC83
U+2C1F	Ლ	Salt=2 Ლ Alt-2 Angular Capital Hard Sign	U+EC85
U+2C1F	Ლ	Salt=3 Ლ Alt-3 Angular Capital Hard Sign	U+EC87
U+2C4F	Მ	Salt=1 Მ Alt-1 Angular Small Hard Sign	U+EC84
U+2C4F	Მ	Salt=2 Მ Alt-2 Angular Small Hard Sign	U+EC86
U+2C4F	Მ	Salt=3 Მ Alt-3 Angular Small Hard Sign	U+EC88
U+2C20	Ნ	Salt=2 Ნ Alt Angular Large Soft Sign	U+EC90
U+2C50	Ო	Salt=2 Ო Alt Angular Small Soft Sign	U+EC91
U+2C22	Პ	Salt=2 Პ Alt Angular Capital Spidery Kha	U+EC89
U+2C52	Ჟ	Salt=2 Ჟ Alt Angular Small Spidery Kha	U+EC8A
U+2C2C	Რ	Რ Alt Angular Capital Shtapic	U+EC8B
U+2C5C	Ს	Რ Alt Angular Small Shtapic	U+EC8C
U+2C2E	Ტ	Ტ Alt Angular Capital Latinate Myslete	U+EC8D

9. Truncated Letter Forms

Truncated versions of various letters, referred to as “Baromić broken ligatures”, are a feature of the Angular manuscript tradition. These letter forms are included in the PUA at block U+F02E0 through

U+F02F4 (*see Table B below*). Essentially, these truncated characters stood by themselves in the Angular Script manuscript tradition, but with the adaptation of Angular Glagolitic for use in early printed editions, type designers chose to close the slight gaps next to these truncated forms, resulting in a fascinating and diverse collection of ligatures.

10. Angular Glagolitic Ligatures





Angular Glagolitic Ligatures, used in both manuscript and printed traditions, and widely documented in both technical literature and existing fonts, are included in the block that currently spans from U+F0400 to U+F0490 (although we are free to add more glyphs up to U+F05FF if more space is needed). As it stands, the Glagolitic ligatures are alphabetized according to the letter of the alphabet, with pairs added in proper sorting order (*see Table C below*); six blank spaces are left between each letter of the alphabet to accommodate more additions, so it is unlikely at this point that the currently used portion of the block will need to be extended past U+F0490. (*NOTE: The contents of this zone are firmly established, although there is ample space for additional entries.*)

The use of Glagolitic Ligatures has been extensively documented for the standard text letter forms (i.e. the lower case), but its use in the “upper” (or titling) case seems to be uncommon. Only five “upper case” examples are included in this font. As a matter of practicality, if one wishes to use ligatures in titles or drop-caps, the use of these “lower case” ligatures at a larger point size is more than sufficient to accomplish the task at hand.






11. Extra Characters

Printed editions of Glagolitic prayer books include at least nine specialized symbols, only one of which is included in the Unicode Standard. If the user would like to use these, they may be entered directly from the PUA. Since these symbols are largely decorative dingbats, we see no value to encoding them in Unicode. These symbols are used for two purposes.

1) Symbols used to add emphasis, usually at the beginning of a paragraph or section of text.

	U+261E	This symbol is usually used to indicate “Note:”.
	U+F0134 (PUA)	This is a multi-purpose symbol, which can also be use as a decorative symbol. Its shape is not equivalent to any of the Crosses already included in the Unicode Standard.
	U+F0135 (PUA)	This symbol is usually used as a marker for a subsection of a chapter. This is somewhat analogous to modern ¶ (U+00B6).
	U+F0136 (PUA)	This symbol is usually used as a marker for a subsection of a chapter. This is somewhat analogous to modern ¶ (U+00B6).

2) Symbols used for decorative purposes.

	U+F0137(PUA)	This is used as a decorative flourish at the end of a chapter. When repeated, this can form a decorative border or line of separation.
	U+F0138 (PUA)	This is used as a decorative flourish at the end of a chapter.
	U+F0139(PUA)	This is used as a decorative flourish at the end of a chapter.
	U+F013A (PUA)	When repeated, this can form a decorative border or line of separation.
	U+F013B (PUA)	This is used as a decorative flourish at the end of a chapter.

<p> (6) മിഴ കിര പാർ ന്നപ്പിഴ ഒന്നിഴയാ ഘ്നനം. ചെറു. ചെറു ചെറു ചെറു ചെറു ചെറു ചെറു ചെറു ചെറു ചെറു </p>	<p> (7) M[i]sa za dobro stanje grada. or[a]ts[io]. Semogi v[ê]čni b[ož]e sazi[d]i[telû i stražu </p>
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<p> Գօհրոնի քաղաքից Լոսանոսից Գոթմաճի Ժմբբա մեճա քաղաքանքա չ Ժմբբա չեցաչբի Ժմբի քաղաք չ Ժմբբից քչչմբ. Գօհր Գ Գօհրոն չ Գ ժնքքքքքքք ք քառ չ Գքքքք քքքքք քքքքքքքքք քի Ժքքքք քքքքքքքքք ք քաճ քքքքքքքք չ քքք. քքք. </p>	<p> er[u]s[a]l[i]ma grada višnago hod[a]taistvom['] b[la]ž[e]nie m[a]rie vinud[ê]vi i b[la]ž[e]n[a]go krsogona m[u]č[eni]ka tvoego i b[la]ž[e]nago nikuli. grani si grad' i s živuščimi vnem' i siloû tvoeû vzdvigni da b[u]det' obit'ûščim' v nem['] zdravie i mir[']. g[?]m. </p>
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Table A:
Round, Angular and Missal Angular Glagolitic Characters

Upper Case Characters:

<u>Round Glagolitic</u> <i>(default set)</i>	<u>Angular Glagolitic</u> <i>(Stylistic Set 3)</i>	<u>Missal Angular Glagolitic</u> <i>(Stylistic Set 4)</i>	<u>Cyrillic</u> ¹¹ <i>(transliteration)</i>
U+2C00 ⱦ	U+F0200 ⱦ	U+F0270 ⱦ	А
U+2C01 Ⱨ	U+F0201 Ⱨ	U+F0271 Ⱨ	Б
U+2C02 ⱨ	U+F0202 ⱨ	U+F0272 ⱨ	В
U+2C03 Ⱪ	U+F0203 Ⱪ	U+F0273 Ⱪ	Г
U+2C04 ⱪ	U+F0204 ⱪ	U+F0274 ⱪ	Д
U+2C05 Ⱬ	U+F0205 Ⱬ	U+F0275 Ⱬ	Е
U+2C06 ⱬ	U+F0206 ⱬ	U+F0276 ⱬ	Ж
U+2C07 Ɑ	U+F0207 Ɑ	U+F0277 Ɑ	З, Ѕ
U+2C08 Ɱ	U+F0208 Ɱ	U+F0278 Ɱ	З (3)
U+2C09 Ɐ	U+F0209 Ɐ	U+F0279 Ɐ	И, І, Ї
U+2CoA Ɒ	U+F020A Ɒ	U+F027A Ɒ	И, І, Ї
U+2CoB ⱱ	U+F020B ⱱ	U+F027B ⱱ	И, І, Ї
U+2CoC Ⱳ	U+F020C Ⱳ	U+F027C Ⱳ	Ъ ¹²
U+2CoD ⱳ	U+F020D ⱳ	U+F027D ⱳ	К
U+2CoE ⱴ	U+F020E ⱴ	U+F027E ⱴ	Л
U+2CoF Ⱶ	U+F020F Ⱶ	U+F027F Ⱶ	М
U+2C10 ⱶ	U+F0210 ⱶ	U+F0280 ⱶ	Н
U+2C11 ⱷ	U+F0211 ⱷ	U+F0281 ⱷ	О
U+2C12 ⱸ	U+F0212 ⱸ	U+F0282 ⱸ	П
U+2C13 ⱹ	U+F0213 ⱹ	U+F0283 ⱹ	Р
U+2C14 ⱺ	U+F0214 ⱺ	U+F0284 ⱺ	С
U+2C15 ⱻ	U+F0215 ⱻ	U+F0285 ⱻ	Т

11) Cyrillic transliterations are based primarily on: Ivanova T. A. *Старославянский язык*. 4-е издание. СПб., 2005.

12) This letter has been revived in modern times as Ъ, ъ.

U+2C16	𐍪	U+F0216	𐍫	U+F0286	𐍬	𐍮, 𐍺, 𐍻
U+2C17	𐍭	U+F0217	𐍮	U+F0287	𐍯	𐍿
U+2C18	𐍯	U+F0218	𐍰	U+F0288	𐍱	𐎀
U+2C19	𐍲	U+F0219	𐍳	U+F0289	𐍴	𐍷, 𐍸 ¹³
U+2C1A	𐍵	U+F021A	𐍶	U+F028A	𐍷	(𐍮)
U+2C1B	𐍸	U+F021B	𐍹	U+F028B	𐍺	𐍿 (𐍿𐍿)
U+2C1C	𐍻	U+F021C	𐍼	U+F028C	𐍽	𐎁
U+2C1D	𐍾	U+F021D	𐍿	U+F028D	𐍿	𐎂
U+2C1E	𐍿	U+F021E	𐎀	U+F028E	𐎁	𐎂
U+2C1F	𐎁	U+F021F	𐎂	U+F028F	𐎃	𐎄
U+2C20	𐎂	U+F0220	𐎃	U+F0290	𐎄	𐎅
U+2C21	𐎃	U+F0221	𐎄	U+F0291	𐎅	𐎆
U+2C22	𐎄	U+F0222	𐎅	U+F0292	𐎆	(𐎇)
U+2C23	𐎅	U+F0223	𐎆	U+F0293	𐎇	𐎈
U+2C24	𐎆	U+F0224	𐎇	U+F0294	𐎈	𐎉
U+2C25	𐎇	U+F0225	𐎈	U+F0295	𐎉	(𐎊)
U+2C26	𐎈	U+F0226	𐎉	U+F0296	𐎊	𐎋
U+2C27	𐎉	U+F0227	𐎊	U+F0297	𐎋	𐎌
U+2C28	𐎊	U+F0228	𐎋	U+F0298	𐎌	𐎍
U+2C29	𐎋	U+F0229	𐎌	U+F0299	𐎍	𐎎
U+2C2A	𐎌	U+F022A	𐎍	U+F029A	𐎎	𐎏
U+2C2B	𐎍	U+F022B	𐎎	U+F029B	𐎏	𐎐
U+2C2C	𐎎	U+F022C	𐎏	U+F029C	𐎐	𐎑, 𐎒, '𐎓
U+2C2D	𐎏	U+F022D	𐎐	U+F029D	𐎑	(𐎒)
U+2C2E	𐎐	U+F022E	𐎑	U+F029E	𐎒	(𐎓)
U+2C2F	𐎑	U+F022F	𐎒	U+F029F	𐎓	𐎔, “et cetera”

13) There is some difference of opinion regarding whether this character represents “o” (omega) or “ot”; the majority of sources suggest “ot”, and the majority of scholars interpret it as such, but there is a possibility that “o” is valid in some circumstances.

Lower Case Characters:

<u>Round Glagolitic</u> (default set)	<u>Angular Glagolitic</u> (Stylistic Set 3)	<u>Missal Angular Glagolitic</u> (Stylistic Set 4)	<u>Cyrillic</u> (transliteration)
U+2C30 Ꝑ	U+F0230 Ꝑ	U+F02A0 Ꝑ	а
U+2C31 ꝑ	U+F0231 ꝑ	U+F02A1 ꝑ	б
U+2C32 Ꝓ	U+F0232 Ꝓ	U+F02A2 Ꝓ	в
U+2C33 ꝓ	U+F0233 ꝓ	U+F02A3 ꝓ	г
U+2C34 Ꝕ	U+F0234 Ꝕ	U+F02A4 Ꝕ	д
U+2C35 ꝕ	U+F0235 ꝕ	U+F02A5 ꝕ	е, є
U+2C36 Ꝗ	U+F0236 Ꝗ	U+F02A6 Ꝗ	ж
U+2C37 ꝗ	U+F0237 ꝗ	U+F02A7 ꝗ	ѕ, з
U+2C38 Ꝙ	U+F0238 Ꝙ	U+F02A8 Ꝙ	з (з)
U+2C39 ꝙ	U+F0239 ꝙ	U+F02A9 ꝙ	и, і, ѣ
U+2C3A Ꝛ	U+F023A Ꝛ	U+F02AA Ꝛ	и, і, ѣ
U+2C3B ꝛ	U+F023B ꝛ	U+F02AB ꝛ	и, і, ѣ
U+2C3C Ꝝ	U+F023C Ꝝ	U+F02AC Ꝝ	ѣ
U+2C3D ꝝ	U+F023D ꝝ	U+F02AD ꝝ	к
U+2C3E Ꝟ	U+F023E Ꝟ	U+F02AE Ꝟ	л
U+2C3F ꝟ	U+F023F ꝟ	U+F02AF ꝟ	м
U+2C40 Ꝡ	U+F0240 Ꝡ	U+F02B0 Ꝡ	н
U+2C41 ꝡ	U+F0241 ꝡ	U+F02B1 ꝡ	о
U+2C42 Ꝣ	U+F0242 Ꝣ	U+F02B2 Ꝣ	п
U+2C43 ꝣ	U+F0243 ꝣ	U+F02B3 ꝣ	р
U+2C44 Ꝥ	U+F0244 Ꝥ	U+F02B4 Ꝥ	с
U+2C45 ꝥ	U+F0245 ꝥ	U+F02B5 ꝥ	т
U+2C46 Ꝧ	U+F0246 Ꝧ	U+F02B6 Ꝧ	оу, ѳ, ү
U+2C47 ꝧ	U+F0247 ꝧ	U+F02B7 ꝧ	ѳ, ѳ
U+2C48 Ꝩ	U+F0258 Ꝩ	U+F02B8 Ꝩ	х

U+2C49 ☉	U+F0249 ☿	U+F02B9 ♄	♁, ♀
U+2C4A ☊	U+F024A ♀	U+F02BA ♀	(n)
U+2C4B ☋	U+F024B ☿	U+F02BB ☿	♂ (♂T)
U+2C4C ☌	U+F024C ☿	U+F02BC ☿	♂
U+2C4D ☍	U+F024D ☿	U+F02BD ☿	♂
U+2C4E ☎	U+F024E ☎	U+F02BE ☎	♂
U+2C4F ☏	U+F024F ☏	U+F02BF ☏	♂
U+2C50 ☐	U+F0250 ☏	U+F02C0 ☏	♂
U+2C51 ☑	U+F0251 ☑	U+F02C1 ☑	♂ (♂)
U+2C52 ☒	U+F0252 ☒	U+F02C2 ☒	♂
U+2C53 ☓	U+F0253 ☓	U+F02C3 ☓	♂
U+2C54 ☔	U+F0254 ☔	U+F02C4 ☔	♂
U+2C55 ☕	U+F0255 ☕	U+F02C5 ☕	(♂)
U+2C56 ☖	U+F0256 ☖	U+F02C6 ☖	♂
U+2C57 ☗	U+F0257 ☗	U+F02C7 ☗	♂
U+2C58 ☘	U+F0258 ☘	U+F02C8 ☘	♂
U+2C59 ☙	U+F0259 ☙	U+F02C9 ☙	♂
U+2C5A ☚	U+F025A ☚	U+F02CA ☚	♂
U+2C5B ☛	U+F025B ☛	U+F02CB ☛	♂
U+2C5C ☜	U+F025C ☜	U+F02CC ☜	♂, ♀, '
U+2C5D ☝	U+F025D ☝	U+F02CD ☝	(♂)
U+2C5E ☞	U+F025E ☞	U+F02CE ☞	(♂)
U+2C2F ☟	U+F022F ☟	U+F029F ☟	Y, “et cetera”
Combining Superscript “t”			
U+1E015 ̥	U+F022F ̥	U+F029F ̥	T

Table B:

Baromić Broken Ligatures (truncated characters)

These ligature components are accessed via SALT (Stylistic Alternatives). (In LibreOffice, change the font name to “Shafarik:salt=x”, where ‘x’ is a number.)

U+2C30 Small Azu Ꞑ:

- salt=1: Ꞑ abbreviated version right (U+F02E0)
- salt=2: ꞑ abbreviated version left (U+F02E1)
- salt=3: Ꞓ standard truncated version right (U+F02E2)
- salt=4: ꞓ standard truncated version left (U+F02E3)
- salt=5: ꞔ high truncated version right (U+F02E4)
- salt=6: ꞕ high truncated version left (U+F02E5)

U+2C32 Small Vedi Ꞗ:

- salt=1: Ꞗ truncated version right (U+F02E7)
- salt=2: ꞗ truncated version left (U+F02E8)

U+2C34 Small Dobro Ꞝ:

- salt=2:¹⁴ Ꞝ standard truncated version (U+F02EA)
- salt=3: ꞝ high truncated version (U+F02EB)

U+2C36 Small Zhivete Ꞟ:

- salt=1: Ꞟ truncated version right (U+F02ED)
- salt=2: ꞟ truncated version left (U+F02EE)

U+2C3E Small Liudie Ꞣ:

- salt=1: Ꞣ truncated version right (U+F02F0)
- salt=2: ꞣ truncated version left (U+F02F1)

U+2C45 Small Tvrido Ꞥ:

- salt=1: Ꞥ truncated version right (U+F02F3)
- salt=2: ꞥ truncated version left (U+F02F4)

14) Here we have to start salt at 2 because salt=1 is taken up by the alternative at U+EC63.

Table C: Angular Glagolitic Ligatures

Glagolitic ligatures are not automatically generated, but are discretionary (as needed). Since the default Round Glagolitic does not use ligatures, one should not insert them when typesetting texts using that script. However, the Angular Script (ss03) and the Angular Missal Script (ss04) both make liberal use of these ligatures by using ss05 instead of default, ss03 or ss04 text. When ligatures are needed, they are accessed by designating the font as “Shafarik:ss05” in the font toolbar in LibreOffice (or a similar method in other software). *NOTE: The user should not directly access the characters using the PUA codepoints listed below (in the left column), unless the software does not provide support for OpenType features.*

Three ligatures have variants between the standard Angular and Missal Angular styles (ss03 and ss04); these are marked in the main table below with **green highlighting**. The first version of the ligature is produced normally (by designating it with ss05), while the second version is produced by designating as “ss05&ss04”. These three characters are:

default	no ligature formed	Ꝥꝸ	ꝸꝸ	ꝸꝸꝸ
ss03	no ligature formed	ꝸꝸꝸ	ꝸꝸꝸ	ꝸꝸꝸꝸ
ss04	no ligature formed	ꝸꝸꝸ	ꝸꝸꝸ	ꝸꝸꝸꝸ
ss05, ss05&ss03	usual ligature formed	ꝸꝸ	ꝸꝸ	ꝸꝸꝸꝸ
ss05&ss04	variant ligature formed	ꝸꝸꝸ	ꝸꝸꝸ	ꝸꝸꝸꝸ

<i>PUA Codepoint</i>	<i>Character Sequence (before ss03, ss04 or ss05 is applied)</i>	<i>Glagolitic Ligature</i>	<i>Test (ss05 applied)</i>	<i>Transliteration and Comments</i>
u+F0300	Ꝥꝰ	Ꝥꝰ	Ꝥꝰ	Ꝥꝰ
u+F0301	Ꝥꝱ	Ꝥꝱ	Ꝥꝱ	Ꝥꝱ
u+F0302	ꝤꝱꝤ	ꝤꝱꝤ	ꝤꝱꝤ	ꝤꝱꝤ
u+F0303	Ꝥꝱꝱ	Ꝥꝱꝱ	Ꝥꝱꝱ	Ꝥꝱꝱ
u+F0304	Ꝥꝸ	Ꝥꝸ	Ꝥꝸ	Ꝥꝸ
u+F0305	Ꝥꝸꝸ	Ꝥꝸꝸ	Ꝥꝸꝸ	Ꝥꝸꝸ
u+F0306	Ꝥꝸꝸꝸ	Ꝥꝸꝸꝸ	Ꝥꝸꝸꝸ	Ꝥꝸꝸꝸ
u+F0307	Ꝥꝸꝸꝸꝸ	Ꝥꝸꝸꝸꝸ	Ꝥꝸꝸꝸꝸ	Ꝥꝸꝸꝸꝸ

u+F0308	ተቆ	ተቆ	ተቆ	ፈፈ
u+F0309	ተፄ	ተፄ	ተፄ	ፈፈ
u+F030A	ተዋ	ተዋ	ተዋ	ፈፈ
u+F030B	ተዋ	ተዋ	ተዋ	ፈፈ
u+F030C	ተመ	ተመ	ተመ	ፈፈ
u+F030D	ተሠ	ተሠ	ተሠ	ፈፈ
u+F030E	ተዎ	ተዎ	ተዎ	ፈፈ
u+F0315	ረተ	ረተ	ረተ	ፈፈ
u+F0316	ረፋ	ረፋ	ረፋ	ፈፈ
u+F0317	ረቆ	ረቆ	ረቆ	ፈፈ
u+F0318	ረቆሃ	ረቆሃ	ረቆሃ	ፈፈ
u+F0319	ረቆዎ	ረቆዎ	ረቆዎ	ፈፈ
u+F031A	ረቆዎሪ	ረቆዎሪ	ረቆዎሪ	ፈፈ
u+F031B	ረፃ	ረፃ	ረፃ	ፈፈ
u+F031C	ረፍ	ረፍ	ረፍ	ፈፈ
u+F0323	ረተ	ረተ	ረተ	ፈፈ
u+F0324	ረሃ	ረሃ	ረሃ	ፈፈ
u+F0325	ረሃፍ	ረሃፍ	ረሃፍ	ፈፈ
u+F0326	ረሪ	ረሪ	ረሪ	ፈፈ
u+F0327	ረሪሪሪ	ረሪሪሪ	ረሪሪሪ	ፈፈ
u+F0328	ረፋ	ረፋ	ረፋ	ፈፈ
u+F0329	ረፋሪ	ረፋሪ	ረፋሪ	ፈፈ
u+F032A	ረፋ	ረፋ	ረፋ	ፈፈ
u+F032B	ረፋተ	ረፋተ	ረፋተ	ፈፈ
u+F032C	ረፋሃ	ረፋሃ	ረፋሃ	ፈፈ
u+F032D	ረፋሪ	ረፋሪ	ረፋሪ	ፈፈ

u+F032E	բժ՝ն	բժն	բժն	ԵՅԱ
u+F032F	բժ՝ն	բժն	բժն	ԵՅԲ
u+F0330	բժ	բժ	բժ	ԵՅ
u+F0331	բ	բ	բ	ԵԻ
u+F0332	բն	բն	բն	ԵԻԳ
u+F0333	բն	բն	բն	ԵԼ
u+F0334	բն	բն	բն	ԵԼԼ
u+F0335	բն	բն	բն	ԵԼԻ
u+F0336	բն	բն	բն	ԵԼԻՍ
u+F0337	բն	բն	բն	ԵԼԻՍԳ
u+F0338	բ	բ	բ	ԵՕ
u+F0339	բն	բն	բն	ԵՕԳ
u+F033A	բն	բն	բն	ԵՕԴ
u+F033B	բն	բն	բն	ԵՐ
u+F033C	բն	բն	բն	ԵՐԴ
u+F033D	բն	բն	բն	ԵՐԴՕ
u+F033E	բն	բն	բն	ԵՏ
u+F033F	բն	բն	բն	ԵՏԲ
u+F0346	Զն	Զն	Զն	ԴԱ
u+F0347	Զն	Զն	Զն	ԴԲ
u+F0348	Զն	Զն	Զն	ԴԵԼ
u+F0349	Զն	Զն	Զն	ԴԵՕ
u+F034A	Զն	Զն	Զն	ԴԳ
u+F034B	Զն	Զն	Զն	ԴԳԼ
u+F034C	Զն	Զն	Զն	ԴԶ
u+F034D	Զն	Զն	Զն	ԴԻ
u+F034E	Զն	Զն	Զն	ԴԼ

u+F034F	ᄀ	ᄁ	ᄂ	ᄃ
u+F0350	ᄄ	ᄅ	ᄆ	ᄇ
u+F0351	ᄈ	ᄉ	ᄊ	ᄋ (ᄌᄍᄎᄏ ᄐᄑ)
u+F0352	ᄌ	ᄍ	ᄎ	ᄏ
u+F0353	ᄐ	ᄑ	ᄒ	ᄓ
u+F0354	ᄔ	ᄕ	ᄖ	ᄗ
u+F0355	ᄘ	ᄙ	ᄚ	ᄛ
u+F0356	ᄜ	ᄝ	ᄞ	ᄟ
u+F0357	ᄠ	ᄡ	ᄢ	ᄣ
u+F0358	ᄤ	ᄥ	ᄦ	ᄧ
u+F0359	ᄨ	ᄩ	ᄪ	ᄫ
u+F035A	ᄬ	ᄭ	ᄮ	ᄯ (ᄰᄱ, ᄲᄳ)
u+F0361	ᄴ	ᄵ	ᄶ	ᄷ
u+F0362	ᄸ	ᄹ	ᄺ	ᄻ
u+F0363	ᄼ	ᄽ	ᄾ	ᄿ
u+F0364	ᄿ	ᄿ	ᄿ	ᄿ
u+F0365	ᄿ	ᄿ	ᄿ	ᄿ
u+F036C	ᄿᄿ	ᄿᄿ	ᄿᄿ	ᄿᄿ
u+F036D	ᄿᄿ	ᄿᄿ	ᄿᄿ	ᄿᄿ
u+F036E	ᄿᄿᄿ	ᄿᄿᄿ	ᄿᄿᄿ	ᄿᄿᄿ
u+F0375	ᄿᄿ	ᄿᄿ	ᄿᄿ	ᄿᄿ
u+F0376	ᄿᄿ	ᄿᄿ	ᄿᄿ	ᄿᄿ
u+F0377	ᄿᄿᄿ	ᄿᄿᄿ	ᄿᄿᄿ	ᄿᄿᄿ
u+F0378	ᄿᄿ	ᄿᄿ	ᄿᄿ	ᄿᄿ (default form: sso5)
u+F0379	ᄿᄿ	ᄿᄿᄿ	ᄿᄿᄿ	ᄿᄿ (variant: sso5&sso4)

u+F037A	ᖅᖅᖅ	ᖅᖅᖅ	ᖅᖅᖅ	ᖅᖅᖅ
u+F037B	ᖅᖅ	ᖅᖅ	ᖅᖅ	ᖅᖅ
u+F037C	ᖅᖅ	ᖅᖅ	ᖅᖅ	ᖅᖅ
u+F037D	ᖅᖅ	ᖅᖅ	ᖅᖅ	ᖅᖅ
u+F037E	ᖅᖅᖅ	ᖅᖅᖅ	ᖅᖅᖅ	ᖅᖅᖅ
u+F037F	ᖅᖅ	ᖅᖅ	ᖅᖅ	ᖅᖅ
u+F0380	ᖅᖅ	ᖅᖅ	ᖅᖅ	ᖅᖅ
u+F038D	ᖅᖅ	ᖅᖅ	ᖅᖅ	ᖅᖅ
u+F038E	ᖅᖅ	ᖅᖅ	ᖅᖅ	ᖅᖅ
u+F038F	ᖅᖅᖅ	ᖅᖅᖅ	ᖅᖅᖅ	ᖅᖅᖅ
u+F0390	ᖅᖅᖅ	ᖅᖅᖅ	ᖅᖅᖅ	ᖅᖅᖅ
u+F0391	ᖅᖅᖅᖅ	ᖅᖅᖅᖅ	ᖅᖅᖅᖅ	ᖅᖅᖅᖅ
u+F0392	ᖅᖅ	ᖅᖅ	ᖅᖅ	ᖅᖅ (default form: sso5)
u+F0393	ᖅᖅ	ᖅᖅ	ᖅᖅ	ᖅᖅ (variant: sso5&sso4)
u+F0394	ᖅᖅᖅ	ᖅᖅᖅ	ᖅᖅᖅ	ᖅᖅᖅ
u+F0395	ᖅᖅ	ᖅᖅ	ᖅᖅ	ᖅᖅ
u+F0396	ᖅᖅ	ᖅᖅ	ᖅᖅ	ᖅᖅ
u+F0307	ᖅᖅ	ᖅᖅ	ᖅᖅ	ᖅᖅ
u+F0398	ᖅᖅᖅ	ᖅᖅᖅ	ᖅᖅᖅ	ᖅᖅᖅ
u+F0399	ᖅᖅᖅ	ᖅᖅᖅ	ᖅᖅᖅ	ᖅᖅᖅ
u+F039A	ᖅᖅᖅ	ᖅᖅᖅ	ᖅᖅᖅ	ᖅᖅᖅ
u+F039B	ᖅᖅᖅ	ᖅᖅᖅ	ᖅᖅᖅ	ᖅᖅᖅ
u+F039C	ᖅᖅᖅᖅ	ᖅᖅᖅᖅ	ᖅᖅᖅᖅ	ᖅᖅᖅᖅ
u+F039D	ᖅᖅᖅ	ᖅᖅᖅ	ᖅᖅᖅ	ᖅᖅᖅ
u+F039E	ᖅᖅ	ᖅᖅ	ᖅᖅ	ᖅᖅ
u+F039F	ᖅᖅ	ᖅᖅ	ᖅᖅ	ᖅᖅ
u+F03A0	ᖅᖅᖅ	ᖅᖅᖅ	ᖅᖅᖅ	ᖅᖅᖅ

u+F03A1	୭୩	୨୩	୨୩	୪୮ (୪୦୪, ୪୪)
u+F03A8	୮୪	୬୮	୬୮	୪୫
u+F03A9	୮୫	୬୯	୬୯	୪୬
u+F03AA	୪୪	୬୮	୬୮	୪୫
u+F03AB	୪୮	୩୩୮	୩୩୮	୪୪ (default form: ss05)
u+F03AC	୪୮	୩୩୮	୩୩୮	୪୪ (variant: ss05&ss04)
u+F03B2	୪୯	୪୦	୪୦	୪୫
u+F03B3	୪୫	୪୫	୪୫	୪୬
u+F03B4	୪୪	୪୮	୪୮	୪୫
u+F03B5	୪୪୩	୪୬	୪୬	୪୫୧
u+F03B6	୪୫	୪୮	୪୮	୪୬
u+F03B7	୪୫୪	୪୪	୪୪	୪୫୪
u+F03B8	୪୫୩	୪୪	୪୪	୪୫୦
u+F03B9	୪୦	୪୦	୪୦	୪୮
u+F03BA	୪୦୫	୪୦୫	୪୦୫	୪୮୬
u+F03C1	୫୫	୩୮୮	୩୮୮	୫୬ (୮୮୬, ୩୮୬ > ୬୩୫୬)
u+F03C8	୫୮	୮୮୮	୮୮୮	୬୬
u+F03C9	୫୯	୮୮୦	୮୮୦	୬୫
u+F03CA	୫୯୫	୮୮୮	୮୮୮	୬୫୬
u+F03CB	୫୯୦	୮୮୦	୮୮୦	୬୫୮
u+F03CC	୫୫	୮୮୫	୮୮୫	୬୬
u+F03CD	୫୪	୮୮୮	୮୮୮	୬୫
u+F03CE	୫୪	୮୫	୮୫	୬୪
u+F03CF	୫୩	୮୫	୮୫	୬୦

u+F0401	ᲑᲠ	ჱ	ჱ	ოჰ
u+F0402	ᲑᲡ	ჲ	ჲ	ო჏
u+F0403	ᲑᲢ	ჳ	ჳ	ო჏ი
u+F0404	ᲑᲣ	ჴ	ჴ	ო჏ო
u+F0405	ᲑᲤ	ᲁ	ᲁ	ოტ (unconfirmed)
u+F0406	ᲑᲥ	ᲂ	ᲂ	ოტო (unconfirmed)
u+F040D	ᲑᲦ	ᲃ	ᲃ	ნა
u+F040E	ᲑᲧ	ᲄ	ᲄ	ნე
u+F040F	ᲑᲨ	ᲅ	ᲅ	ნეღ
u+F0410	ᲑᲩ	ᲆ	ᲆ	ნეღა
u+F0411	ᲑᲪ	ᲇ	ᲇ	ნე
u+F0412	ᲑᲫ	ᲈ	ᲈ	ნი
u+F0413	ᲑᲬ	Ᲊ	Ᲊ	ნიტ
u+F0414	ᲑᲭ	ᲊ	ᲊ	ნა
u+F0415	ᲑᲮ	᲋	᲋	ნაო
u+F0416	ᲑᲯ	᲌	᲌	ნაოვ
u+F0417	ᲑᲰ	᲍	᲍	ნაოღ
u+F0418	ᲑᲱ	᲎	᲎	ნატ
u+F0419	ᲑᲲ	᲏	᲏	ნაო
u+F041A	ᲑᲳ	Ა	Ა	ნამ
u+F041B	ᲑᲴ	Ბ	Ბ	ნო
u+F041C	ᲑᲵ	Გ	Გ	ნოვ
u+F041D	ᲑᲶ	Დ	Დ	ნოვრ
u+F041E	ᲑᲷ	Ე	Ე	ნოღ
u+F041F	ᲑᲸ	Ვ	Ვ	ნოღა
u+F0420	ᲑᲹ	Ზ	Ზ	ნოტ
u+F0421	ᲑᲺ	Თ	Თ	ნოტო

u+Fo422	ᠢᠭᠣᠮᠪ	ᠢᠭᠢ	ᠢᠭᠢ	ᠨᠣᠲᠢ
u+Fo423	ᠢᠪ	ᠢᠪ	ᠢᠪ	ᠨᠢ
u+Fo424	ᠢᠪᠪ	ᠢᠪᠠ	ᠢᠪᠠ	ᠨᠢᠪ
u+Fo425	ᠢᠪᠪᠠ	ᠢᠪᠠᠠ	ᠢᠪᠠᠠ	ᠨᠢᠪᠠ
u+Fo426	ᠢᠪᠪᠢ	ᠢᠪᠢ	ᠢᠪᠢ	ᠨᠢᠪᠢ
u+Fo427	ᠢᠪᠪᠣ	ᠢᠪᠣ	ᠢᠪᠣ	ᠨᠢᠪᠣ
u+Fo428	ᠢᠪᠢ	ᠢᠪᠢ	ᠢᠪᠢ	ᠨᠢᠪᠢ
u+Fo429	ᠢᠪᠣ	ᠢᠪᠣ	ᠢᠪᠣ	ᠨᠢᠪᠣ
u+Fo42A	ᠢᠪᠣᠭ	ᠢᠪᠣᠭ	ᠢᠪᠣᠭ	ᠨᠢᠪᠣᠭ
u+Fo431	ᠪᠠ	ᠪᠠ	ᠪᠠ	ᠨᠠ
u+Fo432	ᠪᠪ	ᠪᠪ	ᠪᠪ	ᠨᠠᠪ
u+Fo433	ᠪᠪᠢ	ᠪᠪᠢ	ᠪᠪᠢ	ᠨᠠᠪᠢ
u+Fo434	ᠪᠪᠣ	ᠪᠪᠣ	ᠪᠪᠣ	ᠨᠠᠪᠣ
u+Fo43B	ᠪᠠᠠ	ᠪᠠᠠ	ᠪᠠᠠ	ᠨᠠᠠ
u+Fo43C	ᠪᠠᠪ	ᠪᠠᠪ	ᠪᠠᠪ	ᠨᠠᠪ
u+Fo43D	ᠪᠠᠪᠢ	ᠪᠠᠪᠢ	ᠪᠠᠪᠢ	ᠨᠠᠪᠢ
u+Fo43E	ᠪᠠᠪᠣ	ᠪᠠᠪᠣ	ᠪᠠᠪᠣ	ᠨᠠᠪᠣ
u+Fo43F	ᠪᠠᠪᠠ	ᠪᠠᠪᠠ	ᠪᠠᠪᠠ	ᠨᠠᠪᠠ
u+Fo440	ᠪᠠᠣ	ᠪᠠᠣ	ᠪᠠᠣ	ᠨᠠᠣ
u+Fo441	ᠪᠠᠣᠭ	ᠪᠠᠣᠭ	ᠪᠠᠣᠭ	ᠨᠠᠣᠭ
u+Fo442	ᠪᠠᠣᠭᠢ	ᠪᠠᠣᠭᠢ	ᠪᠠᠣᠭᠢ	ᠨᠠᠣᠭᠢ
u+Fo443	ᠪᠠᠣᠭᠠ	ᠪᠠᠣᠭᠠ	ᠪᠠᠣᠭᠠ	ᠨᠠᠣᠭᠠ
u+Fo444	ᠪᠠᠣᠭᠣ	ᠪᠠᠣᠭᠣ	ᠪᠠᠣᠭᠣ	ᠨᠠᠣᠭᠣ
u+Fo445	ᠪᠠᠣᠭᠡ	ᠪᠠᠣᠭᠡ	ᠪᠠᠣᠭᠡ	ᠨᠠᠣᠭᠡ
u+Fo44C	ᠪᠠᠠᠠ	ᠪᠠᠠᠠ	ᠪᠠᠠᠠ	ᠨᠠᠠᠠ

u+F044D	ᲢᲠ	ᲢᲠ	ᲢᲠ	ᲢᲠ
u+F044E	ᲢᲡ	ᲢᲡ	ᲢᲡ	ᲢᲡ
u+F044F	ᲢᲢ	ᲢᲢ	ᲢᲢ	ᲢᲢ
u+F0450	ᲢᲣ	ᲢᲣ	ᲢᲣ	ᲢᲣ
u+F0451	ᲢᲤ	ᲢᲤ	ᲢᲤ	ᲢᲤ
u+F0452	ᲢᲥ	ᲢᲥ	ᲢᲥ	ᲢᲥ
u+F0453	ᲢᲦ	ᲢᲦ	ᲢᲦ	ᲢᲦ
u+F0454	ᲢᲧ	ᲢᲧ	ᲢᲧ	ᲢᲧ
u+F0455	ᲢᲨ	ᲢᲨ	ᲢᲨ	ᲢᲨ
u+F0456	ᲢᲩ	ᲢᲩ	ᲢᲩ	ᲢᲩ
u+F0457	ᲢᲪ	ᲢᲪ	ᲢᲪ	ᲢᲪ
u+F0458	ᲢᲫ	ᲢᲫ	ᲢᲫ	ᲢᲫ
u+F0459	ᲢᲬ	ᲢᲬ	ᲢᲬ	ᲢᲬ
u+F0460	ᲢᲭ	ᲢᲭ	ᲢᲭ	ᲢᲭ
u+F0461	ᲢᲮ	ᲢᲮ	ᲢᲮ	ᲢᲮ
u+F0462	ᲢᲯ	ᲢᲯ	ᲢᲯ	ᲢᲯ
u+F0463	ᲢᲰ	ᲢᲰ	ᲢᲰ	ᲢᲰ
u+F0464	ᲢᲱ	ᲢᲱ	ᲢᲱ	ᲢᲱ
u+F0465	ᲢᲲ	ᲢᲲ	ᲢᲲ	ᲢᲲ
u+F0476	ᲢᲳ	ᲢᲳ	ᲢᲳ	ᲢᲳ
u+F047D	ᲢᲴ	ᲢᲴ	ᲢᲴ	ᲢᲴ (ᲢᲴ)
u+F047E	ᲢᲵ	ᲢᲵ	ᲢᲵ	ᲢᲵ (ᲢᲵ)
u+F047F	ᲢᲶ	ᲢᲶ	ᲢᲶ	ᲢᲶ (ᲢᲶ)
u+F0480	ᲢᲷ	ᲢᲷ	ᲢᲷ	ᲢᲷ (ᲢᲷ)
u+F0481	ᲢᲸ	ᲢᲸ	ᲢᲸ	ᲢᲸ (ᲢᲸ)

u+F0482	ᐃᓂᓐ	ᐃᐅ	ᐃᐅ	ᐃᓂᓐ (ᐃᓂᓐ)
u+F0489	ᐅᐃ	ᐅᐃ	ᐅᐃ	ᐅᐃ
u+F048A	ᐅᐃ	ᐅᐃ	ᐅᐃ	ᐅᐃ
u+F048B	ᐅᐃᐅ	ᐅᐃ	ᐅᐃ	ᐅᐃᐅ
u+F048C	ᐅᐃ	ᐅᐃ	ᐅᐃ	ᐅᐃ
u+F048D	ᐅᐃ	ᐅᐃ	ᐅᐃ	ᐅᐃ
u+F048E	ᐅᐃ	ᐅᐃ	ᐅᐃ	ᐅᐃ
u+F048F	ᐅᐃᐅ	ᐅᐃ	ᐅᐃ	ᐅᐃᐅ
u+F0490	ᐅᐅ	ᐅᐅ	ᐅᐅ	ᐅᐅ

Appendix: Resources for Advanced Study

1) Books

- Hercigonija E. *Povijest hrvatske književnosti. Knj. 2. Srednjovjekovna književnost*. Zagreb, 1975.
- Vaillant A. *Manuel du vieux slave*. Paris, 1948 = Вайан А. *Руководство по старославянскому языку*. М., 1952 and reprints.
- Žagar, Mateo. *Introduction to Glagolitic Paleography*. (forthcoming publication)
(https://www.winter-verlag.de/de/detail/978-3-8253-4608-9/Zagar_Glagolitic_Paleography/)
- Афанасьева Т. И., Козак В. В., Соболев А. Н. *Глаголическая письменность западных Балкан. Учебно-методическое пособие*. СПб, Наука. 2016.
- Иванова Т. А. *Старославянский язык*. 4-е издание. СПб., 2005.
- Щепкин В. Н. *Русская палеография*. М., 1967.

2) Internet Resources

- Старославянский язык (<http://ekislova.ru/sla/oldchurchslavonik>)
- Памятники старославянского языка: книги (<http://ekislova.ru/sla/books>)
- Манускрипт - Древние славянские памятники (<http://manuscripts.ru/>)
- ivan.vucica.net :: Glagolitic Transliterator (<https://ivan.vucica.net/glagolitic/>)
- Библиотека Фронтистеса (<http://ksana-k.narod.ru/>)

3) Videos for Basic Instruction

- <https://www.youtube.com/watch?v=VDcqlgxgkBk>
- <https://www.youtube.com/watch?v=E7YHUeLxRv4>
- <https://www.youtube.com/watch?v=PFAeVf8qCHQ>
- <https://www.youtube.com/watch?v=YCSFuAvlFOo>