

# Unicode and Slavic Paleography or How to do Things with Unicode

Please note: this is a work in progress!

Sebastian Kempgen





returns you to this Sections page



# Sections



Cyrillic Characters

Cyrillic Ligatures



Glagolitic

Punctuation

colour codes indicate section



# Cyrillic Characters





# Special Glyphs: Cyrillic A



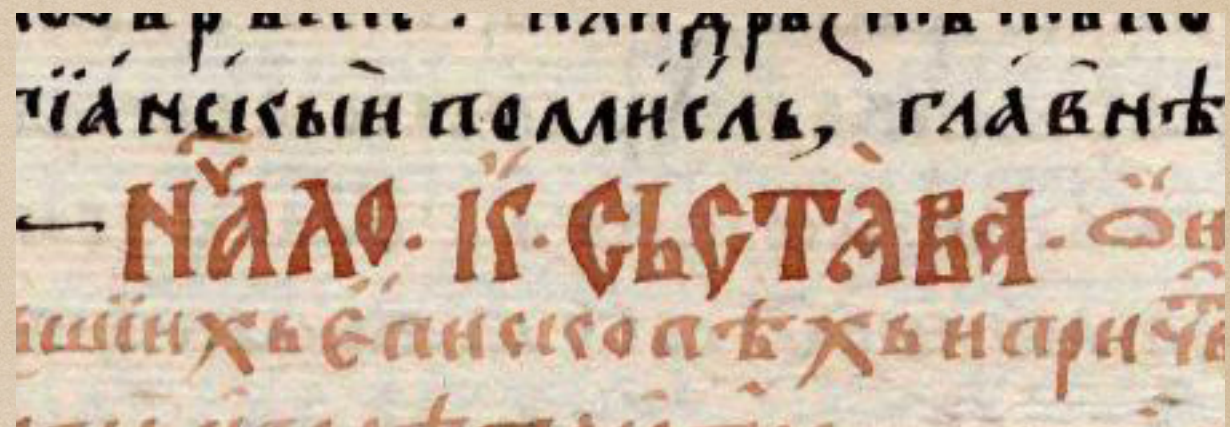
A

U+0410; CYRILLIC CAPITAL LETTER A

In this sample, the < А > has an upright stem with a circle in front. Similar shapes can also be found for the lowercase letter.

It contrasts with other shapes of the same letter, as the sample shows.

In Unicode, these shapes are not distinguished as separate entries.



Sintagma Matije Vlastara, 1335





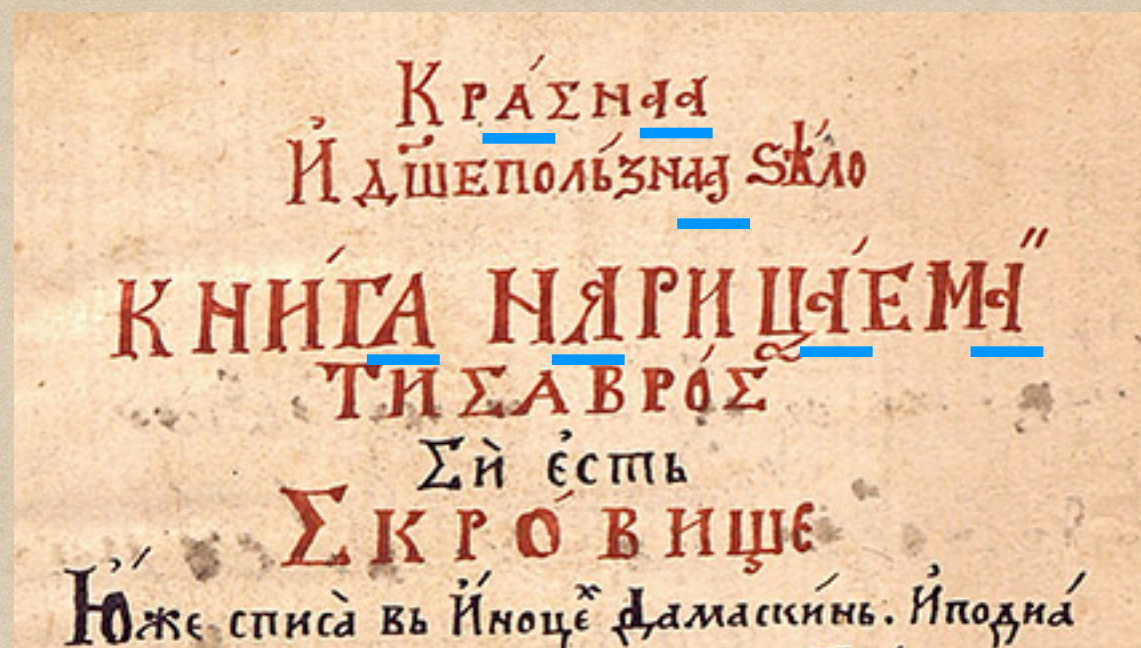
## Special Glyphs: Cyrillic A

A

U+0410; CYRILLIC CAPITAL LETTER A

In this sample, three different shapes for the letter 'A' are being used side by side. (And also the Greek uppercase sigma as a special glyph in Cyrillic.)

In Unicode, these shapes are not distinguished as separate entries.



Thesaurus, 1691





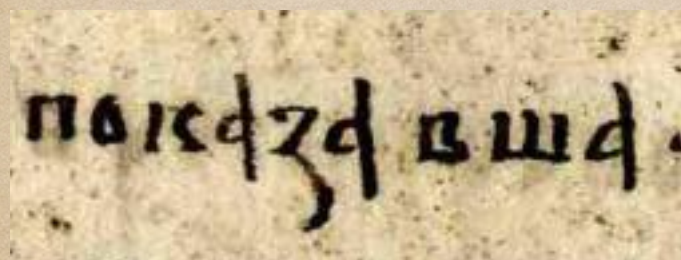




## Special Glyphs: Cyrillic а

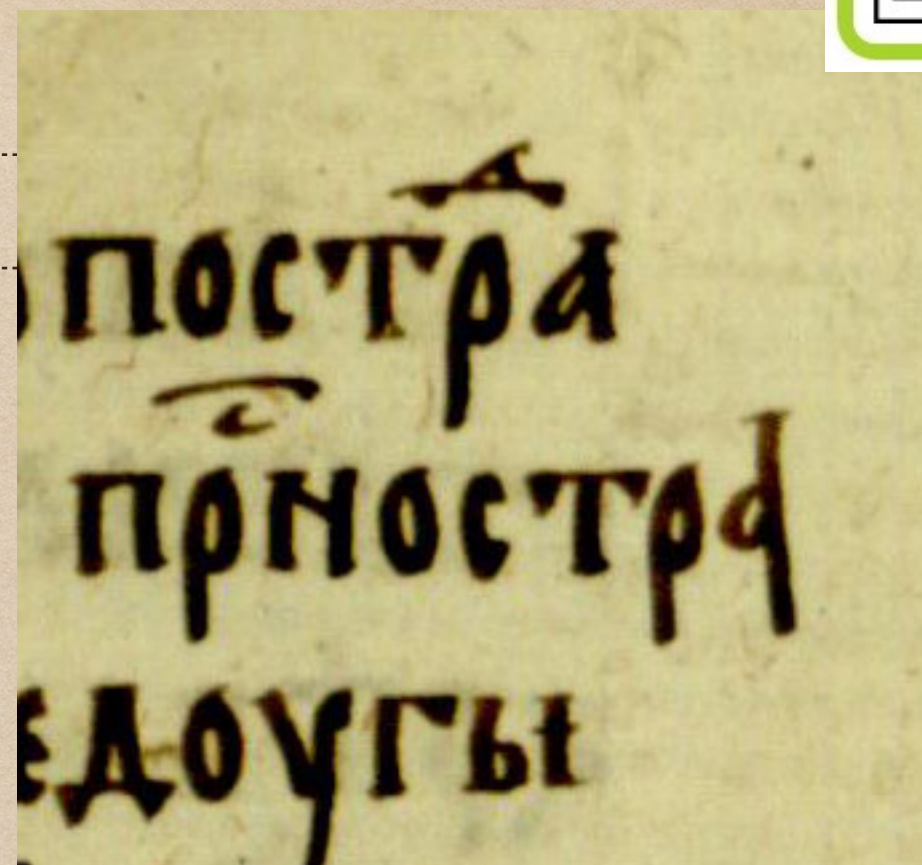
а

U+0430; CYRILLIC SMALL LETTER A



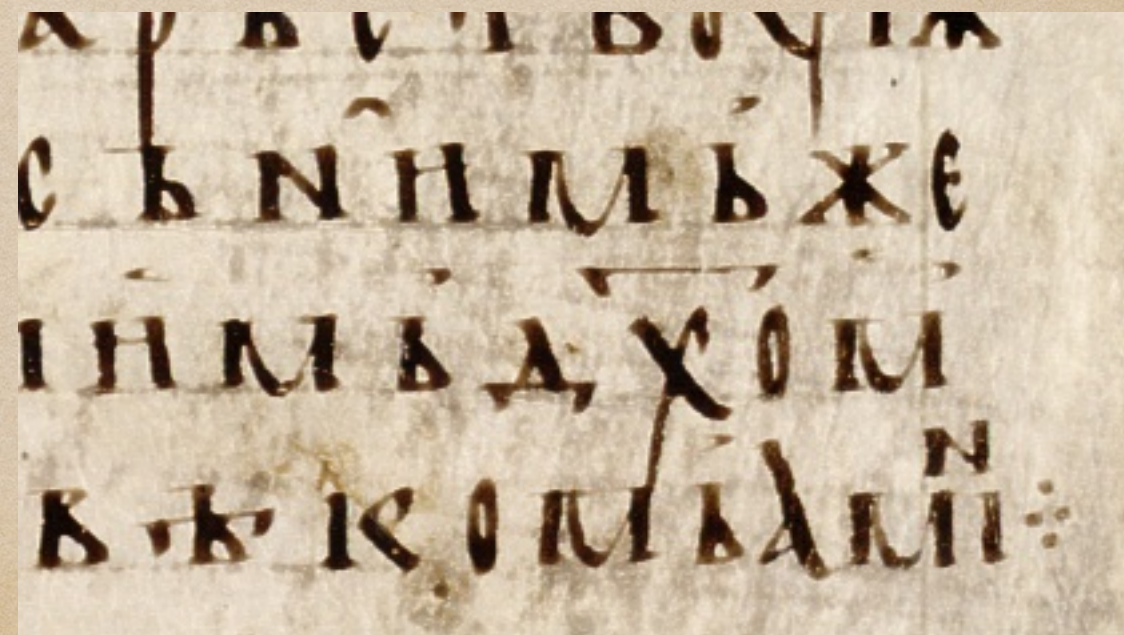
Minei za jul f 2

Samples of an < а > with a long stem



Suprasliensis fol. 8

A sample of an < а > with a high stem, at the beginning of the word 'amin'.





## Special Glyphs: Cyrillic crossed а



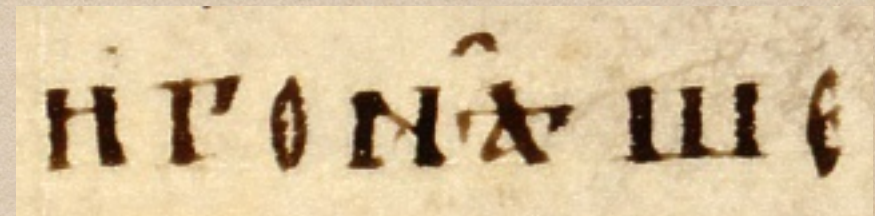
a

U+0430; CYRILLIC SMALL LETTER A

In this sample, the < a > comes with a horizontal stroke: a rare glyph.

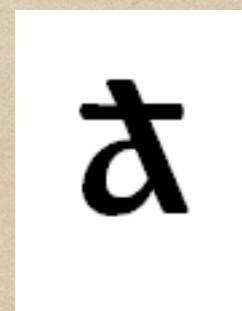
Not encoded in Unicode separately.

Softness mark above.



Codex Suprasliensis fol. 21r: иго<sup>а</sup>ше

Another sample comes from the Vatican palimpsest. (Typographical reproduction shown here.)



*Available in RomanCyrillic Std, Kliment Pro and Method Std fonts.*





## Cyrillic ‘broad’ and ‘narrow e’

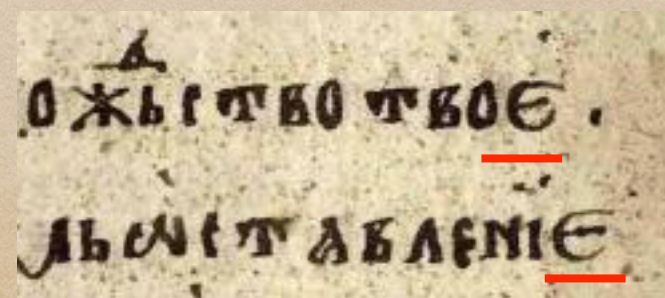
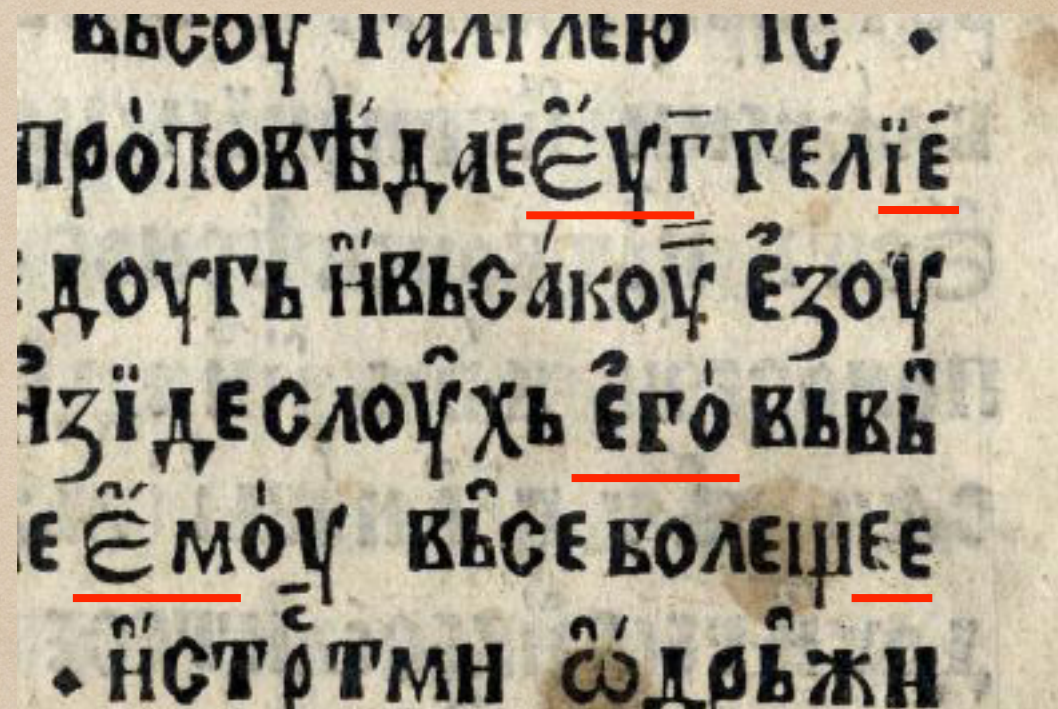
Е	U+0415; CYRILLIC CAPITAL LETTER E
е	U+0435; CYRILLIC SMALL LETTER E
Є	U+0404; CYRILLIC CAPITAL LETTER UKRAINIAN IE
є	U+0454; CYRILLIC SMALL LETTER UKRAINIAN IE

Samples of the ‘broad e’ and the ‘narrow e’ side by side.

The ‘broad e’ is today's Ukrainian IE, and the ‘narrow e’ is today's Russian E.

The phonetic distinction is roughly that the broad always signals [je], although the reverse is not true: not all [je]’s are written with a ‘broad e’, as the sample shows, too.

Ее > Ee; Єе > Єе





## Cyrillic < Ё ё >



Ё	U+0401; CYRILLIC CAPITAL LETTER IO
ё	U+0451; CYRILLIC SMALL LETTER IO

Uspenskij 1975: 209 on Trediakovskij 1748 regarding an older suggestion, not realised:

<sup>45</sup> Тредиаковский (1748, стр. 373) предлагал для данной буквы начертание не  $\overset{\wedge}{\text{io}}$ , а  $\overline{\text{io}}$ , но не настаивал на этом предложении. Вместе с тем сам он осуществлял его на практике: так, в рукописном оригинале «Разговора об ортографии. . .» Тредиаковский может писать эту букву то как  $\overset{\wedge}{\text{io}}$ , то как  $\overline{\text{io}}$  — притом, что в печатном издании обоим обозначениям соответствует начертание  $\overset{\wedge}{\text{io}}$ . Ср. также рапорт корректора академической типографии Алексея Барсова (Архив Академии наук, ф. 3, оп. 1, № 108, л. 282) о том, что для набора «Разговора об ортографии. . .» необходимо изготовить матрицы литер: прописных е, Ѣ, строчных е, ѣ,  $\overline{\text{io}}$  (соответствующее разрешение датируется 23 июня 1747 г.), последнее обозначение и соответствует букве  $\overset{\wedge}{\text{io}}$  набранного текста.





## Cyrillic < З з >

З	U+A642; CYRILLIC CAPITAL LETTER DZELO
з	U+A643; CYRILLIC SMALL LETTER DZELO

Typical uses of the 'dzelo' character, e.g. as a (soft) alternation result g ~ z'.







## Cyrillic < ĭ > : two dots plus bar (stroke)

ĭ	U+0457; CYRILLIC SMALL LETTER YI
Ī	U+1D7B; LATIN SMALL CAPITAL LETTER I WITH STROKE
ī	U+1D7B; LATIN SMALL LETTER I WITH STROKE

A glyph used in contrast to the same glyph without bar in certain Cyrillic manuscripts. Occurs in initial position here. To be considered a variation of < ĭ >? Currently not available in Unicode.

6 ВУ СВОЮ ВЪ СЛАВНЫИ ГРАДЪ ПРА-  
7 ГОУ • Ī ПОЛОЖІ МОЩИ КѦ ВЪ  
8 ЦРКВИ СѢГО ГЕОРГИЯ •  
9 ĪДѢЖЕ И НЫ<НѢ> МНОГА СҮТЬ ЧЮСА ••

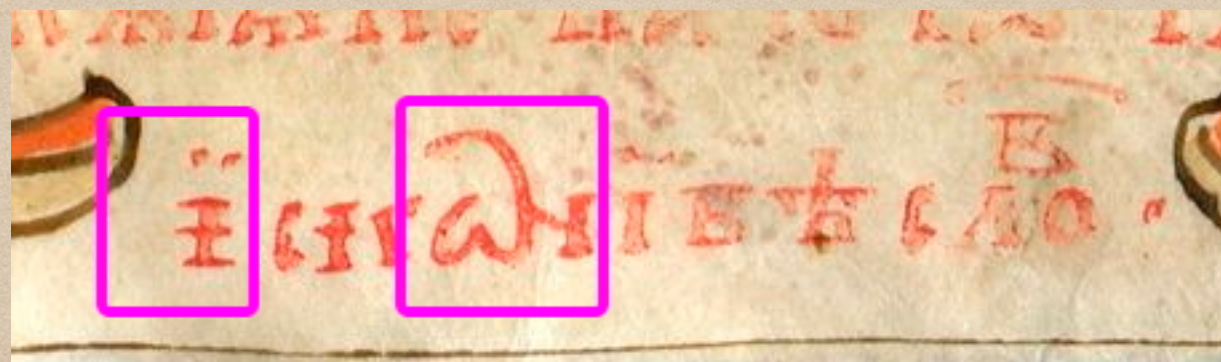




## Cyrillic < ѣ > : two dots plus bar (stroke)

ѣ	U+0457; CYRILLIC SMALL LETTER YI
ꙗ	U+1D7B; LATIN SMALL CAPITAL LETTER I WITH STROKE
ꙓ	U+1D7B; LATIN SMALL LETTER I WITH STROKE

A glyph, used in contrast to the same glyph without bar. Used in initial position.



Codex Zographensis fol. 225: ѣсѣнѣ бѣ слово; the first word includes a rare ligature of ѡ + н.



## Cyrillic < Т >: with mid-dot



Т

U+0422; CYRILLIC CAPITAL LETTER TE

A mid-dot is sometimes used for the stem of capital < Т > (as well as for quite a few other letters). This is a purely graphic variation of the glyphs in question.







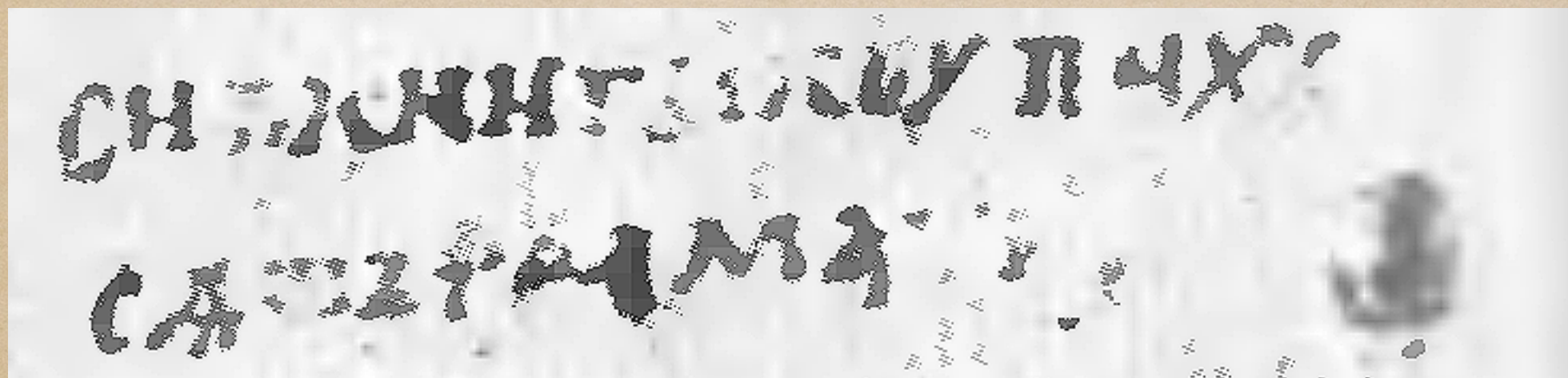
## Cyrillic < Т >: broken up ligated Ы

Ы

U+044B; CYRILLIC SMALL LETTER YERU

Ščepkin (1906) shows a broken-up connection of the ligated variant of < Ы > (which itself is an optional variant of the letter).

However, from the facsimile edition (p. 254) of the Psalter, the real shape of the glyph cannot be determined. Unless a better image of the note (“I have bought this book...”) becomes available, it remains unclear whether we have a defect in the printing type used for Ščepkin’s monograph on hand or whether the shown glyph is real.



СНѢ КНИГЫ КОУПИХЪ  
СА ѿ грамматика т[е?]



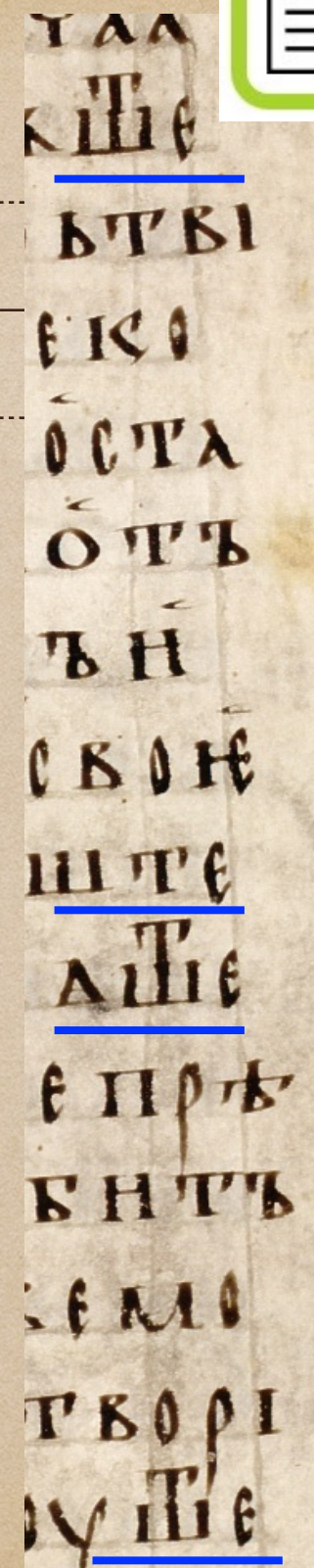
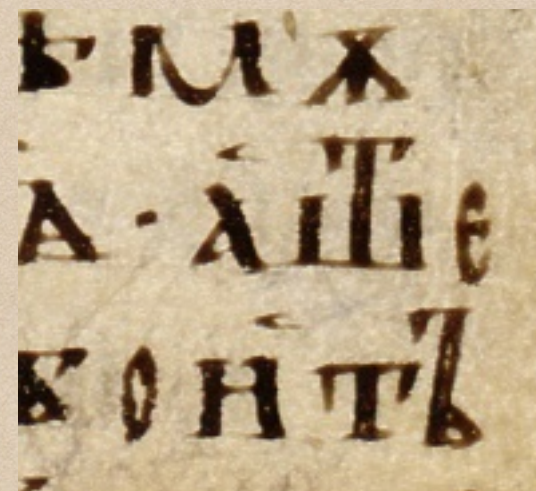
# Cyrillic < ѡ >



Ѡ	U+0429; CYRILLIC CAPITAL LETTER SHCHA
ѡ	U+0449; CYRILLIC SMALL LETTER SHCHA

A sample of the alternate shape of the letter < ѡ >, pronounced [št]. The digraph < ѡт > clearly shows that < Ѡ > was perceived as a ligature.

In the Cod. Suprasliensis, the alternate shape seems to have been used mainly at the end of lines so as to fit the syllable or word into the line.





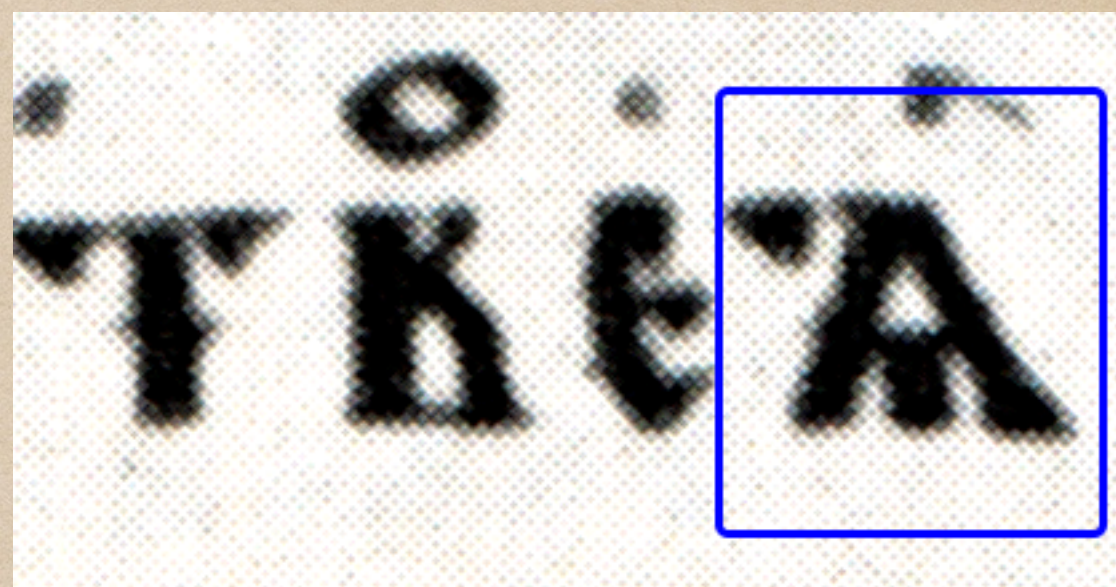


# Cyrillic Ѧ/Ѧ

Ѧ	U+0469; CYRILIC CAPITAL LETTER IOTIFIED LITTLE YUS
ѧ	U+0468; CYRILIC SMALL LETTER IOTIFIED LITTLE YUS
Ѧ	U+0466; CYRILIC CAPITAL LETTER LITTLE YUS
ѧ	U+0467; CYRILIC SMALL LETTER LITTLE YUS

This sample shows a variation of the iotated little yus: the same stroke that characterizes soft <Ѣ ѣ Ѥ ѥ> is added here to the *left* of the base character <Ѧ >.

This is a rare glyph; see the comments of Ščepkin on the next slide.



Bolonski Psaltir p. 241





## Special Glyphs: Cyrillic Ѣ/ѣ

Ѣ	U+0469; CYRILLIC CAPITAL LETTER IOTIFIED LITTLE YUS
ѣ	U+0468; CYRILLIC SMALL LETTER IOTIFIED LITTLE YUS
Ѥ	U+0466; CYRILLIC CAPITAL LETTER LITTLE YUS
ѥ	U+0467; CYRILLIC SMALL LETTER LITTLE YUS

**Ѥ и ѥ:** при этихъ знакахъ второй писецъ употребляетъ еще Ѥ и ѥ, Ѧ (черта примыкаетъ къ верху буквы). Изъ нихъ Ѥ употребляется довольно последовательно въ смыслѣ стараго Ѥ въ началѣ слога; тотъ же знакъ примѣняется вм. ѥ въ томъ же положеніи. Знакъ Ѧ встрѣчается рѣдко, и только въ толкованіяхъ: въ значеніи Ѥ и ѥ, въ началѣ слога.

Въ тѣхъ же правыхъ столбцахъ при Ѧ встрѣчается очень рѣдкое Ѧ, но въ неопредѣленномъ значеніи: въ словахъ хѣѡѡ 125.2 Ѧ = Ѥ, въ кап-лаштинѣ 118.3 Ѧ = Ѥ стоитъ послѣ согласной и быть можетъ случайнаго происхожденія.





## Special Glyphs: Cyrillic ОѸ ОѸ оѸ

ОѸ	U+0478; CYRILLIC CAPITAL LETTER UK
оѸ	U+0479; CYRILLIC SMALL LETTER UK
ОѸ	---; CYRILLIC CAPITAL LETTERS UK

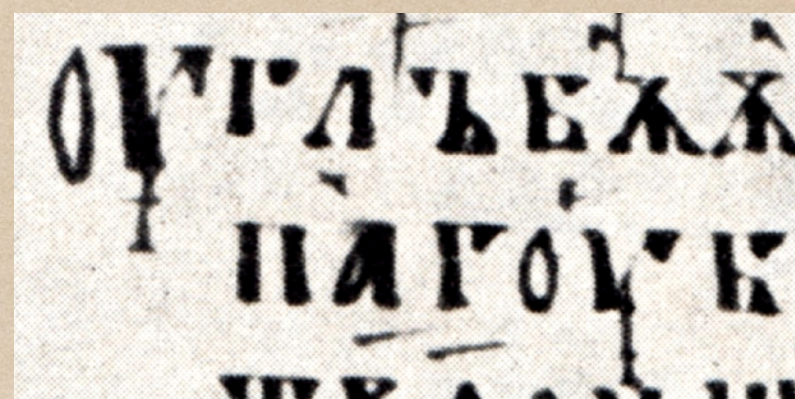
The first sample shows that for capitalisation, a form with two capital letters would be needed: < ОѸ >.

**This, however, is missing from Unicode.**

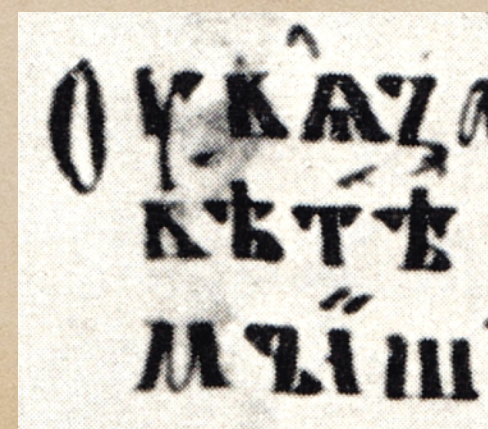
Thus, texts like the one shown here can only be encoded with separate letters < О + Ѹ >.

The second sample shows that the first code point, capital < О > plus lowercase < Ѹ >, is indeed also needed.

Thus, we have have a structurally inconsistent solution here. Really, three character pairs would be needed.



Bolonski Psaltir p. 21 + 23







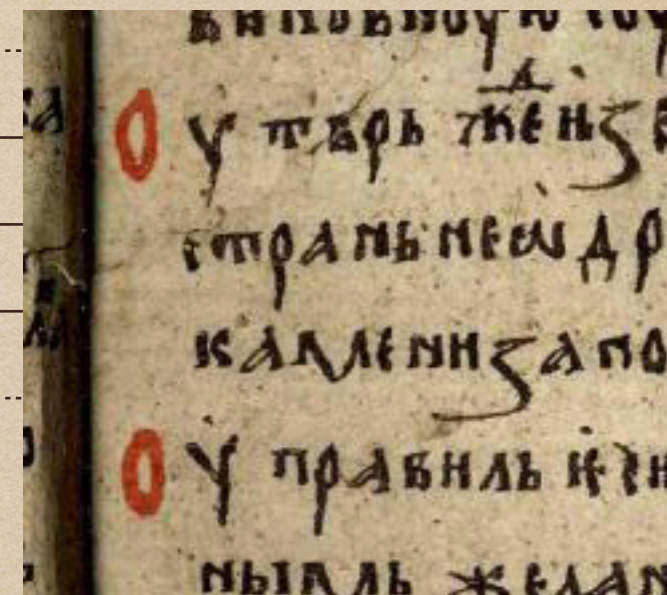
## Special Glyphs: Cyrillic Оу оу

Оу	U+0478; CYRILLIC CAPITAL LETTER UK
оу	U+0479; CYRILLIC SMALL LETTER UK
⌐	U+A668; CYRILLIC CAPITAL LETTER MONOCULAR O
⌑	U+A669; CYRILLIC SMALL LETTER MONOCULAR O

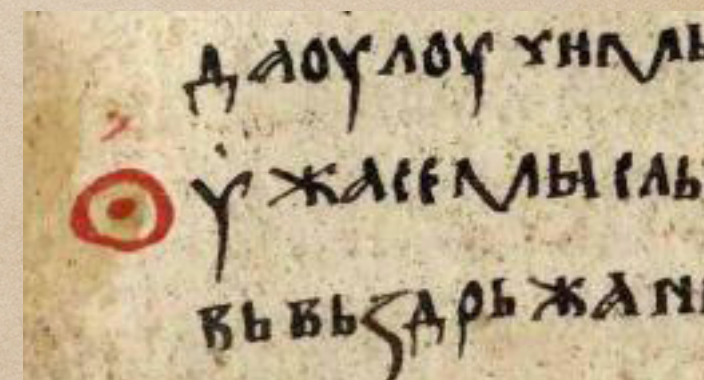
In the first sample, the individual parts of the digraph < Оу > are clearly treated as such: only the first letter is written as an initial in front of the body text and drawn in red, the second part is not.

The second sample shows that the first letter can also have a dot in it. The 'monocular < ⌐ >', however, is encoded in Unicode as a separate letter. If one wants to preserve the dot inside, the string can only be encoded as two separate letters: < ⌐ у >.

Both samples offer good arguments in favour of encoding < o y > as separate letters, just like one does with German < s c h >.

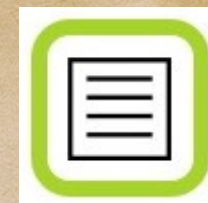


Minei za jul 13??, p. 10



Minei za jul 13??, p. 16



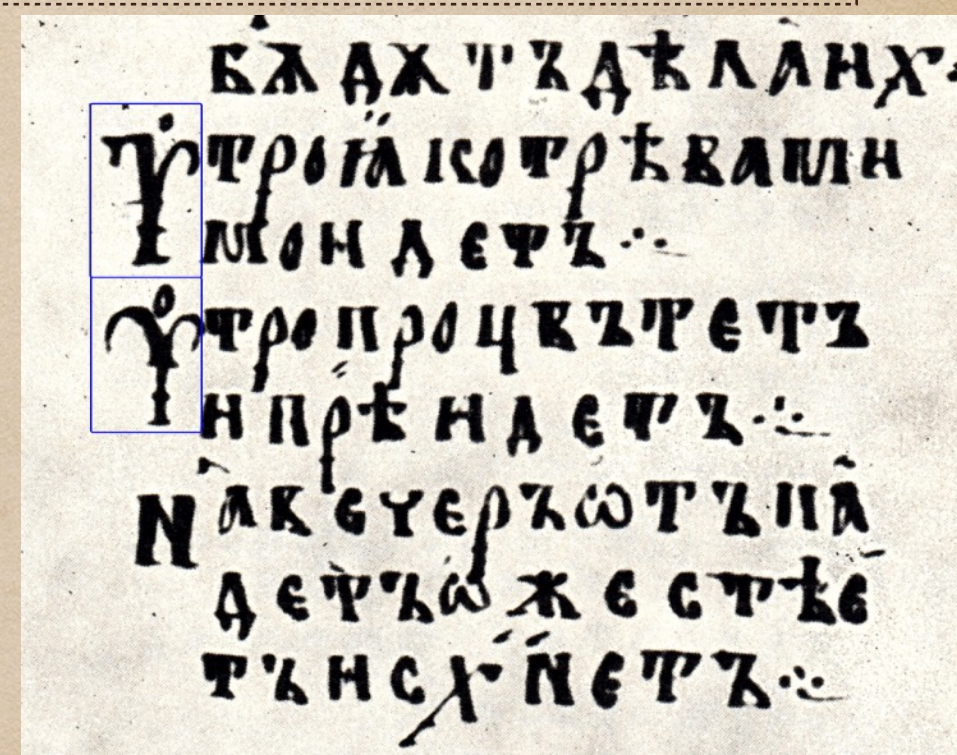
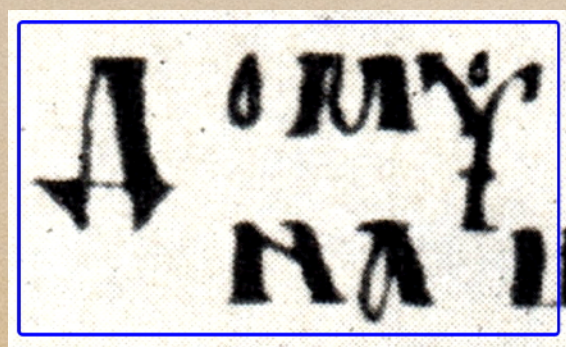


## Special Glyphs: Cyrillic Оу оу

Оу	U+0478; CYRILLIC CAPITAL LETTER UK
оу	U+0479; CYRILLIC SMALL LETTER UK
Ѹ	U+A64A; CYRILLIC CAPITAL LETTER MONOGRAPH UK
Ѹ	U+A64B; CYRILLIC SMALL LETTER MONOGRAPH UK
ѹ	U+1C88; CYRILLIC SMALL LETTER UNBLENDED UK

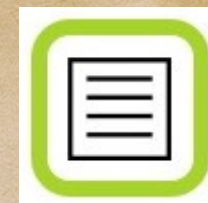
The Bolonski Psaltir shows another variation of writing the [u] sound: the base and the superscript switch their places. This is not encoded separately in Unicode but can be typeset using the base < y > plus a superscript < ° >. The glyph occurs as a capital and as a lowercase letter.

Possibly, this is an intermediate step in writing оу/ѹ/Ѹ > ѹ > у.



Bolonski Psaltir p. 298 / 418.



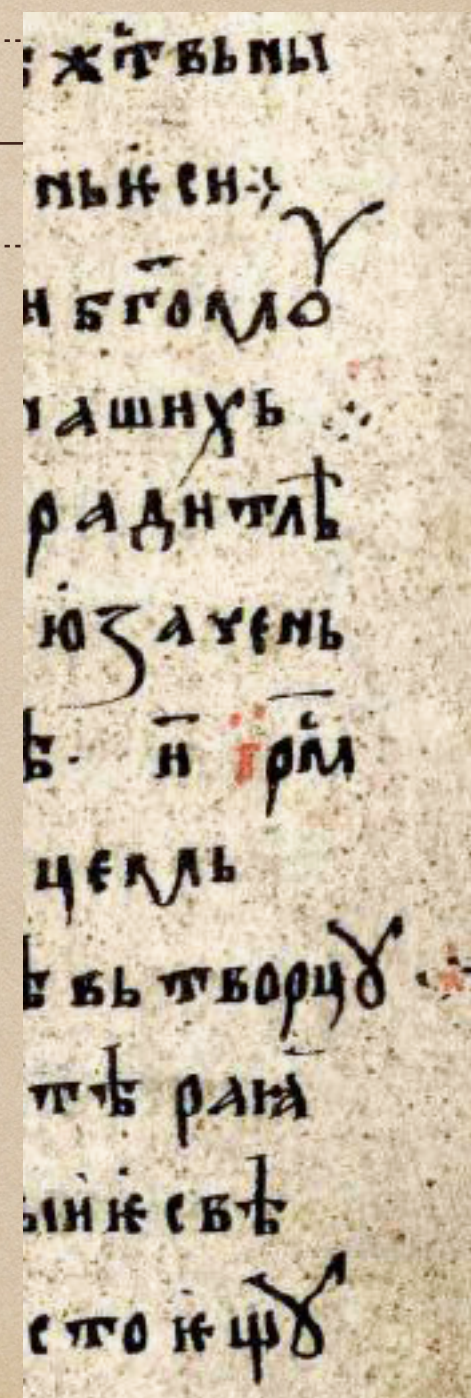


## Cyrillic Ѹ ѹ

Ѹ	U+A64B; CYRILLIC SMALL LETTER MONOGRAPH UK
ѹ	U+1C88; CYRILLIC SMALL LETTER UNBLENDED UK

Two versions of writing the [u] sound on one and the same page, always at the end of lines.

This sample also shows that the ‘unblended uk’ existed in handwriting long before synodal printing (for which the unblended uk was included in Unicode).

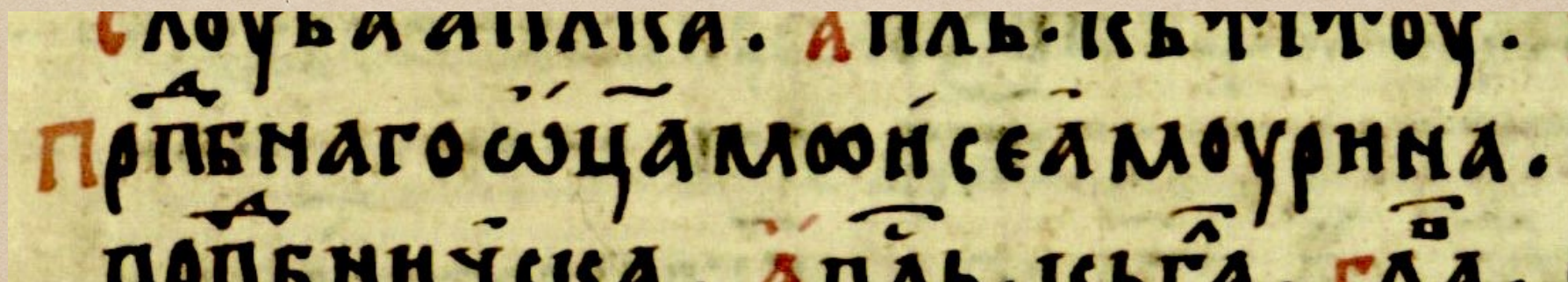




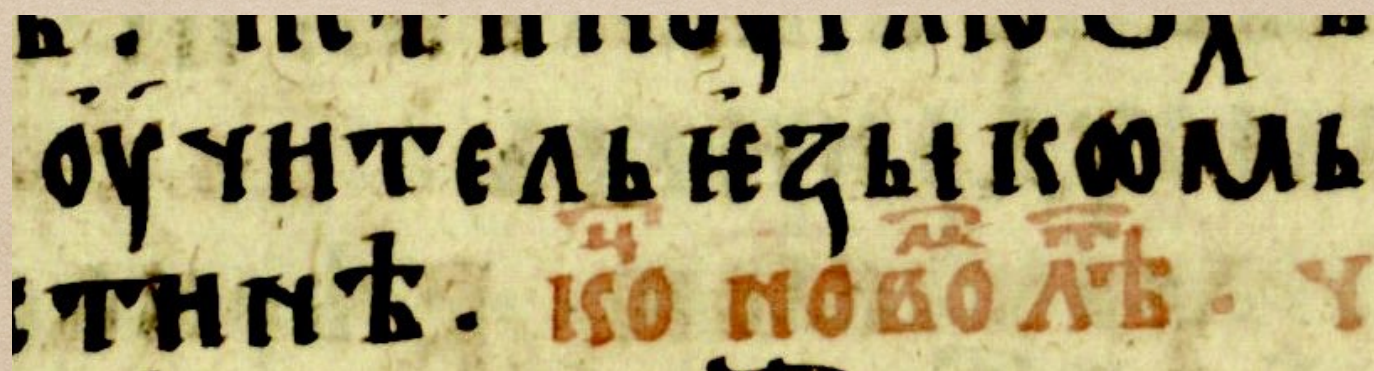


## Cyrillic ОО оо

О	U+A698; CYRILIC CAPITAL LETTER DOUBLE O
о	U+A699; CYRILIC SMALL LETTER DOUBLE O



In these samples, the double o is a substitute for the more common omega, and/or used in the plural.




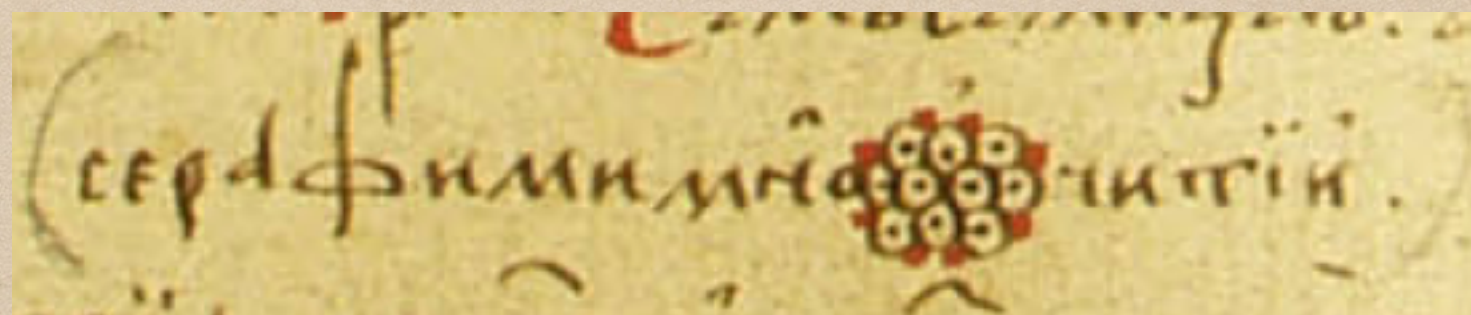
Апостол 1310 270об



# Cyrillic



	U+A66E; CYRILLIC CAPITAL LETTER MULTIOCLULAR O



This is the only known sample of the ‘many-eyed o’, as used in ГБЛ, ф. 304/І, № 308, fol. 234v.

ГБЛ, ф. 304/І, № 308,  
fol. 234v.

The shape of this glyph was introduced to Unicode as seven-eyed o shape, but corrected to the ten-eyed form in 2022.

The character exists as a lowercase character only.

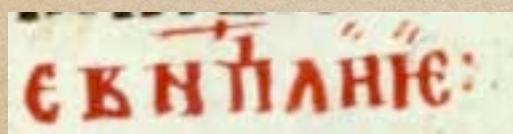
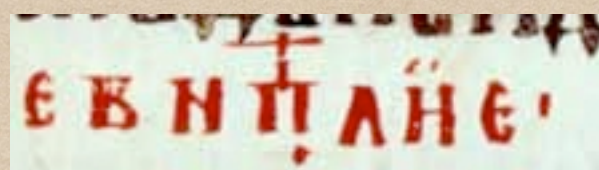
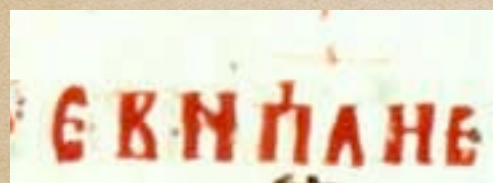
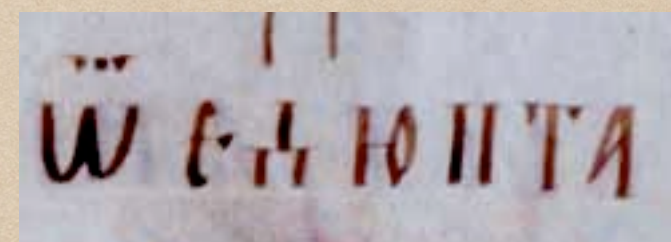




# Cyrillic Ѣ ѣ

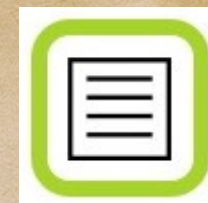
Ѣ	U+A648; CYRILLIC CAPITAL LETTER DJERV
ѣ	U+A649; CYRILLIC SMALL LETTER DJERV

Shown here is an early sample (12th c.) of the  
< Ѣ > character.



Miroslavovo Ev. (1180)

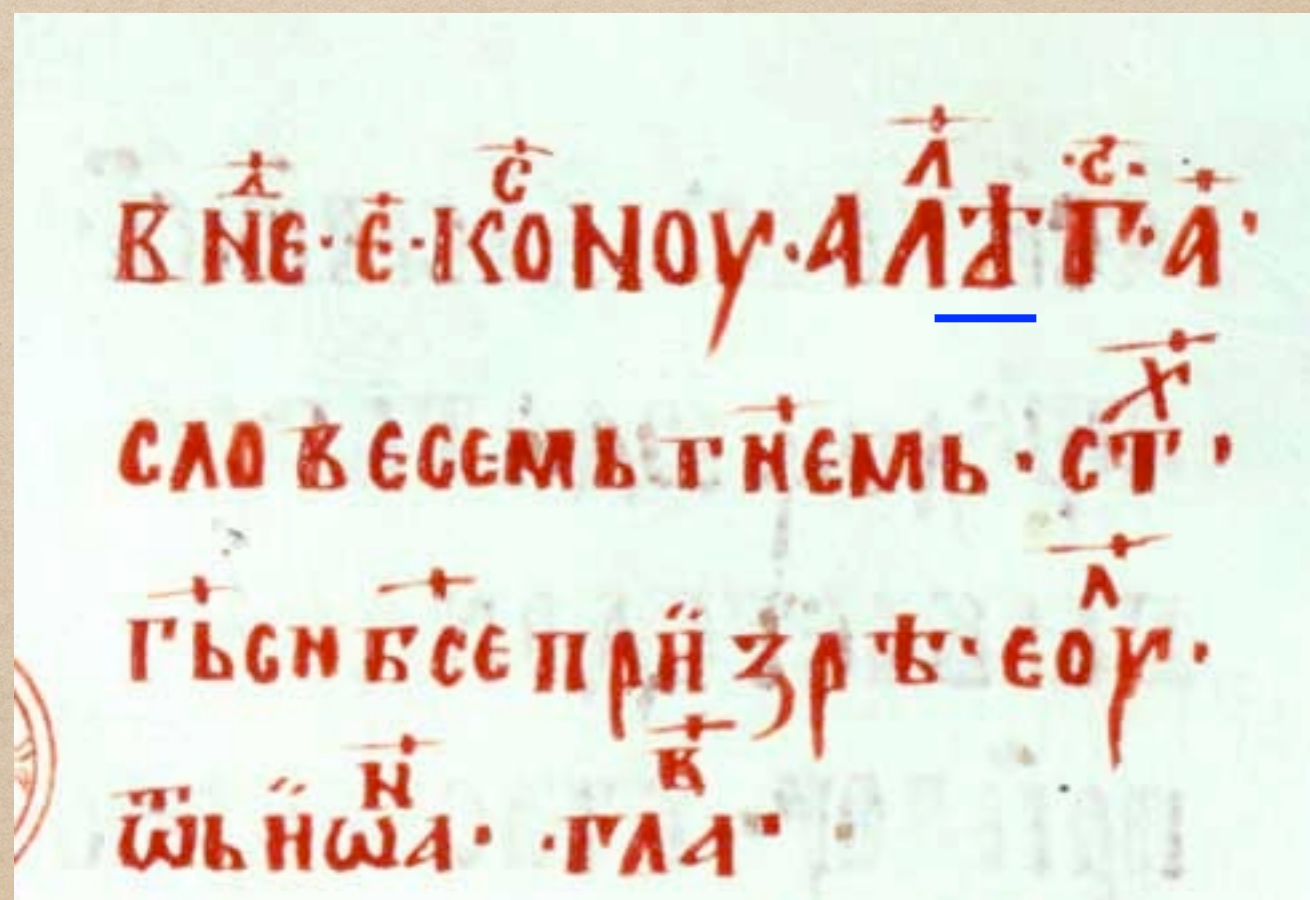




## Cyrillic ‘flipped yat’

Ѣ	U+0462; CYRILLIC CAPITAL LETTER YAT
ѣ	U+0463; CYRILLIC SMALL LETTER YAT

Shown here is a sample of a flipped yat - see first line. This is not encoded in Unicode.



Miroslavovo Ev. (1180), p. 29





## Cyrillic psi: **Ψ** **ψ**

Ψ	U+0470; CYRILLIC CAPITAL LETTER PSI
ψ	U+0471; CYRILLIC SMALL LETTER PSI

A sample of the ‘sword’-like shape of the Cyrillic psi. Occurs in lowercase and in uppercase positions.



**Bolonski psaltir (13th c.), p. 232**

*Available as an optional character in RomanCyrillic Std, Kliment Pro and Method Std fonts.*

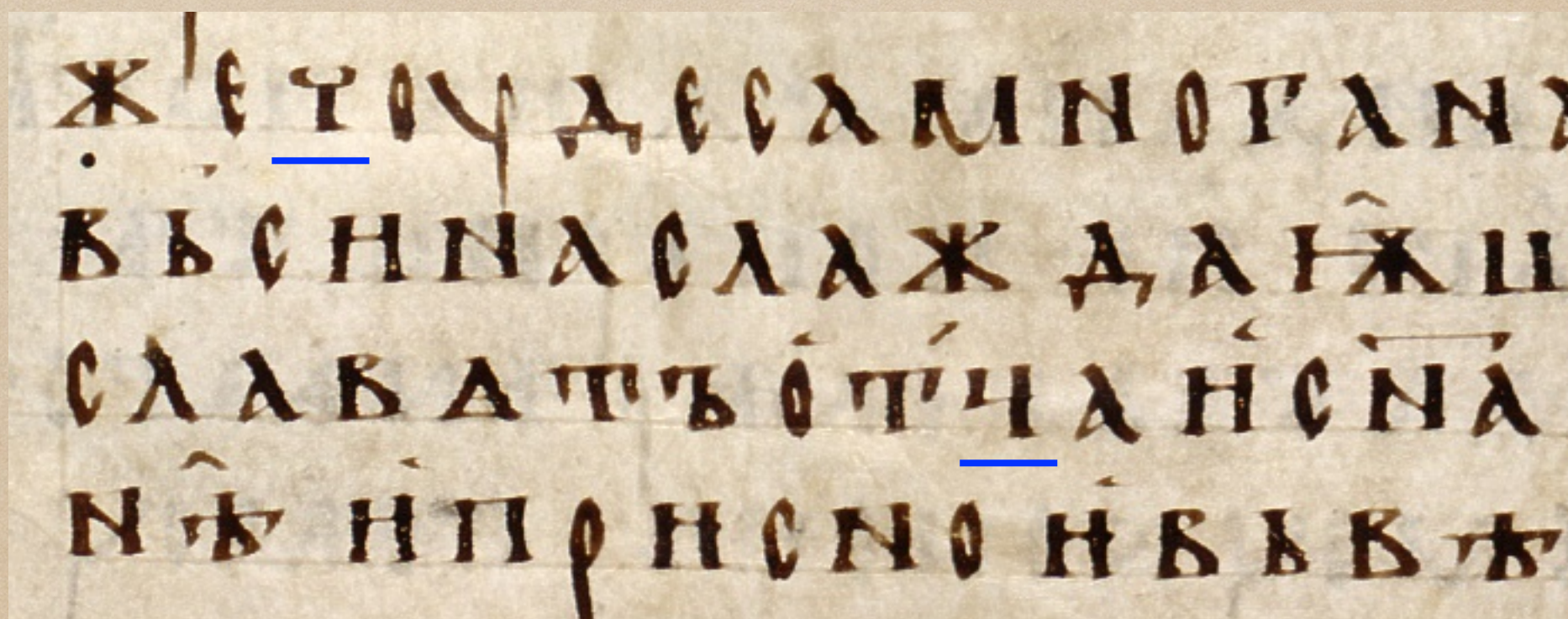




## Old variants of Cyrillic < ч ц >

ч	U+0447; CYRILLIC SMALL LETTER CHE
ц	U+0446; CYRILLIC SMALL LETTER TSE

Both letters have historic variants: < ѣ ѣ >. Note that there is an interdependency in the use of the older and younger forms: you probably wouldn't want to use the younger form < ч che > and the older form < ѣ tse > in the same text because it would confuse the reader.



Suprasliensis fol. 12

Available in RomanCyrillic Std, Kliment Pro and Method Std fonts.



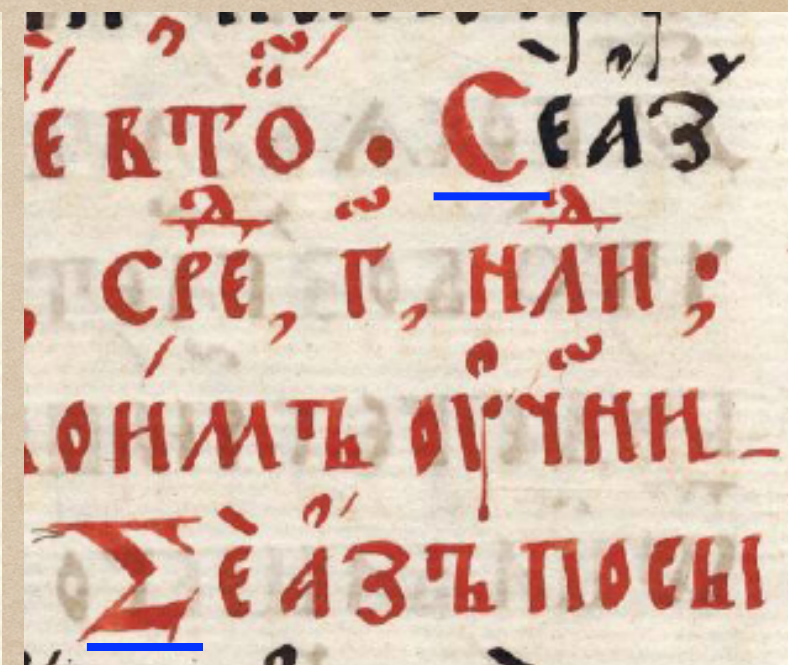


# Cyrillic < С > and Greek Sigma

С	U+0421; CYRILLIC CAPITAL LETTER ES
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In 17th c. Kievan printing, but also in manuscripts from the same time, the Cyrillic uppercase < С > sometimes acquires the shape of the Greek sigma, in headlines as well as body text. A clear functional difference is not obvious.

A 'Cyrillic Sigma' is currently not encoded in Unicode. Thus, such glyphs can only be handled as free variants of the standard glyph.



Četverojevanđelje (Paxomije, 1685)  
<http://resolve.ubsm.bg.ac.rs/HRS/20>

Available in RomanCyrillic Std, Kliment Pro and Method Std fonts.



# Cyrillic nasal back yer



Ѣ	U+0470; CYRILLIC SMALL LETTER HARD SIGN
ѣ	U+0328; COMBINING OGONEK

Ščerkin, Bolonskaja psaltyr', SPb. 1906: 161 talks about a nasal back yer:

гиналу, т. е. писецъ удалилъ ж на основаніи своего говора. Та же Норовская псалтырь безъ исключенія пишетъ только нж ѡλλѣ; такое правописание въ памятникѣ строго юсовомъ можетъ быть объяснено всего естественнѣе возникновеніемъ носового ѣ, подъ вліяніемъ предыдущаго н <sup>1</sup>). Я полагаю, что по всѣмъ своимъ фонетическимъ условіямъ нѣ ѡλλѣ стояло совершенно одиноко, чѣмъ и объясняю тотъ фактъ, что въ Норовской псалтыри нѣтъ другихъ примѣровъ перехода ѣ въ ж (ибо носовое ж этой эпохи слѣдуетъ опредѣлять какъ ѣ). Въ памятникахъ македонскаго нарѣчія ж на мѣстѣ полугласной является при болѣе или менѣе ясныхъ указаніяхъ на неносовой характеръ самого ж: въ Болонской псалтыри, употребляющей полугласныя

*Available as an optional character or combination in  
RomanCyrillic Std, Kliment Pro and Method Std fonts.*



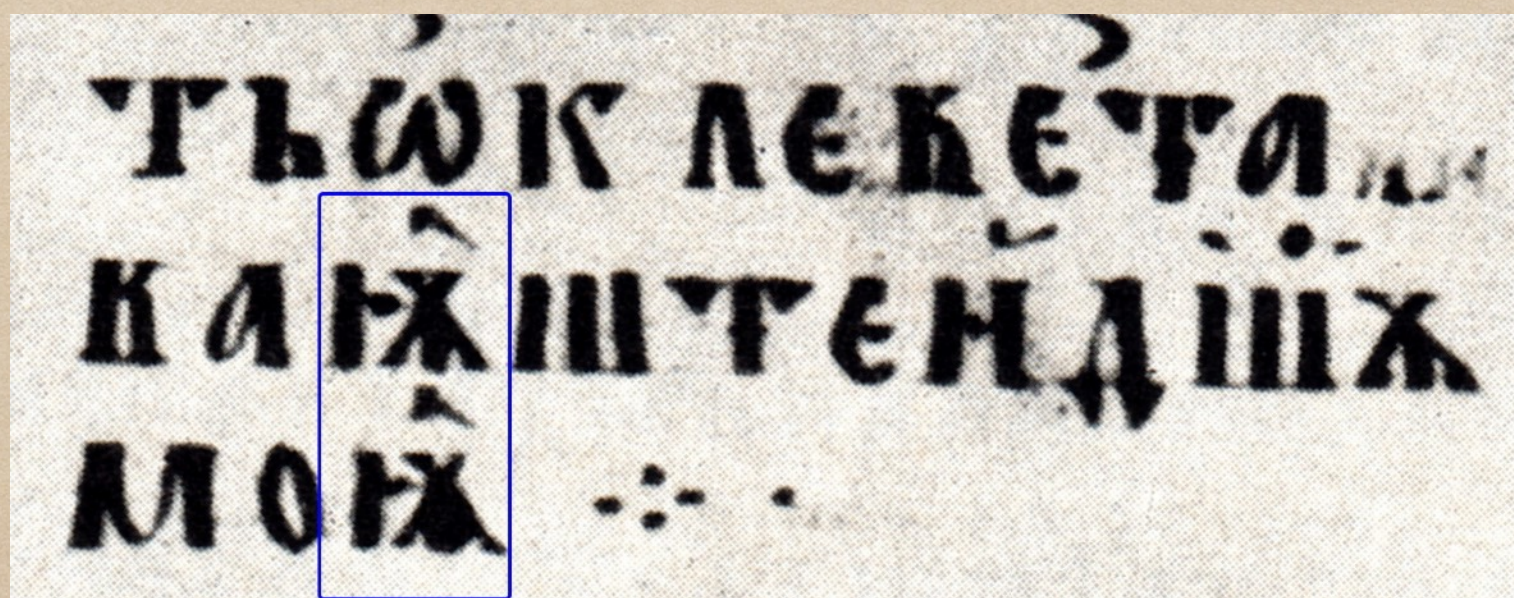


## Cyrillic iotified big yus

Ѹ	U+046B; CYRILLIC SMALL LETTER BIG YUS
Ѹ̇	U+046D; CYRILLIC SMALL LETTER IOTIFIED BIG YUS

Broken-up glyphs of the iotified big yus can be found especially in early manuscripts. Below, samples from the Bolonski psaltir are shown (p. 230 = fol. 119v). This shows that the character was indeed considered to be a ligature of its two parts.

The first part similar to Greek heta in shape (Ϡ), is not available in Cyrillic Unicode.



*Available as an optional character in RomanCyrillic Std,  
Kliment Pro and Method Std fonts.*





## Cyrillic flipped ю

Ю	U+A654; CYRILLIC CAPITAL LETTER REVERSED YU
ю	U+A655; CYRILLIC SMALL LETTER REVERSED YU

Ščerkin, Bolonskaja psalmyr', SPb. 1906: 21 on the occurrence of the 'flipped ю' ('Reversed YU'):

**ю имѣтъ видъ ѡ въ слѣдующихъ случаяхъ: ѡиентъ во 15,4 иоидей-  
скѣж кѣнаѣж 23.4, кѣ ѡзѣвѣстнѣ ѡдамѣ 38.2, ѡидемъ 42.4, маса ѡнѣча  
83.1. О ю и оу послѣ шипящихъ см. въ фонетикѣ.**

Vostokov, Cerkovnosl. gramm., SPb. 1863: 5 on the occurrence of the 'flipped ю' ('Reversed YU'):

**10) ѡ употребленное кое-гдѣ въ Сборникѣ 1073 г. вмѣсто  
ю, встрѣчается также въ грамотѣ Болгарскаго царя Асѣня,  
пиѣанной между 1185 и 1195 г.: ѡибоѡвнѣмъ, и въ Апост.  
Болгарскомъ XV в.**

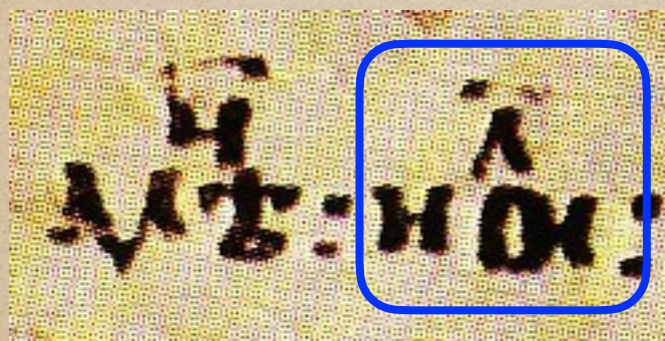
*Available in RomanCyrillic Std, Kliment Pro and Method Std fonts.*



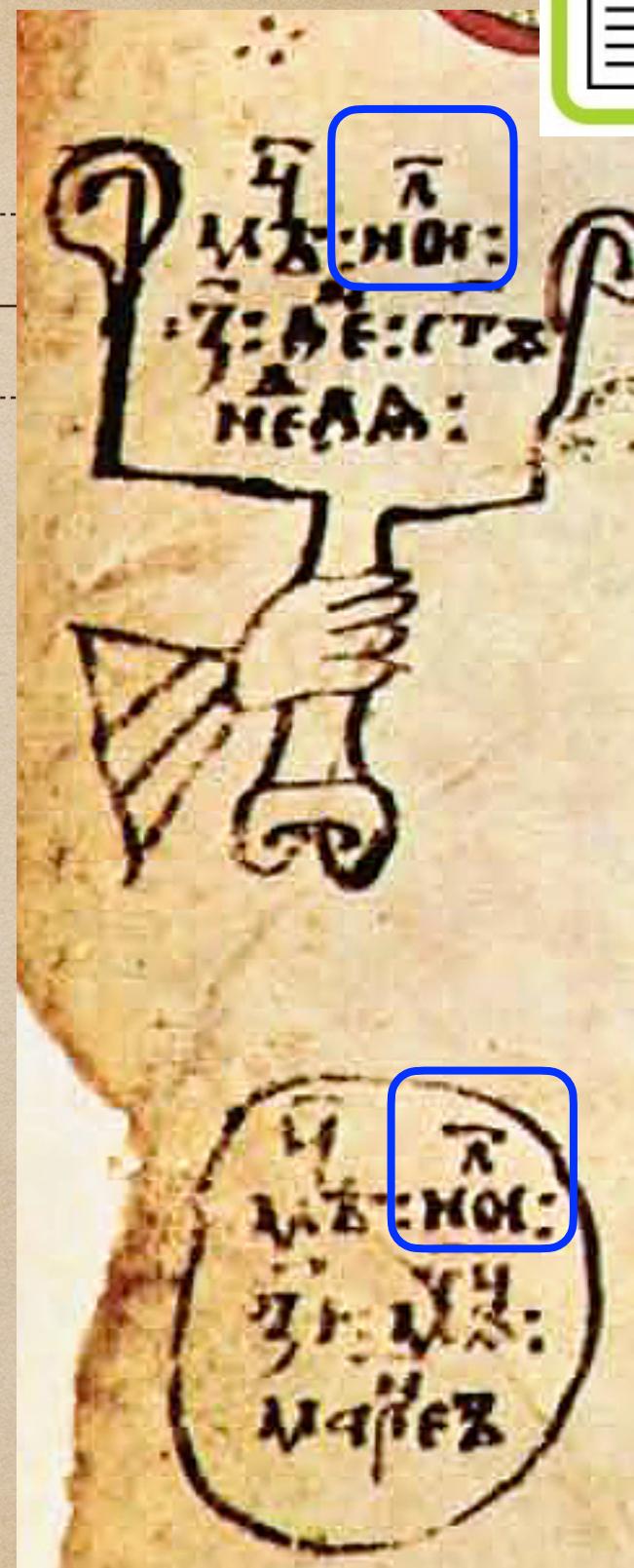
# Cyrillic flipped ю

Ю	U+A654; CYRILIC CAPITAL LETTER REVERSED YU
ю	U+A655; CYRILIC SMALL LETTER REVERSED YU

The flipped yu also occurs (at least) three times in the Cyrillic additions to the Codex Assemanianus (fol. 150v): [МѢСАЦЬ] ИЮЛ(Ь).



Available in RomanCyrillic Std, Kliment Pro and Method Std fonts.



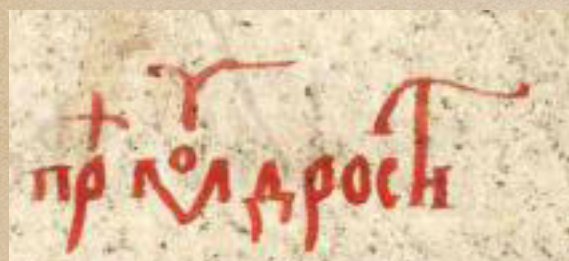




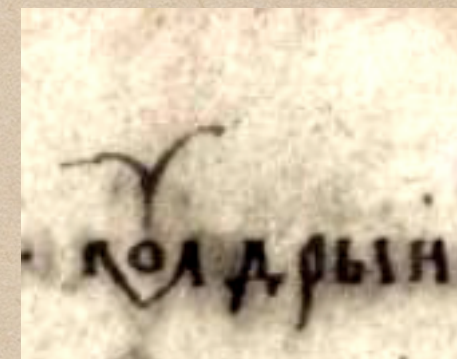
## Special Glyphs: Cyrillic Ѹ ѹ

Ѹ	U+A64A; CYRILLIC CAPITAL LETTER MONOGRAPH UK
ѹ	U+A64B; CYRILLIC SMALL LETTER MONOGRAPH UK
Ѻ	U+1C88; CYRILLIC SMALL LETTER UNBLENDED UK

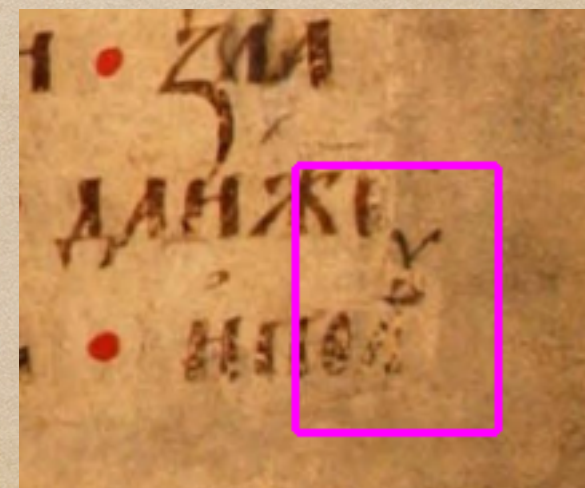
The ‘unblended uk’ is also attested as a **superscript**, not just as an inline character. **Currently, this is not encoded in Unicode.**



Minei za jul (13??), p. 15



Minei za jul (13??), p. #



Psaltyr p. 35





## Cyrillic Monograph UK Ѹ ѹ vs. Monocular O

Ѹ	U+A64A; CYRILLIC CAPITAL LETTER MONOGRAPH UK
ѹ	U+A64B; CYRILLIC SMALL LETTER MONOGRAPH UK
Ѻ	U+1C88; CYRILLIC SMALL LETTER UNBLENDED UK
⦿	U+A668; CYRILLIC SMALL LETTER MONOCULAR O
⦿	U+A669; CYRILLIC SMALL LETTER MONOCULAR O

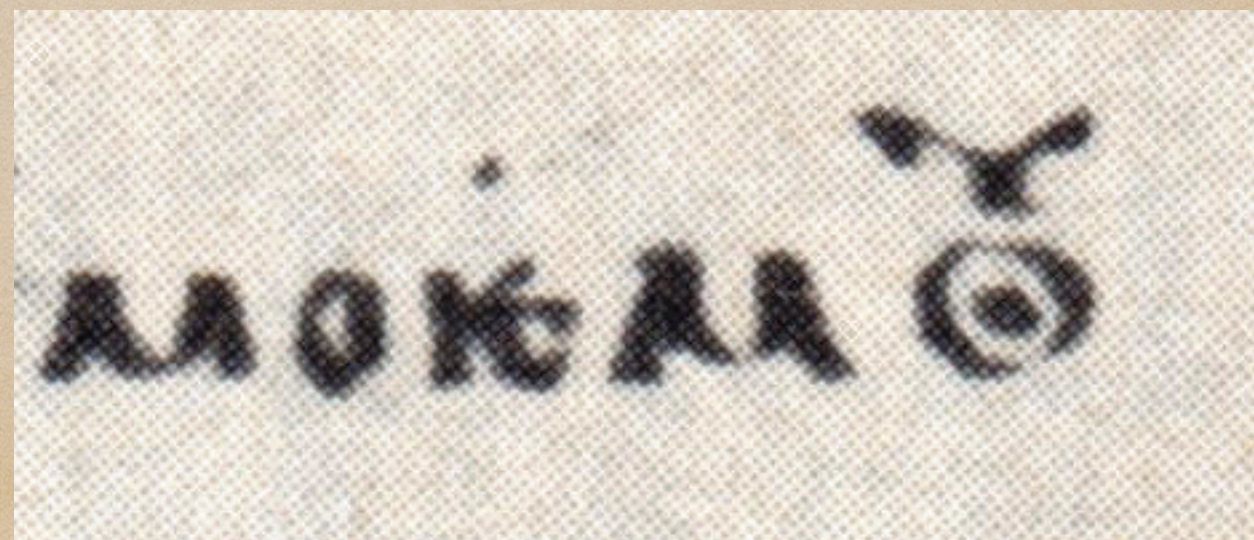
The Monograph Uk and the Unblended Uk sometimes feature a dot inside the 'O', i.e. just like the separately encoded letter 'Monocular O'. A Monograph Uk or an Unblended Uk with dot is not available in Unicode.

In encoding these strings, one would either have to omiss the dot or encode the glyph as a sequence of two letters, with Monocular O as the base and a superscript Izhitsa (or Y).

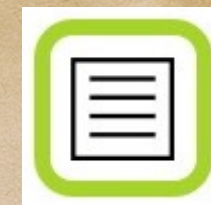


Bolonski psaltir, p. 224

Karpinsko ev., l. 139







## Special Glyphs: Capital Cyrillic ‘Unblended oy’

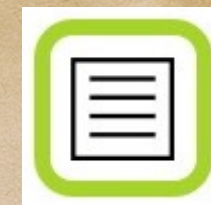
Ѳ	U+1C88; CYRILLIC SMALL LETTER UNBLENDED UK
-	CYRILLIC CAPITAL LETTER UNBLENDED UK

This sample shows that the unblended oy exists not only as a small letter, but as a **capital** letter, too. Further, it can be written in this interesting way. **Currently, a capital unblended oy is not available in Unicode** (in this or any other shape).



Codicis Sofiensis fol. 158 [recte 160] from Jagić, Psalterium Bononiense, 1907, appendix pl. XVI.





## Special Glyphs: Cyrillic o and its variants

⊕	U+A69A; CYRILLIC CAPITAL LETTER CROSSED O
⊖	U+A69B; CYRILLIC SMALL LETTER CROSSED O
⊙	U+A668; CYRILLIC CAPITAL LETTER MONOCULAR O
⦶	U+A669; CYRILLIC SMALL LETTER MONOCULAR O
∞	U+A698; CYRILLIC CAPITAL LETTER DOUBLE O
∞	U+A699; CYRILLIC SMALL LETTER DOUBLE O
⦶	U+A66C; CYRILLIC CAPITAL LETTER DOUBLE MONOCULAR O
⦶	U+A66C; CYRILLIC SMALL LETTER DOUBLE MONOCULAR O

Vostokov, Grammatika (1863, 4) on the various 'o's:

**Позднѣйшіе писцы умножили безъ  
нужды начертанія буквы о еще слѣдующими: .**

**∞, употреблявшимся въ именахъ числительныхъ двой-  
ственного числа: двою, обю, и въ словѣ прочіа.**

**⦶, ⦶ и ⦶ въ словахъ око, око, очі, очеса, очію, очима,  
⦶чима.**

**⦶ въ словахъ ѿкрѣтъ, ѿкругъ.**

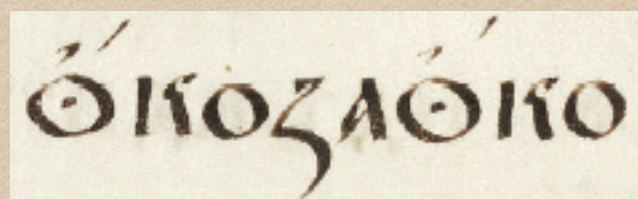




## Special Glyphs: Cyrillic ‘monocular o’

⦿	U+A668; CYRILLIC CAPITAL LETTER MONOCULAR O
⦿	U+A669; CYRILLIC SMALL LETTER MONOCULAR O

A sample of the ‘monocular o’ in the Biblical motto ‘eye for an eye’:



Elizavetgradskoe ev., XVI v., p. 33

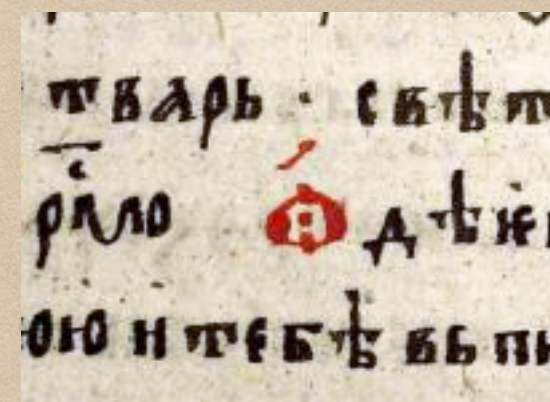




## Special Glyphs: Cyrillic Round Omega with Dot

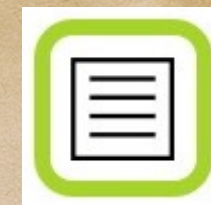
Ω	U+047A; CYRILIC CAPITAL LETTER ROUND OMEGA
ω	U+047B; CYRILIC SMALL LETTER ROUND OMEGA
⦿	U+A668; CYRILIC CAPITAL LETTER MONOCULAR O
⦿	U+A669; CYRILIC SMALL LETTER MONOCULAR O

This sample shows that the Round Omega also exists with a dot inside, just like the ‘monocular o’. Currently, a round omega with dot is not encoded in Unicode. Such cases could be encoded either as a monocular o, omitting the fact that this is a round omega and not a standard o, or as an optional glyph variant of the round omega (if the font provides one).



Minei za jul (13??), p. 12



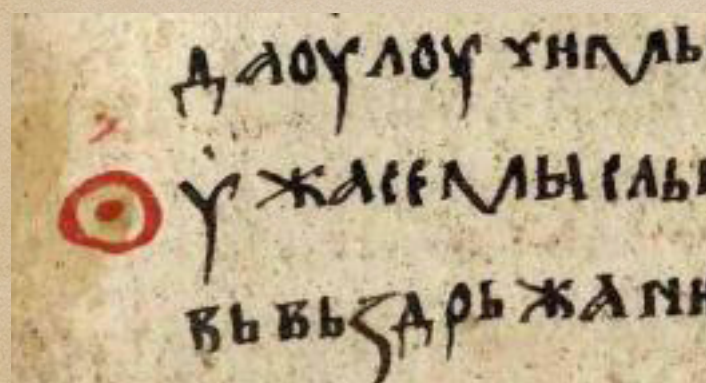


## Special Glyphs: Cyrillic Monocular O

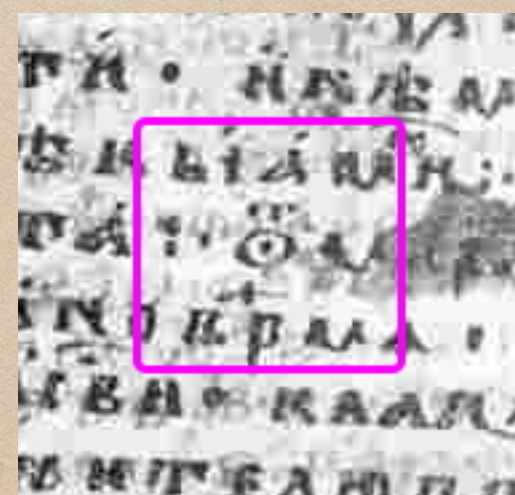
Oy	U+0478; CYRILLIC CAPITAL LETTER UK
oy	U+0479; CYRILLIC SMALL LETTER UK
⓪	U+A668; CYRILLIC CAPITAL LETTER MONOCULAR O
Ⓢ	U+A669; CYRILLIC SMALL LETTER MONOCULAR O

The 'monocular o' (o with dot inside) can also appear as the first part of the < oy > digraph or as the base for a superscripted 'ot'. As such **the combination < ⓪y > is not encoded in Unicode.**

It can only be faithfully reproduced by encoding the two letters of the uk digraph as separate letters: ⓪ + у.



Minei za jul (13??), p. 16



Bojanski palimpsest f. 33r



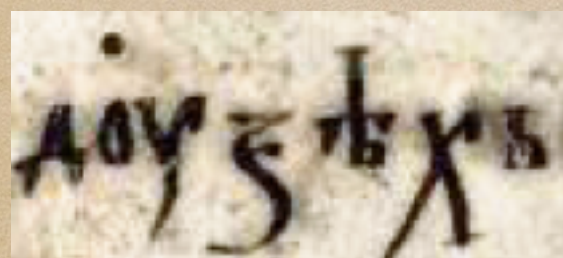


## Special Glyphs: Cyrillic Dzelo

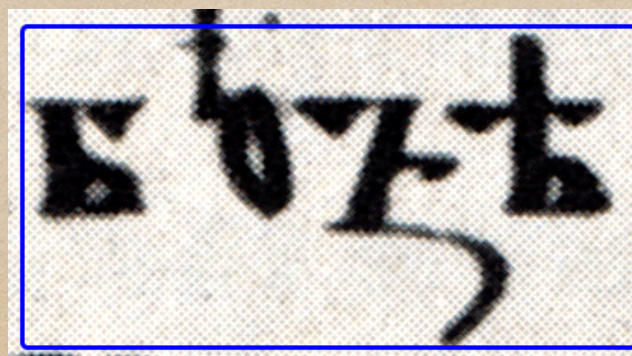
З	U+A640; CYRILLIC CAPITAL LETTER ZEMLYA
з	U+A641; CYRILLIC SMALL LETTER ZEMLYA
Ꙑ	U+A642; CYRILLIC CAPITAL LETTER DZELO
ꙑ	U+A643; CYRILLIC SMALL LETTER DZELO

Although the ‘z with stroke’ is sometimes used in the same function as a standard < з >, its correct use is different: it signals a soft consonant, as in the sample shown: доуꙑѣхъ (< доухъ). The stroke is essentially the same as in < Ѧ Ѧ Ѧ > etc.

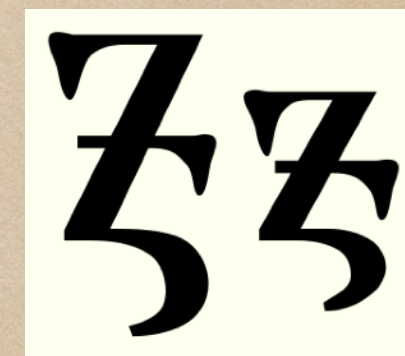
It has been correctly pointed out (see next slide) that glyphs with a long stroke (visible on both sides of the stem) are not free variants of this letter but rather variants of standard < з >. They can also sometimes be the result of a correction applied to a mistakenly written < з >.



Minei za jul (13??), p. 1



Bolonski psaltir p. 241







## Special Glyphs: Cyrillic Dzelo

Ƶ	U+A640; CYRILLIC CAPITAL LETTER ZEMLYA
ƶ	U+A641; CYRILLIC SMALL LETTER ZEMLYA
Ʒ	U+A642; CYRILLIC CAPITAL LETTER DZELO
Ƹ	U+A643; CYRILLIC SMALL LETTER DZELO

**Ʒ различается отъ Ƹ, о чемъ см. также въ фонетикѣ. Смѣшеніе обоихъ знаковъ только кажущееся: 4Ʒъ есть поправка ошибочнаго написанія 4Ƹъ: ошибка была замѣчена писцомъ, который тотчасъ создалъ графическій вариантъ Ʒ = ƶ, а не Ƹ. Одинъ разъ крючекъ знака Ʒ скрытъ подъ кляксомъ и только однажды онъ пропущенъ въ такомъ случаѣ, гдѣ мы ожидали бы Ƹ: нозѣ л. 24. О написаніи ц вм. Ƹ см. въ фонетикѣ.**

Ščerkin, Bolonskaja psaltir'  
1906: 19.

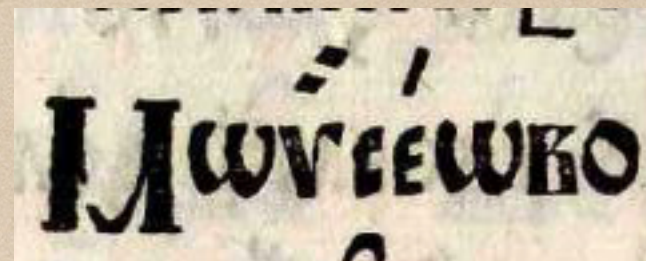


# Special Glyphs: Cyrillic Izhitsa w. double grave accent



Ѻ	U+A640; CYRILLIC CAPITAL LETTER IZHITSA WITH DOUBLE GRAVE ACCENT
ѻ	U+A641; CYRILLIC SMALL LETTER IZHITSA WITH DOUBLE GRAVE ACCENT

A variant of the izhica with the double grave accent: almost vertically stacked short rectangles - more like squares than accents (see the acute accent on the 'e').







## Special Glyphs: Cyrillic ЎІ & ЎІ

ЎІ	U+A650; CYRILLIC CAPITAL LETTER YERU WITH BACK YER
ѡІ	U+A651; CYRILLIC SMALL LETTER YERU WITH BACK YER

Vostokov, Grammatika (1863, 5) on the <y>:

**8) ѡІ и ѡІ кажутся одинаково древни. Въ Остромир. и въ большой части другихъ древнихъ рукописей первое начертаніе употреблено исключительно, но въ Сборникахъ 1073 и 1076 годовъ встрѣчается то и другое. Въ Реймскомъ Ев. только ѡІ, Въ нѣкоторыхъ рукописяхъ ѡ или ѡ связанъ черточкою съ і: ѡі, ѡі. Въ Реймск. Ев. между ѡІ точка: ѡІ. Въ древнихъ рукописяхъ встрѣчается употребленіе ѡі, вмѣсто ѡІ, напр. въ Григ. Богосл. XI в., почему можно полагать, что ѡІ есть сократительное начертаніе вмѣсто ѡі. Это подтверждается глагольскою буквою ѡѢ (ѡі), которая составлена просто изъ двухъ буквъ: ѡ (ѡ) и Ѣ (і).**

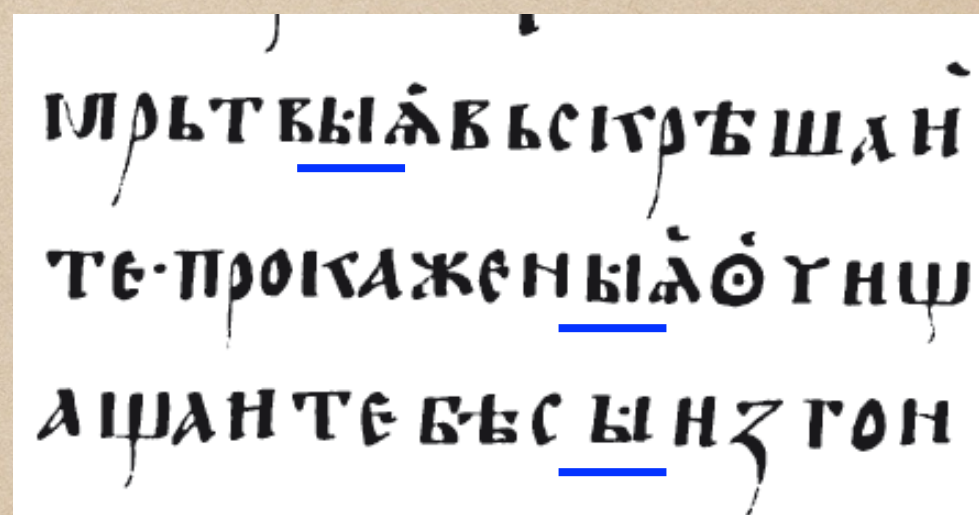
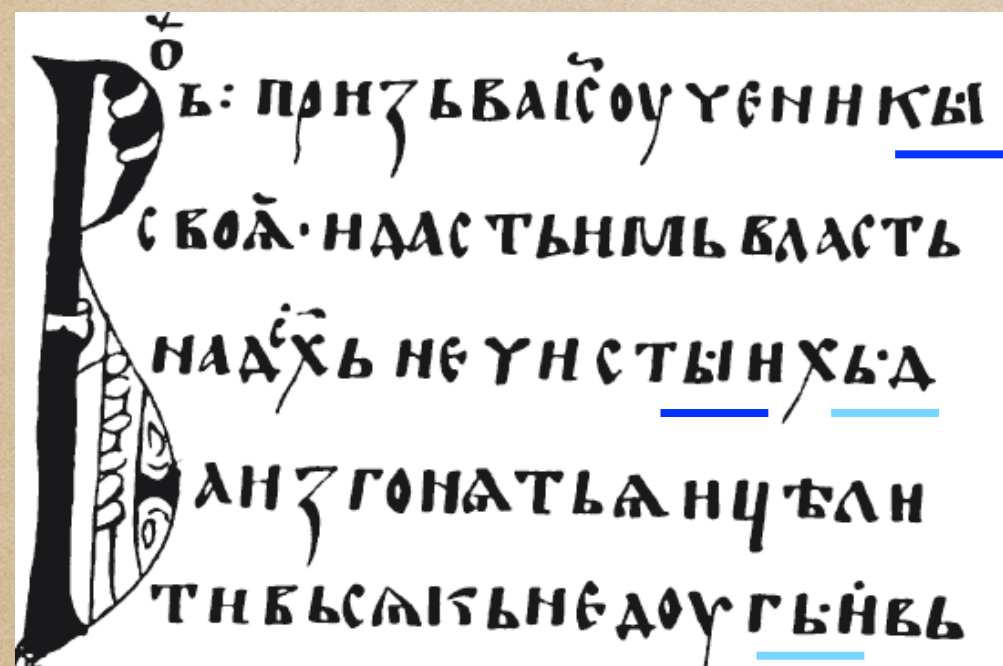




## Special Glyphs: Cyrillic ЫI with dot connector

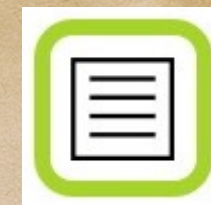
Ы	U+042B; CYRILLIC CAPITAL LETTER YERU
ы	U+044B; CYRILLIC SMALL LETTER YERU

Multiple instances of the < ЫI > 'connected' with a dot from the Reims Gospel (dark blue). Soft sign with dot marked light blue (Source: Kopitar, Evangelia slavice..., 1843: 29). See the note by Vostokov on the previous slide. - No alternate versions of the letter are encoded in Unicode as such.



Available in RomanCyrillic Std, Kliment Pro and Method Std fonts.

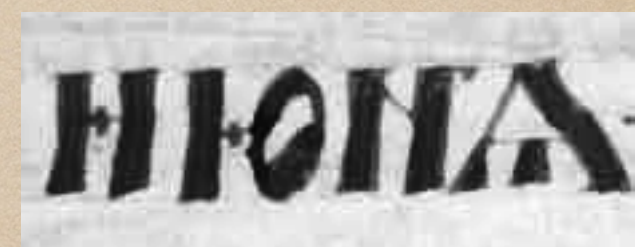




## Special Glyphs: Cyrillic N and L with softness marker

Ŋ	U+A640; CYRILLIC CAPITAL LETTER IZHITSA WITH DOUBLE GRAVE ACCENT
ŋ	U+A641; CYRILLIC SMALL LETTER IZHITSA WITH DOUBLE GRAVE ACCENT

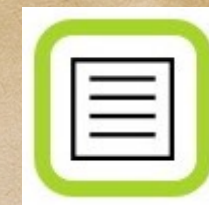
The softness marker attached to several Cyrillic letters (G, D, L, M, N) can be seen here in nice samples in headlines and in standard inline characters from the *Tipografskij ustav* (XI-XII c.) (from the facsimile edition M. 2006)



*Tipografskij ustav*, p. 129 and 137







## Special Glyphs: high variants of Cyrillic < г т р >

Г	U+0433; CYRILLIC SMALL LETTER GHE
т	U+0442; CYRILLIC SMALL LETTER TE
Т	U+A654; CYRILLIC SMALL LETTER TALL TE
р	U+0440; CYRILLIC SMALL LETTER ER

Ščepkin, Bolonskaja psal'tyr', SPb. 1906, p. 22, on the occurrence of certain high variants of lowercase letters:

Наряду съ обычными г р т употребляются высокіе варианты тѣхъ же буквъ: ѡгГлъскъ 41.4, ѡсТъ 6.4, кТѣ 82.2, скРъви 47.3, вРажни 72.3,— всѣ три разсчитаны на экономію мѣста; Г и Т заимствованы изъ греческой графики, при чемъ последнее особенно утвердилось въ Тырновской школѣ.

*Available in RomanCyrillic Std, Kliment Pro and Method Std fonts.*





## Special Glyphs: high variants of Cyrillic < г т р >

Г	U+0433; CYRILLIC SMALL LETTER GHE
т	U+0442; CYRILLIC SMALL LETTER TE
Т	U+A654; CYRILLIC SMALL LETTER TALL TE
р	U+0440; CYRILLIC SMALL LETTER ER

Г р Т

CAPITAL letters

Т Г р

high small letters

*Available in RomanCyrillic Std, Kliment Pro and Method Std fonts.*

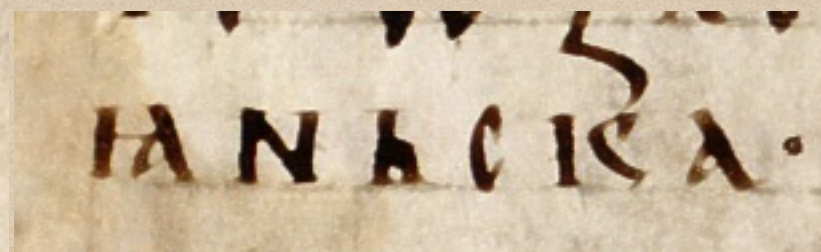
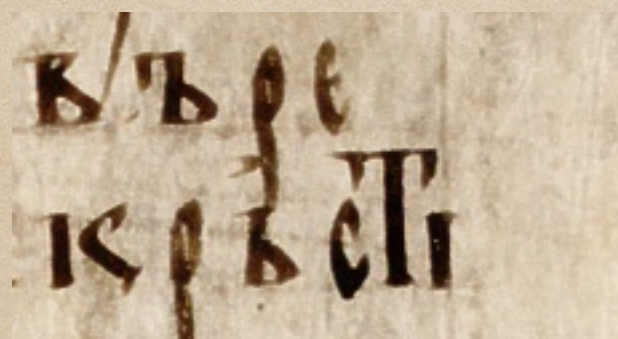




## Special Glyphs: high variants of Cyrillic < т >

т	U+0442; CYRILLIC SMALL LETTER TE
Т	U+A654; CYRILLIC SMALL LETTER TALL TE

This is a sample of the original 'high t': a high version of the standard inline character, not altered in its shape in any way, unlike the later glyphs which are influenced by poluustav hand-writing.



Suprasliensis fol. 8

*Available in RomanCyrillic Std, Kliment Pro and Method Std fonts.*

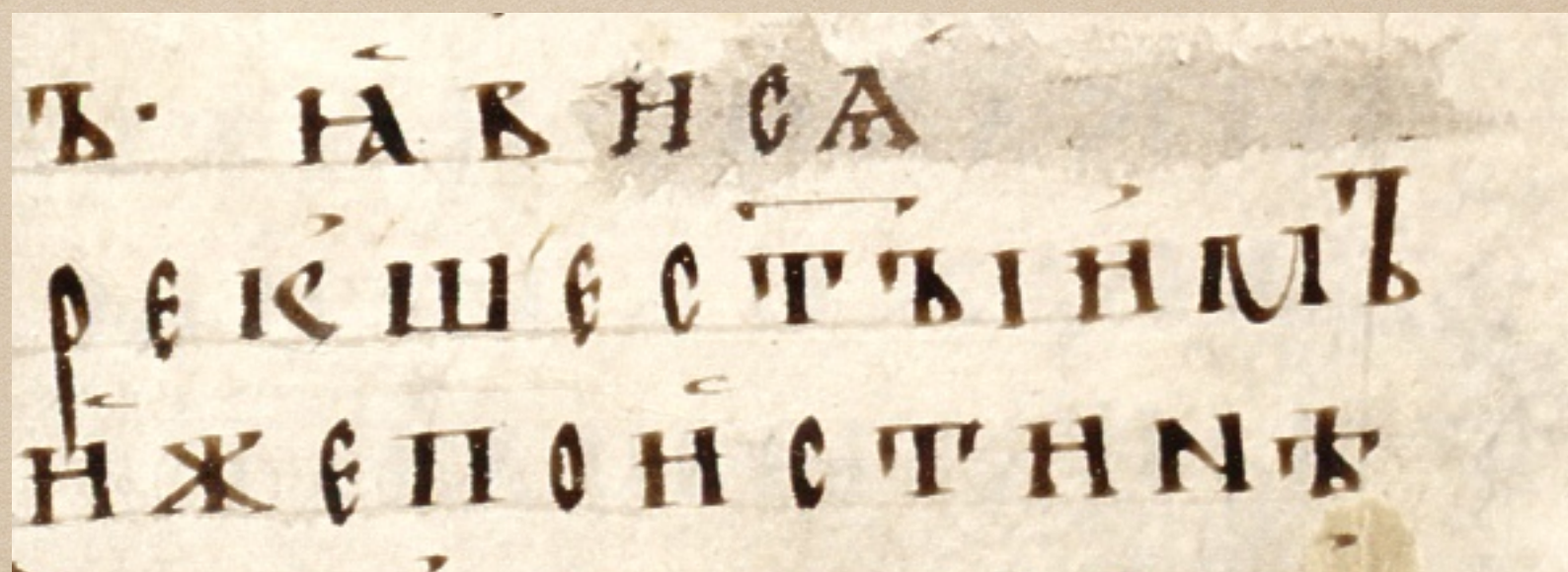




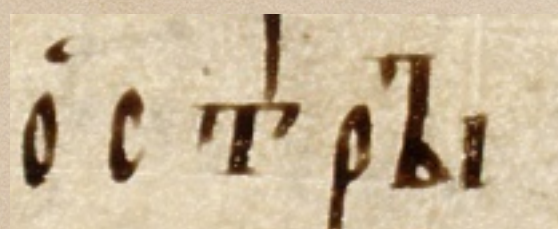
## Special Glyphs: high variants of Cyrillic < ъ >

Ѣ	U+044A; CYRILLIC SMALL LETTER HARD SIGN
Ѥ	U+1C86; CYRILLIC SMALL LETTER TALL HARD SIGN

A sample of a high 'hard sign' at the end of a line. Also occurs as the first element in < Ѥ >, again at the end of a line.



Suprasliensis fol. 6



Suprasliensis fol. 9

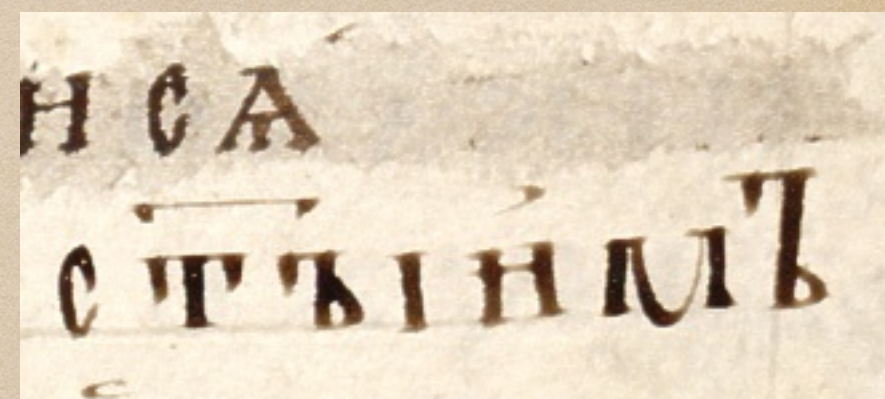
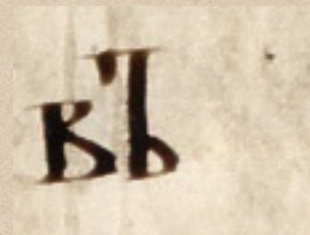
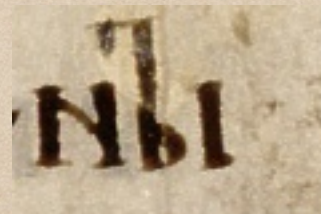
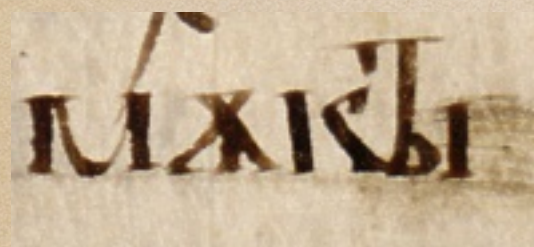
*Available in RomanCyrillic Std, Kliment Pro and Method Std fonts.*



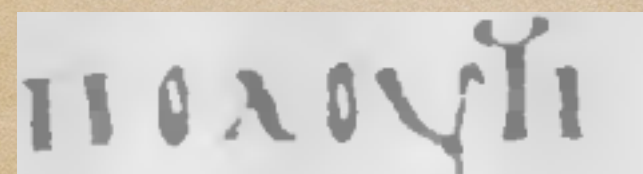
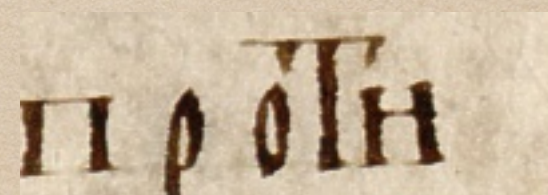
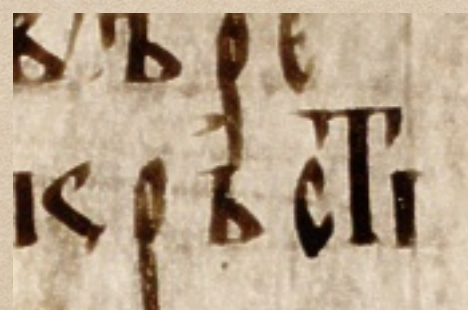
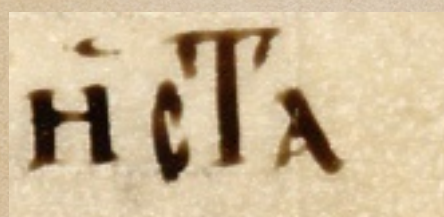


## Special Glyphs: original high variants

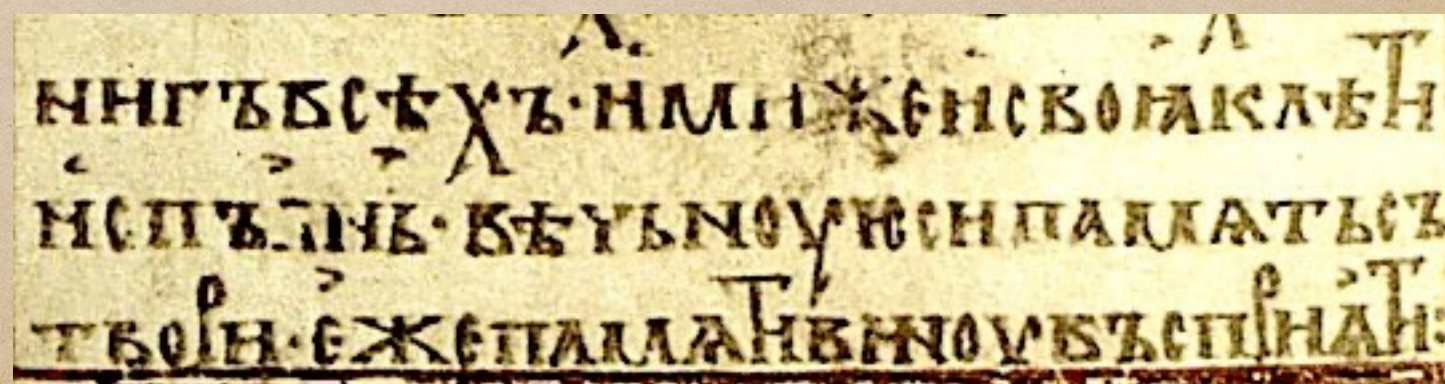
Here are samples of the original high glyphs of standard inline characters. They are simply high versions, not influenced by poluustav-handwriting like the later shapes that were encoded by Unicode. Often used near or at the end of a line. They occur ligates as well as non-ligated.



Codex Suprasliensis



Izbornik 1073



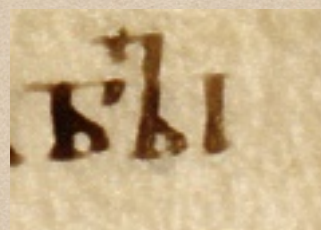
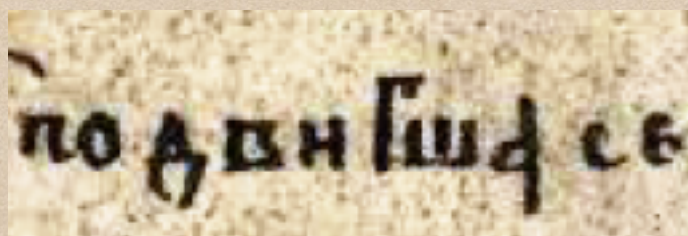




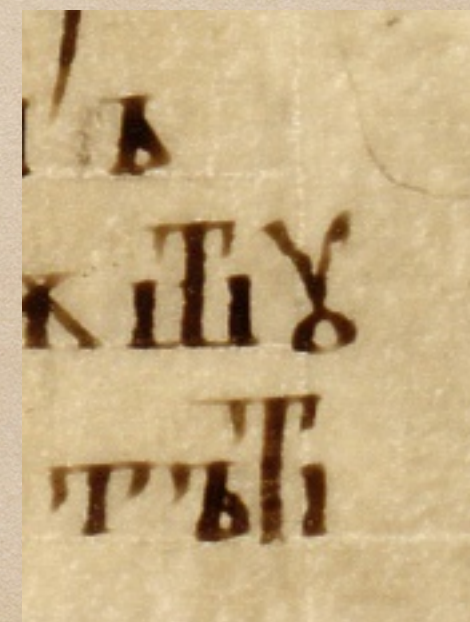
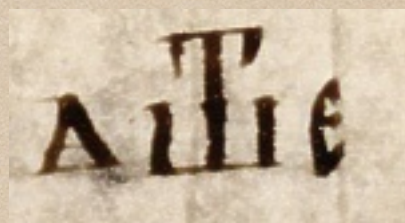
## Special Glyphs: original high variants

The original version of the 'high glyphs' are simply prolonged high variants of the lowercase letters, not the variants encoded in Unicode which were influenced by poluustav handwriting.

Minei za jul 13??, p. 1



Codex Suprasliensis



Available in RomanCyrillic Std, Kliment Pro and Method Std fonts.





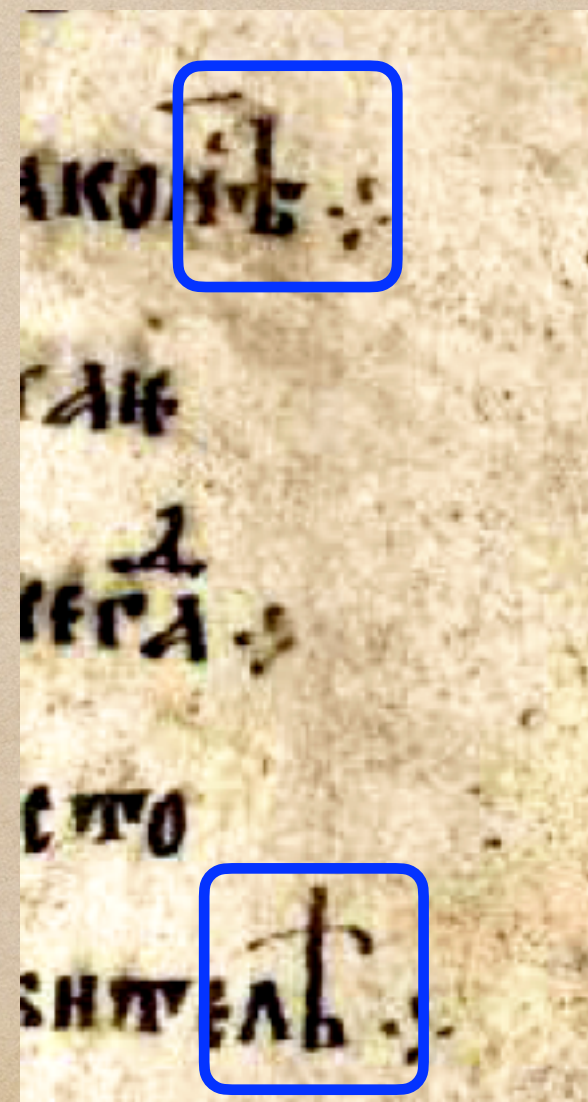
## Special Glyphs: high yat vs yat with high stem

ѣ	U+0442; CYRILLIC SMALL LETTER YAT
ѣ̑	U+A654; CYRILLIC SMALL LETTER TALL YAT

**yat with high stem** - simply a question of writing style resp. font design. The horizontal bar sits at the x-height of lowercase letters.

**high yat.** The horizontal bar sits at the height of upercase characters and has a curved shape here.

Minei za jul 13??, p. 1



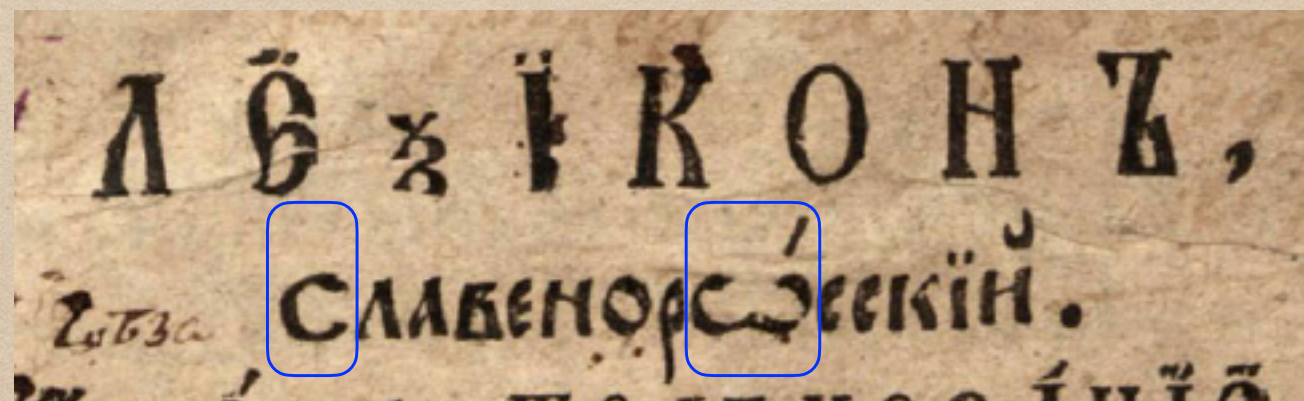




## Special Glyphs: broad Omega Cyrillic / wide es

Ω	U+A64C; CYRILLIC CAPITAL LETTER BROAD OMEGA
ω	U+A64D; CYRILLIC SMALL LETTER BROAD OMEGA
Ѡ	U+1C83; CYRILLIC SMALL LETTER WIDE ES

A sample of broad omega in print  
(from Pamvo Berynda 1653, Lexikon, Title)  
The first letter is a sample of the 'wide es'.



СЛАВЕНОРѠССКІЙ





## Special Glyphs: Cyrillic ghe with upturn

Г	U+0490; CYRILLIC CAPITAL LETTER GHE WITH UPTURN
г	U+0491; CYRILLIC SMALL LETTER GHE WITH UPTURN

Samples of the lowercase 'ghe with upturn' in print  
(from Pamvo Berynda 1653, Lexikon, Title page).  
Then and now used for Ukrainian and books of  
Ukrainian (Kievan) origin.

This glyph is identical to its Greek blueprint, even in  
its typographical shape.

For the uppercase glyph, the standard 'G' is used.  
(Pamvo Berynda, passim)

Прѣтои́ггелѡ

Гѣпогѣфѣн

Гѣдѣ,

Гѣлотѣ, Гѣлѣцѣ:

Гѣлѣтѣ,



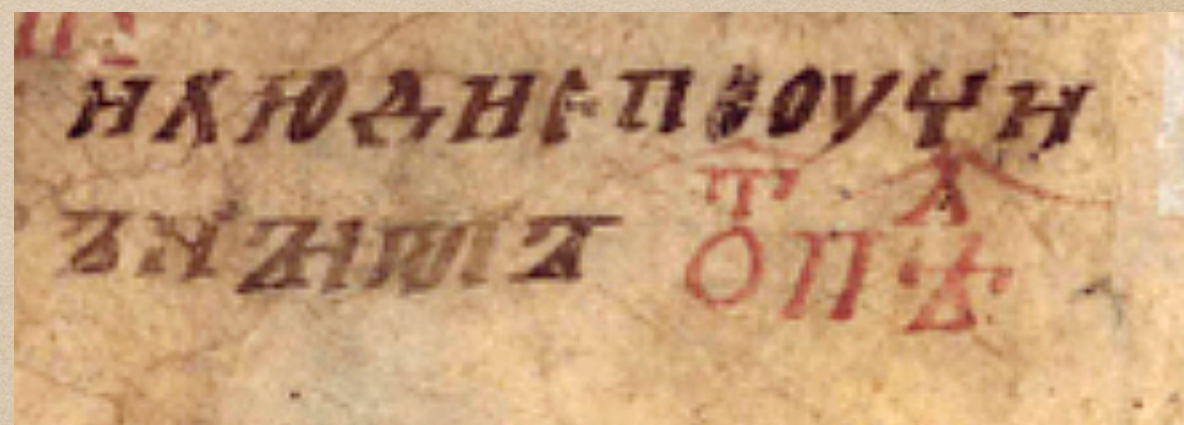


## Special Glyphs: Cyrillic OT

Ѣ	U+047E; CYRILLIC CAPITAL LETTER OT
ѣ	U+047F; CYRILLIC SMALL LETTER OT

‘OT’ is nearly always written with the special character encoded as a separate entity in Unicode.

However, sometimes one will find the ‘normal o’ and a regular superscripted ‘t’, as in the sample shown here. (This is common for glagolitic, where no separate ‘ot’ character is defined.)



Eninski apostol

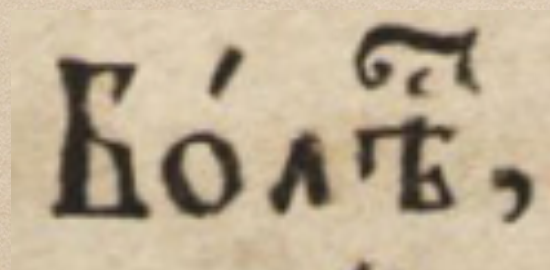




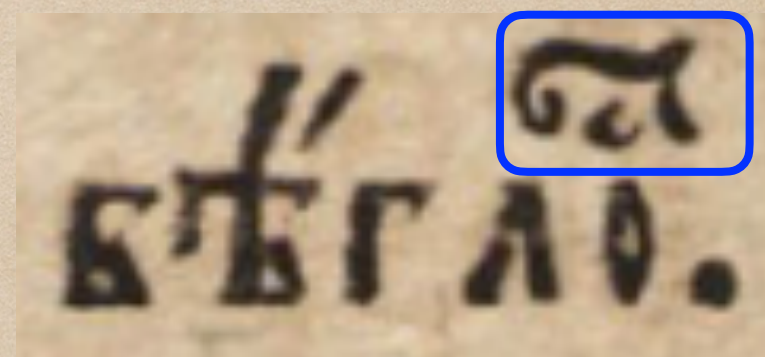
## Special Glyphs: Cyrillic ‘tall te’

Ҁ	U+1C84; CYRILLIC SMALL LETTER TALL TE
҂	U+2DED; COMBINING CYRILLIC LETTER ES
҃	U+0487; COMBINING CYRILLIC POKRYTIE

Samples of the ‘tall te’ (high te) used as a superscript and as pokrytie at the same time (with additional superscript s).  
(From Pamvo Berynda, Lexikon, 1653, passim)



БѠЛѢ҃[Ѣ]



БѢГЛО҃[Ѣ]

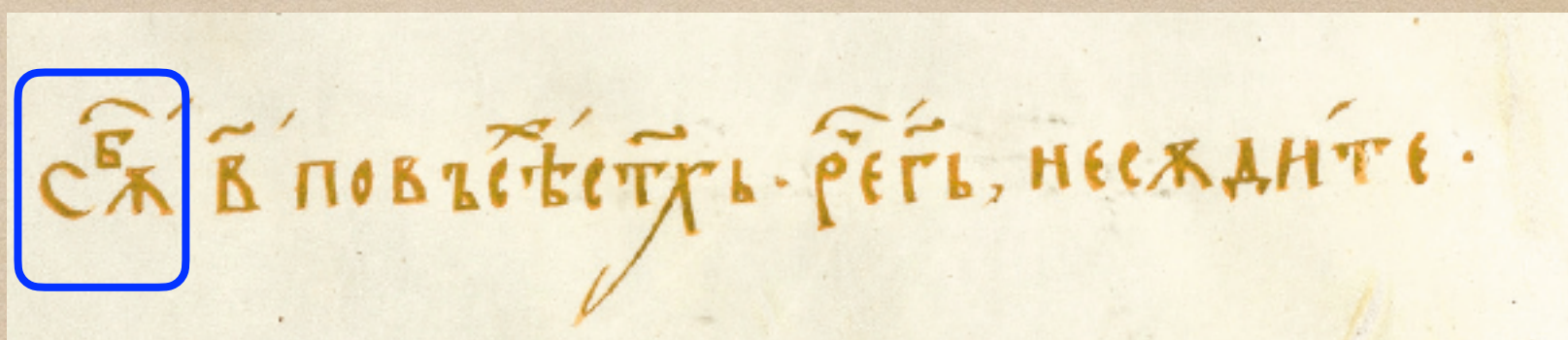




## Special Glyphs: superscript b

б	U+0431; CYRILLIC SMALL LETTER BE
Б	U+2DE0; COMBINING CYRILLIC LETTER BE

This sample shows the standard small caps allograph for the superscript < b > which is typical for Old Church Slavonic texts.



СБѢЖТОУ

Elizavetgr. ev., f. 40

*Available in RomanCyrillic Std, Kliment Pro and Method Std fonts.*

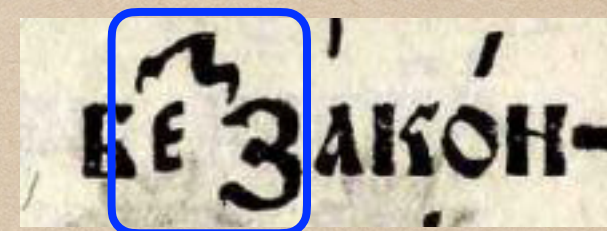




## Special Glyphs: superscript z

з	U+0437; CYRILLIC SMALL LETTER ZE
з	U+2DE5; COMBINING CYRILLIC LETTER ZE

This sample shows an interesting allograph for the superscript  
< z >: slanted to the left.



БЕЗЗАКОННЫЙ

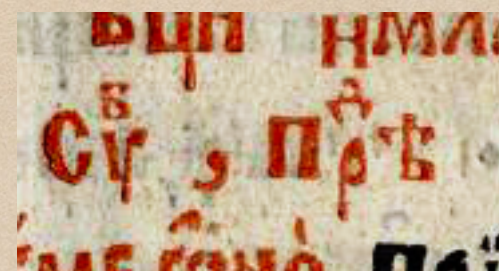




# Special Glyphs: superscript placement

As you can see from this sample, superscripts are normally placed above the preceding letter (or even more to the left); thus  $\text{C}\text{y}^{\text{B}}\dots$  becomes  $\text{C}\text{y}^{\text{B}}\dots$

If the preceding letter has a high stem (like the yat), the superscript can even be moved one more position to the left. Thus  $\text{Pr}^{\text{B}}\text{A}$  becomes  $\text{Pr}^{\text{A}}\text{B}$  with the superscript *preceding* the letter it actually *follows* in spelling and pronouncing.



$\text{C}\text{y}^{\text{B}}[\dots] > \text{C}\text{y}^{\text{B}}[\dots]$   
 $\text{Pr}^{\text{B}}\text{A} > \text{Pr}^{\text{A}}\text{B}$



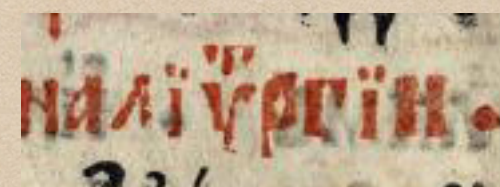


# Special Glyphs: superscript placement

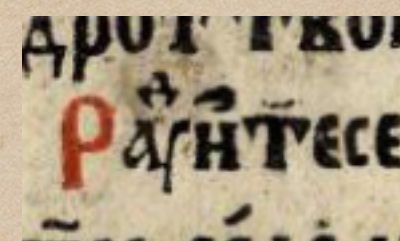
If the preceding letter has a high stem or diacritics (like the *i*), the superscript may not be moved over that letter.

In this sample, the consequence is a reading order from top to bottom (*t* > *u*) within that character pair. This is not normally the case (in normal instances a 'jump' forward would be included, like in  $\Pi^{\hat{p}}k$ ).

There are, however, exceptions to this rule, for example in the case of ligatures (see  $\Delta \uparrow d \downarrow u$ ).



НА ЛІТҮРГІИ



РАДУЙТЕ СЕ



# Special Glyphs: superscript placement



Sometimes, the superscript has been placed (almost) symmetrically above the word and not so much to the left of the position where an inline character would sit.



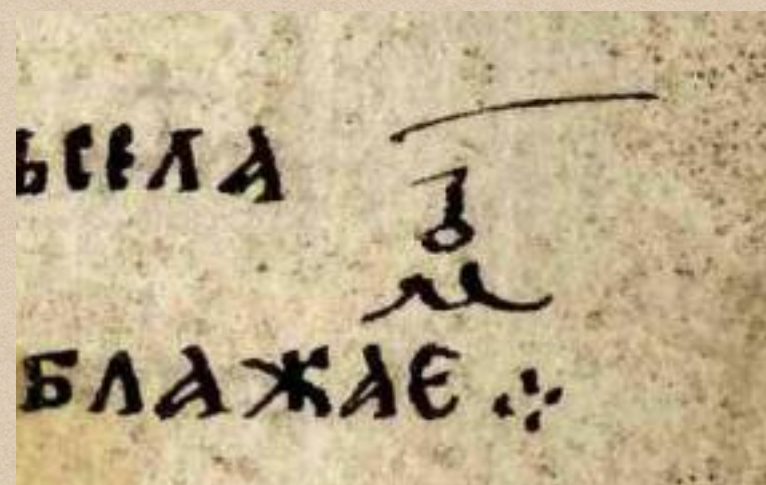
МОЛ[и]ТВОУ





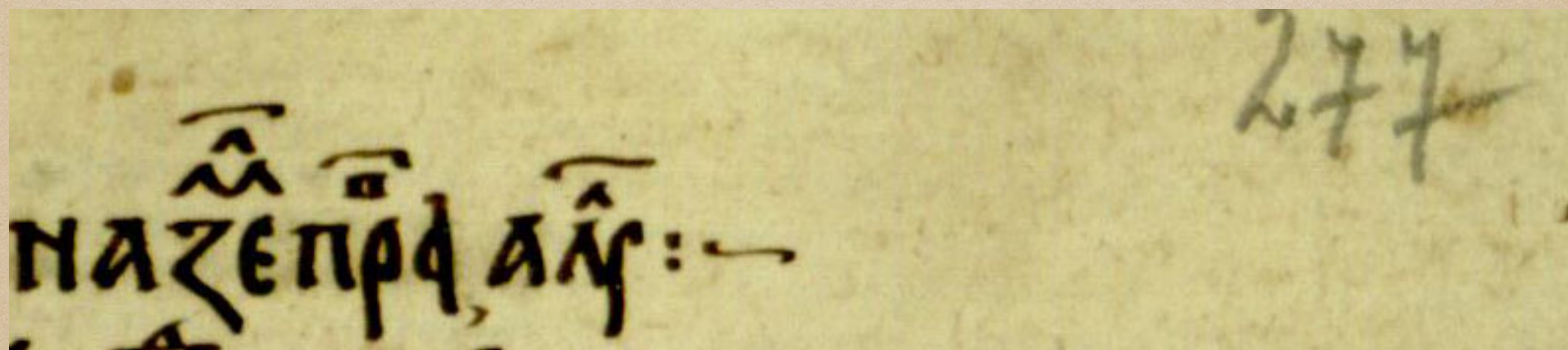
## Cyrillic: stacked combining superscripts

Here are rare cases of stacked (double) superscripts (from Apostol 1310, below, and Minei za jul, p. 3 - right).



БЛАЖАЕ<sup>Ѡ</sup>

НА ЗЕМ<sup>Ѡ</sup>ЛЕ





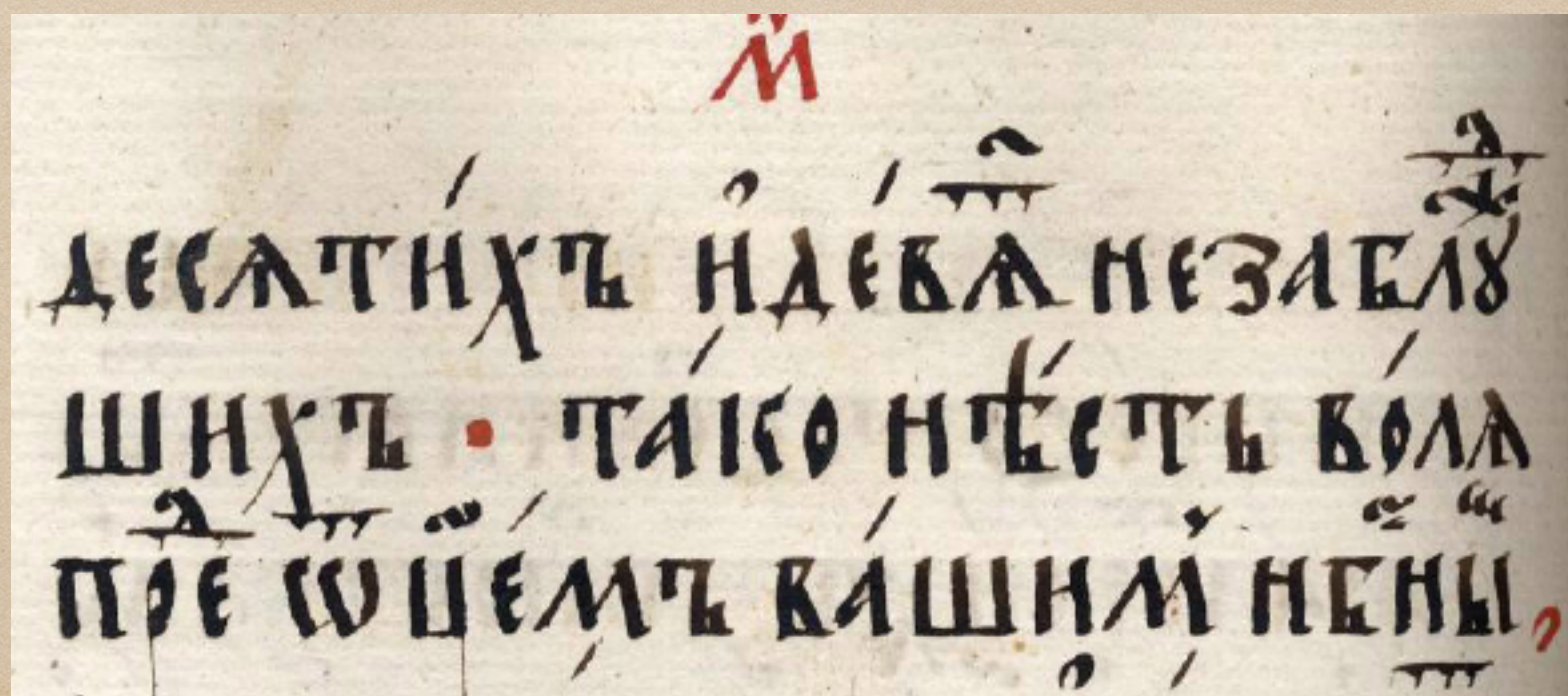


# Cyrillic: stacked combining superscripts

3	U+2DE4; COMBINING CYRILLIC LETTER ZHE
3	U+2DE3; COMBINING CYRILLIC LETTER DE

Another (rare) case of stacked superscripts, obviously written to observe text boundaries. The baseline of the < d > serves as a fake pokrytie.

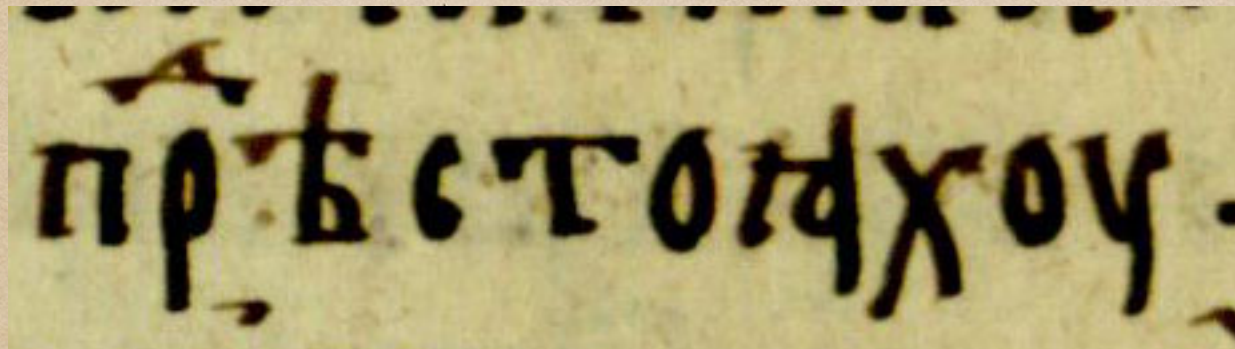
НЕЗАБЛУЖАШИХЪ



Četvoroevangelje Paxomije (1685)  
<http://ubsm.bg.ac.rs/cirilica/dokument/20/>



# Special Glyphs



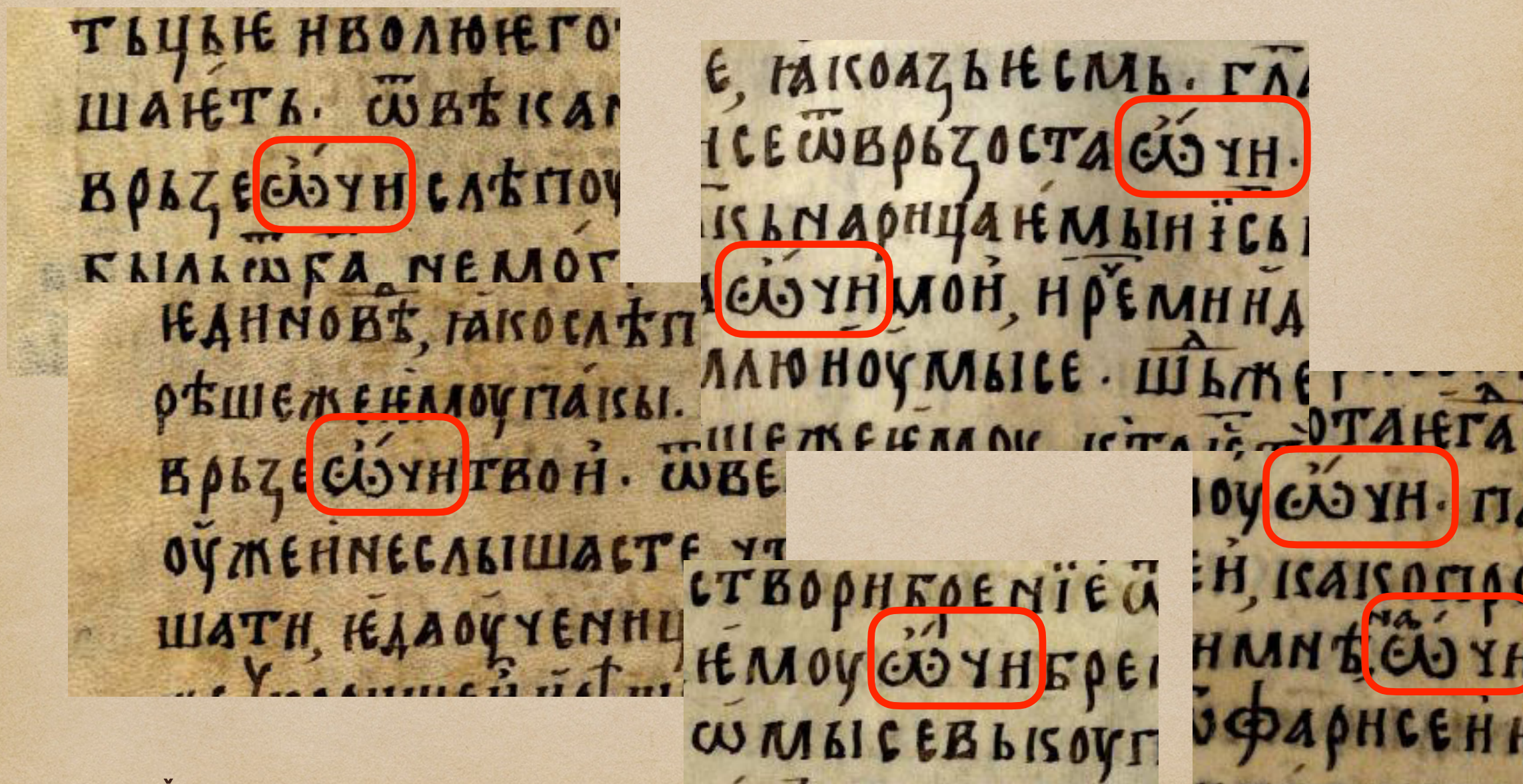
ja! (Apostol 1210, f. 291)



# Special Glyphs: Cyrillic broad omega with dots inside



This glyph is currently not encoded in Unicode as such.



Source: Četvorojevanđelje 136?, passim  
<http://resolve.ubsm.bg.ac.rs/HRS/5>



# Cyrillic Ligatures

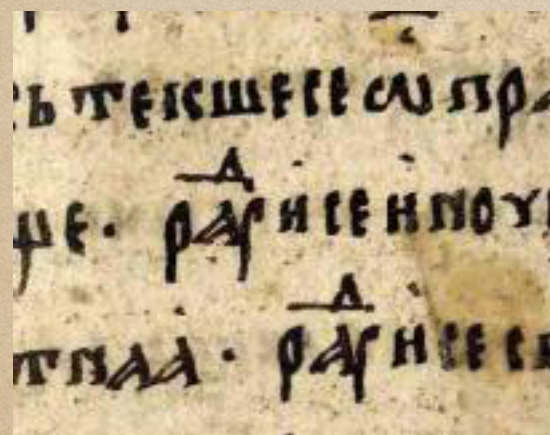
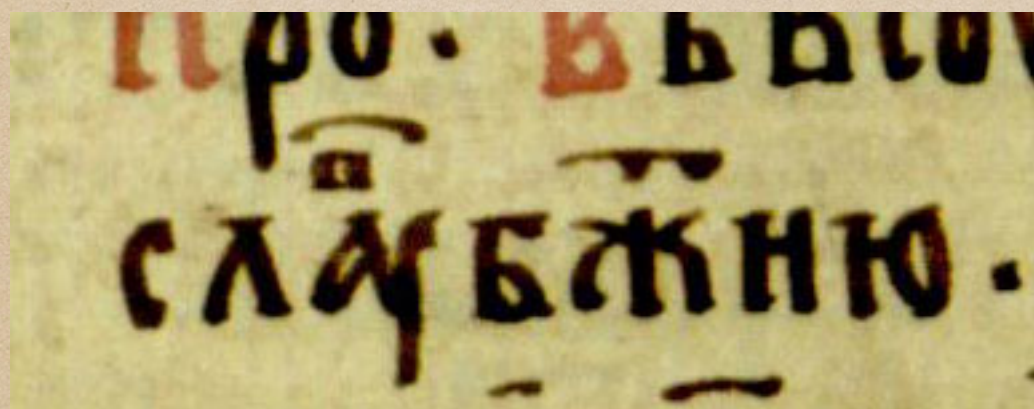






## Cyrillic Ligatures: а + ѱ

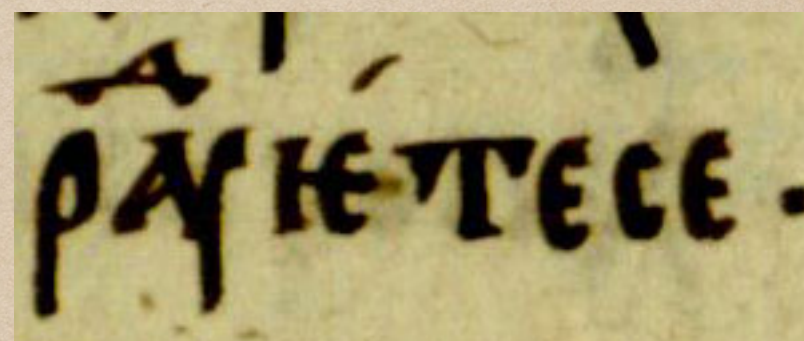
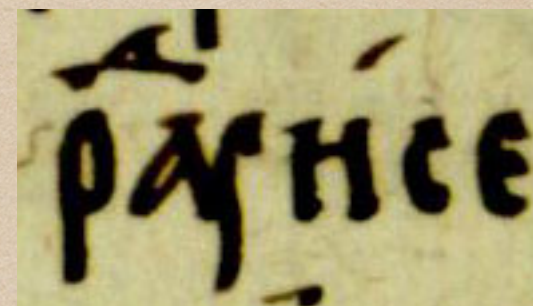
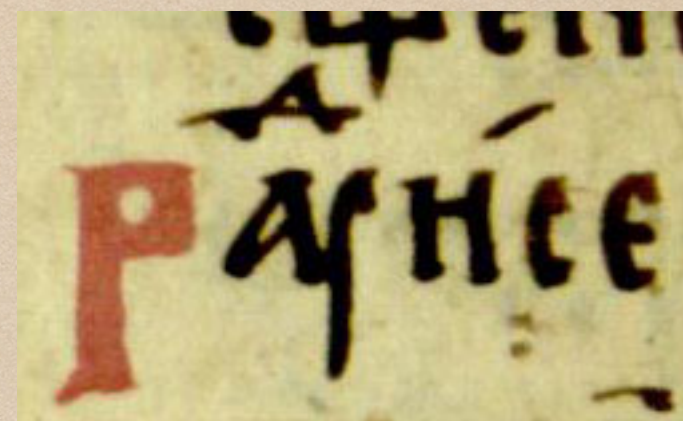
The ligature of < a-y > is a favorite among many scribes, especially in verb forms like радѹи[те]се.



радѹи се

радѹи се

Minei za jul 13??, p. 17



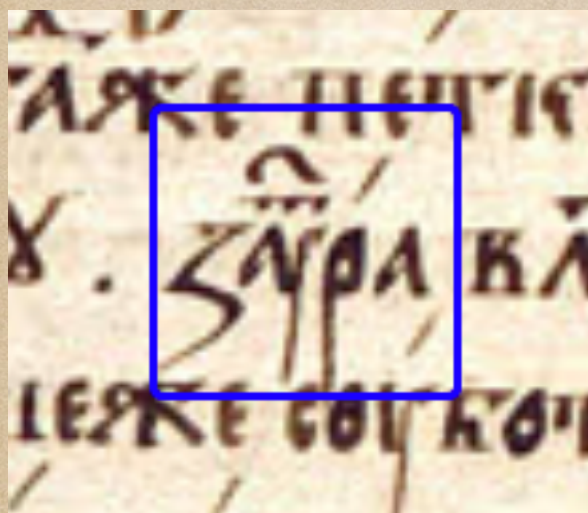
Apostol 1310, passim



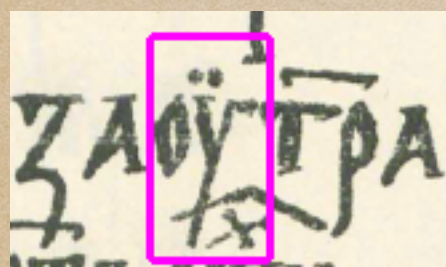


## Three ways to write 'zautra' заўтра

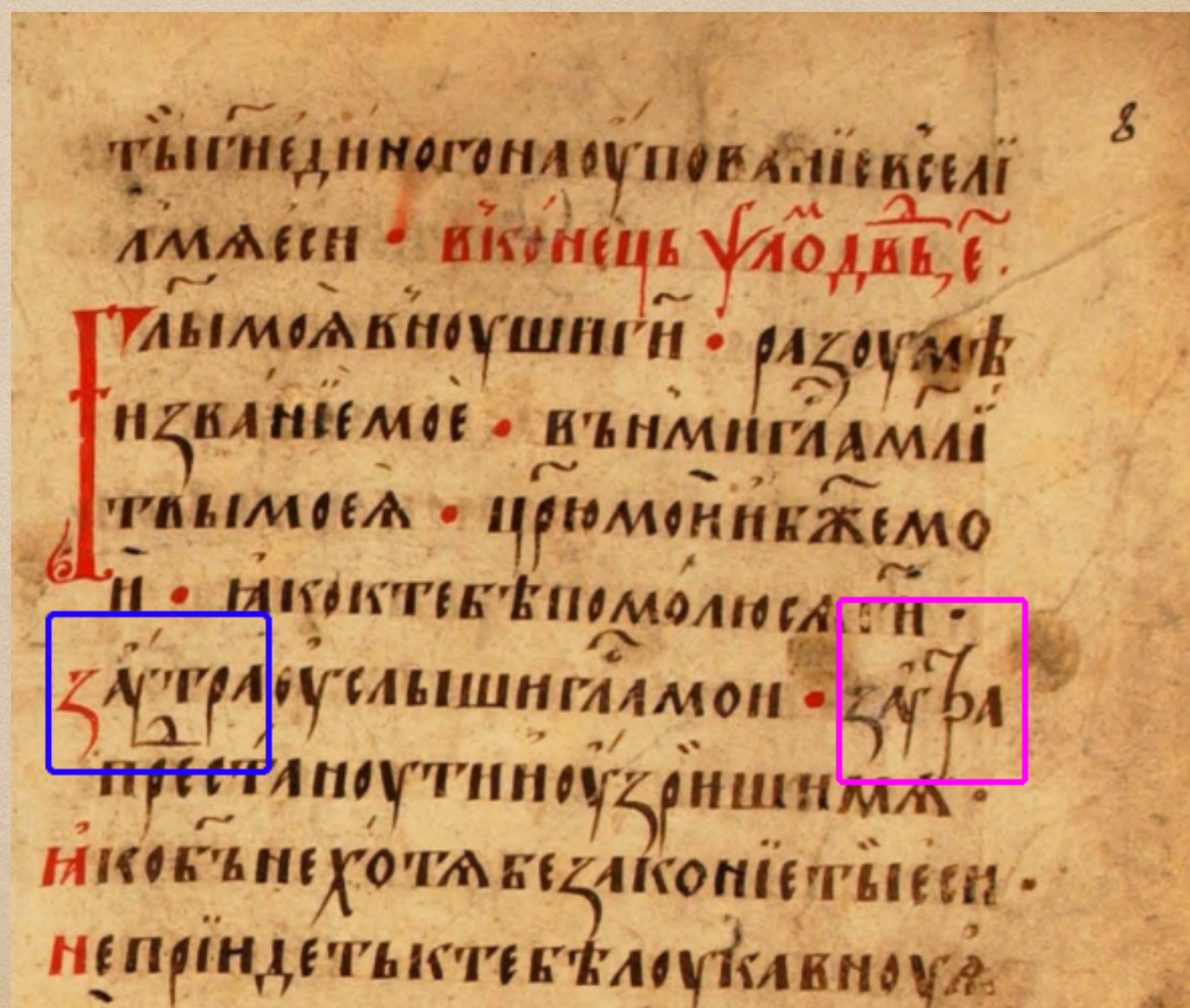
- a) ligature of < a-y > plus inline characters;
- b) ligature of < a-y > plus superscript < т >;
- c) ligature of < a-y > plus ligature of < т-р >.



Sources: n/a



Ostromir f. 140

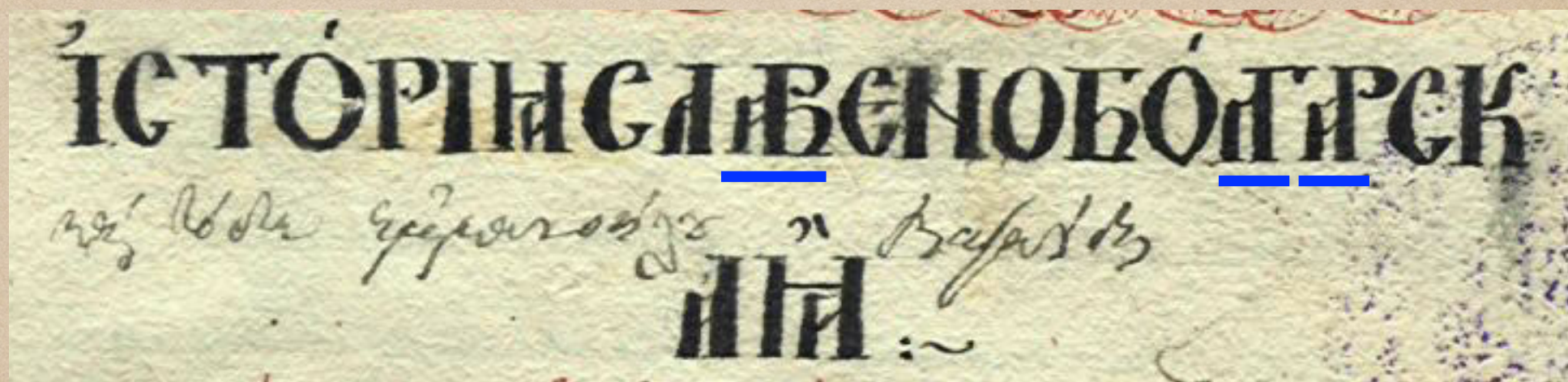






## Cyrillic Ligatures: А\_В + Л\_Г + А\_Р

А	U+0410; CYRILLIC CAPITAL LETTER A
В	U+0412; CYRILLIC CAPITAL LETTER VE
Л	U+041B; CYRILLIC CAPITAL LETTER EL
Г	U+0413; CYRILLIC CAPITAL LETTER GHE
Р	U+0420; CYRILLIC CAPITAL LETTER ER



Three ligatures are used in this sample  
from Paisij Xilendarski's famous work.

*Ligature available in RomanCyrillic Std and Method Std fonts.*

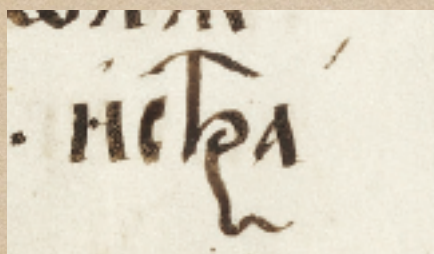




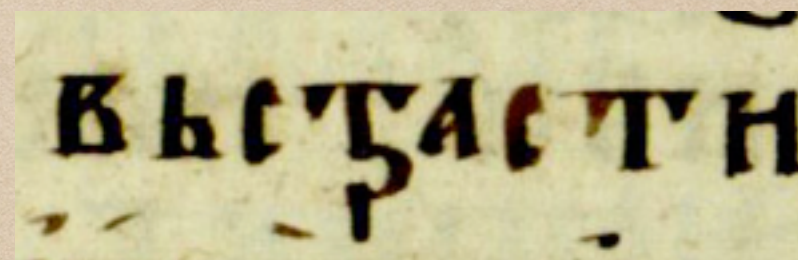
## Cyrillic Ligatures: т + ѱ

т	U+0442; CYRILLIC SMALL LETTER TE
ѱ	U+044B; CYRILLIC SMALL LETTER YERU
Ѳ	U+1C84; CYRILLIC SMALL LETTER TALL TE

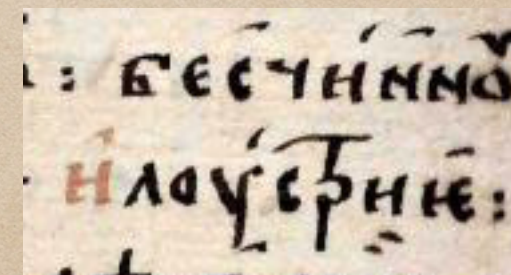
A ligature of < т > and < ѱ >.  
The first sample is an upright version, the second sample uses the 'tall t' and also shows a slightly cursive shape.



Elizavetgradskoe ev. f. 23



Apostol 1310



Sintagma Matije Blastara, 13??

*Ligature available in RomanCyrillic Std., Kliment Pro and Method Std fonts.*

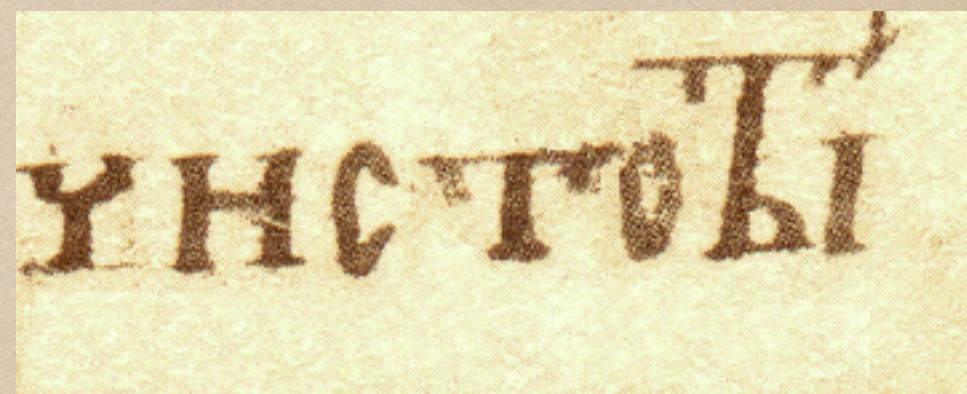




## Cyrillic Ligatures: Т + Ы

Т	U+0442; CYRILLIC SMALL LETTER TE
Ы	U+044B; CYRILLIC SMALL LETTER YERU
Ѳ	U+1C84; CYRILLIC SMALL LETTER TALL TE

A ligature of < Т > and < Ы >.  
It is not clear if such cases should be encoded as a ligature of the standard inline character (here using a high glyph) or as the 'high t' (which usually comes in a different glyph).



Izbornik Svjatoslava 1073 g., p. 52: ЧИСТОТЫ

*Ligature available in RomanCyrillic Std., Kliment Pro and Method Std fonts.*



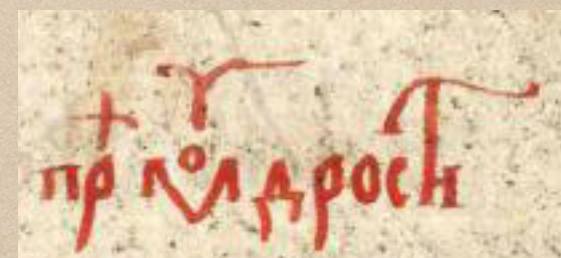


## Cyrillic Ligatures: ґ + ѣ

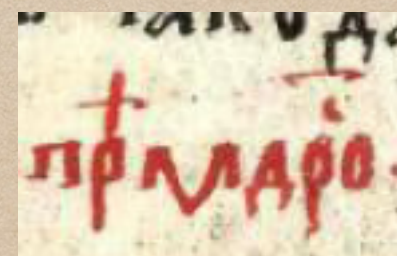
ґ	U+0442; CYRILLIC SMALL LETTER TE
ѣ	U+044B; CYRILLIC SMALL LETTER YERU

A ligature of < ґ > and < ѣ >.

As the first sample shows, the parts need not even touch, and the yat is reduced in shape to a cross. Another sample shows the 'plus' shape just barely touching the base character.



прѣмудрости



прѣм[оу]дрост[ь]

Minei za jul 13??, passim

*Ligature available in RomanCyrillic Std., Kliment Pro and Method Std fonts.*

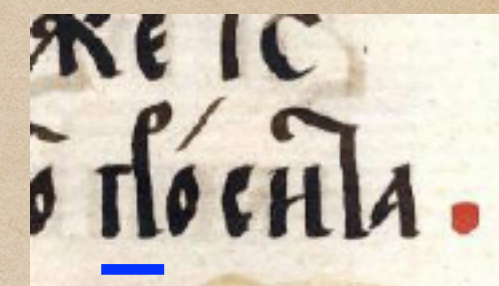
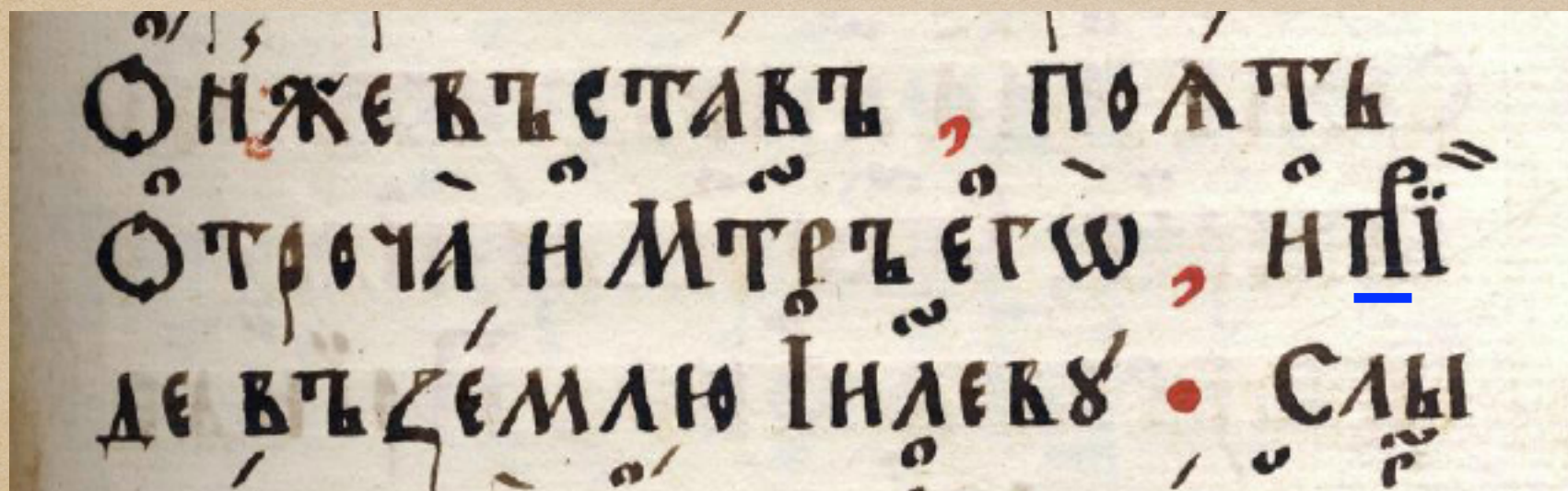




## Cyrillic Ligatures: п\_р

п	U+043F; CYRILLIC SMALL LETTER PE
р	U+0440; CYRILLIC SMALL LETTER ER

A rare ligature of < п\_р > is shown by these samples. At the same time, they show an existence of a 'high r' glyph.



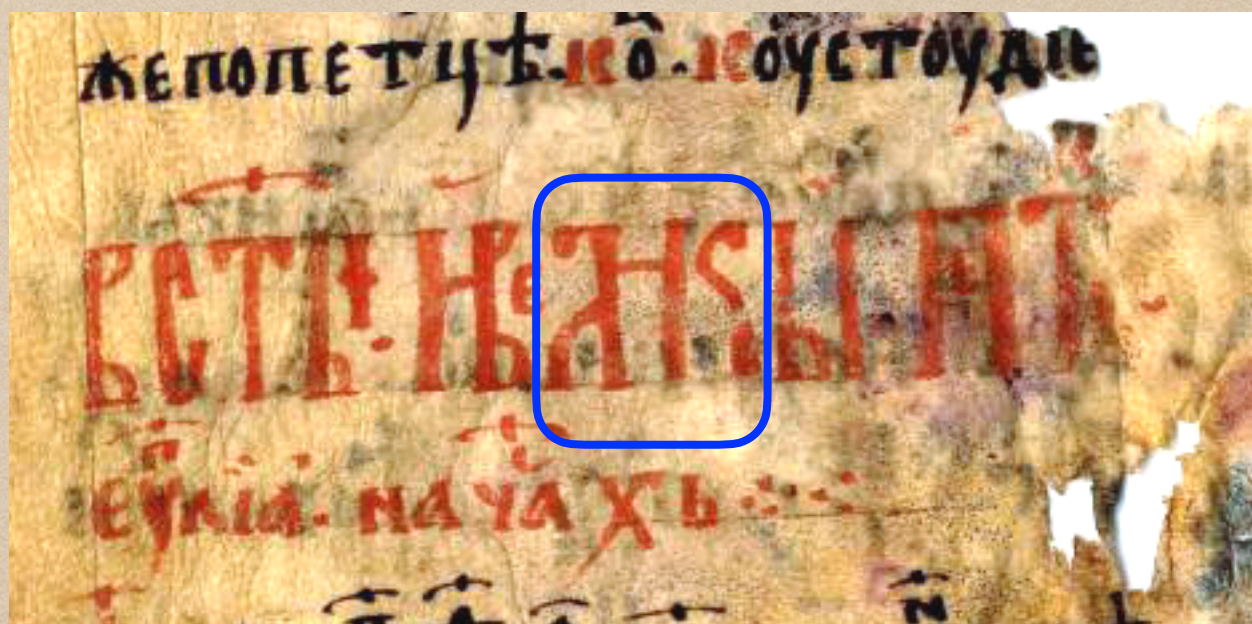
Četverojevanđelje (Paxomije, 1685)  
<http://resolve.ubsm.bg.ac.rs/HRS/20>



# Cyrillic Ligatures: Л\_Н\_К



A three-part ligature of Л\_Н\_К:



и великы

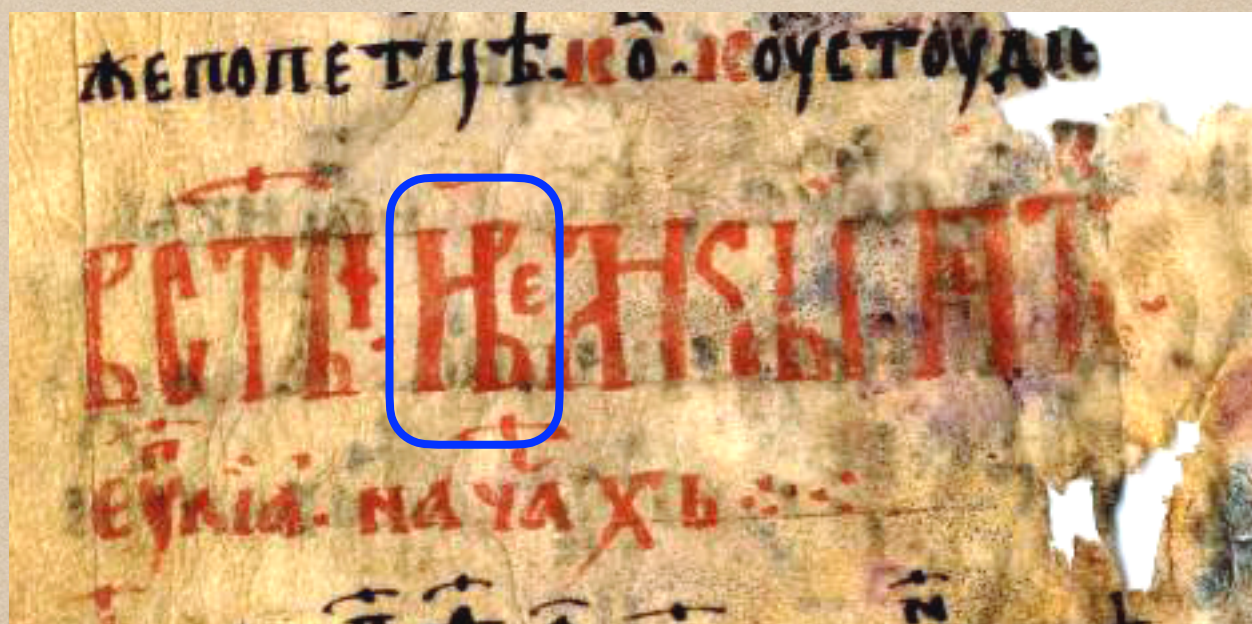
*Ligature available in Method Std font*



# Cyrillic Ligatures: И\_В



A ligature of И\_В:



И ВЕЛИКИЙ

*Ligature available in Method Std font*





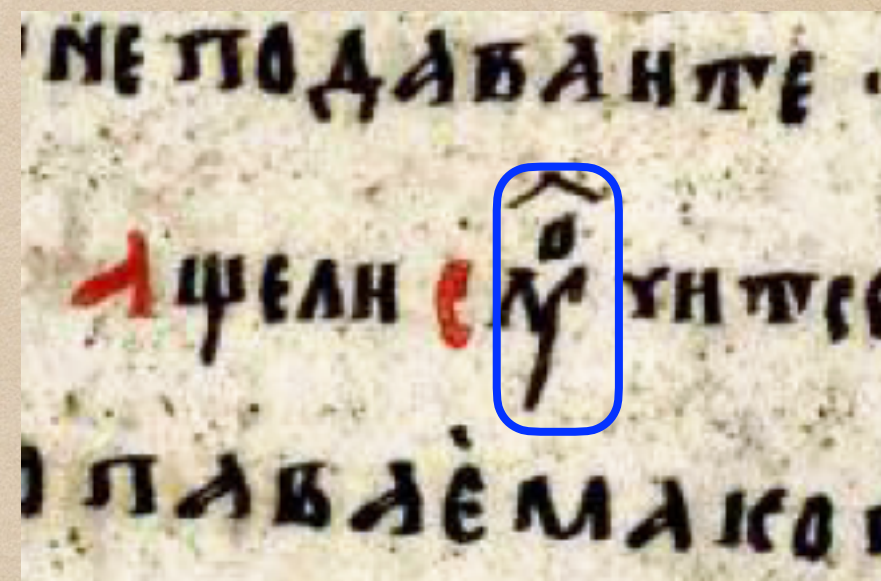




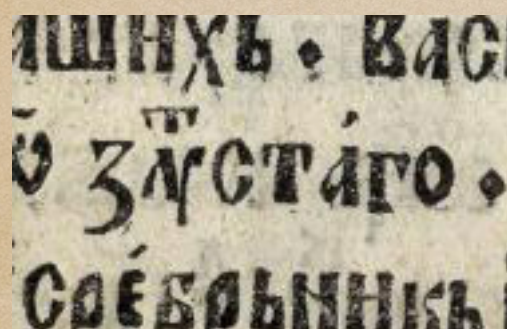
## Cyrillic Ligatures: л + ѱ

л	U+043B; CYRILLIC SMALL LETTER EL
у	U+0443; CYRILLIC SMALL LETTER U

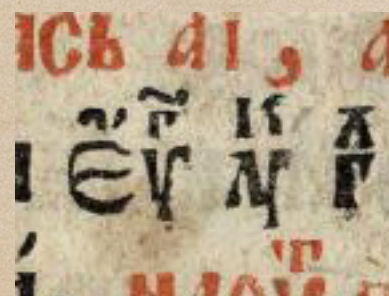
A ligature of < л > and < ѱ > (even with a superscript < ° >).



Minei za jul (13??), p. 4



зл[а]т[о]устаго



ЕУГ. [Ѡ] Л[О]УК[Ы]

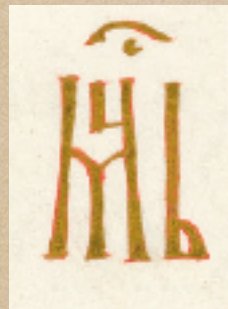
Ligature available in RomanCyrillic Std and Method Std fonts.



# Cyrillic Ligatures: М + Ц

In South Slavic manuscripts like the Miroslavovo Evangelie or the Minei za jul, there are many cases of a horizontal ligature of < М > and < Ц >, especially used for 'month' at the beginning of sections.

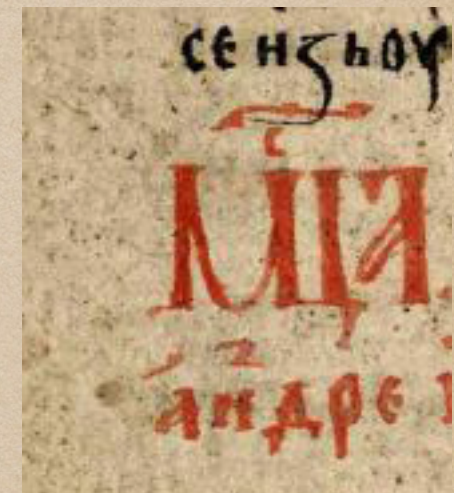
Another variant features a vertical combination of the letters.



Elizavetgradskoe ev., XVI v., p. 615



Miroslavovo Evangelie, 1180



Minei za jul 13?? p. 9

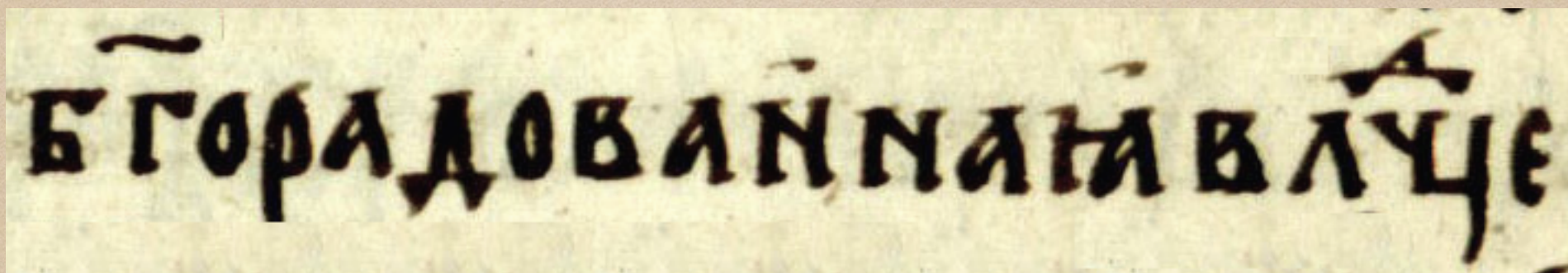


# Cyrillic Ligatures: ч\_ц



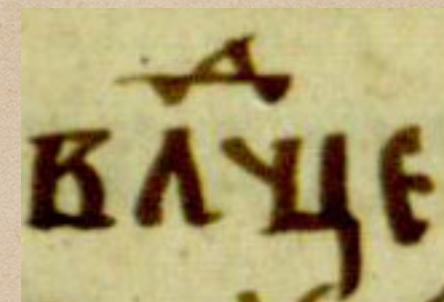
ч	U+0447; CYRILLIC SMALL LETTER CHE
ц	U+0446; CYRILLIC SMALL LETTER TSE

A somewhat rarer ligature of < ч\_ц > occurs in the samples shown below: < чц >



вл[а]д[ы]ч[и]це

Apostol 1310, ф. 289 & passim



*Ligature available in RomanCyrillic Std and Method Std fonts.*

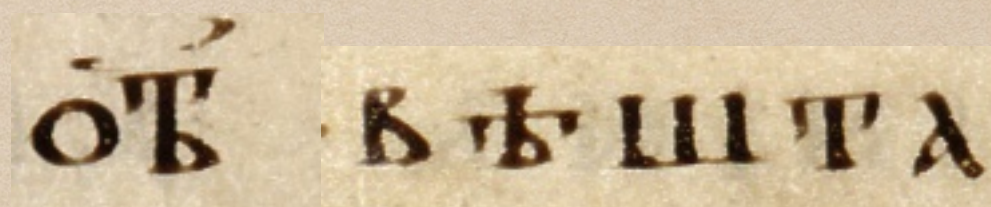




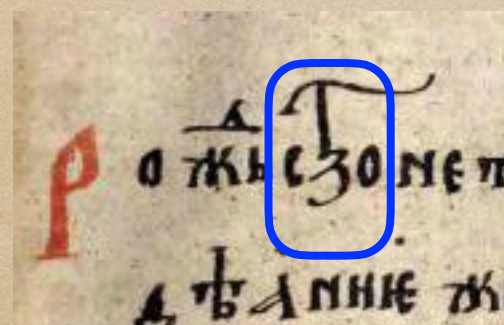
## Cyrillic Ligatures: т/ѳ + в

т	U+0442; CYRILLIC SMALL LETTER TE
в	U+0432; CYRILLIC SMALL LETTER VE
ѳ	U+1C84; CYRILLIC SMALL LETTER TALL TE

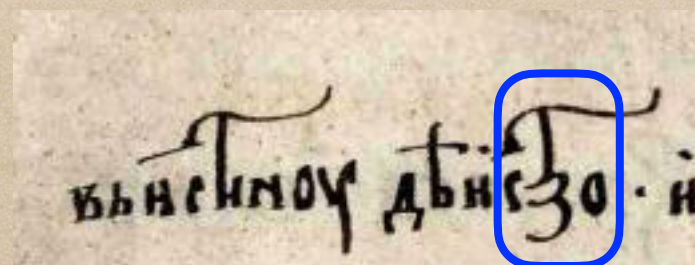
The common ligature of < т >  
(or ѳ) and < в > with an  
interesting variation.



Suprasliensis f. 13



Minei za jul (13??), p. 5



Minei za jul (13??), p. 3

*Ligature available in RomanCyrillic Std and Method Std fonts.*

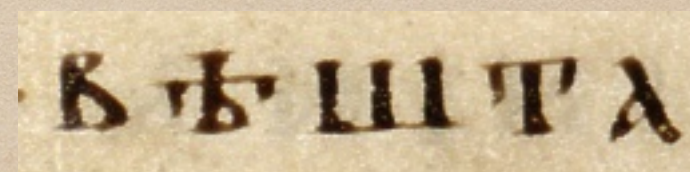
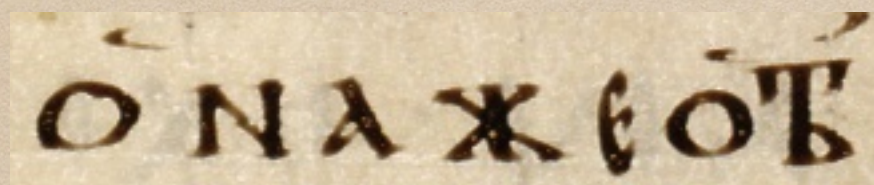




## Cyrillic Ligatures: т/ѳ + ѣ

т	U+0442; CYRILLIC SMALL LETTER TE
ѣ	U+044A; CYRILLIC SMALL LETTER HARD SIGN
ѳ	U+1C84; CYRILLIC SMALL LETTER TALL TE

A sample of the ligature < т > (or ѳ) + < ѣ >.  
It has been correctly pointed out that this  
ligature could also represent < т > + < ѣ >,  
depending on the context.



Supasliensis f. 13

*Ligature available in RomanCyrillic Std and Method Std fonts.*

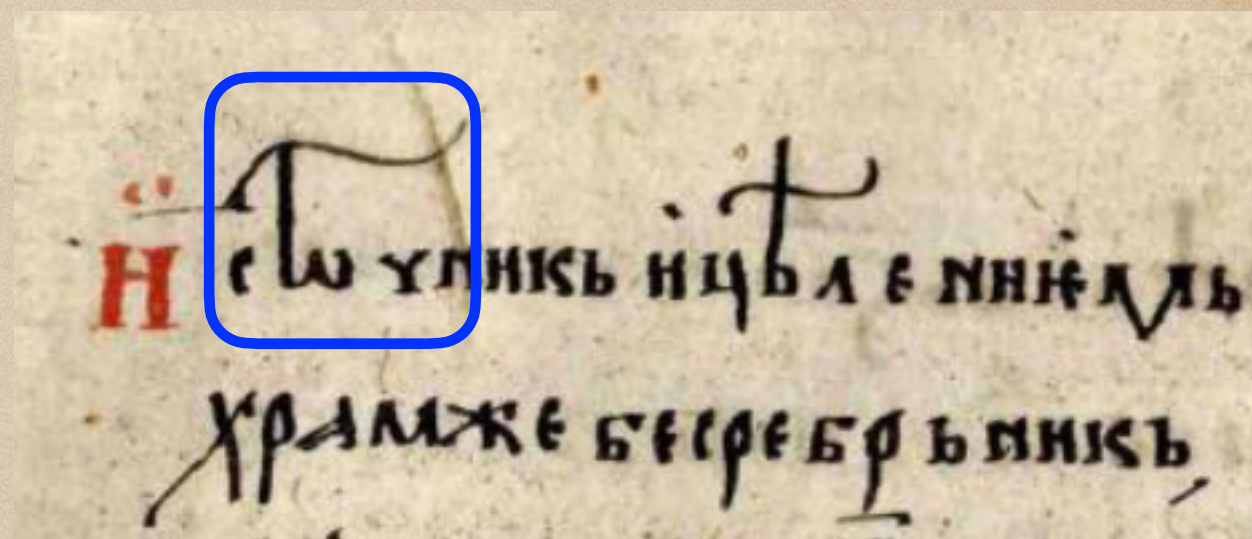




## Cyrillic Ligatures: т/ѳ + ѿ

т	U+0442; CYRILLIC SMALL LETTER TE
ѿ	U+0461; CYRILLIC SMALL LETTER OMEGA
ѳ	U+1C84; CYRILLIC SMALL LETTER TALL TE

A not-so-common ligature of  
< т > (or ѳ) and < ѿ >.



Minei za jul (13??), p. 4 : иѳѿчникъ

*Ligature available in RomanCyrillic Std and  
Method Std fonts.*

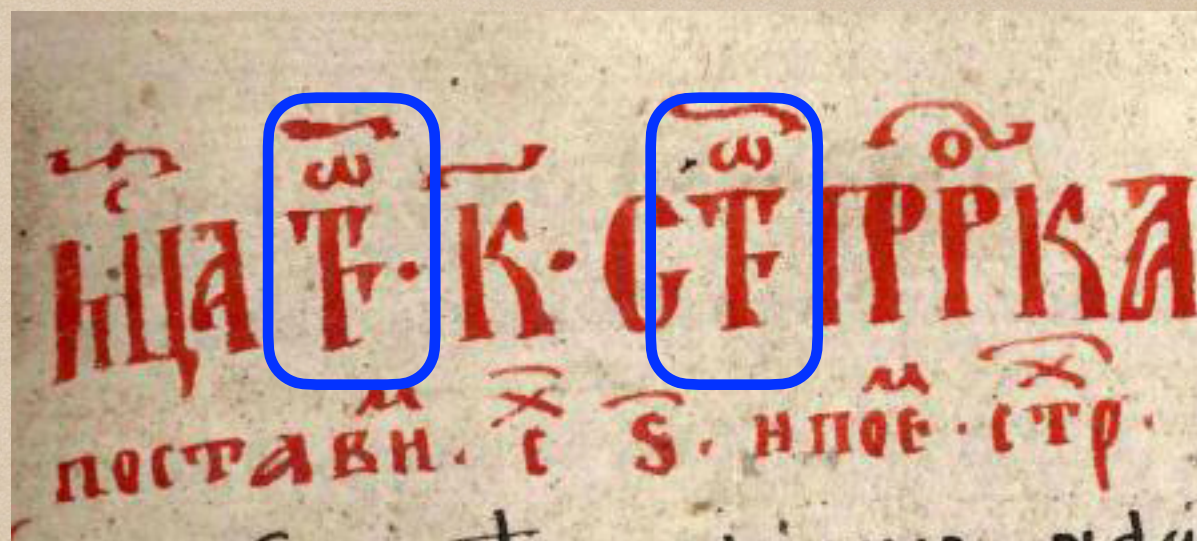




## Cyrillic Ligatures: Т + Г

Т	U+0442; CYRILLIC CAPITAL LETTER TE
Г	U+0413; CYRILLIC CAPITAL LETTER GHE

A not-so-common ligature of  
< Т > and < Г > in headlines.



Minei za jul (13??), p. 79

*Ligature available in RomanCyrillic Std and Method Std fonts.*

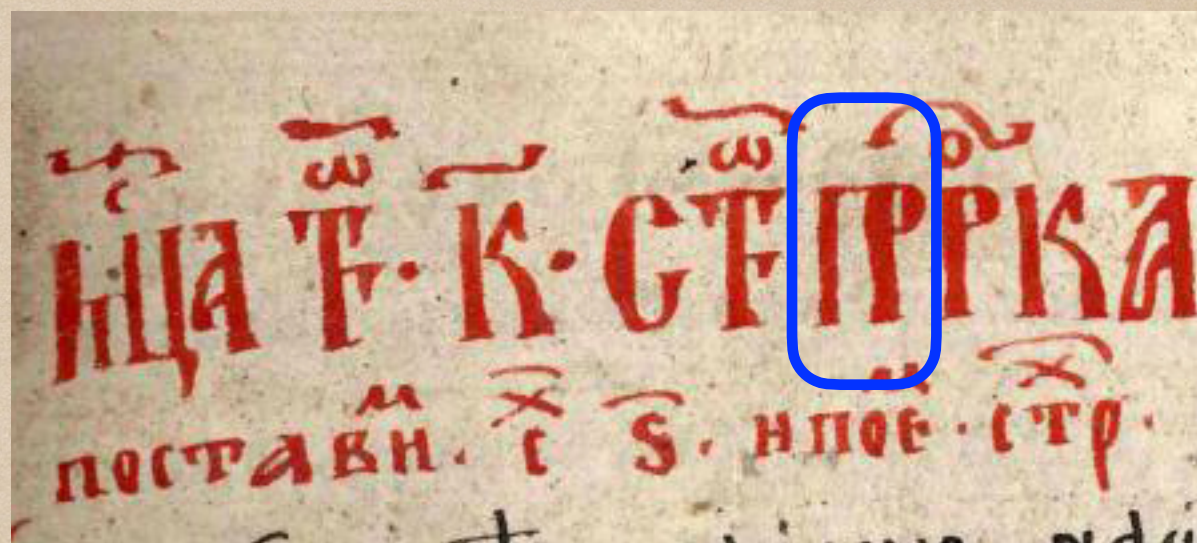




## Cyrillic Ligatures: П + Р

П	U+041F; CYRILLIC CAPITAL LETTER PE
Р	U+0420; CYRILLIC CAPITAL LETTER ER

A ligature of < П > and < Р >  
in a headline (along with  
M\_C, T\_G)



Minei za jul (13??), p. 79

*Ligature available in RomanCyrillic Std and Method Std fonts.*

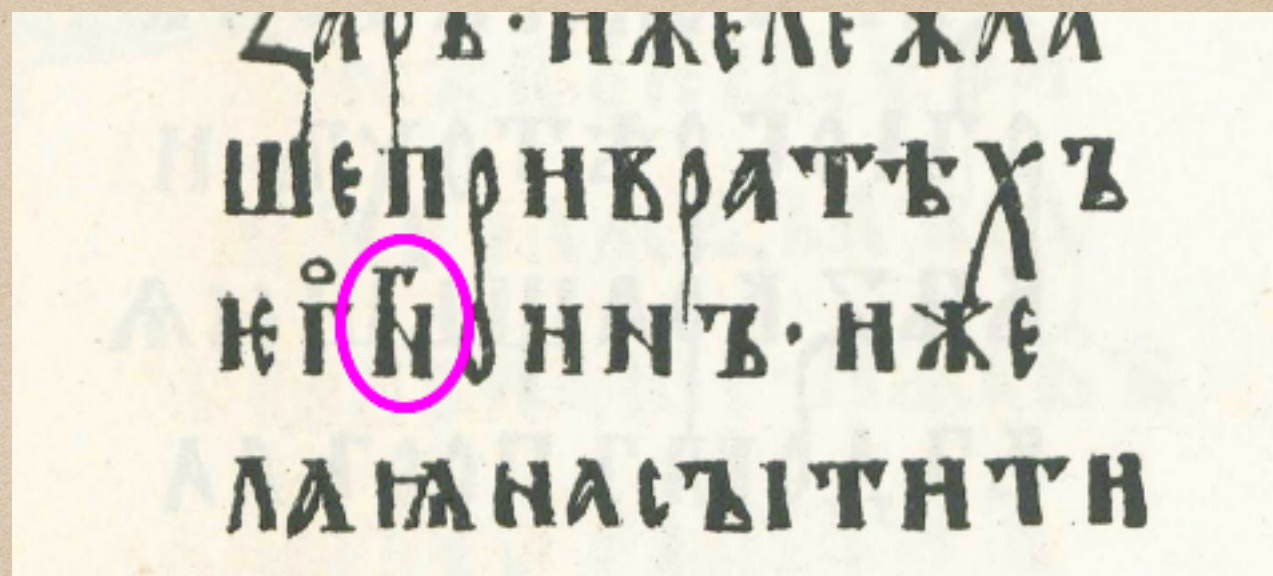




## Cyrillic Ligatures: Г + н

Г	U+0413; CYRILLIC CAPITAL LETTER GHE
н	U+043D; CYRILLIC SMALL LETTER EN

A ligature of < Г > and < н >.



Ostromir p 200: Гноинъ

*Ligature available in RomanCyrillic Std and Method Std fonts.*

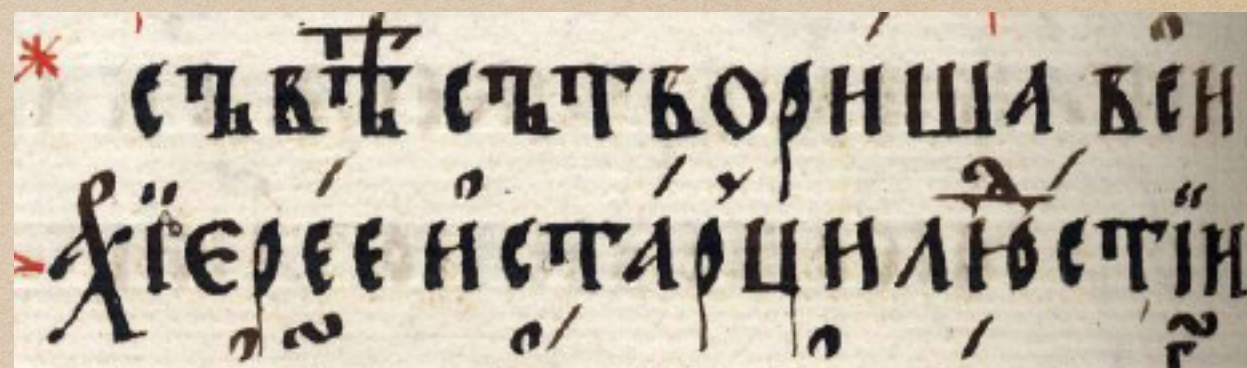
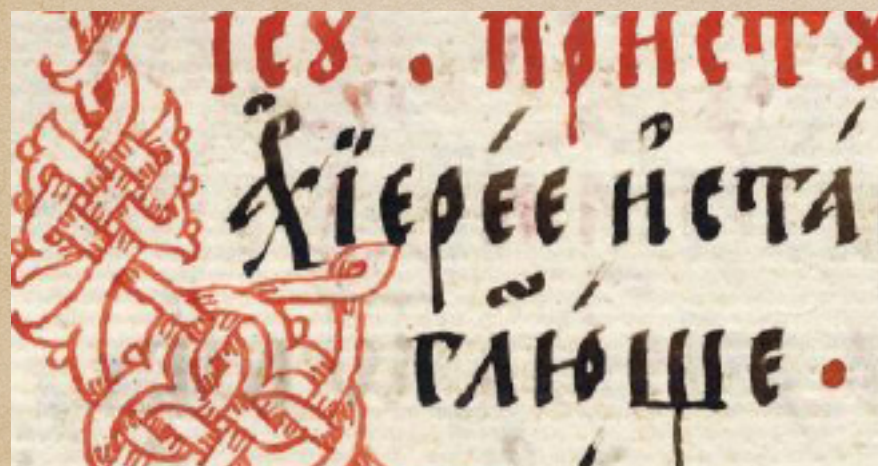




## Cyrillic Ligatures: а\_р\_х

а	U+0430; CYRILLIC SMALL LETTER A
р	U+0440; CYRILLIC SMALL LETTER ER
х	U+0445; CYRILLIC SMALL LETTER HA

A rare ligature of three lowercase letters in body text:



архѣреѣ

Četverojevanđelje (Paxomije, 1685)  
<http://resolve.ubsm.bg.ac.rs/HRS/20>

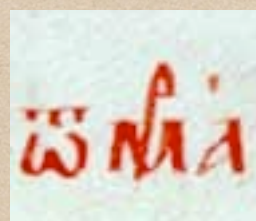
*Ligature available in RomanCyrillic Std and Method Std fonts.*



# Cyrillic Ligatures: М + ρ, М + ⷮ



Used for the names of the two apostles Mark and Mathew



*Ligature available in RomanCyrillic Std., Kliment Pro and Method Std fonts.*



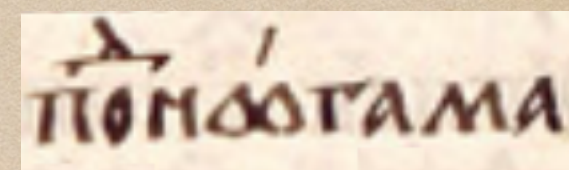


## Cyrillic Ligatures: o + o = ∞

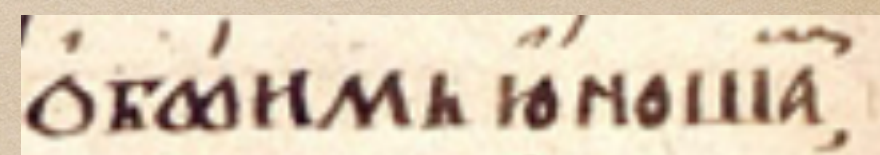
О	U+041E; CYRILLIC CAPITAL LETTER O
о	U+043E; CYRILLIC SMALL LETTER O
∞	U+A698; CYRILLIC CAPITAL LETTER DOUBLE O
∞	U+A699; CYRILLIC SMALL LETTER DOUBLE O

The Cyrillic 'double o' is a horizontal fusion of two < o > letters; it is encoded in Unicode as a separate entry. In the first two samples shown here, the double o helps to signify the **dual**, in the third sample it signifies a **multitude**.

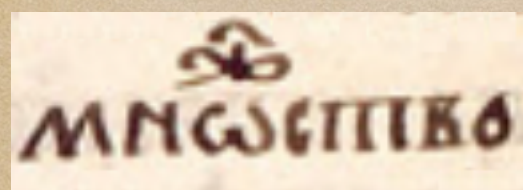
(Normally, *множество* would be written with an omega instead, see the fourth sample.)



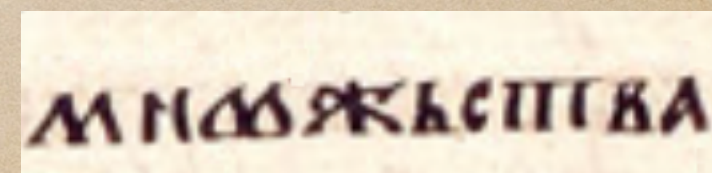
рѡно́огама



обѡимъ юноша<sup>м</sup>



мно́[ѣ]ство



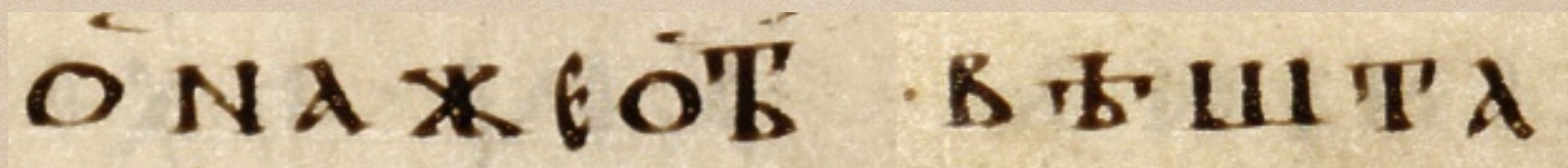
мно́жѣства



## Cyrillic Ligatures: т + ъ/ь



There is a special ligature of a < high t > plus < yer >. The yer looks like it is the soft sign, but judging from the context, normally the hard sign would be expected here – typographically not realised, however.



Source: Codex Suprasliensis: отъвѣшта; line break after the ligature

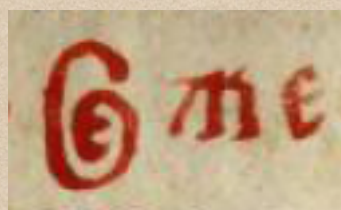
*Available in RomanCyrillic Std and Method Std fonts.*



# Cyrillic Ligatures: O\_ε



A rare ligature of the two letters puts the 'e' inside the 'O':



Source: Četvorojevandjelje 136?  
<http://resolve.ubsm.bg.ac.rs/HRS/5>

*Available in RomanCyrillic Std and Method Std fonts.*



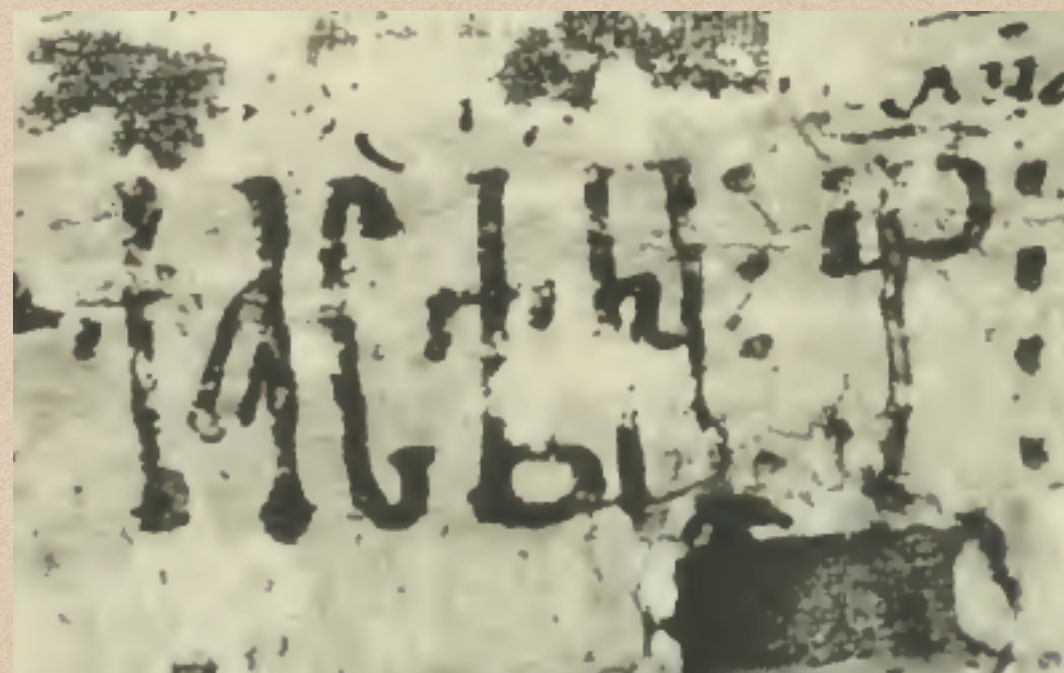




## Cyrillic Ligatures: Ц\_Р



A middle-bulgarian ligature, used especially in the word  
car: ѦСѢН ЦР

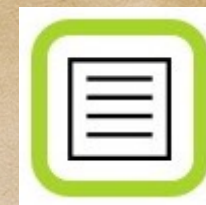


Vatopedskata gramota, Balgarski starini 11;

Лигатура. Ватопедската грамота познава лигатурата Ѧ, употребена два пжти (редъ 6 и 10), и обикновенитѣ лигатури ѡ в м. оу и ѡ в м. шт. Въ подписа на грамотата царскиятъ титулъ на Асѣня е предаденъ съ известната срѣднобългарска лигатура ѡ (царь).



# Cyrillic Ligatures: Ц\_Р



A rare sample of the C\_R ligature being used in a modern text (seen in the Asenovgrad fortress, Bulgaria)



Foto © S. Kempgen

Available in Method Std font



# Cyrillic Ligatures: П\_Р\_Ѣ



A ligature of three Cyrillic letters,  
seen here in an icon in Macedonia



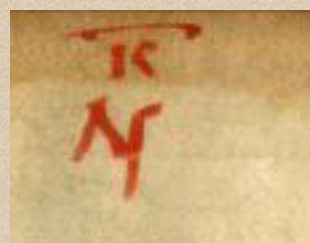
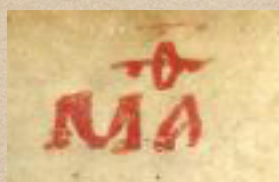
прѣмѡдрость





# The Names of the four Evangelists

The names of the four Evangelists, two of them written here with ligatures:



Source: Četvoroevangelje 136?  
<http://resolve.ubsm.bg.ac.rs/HRS/5>

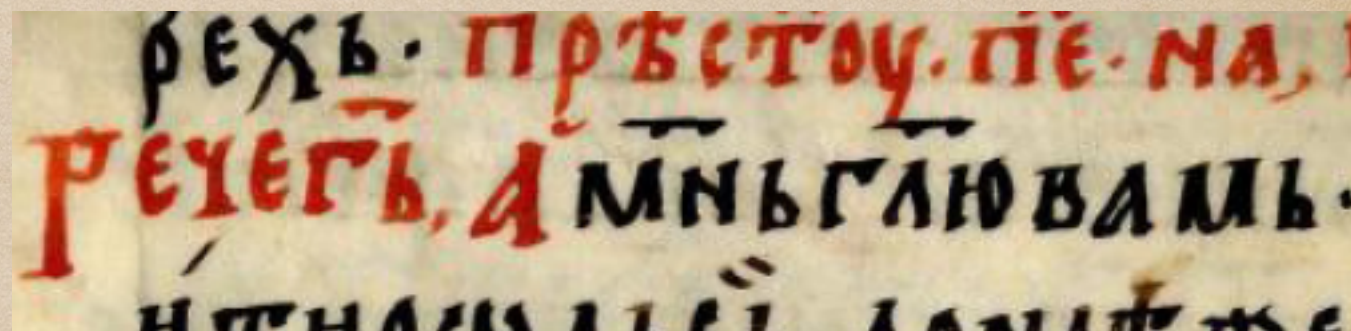
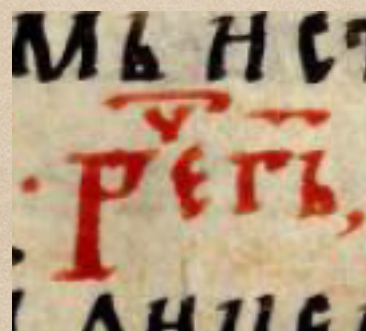
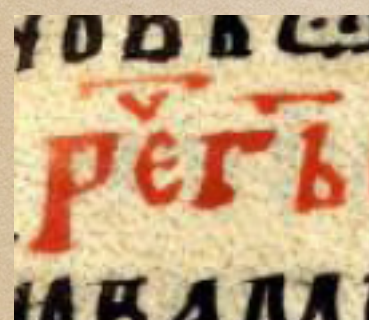
*Available in RomanCyrillic Std and Method Std fonts.*





## And the Lord said unto them:

A fixed phrase in the Gospels: “And the Lord said unto them...”: р[е]че г[оспод]ь, ам[и]нь, г[лаго]лю вамъ.



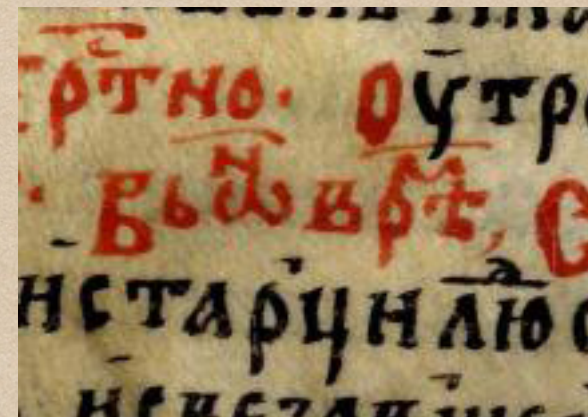
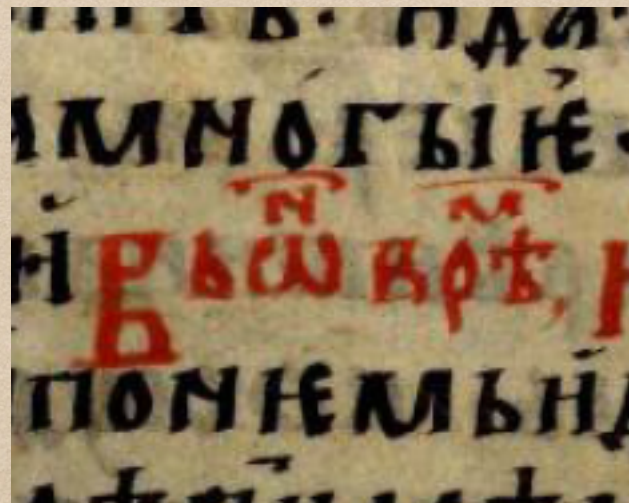
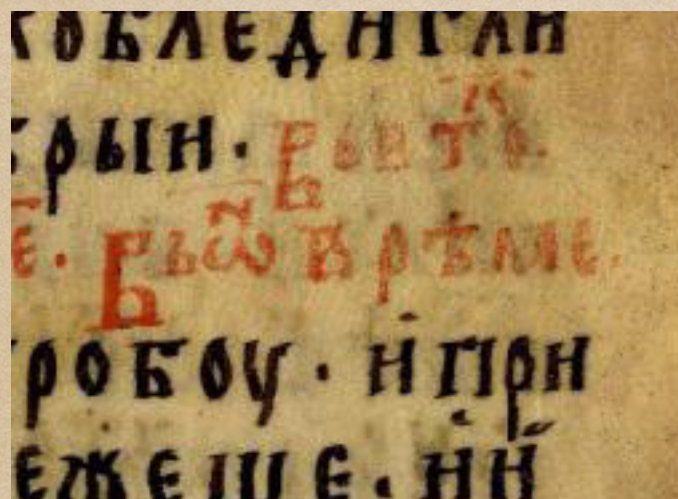
Source: Četvorojevandēlje 136?  
<http://resolve.ubsm.bg.ac.rs/HRS/5>



## And the Lord said unto them:



A fixed phrase in the Gospels: “Въ оно время” / Въ ѿн[о] врѣме” etc. written in various ways:



Source: Četvorojevanđelje 136?  
<http://resolve.ubsm.bg.ac.rs/HRS/5>



Glagolitic

Ѧ

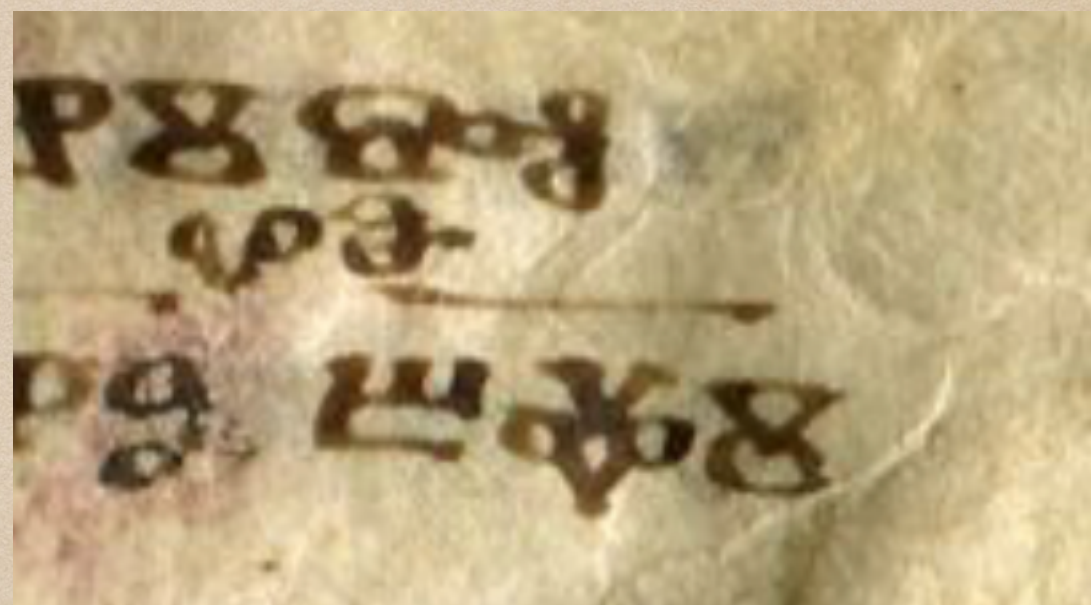




## Ligatures in Round Glagolica: ZH\_I

Ѻ	U+2C36; GLAGOLITIC SMALL LETTER ZHIVETE
Ѣ	U+2C39; GLAGOLITIC SMALL LETTER IZHE

A ligature of < Ж > and < І > in Round (Bulgarian) Glagolica. The reading order is from top (Ž) to bottom (I) here which is unusual in Slavic.



(Codex Zographensis fol. 4v)

Ѻ  
↓  
Ѣ[Ѧ]ѢѢ = Б[О]ЖІИ

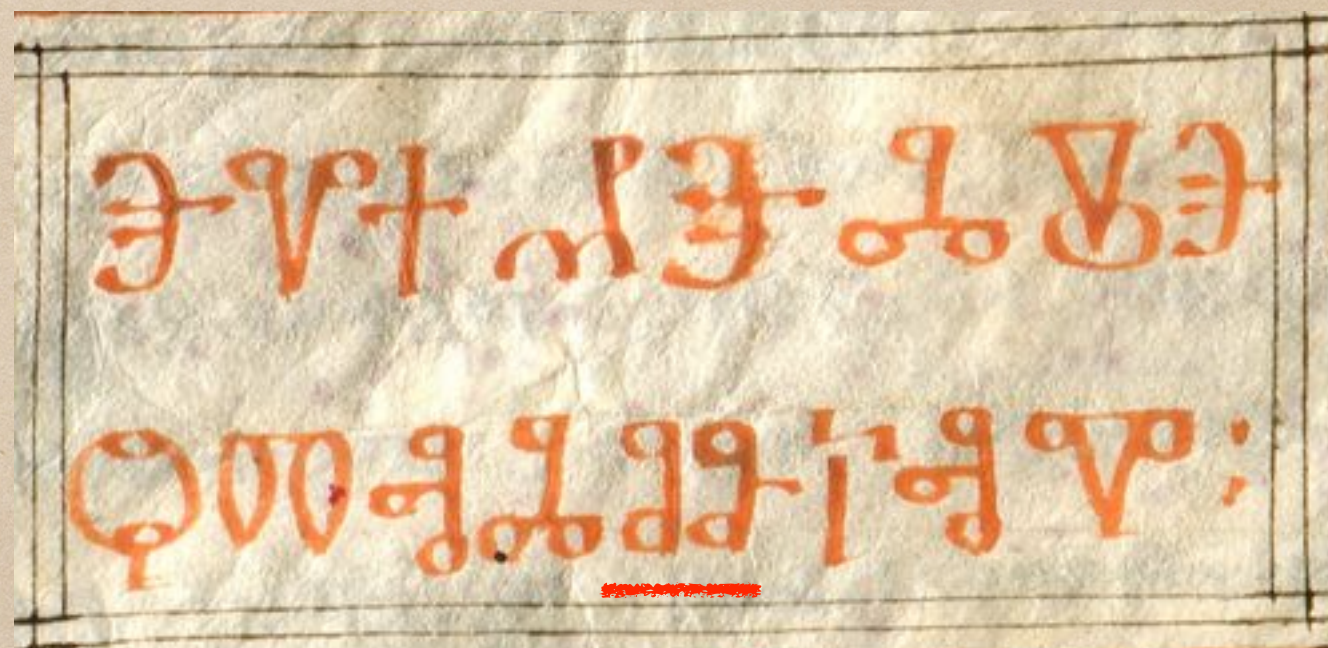




## Ligatures in Round Glagolica

Ձ	U+2C41; GLAGOLITIC CAPITAL LETTER ONU
Ճ	U+2C41; GLAGOLITIC CAPITAL LETTER IZHITSA
Ջ	U+2C36; GLAGOLITIC CAPITAL LETTER UKU

This sample clearly shows that the glyph for the [ou] ligature was originally a combination of two distinct letters, <o> and <y> (Greek ypsilon, Slavic izhitsa).



Codex Zographensis fol. 131

ՉՍՍՁ ԶԶՃԻՁՎ = ОТЪ ЛОУКЪ



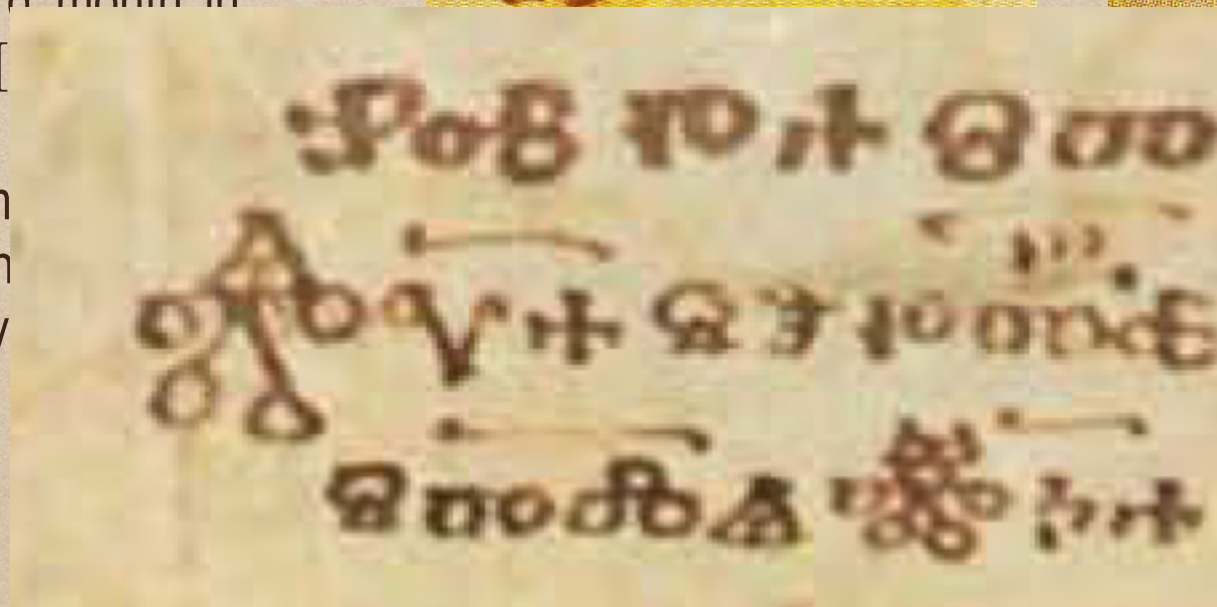
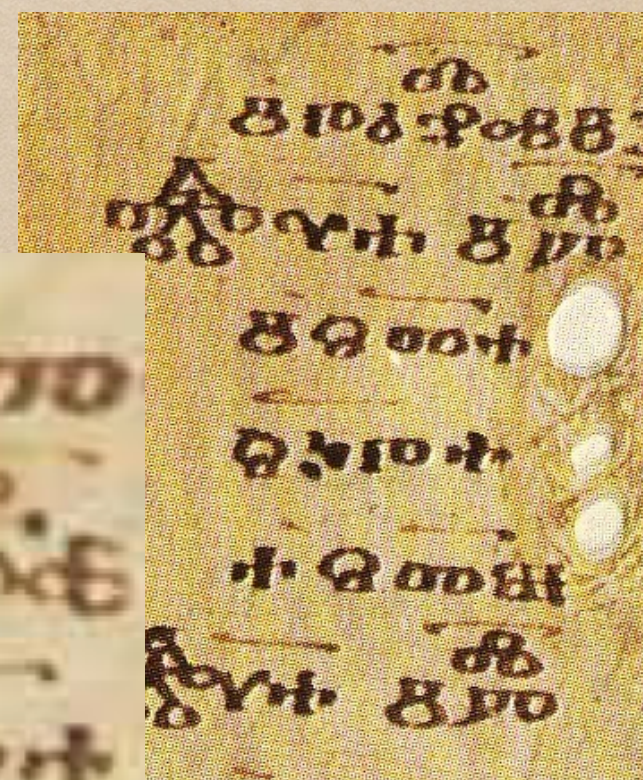
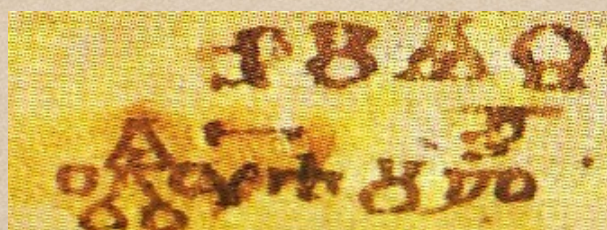


# Ligatures in Round Glagolica: M\_Ya & M\_Ya\_C

Ѣ	U+2C0F; GLAGOLITIC CAPITAL LETTER MYSLITE
Ѧ	U+2C21; GLAGOLITIC CAPITAL LETTER YATI
Ѣ	U+2C1C; GLAGOLITIC CAPITAL LETTER TSI

These samples from the Codex  
Assemanianus show several  
instances of the M\_Yat ligature,  
often used the word ‘month’ in  
dates (G.Sg.): 𐭮𐭩𐭪𐭫  
(𐭮𐭩𐭪𐭫).

The first three samples are lower sample on the same time actually M. Ya. C.



## Codex Assemanianus fol. 114

## Codex Assemanianus fol. 149v

## Codex Assemanianus fol. 151





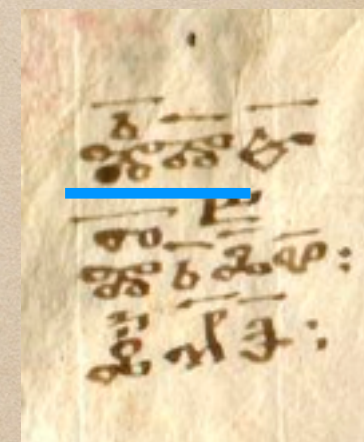
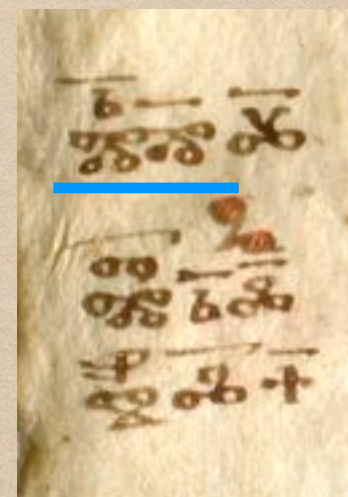
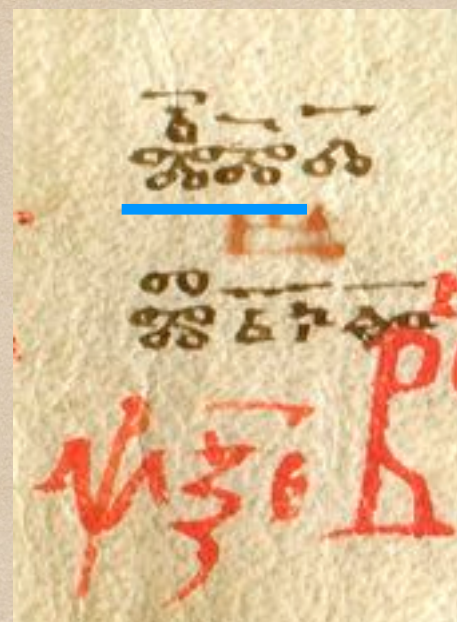
# Ligatures in Round Glagolica: M\_M



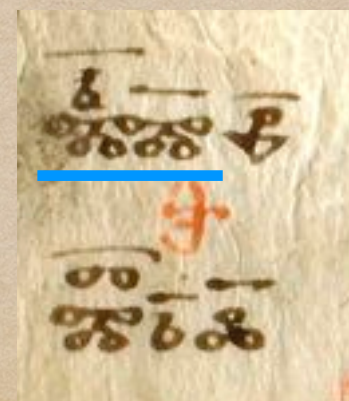
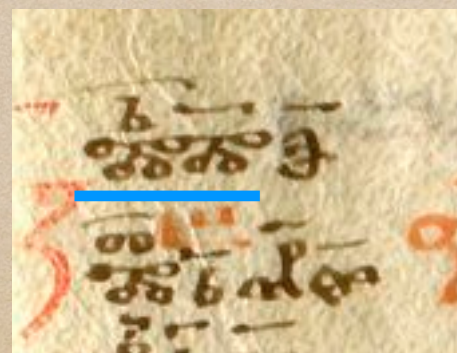
U+2C0F; GLAGOLITIC CAPITAL LETTER MYSLITE

A very interesting ligature occurs several times in the margins of the Codex Zographensis: M+M, along with a superscript R.

The first M along with the superscript R denote 'Mark', the second M is part of the chapter number.



Codex Zographensis f. 93v., 94, 94v.





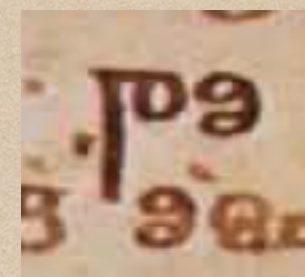
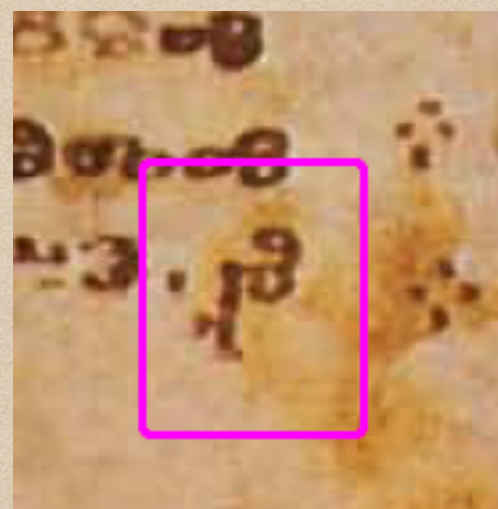


## Ligatures in Round Glagolica: ꝑ\_ǫ

ꝑ	U+2C12; GLAGOLITIC CAPITAL LETTER NASHI
ǫ	U+2C11; GLAGOLITIC CAPITAL LETTER ONU

Fol. 37 of the Codex

Assemanianus shows a ligature of  
< P\_O > as well as an unligated  
occurrence.



Codex Assemanianus fol. 37

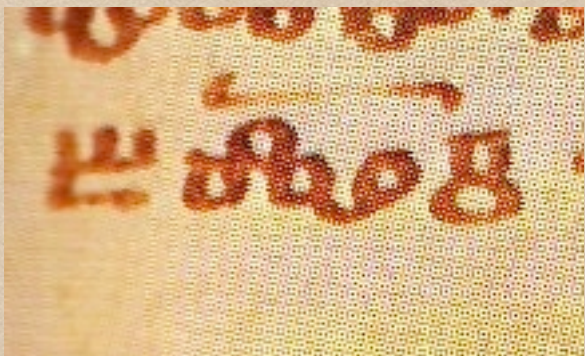




# Ligatures in Round Glagolica: ѿ\_ѡ

ѿ	U+2C0E; GLAGOLITIC CAPITAL LETTER LJUDIJE
ѡ	U+2C02; GLAGOLITIC CAPITAL LETTER VEDE
ѿ	U+2C3E; GLAGOLITIC SMALL LETTER LJUDIJE
ѡ	U+2C32; GLAGOLITIC SMALL LETTER VEDE

This sample shows a ligature of < L\_V > which can occur on lowercase as well as in uppercase.



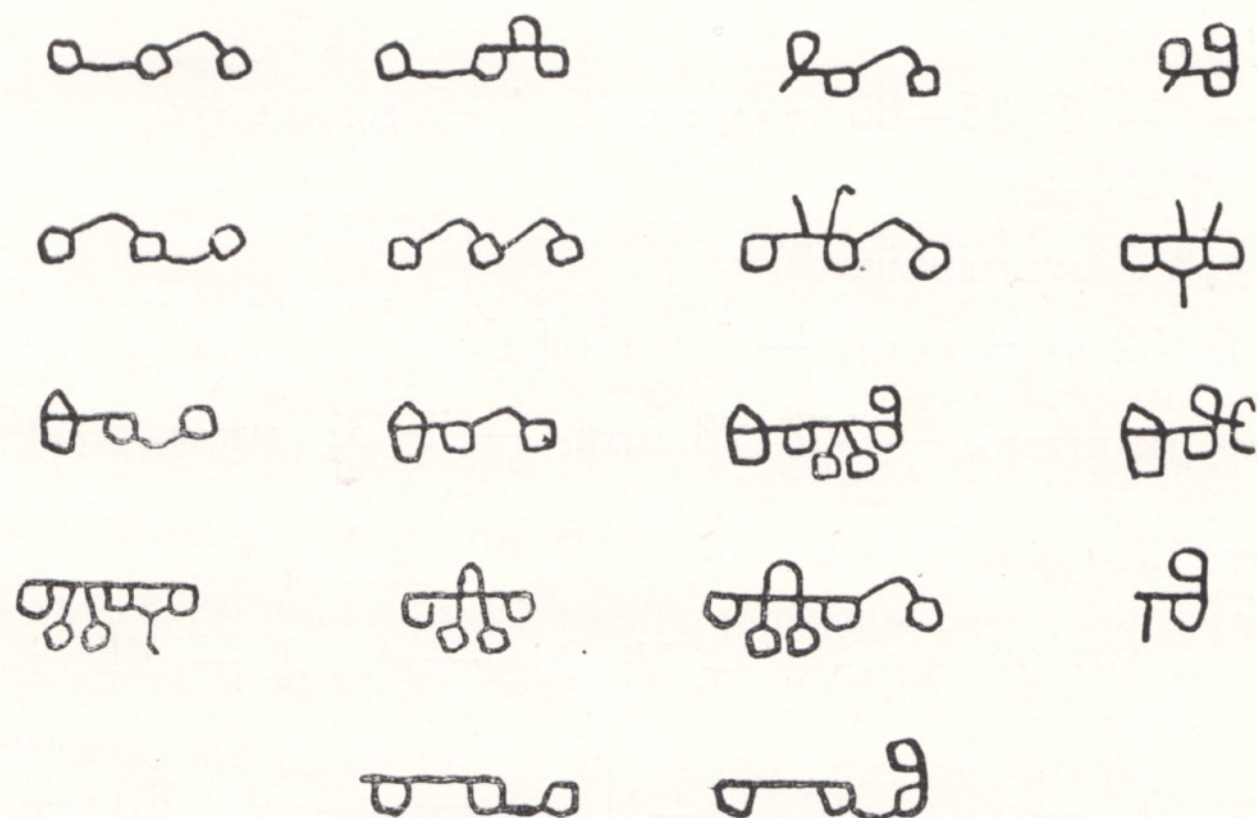
Codex Assemanianus fol. ##





## Ligatures in Round Glagolica

*Г. Лигатури.* В текста на РГЛ се срещат следните лигатури: ВД, ВЛ, ГД, ГѠ, ДВ, ДД, ЖД, ЖІ, ЗВ, ЗД, ЗМО, ЗѢ, МІ, МЛ, МЛД, ПО, ТВ и ТВѠ (вж. обр. 4, р. 1—5).



Gošev 1956: 43

Hand-drawn samples of the glagolitic ligatures which occur in the Rila Glagolitic Folia (10-11th c.). All of them are available in our Kirill Pro font.





## Transliteration of Glagolitic: Ѧ

Ѧ	U+2C0C; GLAGOLITIC SMALL LETTER DJERVI; superscript = U+1E00C, COMBINING ...
ћ	U+045B; CYRILLIC SMALL LETTER TSHE
ђ	U+2C41; CYRILLIC SMALL LETTER DJE

By the majority of scholars, the Glagolitic letter < Ѧ > is transliterated as < ћ >. However, Il'inskij (1915) in his edition of the 'Ohrid Folia' uses < ђ > instead, see pictures. Only the standard is a good candidate for an addition to Unicode. (Currently, both are not available as non-spacing superscripts.)

ДЖ ГЛЦНА· Й ЪВЛЕНІЕ [ДНЬЃЛЪ ВИ-  
ДѢВЪША· ІЖЕ]

ВЪ П̊ : Я̊ НЄ̊ : ЄВІА̊ О̊ ЙОА̊  
ГЛА̊ І̊ Ш̊ : > :

Il'inskij, G.A.,  
Oxridskie  
glag. listki.  
Petrograd  
1915: 6, 11  
resp. 17.

Въ буквѣ ђ, которая встрѣчается только одинъ разъ въ маюскульной строкѣ въ словѣ ека II<sup>14</sup>, обращаетъ вниманіе привязанное къ ея штабу колечко. То же явленіе извѣстно еще въ Клоц. Сб. и Син. Пс., но въ другихъ рукописяхъ, вмѣсто колечка, прикрѣпляются или два штриха, похожіе на лат. n (Кіев. Мисс.), или маленькія обрубленные палочки (Праж. Отр.), или же вмѣсто полного кольца только верхняя его половина (Асс., Зогр. и Мар. Ев.). Ср. Ягичъ, Графика 192.



Punctuation etc.

@





## Punctuation etc.

‘ ’

U+1ABB; COMBINING PARENTHESES ABOVE

The excerpt from Mareš 1979: 73 shows that combining superscript brackets are needed for OCS, too. The Unicode entry includes a *pair* of brackets meant to fit around a combining superscript. The order in which you type them makes no differences.

This code point is for round brackets. **Square brackets are not available separately.**

И БОРЮЩАСА СЪ МНОЮ. МОЛЮ  
О ІСА ХА] МОЛЮ СТЫИА АНГЛЫ И  
А СТЫИА; ПРРКЫ. И ВСА СТЫИА;  
ИЗЪБРАНТЫА СТЫИА; ТВОИ. ДА

*Available in RomanCyrillic Std, Kliment Pro and Method Std fonts.*





## Cyrillic breathing marks

‘	U+0485; COMBINING CYRILLIC DASIA PNEUMATA (also used for Glagolitic)
’	U+0486; COMBINING CYRILLIC PSILI PNEUMATA (also used for Glagolitic)

The original breathing marks of a Glagolitic manuscript (Kiev Folia) are being used in Mareš's Cyrillic edition of the text:

10 **Ѡ**ИЗБАВЛЕНІѢ РАДІ ЧЛОВѢ-  
11 ЧЬСКА • **Ѡ**І СЪДРАВІЕ НАМЪ  
12 ДАЗЬ<sup>h</sup> • **Ѡ**І ДОУША НАША **Ѡ**І ТѢ-  
13 ЛЕСА **Ѡ**ЧИСТІ • **Ѡ**МОЛІТВ(Ж)

Mareš 1979: 54 (Kiev Folia).









## Special Glyphs: Cyrillic palatalization mark < ˆ >

ˆ

U+0429; COMBINING CYRILLIC PALATALIZATION

The palatalization mark is shown  
here with different consonants:  
< н л г >.

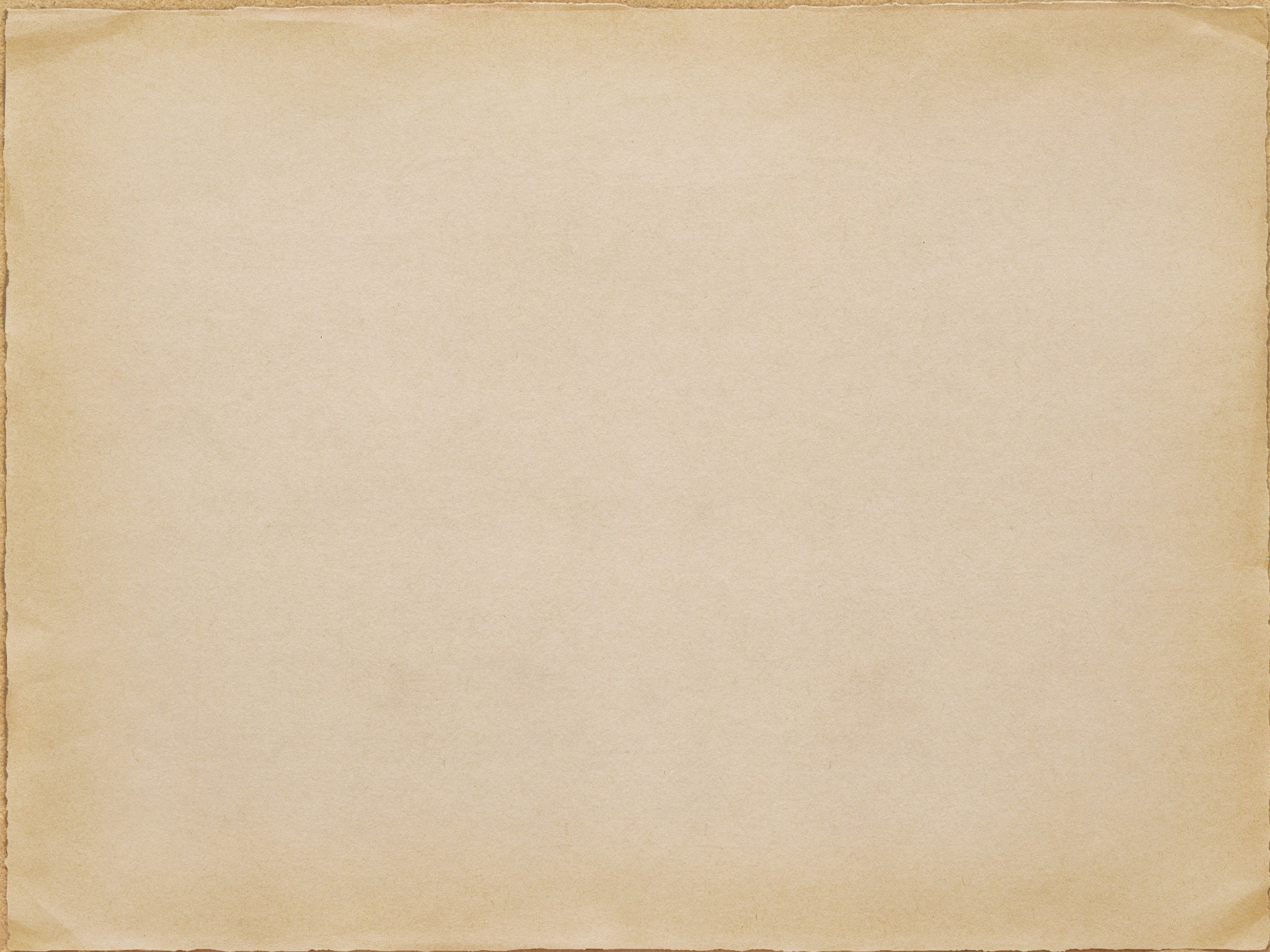
КЪ НѢ М ОУ

ГЛАГОЛА

Suprasliensis fol. 9

МАГНОТ РИАН ОУ







# Sources





# SOURCES / LITERATURE



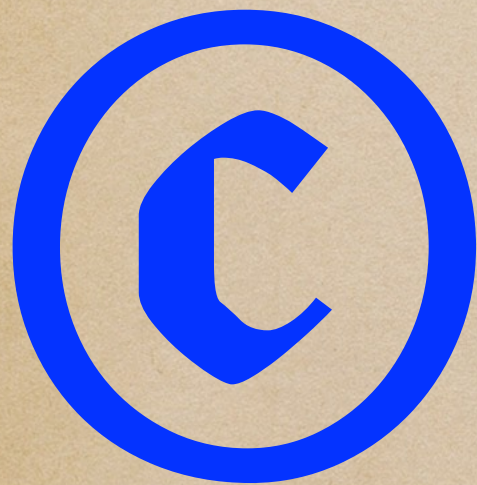
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# ΦΩΝΤΣ:

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Prof. Dr. Sebastian Kempgen

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v 1.1, Jan. 2025

v. 1.0, Dec '24





A Glagolitic Ligature turned Emoji...

