ISO/IEC JTC 1/SC 2/WG 2
PROPOSAL SUMMARY FORM TO ACCOMPANY SUBMISSIONS
FOR ADDITIONS TO THE REPERTOIRE OF ISO/IEC 10646[1]
Please fill all the sections A, B and C below.
Please read Principles and Procedures Document (P & P) from http://www.dkuug.dk/JTC1/SC2/WG2/docs/principles.html
for guidelines and details before filling this form.
Please ensure you are using the latest Form from http://www.dkuug.dk/JTC1/SC2/WG2/docs/summaryform.html.
See also http://www.dkuug.dk/JTC1/SC2/WG2/docs/roadmaps.html **for latest *Roadmaps*.**

A. Administrative

1. **Title:** *Proposal to add old Cyrillic titlo-letters to the UCS*
2. Requester's name: *On behalf of the Slavonic Typography Community:*
   Alexey Kryukov <anagnost@yandex.ru>, Vladislav Dorosh <irmologion@narod.ru>
3. Requester type (Member body/Liaison/Individual contribution): *Individual contribution*
4. Submission date: *01/30/2006*
5. Requester's reference (if applicable):
6. Choose one of the following:
   This is a complete proposal: *YES*
   (or) More information will be provided later:

B. Technical – General

1. Choose one of the following:
   a. This proposal is for a new script (set of characters):
      Proposed name of script:
   b. The proposal is for addition of character(s) to an existing block: *YES*
      Name of the existing block: *Combining marks for Cyrillic U+2DE0–U+2DF5*
2. Number of characters in proposal: *22*
3. Proposed category (select one from below - see section 2.2 of P&P document):
   A-Contemporary ___ B.1-Specialized (small collection) *Yes* B.2-Specialized (large collection) ___
   C-Major extinct ___ D-Attested extinct ___ E-Minor extinct ___
   F-Archaic Hieroglyphic or Ideographic ___ G-Obscure or questionable usage symbols ___
4. Proposed Level of Implementation (1, 2 or 3) (see Annex K in P&P document): *3*
   Is a rationale provided for the choice? *YES*
      If Yes, reference: *Combining characters*
5. Is a repertoire including character names provided? *YES*
   a. If YES, are the names in accordance with the "character naming guidelines"
      in Annex L of P&P document? *YES*
   b. Are the character shapes attached in a legible form suitable for review? *YES*
6. Who will provide the appropriate computerized font (ordered preference: True Type, or PostScript format) for
   publishing the standard? *Alexey Kryukov <anagnost@yandex.ru>*
   If available now, identify source(s) for the font (include address, e-mail, ftp-site, etc.) and indicate the tools
   used: *http://www.thessalonica.org.ru/downloads/ocstitlos.zip*
7. References:
   a. Are references (to other character sets, dictionaries, descriptive texts etc.) provided? *YES*
   b. Are published examples of use (such as samples from newspapers, magazines, or other sources)
   of proposed characters attached? *YES*
8. Special encoding issues:
   Does the proposal address other aspects of character data processing (if applicable) such as input,
   presentation, sorting, searching, indexing, transliteration etc. (if yes please enclose
   information)? *YES*
   (see below)
9. Additional Information: see below (section 10–11)
Submitters are invited to provide any additional information about Properties of the proposed Character(s) or Script
that will assist in correct understanding of and correct linguistic processing of the proposed character(s) or script.
Examples of such properties are: Casing information, Numeric information, Currency information, Display behaviour
information such as line breaks, widths etc., Combining behaviour, Spacing behaviour, Directional behaviour, Default
Collation behaviour, relevance in Mark Up contexts, Compatibility equivalence and other Unicode normalization
related information. See the Unicode standard at http://www.unicode.org for such information on other scripts. Also
see http://www.unicode.org/Public/UNIDATA/UCD.html and associated Unicode Technical Reports for information
needed for consideration by the Unicode Technical Committee for inclusion in the Unicode Standard.

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[1] Form number: N3002-F (Original 1994-10-14; Revised 1995-01, 1995-04, 1996-04, 1996-08, 1999-03, 2001-05, 2001-09, 2003-11, 2005-01, 2005-09, 2005-10)

C. Technical - Justification

1. Has this proposal for addition of character(s) been submitted before?	*YES*
If YES explain	*This is a revised version of the proposal submitted to the UTC meeting in February 2006. The proposal conception was significantly changed after a discussion with UTC members on character names and some related issues.*
2. Has contact been made to members of the user community (for example: National Body, user groups of the script or characters, other experts, etc.)?	*YES*
If YES, with whom?	*This paper has been discussed among the subscribers of the Slavonic Typography Community mailing list. Some valuable remarks have been made by Professor Ralph Cleminson (University of Portsmouth). Points of our proposal have been studied and supported by the Institute of Russian Language of the Russian Academy of Science and by the Publishing Council of the Russian Orthodox Church.*
If YES, available relevant documents:	*The mailing list archives are available at http://mail.improvement.ru/lists/fonts/list.html. Vladislav Dorosh has compiled a selection of relevant messages, posted to the mailing list, which is available as an archived package: http://irmologion.ru/unicode/discussion_titlos.zip.*
3. Information on the user community for the proposed characters (for example: size, demographics, information technology use, or publishing use) is included?	*YES*
Reference:	*See section 1 below*
4. The context of use for the proposed characters (type of use; common or rare)	*Common*
Reference:	*Characters present in various editions of Church Slavonic texts*
5. Are the proposed characters in current use by the user community?	*YES*
If YES, where? Reference:	*Used by a large community of the Orthodox Church believers*
6. After giving due considerations to the principles in the P&P document must the proposed characters be entirely in the BMP?	*YES*
If YES, is a rationale provided?	*YES*
If YES, reference:	*Contemporary use, keeping characters in conformity with other Old Slavonic and Church Slavonic characters*
7. Should the proposed characters be kept together in a contiguous range (rather than being scattered)?	*YES*
8. Can any of the proposed characters be considered a presentation form of an existing character or character sequence?	*NO*
If YES, is a rationale for its inclusion provided?	
If YES, reference:	
9. Can any of the proposed characters be encoded using a composed character sequence of either existing characters or other proposed characters?	*YES*
If YES, is a rationale for its inclusion provided?	*YES*
If YES, reference:	*See section 8 (Note on superscript SLOVO-TVERDO)*
10. Can any of the proposed character(s) be considered to be similar (in appearance or function) to an existing character?	*YES*
If YES, is a rationale for its inclusion provided?	*YES*
If YES, reference:	*See section 7*
11. Does the proposal include use of combining characters and/or use of composite sequences?	*YES*
If YES, is a rationale for such use provided?	*YES*
If YES, reference:	*See section 7*
Is a list of composite sequences and their corresponding glyph images (graphic symbols) provided?	*NO*
If YES, reference:	
12. Does the proposal contain characters with any special properties such as control function or similar semantics?	*NO*
If YES, describe in detail (include attachment if necessary)	
13. Does the proposal contain any Ideographic compatibility character(s)?	*NO*
If YES, is the equivalent corresponding unified ideographic character(s) identified?	
If YES, reference:	

Proposal

The characters discussed in this proposal represent a specific kind of combining marks, widely used in the Church Slavonic printing. The intent behind this proposal is that characters should be considered now in order to make possible using UCS for encoding Church Slavonic texts.

1. Introduction

Historically, Slavonic superscript letters descend from medieval handwriting, where various contractions and abbreviations for high-frequency words were very commonly used. From time to time one of the omitted letters was written above the contracted word instead of, or in combination with the usual contraction mark. Such superscript letters are called titlo-letters (*bukvotitla* in Church Slavonic and modern Russian).

This is a well known fact, that this practice was common for all major European scripts, both in manuscripts and early printed editions. However, such contractions were never considered obligatory, and so with the growth of book printing they were almost completely abandoned both in Latin and in Greek typography, as well as in modern languages using the Cyrillic alphabet. Old Slavonic represents an exception, since the Russian Orthodox Church together with the archaic language of its divine liturgies has also preserved its printing traditions. Centuries of the Church Slavonic printing have resulted into a certain normalization of orthographic norms, so that in modern Church Slavonic contractions (both with the regular titlo, which is already present in Unicode (U+0483), and with superscript titlo-letters) are treated as an important element of the script, and using them is mandatory in many cases.

It is important to stress the fact that Church Slavonic is not an extinct language which would be of some interest only for groups of scholars: until now every year dozens of liturgical books in Church Slavonic are printed by the Russian Orthodox Church and other orthodox communities in Russia, Ukraine, Belarus and other countries. According to the official sources of the Moscow Patriarchy, the whole number of followers of the Russian Orthodox Church is estimated to be around 160 million people. There are also large communities of Orthodox computer users, interested in digital publishing of Church Slavonic texts and sharing them via Internet. However, due to the absence of titlo-letters in Unicode still there is no international, widely accepted standard which would allow to represent the Church Slavonic texts in their traditional orthography. This is the main reason for which this proposal is being offered for consideration.

Of course adding more Church Slavonic characters to the UCS will benefit not only liturgists and Orthodox believers, but also Slavic medievalists. So attempts have been performed to contact Slavists which might be interested in encoding Cyrillic combining letters. Moreover, the whole proposal was completely revised in order to make it compliant with possible medievalist needs, even if this may make typing Church Slavonic texts less convenient (see the section 3 below for more details). However, the main problem here is that very few Slavists (at least in Russia and Ukraine) really understand the possible future meaning of Unicode, and, of course, there is no stable community which would be interested in encoding Slavic manuscripts. This is just because the needs of medievalists are just too different and can hardly be regularized. For example, some researchers are quite satisfied with already available Church Slavonic fonts or even publish their documents in modern Russian orthography. There are also many philologists who tend to reproduce any sign they see in a handwritten text, so that publishing a specific manuscript will always require its own set of characters: of course, it is quite clear that the needs of such editions can

never be fully covered by Unicode. For these reasons all previous attempts to create an encoding standard which would satisfy all Slavic medievalists were unsuccessful (see [5] for an example of one such attempt). The uncertain situation with the Old Slavonic manuscript tradition probably should not prevent us from encoding a quite stable set of characters used in Church Slavonic printing, thus making possible representing Church Slavonic texts via Unicode.

2. A note on the proposed glyph names

In the sections below each combining letter is referred by its Old Slavonic name: for example, superscript GHE is called GLAGOL. **The complete list of the proposed characters, Cyrillic letters they are derived from and their Old Slavonic names is available below in the section 9 of this document.**

3. The understanding of the term "titlo-letter" in Modern Church Slavonic and the manuscript tradition

As the glyph images shown below demonstrate, in modern Church Slavonic printing some titlo-letters (like superscript SLOVO or GLAGOL) are always combined with an arc-like superscript element (historically derived from the usual abbreviation marker, i. e. *titlo*), while others (like DOBRO) are not. Nevertheless the term *bukvotitla* is applicable to the both types of characters, as it indicates not just the fact that a specific letter is combined with *titlo*, but rather the fact that it serves as an abbreviation marker itself. Moreover, the term *titlo* is often combined with the names of specific letters: thus combining BUKI is usually called BUKI-TITLO, combining DO-BRO (although it actually has no titlo above) — DOBRO-TITLO and so on. These names indicate that the letter and the titlo mark (if it is present) represent a single entity and cannot be separated. Indeed, it is not always possible to separate 2 elements of a titlo-letter, because the upper element is usually omitted in those cases, where the letter's shape looks similar enough to *titlo* by itself, so that there is no need to write it additionally. For these reasons from the point of view of the modern Church Slavonic language and the Church Slavonic printing each titlo-letter should be treated as a single entity, and the arc above (if applicable) — just as a graphical element rather than a separate combining mark.

Nevertheless, things may look more complicated from the historical point of view. In the manuscript tradition superscript letters and titlos were actually considered different characters, so that it was possible to combine them by several different ways. In the earliest manuscripts all superscript letters were always combined with titlo: the only exception is superscript TVERDO over Omega, making the Cyrillic letter OT (encoded as U+047E/U+047F). Beginning from the 15th century scriptors start to omit the titlo mark in certain situations: first above superscript DO-BRO and then in many other combinations. The number of such situations grows significantly in the 16th century, until the printing tradition brings regularization, determining which superscript letters should be always combined with titlo, and which should not. Thus in some manuscripts both variants of the same superscript letter may well be used alongside.

One such example is shown in fig. 12, which demonstrates a list of all *titlos* used in a handwritten Psalter of 16th century taken from a modern manual of the Slavonic paleography [7, p. 232]. Here one can see that the most part of superscript letters which occur in that manuscript (namely DOBRO, ZHIVETE, ZEMLYA, NASH, RTSY, TVERDO and CHER) may have or not have titlo above. Often it is quite difficult to determine if there is any real semantical difference between such variations. Sometimes the following rule is applied: if a superscript letter is a part of a

4

nomen sacrum or another important abbreviation, it is combined with titlo; but if it is just a last letter in a word, placed above the line for space saving purposes (e. g. at the end of line), then tit-lo above is not added. Anyway, there is a more or less stable tradition to reproduce such varia-tions in punctual publications: for example, fig. 11 demonstrates a page from the edition of *Ipat'evskaya letopis'* (one of the oldest Russian chronicles), were super-imposed MYSLETE and DOBRO (which don't require a titlo above in modern Church Slavonic) are combined with titlo, while superscript TVERDO is used both with titlo and without it.

Generally speaking, discussing all this complexity lies beyond the scope of our proposal, as it is not intended to cover all superscript signs used in Slavonic manuscripts (in fact it is hardly possi-ble to believe that such a task can ever be implemented). Nevertheless we understand that the proposed characters should meet the needs of both liturgists and medievalists. That's why we don't propose to encode combinations with titlo (although they would be very handy for typing modern Church Slavonic texts), since this might mean that we are about to encode several com-posite characters while some of their components are not in the UCS. So in the future somebody might have proposed to encode Cyrillic combining letters alone (as explained above, some of them are indeed quite common in old manuscripts), so that the question of decomposing previ-ously encoded combinations with titlo would arise. For this reason the following scheme of han-dling titlo-letters is recommended: all combining letters are encoded by itself (without titlo), so that each time a typist wants to get a titlo-letter (e. g. BUKI-TITLO) (s)he will have to actually type 2 characters, i. e. combining BUKI followed by the titlo mark. The main advantage of this scheme is its flexibility, allowing to cover a greater number of combinations which can occur mostly in handwritten books. And even if some of the Cyrillic combining letters are actually nev-er used without titlo, this should not prevent us from encoding them separately, as there are al-ready similar precedents: cf. the case of the Coptic ligature SHIMA SIMA (U+2CEA), which is supposed to be always followed by an abbreviation bar.

4. Note on the recommended glyph images

As explained above, the traditional design of Church Slavonic fonts usually assumes that some combining letters (e. g. SLOVO) should always be combined with titlo above, while others (e.g. DOBRO) are supposed to be used alone. The characters which belong to this later group are usually larger (since there is no need to keep an additional space for titlo above them). They also often have a decorative shape, which may differ significantly from the corresponding regular let-ter. Nevertheless, this tradition may look unacceptable for general purpose fonts, not specially designed for Church Slavonic. That is why for the final list of proposed characters (section 12) we have preferred more "neutral" glyph images, mostly similar to the regular lowercase letters. All these characters have nearly the same height and thus anyone of them can be either combined with titlo or used by itlself. This method of representing titlo-letters is traditional for historical and philological papers (cf. our fig. 12 for example), and thus it will be more acceptable for Slav-ic medievalists. Nevertheless we are using traditional Church Slavonic glyphs for tables in sec-tion 9, since otherwise it might be difficult to identify some of the listed characters with those present in the sample images referenced in the tables.

5. Regular Cyrillic TITLO (U+0483) vs. 'literal' titlo

It is quite easy to note that, although the superscript mark used above Cyrillic combining letters, shares its name (*titlo*) and the sense of an abbreviation marker with the COMBINING CYRIL-LIC TITLO, already encoded at U+0483, these characters always have quite different shapes in

Church Slavonic printing. For this reason some people argue that the first type of titlo is a distinct character, which needs to be encoded separately. In his Grammar of the Church Slavonic language *Alypius Gamanovich* also differentiates these two characters, calling the super-imposed graphical element used in titlo-letters 'literal' (*буквенное*) titlo [2, p. 20]. This position can be proved by the earliest Slavonic manuscripts, where each of these two types of titlo was already written in a specific manner (see the fig. 13). Basing on those manuscripts one probably can say that both shapes are independent from each other and derived directly from the abbreviation bar used in the Greek handwriting. Nevertheless it is difficult to determine if scriptors themselves recognized two types of titlo as distinct characters, since the ancient terminology is quite obscure at this point: for example, the terms 'vzmet' (*взмет*) and 'pokrytiye' (*покрытие*), used for the 'literal' titlo by some modern liturgists, in Old Slavonic actually denoted just the shape of the character rather than a specific usage.

As the arguments of both sides are equally good, the whole question may be considered a matter of an authoritative solution. Of course it would be nice to have 'literal' titlo separately encoded, as this would significantly simplify the work of rendering engine. On the other hand, since 'literal' titlo is used only above combining letters, its unification with the regular Cyrillic titlo will not harm, as simple algorithm can be used to substitute the correct character shape when appropriate.

6. Notes on titlo-letters found in different types of printed editions

All titlo-letters which may occur in Church Slavonic printing can be divided into 3 main groups.

1. First, there are 5 titlo-letters, most commonly used in modern Church Slavonic as it is preserved by the Russian Orthodox Church. This group includes superscript GLAGOL, DOBRO, ON, RTSY and SLOVO, originally derived from Cyrillic letters GHE (U+0413/U+0433), DE (U+0414/U+0434), O (U+041E/U+043E), ER (U+0420/U+0440) and ES (U+0421/U+0441) correspondingly. All these characters, except DOBRO, are normally combined with titlo above. Several examples of all these titlo-letters (except RTSY), can be found in Fig. 1, which shows a page from a grammar of the Church Slavonic language, where several words, normally written in contracted form, are listed. For an example of combining RTSY see Fig. 2 — a page from an Orthodox Horologion, printed in Moscow in 1980. These titlo-letters can never be omitted in printing, for they are normally used in *nomina sacra* and other terms which have special sacral meaning.

2. The second group includes several additional titlo-letters, also used in modern Church Slavonic, which, however, can occur less frequently, and usually in some special contexts or in special types of editions. You can see in Fig. 4–5 the examples of superscript BUKI with titlo, VEDI with titlo, ZHIVETE, ZEMLYA, KAKO with titlo, NASH with titlo, MYSLETE, KHER, CHERV with titlo and FITA (see the table below for the list of corresponding inline letters). Note that all these examples are taken from editions which are not older than 19th century.

Although the abbreviations of words with titlo-letters of this group in most cases can be expanded without loss of sense, doing so is often a bad idea, because such abbreviations are used not only for mere space reduction, but also as a part of token-words necessary for book structure mark-up, both in separate and inline headlines and in margins. Such words are used very often. That's why this group of characters is still necessary for representing a large amount of existing Church Slavonic books in a digital form, so that having them in UCS is highly desired.

3. Furthermore, even a larger amount of superscript letters can be found in 16th and 17th century printed editions, not to mention the handwriting tradition. Such characters, often used irregularly,

e. g. for a space reduction at the end of lines, mostly lay beyond the scope of our proposal. However, a small group of additional titlo-letters, which includes LYUDI, POKOY, TVERDO, TSY, SHA, SHTA and the SLOVO-TVERDO ligature, is still important from the liturgical point of view. All characters from this group are normally combined with titlo, with the only exception of superscript TVERDO. The usage of these characters, quite common in the Moscow printing of the 1st half of 17th century, was regularized in the variant form of Church Slavonic writing, entirely based on the 17th century practice, which is still preserved by the Russian Old Believers — a relatively small group of Orthodox Christians who did not accept the reformations performed by patriarch Nicon in 17th century and continued to follow the former traditions. In their book printing Old Believers tend to reproduce pre-Niconian editions as strictly as possible, so that they are also interested in additional titlo-letters listed above. Thus the argument of the contemporary usage is valid even for this "historical" group of characters.

On Fig. 6-10 you can see a few examples which demonstrate the usage of titlo-letters specific for Old Believers' tradition and/or 17th century typography. The scanned images have been taken either from editions printed by Old Believers' typographies in the early 20th century, or from 17th century books, which, however, are still considered authoritative by this group of Orthodox Christians.

Note that in the attached figures only those characters are circled, which the corresponding image is specially intended to demonstrate. This is because an average page of a Church Slavonic text may contain dozens of titlo-letters, and emphasizing them all would just confuse any readers unfamiliar with the Church Slavonic writing. Thus in examples of 17th century printing we do not specially mark those titlo-letters, which are widely used also in modern Church Slavonic.

7. Difference from regular letters

One can state that titlo-letters represent just a specific shaping form of the regular Cyrillic letters they are derived from, so that using a markup should be sufficient for inserting them into electronic texts. May be, this point of view would be correct for various versions of Old Slavonic and Old Russian, where contracted words were used irregularly, just like in medieval Latin or Greek handwriting. However, it is quite easy to prove that in modern Church Slavonic titlo-letters represent distinct characters, which should be encoded separately.

First, as it was stated above, in modern Church Slavonic many contractions are considered mandatory, and thus using them is a matter of orthography, rather than just of a typographic tradition. Thus without titlo-letters (and in the absence of any standard way to encode them) it is just impossible to use UCS for plain text representation of Church Slavonic.

Second, although titlo-letters are historically derived from regular inline letters, in modern Church Slavonic they serve not just as superscript letters, but rather as contraction markers similar to such characters as U+0483 COMBINING CYRILLIC TITLO or U+0305 COMBINING OVERLINE, and behave exactly like combining diacritical marks. So, they should be treated as a specific kind of accent marks, similar to Latin combining superscript letters, already encoded at U+0363–U+036F.

Third, the usage of titlo-letters cannot be avoided in a punctual publication of a liturgical text, since often the way how a contraction should be expanded strongly depends on the orthographic

peculiarities of the time and of the document or demands wider liturgical or historical context. So the exact form of the word cannot be restored unambiguously by a publisher. For example:

— "ст҃ры" means *stiheras*, but its spelling has three points of an ambiguity: the first vowel (и or ı), the second vowel (н, є or є) and the stress mark (acute or circumflex);

— "во҃вл҃" may be reconstructed either as "воззвáхъ" or "возвáхъ";

— *Fita*'s (habitual melody fragments) name "трои^ц" needs a special book (*fitnik*) of the same tradition to see what word it abbreviates: "*троицкая*", "*троицына*", or "*троица*". The publisher often has no such book.

It should be noted finally, that currently there is no standard way to turn an arbitrary character into a combining mark, and even no kind of markup (at least in most commonly used applications) which would allow to do this.

8. Note on the superscript SLOVO-TVERDO ligature

One of the characters previously listed in the third group needs a special note. The SLOVO-TVERDO mark is essentially a superscript ligature, which can be considered a combination of super-imposed SLOVO and TVERDO, written sequentially and ligated with a titlo mark. So this character is included into our proposal just to make the list of titlo-letters as complete, as possible. However, it has a quite specific shape, and so if UTC prefers to recommend using this combination instead of encoding the character separately, font designers will need to provide a special shaping behavior for combining SLOVO when followed by TVERDO and Cyrillic TITLO.

9. List of the titlo-letters used in modern Church Slavonic (by groups)

This table lists combining Cyrillic letters as they are normally used in modern Church Slavonic. Note that some characters should always be combined with TITLO ABOVE, while other are not.

Group 1. Titlo-letters commonly used in modern Church Slavonic

Glyph images	Proposed character names	Regular Cyrillic letters the glyphs are derived from	Old Slavonic names of the corresponding Cyrillic letters	References to the attached images
	COMBINING CYRILLIC LETTER GLAGOL WITH TITLO ABOVE	GHE (U+0413/U+0433)	GLAGOL	Fig. 1, 3
	COMBINING CYRILLIC LETTER DOBRO	DE (U+0414/U+0434)	DOBRO	Fig. 1, 4, 5, 6, 7, 9, 10
	COMBINING CYRILLIC LETTER ON WITH TITLO ABOVE	O (U+041E/U+043E)	ON	Fig. 1
	COMBINING OLD CYRILLIC LETTER RTSY WITH TITLO ABOVE	ER (U+0420/U+0440)	RTSY	Fig. 2, 5

Glyph images	Proposed character names	Regular Cyrillic letters the glyphs are derived from	Old Slavonic names of the corresponding Cyrillic letters	References to the attached images
	COMBINING OLD CYRILLIC LETTER SLOVO WITH TITLO ABOVE	ES (U+0421/U+0441)	SLOVO	Fig. 1, 2, 5, 6, 9, 10

Group 2. Titlo-letters less frequently used in modern Church Slavonic

Glyph images	Proposed character names	Regular Cyrillic letters the glyphs are derived from	Old Slavonic names of the corresponding Cyrillic letters	References to the attached images
	COMBINING OLD CYRILLIC LETTER BUKI WITH TITLO ABOVE	BE (U+0411/U+0431)	BUKI	Fig. 5, 6, 8
	COMBINING CYRILLIC LETTER VEDI WITH TITLO ABOVE	VE (U+0414/U+0434)	VEDI	Fig. 3, 7
	COMBINING CYRILLIC LETTER ZHIVETE	ZHE (U+0416/U+0436)	ZHIVETE	Fig. 4, 7, 8
	COMBINING CYRILLIC LETTER ZEMLYA	ZE (U+0417/U+0437)	ZEMLYA	Fig. 4, 7
	COMBINING CYRILLIC LETTER KAKO WITH TITLO ABOVE	KA (U+041A/U+043A)	KAKO	Fig. 6
	COMBINING CYRILLIC LETTER MYSLETE WITH TITLO ABOVE	EM (U+041C/U+043C)	MYSLETE	Fig. 5, 7
	COMBINING CYRILLIC LETTER NASH WITH TITLO ABOVE	EN (U+041D/U+043D)	NASH	Fig. 5
	COMBINING CYRILLIC LETTER KHER	HA (U+0425/U+0445)	KHER	Fig. 4, 6, 7
	COMBINING CYRILLIC LETTER CHERV WITH TITLO ABOVE	CHE (U+0427/U+0447)	CHERV	Fig. 5
	COMBINING CYRILLIC LETTER FITA	FITA (U+0472/U+0473)	FITA	Fig. 5

Group 3. Titlo-letters, which were used in the 17ᵗʰ century typography, and are still preserved by the Russian Old Believers in their printing tradition

Glyph images	Proposed character names	Regular Cyrillic letters the glyphs are derived from	Old Slavonic names of the corresponding Cyrillic letters	References to the attached images
	COMBINING CYRILLIC LETTER LYUDI WITH TITLO ABOVE	EL (U+041B/U+043B)	LYUDI	Fig. 7
	COMBINING CYRILLIC LETTER POKOY WITH TITLO ABOVE	PE (U+041F/U+043F)	POKOY	Fig. 10
	COMBINING CYRILLIC LETTER TVERDO	TE (U+0422/U+0442)	TVERDO	Fig. 8
	COMBINING CYRILLIC LETTER TSY WITH TITLO ABOVE	TSE (U+0426/U+0446)	TSY	Fig. 8
	COMBINING CYRILLIC LETTER SHA WITH TITLO ABOVE	SHA (U+0428/U+0448)	SHA	Fig. 7, 8
	COMBINING CYRILLIC LETTER SHTA WITH TITLO ABOVE	SHCHA (U+0429/U+0449)	SHTA	Fig. 8

Group 4. Characters which can be treated as combinations of other titlo-letters

	Proposed character names	References to the attached images
	COMBINING OLD CYRILLIC LETTER SLOVO-TVERDO WITH TITLO ABOVE	Fig. 6, 7, 8

10. Unicode character properties

All characters proposed in this document belong to the same class of combining marks, attached above the base glyph. Thus their general category value should be "Mn", their Bidi class value "NSM" and their Canonical combining class value 230. In general, the character properties for this set are similar to those for COMBINING CYRILLIC TITLO, except they do not have Unicode 1 names.

11. Character sorting issues

First of all, the problem of sorting titlo-letters never existed in Church Slavonic, since in traditional dictionaries abbreviated words could be placed in a "logical" order, i. e. at the same positions where their expanded forms should go. Nevertheless, such sorting may be quite important at the present time, e. g. for building a complete list of Church Slavonic word forms. Of course, in the absence of a stable tradition any decisions which can be taken at this point would be just a

sort of convention. Two such conventions can probably be considered, both of them having their own advantages and disadvantages:

➢ it would be possible to accept the same approach as for Latin Medievalist combining letters, i. e. treat titlo-letters as special case forms of their counterpart regular letters. Thus, if for CYRILLIC SMALL LETTER GHE (U+0413) the collation element is [.12CE.0020.0002.0433], then for combining GLAGOL it should look like [.12CE.0020.0004.XXXX], and so on;

➢ or it would be possible to sort titlo-letters as any other combining marks, i. e. at the second pass of a sorting algorithm. In this case the alphabetical order should be preserved, i. e. titlo-letters should be ordered exactly in the same sequence as the corresponding letters of the Russian and Church Slavonic alphabets, as they are listed in the next section.

12. List of the proposed characters (in alphabetical order)

In the following table, all proposed characters are listed in their alphabetical order. This order should be used for sorting purposes; it would be also quite desired to keep this order when assigning UCS codepoints to the characters. In this list all combining letters are shown according to the principles described in the section 3, i. e. without titlos above. The glyph images in this table have a "neutral" design, generally more acceptable for medievalists than for liturgical needs.

Glyph images	Unicode codepoints	Unicode character names
Б	2DE0	COMBINING CYRILLIC LETTER BUKI
В	2DE1	COMBINING CYRILLIC LETTER VEDI
Г	2DE2	COMBINING CYRILLIC LETTER GLAGOL
Д	2DE3	COMBINING CYRILLIC LETTER DOBRO
Ж	2DE4	COMBINING CYRILLIC LETTER ZHIVETE
З	2DE5	COMBINING CYRILLIC LETTER ZEMLYA
К	2DE6	COMBINING CYRILLIC LETTER KAKO
Л	2DE7	COMBINING CYRILLIC LETTER LYUDI

Glyph images	Unicode codepoints	Unicode character names
Ⰸ	2DE8	COMBINING CYRILLIC LETTER MYSLETE
Ⱀ	2DE9	COMBINING CYRILLIC LETTER NASH
◊	2DEA	COMBINING CYRILLIC LETTER ON
Ⱂ	2DEB	COMBINING CYRILLIC LETTER POKOY
Ⱃ	2DEC	COMBINING CYRILLIC LETTER RTSY
ϲ	2DED	COMBINING CYRILLIC LETTER SLOVO
ⰿ	2DEE	COMBINING CYRILLIC LETTER TVERDO
Ⰺ	2DEF	COMBINING CYRILLIC LETTER KHER
Ⱆ	2DF0	COMBINING CYRILLIC LETTER TSY
Ч	2DF1	COMBINING CYRILLIC LETTER CHERV
Ш	2DF2	COMBINING CYRILLIC LETTER SHA
Щ	2DF3	COMBINING CYRILLIC LETTER SHTA
Ѳ	2DF4	COMBINING CYRILLIC LETTER FITA
᷵	2DF5	COMBINING CYRILLIC LETTER SLOVO-TVERDO

13. Examples

Part 1. Titlo-letters in Church Slavonic printing

Подъ титломъ пишутся слѣдующія слова:

А́гг҃лъ — ангелъ	Мл҃тва — молитва
А́пⷭлъ — апостолъ	Мл҃ть — милость
Бг҃ъ — Богъ	Мл҃рдїе — милосердіе
Бжⷭтвенный — Божественный	Мл҃нцъ — Младенецъ
Бл҃гъ — благъ	Мч҃нкъ — мученикъ
Бл҃же́нъ — блаженъ	Нб҃о — Небо
Бл҃гослове́нъ — благословенъ	Оц҃ъ — Отецъ
Бл҃гочⷭтнѡ — благочестно	Нⷣля — недѣля
Бл҃гть — благодать	Прⷣникъ — праведникъ
Бц҃а — Богородица	Прпⷣбенъ — преподобенъ
Воскрⷭнїе — воскресеніе	Прⷭто́лъ — престолъ
Влⷣка — Владыка	Прⷪро́къ — пророкъ
Влⷣчца — Владычица	Ст҃ъ — святъ
Гдⷭь — Господь	Ст҃и́тель — святитель
Дв҃а — Дѣва	Спⷭсъ — Спасъ
Дх҃ъ — Духъ	Сн҃ъ — Сынъ
Еппⷭкъ — епископъ	Трⷪца — Троица
Еѵⷢлїе — Евангеліе	Хрⷭто́съ — Христосъ
И́мⷬекъ — имярекъ	Црⷭтво — царство
Іерⷭли́мъ — Іерусалимъ	Црⷭь — Царь
Іи҃съ — Іисусъ	Црⷦовь — церковь
Крⷭтъ — Крестъ	Чⷭтный — честный
Крⷭти́тель — Креститель	Чтⷭый — чистый
Мр҃і́а — Марія	и др.
Мт҃и — Мати	

Fig. 2. Часослов. Москва, 1980. P. 42. Note RTSY-TITLO (in the last line) and SLOVO-TITLO.

Fig. 3. Типикон, сиесть устав. Редакционно-издательское объединение «Санкт-Петербург», 1992. Т.2. С. 1112. Note the VEDI-TITLO sign in margin notes.

14

Fig. 4. Минея. Месяц Август. Санкт-Петербург: Синодальная типография, 1895. Fol. 76v. Among others, this fragment contains ZHIVETE-TITLO, ZEMLYA-TITLO and KHER-TITLO.

Fig. 5. Типикон, сиесть устав. Москва: Синодальная типография, 1896. Fol. 539v. Among other titlo-letters, this fragment shows examples of usage of BUKI-TITLO, KAKO-TITLO, NASH-TITLO, MYSLETE-TITLO, RTSY-TITLO, CHERV-TITLO and FITA-TITLO.

Fig. 6. Малый домашний Устав. Москва.: Преображ. богад. дом, 1910. Fol. 1.

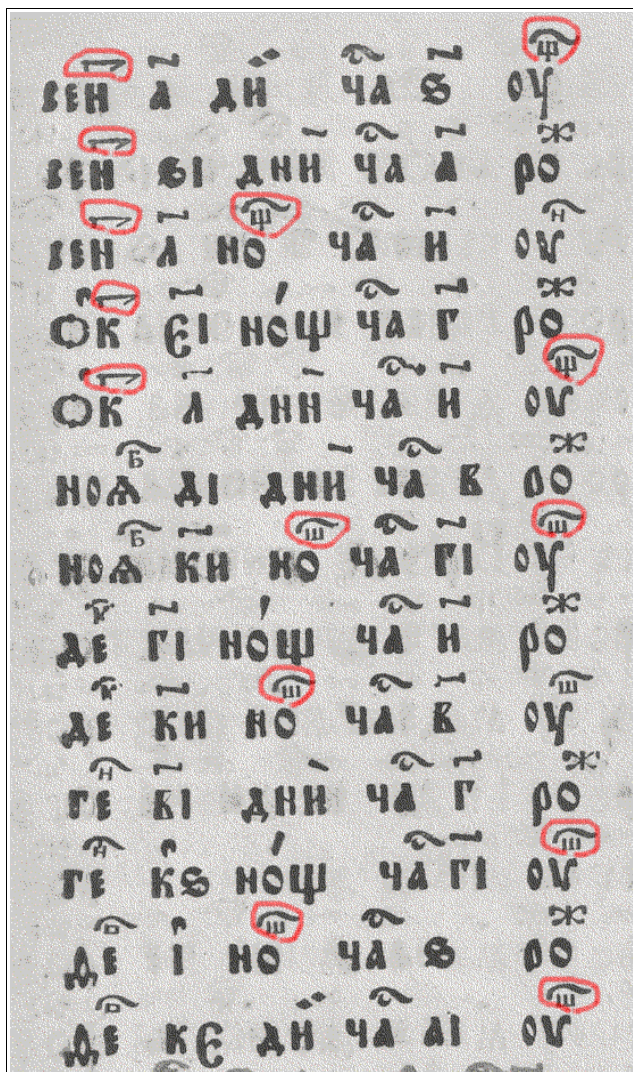*Fig. 7. Малый домашний Устав. Москва.: Преображ. богад. дом, 1910. Fol. 1v.*

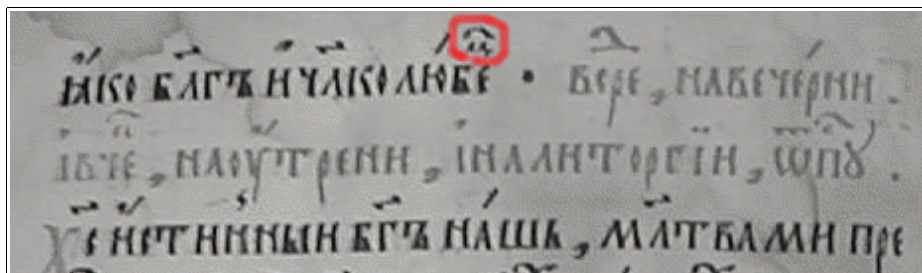*Fig. 8. Псалтырь Учебная. Москва, 1651. Fol. 88v.*

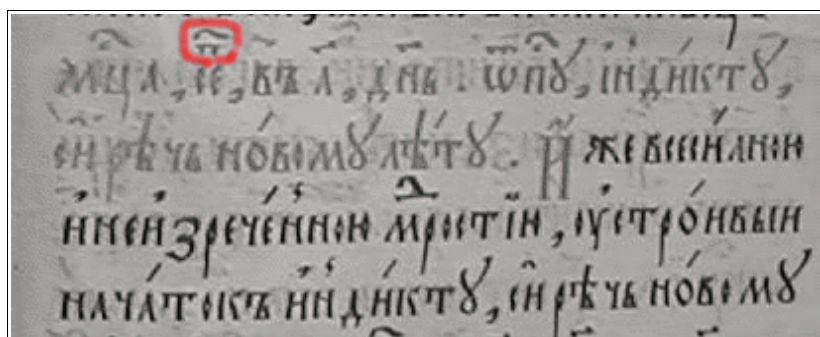*Fig. 9. Око Церковное (устав). Москва, 1610. Fol. 226v. Note the TSY-TITLO mark in the first line.*

Fig. 10. Око Церковное (устав). Москва, 1610. Fol. 227. Note the POKOY-TITLO mark in the first line.

367   ИПАТЬЕВСКАЯ ЛѢТОПИСЬ [г. 1148].

СА ему рѣ̃ ѡц̃ь ма перешбидилъ [1] . и [2] во-
лости ми не далъ [2] . и пришелъ есмь нарекъ [3]
Бᷱ и тебе . зане ты еси старѣи нᷱᷡ [a] Володи-
мирихъ [4] внуцѣхъ [5] а за Рускоую землю хочю
страдати . и подлѣ [6] тебе ѣздити . Изаславъ же
рѣ̃ емоу всᷡи [7] нᷡа старѣи ѡц̃ь твои . но с нами
не оумѣеть жити . а мнѣ даи . Бᷱ вᷡа браю . свою
всю [8] имѣти [8] . и весь родъ свои [9] . въ прав-
доу . ако [10] и дн̃ю свою . нᷡѣ же аче ѡц̃ь ти [11]
волости не далъ . а [12] газъ [13] ти даю . и да емоу
Божьскъı [14] . Межибжие [15] . Котелницю и ина
два городы . и пога Гюргевича Ростислава (Ро-
стислава) [16] [6] съ собою на снемъ . к Городкоу
Въстрьско̃ᷡ [17] и рѣ̃ . Изаславъ Володимиру [18]
Дв̃двичю и братоу его Изаславоу . ѡже [19] браᷡ
Ст̃ославъ и сестричичь мои а ко мнѣ не при-
шла [20] а вы есте вси хрᷡтъ цѣловали [21] на
томъ . аже [22] кто боудеᷡ̃ мнѣ золъ [23] . то вамъ
на того [в] быти со [24] мною . се же брата [25]
га [26] [г] . с вами доумаю се стрыи [27] мои [28] Гюр-
гии из Ростова . ѡбидить мои Новгородъ . и [29]
дани ѽ нᷡи штоималъ [30] . и на поутѣ̃ имъ па-
кости дѣеть [31] . а хочю поити на нь . и то хочю
оуправиᷡ̃ . любо миромъ любо ратью а вы есте
на томъ хрᷡтъ [32] цѣловали . ако [33] со [34] мною
быти . Володимеръ же рѣ̃ аже [35] браᷡ Ст̃ославъ
не приѣхалъ . ни сестричичь твои . а вѣ [36]
есвѣ . а мы вси хрᷡтъ [37] цѣловали на томъ ако
кде [38] твога ѡбида боудеть . а намъ быти с то-

бою . и тако оугадаша [39] поуть
ледове станоуть . поити на Гюргᷡа
Дв̃двичема же и Ст̃ославоу Ѡлгоᷡ
на Ватичѣ [41] к Ростовоу а Изас.
к брату своему Ростиславу . до
а всимъ [42] снаǁтиса . на Волзѣ .
слᷡа Мьстиславᷡи . пога [43] на ѡбѣдъ
лодимира [44] Дв̃двича и брата [45]
тако ѡбѣдавше . и пребывше оᷡ
оу любви [46] . и [47] разъѣхашаса [48] .
иде Киевоу [50] . а Володимиръ [51]
брамъ [e] иде Черниговоу [52] . и рѣ̃
Ростиславоу . Гюргевичю иди въ
и [55] прѣбоуди же тамо . доколѣ
ѡц̃а твоего . а любо с нимъ м
пакы ли . а [56] како [57] са с нᷡи оᷡ
постерези землѣ Роускои [58] Ѿтолᷡ
веремга [59] Ростиславъ Смоленьскᷡ
дчери [61] оу Ст̃ослава . оу [62] Ѡлгоᷡ
сн̃а своего [63] . Смоленьскоу . и ве
Новагорода в нᷡелю по водохрᷡ
геньварA въ ᷡѳ дн̃ь ·⁚ В то же ве
славъ поиде на Гюргᷡа стрыга [67] с
своего Володимира [68] ѡстави в Ки
своего Мьстислава . ѡставиᷡ оу Пе
самъ поиде напередъ къ братоу
а полко̃ᷡ повелѣ по собѣ [70] ити .
снати оу Смоленьскѣ [72] . оу Рᷡ
приде [73] Изаславъ къ братоу Рᷡ

Fig. 11. Ипатьевская летопись (Полное собрание русских летописей. Том второй). Санкт-Петербург, 1908. P. 367. This example demonstrates that in the editions of old manuscripts superscript TVERDO can be used both with and without titlo above (compare the characters highlighted in blue and red). Also note some additional super-imposed letters (SLOVO, MYSLETE, CHERV), all combined with titlos above.

17

Кроме отмеченных титл, в древнейших уже памятниках встречаются буквенные титла, которые покрываются чертой, выгнутой полуциркулем (Остром. ев., Супр. рук.) или почти прямой с легким выгибом (Савв. книга), а иногда и без него, но с опущенными концами, напр., с̃, о̃, т̃, в̃, н̃, а̃, г̃, в словах: мц҃ь, бы҃| 5 б Супр. рук., апло҃мъ 6 ib., прⷬкъ, еⷡва ѿ ноⷩа глⷡа л̃ѳ л. 30 Савв. кн., нⷷе 30 б, еⷡва 9 ib. Особенно часто буквы выносятся в конце строк, когда для них нет места: апостⷮ|лъ 5 б Супр. рук., адⷨ|мъ ib. Со-временем число буквенных титл сильно разрослось, при чем эти буквы или покрывались титлом, или же оставались без покрытия. Вот, напр., какие буквенные титла употреблены в псалтыри XVI в. б. Рум. муз., № 335: б̃, в̃, д̃, ж̃, з̃, и̃, п̃, р̃, с̃, ст̃, нт̃, х̃, ц̃, ч̃, ш̃, щ̃, ѳ̃, ѵ̃; х, д, ж, р, л, мт, ѵ, и, н, з, т; иногда в словах надписываются целые слоги: рожⷢⷪдⷭⷯай, бⷭⷮⷪⷬⷮⷪⷨгⷭⷮⷪⷨⷮⷮⷪⷨⷮⷮⷪⷨсти (ср. «Западнорусск. переводы псалтыри в XV — XVII в.», 53—56).

Fig. 12. Карский Е.Ф. Славянская кирилловская палеография. Москва, 1979. P. 232. This page from a manual of the Slavonic paleography demonstrates several combining letters widely used in the 15th and 16th century manuscripts. Note that the most part of these letters could be used both with and without titlo above.

Fig. 13. The famous "Gospel of Ostromir" — one of the oldest Slavonic manuscripts (1056–1057). Note the difference between regular titlo (blue highlighting) and so-called 'literal' titlo, used only in combination with superscript letters.

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