Proposal to Encode some Additional Symbols used in Church Slavonic Text

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Abstract

This document proposes to encode in the Unicode standard a number of additional characters ("Typicon symbols") used to indicate levels of liturgical solemnity in Church Slavonic printed texts of two religious communities in Russia and Ukraine.

1   Introduction

The Typicon – a liturgical book used in the Russian Orthodox Church and other Eastern Orthodox and Byzantine Catholic Churches – contains liturgical instructions and rubrical information for divine services. In order to allow a user to quickly determine the structure of a liturgical service for a given day, the Typicon uses a number of rubrical symbols ("typicon symbols") to indicate different levels of solemnity. The creation of the system of Typicon symbols is attributed to the 11th century Byzantine liturgist Nicon of the Black Mountain (Mansvetov (1885); see also: Beneshevich (1917) and Allison (2000)). The symbols currently used in the liturgical books of the Russian Orthodox Church have been encoded in the Unicode standard (see Shardt and Andreev (2009) and Andreev et al. (2010)). However, a number of other systems of Typicon symbols do exist. In this document, the authors propose to encode characters from two such additional systems.

2   Syrnikov System

The first system considered in this proposal is used by the Russian liturgist Nikita Syrnikov in his book *Ключ к церковному уставу* (*Klyuch k tserkovnomu ustavu* – "Key to the Church Typicon") published in 1910 and recently reprinted in Moscow in 1998 (Syrnikov, 1910). Syrnikov was a member of the Russian Yedinoverie community, and the book is intended as a practi-

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cal liturgical guide for Yedinoverie parishes.[1] The system used by Syrnikov is clearly derived from more archaic systems of Typicon symbols attributed to St. Gennadius, Archbishop of Novgorod (*fl. c.* 1500). The archaic marks (*окозрительные пометы* – "glancing marks") will be considered by the authors in a separate proposal.

The system of Nikita Syrnikov uses 46 characters. However, many of these characters are already available in the Unicode standard at various codepoints. We propose for encoding only such characters that are not already available. Because Syrnikov's book continues to be popular among members of the Yedinoverie community, there is a need for its digital storage and presentation, and thus we request that these symbols be added to the Unicode standard.

2.1 Symbols Proposed for Encoding

This section details the symbols of the Syrnikov system proposed for encoding. The repertoire of the proposed characters is summarized in Table 1.

2.1.1 Inverted Low Kavyka

This character is used by Syrnikov to indicate an *Alleluia* service for a saint. This character consists of an upside-down Cyrillic Kavyka. However, unlike U+A67E CYRILLIC KAVYKA, it occurs inline, rather than raised, and never as a superscript; see the usage in Figure 1, where the Church Slavonic text reads г҃ ∩ прпⷣбномꙋ сла́вѣ.

This character is similar in graphical appearance to two other characters already available in Unicode: U+1D16 (Latin Small Letter Top Half O) and U+25E0 (Upper Half Circle). However, it is a distinct character because of its different vertical position. In addition, the Script property of U+1D16 is set to Latin, while this character occurs in Cyrillic texts, and the Line Breaking property of U+1D16 is set to AL (alphabetic) whereas the Line Breaking property of this character should be set to BA (Break After). Moreover, unlike U+25E0, this is a punctuation symbol (an inverted Kavyka), not a geometric shape. We propose to encode this character in the Supplemental Punctuation block.

Figure 1: Use of Inverted Low Kavyka (boxed in red); source: Syrnikov (1910, f. 6r).

2.1.2 Inverted Low Kavyka with Kavyka Above

This character is used by Syrnikov to indicate a service with a Kontakion (with no accompanying Œcos) and lacking a Troparion.[2] This character occurs inline and never as a superscript. Although it is approximately equivalent to the above character (Inverted Low Kavyka) and a

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[1]The "Old Ritualists" (sometimes called "Old Believers") did not accept the liturgical and philological reforms under Patriarch Nikon (1652-1666) and Patriarch Joasaph II (1667-1672) and continue to use the liturgical texts printed in the Russian Orthodox Church prior to these reforms. In the 19th century, some Old Ritualists, called Yedinovertsy (adherents of Yedinoverie, literally "the one faith movement") reunited with the mainline Russian Orthodox Church, but continue to use the pre-reformed liturgical practices; they print their own liturgical books in Church Slavonic, distinct from the books used by the mainline Russian Orthodox Church.

[2]The words "Troparion", "Kontakion", "Œcos", "Exapostilarion" refer to genres of variable hymnography chanted in the Byzantine Rite for various commemorations.

combining Cyrillic Kavyka (U+A67C), it is best not to decompose this character. The usage of this character is demonstrated in Figure 2, where the text reads ҂ѕ꙼ ҂ а҆нтѻ́нїю. We propose to encode this character in the Supplemental Punctuation block.
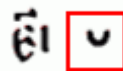
Figure 2: Use of Inverted Low Kavyka with Kavyka Above (boxed in red); source: *ibid.*

2.1.3 Low Kavyka

This character is used by Syrnikov to indicate a service with a Troparion and Kontakion (without Œcos). It is graphically similar to U+02D8 BREVE and U+A67E CYRILLIC KAVYKA; however, unlike those characters, it occurs midline, not raised, as can be seen in Figure 3 (the text reads: ҄єı ҆). If this character occurs as a combining variant, (for example: ҄і), the existing combining character U+A67C COMBINING CYRILLIC KAVYKA should be used. We propose to encode this character in the Supplemental Punctuation block.

Figure 3: Use of Low Kavyka (boxed in red); source: *ibid.*

2.1.4 Low Kavyka with Dot

This character is used by Syrnikov to indicate a service with a Troparion and Kontakion with Œcos. Graphically, it is composed from the above character, Low Kavyka, and a dot, as can be seen in Figure 4 (the text reads: ҄а ҆). This character also occurs as a combining character, for example: ҄і; the combining version should be decomposed as U+A67C COMBINING CYRILLIC KAVYKA and U+0307 COMBINING DOT ABOVE. We propose to encode this character in the Supplemental Punctuation block.

Figure 4: Use of Low Kavyka with Dot (boxed in red); source: *ibid.*

2.1.5 Combining Kavyka Above Right and Combining Kavyka Above Left

These two characters are used to indicate various rubrics for chanting the Beatitudes Troparia at the Typica or the Divine Liturgy services. The *kavyki* are used as combining characters positioned to the right or to the left of the base character, and may occur together with a Combining Dot Above (either on the right or the left) and a Combining Cyrillic Titlo, as can be seen in Figure 5. We propose that the necessary sequences should be composed by

entering the base character, followed by the necessary combining characters in vertical order. To prevent canonical reordering, where necessary, the character U+034F COMBINING GRAPHEME JOINER may be inserted. For example, the sequence in the left panel of Figure 5 may be inputted as: Base Character, Combining Kavyka Above Left, U+034F COMBINING GRAPHEME JOINER, U+0483 COMBINING CYRILLIC TITLO. We propose to encode the Combining Kavyka Above Left and the Combining Kavyka Above Right in the Combining Diacritical Marks Supplement block.

Figure 5: Use of Kavyka above Left (boxed in red) and Kavyka above Right (boxed in blue); source: *ibid*.

2.1.6 Combining Dot Above Left

The combining *kavyki* presented above may also occur together with combining dots positioned on the right or the left above the base character. This usage is demonstrated in Figure 6. While Unicode includes U+0358 COMBINING DOT ABOVE RIGHT, a Combining Dot Above Left has not been encoded. We propose to encode such a character in the Combining Diacritical Marks Supplement block. Note that the encoding of this character may introduce an ambiguity in the spelling of U+2A84 GREATER-THAN OR SLANTED EQUAL TO WITH DOT ABOVE LEFT, which should be considered by the Unicode Technical Committee. Note that in Figures 6 and 5, the kavyki and dots may appear to balance incorrectly over a character or two characters; this is a typographical defect.

Figure 6: Use of Combining Dots above Left (boxed in red) and above Right (boxed in blue); source: *ibid*.

2.1.7 Combining Bottom Tortoise Shell Bracket Below

This is a combining character used by Syrnikov to indicate that a double service has a common Exapostilarion. As can be seen from Figure 7, the character appears below a Cyrillic letter or another Typicon symbol (the text in the graphic reads ттнт𐤔 ⸜). This character is unique; a non-combining version of this character has been encoded in Unicode as U+23E1 BOTTOM TORTOISE SHELL BRACKET.

Figure 7: Use of Combining Bottom Tortoise Shell Bracket Below (boxed in red); source: *ibid.*
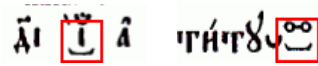
2.1.8 Double Comma

This character consists of two vertically stacked commas. It is used by Syrnikov to indicate that a particular commemoration has no liturgical service, as can be seen from Figure 8 (the text reads as in: мчͦницамъ ҙ). We propose to encode this character in the Supplemental Punctuation block.

Figure 8: Use of Double Comma (boxed in red); source: *ibid.*

2.1.9 Downward Facing Hook

This unique character is used by Syrnikov to indicate that a day falls during the period of a Forefeast or Afterfeast, but that the Octoechos is chanted. Its usage is demonstrated in Figure 9 (the text reads: ӓ ꙗ). There are no similar characters in the Unicode standard, and so we propose to encode this character in the Supplemental Symbols and Pictographs block.

Figure 9: Use of Downward Facing Hook (boxed in red); source: *ibid.*

2.1.10 Downward Facing Hook with Notch

This character, which complements the above character, is used by Syrnikov to indicate that a day falls during the period of a Forefeast or Afterfeast and the Octoechos is *not* chanted. Its usage is demonstrated in Figure 10, where the text reads ӓ ꙗ. There are no similar characters in the Unicode standard, and so we propose to encode this character in the Supplemental Symbols and Pictographs block.

2.1.11 Combining Dot Overlay

The above two characters – Downward Facing Hook and Downward Facing Hook with Notch – are also sometimes used with an overlayed dot, as in Figure 11. The presence of the dot indicates that the service for the day includes a Kontakion and thus after Ode 3 of the Canon, the Kontakion for the Feast is chanted and after Ode 6 – the Kontakion for the Saint. Because the dot overlay can occur either in black or red, we propose to encode the dot as a separate character rather than encoding precomposed symbols for the Downward Facing Hook with Dot and Downward Facing Hook with Notch and Dot. We propose to add the Combining Dot Overlay to the Combining Diacritical Marks Supplement block.

Figure 10: Use of Downward Facing Hook with Notch (boxed in red); source: *ibid.*

Figure 11: Use of Downward Facing Hook with Notch together with Dot Overlay; note that the Dot Overlay may occur in black (boxed in red) or in red (boxed in blue) source: *ibid.*
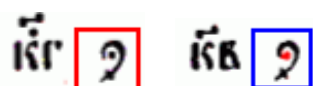

Table 1: Proposed characters from the system of Nikita Syrnikov

Cdpt	Disp	Name	Usage
Combining Diacritical Marks Supplement			
1DF6	̆	Combining Kavyka Above Right	Indicates rubrics for Beatitudes
1DF7	̆	Combining Kavyka Above Left	Indicates rubrics for Beatitudes
1DF8	̇	Combining Dot Above Left	Indicates rubrics for Beatitudes
1DF9	︵	Combining Bottom Tortoise Shell Bracket Below	Indicates a joint Exapostilarion
1DFA	⃰	Combining Dot Overlay	Used with Downward Facing Hook and Downward Facing Hook with Notch (see below)
Supplemental Punctuation			
2E45	⌒	Inverted Low Kavyka	Indicates an Alleluia service
2E46	⌣̆	Inverted Low Kavyka with Kavyka Above	Indicates the presence of a Kontakion
2E47	⌣	Low Kavyka	Indicates the presence of a Kontakion
2E48	⌣̇	Low Kavyka with Dot	Indicates the presence of a Kontakion and Œcos
2E49	⁏	Double Comma	Indicates the absence of a service
Supplemental Symbols and Pictographs			
1F960	𖡞	Downward Facing Hook	Indicates a Forefeast or Afterfeast
1F961	𖡞	Downward Facing Hook with Notch	Indicates a Forefeast or Afterfeast

3 Dolnitsky System

The second system of symbols considered in this proposal is used in the Typicon of Isidore Dolnitsky (Lwów, 1899), a Ukrainian Greek Catholic priest and liturgical scholar (Dolnitsky, 1899). This Typicon was written for, and is used by, Byzantine Catholic religious communities, predominantly in Ukraine.[3] The Typicon symbols used by Dolnitsky are presented in Figure 12. Note that while some of these symbols do bear a graphical similarity to the Typicon symbols encoded in Unicode earlier, they are nonetheless different. In particular the sixth symbol is a circled Cross Formée, not a a circled Cross Pommée (like existing U+1F540). The Cross Formée itself has been encoded in Unicode as U+2720 MALTESE CROSS. We propose to encode these symbols in the Supplemental Symbols and Pictographs block. The symbols, their appearances, and proposed names are indicated in Table 2. We propose that these symbols be encoded in order of decreasing solemnity for ease of collation (the same ordering has been implemented for the Typicon symbols at U+1F540 through U+1F544).

Figure 12: Symbols used in the *Typicon* of Isidore Dolnitsky, Lwów, 1899, p. 540.
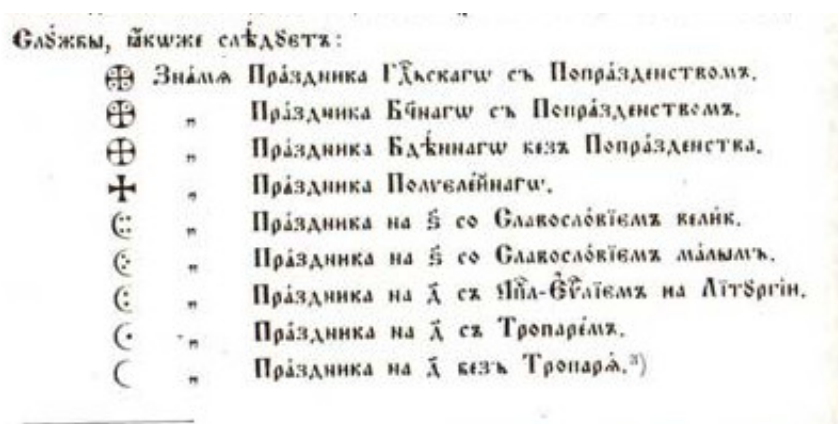
4 Proposed Additional Annotations on Two Characters

We also propose to edit annotations on two existing characters. The first character, U+29DF DOUBLE-ENDED MULTIMAP bears the same graphical appearance as the character used by Syrnikov to indicate a double service. (See Figure 13). Instead of encoding an additional character – Unicode already includes similar looking characters U+26AF UNMARRIED PARTNERSHIP SYMBOL and U+1F73A ALCHEMICAL SYMBOL FOR ARSENIC – we propose to use the existing U+29DF codepoint for the Syrnikov symbol for a double service. We propose to add an annotation to this symbol to read "Also used as an Orthodox typicon symbol". This annotation would parallel the existing annotations on U+1F540 through U+1F544.

We also propose to add a cross-reference to U+0358 COMBINING DOT ABOVE RIGHT to refer to the proposed character U+1DF8 COMBINING DOT ABOVE LEFT, since these two characters will be located in discontiguous blocks of the Unicode codespace.

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[3]The Greek Catholics or Byzantine Catholics are Christians who maintain communion with the Roman Catholic Church but retain the usage of the Byzantine Rite used by the Eastern Orthodox Churches.

Table 2: Proposed characters from the Typicon of Isidore Dolnitsky

Cdpt	Disp	Name	Function
1F962	✪	CIRCLED CROSS FORMEE WITH FOUR DOTS	Indicates a Feast of the Lord with an Afterfeast
1F963	✪	CIRCLED CROSS FORMEE WITH TWO DOTS	Indicates a Feast of the Theotokos with Afterfeast
1F964	✪	CIRCLED CROSS FORMEE	Indicates a Vigil-ranked service
1F965	⟆	LEFT HALF CIRCLE WITH FOUR DOTS	Indicates a doxology-ranked service
1F966	⟆	LEFT HALF CIRCLE WITH THREE DOTS	Indicates a six-stichera service
1F967	⟆	LEFT HALF CIRCLE WITH TWO DOTS	Indicates a simple service with lessons at the Liturgy
1F968	⟆	LEFT HALF CIRCLE WITH DOT	Indicates a simple service
1F969	☽	LEFT HALF CIRCLE	Indicates an Alleluia service

Figure 13: The use of the symbol U+29DF DOUBLE-ENDED MULTIMAP (boxed in red) to indicate a double service. Source: Syrnikov, *op. cit.*.

5   Summary of Characters and their Properties

The following information is proposed for addition to UnicodeData.txt.

5.1   Combining Diacritical Marks Supplement

```
1DF6;COMBINING KAVYKA ABOVE RIGHT;Mn;232;NSM;;;;;N;;;;;
1DF7;COMBINING KAVYKA ABOVE LEFT;Mn;228;NSM;;;;;N;;;;;
1DF8;COMBINING DOT ABOVE LEFT;Mn;228;NSM;;;;;N;;;;;
1DF9;COMBINING BOTTOM TORTOISE SHELL BRACKET BELOW;Mn;220;NSM;;;;;N;;;;;
1DFA;COMBINING DOT OVERLAY;Mn;1;NSM;;;;;N;;;;;
```

5.2   Supplemental Punctuation

```
2E45;INVERTED LOW KAVYKA;Po;0;ON;;;;;N;;;;;
2E46;INVERTED LOW KAVYKA WITH KAVYKA ABOVE;Po;0;ON;;;;;N;;;;;
2E47;LOW KAVYKA;Po;0;ON;;;;;N;;;;;
2E48;LOW KAVYKA WITH DOT;Po;0;ON;;;;;N;;;;;
2E49;DOUBLE COMMA;Po;0;ON;;;;;N;;;;;
```

5.3   Supplemental Symbols and Pictographs

```
1F960;DOWNWARD FACING HOOK;So;0;ON;;;;;N;;;;;
1F961;DOWNWARD FACING HOOK WITH NOTCH;So;0;ON;;;;;N;;;;;
1F962;CIRCLED CROSS FORMEE WITH FOUR DOTS;So;0;ON;;;;;N;;;;;
1F963;CIRCLED CROSS FORMEE WITH TWO DOTS;So;0;ON;;;;;N;;;;;
```

```
1F964;CIRCLED CROSS FORMEE;So;0;ON;;;;;N;;;;;
1F965;LEFT HALF CIRCLE WITH FOUR DOTS;So;0;ON;;;;;N;;;;;
1F966;LEFT HALF CIRCLE WITH THREE DOTS;So;0;ON;;;;;N;;;;;
1F967;LEFT HALF CIRCLE WITH TWO DOTS;So;0;ON;;;;;N;;;;;
1F968;LEFT HALF CIRCLE WITH DOT;So;0;ON;;;;;N;;;;;
1F969;LEFT HALF CIRCLE;So;0;ON;;;;;N;;;;;
```

6   Summary of Proposed Annotations

The following information is proposed for addition to (or modification in) NamesList.txt:

```
0358    COMBINING DOT ABOVE RIGHT
        * Latin transliterations of the Southern Min dialects of Chinese
        x (combining dot above left - 1DF8)

1DF6    COMBINING KAVYKA ABOVE RIGHT
        x (combining Cyrillic kavyka - A67C)

1DF7    COMBINING KAVYKA ABOVE LEFT
        x (combining Cyrillic kavyka - A67C)

1DF8    COMBINING DOT ABOVE LEFT
        x (combining dot above right - 0358)

1DF9    COMBINING BOTTOM TORTOISE SHELL BRACKET BELOW
        x (bottom tortoise shell bracket - 23E1)

29DF    DOUBLE-ENDED MULTIMAP
        * Also used as an Orthodox Typicon symbol
        x (multimap - 22B8)
        x (alchemical symbol for arsenic - 1F73A)

2E47    LOW KAVYKA
        x (Cyrillic kavyka - A67E)

1F964   CIRCLED CROSS FORMEE
        x (2720 Maltese cross)
```

7   Script and Line Breaking Properties of Proposed Characters

The Script property of characters to be added to the Supplemental Punctuation block should be set to Common. Even though the Kavyka is a Church Slavonic symbol, it may be used in other contexts than the Cyrillic script. The Script property of the proposed combining characters should be set to Inherited. The script property of the characters proposed for addition to the Supplemental Symbols and Pictographs block should be set to Common.

We propose that the characters to be encoded in the Supplemental Punctuation block have the line breaking property of Break After. The characters destined for the Supplemental Symbols and Pictographs block, which act like letter-like symbols, should have the line breaking property of AL. The following data are proposed for addition to LineBreak.txt:

```
1DF6..1DFA;CM   # Mn
2E45..2E49;BA   # Po
1F960..1F969;AL # So
```

References

Allison, R. (2000). Black Mountain: Regulations of Nikon of the Black Mountain. In J. Thomas and A. C. Hero (Eds.), *Byzantine Monastic Foundation Documents: A Complete Translation of the Surviving Founders' Typika and Testaments*. Washington, DC: Dumbarton Oaks Research Library and Collection.

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Beneshevich, V. N. (1917). Тактиконъ Никона Черногорца. In *Записки историко-филологическаго факультета Петроградскаго Университета*, Volume CXXXIX. Petrograd. Taktikon Nikona Chernogortsa.

Dolnitsky, I. (1899). *Типик Церкве руско-католической*. Lwów. Tipik Tserkve Rusko-Katolicheskoy.

Mansvetov, I. D. (1885). *Церковный устав (типик): его образование и судьба в греческой и русской церкви*. Moscow: Типография Э. Лисснера и Ю. Ренана. Tserkovny Ustav (Tipik): Ego Obrazovaniye i Sud'ba v Grecheskoy i Russkoy Tserkvi.

Shardt, Y. and A. Andreev (2009). Proposal to Encode the Typikon Symbols in Unicode. JTC1/SC2/WG2 N3772, `http://std.dkuug.dk/jtc1/sc2/wg2/docs/n3772.pdf`.

Syrnikov, N. (1910). *Ключ к церковному уставу*. Moscow: Synodal Press. Klyuch k Tserkovnomu Ustavu.

A. Administrative

1. **Title:** *Proposal to Encode Some Additional Symbols used in Church Slavonic*
2. Requester's name: *Aleksandr Andreev, Yuri Shardt and Nikita Simmons*
3. Requester type (Member body/Liaison/Individual contribution): *Individual contribution*
4. Submission date: *07/16/2015*
5. Requester's reference (if applicable): *N/A*
6. Choose one of the following:
   This is a complete proposal: *X*
   (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: *X*
      Name of the existing block: *Combining Diacritical Marks Suppl., Suppl. Punctuation, Suppl. Symbols and Pictographs*
2. Number of characters in proposal: *20*
3. Proposed category (select one from below - see section 2.2 of P&P document):
   A-Contemporary __ B.1-Specialized (small collection) __ *X* 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. 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*
5. Fonts related:
   a. Who will provide the appropriate computerized font to the Project Editor of 10646 for publishing the standard?
      Aleksandr Andreev (aleksandr.andreev@gmail.com or http://www.ponomar.net/cu_support.html)
   b. Identify the party granting a license for use of the font by the editors (include address, e-mail, ftp-site, etc.):
      A. Andreev, Y. Shardt and N. Simmons provide Ponomar Unicode font under GNU GPL with Font Exception
6. 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*
7. 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)? *NO*

8. Additional Information:
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 Unicode Character Database (http://www.unicode.org/reports/tr44/) and associated Unicode Technical Reports for information needed for consideration by the Unicode Technical Committee for inclusion in the Unicode Standard.

C. Technical - Justification

1. Has this proposal for addition of character(s) been submitted before?   *NO*

   If YES explain

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?   *Slavonic Typographic Society*

   If YES, available relevant documents: *http://forum.hristianstvo.ru/*

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, Introduction*

4. The context of use for the proposed characters (type of use; common or rare)   *rare*

   Reference: *See Section 1, Introduction*

5. Are the proposed characters in current use by the user community?   *YES*

   If YES, where? Reference: *Liturgical books of Yedinoverie and Byzantine Catholic communities*

6. After giving due considerations to the principles in the P&P document must the proposed characters be entirely
   in the BMP?   *NO*

   If YES, is a rationale provided?

   If YES, reference:

7. Should the proposed characters be kept together in a contiguous range (rather than being scattered)?   *NO*

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 2.1.11 for discussion of the issue of color*

10. Can any of the proposed character(s) be considered to be similar (in appearance or function)
    to, or could be confused with, an existing character?   *NO*

    If YES, is a rationale for its inclusion provided?

    If YES, reference:

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 Sections 2.1.5 through 2.1.7 and 2.1.11*

    Is a list of composite sequences and their corresponding glyph images (graphic symbols) provided?   *N/A*

    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 characters?   *NO*

    If YES, are the equivalent corresponding unified ideographic characters identified?

    If YES, reference: