

PONOMAR PROJECT

Proposal to Encode the Typikon Symbols in Unicode

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L2/09-310

In Church Slavonic documents, for example, in the Orthodox Typikon, one encounters 4 common symbols that are used designate the rank of an ecclesiastical commemoration. Depending on the publisher and local convention, these symbols can be placed within the text or in the margins. Since these symbols are often found in Slavonic Church books, these symbols will be encoded in the “Extended Cyrillic Block B” of the Unicode standard.

Based on the information in Chapter 47 of the Orthodox Typikon ((ТѸПІКОН СІЕЦЬ ОУСТАВЪ (Tipikon siject' Ustav), 1954), (ТѸПІКОН СІЕЦЬ ОУСТАВЪ (Tipikon sijest' Ustav), 1965)) and local convention, the desired symbols, their characteristics, and proposed encoding region are described in Table 1. Two examples of Chapter 47 of the Typikon are presented in Figure 1 and Figure 2. As well, extracts from the Orthodox Menologion, where these symbols are used to rank the commemorations, are given in Figure 3, Figure 4, and Figure 5. As can be seen from the sample publications, these symbols can occur anywhere in the line.

Table 1: Summary of the Proposed Typikon Symbols for Encoding

















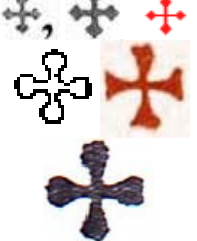







Typical Typikon Symbol	Proposed Name	Proposed Location	Comments
	Typikon Symbol Great Feast	U + A698	The cross need not be the same as the cross in the Typikon Symbol Polyeleos.
	Typikon Symbol Vigil Service	U + A699	The cross need not be the same as the cross in the Typikon Symbol Polyeleos.
	Typikon Symbol Polyeleos	U + A69A	This symbol can be similar to U + 2722 (Four teardrop-spoked asterisk).
	Typikon Symbol Lower Rank	U + A69B	Absolutely unique symbol

Table 2 shows the more common variants of the proposed Typikon symbols. The variants can be classified into 4 different types based on the types of crosses used. The first variant, Type I, has an equi-armed cross that is created using 5 circular beads. For each of the 3 symbols that require a cross, the same beaded cross is used. The second variant, Type II, has an equi-armed cross that resembles a Greek cross, except that there is some type of ornamentation on each of the cross arms. Furthermore, the crosses used for each of the 3 Typikon symbols can be quite different. For example, the cross for the Typikon Symbol Polyeleos has a diamond-like ornament on each arm (see Sources 2), 3), 4), and 5) in Table 2), while the cross for the Typikon Symbol Vigil Service and Typikon Symbol Great Feast has some type of deformed circular ornament on each arm that resembles that seen on the arms of the East Syriac Cross (U+2671). Other types of ornamentation on the arms of the cross include circles (cross pomée) which is often found in older Typika (see, for example, Source 6) in Table 2) as well as more modern versions (see, for example, Sources 4), 5), and 7) in Table 2). In Type II variants, the cross with any ornamentations can be either filled in (more common) or outlined only (rarer). The third variant, Type III, consists of an equi-armed cross whose arms are narrower at the middle than at the ends, which can be called either a “cross formée,” or a variant of the Maltese cross, as encoded by Unicode. It can be noted that in Type III variants the same cross is used for all 3 symbols that require a cross. Finally, the fourth variant, Type IV, is a miscellaneous category that consists of all variants that are hard to classify. The first example of Type IV consists of an equi-armed Greek cross, while the second example consists of an equi-armed cross forchée, which is similar in the ornamentations on the end to the West Syriac cross. In both cases, the same cross is used for all the Typikon symbols requiring a cross.

Although the variants have been classified primarily based on the cross types used, there are a few additional differences that need to be considered. Firstly, for the Typikon Symbol Vigil Service, the extent to which the semicircle encloses the cross varies greatly from an almost minimalist bottom hint as found in Father Dolnytskyj’s Typikon (Dolnytskyj, 2009 (reprint)) (Source 10) in Table 2) to an almost total enclosure of the cross as found in the 1877 Trebnik (Kievan Cave Monastery of the Dormition, 1877) (Source 8) in Table 2). Secondly, for the Typikon Symbol Great Feast, the circle always completely encloses the cross. Finally, for the Typikon Symbol Lower Rank, the 3 dots can be arranged in different forms. The most prevalent version is similar to “:••”.

The usage of the different variants can be summarized as follows. Type I variants are used in current publications of the Russian Orthodox Church. Type II variants are found in older works of the Russian Orthodox Church (before 1917) published in Moscow and Pochaev, as well as Orthodox publications in the diaspora (after 1917) that follow the typographical layouts of Pochaev. The Type II variant is the most common variant encountered. Type III variants are used by publications following the traditions of the Kievan Cave Monastery of the Dormition, which includes publications by the Ukrainian Orthodox Church. Finally, Type IV variants can be found in publications located anywhere in the world.

Table 2: Comparison of the More Common Variants of the Typikon Symbols.

Typical Symbol	Type I 1)	Type II 2), 3), 4), 5), 6), 7)	Type III 8), 9), 10)	Type IV 11), 12)
				
				
				
				

Sources:

- 1) As used on the website of the Russian Orthodox Church (Православный каленарь).
- 2) As used in (ТѸПІКОН СІЄТЬ ОУСТАВЪ (Typikon sijest' Ustav), 1954)
- 3) As used in (ТѸПІКОН СІЄТЬ ОУСТАВЪ (Typikon sijest' Ustav), 1965)
- 4) As used in a digitized version of an early 20th-century Typikon (Churchill)
- 5) As used in a scanned, pdf version of a 1896 Typikon published in Moscow (Литугия.ру)
- 6) As used in the 1641 Typikon published in Moscow. The Typikon Symbol Vigil Service is missing.
- 7) As used in the Horologion published in 1964 by the Monastery of the Holy Trinity in Jordanville, New York, USA (Monastary of the Holy Trinity, 1964).
- 8) As used in the Trebnik published at the Kievan Cave Monastery of the Dormition in 1877 (Kievan Cave Monastery of the Dormition, 1877). The last symbol was not found in this Trebnik.
- 9) As used in the paper published by Mary Krasovickaja (Красовицкая).
- 10) As used in *The Prayerful Eye: The Typikon of the Ukrainian Greek-Catholic Church of Father Isidore Dolnytskyj* (Dolnytskyj, 2009 (reprint)).
- 11) As used on the website of the Holy Trinity Russian Orthodox Church (Orthodox Calendar Holy Trinity Russian Orthodox Church).
- 12) As used by the Slovak Byzantine Rite Church (Gajdoš, 2009).


Based on the above analysis, it can be concluded that the cross used in the Typikon symbols must be equi-armed. In the vast majority of cases, this cross has either some ornamentation on each of the 4 arms or resembles a cross formée. The three crosses that are used in the different Typikon symbol need not be the same.











Having determined the characteristics of the crosses used for the Typikon symbols, it will now be necessary to compare them with already encoded Unicode crosses and asterisks. Table 3 shows all the relevant Unicode symbols as well as an explanation of their suitability for encoding the cross-like Typikon Symbols. A brief summary will be presented here. Since it has been determined that the cross in the Typikon Symbols must be equi-armed, the following Unicode crosses are all inappropriate as they are not equi-armed: U+2020 (dagger cross), U+2670 (West Syriac Cross), U+2671 (East Syriac Cross), U+2626 (Orthodox Cross), U+2628 (Cross of

Lorraine), U+271D (Latin Cross). Of the remaining equi-armed crosses, U+2722 (Greek Cross) and U+271A (Heavy Greek Cross), do not cover the most common forms of the crosses used for the Typikon symbols, that is, the cross is missing the ornaments found on the ends of the cross. The Maltese cross (U+2720) and its variants only cover Type III Typikon crosses. All Type II crosses, which are by far the most common, would not be covered, as the Maltese cross does not have the ornaments found on the end of the crosses. The remaining Unicode crosses (U+2722, U+2723, U+2724, U+2725) are actually four-spoked asterisks that have various ornaments on the ends. None of these cover all the variants presents. Of the asterisks, only the four-teardrop-spoked asterisk resembles some of the Type II cases. Thus, based on an overview of all the available already encoded Unicode crosses/asterisks it can be seen that the vast majority of the Typikon symbols variants cannot be encoded using the currently available symbols. Furthermore, it can be noted that if there is a unified location for each Typikon symbol then this would increase the efficiency of sorting and ranking the various Orthodox feasts.

It can be noted that in recent years, there has been an increased demand for Typikon symbols to be encoded as characters, both on the Internet and commercially. For example, the Orthodox Liturgical texts project (<http://www.orthlib.info/>) has digitised the Church Slavonic Orthodox Typikon and Menologion. Other projects, for example, <http://www.canto.ru/calendar> present Orthodox calendars for the current or upcoming year. Such projects have either used graphics for the Typikon symbols or have designed various non-Unicode compatible fonts.

Table 3: Comparison between the Already Encoded Unicode Crosses and the Proposed Typikon Symbols

Already Encoded Unicode Crosses	Comparison with the Typikon Symbols
<p data-bbox="321 1339 667 1375">+ (Greek Cross) U+2722,</p> <p data-bbox="277 1388 708 1423">+ (Heavy Greek Cross) U+271A</p> <p data-bbox="318 1444 670 1480">✱ (Maltese Cross) U+2720</p> <p data-bbox="272 1717 716 1780"> (Cross of Jerusalem) U+2629</p>	<p data-bbox="823 1333 1427 1688">Does not have the ornaments found in most of the published variants of the cross. This cross could cover only some of the Type IV variants. This cross is basically used by Type III variants. Some of the Type II and Type IV could be considered to be variants of the Maltese Cross, for example, the Cross Formée. However, the Maltese Cross does not represent the Type I forms, which have 5 beads arranged in the form of a cross.</p> <p data-bbox="823 1696 1435 1793">Although a variant of the cross only contains the larger middle cross, it can be seen that none of the variants have this form.</p>

Already Encoded Unicode Crosses	Comparison with the Typikon Symbols
 (West Syriac Cross) U+2670	<p>This cross is not equi-armed, which immediately disqualifies it as all Typikon crosses are equi-armed.</p>
 (East Syriac Cross) U+2671	<p>This cross is likewise not equi-armed, which immediately disqualifies it as all Typikon crosses are equi-armed.</p>
 (Four-teardrop-spoked asterisk) U+2722	<p>This cross/asterisk only represents some of the Type II variants.</p>
 (Four balloon-spoked asterisk) U+2723,	<p>This cross/asterisk would only represent Type I variants of the Typikon symbols and then only barely, as the Type I variants are created from 5 beads that touch tangentially. None of the other variants would even be considered as variants of this symbol.</p>
 (Heavy Four balloon-spoked asterisk) U+2724	
 (Four clubbed-spoked asterisk)	<p>This cross/asterisk does not represent any of the variants of the Typikon symbols that were encountered.</p>
 (Orthodox Cross) U+2626,	<p>None of these crosses have any of the features of the Typikon crosses: equi-armed cross without any additional bars.</p>
 (Cross of Lorraine) U+2628,	
 (Latin Cross) U+271D,	
 (Dagger Cross) U+2020	

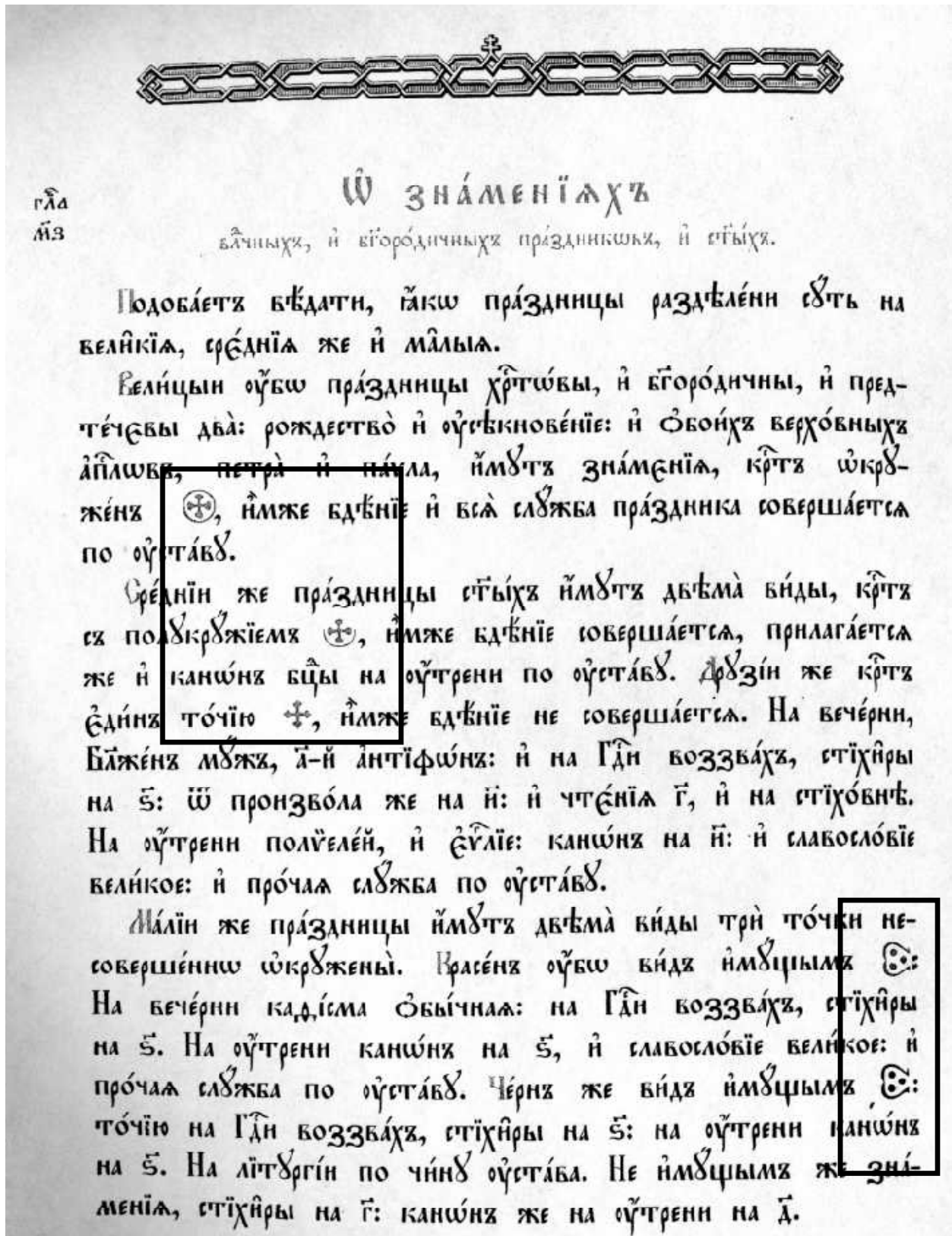


Figure 1: Chapter 47 of the Typikon (Тїпїкон ѡустѡвѡ Оуставъ (Typikon sijest' Ustav), 1965). The desired symbols have been boxed.

ГЛА
МЗ

Ω ЗНАМЕНІАХЪ

бл҃гннхъ, ѿ б҃городннхъ пр҃здннкшвхъ, ѿ ст҃ыхъ.

Подобаетъ вѣдати, ꙗкѡ пр҃здннцы раздѣленн сѣтъ на великіа, средніа же ѿ малыа.

Велицын оубо пр҃здннцы хр҃товы, ѿ б҃городнны, ѿ пр҃течева двѣ: рж҃тво ѿ оубѣкновѣніе: ѿ оубоихъ верховныхъ ап҃ловъ, петра ѿ павла, ѿмѡтъ знаменіа, кр҃тъ ѡкрѡженъ ☩: ѿмже бдѣніе ѿ всѣа служба пр҃здннка совершаетца по оуставѣ.

Средніи же пр҃здннцы ст҃ыхъ ѿмѡтъ двѣма вѣды, кр҃тъ съ полѡкрѡжемъ: ☩ ѿмже бдѣніе совершаетца: прилагаетца же ѿ канѡнъ б҃цы на оутрени по оуставѣ:

Архїан же кр҃тъ едннхъ точїю ☩: ѿмже бдѣніе не совершаетца. На вечерни, бл҃женъ мѡхъ, а-ѿ антїфѡнъ: ѿ на гд҃и воззвахъ, ст҃ихѣры на ѿ: ѡ пронзвѡла же на ѿ: ѿ чтенїа г, ѿ на ст҃ихѡвнѣ. На оутрени полѡелѣн, ѿ еѡліе, канѡнъ на ѿ: ѿ славлѡвіе великое: ѿ прочаа служба по оуставѣ.

Малїи же пр҃здннцы ѿмѡтъ двѣма вѣды трїи точкн несовершеннѡ ѡкрѡженнѡ. Красенъ оубо вѣдъ ѿмѡщымъ ☩: На вечерни кадїсма Обычнаа: на гд҃и воззвахъ, ст҃ихѣры на ѿ. На оутрени канѡнъ на ѿ, ѿ славлѡвіе великое: ѿ прочаа служба по оуставѣ. Чернъ же вѣдъ ѿмѡщымъ ☩: точїю на гд҃и воззвахъ, ст҃ихѣры на ѿ: на оутрени канѡнъ на ѿ. На лїтѡргїи по чннѣ оустава. Не ѿмѡщымъ же знаменїа, ст҃ихѣры на г: канѡнъ же на оутрени на д.

Figure 2: Chapter 47 of a different Typikon (Тѣпїкон сіеетѣ оуставъ (Typikon siject' Ustav), 1954). The symbols have been boxed.

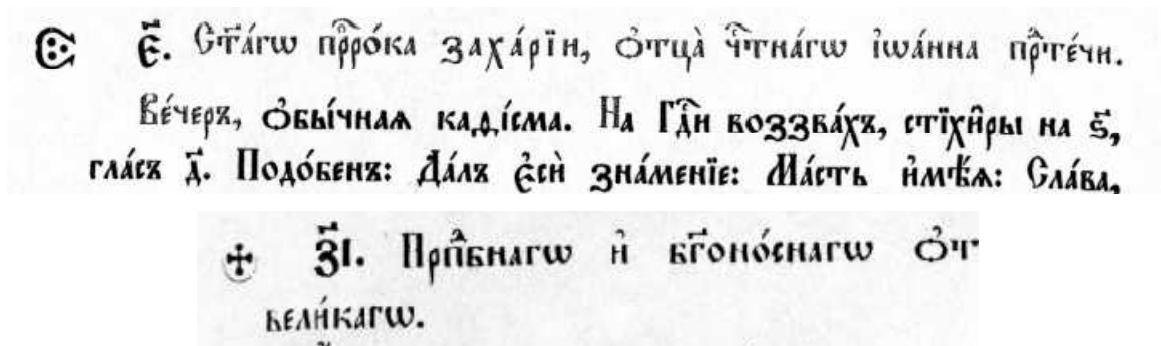


Figure 3: Extracts from the Menologion showing the use of some of the proposed symbols (Тѣпикон сіестъ Оуставъ (Tipikon sijest' Ustav), 1965).

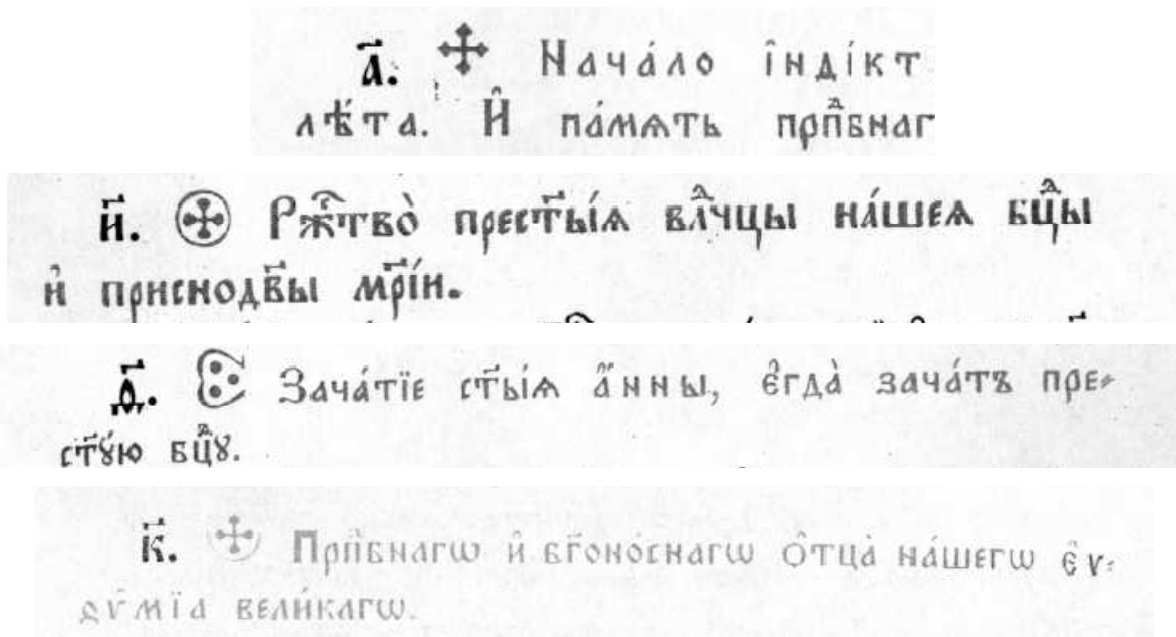


Figure 4: Extracts from the Menologion showing the use of the proposed symbols (Тѣпикон сіестъ Оуставъ (Tipikon sijest' Ustav), 1954).

Vysvetlenie značiek pri sviatkoch:

Značky označujú význam jednotlivých sviatkov nasledovne: ✚ - veľký sviatok; ✚ - polyjelejný (stredný) sviatok s bdením; ✚ - polyjelejný (stredný) sviatok bez bdenia; ☉ - šestiričný (malý) sviatok s veľkým slávoslovím; ☉ - šestiričný (malý) sviatok bez veľkého slávoslovía; dni bez značky.

Figure 5: Example of the Typikon symbols as used by the Slovak Byzantine Rite Church (Gajdoš, 2009).

References

- Churchill, W. J. (Ed.). (n.d.). *Typikon*. Retrieved December 24, 2009, from Богослужбные тексты ~ Liturgical Texts: <http://www.orthlib.info/Typikon/Typikon.html>
- Dolnytskyj, I. (2009 (reprint)). *The Prayerful Eye: The Typikon of the Ukrainian Greek-Catholic Church*.
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ISO/IEC JTC 1/SC 2/WG 2
PROPOSAL SUMMARY FORM TO ACCOMPANY SUBMISSIONS
FOR ADDITIONS TO THE REPERTOIRE OF ISO/IEC 10646¹

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:	<i>Proposal to Encode the Typikon Symbols in Unicode</i>
2. Requester's name:	<i>Yuri Shardt, Aleksandr Andreev</i>
3. Requester type (Member body/Liaison/Individual contribution):	<i>Individual Contribution</i>
4. Submission date:	<i>August 18, 2009</i>
5. Requester's reference (if applicable):	
6. Choose one of the following:	
This is a complete proposal:	<i>YES</i>
(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):	<i>NO</i>
Proposed name of script:	
b. The proposal is for addition of character(s) to an existing block:	<i>YES</i>
Name of the existing block:	<i>Cyrillic Extended Block B</i>
2. Number of characters in proposal:	<i>4</i>
3. Proposed category (select one from below - see section 2.2 of P&P document):	
A-Contemporary	<input type="checkbox"/>
B.1-Specialized (small collection)	<input checked="" type="checkbox"/>
B.2-Specialized (large collection)	<input type="checkbox"/>
C-Major extinct	<input type="checkbox"/>
D-Attested extinct	<input type="checkbox"/>
E-Minor extinct	<input type="checkbox"/>
F-Archaic Hieroglyphic or Ideographic	<input type="checkbox"/>
G-Obscure or questionable usage symbols	<input type="checkbox"/>
4. Is a repertoire including character names provided?	<i>YES</i>
a. If YES, are the names in accordance with the "character naming guidelines" in Annex L of P&P document?	<i>YES</i>
b. Are the character shapes attached in a legible form suitable for review?	<i>YES</i>
5. Who will provide the appropriate computerized font (ordered preference: True Type, or PostScript format) for publishing the standard?	<i>Yuri Shardt</i>
If available now, identify source(s) for the font (include address, e-mail, ftp-site, etc.) and indicate the tools used:	<i>Hirmos Ponomar v.4 (contact Yuri Shardt at yuri.shardt@ualberta.ca for the font)</i>
6. References:	
a. Are references (to other character sets, dictionaries, descriptive texts etc.) provided?	<i>YES</i>
b. Are published examples of use (such as samples from newspapers, magazines, or other sources) of proposed characters attached?	<i>YES</i>
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)?	<i>NO</i>

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 <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.

¹ Form number: N3152-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, 2007-03, 2008-05)

C. Technical - Justification

1. Has this proposal for addition of character(s) been submitted before? If YES explain	<i>NO</i>
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.)? If YES, with whom? If YES, available relevant documents:	<i>YES</i> <i>Members of the Orthodox publishing community</i>
3. Information on the user community for the proposed characters (for example: size, demographics, information technology use, or publishing use) is included? Reference:	<i>>200 million</i> <i>http://en.wikipedia.org/wiki/Orthodox_Church</i>
4. The context of use for the proposed characters (type of use; common or rare) Reference:	<i>common</i>
5. Are the proposed characters in current use by the user community? If YES, where? Reference:	<i>YES</i> <i>In publications of the Typikon and Menologion</i>
6. After giving due considerations to the principles in the P&P document must the proposed characters be entirely in the BMP? If YES, is a rationale provided? If YES, reference:	<i>NO</i>
7. Should the proposed characters be kept together in a contiguous range (rather than being scattered)?	<i>YES</i>
8. Can any of the proposed characters be considered a presentation form of an existing character or character sequence? If YES, is a rationale for its inclusion provided? If YES, reference:	<i>NO</i>
9. Can any of the proposed characters be encoded using a composed character sequence of either existing characters or other proposed characters? If YES, is a rationale for its inclusion provided? If YES, reference:	<i>NO</i>
10. Can any of the proposed character(s) be considered to be similar (in appearance or function) to an existing character? If YES, is a rationale for its inclusion provided? If YES, reference:	<i>YES</i> <i>YES</i>
11. Does the proposal include use of combining characters and/or use of composite sequences? If YES, is a rationale for such use provided? If YES, reference: Is a list of composite sequences and their corresponding glyph images (graphic symbols) provided? If YES, reference:	<i>NO</i>
12. Does the proposal contain characters with any special properties such as control function or similar semantics? If YES, describe in detail (include attachment if necessary)	<i>NO</i>
13. Does the proposal contain any Ideographic compatibility character(s)? If YES, is the equivalent corresponding unified ideographic character(s) identified? If YES, reference:	<i>NO</i>