

ISO/IEC JTC 1/SC 2/WG 2  
PROPOSAL SUMMARY FORM TO ACCOMPANY SUBMISSIONS  
FOR ADDITIONS TO THE REPERTOIRE OF ISO/IEC 10646<sup>1</sup>

L2/05-080R2

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 Encode Additional Cyrillic Characters

2. Requester's name: Lorna A. Priest

3. Requester type (Member body/Liaison/Individual contribution): Individual contribution

4. Submission date: 15 March 2005 (revised 9 August 2005)

5. Requester's reference (if applicable): L2/05-080R

6. Choose one of the following: \_\_\_\_\_

This is a complete proposal: Yes

or, More information will be provided later: No

**B. Technical – General**

1. Choose one of the following:

a. This proposal is for a new script (set of characters): No  
Proposed name of script: \_\_\_\_\_

b. The proposal is for addition of character(s) to an existing block: Yes  
Name of the existing block: Cyrillic Supplementary

2. Number of characters in proposal: 10

3. Proposed category (select one from below - see section 2.2 of P&P document):  
A-Contemporary x B.1-Specialized (small collection) \_\_\_\_\_ 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): 1  
Is a rationale provided for the choice? No  
If Yes, reference: \_\_\_\_\_

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? SIL International  
If available now, identify source(s) for the font (include address, e-mail, ftp-site, etc.) and indicate the tools  
used: \_\_\_\_\_

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, suggested character properties are included.

9. 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.

<sup>1</sup> Form number: N2652-F (Original 1994-10-14; Revised 1995-01, 1995-04, 1996-04, 1996-08, 1999-03, 2001-05, 2001-09, 2003-11)

### C. Technical - Justification

1. Has this proposal for addition of character(s) been submitted before? If YES explain _____	<u>No</u>
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: _____	<u>Yes</u>
3. Information on the user community for the proposed characters (for example: size, demographics, information technology use, or publishing use) is included? Reference: _____	<u>Yes</u>
4. The context of use for the proposed characters (type of use; common or rare) Reference: _____	<u>Common</u>
5. Are the proposed characters in current use by the user community? If YES, where? Reference: _____	<u>Yes</u>
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: _____	<u>Preferably</u>
7. Should the proposed characters be kept together in a contiguous range (rather than being scattered)?	<u>Preferably together with other related blocks</u>
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: _____	<u>Possibly</u>  <u>Characters with hooks might be construed as variant forms of characters with tails or descenders. There is some question as to whether xx04, xx05, xx06, and xx07 should be considered presentation forms of U+04C5, U+04C6, U+04B2 and U+04B3 respectively.</u> <u>n2173 and L2/02-452</u>
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: _____	<u>Yes</u>  <u>Characters with bar might be construed as precomposed forms of sequences with combining overlay marks.</u> <u>(Cf. §F.1 of L2/04-047.)</u>
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: _____	<u>No</u>
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: _____	<u>No</u>
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) _____	<u>No</u>
13. Does the proposal contain any Ideographic compatibility character(s)? If YES, is the equivalent corresponding unified ideographic character(s) identified? If YES, reference: _____	<u>No</u>

### D. Proposed Characters

A code chart and list of character names are shown on a new page.

**D.1. Proposed Characters**

	04F	051
0		Э
1		э
2		Ӗ
3		ӗ
4		
5		
6		
7		
8		
9		
A	Ӡ	
B	ӡ	
C	Ӣ	
D	ӣ	
E	Ӥ	
F	Ӧ	

**D.1. Character Names**

- 04FA CYRILLIC CAPITAL LETTER GHE WITH STROKE AND HOOK  
 • Nivkh
- 04FB CYRILLIC SMALL LETTER GHE WITH STROKE AND HOOK  
 • Nivkh
- 04FC CYRILLIC CAPITAL LETTER HA WITH HOOK  
 • Nivkh, Itelmen
- 04FD CYRILLIC SMALL LETTER HA WITH HOOK  
 • Nivkh, Itelmen
- 04FE CYRILLIC CAPITAL LETTER HA WITH STROKE  
 • Nivkh
- 04FF CYRILLIC SMALL LETTER HA WITH STROKE  
 • Nivkh
- 0510 CYRILLIC CAPITAL LETTER REVERSED ZE  
 • Enets, Khanty
- 0511 CYRILLIC SMALL LETTER REVERSED ZE  
 • Enets, Khanty
- 0512 CYRILLIC CAPITAL LETTER EL WITH HOOK  
 • Chukchi, Itelmen, Khanty
- 0513 CYRILLIC SMALL LETTER EL WITH HOOK  
 • Chukchi, Itelmen, Khanty

### D.3. Unicode Character Properties

xx00, xx02, xx04, xx06 and xx08 should have a general category of Lu. Other properties for these characters should match those of similar characters, such as U+0413 CYRILLIC CAPITAL LETTER GHE.

Other characters should have a general category of Ll. Other properties for these remaining characters should match those of similar characters, such as U+0433 CYRILLIC SMALL LETTER GHE.

### E. Other Information

CYRILLIC CAPITAL LETTER GHE WITH STROKE AND HOOK (Fig. 3) and CYRILLIC SMALL LETTER GHE WITH STROKE AND HOOK (Fig. 2, 3 and 4) are used in the Nivkh orthography. (CYRILLIC CAPITAL LETTER GHE WITH STROKE AND DESCENDER and CYRILLIC SMALL LETTER GHE WITH STROKE AND DESCENDER have been seen but we have insufficient evidence to propose them at this time (compare Fig. 1 with 2-4).)

Г, г	Eskimo (Iniut), Nivh, Aleut, Ket
Ғ, ғ	Nivh

Figure 1. CYRILLIC CAPITAL LETTER GHE WITH STROKE AND DESCENDER and CYRILLIC SMALL LETTER GHE WITH STROKE AND DESCENDER (Berdnikov, 1998, p. 43) [Nivkh]

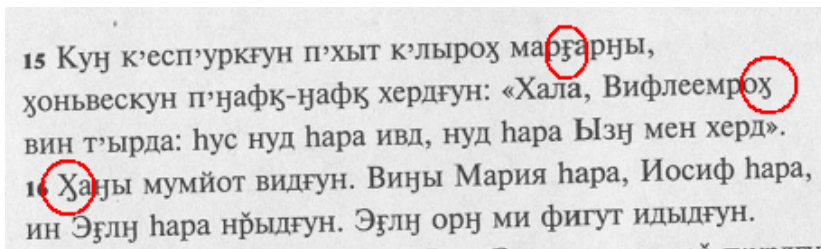


Figure 2. CYRILLIC SMALL LETTER GHE WITH STROKE AND HOOK, CYRILLIC CAPITAL LETTER HA WITH HOOK and CYRILLIC SMALL LETTER HA WITH HOOK (Institute for Bible Translation, 2000, p. 177) [Nivkh]



Figure 3. CYRILLIC CAPITAL LETTER GHE WITH STROKE AND HOOK, CYRILLIC CAPITAL LETTER HA WITH HOOK and CYRILLIC CAPITAL LETTER HA WITH STROKE (Bergmann, 1999) [Nivkh]

Хаймңаркин п'маиғачгин хунвдгун,  
 чолата, к'ырғирчинрта кат хунвдгун.  
 Ығртин хорла иньк наврқизин йағзута.  
 Ығрло муңчо муспироҳ эңча ху муңчозиң  
 гэт иньта.

Figure 4. CYRILLIC SMALL LETTER GHE WITH STROKE AND HOOK, CYRILLIC SMALL LETTER HA WITH HOOK, CYRILLIC CAPITAL LETTER HA WITH STROKE and CYRILLIC SMALL LETTER HA WITH STROKE (нивхская сказка, undated, p. 3) [Nivkh]

CYRILLIC CAPITAL LETTER REVERSED ZE and CYRILLIC SMALL LETTER REVERSED ZE are used in the Enets (Fig. 5) and Khanti (Fig. 6) orthographies.

9 Пиную локри сезоту орон **Ң**а эйтуда озима”.  
 Овца понида **Ң**а дерихун деритарабиз.  
 10 Овца понида **Ң**зу аган каниби”, **Ң**а эйтуда ань ноду маби:  
 «Нера” пид”. Модь уда нэда, чук энчиг, **Ң**дэ дёри тоораз!  
 11 **Ң**ки дерихун Давид камозухун, уда сита нобзагуза  
 Христос Бем соясь.  
 12 Чи, нода торсе **Ң**наздумаза: уда похрудуй не сама  
 отагуба лотэ мин моҗтидаась кодара”».

Figure 5. CYRILLIC CAPITAL LETTER REVERSED ZE and CYRILLIC SMALL LETTER REVERSED ZE (Institute for Bible Translation, 2000, p. 186) [Enets]

Иудея мўва мәнәс Вифлеем воша – Давид хон рәт воша.  
**Л**ув, вантэ, Давид хон рәт **л**да вәс.  
 5 **Л**ув яха вәлты ястум Марийл пилда хәншашты  
 пәта пәнта **л**дәщәс, Марийл паширн вәлмај.  
 6 **Щ**ив юхәтманән Вифлеем хуша Марийл  
 нявр**л** тайты елпи хәтләл тәрумсәт.  
 7 **Л**ув мет оләң нявр**л** – Пух **л**ма ши питәс,  
 яма суха-нюра ювәртсәлэ па вой-хүл**л**әты хушапа пунсәлэ,

Figure 6. CYRILLIC CAPITAL LETTER EL WITH HOOK, CYRILLIC SMALL LETTER EL WITH HOOK and CYRILLIC SMALL LETTER REVERSED ZE (Institute for Bible Translation, 2000, p. 158) [Khanti]

CYRILLIC CAPITAL LETTER EL WITH HOOK and CYRILLIC SMALL LETTER EL WITH HOOK (see Fig. 6-11) are used in Chukchi, Itelmen and Khanti orthographies. We consider the differing hooks to be typographic variants of the same character (compare Fig. 6, 7 with 8-12).

68. **Қ**ыкалөвәтгаквыткы. **Қ**ыкәдигыткы  
 янор роолқылтә, ынқо қамәтваракән яәл-  
 қылтә гапындәма. **Қ**ычимгьугыткы чинитки-  
 нәт прәлложеният

Figure 7. CYRILLIC SMALL LETTER EL WITH HOOK (Kerek, 1998, p. 46) [Chukchi]



the same manner from “minus”. Additional Cyrillic letters are mainly created using standard modifiers applied to the original Cyrillic letters to produce new glyphs: tails (Ќ, **Ј**, Ў), descenders (Ќ, Ј, Ў, Ў, Ў), horizontal strokes (Ќ, **К**, **Х**, **Ө**), vertical strokes (К, **У**), cedilla (З, **С**, **С**) oriented to the left or to the right, etc. Other sources of linguistic fantasy for producing additional glyphs

<sup>1</sup> The main rule used to create new alphabets required that different phonemes should have different graphical representations even if they were from different languages. For example, the Chukcha alphabet contains glyph **Ј** for “soft el” while the glyph **Ј** is absent.

Figure 12. CYRILLIC CAPITAL LETTER EL WITH HOOK, CYRILLIC SMALL LETTER EL WITH HOOK and CYRILLIC CAPITAL LETTER HA WITH STROKE (Berdnikov, 1998, p. 35) [Nivkh and Chukchi]

CYRILLIC CAPITAL LETTER HA WITH HOOK and CYRILLIC SMALL LETTER HA WITH HOOK (Fig. 2-4, and 9-11) are used in the Itelmen and Nivkh orthographies.

Characters with hooks might be construed as variant forms of characters with tails or descenders. Specifically, there is some question as to whether xx04, xx05, xx06, and xx07 should be considered presentation forms of U+04C5, U+04C6, U+04B2 and U+04B3 respectively.

Berdnikov (p. 28) says “...the glyphs used to represent some letter (sic) have been changed from time to time: ...X’ → X, ... Ј ↔ JJ...” In the case of the latter pair, Berdnikov’s comments highlight the question as to whether el with tail and el with hook should be considered merely glyph variants. For various reasons, we feel that the best path for the UCS is that they be considered distinct characters.

First, it should be noted that Berdnikov’s comments point to differences in orthography/typographic practice at different points in time; there is no indication that both glyphs have alternately been used by the same user communities simultaneously.

Secondly, our linguistic sources have said that, while they are unaware of any languages which use both descenders (or tail) and hooks in the same language (ie. no languages that use xx04 and U+04C5 or xx06 and U+04B2), they also say they would not consider them to be variants. Similarly, in their documentation of Nivkh orthography, the Eesti Keele Instituut does not consider CYRILLIC CAPITAL LETTER HA WITH HOOK and CYRILLIC SMALL LETTER HA WITH HOOK to be a variant of any character already existing in the Unicode Cyrillic block<sup>2</sup>.

In addition, we feel that the “tail” modification has a distinct appearance, quite different from the “hook” modification. N2173 also provides justification to distinguish the “tail” and “descender” modifications. We find that there is precedent in the UCS for distinguishing “tail” from “hook” or “descender” modifications, as seen by the inclusion of U+04C7 and U+04C8 (en with hook) versus U+04C9 / U+04CA (en with tail) and U+04A2 / U+04A3 . Given no indication of “tail” modifications being specifically viewed as a variant of either “hook” or “descender” modifications by any user community, we feel that a consistent encoding practice that distinguishes “tail” modifications from “hook” or “descender” modifications for el will lead to less confusion for users and implementers.

CYRILLIC CAPITAL LETTER HA WITH STROKE and CYRILLIC SMALL LETTER HA WITH STROKE (Fig. 3, 4, 12 and 13) are used in the Nivkh orthography. Eesti Keele Instituut and Pedersen also indicate the use of CYRILLIC CAPITAL LETTER HA WITH STROKE and CYRILLIC SMALL LETTER HA WITH STROKE.

Х, х	Nivh
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Figure 13. CYRILLIC CAPITAL LETTER HA WITH STROKE and CYRILLIC SMALL LETTER HA WITH STROKE (Berdnikov, 1998, p. 41) [Nivkh]

<sup>2</sup> [http://www.eki.ee/letter/chardata.cgi?lang=\\_nivkh&script=cyrillic](http://www.eki.ee/letter/chardata.cgi?lang=_nivkh&script=cyrillic)

## F. References

- Anttikoski, Esa. Minority languages of Russia on the Net. [http://www.peoples.org.ru/eng\\_pala.html](http://www.peoples.org.ru/eng_pala.html).
- Berdnikov, A. Mars 1998. *Alphabets Necessary for Various Cyrillic Writing Systems*. Cahiers GUTenberg n°28-29 — Congrès EuroTEX.
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- Pedersen, Thomas T. Rev. 1.1, 2002-10-19. Nivkh. <http://transliteration.eki.ee/pdf/Nivkh.pdf>.
- нивхская сказка (nivkh fairy tale). undated. **Красавица дочь** (a Beautiful Daughter). Сахалинское книжное издательство.