Universal Multiple-Octet Coded Character Set
International Organization for Standardization
Organisation Internationale de Normalisation
Международная организация по стандартизации

Doc Type: Working Group Document
Title: Revised proposal for encoding the Khazarian Rovas script in the SMP of the UCS
Source: Dr. Gábor Hosszú (Hungarian Standards Institution)
Status: National Body Contribution
Action: For consideration by UTC and ISO/IEC JTC1/SC2/WG2
Date: 2011-10-12

This proposal replaces the N3999 (2011-01-21, revised: 2011-05-19). In light of recent results by world-renowned archeologists/linguists our knowledge of existing inscriptions has become more accurate and the genealogy of all related Rovas characters has been completed; hence it has become necessary to slightly revise the proposal. In addition, the glyphs of the normalized Khazarian Rovas letters were slightly enhanced to increase their readability.

It contains the proposal summary form. Please send any response to this proposal to Gábor Hosszú (email: hosszu@eet.bme.hu).

Contents

1. Summary

The *Khazarian Rovas* /qasarɪən rovaːʃ/ (KR) is an extinct script[1] that was mainly used in the area of the Khazar Empire (from the 6th century to 965) by the different constituent nations and after the Settlement of Magyars (Hungarians) in the Carpathian Basin in the 10th century.[2] The known relics are mainly in *Turkic* including *Common Turkic* and *Ogur* as well as in *As-Alan*.[3]

---

[1] Vékony, 1986
[2] Vásáry, 2003; Erdélyi, 2004, p. 76
[3] Kyzlasov, I.L., 1994

Khazarian Rovas is exclusively right-to-left; there is no casing or known numerals in any of the known relics. It belongs to the family of Rovas scripts, including the *Szekely-Hungarian Rovas* (SHR)[4] and the *Carpathian Basin Rovas* (CBR).[5] A common feature of the three Rovas scripts that none of them was created artificially but they were gradually differentiated after the geographical isolation of their users. The time diagram in *Fig. 1-1* shows the dynamic interactions among the Rovas and cognate scripts. The simplified genealogy of the Rovas scripts is presented in *Fig. 1-2*, where the relations with less than four borrowed characters and the unknown intermediary scripts are not denoted. The *Early Steppean*[6] script is the proposed common ancestor of the Rovas scripts and the Old Turkic script. The *Early Steppean* is supposed to be used in Middle-Asia from the 2nd century BC. The *Proto-Rovas*[7] script is a reconstructed common ancestor of the Rovas scripts used North of the Caucasus and the Black See by the As and Alan nations from the 1st century AD. For additional information, see N4076 (2011-05-22)[8] and N4080 (2011-05-25).[9]
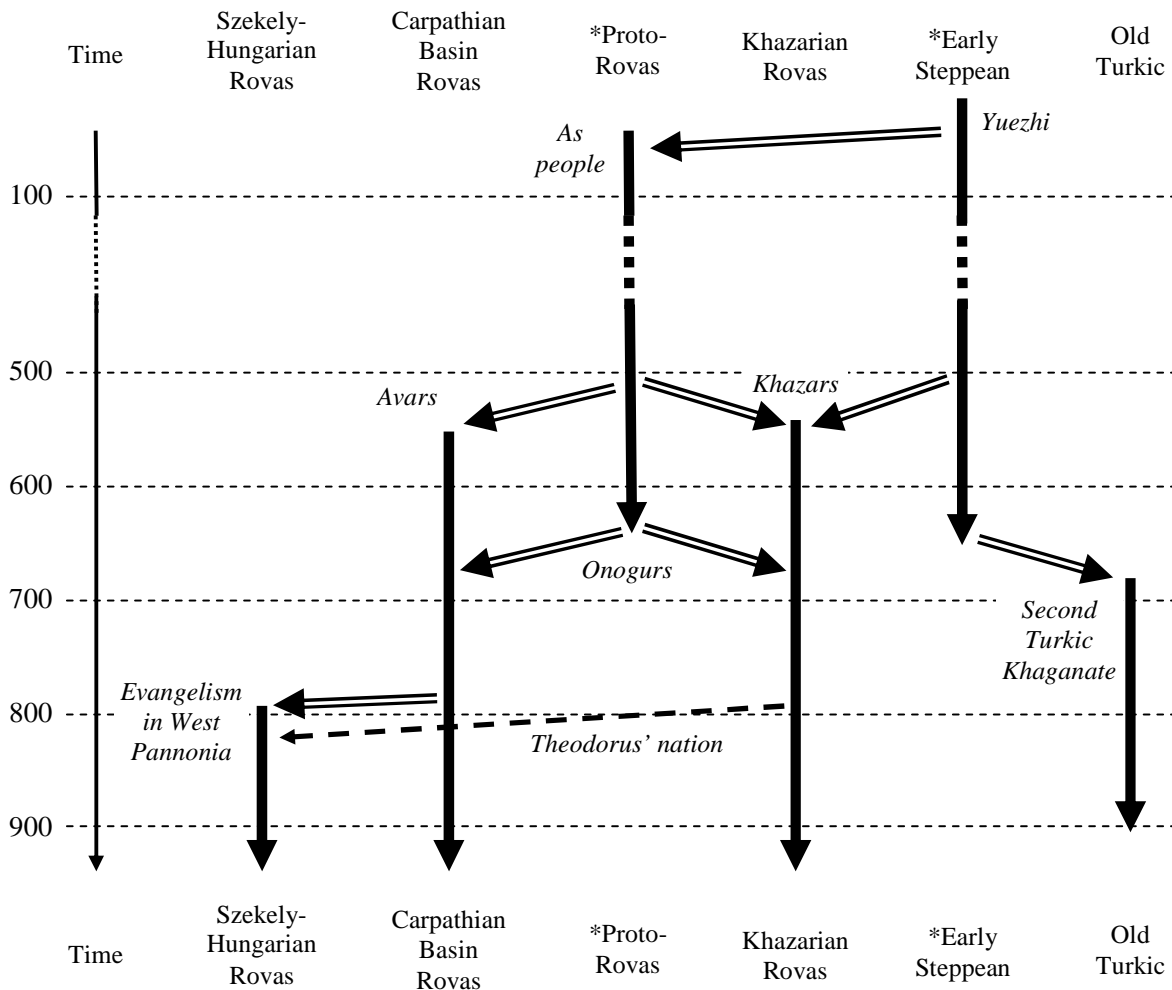

Figure 1-1: The time diagram of the interactions between the Rovas and cognate scripts.[10] Theodorus' nation was presumably Onogur people from the Khazar Khaganate.[11]

---

[4] Vékony, 1986
[5] Vékony, 1986
[6] Hosszú, 2011a, pp. 23-26, *Sec. 3.2*; RovasPedia: *http://wiki.rovas.info/index.php/Early_Steppean_script*
[7] Hosszú, 2011a, pp. 27-28, *Sec. 3.3*; RovasPedia: *http://wiki.rovas.info/index.php/Proto-Rovas*
[8] Hosszú, 2011e
[9] Hosszú, 2011f
[10] Hosszú, 2011a

TURKIC IDEOGRAMS
unknown period

PHOENICIAN
11th c. BC - 2nd c. BC

EARLY ARAMAIC
mid-8th c. BC – 6th c. BC

GREEK
9th c. BC – present

IMPERIAL ARAMAIC
6th c. BC – 1st c. AD / 6th c. AD

CUMAE VARIANT OF GREEK
8th c. BC - 5th c.

KHAROSHTHI
250 BC – 7th c. AD

PARTHIAN
330 BC / 2nd c. AD – 3rd c. AD

HEBREW
3rd c. BC - present

LYDIAN
700 BC – 200 BC

OLD ITALIC
7th c. BC – 1st c. AD

SYRIAC
2nd c. BC - present

*EARLY STEPPEAN
ca. 2nd c. BC – ca. 7th c. AD

NABATAEAN
2nd c. BC – 4th c. and PALMYRENE
2nd c. BC – 3rd c.

*PROTO-ROVAS
ca. 1st c. AD – 670

PAHLAVI and PSALTER
2nd c. AD – 9th c.

RUNIC
2nd c. AD - present

SOGDIAN
early 4th c. AD – 10th/13th c.

KHAZARIAN ROVAS
567 AD – 10th/13th c.

CARPATHIAN BASIN ROVAS
567 AD – 11th c., 2009 (*revitalization*) – present

OLD TURKIC
7th/8th c. AD – 10th c.

SZEKELY – HUNGARIAN ROVAS
8th c. AD – present

GLAGOLITIC
862 AD – present

CYRILLIC
10th c. AD – present

◄ – – 4-6 loan characters
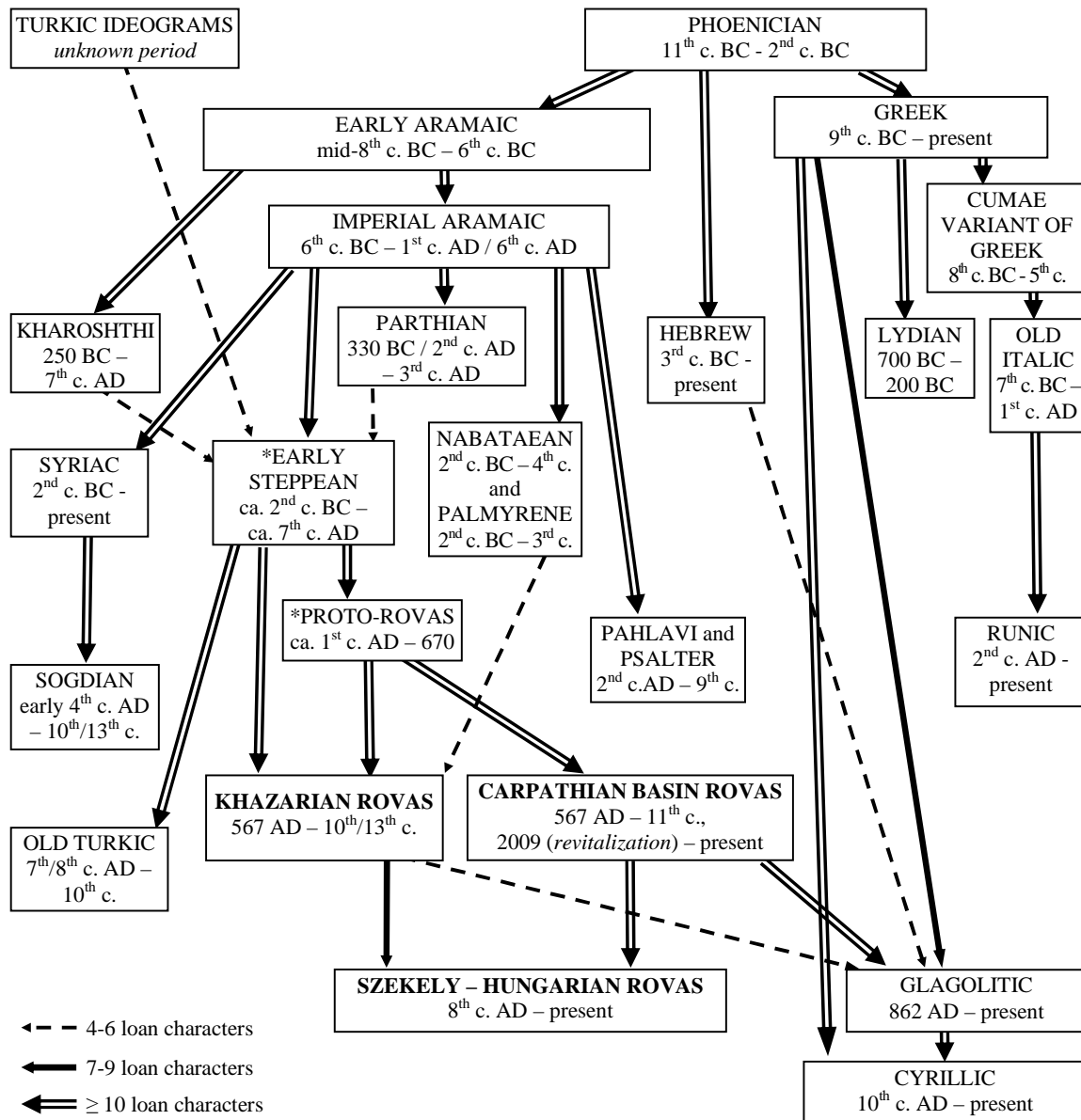
◄━━ 7-9 loan characters

◄⟸ ≥ 10 loan characters

Figure 1-2: The genealogy of the Rovas scripts based on characters representing the same phonemes excluded the numerals. Relations with less than four borrowed characters and the unknown intermediary scripts are not denoted.[12]

2. Some Khazarian Rovas relics

Khumara is an old Khazar fortress on the right hand side of the Kuban River. Two inscriptions are presented on *Fig. 2-1/a* and *b*.
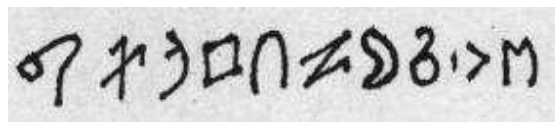
Figure 2-1/a: Drawing of the one-row inscription from Khumara[13]

---

[11] Vékony, 1992, pp. 448-449
[12] Hosszú, 2011a, 2011d

Written with normalized Khazarian Rovas font	ꟼꝒ)ⴲⴖ ꞄꙄꙄꞏ >ꟿ
IPA phonetic transcription	øð tᵉgˈn dᵃratï
Translation from Common Turkic (Khazar)	'Öd Tegin made (it).'

The word ꟼꝒ)ⴲⴖ /dᵃratï/ is the ancestor of the Hungarian word *gyárt* /ɟaːrt/ 'produce, make'. The Öz /øz/ is a well-known Turkic personal name.[14] According to Vékony, the transition /z/>/ð/ happened in Khazar. Therefore, Öd /øð/ was identical with Öz /øz/. The /tegin/ was a Khazar title (dignitary name). There is an example for this dignitary name in the sources: the name "*Er Tegin*" from the 680s.[15] In the Western Turkic Khaganate, the title *tegin* was also used, as it is attested to in inscriptions found in East Iran.[16] The word *tegin* survived as a personal name in the 10th century: a leader of the Magyars was called *Tétény* (its other form: *Tühütüm*).[17]
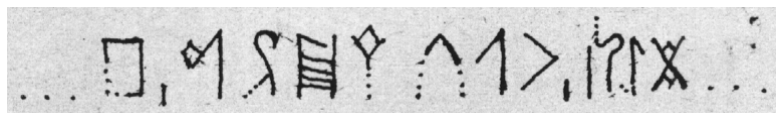

Figure 2-1/b: Drawing of a fragmentary inscription from Khumara Fortress. On this relic, the mirrored glyph variant ↓ of the Ɲ GH /ɣ/ was in use.

Written with normalized Khazarian Rovas Font	ⴖꟼꝅꗸꝒⴖꞀ>ꞌꝅꟿꙄ
IPA phonetic transcription	tᵘɣᵃlᵃs, d͡ʒᵃpdi, bˈʧigi ˈr
Translation from Ogur	Tughalas made (built), wrote its inscription.

The word /tᵘɣᵃlᵃs/ is an ethnic name according to Ibn Rustah.[18] The last word /*ïr/ is the Ogur version of the Common Turkic verb /yaz/ 'draw'.[19] The evidence of the existence of the Ogur verb /*ïr/ is the Hungarian verb *ír* /iːr/ 'write'.[20] The verb /d͡ʒᵃpdi/ (< Proto-Turkic /yap/) means 'built, did', the KR > D is transcribed with /d͡ʒ/, supposing that the inscription is in Ogur. The word /bˈʧg/ is the Ogur version of the Common Turkic /bitig/.[21]
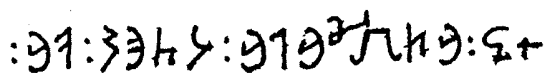

Figure 2-2 A drawing of the Mayaki amphora inscription (made by I. L. Kyzlasov), 8th-9th centuries.[22] On this relic, the glyph variant ↓ of the Ⱨ R /r/ was in use.

Written with normalized Khazarian Rovas Font	:ꙅꞄ:ꙅꙅⱧ>:ꙅꝑꙅꞀ⟍ⱧꙄ:[ꙅꝋ]
IPA phonetic transcription	[bu ᵃ]nᵃr xᵃɣᵃnïn d͡ʒ ˈrem βᵒn
Translation from Ogur	(This is) of Khagan Nar [*or* Anar]. Twenty *won*.

The Ogur word *won* was a measurement unit. The first two characters of the inscription were damaged; their transcription presumably is *bu*. The name *Nar* (or *Anar*) was an ancient Turkic personal name.[23]

[13] Vékony, 1987, p. 27; Vékony, 2004
[14] Nadeljaev et al (ed.), 1969, p. 395
[15] Golden, 1980, pp. 186-187
[16] Harmatta, 1994, pp. 149.164
[17] Györffy, 1998, p. 135
[18] De Goeje, M. J. (ed.), 1892
[19] Vásáry, 2010-2011
[20] Palló, 1982, p. 111-113
[21] Róna-Tas, 1992, pp. 12-13
[22] Klyashtorny, S.G., SA. 1979, № 1;
[23] Vékony, 2004, p. 272

Figure 2-3/a: The Novocherkassk clay flask (9th-10th centuries)[24]

Figure 2-3/b: The drawing of the Novocherkassk inscription.[25] On this relic, the glyph variant ϟ of Ϟ O /o/u/ was in use.

Written with normalized Khazarian Rovas Font	ϟꓵΥϟꓦ�·>O⊀Υ·>ꝺ·>O⊀ΥΫ
IPA phonetic transcription	a ˈʃɛrmˈð bˈð ˈʃɛrmˈð boʃᵃdʷn
Translation from Kypchak	'Oh. Let us drink. We drink from [this] bosha.'

The word *bosha* was the name of a fermented alcoholic drink; its current version is 'boza' in Hungarian and Turkic.[26]
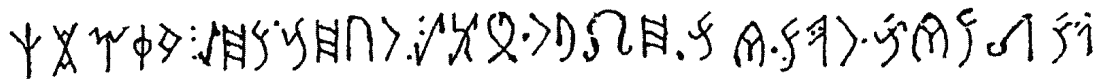

Figure 2-4. The Stanitsa Krivyanskoe inscription (8th-10th c.).[27] On this relic, the glyph variant ϟ of the Ϟ O /o/u/ was in use.

Written with normalized Khazarian Rovas Font	ΥꓫΥφꝺ⦂ꓵꓣϟꓦ·ϟꓮꓵ>·ꓵꓫꝖ·>>ꓵꓮ·ϟꓟ·ϟꓦꝺ·ϟꓟϟꓽⱵꓦ9
IPA phonetic transcription	voʃudanu ðᵃβu: danu ʧᵃrið niᵘzᵃg ðᵃxˈʧᵃn uᵃʧᵃg bᵃfˈsta-a
Translation from As or Alan	'Voshu drink is yours. [This] drink should keep alive [the] one who drinks [it]. For you, Uachag wrote this.'

In this relic, the form *voshu* of the drink *boza* occurs.[28] The sound /a/ was Preossetic common determiner, meaning 'this'. This /a/ is written in the duplication of Υ FORKED E /a/ (Ϋ /a-a/) at the end of the row, where the other /a/ is the last vowel of the word /bᵃfˈsta/

In 1962 Norman Golb discovered a non-Hebrew inscription on the bottom left corner of the Kievan Letter.[29] According to Turkologist A. Róna-Tas, the Kievan Letter is from 955 to 961 due to historical reasons.[30] *Fig. 2-5* shows the precise drawing copied directly from the photograph of the original text.[31]

Figure 2-5. The photograph of the original Khazarian Rovas inscription on the Kievan Letter and its drawing[32]

---

[24] Baichorov, 1989, *Table 113*
[25] Vékony, 2004, p. 243; Vásáry, 2010-2011
[26] http://mek.niif.hu/02700/02790/html/92.html
[27] Turchaninov, 1964, pp. 83-84 and 1971, pp. 75-77
[28] Vékony, 2004, p. 257
[29] Golb-Pristak, 1982
[30] Róna-Tas, 2001, p. 181
[31] Vékony, 2004

Written with Khazarian Rovas font	⟩⟩Ρ⟩Νᛦ
Written with normalized Khazarian Rovas font without ligatures	⟩⟩1Ø1⟩Νᛦ
IPA phonetic transcription	oɣⁱðïɑ ilⁱk
Translation from Khazar	We have read. Ilik.

"*Ilik*" was the name of the vice-king in the Khazar Khaganate,[33] who was in charge of the day-to-day operations.[34] This inscription most probably functioned as reconfirmation of the letter.
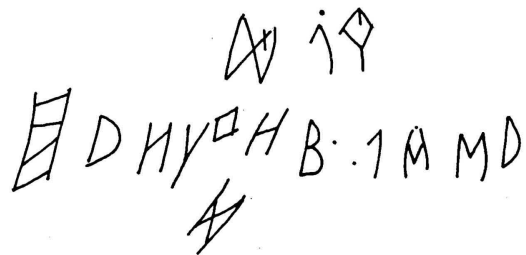

Figure 2-6: Photograph[35] and the drawing of the Alsószentmihály (Transylvania, Romania) inscription, 920-950.[36]

Written with normalized Khazarian Rovas Font	*First line:* ᛕ ⟩Ŷ *Second line:* ᛃDHYØHB1ΛMD
IPA phonetic transcription	*First line:* ᵋbi ᵃtlⁱɣ *Second line:* jyedi • kyr qarᵃj
Translation from Khazar	*First line:* 'His mansion is famous.' *Second line:* 'Jüedi Kür (the) Karaite.'

The word /ɛb/ was used for larger buildings in the Khazarian Rovas building inscriptions;[37] therefore, its meaning is 'mansion'. The word /jyᵉdi/ meant *Jewish* in Khazar language, in this case it was probably used as a personal name. The /kyr/ means 'courageous' and 'fearless' in Turkic,[38] such personal names are typical. The symbol ᛃ is a specific punctuation mark in the Khazarian Rovas and the symbol in the third row was probably a tamgha, according to the archaeologist Vékony.[39]

---

[32] Brook, web site; Vékony, 2004, p. 278
[33] Golden 1980. p. 162, pp. 184-185
[34] Golden 1984, pp. 474-486
[35] Benkő,1972a, p. 453 and Appendix; Benkő, 1972b
[36] Moravcsik, 1984, p. 85
[37] Vékony, 1997, p. 110;
[38] DTS, p. 328
[39] Vékony, 1987, pp. 108-117; 1997, pp. 108-117; 2004, pp. 217-230

Figure 2-7. The drawing of the fragmented inscription of Ermen Tolga (magic text).[40] On this relic, the mirrored glyph ⵝ of the ⵊ M /m/ and the glyph variant ⵀ of the ⵀ UE /ø/y/ were in use.

Written with normalized Khazarian Rovas Font	*Second line (upside down):* ...�:Y⟩⟩Y⟩ꓵ⟩Y⟩Y⟩⟩ꓸꓸꓸ *First line (upside down):* ⟩Y⟩⟩ꓵ *Third line:* �ꓵⵀⵀ⟩ꓸYY⟩⟩⟩⟩ꓸYⵀ⟩⟩ꓸ⟩⟩Y
IPA phonetic transcription	*Second line:* <u>de</u>β ᶦdi <u>de</u>β ø abam ᶿgε ᵋb-ᵃba ø ... *First line:* . ᵘd byʃi ᵃb[a] ... *Third line:* ... a ø : ømε bᵃʃ <u>de</u> ᵃbᵃm byʃi iʃ : mᵃŋᵃ ᵉdið ... ø ...
Translation from Khazar	*Second line:* ''Lord spirit, spirit, think! My father, wise house-father, think!' *First line:* . bovine-wizard father ...' *Third line:*' Oh : think! Don't think, Head! Eat! My wizard father, drink! For my highly ...think...'

The Achiktash Inscription (Wooden Stick of Talas) is presented on *Fig. 2-8*. The inscription is on the four sides of a wooden stick. The stick was broken into three parts, but the middle one was never found. Therefore, the middle part of the text in each row is missing.[41]

Figure 2-8: The Achiktash Inscription (first half of the 8ᵗʰ century)

In the inscription the glyph ꓳ, a variant of the ꓵ ARCHED R /r/rʲ/, the glyph ꓹ, a mirrored variant of the ꓵ FORKED N /n/, and the glyph ꓶ, a variant of the ꓱ P /p/ were in use.

---

[40] Erdniev, 1982, *Fig. 2-7;* Kyzlasov, 1990a, Fig. 13, 14, pp. 42-47; Klyashtorny & Vásáry, 1987
[41] Vékony, 1986, *Fig. 1*

Written with normalized Khazarian Rovas Font	ᚱᚢᚤᚷᚦ ᚨᚲᚦᚤᚺᚲ ᚤᚢᚤᚢ	ᚴᚢᚥᚦᛗᚤᚦᚢᚲᚤ ᚦᚴᚺᚲᚲᚲᚦᚤᚤᚢᚱᛪᚴᚦᚲ ᚤᛉᚤ ᚱᛇᚦᛃᚺᛗᚤ ▤ᚦ▢ᛉᚲᚦᚱ
IPA phonetic transcription	tir ⁱðuɋ ɛðe ᵠrⁱn … qᵃðɣuɋ hⁱdᵋ ïtðⁱq ᵒqïmïn mⁱð… tɛgⁱl ᵃj sᵘht ᵐsᵞt … hⁱð qᵃsᵃr ᵘðᵘs̱ï	bⁱtⁱrh[ᵋŋ/ⁱŋⁱð] iʃⁱð̱ⁱbⁱð qᵒp ᵋrtᵋr t [ᵃnⁱŋ]
Translation from Common Turkic (Kypchak)	'He says: the throne of the holy dominus We … reading the written stick sent by you Ay! Say it: Sogdian vengeance … You, Khazars. Good (=true, credible). End.'	you write [*singular or plural*] we all heard it avoid [you], [you] k[now]

ıㄨ⊃ᛁᛁᚤᛦᛁᛁᛁㄨᛉ⊃
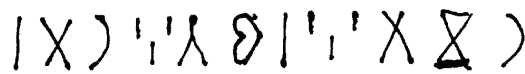
Figure 2-9 The drawing of the inscription on the bone-plate of quiver from Homokmégy-Halom[42]

It was transcribed by the archaeologist G. Vékony and the transcription was improved by Turkologist I. Vásáry.[43] According to Vásáry, its text could be either in Common Turkic or Ogur.

Written with normalized Khazarian Rovas font	ᚲㄨ⊃ᛁᛁᛦᛉᛁᛁㄨㄨᛉ
IPA phonetic transcription	ᵒnᵒqlⁱɣ sᵃɣdᵃɣⁱn bᵃs
Translation from Turkic	'Triumph with [a] quiver of ten arrows.'

In 1978, during the Soviet-Hungarian-Bulgarian common excavations of the Mayatskoe Gorodishche ('Stone Castle of Mayatskoe', other name: Mayaki citadel), S.A. Pletneva and G.E. Afanasyev found the longest known KR inscription.[44] *Fig. 2-8* shows the drawing of the architect B. Erdélyi, a participant in the excavation.[45]
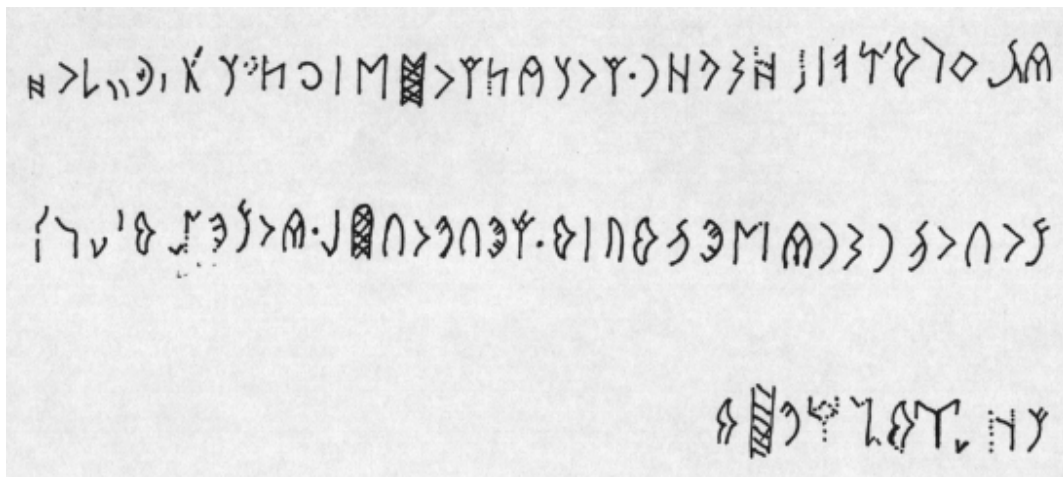

Figure 2-10: The drawing of the inscriptions of Mayatskoe Gorodishche reconstructed by archaeologist G. Vékony. On this relic, the glyph variants ᛃ of ᛊ O /o/u/, ᛃ of ᛍ E /ɛ/, and ᛃ of � UE /ø/y/ were in use.

---

[42] Vékony, 1992, p. 42
[43] Vékony, 2004, pp. 56-57; Vásáry, 2010-2011
[44] Erdélyi, 2004, p. 76
[45] Kyzlasov, 1990; p. 16

The ends of the first and second rows may show characters of a different script; those were probably engraved later. The transcription of the texts is the following:

Written with normalized Khazarian Rovas Font	*First row:* …Ⴤ[ꓛ]ᕼՍᛁᛗ𐰡ᐳᛊᕼᏐᎩᐳᛊ• ꓔᑎᐳ꒱ᐥ𐰑ꓲᎋᎢᏒᐳᐁᝋᛙᛘ
	Second row: …𐰑ᛚꓛᛣᑎᛙ•ᝋ𐰡ᑎᐳꓛᑎᏗᛊ• 𐰑ᕵᏗᎋᏒᛗᛙꓛᏒꓛꓐᐳᑎᐳᎩ
	Third row: 𐰑𐰡ꓛᛊᛣ𐰑ᎢᑎᎩ

IPA phonetic transcription	*First row:* <u>da</u> <u>nu</u> ᵃq ᵒð^ᵞg s^uβ ᵃsⁱl ᵋt͡ʃⁱm xᵃɣᵃn bⁱðⁱŋ <u>der</u>ⁱbⁱð ᵃ<u>lt</u>ⁱ sᵃβⁱrïŋ […]
	Second row: uð dⁱðy ᵒn mᵘn<u>da</u> ⁱ<u>lt</u>ɛ yg^ᵞʃ ⁱsⁱg bɛdið^ᵋdⁱ ᵒl <u>da</u>ðu in^ᵋg […]
	Third row: <u>on</u>ᵃɣ tᵉgⁱn ᵋbi ᵒg

Translation from Khazar	*First row:* 'Don [River], white Ödüg River, As Country, [oh] my brother-khagan, our land of the Six-Savirs …'
	Second row: 'Ud Didü On, here, in [this] country, ornamented several works. This inscription made by Ineg…'
	Third row: 'Mansion of Onagh Tegin. Extol it.'

In 1948, a rounded stone of a spindle was explored during the archaeological excavations of V. P. Levasova near Minusinsk. The relic is from the 8th-9th centuries. *Fig. 2-11* presents the photograph of the spindle disk[46] and the drawing of the inscription made by archaeologist G. Vékony. The transcription was improved by Turkologist I. Vásáry.[47]
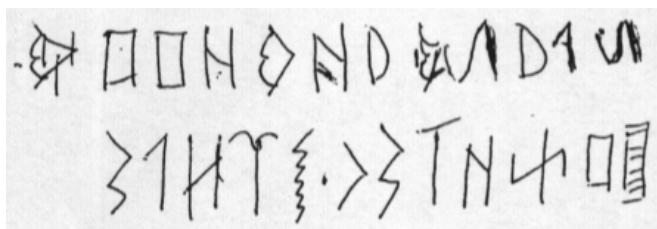

Figure 2-11: The photograph of the spindle of Minusinsk (left) and the inscription broken into two rows (right).

On this relic, the glyph variants ᐠ of the ᑑ CIRCLE ENDED I /i/i/, ᑎ of the ᛗ ANGLED UE /y/, ᛭ of the ꓫ Z /z/t/, and the mirrored glyph ᴎ of the ᑎ GH /ɣ/ were in use. The glyph ⁝, a variant of the symbol 𐰡 KHAZARIAN ROVAS SEPARATOR LARGE was also in use on this relic.

An interesting specialty of this relic is that the fifth character from the right and the last (leftmost) character of the first row on the figure are corrected: the writer earlier wrote 'ı' TRIPLE GH /ɣ/ in both cases, and then corrected them with 𝔇 CLOSE G /g/. In other words, the writer first used the fricative /ɣ/, and then it was corrected to the plosive /g/.

The personal name in the inscription can be *Asugh* /asuɣ/ or *Sugh* /suɣ/.

---

[46] TÜRIK BITIG, web site
[47] Vásáry, 2010-2011

Written with normalized Khazarian Rovas Font	•ꗏ□□ᛗꗏᛗꡏ•ꗏꗄꗌ11 ꗜ1Nꗏ彐•>ꡃ1ᛗ✕□彐
IPA phonetic transcription	ip-jig jygyrr^{y}g ^{ø}rtylm^{ε}ð (a)s^{u}ɣ^{a}p^{a}m
Translation from Turkic	'(This) thread-spindle [is] fast. My aunt (A)sugh does not hide.'

In 1985, Kochkina published the inscription on the handle of a vessel (see *Fig.* below), estimating its origin to the 11th-12th centuries.[48] The reading /d^{y}ʃ/ 'dream' was proposed by the author of this document. Turkologist I. Vásáry improved it to /d^{y}ɫ/ and gave another possible meaning: 'noon'.[49] He stated that the /dyɫ/ could be the Ogur version of the Common Turkic /dyʃ/ 'dream/noon'. The second part of the inscription is still unsolved.[50]

At the end fo the inscription there is the Khazarian Rovas : *Colon*. Note that despite of the formal similarity, the Khazarian Rovas : *Colon* was a full stop-like *punctuation mark* in this inscription and its function is totally unrelated to the punctuation mark colon (:) of the Latin-based orthography, which first appeared in late 14th century, according to Reimer.[51]

Written with normalized Khazarian Rovas font	:ꗏꗜꗄꗏ>
IPA phonetic transcription	d^{y}ɫ (b...t...n)
Translation from Ogur	'dream/noon' (*second part is unciphered*)

Figure 2-12: The Bilyar inscription (11th-13th centuries) and its transcription

3. Unicode Character Properties

In the following the proposed naming and coding of the KHAZARIAN ROVAS script is listed. These charts contain only proposed assignments and should not be considered valid until such time as the Unicode Consortium formally accepts them and ISO/IEC JTC1/SC2 formally approves them after an international ballot.

---

[48] Khalikov, 1988
[49] Vásáry, 2010-2011
[50] Vásáry, 2010-2011
[51] Reimer, 1998, *Ch. IV.vii*. Paleography: Punctuation

3.1. Code chart of the KHAZARIAN ROVAS in the SMP

	1xx0	1xx1	1xx2
0	⟫ 1xx00	Ⅹ 1xx10	⋔ 1xx20
1	⋃ 1xx01	⥀ 1xx11	Ⅹ 1xx21
2	⥉ 1xx02	Ⅿ 1xx12	▨ 1xx22
3	⋈ 1xx03	○ 1xx13	▨ 1xx23
4	∩ 1xx04	⌁ 1xx14	▨ 1xx24
5	λ 1xx05	⅋ 1xx15	▨ 1xx25
6	Ⅿ 1xx06	⅄ 1xx16	▨ 1xx26
7	⟩ 1xx07	⊂ 1xx17	▨ 1xx27
8	ϕ 1xx08	◫ 1xx18	▨ 1xx28
9	◨ 1xx09	∩ 1xx19	▨ 1xx29
A	⦙ 1xx0A	⊿ 1xx1A	▨ 1xx2A
B	⟫ 1xx0B	⑂ 1xx1B	▨ 1xx2B
C	⊓ 1xx0C	⥍ 1xx1C	▨ 1xx2C
D	∩ 1xx0D	�⸱ 1xx1D	▨ 1xx2D
E	⟩ 1xx0E	⨵ 1xx1E	▨ 1xx2E
F	⅄ 1xx0F	Ⅹ 1xx1F	▯ 1xx1F

1xx00 KHAZARIAN ROVAS Characters 1xx2F

1xx00; ⟫   KHAZARIAN ROVAS LETTER ANGLED B

1xx01; ⋃   KHAZARIAN ROVAS LETTER ARCHED B

1xx02; ⥉   KHAZARIAN ROVAS LETTER RAISED B

1xx03; ⋈   KHAZARIAN ROVAS LETTER CS

1xx04; ∩   KHAZARIAN ROVAS LETTER ARCHED D

1xx05; ᚨ KHAZARIAN ROVAS LETTER FORKED D
1xx06; ᛗ KHAZARIAN ROVAS LETTER ANGLED E
1xx07; ᚢ KHAZARIAN ROVAS LETTER ARCHED E
1xx08; φ KHAZARIAN ROVAS LETTER F
1xx09; ᚦ KHAZARIAN ROVAS LETTER CLOSE G
1xx0A; ᛈ KHAZARIAN ROVAS LETTER TRIPLE GH
1xx0B; ᚦ KHAZARIAN ROVAS LETTER FORKED CH
1xx0C; ᚲᛚ KHAZARIAN ROVAS LETTER ANGLED CH
1xx0D; � KHAZARIAN ROVAS LETTER ARCHED CH
1xx0E; ᚦ KHAZARIAN ROVAS LETTER K
1xx0F; ᚵ KHAZARIAN ROVAS LETTER ARCHED L
1xx10; ᚷ KHAZARIAN ROVAS LETTER CROSSED L
1xx11; ᛁ KHAZARIAN ROVAS LETTER FORKED L
1xx12; ᛗ KHAZARIAN ROVAS LETTER LT
1xx13; O KHAZARIAN ROVAS LETTER ROUND M
1xx14; ᛉ KHAZARIAN ROVAS LETTER ANGLED N
1xx15; ᚥ KHAZARIAN ROVAS LETTER FORKED N
1xx16; ᛘ KHAZARIAN ROVAS LETTER O
1xx17; ᚲ KHAZARIAN ROVAS LETTER ARCHED Q
1xx18; ᛞ KHAZARIAN ROVAS LETTER CLOSE Q
1xx19; ᚾ KHAZARIAN ROVAS LETTER ARCHED R
1xx1A; ᚴ KHAZARIAN ROVAS LETTER SH
1xx1B; ᚦ KHAZARIAN ROVAS LETTER ARCHED SH
1xx1C; ᛉ KHAZARIAN ROVAS LETTER SHL
1xx1D; ᛏ KHAZARIAN ROVAS LETTER FORKED SZ
1xx1E; �ම KHAZARIAN ROVAS LETTER ARCHED T
1xx1F; ᛪ KHAZARIAN ROVAS LETTER CENTRAL T
1xx20; ᛗ KHAZARIAN ROVAS LETTER UE
1xx21; ᚷ KHAZARIAN ROVAS LETTER Z
1xx22; (This position shall not be used)
1xx23; (This position shall not be used)
1xx24; (This position shall not be used)
1xx25; (This position shall not be used)
1xx26; (This position shall not be used)
1xx27; (This position shall not be used)
1xx28; (This position shall not be used)
1xx29; (This position shall not be used)
1xx2A; (This position shall not be used)
1xx2B; (This position shall not be used)
1xx2C; (This position shall not be used)
1xx2D; (This position shall not be used)
1xx2E; (This position shall not be used)
1xx2F; ▨ KHAZARIAN ROVAS SEPARATOR LARGE

4. Fundamental decisions taken in the encoding

4.1. Description of the character repertoire

The use of the Khazarian Rovas script for different languages led to the duplication of some Khazarian Rovas characters. In the following the character repertoire is detailed, see the table below.

Glyph	Name of the Khazarian Rovas character	IPA symbol	Examples of the glyph in the relics
Y	A	/a/ɛ/	Ermen Tolga, 8th-10th c., *Fig. 2-7*, in Khazar
X	B	/b/	Homokmégy-Halom, *Fig. 2-9*, in Turkic
⊅	ANGLED B	/b/	Novocherkassk, 9th-10th c., *Fig. 2-3/a & b*, in Kypchak Bilyar, 11th-13th c., *Fig. 2-12*, in Ogur
U	ARCHED B	/b/β/	Mayatskoe G. large inscr., 9th c., *Fig. 2-10*, in Khazar
Ŷ	RAISED B	/b/	Alsószentmihály, 920-950, *Fig. 2-6*, in Khazar
ℵ	CS	/t͡ʃ/s/	Stanitsa Krivyanskoe, 9th-10th c., *Fig. 2-4*, in As-Alan
>	D	/d/ð /d͡ʒ/	Kievan letter, 955-961, *Fig. 2-5*, in Khazar Bilyar, 11th-13th c., *Fig. 2-12*, in Ogur
∩	ARCHED D	/d/di/dɛ/j/d͡ʒ/	Novocherkassk, 9th-10th c., *Fig. 2-3/a & b*, in Kypchak
λ	FORKED D	/d/	Homokmégy-Halom, *Fig. 2-9*, in Turkic
∋	E	/ɛ/	Mayaki amphora, 8th-9th c., *Fig. 2-2*, in Ogur Mayatskoe Gorodishche, *Fig. 2-10* in Khazar, *glyph:*)
Ɱ	ANGLED E	/ɛ/	Achiktash, 8th c., *Fig. 2-8*, in Kypchak
⟩	ARCHED E	/a/a:/ɛ/	Khumara, *Fig. 2-1/a*, in Khazar
Y	FORKED E	/a/ɛ/	Alsószentmihály, 920-950, *Fig. 2-6*, in Khazar
Φ̱	CLOSE E	/e/	Achiktash, 8th c., *Fig. 2-8*, in Kypchak
φ	F	/f/	Stanitsa Krivyanskoe, 9th-10th c., *Fig. 2-4*, in As-Alan
ꭹ	CLOSE G	/g/ɣ/	Ermen Tolga, 8th-10th c., *Fig. 2-7*, in Khazar Minusinsk, 8th-9th c., *Fig. 2-11, 12*, in Turkic
⅄	FORKED G	/g/	Khumara, cc. 9th c., *Fig. 2-1/b*, in Ogur
N	GH	/ɣ/, *in As-Alan languages:* /g/	Khumara, cc. 9th c., *Fig. 2-1/b*, in Ogur Kievan letter, 955-961, *Fig. 2-5*, in Khazar Stanitsa Krivyanskoe, 9th-10th c., *Fig. 2-4*, in As-Alan
⁝⁝	TRIPLE GH	/ɣ/	Homokmégy-Halom, *Fig. 2-9*, in Turkic
⋏	CH	/h/	Achiktash, 8th c., *Fig. 2-8*, in Kypchak
⟩	FORKED CH	/x/	Mayatskoe Gorodishche, 9th c., *Fig. 2-10* in Khazar
⎍	ANGLED CH	/x/	Mayaki amphora, 8th-9th c., *Fig. 2-2*, in Ogur
∩	ARCHED CH	/x/	Stanitsa Krivyanskoe, 9th-10th c., *Fig. 2-4*, in As-Alan
ꓴ	ANGLED I	/i/, *in ligature also* /e/	Alsószentmihály, 920-950, *Fig. 2-6*, in Khazar
⊃	ARCHED I	/i/j/i/	Alsószentmihály, 920-950, *Fig. 2-6*, in Khazar

Glyph	Name of the Khazarian Rovas character	IPA symbol	Examples of the glyph in the relics
٩	CIRCLE ENDED I	/ï/i/	Khumara, cc. 9th c., *Fig. 2-1/a*, in Khazar Khumara, cc. 9th c., *Fig. 2-1/b*, in Khazar Minusinsk, 8th-9th c., *Fig. 2-11, 12*, in Turkic
D	J	/j/	Alsószentmihály, 920-950, *Fig. 2-6*, in Khazar
ꙅ	K	/k/	Kievan letter, 955-961, *Fig. 2-5*, in Khazar
Ɓ	KUE	/ky/	Alsószentmihály, 920-950, *Fig. 2-6*, in Khazar
Ϥ	ARCHED L	/l/	Khumara, cc. 9th c., *Fig. 2-1/b*, in Khazar
X	CROSSED L	/l/	Homokmégy-Halom, *Fig. 2-9*, in Turkic
1	FORKED L	/l/	Minusinsk, 8th-9th c., *Fig. 2-11, 12*, in Turkic
⟩	SIMPLE L	/l/ʎ/	Mayatskoe Gorodishche, 9th c., *Fig. 2-10* in Khazar
M	LT	/lt/	Mayatskoe Gorodishche, 9th c., *Fig. 2-10* in Khazar
Ƞ	M	/m/	Ermen Tolga, 8th-10th c., *Fig. 2-7*, in Khazar
O	ROUND M	/m/	Novocherkassk, 9th-10th c., *Fig. 2-3/a & b*, in Kypchak
⊃	N	/n/	Homokmégy-Halom, *Fig. 2-9*, in Turkic Bilyar, 11th-13th c., *Fig. 2-12*, in Ogur
⇂	ANGLED N	/n/	Khumara, cc. 9th c., *Fig. 2-1/a*, in Khazar, *glyph variant:* ⤸
ꝡ	FORKED N	/n/	Novocherkassk, 9th-10th c., *Fig. 2-3/a & b*, in Kypchak Achiktash, *Fig. 2-8*, in Kypchak, *glyph:* ʕ
Υ	NG	/ŋ/	Ermen Tolga, 8th-10th c., *Fig. 2-7*, in Khazar
ꙑ	O	/o/u/	Kievan letter, 955-961, *Fig. 2-5*, in Khazar Mayatskoe G., 9th c., *Fig. 2-10* in Khazar, *glyph variant:* ʃ
Ⴈ	P	/p/	Achiktash, *Fig. 2-8*, in Kypchak, glyph: ⟁
⼂	SIMPLE P	/p/	Khumara, cc. 9th c., *Fig. 2-1/b*, in Khazar
X	Q	/q/oq/uq/	Achiktash, 8th c., *Fig. 2-8*, in Kypchak Homokmégy-Halom, *Fig. 2-9*, in Turkic
�C	ARCHED Q	/q/	Achiktash, 8th c., *Fig. 2-8*, in Kypchak
Ⴄ	CLOSE Q	/q/	Alsószentmihály, 920-950, *Fig. 2-6*, in Khazar
H	R	/r/	Alsószentmihály, 920-950, *Fig. 2-6*, in Khazar
Ω	ARCHED R	/r/rʲ/ (*palatal r*)	Stanitsa Krivyanskoe, 9th-10th c., *Fig. 2-4*, in As-Alan Achiktash, *Fig. 2-8*, in Kypchak, *glyph variant* ⦿
Ⲡ	CLOSE R	/r/	Minusinsk, 8th-9th c., *Fig. 2-11, 12*, in Turkic
⼃	SH	/ʃ/	Stanitsa Krivyanskoe, 9th-10th c., *Fig. 2-4*, in As-Alan
Ŋ	ARCHED SH	/ʃ/	Mayatskoe Gorodishche, 9th c., *Fig. 2-10* in Khazar
Ψ	ZS	/ʃ/	Novocherkassk, 9th-10th c., *Fig. 2-3/a & b*, in Kypchak
Ⱪ	SHL	/ɬ/	Bilyar, 11th-13th c., *Fig. 2-12*, in Ogur
I	SZ	/s/	Homokmégy-Halom, *Fig. 2-9*, in Turkic
Ⲧ	FORKED SZ	/s/	Mayatskoe Gorodishche, 9th c., *Fig. 2-10* in Khazar Minusinsk, 8th-9th c., *Fig. 2-11, 12*, in Turkic

Glyph	Name of the Khazarian Rovas character	IPA symbol	Examples of the glyph in the relics
✗	ANGLED T	/t/	Khumara, cc. 9th c., *Fig. 2-1/a*, in Khazar Mayatskoe G., 9th c., *Fig. 2-10* in Khazar, *glyph variant:* ⲩ
Ɜ	ARCHED T	/t/	Khumara, cc. 9th c., *Fig. 2-1/a*, in Khazar
ⵝ	CENTRAL T	/t/	Stanitsa Krivyanskoe, 9th-10th c., *Fig. 2-4*, in As-Alan
⅄	CLOSE T	/t/	Bilyar, 11th-13th c., *Fig. 2-12*, in Ogur
？	UE	/y/ø/	Ermen Tolga, 8th-10th c., *Fig. 2-7*, in Khazar
M	ANGLED UE	/y/ø/	Alsószentmihály, 920-950, *Fig. 2-6*, in Khazar Minusinsk, *Fig. 2-11, 12*, in Turkic, *glyph variant:* Ⲛ Khumara, *Fig. 2-1/a*, in Khazar
⅂	OPEN V	/β/b/	Ermen Tolga, 8th-10th c., *Fig. 2-7*, in Khazar
ⵉ	Z	/z/t/	Minusinsk, *Fig. 2-11*, in Turkic, *glyph:* ⴱ, *sound:* /t/ Stanitsa Krivyanskoe, *Fig. 2-4*, in As-Alan, *sound:* /z/

The characters in the following table are identical to the appropriate Szekely-Hungarian Rovas or Carpathian Basin Rovas characters. Thus, there is no urge to encode them individually. Instead, it is proposed to use the appropriate Rovas characters from the Szekely-Hungarian Rovas script (latest proposal: N4007, 2011-05-21) or the Carpathian Basin Rovas script – proposed separately (latest proposal: 2011-10-12).

Glyph	Name of the identical other Rovas character
Ⲩ	CARPATHIAN BASIN ROVAS CAPITAL LETTER A
X	SZEKELY-HUNGARIAN ROVAS CAPITAL LETTER B
＞	CARPATHIAN BASIN ROVAS CAPITAL LETTER D
Ɜ	CARPATHIAN BASIN ROVAS CAPITAL LETTER E
Ⲩ	CARPATHIAN BASIN ROVAS CAPITAL LETTER FORKED E
ⵝ	SZEKELY-HUNGARIAN ROVAS CAPITAL LETTER CLOSE E
⟨	CARPATHIAN BASIN ROVAS CAPITAL LETTER FORKED G
Ⲛ	SZEKELY-HUNGARIAN ROVAS CAPITAL LETTER GH
⋏	CARPATHIAN BASIN ROVAS CAPITAL LETTER CH
⌐	CARPATHIAN BASIN ROVAS CAPITAL LETTER ANGLED I
⌐	CARPATHIAN BASIN ROVAS CAPITAL LETTER ARCHED I
⌐	CARPATHIAN BASIN ROVAS CAPITAL LETTER CIRCLE ENDED I
D	CARPATHIAN BASIN ROVAS CAPITAL LETTER J
Ɓ	CARPATHIAN BASIN ROVAS CAPITAL LETTER KUE
⟩	CARPATHIAN BASIN ROVAS CAPITAL LETTER SIMPLE L
⟨	CARPATHIAN BASIN ROVAS CAPITAL LETTER M
⟩	SZEKELY-HUNGARIAN ROVAS CAPITAL LETTER N
Ⲩ	CARPATHIAN BASIN ROVAS CAPITAL LETTER NG
Ɜ	SZEKELY-HUNGARIAN ROVAS CAPITAL LETTER P

Glyph	Name of the identical other Rovas character
٦	CARPATHIAN BASIN ROVAS CAPITAL LETTER SIMPLE P
Ẍ	CARPATHIAN BASIN ROVAS CAPITAL LETTER Q
Ⴙ	SZEKELY-HUNGARIAN ROVAS CAPITAL LETTER R
⨅	CARPATHIAN BASIN ROVAS CAPITAL LETTER CLOSE R
Ⴘ	SZEKELY-HUNGARIAN ROVAS CAPITAL LETTER ZS
I	SZEKELY-HUNGARIAN ROVAS CAPITAL LETTER SZ
Ẍ	CARPATHIAN BASIN ROVAS CAPITAL LETTER ANGLED T
◊	CARPATHIAN BASIN ROVAS CAPITAL LETTER CLOSE T
⁊	CARPATHIAN BASIN ROVAS CAPITAL LETTER UE
⅃	SZEKELY-HUNGARIAN ROVAS CAPITAL LETTER OPEN V

4.2. Diacritic mark

There is only one diacritic mark in Khazarian Rovas script, the COMBINING STOP ABOVE ◌̇. Its role is signaling the end of the word. It was used in the Alsószentmihály inscription, see *Fig. 2-4*. For representing this, the PSALTER PAHLAVI COMBINING STOP ABOVE is usable.

4.3. Punctuation

Table 4.4-1 presents the punctuation marks of the Khazarian Rovas script.

Glyph	Name	Examples of the glyph in the relics
·	WORD SEPARATOR MIDDLE DOT	Alsószentmihály, 920-950, *Fig. 2-6*, in Khazar Novocherkassk, 9th-10th c., Fig. *2-3/a & b*, in Kypchak Minusinsk, 8th-9th c., *Sec. 4.2.15*, in Turkic Stanitsa Krivyanskoe, 9th-10th c., *Fig. 2-4*, in As-Alan
:	COLON	Mayaki amphora, 8th-9th c., *Fig. 2-2*, in Ogur Bilyar, 11th-13th c., *Fig. 2-12*, in Ogur
⁝	TRICOLON	Stanitsa Krivyanskoe, 9th-10th c., *Fig. 2-7*, in As-Alan
ˈ	WORD SEPARATOR VERTICAL BAR	Khumara, cc. 9th c., *Fig. 2-1*, in Ogur
⦀	KHAZARIAN ROVAS SEPARATOR LARGE	Alsószentmihály, 920-950, *Fig. 2-6*, in Khazar Minusinsk, 8th-9th c., *Sec. 2-11, 12*, in Turkic, *with also a glyph variant:* ⦀

Table 4.4-1: The *Khazarian Rovas* separators and the origin of each glyph

Table 4.4-2 shows the already existing Unicode encoded characters corresponding to the appropriate Khazarian Rovas punctuation marks.

Glyph	Name of the Khazarian Rovas character	Name and code point of the Unicode Character
·	WORD SEPARATOR MIDDLE DOT	'WORD SEPARATOR MIDDLE DOT' (U+2E31) from the Supplemental Punctuation block

Glyph	Name of the Khazarian Rovas character	Name and code point of the Unicode Character
:	COLON	COLON (U+003A) from the Basic Latin block
⁝	TRICOLON	'TRICOLON' (U+205D) from the General Punctuation block

*Table 5.4-2:* The *Khazarian Rovas* and the corresponding Unicode coded characters.

The KHAZARIAN ROVAS SEPARATOR LARGE ▤ is script-specific and therefore belongs into the KHAZARIAN ROVAS block; it is used mostly at the end of the sentences. The ❙ WORD SEPARATOR VERTICAL BAR is proposed in the encoding proposal of the Carpathian Basin Rovas script (2011-10-12).[52]

4.4. Ligatures

Ligatures were frequently used in the Khazarian Rovas script. These ligatures do not need individual code points, since they are only stylistic. That is, the text remains the same if somebody substitutes ligatures or removes them. Two ligatures are systematic, used regularly, similarly to the Arabic LAM-ALEF or the CH in Fraktur.

Glyph	Name	Transcription	Constituents of the systematic ligatures
⋔	DA	/da/	∩ ARCHED D /d/ + Y A /a/
⋔	DI	/de/di/ed/	∩ ARCHED D /d/ + 1 ANGLED I /i/e/

The rest of the ligatures are not systematic, they are applied on occasion. Therefore, they can be represented by character sequences. Their implementations will need to give the user localized control over ligation (perhaps by supporting ZWJ). The following table presents some examples of the non-systematic ligatures from the relics.

Glyph	Name	Transcription	Constituents of the non-systematic ligatures
Y	AA	/aa/	Y FORKED E /a/ + Y FORKED E /a/
⋈	ATLIGH	/ᵃtlʲɣ/	X ANGLED T /t/ + ⟩ SIMPLE L /l/ + Ͷ GH /ɣ/
ỷ	BAN	/ban/	Ỷ RAISED B /b/ + Y A /a/ + ⟩ N /n/
⩥	CSI	/t͡ʃi/	⩥ CS /t͡ʃ/ + 1 ANGLED I /i/
⇒	DKE	/ðkɛ/	⟩ D /ð/ + ⟩ K /k/ + ⟩ ARCHED E /ɛ/
⊬	ER	/ɛr/	Y FORKED E /ɛ/ + Ͱ R /r/
⟩	IL	/il/	1 ANGLED I /i/ (*mirrored glyph*) + ⟩ SIMPLE L /l/
⟩	IN	/in/	⟩ ARCHED I /i/ + ⅄ FORKED N /n/
Ϙ	IQ	/iq/	1 ANGLED I /i/ (*mirrored glyph*) + ⌀ CLOSE Q /q/
Ꝛ	JI	/ji/	Ꝺ J /j/ + 1 ANGLED I /i/ (*mirrored glyph*)
⊁, ⋇	ISHAD	/iʃᵃð/	Y ZS /ʃ/ + ⟩ D /ð/
⅌	RAT	/rat/	⊓ CLOSE R /r/ + ⟩ ARCHED E /ɛ/ + X ANGLED T /t/
⋔	TEGH	/tᵉɣ/	X ANGLED T /t/ + Ͷ GH /ɣ/

4.5. Ordering

In ordering the Common Template Table defined in the International Standard ISO/IEC 14651 is adapted.[53] The ordering requires different levels:

---

[52] Hosszú, 2011b

Level 1

The first level renders the texts to be sorted case-insensitive and insensitive to diacritical marks, and to all special characters. In the case of the Khazarian Rovas the following order is required:

Ⴧ A < �X B < ⵸ ANGLED B < ∪ ARCHED B < ⵴ RAISED B < ℵ CS < ⟩ D < ∩ ARCHED D < ⋋ FORKED D < Ⴣ E < ⷠ ANGLED E < ⟩ ARCHED E < ⵞ FORKED E < ⵝ CLOSE E < φ F < ⵠ CLOSE G < ⌇ FORKED G < ℕ GH < ⁞ TRIPLE GH < ⋋ CH < ⟩ FORKED CH < ⋀ ANGLED CH < ∩ ARCHED CH < ⵏ ANGLED I < ⟩ ARCHED I < ⵋ CIRCLE ENDED I < D J < ⟩ K < Ꞵ KUE < ⵤ ARCHED L < X CROSSED L < ⵏ FORKED L < ⟩ SIMPLE L < ⷠ LT < ⵎ M < Ο ROUND M < ⊃ N < ⵡ ANGLED N < ⵠ FORKED N < Ⴧ NG < ⵕ O < ⵦ P < ⵏ SIMPLE P < Ⴟ Q < ⊂ ARCHED Q < ⵠ CLOSE Q < ⵀ R < Ω ARCHED R < ⯁ CLOSE R < ⵠ SH < ⵠ ARCHED SH < ⵸ ZS < ⵥ SHL < ⵏ SZ < ⵏ FORKED SZ < ⵝ ANGLED T < ⵦ ARCHED T < ⵝ CENTRAL T < ⵠ CLOSE T < ⵠ UE < ⵎ ANGLED UE < ⵦ OPEN V < ⵝ Z

Level 2

This breaks ties on quasi-homographs (strings differ only because they have different diacritical marks). In the case of the Khazarian Rovas there is only one diacritical mark, the called COMBINING STOP ABOVE ◌̇. However, it is not an accent, but a word separator. It has the same effect as writing – in other scripts – a space after the character, it is recommended to process this combining character itself as a space, i.e. assign it a level 1 weight equivalent to that of the space, with also a level 2 weight indicating it is not a space but something else (to distinguish with the case one enters a real space after the character). The basic characters should nevertheless have a level 2 weight indicating a base character (for hypothetical cases where other combining characters are used).[54]

Level 3

This level breaks ties for quasi-homographs that differ only because uppercase and lowercase characters are used. In case of the Khazarian Rovas script there is not casing. Therefore this level is not required.

Level 4

The fourth level breaks the final tie that, in general, does not correspond to any strong tradition, namely, the tie between quasi-homographs differing only because they contain special characters. In the case of the Khazarian Rovas the Level 4 the ordering does not differ from similar level in the case of the usual European Latin orthography.

5. Acknowledgement

---

[53] LaBonté, 2007a & 2007b
[54] LaBonté, 2010

6. Bibliography

Baichorov, Soslanbek Ya. (1989): *Ancient Türkic runic monuments*, Stavropol, 1989, p. 67, p. 170-173

Benkő, Elek (1972a): Egy újabb rovásírásos emlék Erdélyből [A new Rovas script relic from Transylvania]. (A szentmihályfalvi templom rovásfelirata [The Rovas inscription of the Alsószentmihályfalva church]). In: *Magyar Nyelv* [Hungarian Language]. 1972, Vol. LXVIII, No. 4, pp. 453 and Appendix

Benkő, Elek (1972b): Egy újabb rovásírásos emlék Erdélyből [A new Rovas script relic from Transylvania]. (A szentmihályfalvi templom rovásfelirata [The Rovas inscription of the Alsószentmihály church]). In: *Utunk* [Our Way], Vol. XXVII, No. 1239, 28 July 1972.

Brook, Kevin (web site): Khazaria.com. The American Center of Khazar Studies. A Resource for Turkic and Jewish History in Russia and Ukraine. Retrieved in 2009 from *http://www.khazaria.com/khazar-images.html*.

De Goeje, M. J. (ed.) (1892): Ibn Rustah: *Kitāb al-A'lāk an-Nafīsa*. Bibliotheca Geographorum Arabicorum [BGA], Leiden, E. J. Brill.

DTS: *Drevnetjurkskij Slovar*, ed. V.M. Nadeljaev et al. Leningrad, 1969

Erdélyi, István (2004): *Őseink nyomában* [Tracing our ancestors]. A magyar őstörténet kutatása a XX. században [Research of the Hungarian ancient history in the 20th century]. Publisher: Masszi Kiadó. Budapest, 2004, 218 p., ISBN 963 9454 46 X

Golb, Norman & Pristak, Omeljan (1982): Khazarian Hebrew Documents of the Tenth Century. Cornell Univ. Press, Ithaca and London.

Golden, Peter B. (1980): *Khazar Studies*. Budapest.

Golden, Peter B. (1984): A New Discovery: Khazarian Hebrew Documents of the Tenth Century. Review Articles. In: Harvard Ukrainian Studies. Vol. VIII, No. 3-4, December 1984. Publisher: Ukrainian Research Institute, Harvard University, Campridge, Massachusetts, pp. 474-486.

Györffy, György (1998): *Magyarország történeti földrajza IV* [Historical geography of Hungary IV], Budapest: Akadémiai Kiadó

Harmatta, János (1994): Nyugati Türk uralom Kelet-Iránban (Kr. u. 650-750) [Western Turkic rule in Eastern Iran (AD 650-750)]. In: *Antik Tanulmányok-Studia Antiqua*. Vol. XXXVIII, pp. 149-164

Hosszú, Gábor (web site from 1995): Rovas Writing Home Page, Retrieved in 2009 from *http://rovasirashonlap.fw.hu*

Hosszú, Gábor (2011a): *Heritage of Scribes. The Rovas Scripts' Relations to Eurasian Writing Systems*. First edition. Budapest: Imagent and WOU Hungary, ISBN 978-963-88437-4-6.

Hosszú, Gábor (2011b): *Revised proposal for encoding the Carpathian Basin Rovas script in the SMP of the UCS*. National Body Contribution for consideration by UTC and ISO/IEC JTC1/SC2/WG2, October 12, 2011, Universal Multiple-Octet Coded Character Set. ISO/IEC JTC1/SC2/WG2

Hosszú, Gábor (2011c): *Revised proposal for encoding the Szekely-Hungarian Rovas script in the SMP of the UCS*. National Body Contribution for consideration by UTC and ISO/IEC JTC1/SC2/WG2, January 21, 2011, revised: May 21, 2011, Universal Multiple-Octet Coded Character Set. *ISO/IEC JTC1/SC2/WG2 N4007*, *http://std.dkuug.dk/jtc1/sc2/wg2/docs/n4007.pdf*

Hosszú, Gábor (2011d): *A rovásbetűk története* [History of the Rovas letters]. First edition. Budapest: Imagent and WOU Hungary, *under publication.*

Hosszú, Gábor (2011e): Comments on encoding the Rovas scripts. National Body Contribution for consideration by UTC and ISO/IEC JTC1/SC2/WG2, May 22, 2011, *ISO/IEC JTC1/SC2/WG2 N4076, http://std.dkuug.dk/jtc1/sc2/wg2/docs/n4076.pdf*

Hosszú, Gábor (2011f): Issues of encoding the Rovas scripts. National Body Contribution for consideration by UTC and ISO/IEC JTC1/SC2/WG2, May 25, 2011, *ISO/IEC JTC1/SC2/WG2 N4080, http://std.dkuug.dk/jtc1/sc2/wg2/docs/n4080.pdf*

Khalikov, A. H. (1988): Runicheskite enatsi and inscriptions from Voljka Blgarija and tehnite dunavski paraleli. In: *Archeology*. Sofia, No. 9.

Klyashtorny, S. G. (1979): Khazarian inscription on an amphora from a fortress Mayaki. – Sovietskaja Archeologija. 1979. The image of the drawing is from Turkic Scripts – Codex of Inscriptions, *http://www.s155239215.onlinehome.us/turkic/30_Writing/Codex_EuroAsiaticKuban_En.htm*

Kochkina, A.F. (1983): Potter's brands Bilyar gorodishcha. In: *Medieval monuments Tatarii*, Kazan.

Kochkina, A.F. (Кочкина А.Ф., 1985): Рунические знаки на керамике Биляра [Rovas signs on Bilyar Ceramics]. In: *Советская тюркология*, No. 4 pp. 54-80.

Kyzlasov, I.L. (1990): *Runic inscriptions in the Mayaki citadel. – Mayaki archeological compound*. Moscow.

Kyzlasov, I.L. (1994): Writings of Eurasian Steppes, Moscow, Eastern Literature.

LaBonté, Alain (2007a): ISO/IEC 14651:2007(E): Information technology -- International string ordering and comparison -- Method for comparing character strings and description of the common template tailorable ordering

LaBonté, Alain (2007b): ISO/IEC 14651:2007(F): Technologies de l'information -- Classement international et comparaison de chaînes de caractères -- Méthode de comparaison de chaînes de caractères et description du modèle commun et adaptable d'ordre de classement

LaBonté, Alain (2010): Standardization expert, Québec, Canada, *Personal communications.*

Moravcsik, Gyula (ed., 1984): Az Árpád-kori Magyar történet bizánci forrásai [Byzantine sources of the Hungarian history in the Period of Árpáds]. Budapest, 1984.

Nadeljaev, V.M. et al. (ed.) (1969): *Drevnjetjuerkskij slovar*. Leningrad.

Ráduly, János (2008): Támlap a rovásírásos emlékekhez [Support for our Rovas scripting relics]. In: *Örökségünk* [Our Heritage]. Vol. 2, 2008, No. 1, pp. 12-13.

Reimer, Stephen R. (1998): *Manuscript Studies. Medieval and Early Modern*. On-line publication. University of Alberta, Edmonton, Canada. Retrieved in 2011 from *http://www.ualberta.ca/~sreimer/ms-course/course/punc.htm*

Róna-Tas, András (1992): A magyar írásbeliség török eredetéhez [About the Turkic origin of Hungarian literacy]. In: Rovásírás a Kárpát-medencében [Rovas scripting in the Carpathian Basin]. In: *Magyar Őstörténeti Könyvtár Könyvtár* [Library of the Hungarian Ancient History] 4. (ed. Klára Sándor), Szeged, 1992, pp. 9-14. ISBN 963 481 885 4

Róna-Tas, András (1995): *A magyarság korai története (Tanulmányok)* [The early history of the Hungarians (Studies)]. Edited: Éva Kincses Nagy. In series: Magyar Őstörténeti Könyvtár [Library of the Hungarian Ancient History] 9. Published of the Research Group of the Hungarian Ancient History at the József Attila University of Sciences. Szeged. ISBN 963-482-071-9

Róna-Tas, András (1996): *A honfoglaló magyar nép. Bevezetés a korai magyar történelem ismeretébe* [The landtaking Hungarian nation. Introduction to the knowledge of the early Hungarian history]. Budapest: Balassi Kiadó, ISBN 963 506 106 4

Róna-Tas, András (2001): Források a korai magyar történelem ismeretéhez [Sources for the knowledge of the Hungarian history]. In series: *Magyar Őstörténeti Könyvtár* [Library of the Ancient Hungarian History], (Ser. ed.: István Zimonyi), Budapest: Balassi Kiadó.

RovasPedia (web site): *Rovas knowledge base powered by MediaWiki*, Retrieved in 2011 from *http://wiki.rovas.info*

Sebestyén, Gyula (1909): *Rovás és rovásírás* [Rovas and Rovas writing], Budapest. Reprinted by Evilath Publishers, New York in 1969

Székely, Zoltán (1996)*:* Árpád-kori rovásjelek a Székelyföldről [Árpád-age Rovas signs from Szekelyland]. In: *Acta* Vol. I., Székely Nemzeti Múzeum [Szekely National Museum], Sepsiszentgyörgy, 1996, pp. 171-174.

Turchaninov, G.F. (1964 and 1971): First edition: *Sovetskaya Arxeologiya*, 1964-1, pp. 73-74, Second Edition: *Pamjatniki* 1971. XXX. t./2. k. *Pamjatniki pis'ma I jazyka narodov Kavkaza I Vostochnoy Evropy* [Monuments of the script and language of peoples of Caucasus and Eastern Europe]. L. 1971, pp. 75-77;

Türik Bitig (web site): Language Committee of Ministry of Culture and Information of Republic of Kazakhstan. Retrieved in 2010 from *http://irq.kaznpu.kz/.*

Vásáry, István (2003): *A régi Belső-Ázsia története* [The history of the ancient Middle Asia]. Edited by: Ildikó Bende, the editor of the series: István Zimonyi. Budapest: Balassi Kiadó.

Vásáry, István (2010-2011): Doctor of the Hungarian Academy of Sciences, Professor in the Department of Turkic Philology and Director of Oriental Studies Institute of the Eötvös Loránd University, *Personal communication*.

Vékony, Gábor (1987): *Későnépvándorláskori rovásfeliratok a Kárpát-medencében* [Rovas inscriptions from the Late Migration Period in the Carpathian Basin]. Szombathely-Budapest: Életünk szerkesztősége. ISBN: 978-963-025-132-7.

Vékony, Gábor (1992): *Varázsszöveg a halomi honfoglalás kori temetőből*. [Magic text from the cemetery of Halom from the age of the Settlement of Hungary] In: Rovásírás a Kárpát-medencében [Rovas scripting in the Carpathian Basin]. *Magyar Őstörténeti Könyvtár Könyvtár* [Library of the Hungarian Ancient History] 4. (ed. Klára Sándor), Szeged, 1992. 41-49. o. ISBN 963 481 885 4

Vékony, Gábor (1997): *Szkíthiától Hungáriáig: válogatott tanulmányok*. [From Scythia to Hungary: selected Studies] Szombathely: Életünk Szerk. Magyar Írók Szövetsége. Nyugat-magyarországi Csoport. Ser.: Életünk könyvek. ISBN 963-7918-515.

Vékony, Gábor (2004): *A székely írás emlékei, kapcsolatai, története* [The Relics, Relations and the History of the Szekely Script]. Budapest: Nap Kiadó. ISBN 963 9402 45 1.

7. Appendix: Proposal Summary Form

<table>
<tr><td colspan="2" align="center">

ISO/IEC JTC 1/SC 2/WG 2
PROPOSAL SUMMARY FORM TO ACCOMPANY SUBMISSIONS
FOR ADDITIONS TO THE REPERTOIRE OF ISO/IEC 10646[55]
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***.**

</td></tr>
</table>

A. Administrative

1. **Title:**	**Proposal for encoding the Khazarian Rovas script in the SMP of the UCS**
2. Requester's name:	**Hungarian Standards Institution**
3. Requester type (Member body/Liaison/Individual contribution):	Member body
4. Submission date:	October 12, 2011
5. Requester's reference (if applicable):	*http://www.mszt.hu/angol/index_eng.htm*
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):	*Yes*
Proposed name of script:	**Khazarian Rovas**
b. The proposal is for addition of character(s) to an existing block:	*No*
Name of the existing block:	
2. Number of characters in proposal:	*35*

3. Proposed category (select one from below – see section 2.2 of P&P document):

A-Contemporary	B.1-Specialized (small collection)	B.2-Specialized (large collection)
C-Major extinct **X**	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. Who will provide the appropriate computerized font (ordered preference: True Type, or PostScript format) for publishing the standard?	*Dr. Gábor Hosszú*
If available now, identify source(s) for the font (include address, e-mail, ftp-site, etc.) and indicate the tools used:	*Dr. Gábor Hosszú, FontCreator 5.6, hosszu@eet.bme.hu*
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)?   *Yes*

---

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. – **See below.**

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?

National Standardisation Technical Committee called Informatics (MSZT/MB 819) of the Hungarian Standards Institution

Rovas Foundation

RovasPedia

Péter Füzi, Dr. Gábor Hosszú, Angéla Ócsai, Tamás Rumi, László Sípos, Tamás Somfai, Levente Sütő, Erik Vida, Árpád Zubrits et al.

      If YES, available relevant documents: *Yes*

3. Information on the user community for the proposed characters (for example:

    size, demographics, information technology use, or publishing use) is included?   *Yes*

    Reference: *Scholars and researchers.*

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

      Reference:

Historical use, some examples: http://rovasirashonlap.fw.hu

Rovas Info News Site: http://rovas.info

RovasPedia: http://wiki.rovas.info

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

      If YES, where? Reference: *Scholarly and popular publications.*

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)?   *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?   *No*

        If YES, is a rationale for its inclusion provided?

        If YES, reference:

10. Can any of the proposed character(s) be considered to be similar (in appearance or function)

    to 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?	*No*
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?	*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:	