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This document gives background information to the encoding proposals of Rovas scripts: *Szekely-Hungarian Rovas* (N4007, 2011-05-21), *Carpathian Basin Rovas* (N4006, 2011-05-19), and *Khazarian Rovas* (N3999, 2011-05-19); paying particular attention to the problems summarized in N4064 (L2/11-128, 2011-05-07). Please send any response regarding to this study to Gábor Hosszú (email: hosszu@eet.bme.hu).

In this document, the **IPA** (International Phonetic Alphabet) symbols are applied for representing phonemes extending with the symbols for the *undetermined back /ɝ/* and *front /ÿ/* vowels.

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1. Introduction

In the last years, intensive researches were carried out in the field of the Rovas /rova:f/ scripts. These resulted in a comprehensive model of the development of the Rovas scripts including the supposition of two hypothetical scripts: the **Early Steppean* and the **Proto-Rovas*.¹ The symbol of asterisk (*) shows that these script are reconstructed and not directly attested by relics. The **Early Steppean* especially originated from the Imperial Aramaic (used in the ancient Iran) and some ideograms of the Turkic cultural heritage.²

¹ Hosszú, 2011, p. 17

² Amanjolov, 2003, p. 290

The *Imperial Aramaic* script was adapted in the 2nd c. BC in the *Yuezhi* Empire (Middle Asia).³ After 30 AD, a nation called *As* moved from Kangju (Middle Asia, east to the Aral Sea) to West: they reached the territory north of the Caucasus.⁴ This geographical isolation from Middle Asia was the reason why the orthography of the *As* (*Asi*) people started to develop individually. Their orthography is named “*Proto-Rovas”, since it is the ancestor of the Szekely-Hungarian Rovas.⁵

Both the *Yuezhi* and the *As* were people of Iranian origin.⁶ In the 6th c., *Turkic* people occupied the Eurasian Steppe.⁷ The Turkic language had two main branches: the *Ogur* and the *Common Turkic*. North of the Caucasus, in the Eastern European Steppe, the *Ogurs* defeated the *As* people in the 460s; the *Savirs* (*Sabirs*) submitted to the *Ogurs* in 506. Later, the *Eurasian Avars* occupied the *Savirs* in 557. In this territory, the *Proto-Rovas script could be used (*Fig. 1*). Oppositely, in Middle-Asia, the *Early Steppean script could be practiced continuously.

In 567, the *Eurasian Avars* with allied *Ogur* tribes moved into the Carpathian Basin.⁸ They could have brought the *Proto-Rovas script into the Carpathian Basin. The geographical isolation from the Eastern European Steppe was the start of the individual development of the orthography in the Carpathian Basin (*Fig. 1*).

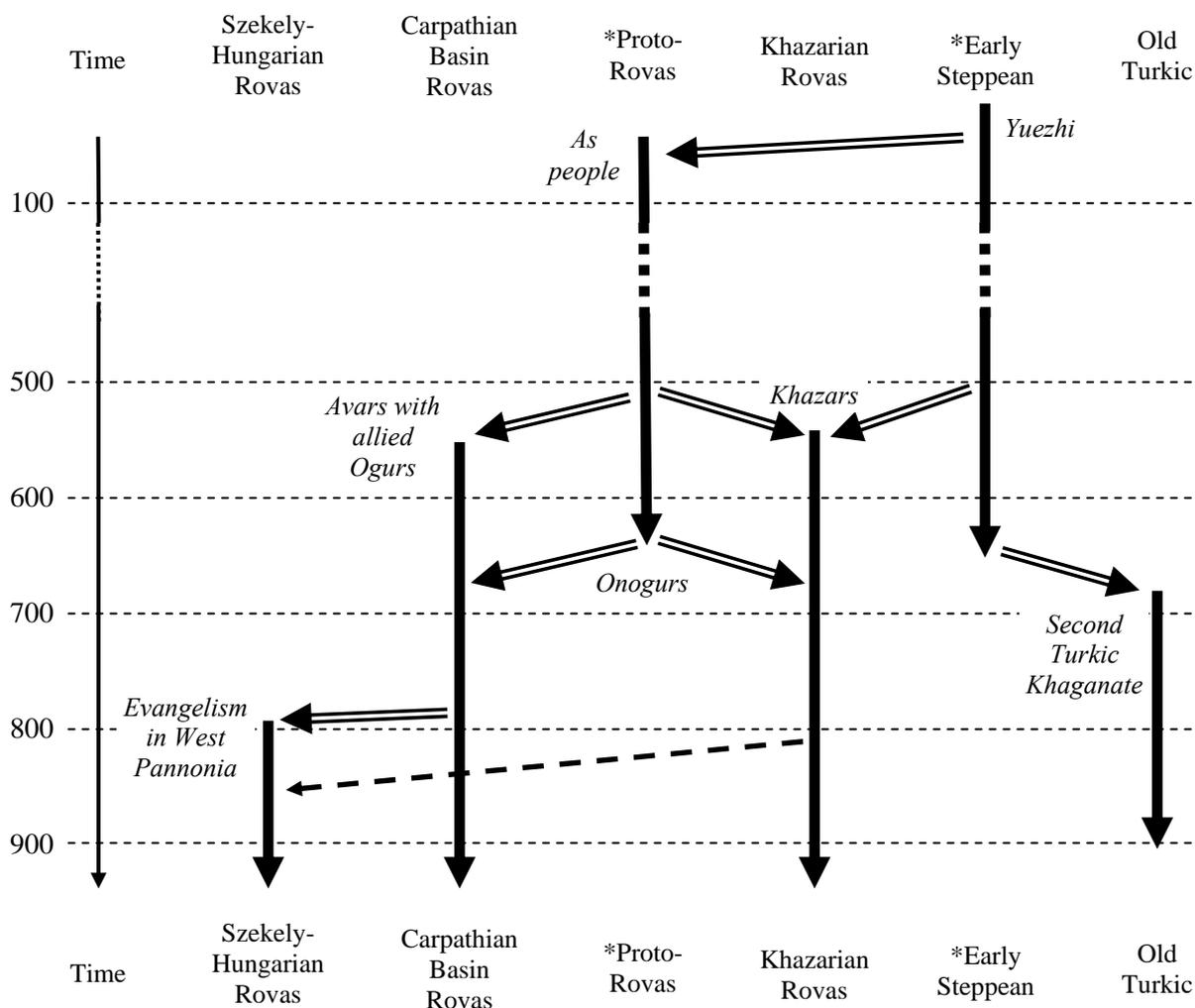


Figure 1: The time diagram of the interactions between the Rovas and cognate scripts

In the 570s, the western part of the *First Turkic Khaganate* (*Turks*) occupied the territory north of the Caucasus. The *First Turkic Khaganate* used the *Sogdian* script. In 630, the *Khazars* secured their independence from the

³ Györffy & Harmatta, 1997, p. 148

⁴ Vásáry, 2003

⁵ Hosszú, 2011

⁶ Alemany, 2000

⁷ Vásáry, 2003

⁸ Vékony, 1992, p. 440

Turks. According to a Khazarian Rovas inscription, the Khazars were identical to the Savirs (*Fig. 2-10 in N3999*, 2011-05-19). The Khazars unified the Ogur, Savir, and As-Alan tribes. In 670, the Khazars defeated the *Onogurs* (a kind of Ogurs).⁹ Presumably, the Khazars originally used a version of the *Early Steppean script, which mixed with the Proto-Rovas of the submitted As-Alans and Onogurs. That could be the reason why the orthography of the *Khazar Khaganate* (**Khazarian Rovas, KR**) shows a mixture of the *Proto-Rovas and the *Early Steppean. The survived Khazarian Rovas inscriptions are in As-Alan, Ogur and Common Turkic languages.¹⁰

In 670, a part of the Onogurs (with allied nations) occupied the *Avar Khaganate* in the Carpathian Basin.¹¹ The Khazars never reached the Carpathian Basin, therefore the influence of the Middle Asian orthography (the *Early Steppean script) did not affect the **Carpathian Basin Rovas (CBR)**. The first known CBR relic is from the beginning of the 7th c.,¹² and the latest one is from the 11th c. The first known Khazarian Rovas inscription is from the first half of the 8th c.,¹³ and the last one is from the 11th or 13th c. (the exact date is debated; see *Fig. 2-12 in N3999*).

In 681, in Middle Asia, the *Second Turkic Khaganate* was founded. This used a descendant script of the *Early Steppean called *Old Turkic*. The earliest known Old Turkic relics dated to the 730s,¹⁴ and the latest Old Turkic inscriptions are from the beginning of the 10th c.

In the turn of the 9th c., the *Frankish Empire* occupied the West part of the Carpathian Basin (the territory of the former Roman Province Pannonia). In the Western sources, the people in the Carpathian Basin were called many times “*Avars*” or “*Huns*”; but most frequently “*Ungar*” and variations of this ethnic name.¹⁵ This name is the origin of the English name “*Hungarian*” as well). The ethnic name “*Ungar*” came from the ethnic name “*Onogur*”.¹⁶ In the 9th c., the evangelization became intensive in West Pannonia.¹⁷ According to the archaeologist G. Vékony, Christian priests used the Carpathian Basin Rovas in that time; however, they slightly redesigned some of its characters.¹⁸ This was the birth of the **Szekely-Hungarian Rovas (SHR)**. In that period (9th-10th c.), the *Glagolitic* and then the *Cyrillic* scripts were also developed by Christian priests in order to help the evangelization of the Central European nations. At the end of the 9th c., the Carpathian Basin was occupied by the *Magyars* (often called the *Landtaking of the Magyars*), they gradually mixed with the earlier population, and this unified nation lives there up to now. The international name of the unified nation became Hungarian (and its variations). The simplified genealogy of the three Rovas and other scripts is presented on *Fig. 2*.

In the first third of the 9th c., three tribes of the Khazars rebelled against the Khazar Khaganate. The khagan defeated them; however, these Khazar tribes escaped and joined the neighboring Magyars. The Magyars called them as “*Khavars*” (Khabars, Kavars, Kabars).¹⁹ The Khavars participated as allied nation in the Landtaking of the Magyars in the end of the 9th c. As in the 10th c., the Kievan Rus destroyed the Khazar Khaganate, the only surviving Khazars were the Khavars who participated in the forming of the Hungarian nation. The Khavars brought the Khazarian Rovas to the Carpathian Basin (*Fig. 2-6 in N3999*).²⁰

The Khazarian Rovas became extinct soon after the 10th c., when the Khazar Khaganate was destroyed by the *Kievan Rus*. The Carpathian Basin Rovas became gradually extinct in the 10th-11th c.; however, the Szekely-Hungarian Rovas remained in use. Its reason was that besides the traditional users, many Christian priests applied the SHR. From the Middle Ages, the use of the SHR was mostly limited to the Szekelyland, which is the southeastern part of the Carpathian Basin. The language of the *Szekelys* and other Hungarians was always identical; however, the Szekelys had social and economical autonomy in the Medieval *Hungarian Kingdom*, since they acted as border guards.

⁹ Róna-Tas, 1991, pp. 36-37; Glatz, 1989, p. 15

¹⁰ Vékony, 2004

¹¹ Erdélyi, 1982, pp. 25-26

¹² Garam, 1976

¹³ Vékony, 2004a, p. 287

¹⁴ Róna-Tas, 1998, pp. 126-137

¹⁵ Szőke, 1999, p. 78

¹⁶ Király, 1977

¹⁷ Veszprémy, 2004, p. 59

¹⁸ Vékony, 2004

¹⁹ Róna-Tas, 1996, p. 248

²⁰ Vékony, 1987, pp. 108-117

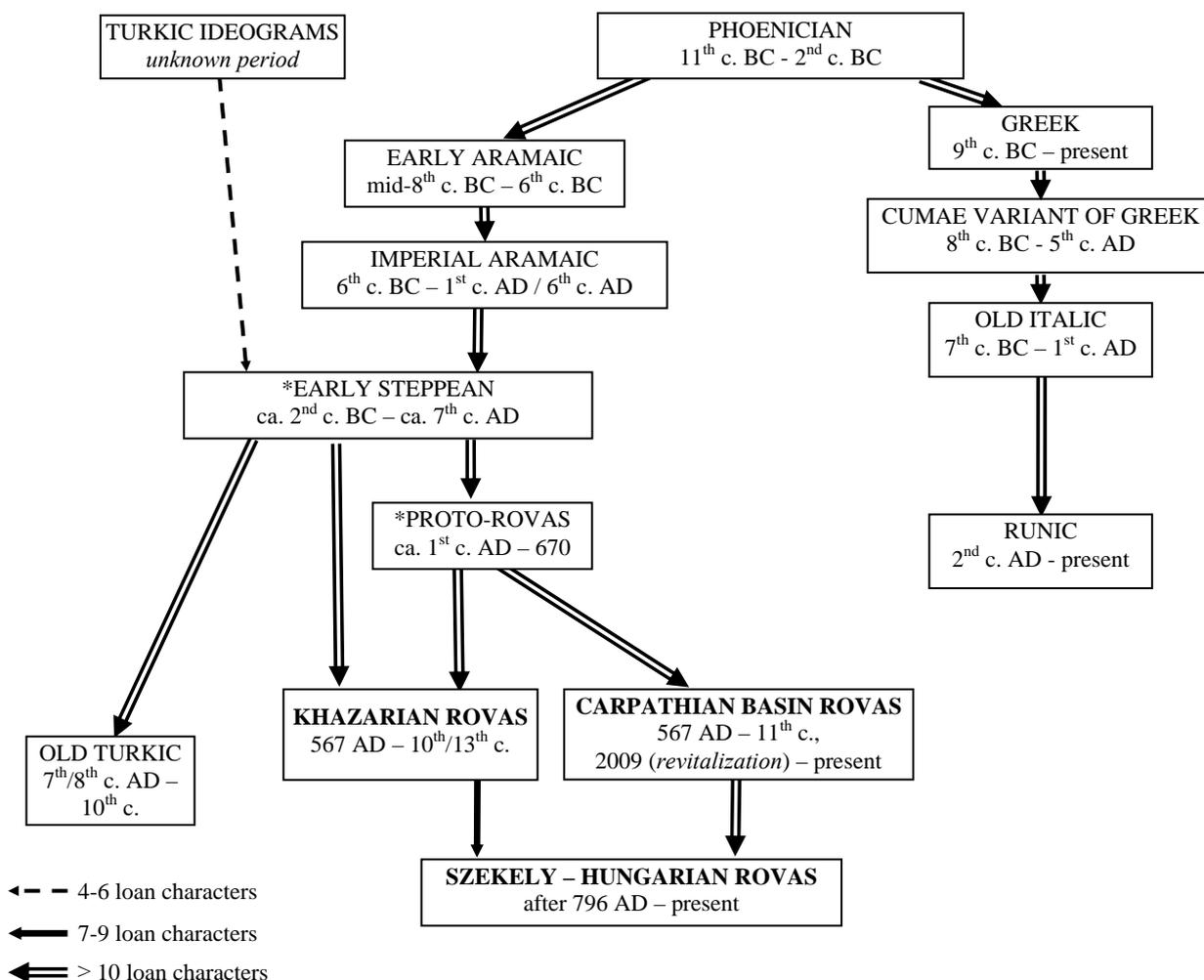


Figure 2: The simplified genealogy of the Rovas and some other scripts.²¹

The Szekely-Hungarian Rovas has obtained increasing popularity since the end of the 19th c. In the 21st c., this process accelerated, and the present-day SHR orthography exceeded any earlier level, e.g., it is thought in schools, complete books with SHR are published and increasing number of cities and villages throughout the Carpathian Basin place town signs with Rovas text.

As the historical CBR inscriptions are gaining publicity among the large numbered SHR users, real need for the revitalization of CBR has arisen since 2009. However, for lack of the encoded standard of the revitalized CBR, different versions of CBR orthography came into existence that may cause difficulties. Consequently, the sooner the encoding process of the revitalized CBR is completed the easier is to manage it. Therefore, in 2011, the first proposal for encoding was submitted (N4006).

Due to the close relations of the Rovas scripts, there are some identical characters in these three scripts. In the standardization, it is reasonable to encode the common characters only once, since they are topologically and semantically identical or very close to each other. Since the SHR has a large and rapidly increasing user community (more than 100 000 people), the whole SHR repertoire should be encoded as SHR characters. Then, the repertoires of the CBR and the KR should be standardized excluding the already encoded SHR characters. Moreover, the Rovas characters common in the CBR and the KR but not in the SHR should be encoded as CBR characters.

²¹ Hosszú, 2011

2. Comments on the document N4064 (L2/11-128)

2.1. Changes in the character repertoire

N4064 pointed out that a number of brand-new characters were proposed in the latest SHR proposal N4007. The reason is that many SHR relics became known lately by the user community due to the increased professional communication among the formerly isolated Rovas user groups. The increased communication is due to technological reasons (the Internet), due to increased popularity of the SHR and due to the growing need for modern daily utilization. Because of the increased activity, the scientific community obtained information about several Rovas relics known only locally before. Some punctuation marks as well are included into the proposal N4007 based on the enlarged corpus.

Another reason of the improvements in the N4007 was the latest results of scientific researches. In N4007, some SHR symbols are handled as glyph variants, which were formerly supposed to be individual characters; and oppositely, SHR symbols formerly supposed to be glyph variants could be identified as individual characters based on the increased accuracy of the transcriptions of the old relics. The author of this study intentionally involved scientists into the Rovas researches. That is why all historical and linguistic statements in the Rovas proposals N3999, N4006, and N4007 are consequently based on the theories and statements of officially acknowledged scholars: historians, archaeologists, and linguists. Moreover, the transcription of each relic uses the drawings of archaeologists exclusively.

2.2. Name of script

The name of the Szekely-Hungarian Rovas script is result partly of historical development, partly decisions of the SHR users. The main arguments of the decision were: (i) The language of the SHR inscriptions is the Hungarian, therefore the ethnic name “Hungarian” must be included into the name of the script. (ii) The name “Szekely” appeared in the historical names of the script and the Szekelys preserved this script as part of their cultural heritage. The earliest known alphabet, the Nikolsburg relic also named this script *Littere Siculorum* ‘Szekely characters’ (iii) It is reasonable to use a common descriptor (category name) of the three close relative scripts: CBR, KR, and SHR. The two living writing system – SHR and CBR is used only for Hungarian language, the Hungarian origin descriptor is reasonable. Since the term “Rovas” has already obtained an international acceptance (see *Subch. 4.1* in the N4055), it was chosen as the common descriptor.

In literature, the term “Runic” is sometimes used for other scripts as well, including the Rovas and the Old Turkic scripts. However, in case of encoding, the use of the term “Runic” for these scripts is not appropriate, since it is not specific for the Rovas scripts. Moreover, there is a script named *Runic*,²² which is totally unrelated to the Rovas scripts, as *Fig. 1* demonstrates. There are several variants of the Runic scripts: *Elder Futhark*, *Gothic Runes*, *Anglo-Saxon futhorc* (*Rök runes* and *Hälsinge runes*), and *Scandinavian runes* (*Marcomannic runes*, *Medieval runes*, and *Dalecarlian runes*). All of them are close relative to each other and belong to the Runic script family. Obviously, using the term “Runic” for unrelated scripts would be misleading.

2.3. Repertoire

2.3.1 Modern letters

Both SHR and CBR are used in the cultural environment of the Hungarian Latin-based orthography. In order to keep the coherency of the three Hungarian scripts (the Hungarian Latin-based, the Szekely-Hungarian Rovas and the Carpathian Basin Rovas), the Hungarian words – including the historical family names - must be interchangeably transcribed from one to another Hungarian scripts. Otherwise, important meta-information could be lost during the transcription, e.g., the historical spelling of an old family name carries more information than their pronunciation. Consequently, the necessary character repertoire is larger than the characters enough for representing all Hungarian sounds. That is why increasing number of SHR users support the use of the following characters: Q , W , X , Y . The case of DZ and DZS is different: they represent individual phonemes of the present-day Hungarian language: $/\text{d}\overline{\text{z}}/$ and $/\text{d}\overline{\text{z}}\text{s}/$, respectively. All of these characters are semantically distinct. They were historically created from ligatures; however, they became already individual

²² Unicode range: 16A0-16FF

character. This development is identical to the cases of $W < V+V$ and $\& < e+t$ in the Latin-based orthography. Moreover, the first SHR glyphs for these characters were created as far as in the period of 1629 and 1930s. Consequently, these characters cannot be qualified as “new” ones, albeit they gained their final forms in the last decades.

2.3.2 Reptile-like characters

In 1598, some SHR characters were referred as “*capita dictionum*” or “*reptilium formas*” in the first Rovas textbook of Telegdi written in Latin. He referred to the following SHR characters: XX AMB, XX TPRU, and YY ANT. The traditional category of the reptile-like characters remained in use up to know. The name *reptile-like* is based on the specific shape of these characters, and **it has no any other significance**. The present-day SHR characters referred as reptile-like symbols are presented in *Table 1*.

Glyph	Name	Historical sound value	Modern sound value
XX	AMB	mb	omb
XX	AND	nd	ond
YY	ANT	nt	ont
XX	EMP	mp	emp
YY	ENT	nt	ent
OO	MB	mb	mb
XX	NAP	*nop	nop ('day')
XX	TPRU	*nop	ho:nop ('month')
XX	TPRUS	*nop	e:v ('year')
XX	NB	nb	nb
XX	UNK	unk/*ynk	unk
OO	US	ʃ	uʃ

Table 1: The reptile-like characters

In the present-day use, the reptile-like symbols are semantically distinct, albeit historically, some of them were derived from each other. They can be characterized as follows:

- XX AMB, XX EMP, OO MB, XX NAP, XX NB, XX TPRU, and XX TPRUS originated from the *ligature* or the *duplicated ligature* of $\text{N} + \text{O} + \text{P}$ (resulted XX NAP /nop/), see the details in N4055 (2011-05-15).
 - In many Hungarian words, /o/ started to be more open becoming /ɒ/ from the 11th c., and this process concluded in the 14th c.;²³ consequently, the original ligature XX NAP /nop/ was created in this period.²⁴ Later the sound value of XX NAP /nop/ changed to /nɒp/.
 - The sound values represented by the reptilian symbols differ in the consonant /n/ or /m/. Its reason is that the /n~/m/ alternation was a Hungarian linguistic feature.²⁵
 - Another difference of these symbols is in the second consonant: /b/ or /p/. The both are bilabial plosives; their only difference is that the /b/ is voiced and the /p/ is voiceless. The process of becoming voiced was possible in every age.²⁶ Therefore, the change /p/ > /b/ is acceptable.
 - The character name TPRU surely originated from the name TPRUS. The analysis of the later one is presented below.

²³ E. Abaffy, 2003b, pp. 329-330

²⁴ Vékony, 2004a, p. 105

²⁵ Benkő, L., 2001, pp. 7-68

²⁶ Tóth, 2001, p. 89

- The ✕ AND, ʎ ANT, ʞ ENT, and ʟ UNK were used as syllable-like symbols.
- ʘ US is the direct descendant of the Carpathian Basin Rovas ʘ S /ʃ/ and in such a way, it did not originate from a ligature.

The proposal N4007 supports encoding all of these reptile-like symbols, since they have distinct meanings in the SHR orthography; most of them are used as syllables.

A special problem addressed in N4064 is the meaning of the symbol ʞ TPRUS. Máté stated that the name *tprus* could be the abbreviation of the Latin word *temperius* ‘earlier’, and the ʞ TPRUS would be the earlier version of the symbol ʞ ENT; see Fig. 3.²⁷ However, this theory is questionable for some reasons:

- The author of the Nikolsburg relic used the symbol of addenda ‡ in the fourth row, before the name *tpris*, and in the third row between the Rovas characters ʘ US and ʞ ST. If the ʞ TPRUS has meant the earlier version of the ʞ ENT - as Máté stated -, why the author of the relic inserted the symbol of addenda (‡) between these unrelated symbols. The author should have inserted it near the ʞ ENT or the end of the series of the symbols.
- The transliteration of the name of ʞ TPRUS in the Nikolsburg relic is obscure (Fig. 3). According to archaeologist Vékony, the right transliteration of the name is *tpris* as the abbreviation of the Latin word *temporis* (the Latin *tempus* ‘period of time’ in genitive case).²⁸ The obvious topological similarity between the ʞ TPRUS and the ʞ NAP (see above) support that their meaning was identical. Their difference is that the ʞ NAP shows its original constituents, and the ʞ TPRUS is a modified version in order to look symmetrical and ornate. Consequently, the symbol ʞ TPRUS is a variant of the symbol ʞ NAP, which is clearly the ligature of ʞ N + ʞ O + ʞ P. Its transcription is /nop/>/nop/ (see details above). In Hungarian, the word *nap* means ‘day’, but it had another meaning ‘period of time’, e.g. the Hungarian *hónap* ‘month’ < *hold* ‘moon’ + *nap* ‘day’ also contains the word *nap*.²⁹ In this composition, the word *nap* means a period of time.³⁰ Vékony stated that ʞ TPRUS was used in a calendar, where the dates of the mandatory feasts were listed. This interpretation elucidates the Latin term “*capita dictionum*” used by Telegdi for the reptile symbols. Anyhow, the first reading of the symbol ʞ (*tprus*) is widely used, therefore the proposal N4007 kept the name TPRUS.
- The Nikolsburg relic (Fig. 3) shows that the writer of the relic denoted the symbol ʘ US as *tprus/tpris*, then this entry was crossed out and the symbol was denoted as *us* (by using a medieval abbreviation). The shape of ʘ US is fully different from the ʞ ENT, consequently, it is very unlikely that the author used the term ‘*tprus/tpris*’ as ‘earlier [glyph]’. Oppositely, the meaning ‘period’ is more abstract, therefore, it is acceptable concept that the author of the Nikolsburg relic supposed the ʘ US as ‘period’ ~ *temporis* first, then realized the mistake and corrected it.

²⁷ Máté, 1998, pp. 186-192

²⁸ Lewis – Short, 1985

²⁹ TESz.; Bárczy, 1994

³⁰ Vékony, 2004a, p. 105



Figure 3: The Nikolsburg relic (second half of the 15th c.)

The symbol X TPRU is very probably the duplication of the symbol X NAP. Therefore, its meaning is ‘period’ similarly to the X NAP and the X TPRUS. Presumably, all of them were used in calendar. This is the basis of the present-day use of X TPRU and X TPRUS: they can be applied for representing the ‘month’ and the ‘year’. In such a way, these three symbols meaning originally ‘period’ can be applied in describing date in forms, e.g. “year:....., month:, day:” in SHR is: X , X , X . There are many examples for such use.

2.3.3 Historical characters

NGH /ɣ/: The Vargyas relic is the link between the SHR and the two other Rovas scripts. Since its language is very archaic Hungarian, the transcription was difficult. There is a popular, older transcription (/m^ha:ly i:rt^a:n k^ov^et/ or /m^ha:ly j : i:rt^a:n k^ov^et/); the proof of its incorrectness was described in Ch. 3 of the N4055 (2011-05-15). The reliable transcription is /^hme: fioɣ t^e n^ekyd/ coming from the Gospel of John (John 19, 26).³¹ There are many important features of this relic:

- The SHR character NGH /ɣ/ appears in this relic. (In the version 2011-01-21 of N4007, the name of this character was “GH UU”; in the version 2011-05-21, its name changed to “GH”.) The SHR NGH /ɣ/ identically exists in CBR and KR as well. The NGH does not occur in the other known SHR relics. Its main reason is that almost every SHR relic is from later than the Vargyas inscription, and the sound /ɣ/ disappeared from the Hungarian language in about the 11th c. The Vargyas relic (a stone carving) was created in the 12th c.; however, the text shows the earlier state of the Hungarian language. According to linguist Zelliger, the text of the inscription was probably a widely known phrase in the time of carving, and the text could not be created later than the 11th c., moreover, it could be even much earlier.³² Zelliger pointed out that the prayers usually kept long the earlier expressions.³³

³¹ Vékony, 2004, p. 22

³² Zelliger, 2010-2011

³³ Zelliger, 1994, pp. 214-215

- The Szekelys currently live in Szekelyland (Romania), which is the Southeastern part of the Carpathian Basin. In the 12th c., the Szekelys moved from different areas of the Carpathian Basin to the current Szekelyland, including the Northwest Carpathians, e.g. *Trencsén* County bordering Moravia of that time. In Szekelyland, near the current Vargyas Village, there is a hill called *Trencsén*. The Szekelys of Vargyas Village first settled on the Trencsén Hill; even the name of the village was *Trencsén* that time.³⁴ After the attack of the Mongols in 1242, the village was moved to the nearby valley. Two Glagolitic-origin characters, the **Ɱ** CIRCLE ENDED O (< Glagolitic **Ɱ** ON /ɔ/) and the **Ɐ** DIAGONAL F /f/ (< Glagolitic **Ɐ** FITA /θ/f/) appeared in the Vargyas relic. This is in accordance with the fact that the population of Vargyas originated from territories near Moravia, where the influence of the Glagolitic script (widely used in the 9th c.) was highly probable.
- The SHR **Ɱ** V /v/ was used for /y/ in the Vargyas relic, which proves that this glyph (**Ɱ**) originated from the Khazarian Rovas **Ɱ** UE /y/ø/. This relation gives important information about the history of the Rovas scripts. Oppositely, the Homoródkarácsonyfalva inscription (12th-13th c.) shows a next state of the SHR **Ɱ** V /v/; since in this relic, the sound value of **Ɱ** V is /u:/. Later - in the *Age of Ligatures* (11th-14th c.) -, the SHR character of /u/ was developed from **Ɱ** V /y/u/v/ by duplicating its glyph: **Ɱ** U /u/u:/y/. Further relations of **Ɱ** V /v/ were discussed in the *Ch. 3* of N4055.

Ɱ OPEN V /β/: This historical character appeared clearly in one relic (Székelydályá, 14th c.; see *Fig.2-3* in N4007). However, its tracks can be detected in the Bologna Rovas Calendar as well.³⁵ This sound was common in the Ancient Hungarian language; however, in the 12th-13th c., the linguistic change /β/ > /b/v/ occurred. This is the reason why the **Ɱ** OPEN V does not appear in later SHR relics. It is noteworthy that in the Carpathian Basin Rovas relics written in Hungarian, the **Ɱ** OPEN V frequently applied in accordance to the results of the Hungarian historical linguistics (e.g., *Fig.2-5, 2-8, 2-10* in N4006).

Ɱ TRIANGULAR K and **Ɱ** SCH: These historical characters were detailed in *Subch. 2.2* of N4055.

2.3.4 Other debated characters (excluding special symbols)

The sound /ø/ø:/ did not exist in the Hungarian language before the 12th c. The appearance of this sound was followed by the development of SHR as it is demonstrated in *Table 2*: the same characters were used for representing /ø/ø:/ and /y/y:/. That is the reason why there is a multiplication in the glyphs of /ø/ø:/ and /y/y:/. The SHR user community is divided in the question of representing these vowels because there are different traditions based on this multiplication. That is the practical reason of encoding all of the following vowels (denoting their modern sound values): **Ɱ** OE /ø/, **Ɱ** OEE /ø:/, **Ɱ** CLOSE UE /y/ **Ɱ** CLOSE UEE /y:/, **Ɱ** OPEN UE /y/, **Ɱ** OPEN UEE /y:/.

³⁴ Orbán, 1868-1873, XLVII. Vargyas

³⁵ Hosszú, 2011, pp. 183-184

Linguistic process	Description and reflection in the Szekely-Hungarian Rovas
Monophthongization	In the 11 th c., at the end of the Hungarian words, /ɣ/ was vocalized, and it became /u/ or /y/. ³⁶ They were diphthongs with the preceding vowel: /ɝu/ and /ɝy/. In the 12 th -14 th centuries, a monophthongization occurred: /ɝu/ and /ɝy/ became /o:/ and /y:/, respectively. ³⁷ <i>Consequence in SHR:</i> N GH /ɣ/ > ʒ, ʒ OPEN UE /ø/ø:/y/y:/ <i>Differentiation:</i> > ʒ OPEN UE /y/, ʒ OPEN UEE /y:/
Becoming more open	In the 11 th -14 th c., the /y/y:/ became more open and this process resulted /ø/ø:/. <i>Consequence in SHR:</i> ǰ E /ε/e/e:/ > (duplication) ǰ, ǰ CLOSE UEE /y/y:/ > /ø/ø:/y/y:/ <i>Differentiation:</i> > ǰ CLOSE UE /y/, ǰ CLOSE UEE /y:/
Labialization	From about the 13 th c., /e/ labialized and became /ø/. <i>Consequence in SHR:</i> ǰ E /ε/e/e:/ > (glyph variants) ƙ, ƙ, ƙ OE /ø/ø:/ <i>Differentiation:</i> > ƙ OE /ø/, ƙ OEE /ø:/

Table 2: Consequences of the phonetic changes in the SHR glyphs

The glyph variant ʒ of the OPEN UE /ø/ø:/y/y:/ was used for /ø/ in the Nikolsburg relic (Fig. 3), which is the earliest known SHR alphabet from the second half of the 15th c. As Table 2 demonstrated, in the Hungarian language, the sound /ø:/ (besides /y:/) was developed from the sound /ɣ/ (with the preceding front vowel /ɝ/). Therefore, in the revitalized Carpathian Basin Rovas, the glyph ʒ (which is a descendant of the N GH /ɣ/, a common character in the three Rovas scripts) is used for representing /ø/; see the character ʒ OE /ø/ in N4006 (2011-05-19).

2.3.5 Digits

Subch. 2.5 of N4055 detailed the Rovas digits mentioned in N4064.

2.3.6 Punctuation

In the followings, additional examples are presented for the SHR punctuation symbols as required in N4064.

* WORD SEPARATOR CROSS, ǰ DOUBLE CROSS FULL STOP

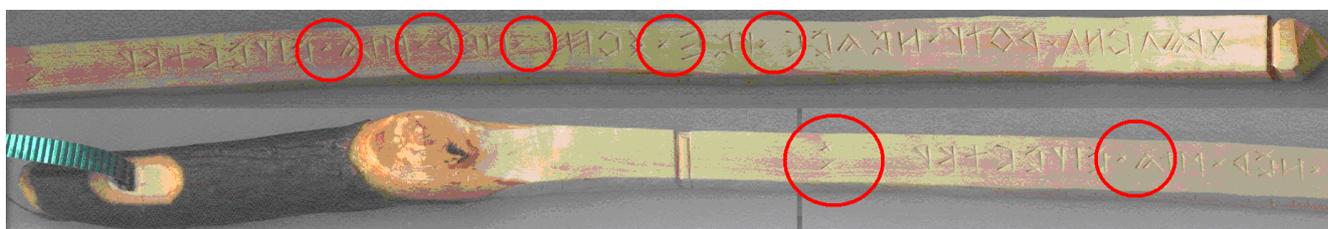


Figure 4: Parts of the **Hungarian Anthem** carved by Á. Zubrits in 2009. This relic shows the traditions of the Hungarian scouts in the western countries. Note the use of * WORD SEPARATOR CROSS and ǰ DOUBLE CROSS FULL STOP.³⁸

³⁶ E. Abaffy, 2003, p. 302, p. 312

³⁷ E. Abaffy, 2003, pp. 339-344

³⁸ Zubrits, 2009-2010

§ BEGINNING MARK RIGHT



Figure 6: Alphabet and examples of Verpeléti Kiss (1933 – found by F. Sólyom).⁴⁰

§ BEGINNING MARK LEFT, § END OF MESSAGE MARK

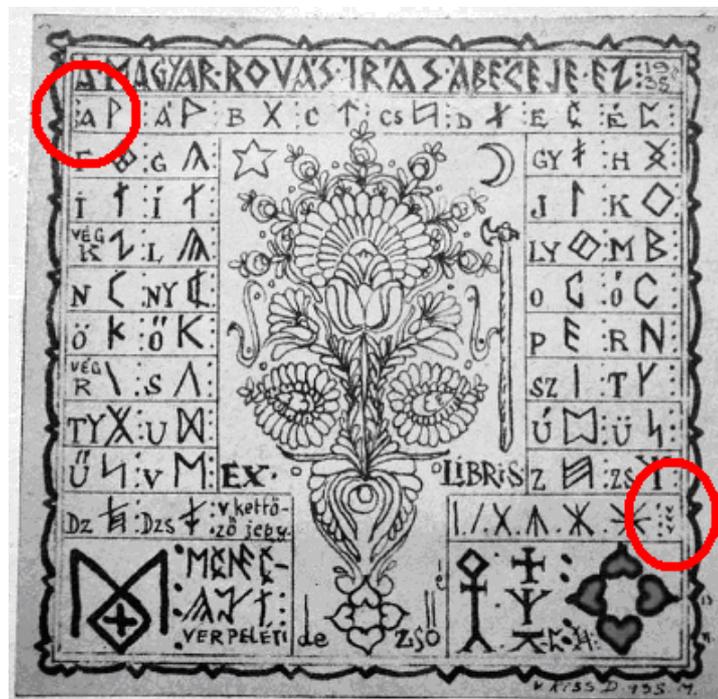


Figure 7: Alphabet and examples of Verpeléti Kiss (1935 – found by F. Sólyom).⁴¹ Despite of the general right-to-left directionality of SHR, the sequence of the digits in the right part of the image is left-to-right. That is why

⁴⁰ Sólyom, 2009

the \times END OF MESSAGE MARK is at the right end of this sequence. The symbol $\} \text{ BEGINNING MARK LEFT}$ is presented on the left upper corner of the image.

2.3.7 Combining mark



Figure 8: (Part of Fig. 7) It presents the $\} \text{ DUPLICATING MARK}$; see the Hungarian term in the picture: "kettő- / ző jegy" (meaning 'duplication mark').

2.4. Names of characters

The main reason of encoding the SHR and CBR is serving the present-day orthography, and the secondary reason is to giving appropriate characters for representing the historical relics. Consequently, the decisions related to the encoding must be based on the present-day technical and user needs and not some specific historical relics. That is the reason why none of the characters is named after the relics where it was found.

2.5. Order

The reptile-like symbols and the historical characters are interesting and valuable part of the SHR repertoire, but their use is optional and not necessary for the everyday SHR scripting. That is the reason why the reptile-like symbols and the historical characters are listed separately from the basic SHR characters.

2.6. Collation

The sort order proposed in N4007 includes every SHR character independently from the way of their use.

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⁴¹ Solyom, 2009

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