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Международная организация по стандартизации
𐄂𐄃𐄄𐄅𐄆𐄇𐄈𐄉𐄊𐄋𐄌𐄍𐄎𐄏𐄐𐄑𐄒𐄓𐄔𐄕𐄖𐄗𐄘𐄙𐄚𐄛𐄜𐄝𐄞𐄟𐄠𐄡𐄢𐄣𐄤𐄥𐄦𐄧𐄨𐄩𐄪𐄫𐄬𐄭𐄮𐄯𐄰𐄱𐄲𐄳𐄴𐄵𐄶𐄷𐄸𐄹𐄺𐄻𐄼𐄽𐄾𐄿𐅀𐅁𐅂𐅃𐅄𐅅𐅆𐅇𐅈𐅉𐅊𐅋𐅌𐅍𐅎𐅏𐅐𐅑𐅒𐅓𐅔𐅕𐅖𐅗𐅘𐅙𐅚𐅛𐅜𐅝𐅞𐅟𐅠𐅡𐅢𐅣𐅤𐅥𐅦𐅧𐅨𐅩𐅪𐅫𐅬𐅭𐅮𐅯𐅰𐅱𐅲𐅳𐅴𐅵𐅶𐅷𐅸𐅹𐅺𐅻𐅼𐅽𐅾𐅿𐆀𐆁𐆂𐆃𐆄𐆅𐆆𐆇𐆈𐆉𐆊𐆋𐆌𐆍𐆎𐆏𐆐𐆑𐆒𐆓𐆔𐆕𐆖𐆗𐆘𐆙𐆚𐆛𐆜𐆝𐆞𐆟𐆠𐆡𐆢𐆣𐆤𐆥𐆦𐆧𐆨𐆩𐆪𐆫𐆬𐆭𐆮𐆯𐆰𐆱𐆲𐆳𐆴𐆵𐆶𐆷𐆸𐆹𐆺𐆻𐆼𐆽𐆾𐆿𐇀𐇁𐇂𐇃𐇄𐇅𐇆𐇇𐇈𐇉𐇊𐇋𐇌𐇍𐇎𐇏𐇐𐇑𐇒𐇓𐇔𐇕𐇖𐇗𐇘𐇙𐇚𐇛𐇜𐇝𐇞𐇟𐇠𐇡𐇢𐇣𐇤𐇥𐇦𐇧𐇨𐇩𐇪𐇫𐇬𐇭𐇮𐇯𐇰𐇱𐇲𐇳𐇴𐇵𐇶𐇷𐇸𐇹𐇺𐇻𐇼𐇽𐇾𐇿𐈀𐈁𐈂𐈃𐈄𐈅𐈆𐈇𐈈𐈉𐈊𐈋𐈌𐈍𐈎𐈏𐈐𐈑𐈒𐈓𐈔𐈕𐈖𐈗𐈘𐈙𐈚𐈛𐈜𐈝𐈞𐈟𐈠𐈡𐈢𐈣𐈤𐈥𐈦𐈧𐈨𐈩𐈪𐈫𐈬𐈭𐈮𐈯𐈰𐈱𐈲𐈳𐈴𐈵𐈶𐈷𐈸𐈹𐈺𐈻𐈼𐈽𐈾𐈿𐉀𐉁𐉂𐉃𐉄𐉅𐉆𐉇𐉈𐉉𐉊𐉋𐉌𐉍𐉎𐉏𐉐𐉑𐉒𐉓𐉔𐉕𐉖𐉗𐉘𐉙𐉚𐉛𐉜𐉝𐉞𐉟𐉠𐉡𐉢𐉣𐉤𐉥𐉦𐉧𐉨𐉩𐉪𐉫𐉬𐉭𐉮𐉯𐉰𐉱𐉲𐉳𐉴𐉵𐉶𐉷𐉸𐉹𐉺𐉻𐉼𐉽𐉾𐉿𐊀𐊁𐊂𐊃𐊄𐊅𐊆𐊇𐊈𐊉𐊊𐊋𐊌𐊍𐊎𐊏𐊐𐊑𐊒𐊓𐊔𐊕𐊖𐊗𐊘𐊙𐊚𐊛𐊜𐊝𐊞𐊟𐊠𐊡𐊢𐊣𐊤𐊥𐊦𐊧𐊨𐊩𐊪𐊫𐊬𐊭𐊮𐊯𐊰𐊱𐊲𐊳𐊴𐊵𐊶𐊷𐊸𐊹𐊺𐊻𐊼𐊽𐊾𐊿𐋀𐋁𐋂𐋃𐋄𐋅𐋆𐋇𐋈𐋉𐋊𐋋𐋌𐋍𐋎𐋏𐋐𐋑𐋒𐋓𐋔𐋕𐋖𐋗𐋘𐋙𐋚𐋛𐋜𐋝𐋞𐋟𐋠𐋡𐋢𐋣𐋤𐋥𐋦𐋧𐋨𐋩𐋪𐋫𐋬𐋭𐋮𐋯𐋰𐋱𐋲𐋳𐋴𐋵𐋶𐋷𐋸𐋹𐋺𐋻𐋼𐋽𐋾𐋿𐌀𐌁𐌂𐌃𐌄𐌅𐌆𐌇𐌈𐌉𐌊𐌋𐌌𐌍𐌎𐌏𐌐𐌑𐌒𐌓𐌔𐌕𐌖𐌗𐌘𐌙𐌚𐌛𐌜𐌝𐌞𐌟𐌠𐌡𐌢𐌣𐌤𐌥𐌦𐌧𐌨𐌩𐌪𐌫𐌬𐌭𐌮𐌯𐌰𐌱𐌲𐌳𐌴𐌵𐌶𐌷𐌸𐌹𐌺𐌻𐌼𐌽𐌾𐌿𐍀𐍁𐍂𐍃𐍄𐍅𐍆𐍇𐍈𐍉𐍊𐍋𐍌𐍍𐍎𐍏𐍐𐍑𐍒𐍓𐍔𐍕𐍖𐍗𐍘𐍙𐍚𐍛𐍜𐍝𐍞𐍟𐍠𐍡𐍢𐍣𐍤𐍥𐍦𐍧𐍨𐍩𐍪𐍫𐍬𐍭𐍮𐍯𐍰𐍱𐍲𐍳𐍴𐍵𐍶𐍷𐍸𐍹𐍺𐍻𐍼𐍽𐍾𐍿𐎀𐎁𐎂𐎃𐎄𐎅𐎆𐎇𐎈𐎉𐎊𐎋𐎌𐎍𐎎𐎏𐎐𐎑𐎒𐎓𐎔𐎕𐎖𐎗𐎘𐎙𐎚𐎛𐎜𐎝𐎞𐎟𐎠𐎡𐎢𐎣𐎤𐎥𐎦𐎧𐎨𐎩𐎪𐎫𐎬𐎭𐎮𐎯𐎰𐎱𐎲𐎳𐎴𐎵𐎶𐎷𐎸𐎹𐎺𐎻𐎼𐎽𐎾𐎿𐏀𐏁𐏂𐏃𐏄𐏅𐏆𐏇𐏈𐏉𐏊𐏋𐏌𐏍𐏎𐏏𐏐𐏑𐏒𐏓𐏔𐏕𐏖𐏗𐏘𐏙𐏚𐏛𐏜𐏝𐏞𐏟𐏠𐏡𐏢𐏣𐏤𐏥𐏦𐏧𐏨𐏩𐏪𐏫𐏬𐏭𐏮𐏯𐏰𐏱𐏲𐏳𐏴𐏵𐏶𐏷𐏸𐏹𐏺𐏻𐏼𐏽𐏾𐏿𐐀𐐁𐐂𐐃𐐄𐐅𐐆𐐇𐐈𐐉𐐊𐐋𐐌𐐍𐐎𐐏𐐐𐐑𐐒𐐓𐐔𐐕𐐖𐐗𐐘𐐙𐐚𐐛𐐜𐐝𐐞𐐟𐐠𐐡𐐢𐐣𐐤𐐥𐐦𐐧𐐨𐐩𐐪𐐫𐐬𐐭𐐮𐐯𐐰𐐱𐐲𐐳𐐴𐐵𐐶𐐷𐐸𐐹𐐺𐐻𐐼𐐽𐐾𐐿𐑀𐑁𐑂𐑃𐑄𐑅𐑆𐑇𐑈𐑉𐑊𐑋𐑌𐑍𐑎𐑏𐑐𐑑𐑒𐑓𐑔𐑕𐑖𐑗𐑘𐑙𐑚𐑛𐑜𐑝𐑞𐑟𐑠𐑡𐑢𐑣𐑤𐑥𐑦𐑧𐑨𐑩𐑪𐑫𐑬𐑭𐑮𐑯𐑰𐑱𐑲𐑳𐑴𐑵𐑶𐑷𐑸𐑹𐑺𐑻𐑼𐑽𐑾𐑿𐒀𐒁𐒂𐒃𐒄𐒅𐒆𐒇𐒈𐒉𐒊𐒋𐒌𐒍𐒎𐒏𐒐𐒑𐒒𐒓𐒔𐒕𐒖𐒗𐒘𐒙𐒚𐒛𐒜𐒝𐒞𐒟𐒠𐒡𐒢𐒣𐒤𐒥𐒦𐒧𐒨𐒩𐒪𐒫𐒬𐒭𐒮𐒯𐒰𐒱𐒲𐒳𐒴𐒵𐒶𐒷𐒸𐒹𐒺𐒻𐒼𐒽𐒾𐒿𐓀𐓁𐓂𐓃𐓄𐓅𐓆𐓇𐓈𐓉𐓊𐓋𐓌𐓍𐓎𐓏𐓐𐓑𐓒𐓓𐓔𐓕𐓖𐓗𐓘𐓙𐓚𐓛𐓜𐓝𐓞𐓟𐓠𐓡𐓢𐓣𐓤𐓥𐓦𐓧𐓨𐓩𐓪𐓫𐓬𐓭𐓮𐓯𐓰𐓱𐓲𐓳𐓴𐓵𐓶𐓷𐓸

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Introduction

This document is based on an expert backed process – involving Unicode-computing specialists, **Rovas** (*r-o-v-a-sh*) researchers and representatives of the user community – that reflects the latest results of the archeology, linguistics, paleography and the contemporary technical needs as well. This document replaces **N4183** (v2: 12-01-11) and **N4227** (12-02-06). This document contains modifications in the character repertoire.

As for the optional spelling of the **Rovas** block and script name in English, the Hungarian National Body can except the **Rovash**, as its pronunciation is closer to that of the original Hungarian word *rovás*. According to the traditions of using the Hungarian word *rovás* in several languages (see *Table 3-1*) as loanword adjusted in spelling, further proper variations are expected as well, for example in French **rovache** (*le rovache* – masculine as a noun).

The most important Rovas orthography – that has never become extinct and currently is gaining large popularity – is the **Szekely-Hungarian Rovas** (in French: *rovache szekelyo-hongrois*). Another, earlier Rovas orthography is the **Carpathian Basin Rovas** (in French: *rovache du Bassin des Carpathes*), which became extinct in the 11th/12th century, and it was deciphered on the end of the 20th century, only.

The main statements of this document concern the following topics:

- **Name of the code block**
- **The character set**
- **The close relation between the Szekely-Hungarian Rovas and the Carpathian Basin Rovas**

Moreover, there are several other Rovas relics under research not belonging to these two well-known Rovas orthographies. Consequently, in this proposal only the following sub-blocks of the **Rovas block** are proposed to encode, leaving open the possibility to add other Rovas orthographies later:

- **Rovas punctuation marks**
- **Rovas numerals**
- **Szekely-Hungarian Rovas letters**
- **Carpathian Basin Rovas letters**

According to the state-of-the-art of the Rovas paleography, the characters set in this proposal will be stable, which is suitable for presenting both the already known and the anticipated Rovas relics.

The document contains the proposal summary form as well. Please, send any response to this proposal to Tamás Rumi (email: rovasinfo@gmail.com), Editor-in-Chief, Rovas Info News Portal or László Sáros (email: rovasfoundation@gmail.com), President of the Rovas Foundation.

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1. About the authors

In the MSZT/MB-819 “Informatics” National Standardization Technical Committee of the Hungarian Standards Institution the consensus about encoding the Rovas script existed from 2008 to 2012 ended in 2012. As a consequence, the Hungarian NB has not any representative in the ISO/IEC JTC 1/SC 2 and in the ISO/IEC JTC 1/ SC 2/ WG2.

In the last ballot in the MSZT/MB-819 “Informatics” National Standardization Technical Committee, 55% of the votes were “**No**” to the current “Old Hungarian” code block in the recent ISO/IEC 10646: 2012/PDAM 2.2; 33% of the votes were “**Yes with comments**”, and there was not any vote “**Yes**” without comment. Therefore, despite of the strong majority opinion, there was no consensus, and as a consequence, the Hungarian NB was able to vote only “**Abstention**”.

In this situation, the authors of this contribution are responsible for supporting the appropriate encoding of the Rovas script with the existing tools. That is why the authors submitted the present proposal. The affiliation and the background of the authors are the following:

- Mr. **Jenő Demeczky**, MSc in Electronic Engineering, BME, MA in general and applied linguistics, ELTE, IBM World Wide Translation Terminologist, IBM Hungarian Terminologist, IBM Translation Services Center Terminologist for Central and Eastern Europe, International Business Machines Corporation Hungary Ltd., representative in the MSZT/MB-819 “Informatics” National Standardization Technical Committee,
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- Mr. **Tamás Rumi**, MSc in Architecture, MBA, researcher in the field of computerized paleography, author of several Rovas-related computerized paleographical books and conference papers, Curator of the Rovas Foundation, editor-in-chief of the Rovas Info News Portal, the largest Rovas information center and the Rovaspedia, the comprehensive knowledge base of the Rovas and related orthographies, individual member of the Unicode, representative of Chamber of Hungarian Architects in the MSZT/MB-819 “Informatics” National Standardization Technical Committee,
- Mr. **László Sípós**, MSc in Architecture, MBA, researcher in the field of computerized paleography, author of several Rovas-related computerized paleographical books and conference papers, President of the Rovas Foundation – the most significant Rovas book and electronic publisher, representative in the MSZT/MB-819 “Informatics” National Standardization Technical Committee, and
- Dr. **Erzsébet Zelliger**, Candidate of Sciences of the Hungarian Academy of Sciences, Associate Professor in the Department of Hungarian Historical Linguistics, Sociolinguistics, and Dialectology at the Eötvös Loránd University.

2. The goal of the encoding

The Rovas script has several orthographies; the most important of them is the Szekely-Hungarian Rovas is a writing system of the Hungarians with increasing popularity. In the last decades, there has been extensive research on exploring their roots and history (Róna-Tas 1992; Vásáry 1974; Györffy & Harmatta 1996; Róna-Tas 1994). It has been proven, that the Szekely-Hungarian Rovas has been in continuous use throughout the history of Hungary (Hosszú 2012b). Presently, its usage is getting

extensive not only in the scientific word but in every field of the daily life: education, economy, publications, technology, etc.¹ The increasing use of the Rovas can be demonstrated by the large number of printed and online materials and the rapidly growing size of the user community, with more than 100 000 estimated active users (Barabási 2008).

The goal of encoding is supporting the representation of the Rovas characters in the paleographical, archeological, linguistic, historical, and the contemporary Rovas publications; moreover, enabling the digital communication of the Rovas users.

The user base of the Szekely-Hungarian Rovas is distributed in every country of Europe where Hungarian population exists and in the global Hungarian community as well. Currently, in every part of the Hungarian society – including state and local administration –, the number of Szekely-Hungarian Rovas users is dynamically increasing.

The large Rovas user community is heterogeneous but the unification efforts of the last years are gaining success. Hundreds of Szekely-Hungarian Rovas civic groups, societies and organizations exist in the worldwide Hungarian community; their role is essential in the contemporary Rovas usage and in the popularization of the Szekely-Hungarian Rovas. However, some user communities apply slightly differing Szekely-Hungarian Rovas alphabets generating real need for normalization within the Hungarian user community. Consequently, the professional normalization led by the Hungarian Standards Body is the proper way to reach a balanced, acceptable and scientifically backed result.

3. Scientific background

Name of the script

The ad-hoc report N4110 (2011-06-08)² recommended the use of the term “Old Hungarian” as the script name. However, the term “Old Hungarian” is unsuitable for the following reasons:

- The expression “Old Hungarian” is ambiguous, since this term is already used by Hungarian linguists for denoting the medieval version of the Hungarian Latin-based script, which is totally different from the Rovas script. For example, http://en.wikipedia.org/wiki/Funeral_Sermon_and_Prayer is written with Latin-based Old Hungarian script. Therefore, using the term “Old Hungarian” for the Rovas leads to serious collision.
- According to the latest results of the Hungarian paleography, the Szekely-Hungarian Rovas has been developed before the Old Hungarian linguistic period (896–1526, see E. Abaffy 2003b:301-351). Consequently, using the name “Old Hungarian script” for an earlier alphabet is misleading.

Moreover, there are several arguments for the term “Rovas”, for example:

- Several Rovas alphabets belong to the Rovas script. Therefore, the term “Rovas” is a category name and in the Unified Character Set a block is proposed to name “Rovas”. Note, that the close relation between the Carpathian Basin Rovas and the Szekely-Hungarian Rovas was proven by

¹ <http://books.google.hu/books?id=TyK8azCqC34C&pg=PA48>

² <http://std.dkuug.dk/jtc1/sc2/wg2/docs/n4110.pdf>

linguist and Turkologist Gyula Németh as early as in 1932 (Németh 1932a:65-85 & 129-139; Németh 1932b; Németh 1934; Vékony 1985:71-84).

- The term **Rovas** has a common use in the Hungarian language. Although the word “Rovas” is of Hungarian-origin, it became a loanword in numerous other languages and has been used for a long time in the international literature, thus it is more and more accepted in the English language. See some examples in *Table 3-1*.

Language	Local version of the word Rovas
Albanian	<i>rabush, labush</i>
Bulgarian	<i>Равои, раѡи, роѡи, рѡои</i>
Czech	<i>rabuše</i>
Danish	<i>Rovás Skriften</i>
French	<i>rovache</i>
Polish	<i>rowasz</i>
Romanian	<i>răvaș, răbuș, răboj, ráboș rábaș</i>
Serbian, Croatian	<i>rovaš, ravaš, raboš, rabuš, r(e)vaš</i>
Serbian	<i>рoвaшкo нyмo</i>
Slovakian	<i>rováš</i>
Slovenian	<i>rováš, rováša</i>
Ukrainian	<i>рoвaш</i>

Table 3-1: The word Rovas in several languages as loanword adjusted in spelling

Note, that the research into the field of the Rovas script is mainly published in Hungarian and only little information is available in English. Consequently, the English databases are outdated in most cases. Especially, the results of the last 2–3 decades are missing from western literature. The contributions of the Hungarian NB use and refer to the results of both international and Hungarian scholars.

Names of the characters

The proposed character names of N4110 and N4196 are incorrect, as these names are based on a few arbitrarily selected medieval relics representing an outdated state of the Rovas-related paleography of the early 20th century. That time, the Szekely-Hungarian Rovas relic of the Nikolsburg Alphabet (*Fig. 3-1*) was almost the only significant Rovas relic. Accordingly, in the early 20th century, only the static view of the Szekely-Hungarian Rovas script existed. However, after exploring several archaeological sites in the 20th–21st centuries, more and more Rovas relics of different ages and locations were found, switching to the dynamic view of the of Rovas scripts’ history.

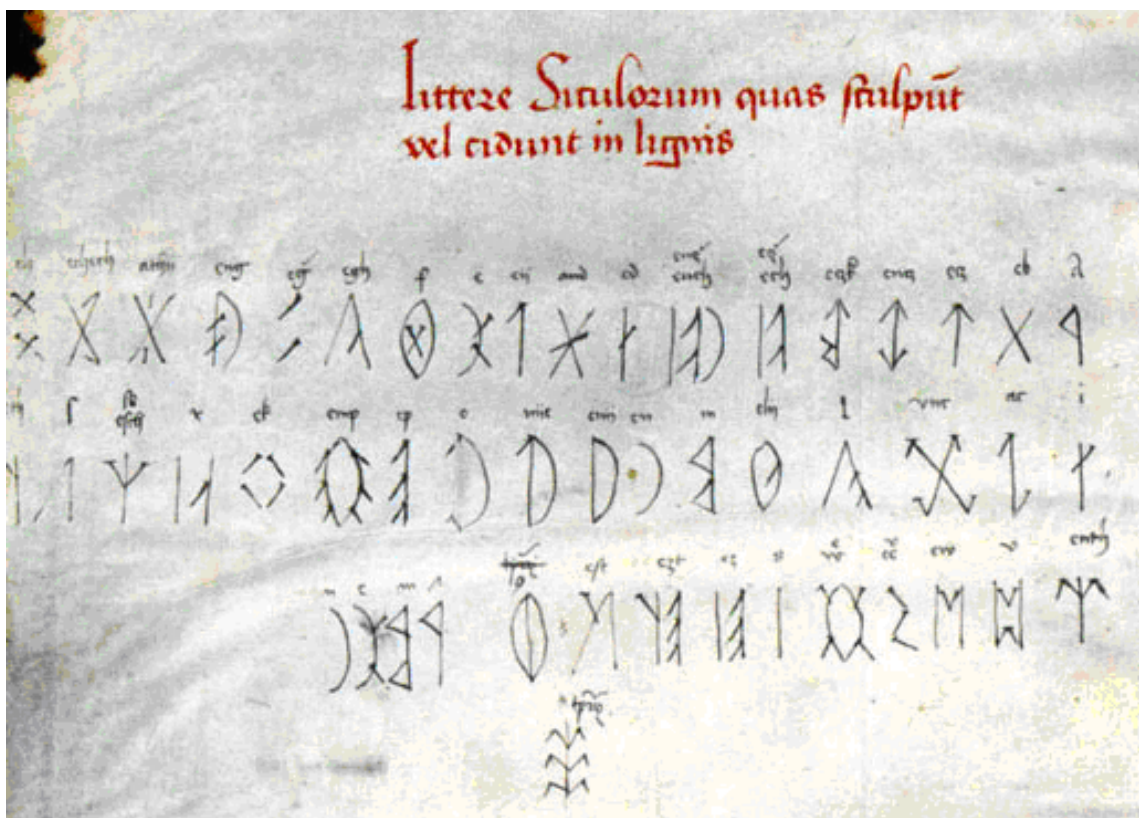


Figure 3-1: Alphabet of Nikolsburg (ca. 15th century; Forrai 1994; Németh 1934: 3)

In fact, the characters of the Rovas script have well accepted contemporary names both in scientific and popular literature. As the main reason for encoding the Szekely-Hungarian Rovas script is to serve the present-day use, the contemporary well-known character names of the letters have to be used in the standard.

Note, that N4110 and N4196 use the consonant names of the Nikolsburg Alphabet.³ However, these consonant names **were never identical to the Hungarian letter-names; they do not conform to any Hungarian linguistic tradition, thus these consonant names are surely erroneous** (Zelliger 2010–2011). A few further Szekely-Hungarian Rovas alphabets, – related to the Nikolsburg Alphabet (Vékony 2004:60-108) – used the consonant names of the Nikolsburg Alphabet. However, the clear majority of the Szekely-Hungarian Rovas alphabets applied the usual Hungarian character names, including the most archaic one, the Ancient Relic of Franciscan friar J. Kájoni (*Fig. 3-2*). Consequently, **the character names proposed in the N4110 and N4196 are neither scientifically backed nor in practical use, therefore inappropriate for the encoding.**

³ <http://books.google.hu/books?id=TyK8azCqC34C&pg=PA196>

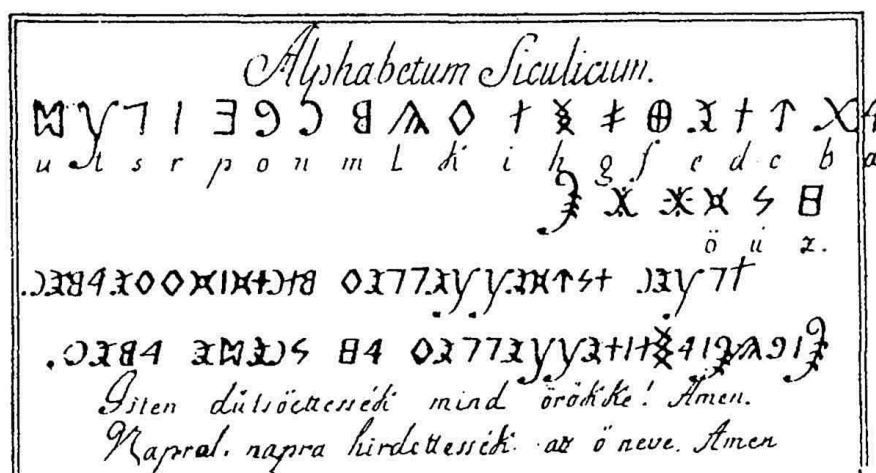


Figure 3-2: Ancient alphabet & sentences of Franciscan friar J. Kájoni, 1673 (Sebestyén 1909:245). The OE and UE characters are positioned at the end of the alphabet (apparently they are separated from the alphabet), and they are together.

Topological naming attributes

In this contribution, the coherent naming system of the Rovas characters follows the Unicode naming protocol: the letter names basically originated from one of the phonetic values of the character, and a topology-related attribute is used in the proposed letter name if necessary to differentiate from another Rovas characters. The applied attributes are the following: CIRCLE ENDED, CLOSE, DIAGONAL, OPEN, SHARP, and SIMPLE. In the UCS, there are several examples for similar terminology. In the following character names, the term OPEN and other attributes have not any phonetic implication.

16D5	RUNIC LETTER OPEN-P
16DB	RUNIC LETTER DOTTED-L
16C0	RUNIC LETTER DOTTED-N
16D4	RUNIC LETTER DOTTED-P
02B4	MODIFIER LETTER SMALL TURNED R
02B6	MODIFIED LETTER SMALL CAPITAL INVERTED R
02FE	MODIFIER LETTER OPEN SHELF
08F0	ARABIC OPEN FATHATAN
08F1	ARABIC OPEN DAMMATAN
08F2	ARABIC OPEN KASRATAN
0965	DEVANAGARI DOUBLE DANDA
10F9	GEORGIAN LETTER TURNED GAN

The necessity of the Rovas Block

In the Hungarian and international paleography, several research efforts aimed to explore the various alphabets of the Rovas scripting. In the light of the latest archaeological finds, – in the last third of the 20th century –, it became clear that the Rovas inscriptions found in the Carpathian Basin (in central Europe) are strongly related. However, it became also clear that characteristic branches can be identified among them: the Szekely-Hungarian Rovas relics and the Carpathian Basin Rovas inscriptions are the majority. The fact that there are several common characters of the various Rovas alphabets highlights the clear necessity of the Rovas block in order to avoid multiple encoding.

Shapes of the glyphs

In the N4196 – and in the ISO/IEC 10646:2012/Amd.2: 2012 – the shapes of the characters show a primitive stage of the design process and there are serious problems in proportionality, shapeliness and typographic rules. This style is not in accordance with any tradition of the Rovas scripting. The Hungarian font designers can provide the necessary fonts for encoding the Rovas script for free.

4. Introduction to the Rovas orthography

4.1. Szekely-Hungarian Rovas

The Szekely-Hungarian Rovas probably gradually separated from the Carpathian Basin Rovas. The two Rovas orthographies are identical in several characters to date (e.g.: X B, 𐞀 CS, 𐞁 LY, 𐞂 N, 𐞃 P, 𐞄 SZ), other characters are identical with smaller differences, see *Table 4.1-1*.

Szekely-Hungarian Rovas	Carpathian Basin Rovas
𐞀 A, 𐞁 AA	𐞂 FORKED E
𐞃 E, 𐞄 EE	𐞅 DIAGONAL E
𐞆 J, 𐞇 I, 𐞈 II	𐞉 ANGLED I
𐞊 M	𐞋 OPEN M
𐞌 O	𐞍 OPEN O
𐞎 US	𐞏 CLOSE S
𐞑 Z	𐞒 OPEN Z

Table 4.1-1: Some examples for the Szekely-Hungarian Rovas and Carpathian Basin Rovas letters being close relative to each other (Hosszú 2012a).

Later, during the history, the Szekely-Hungarian Rovas was mostly preserved by the Szekely among the Hungarians. Around 1282, a Hungarian chronicler Simon Kézai mentioned first the Rovas script of the Szekelys. Later, from the 15th century, the Hungarian intellectuals as well studied the Szekely-Hungarian Rovas orthography with increasing emphasis. In 1598, János Telegdi made the first textbook of the Rovas titled *Rudimenta priscae Hunnorum lingvae* 'Elements of the ancient language of the Huns'. In 1718, Mátyás Bél published the first printed scholar book about the Szekely-Hungarian Rovas orthography. From the 19th century, the Szekely-Hungarian Rovas became more and more popular among the Hungarians, in general.

Today, the usage of the Szekely-Hungarian Rovas is becoming extensive in the everyday life. There are examples without number for the current applications of the Szekely-Hungarian Rovas of Rovas scripts in public places, books, journals and other contents, including both printed and electronic publications. For instance, in the Hungarian Electronic Library, there are more than 50 books written in the Szekely-Hungarian Rovas (Bilisics 2008; Bilisics 2007). Additionally, in Hungary, in Transylvania – especially Szekelyland (Romania) - and in other countries with significant Hungarian population, villages and towns use official city limit signs with Szekely-Hungarian Rovas.

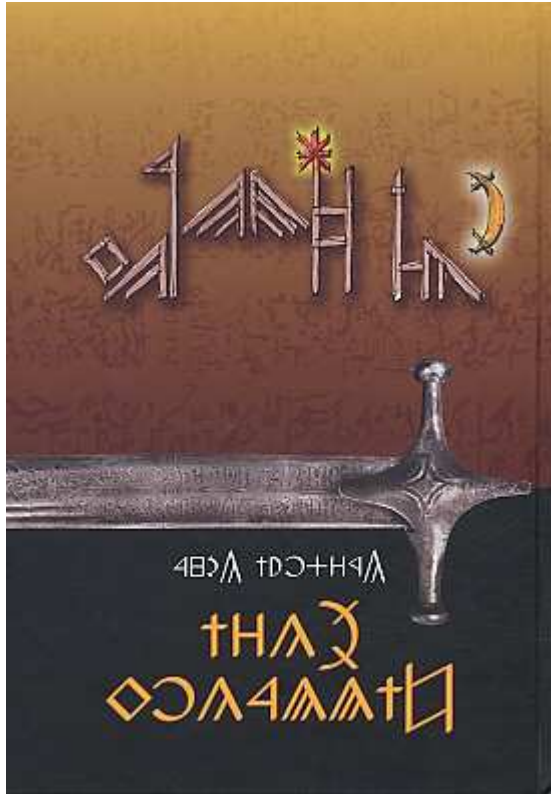
The Szekely-Hungarian Rovas⁴ uses both the right-to-left (RTL) and left-to-right (LTR) directions, but the former is the original and dominant direction. The glyphs in the code chart of this proposal are shown in right-to-left orientation. Furthermore, the boustrophedon (alternating line directions) is also possible, even if not frequently used (*Fig. 4.1-1*). In applying the boustrophedon, the text in alternate lines can be rotated 180 degrees or the characters can be mirrored. In both cases, the direction of the reading is alternating from right-to-left to left-to-right. In addition, vertical (top-down) direction is also sporadically used.



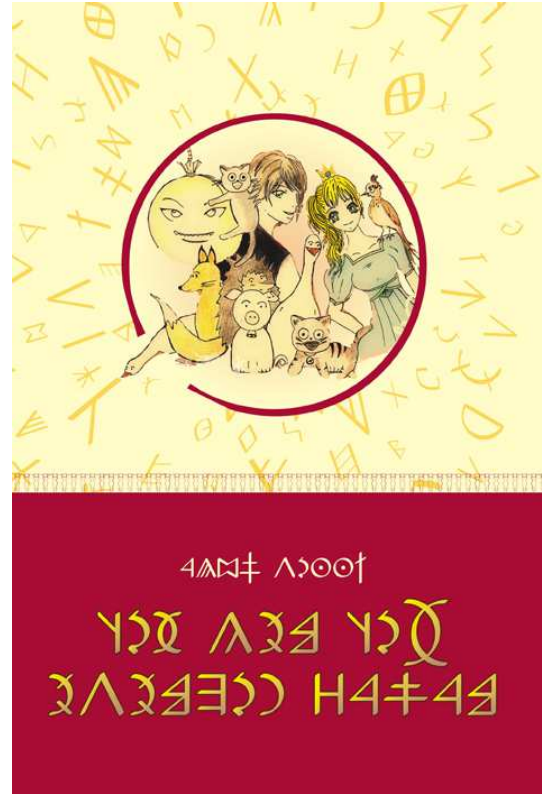
Figure 4.1-1: Part of the greeting card with boustrophedon direction (Sólyom 2009).

Because of the coexistence of Szekely-Hungarian Rovas and Latin-based Hungarian orthography (Old Hungarian texts), the casing appeared in the Szekely-Hungarian Rovas as early as in the 17th century. First, the glyphs of the upper case Szekely-Hungarian Rovas characters differed from the lower case ones only in size. Recently, for reading psychological and reading speed improvement reasons, lower case character sets are typographically slightly different from the upper case ones. Upper and lower case characters can be horizontally aligned onto the baseline or symmetrically to the horizontal centerline (*Fig. 4.1-2*).

⁴ <http://books.google.hu/books?id=TyK8azCqC34C&pg=PA176>



a)



b)

Figure 4.1-2: Cover pages of the books a) “Eclipse of the Crescent Moon” (Rumi, Sípos, & Somfai 2009) and b) “Seven and Seven Hungarian Folk Tales” (Rumi, Sípos, & Somfai 2010)

All the Szekely-Hungarian Rovas characters, including letters, numerals, and punctuation marks can be RTL or LTR alternatively, however being mirrorable, all of them are proposed to encode only once, giving all the letters, numbers and punctuations a weak direction.

4.2. Carpathian Basin Rovas

The *Carpathian Basin Rovas*⁵ script is an extinct writing system. According to the latest paleographical results, the individual development of the Carpathian Basin Rovas started when the Carpathian Basin was occupied by the Onogurs in the middle of the 7th century. Based on the archaeological findings, the use of the Carpathian Basin Rovas is proven in the 7th-11th centuries, however, there are some tracks of its survival up to the 12th century.⁶ The clear majority of the historical texts on the relics are in Hungarian (Vékony 2002). The direction of Carpathian Basin Rovas is right-to-left.

⁵ <http://books.google.hu/books?id=TyK8azCqC34C&pg=PA106>

⁶ <http://books.google.hu/books?id=TyK8azCqC34C&pg=PA34>

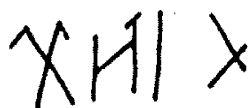


Figure 4.2-1: The inscription on the Silver Vessel of Ozora-Tótipuszt, last third of 7th century AD (Vékony 2004:192-196; Erdélyi & Ráduly 2010).

The transcription of **XHI X** is /10 s̥iχ^at/, its translation from Onogur is ‘10 [pieces] fit [inside]’. It is noteworthy that in this proposal, the sound “*velar i*” in the Turkic inscriptions is represented by /i/ and not /ɯ/, since the corresponding Turkic sound at that time has not yet been accurately determined (Vásáry 2010-2011). In the Hungarian inscriptions the “*velar i*” is represented by /ɯ/.



Figure 4.2-2: Two sides of the Rovas inscription of the Needle Case of Jánoshida from the last third of the 7th century (Erdélyi 1958a:39, *Table XLIV/2*; 1958b:55-56; 1961:279-280; Vékony 1987a:74, 76).

Written with Carpathian Basin Rovas font	Kárpát-medencei rovás betűkészlettel szedve	YŸ \ ØŸ IX
Written with normalized Carpathian Basin Rovas font without ligatures	Egységesített Kárpát-medencei betűkészlettel szedve összerovások nélkül	YŸŸ \ □-ŸŸ IX
IPA phonetic transcription	Nemzetközi hangjelekkel történő átírás	/iŋɛ \ b ^a s ^ɥ nyr ⁱ g/
Translation from Onogur	Fordítás onogurból	Needle, \ defeat Üngür!

A bone needle case near the town of Szarvas (Hungary) has a magical inscription from the second half of the 8th century (Vékony 1987a, 1987b; Zelliger 2010-2011). This belongs to the Late Avar Period (700-791, see Róna-Tas 1996:108). *Fig. 4.2-3* presents the drawing of the inscription made by I. Erdélyi historian-archaeologist in 1984. The edges of the bone needle case are worn; therefore the top and bottom edges of some characters are not clearly visible.



2

3

1



1b

Written with normalized Carpathian Basin Rovas Font	+ DN + 𐰃𐰇𐰪𐰠 + 𐰇𐰠𐰪𐰠 + 𐰇𐰇𐰠𐰠 +
IPA phonetic transcription	/βof ^u d ^u w ^u z ^u dβ ^a n w ^u z ^a d ^a tni ^e γ ^e i/
Translation from Hungarian	‘The fermented Woshudu [drink] for him to warm up.’
Translation to present-day Hungarian	Wosudu erjedvény felhevülésére az övé!

The beverage *woshudu* is known even nowadays mainly among the Turkic people as *boza*.⁷ This word was internationally used and adopted by some languages. The > SHARP D /d/ in the term >𐰇𐰠𐰪𐰠 represented the regular diminutive suffix existing in the Ancient Hungarian linguistic period (Sárosi 2003:142). The punctuation symbol + WORD SEPARATOR VERTICAL CROSS may refer to Christianity. As A. Róna-Tas stated, the Hungarians had contacts with Christianity as early as the 5th century (Róna-Tas 1999).



Figure 4.2-5: The photograph of the quadrilingual No. 6 Jug and the inscriptions on its bottom from the 9th-10th centuries (László & Rácz 1977, *Image 69*; Németh 1932a:139)

The transcription of 𐰇𐰇𐰠𐰠 is /sṷ-s^yrⁱm/, its translation is ‘filtered water/cleaned water’ from Onogur. The transcription of 𐰠𐰠 is /βⁱzⁱ/; its meaning is ‘water’ in Hungarian. Between the two inscriptions there is a symbol that can be presented with + WORD SEPARATOR VERTICAL BAR. The transcription of 𐰇𐰇𐰠𐰠 is /v^od^ojǔ/ ‘with water’ in Slavic. The fourth expression (𐰇𐰇𐰠𐰠) is in As or Alan language, its transcription is /dan^(u)/ ‘water’.

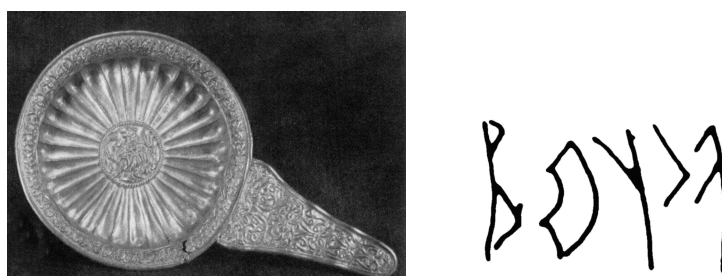


Figure 4.2-6: The photograph of the No. 15 flat-shallow ladle and its inscription from the 9th-10th centuries (László & Rácz 1977, *Image 80*; Hampel 1884, *Fig. 11*)

⁷ <http://mek.niif.hu/02700/02790/html/92.html>

Written with normalized Carpathian Basin Rovas Font	ᚷᚱᚢᚱ
IPA phonetic transcription	/β ^a d ^u et ^e ky/
Translation from Hungarian	‘forest food’ (=fruit)
Translation to present-day Hungarian	erdei éték (gyümölcs)

ᚷᚱᚢᚱ ᚱᚱᚱ

Figure 4.2-7: The inscriptions of the No. 5 jug from the 9th–10th centuries (Hampel 1884, Fig. 13 & 14)

The transcription of ᚷᚱᚢᚱ is /qīmⁱs/, it is in Onogur (Vékony 2004:138, 149). The transcription of ᚱᚱᚱ is /ʃ^aβ^oγ/; it is in Hungarian (Vékony 2004:138–139). The meaning of both inscriptions is ‘whey’.



Figure 4.2-8: A silver coin from 1996 with Carpathian Basin Rovas characters (Péter Molnár, numismatist). This example presents the reproduction of the historical Carpathian Basin Rovas characters in a present-day coin.

5. Technical properties

5.1. Punctuation marks

The contemporary Rovas applies the reversed versions of the usual European punctuation marks, and in case of the Szekely-Hungarian Rovas - their original versions as well due to its bidirectional property. For this reason, the following missing punctuation marks have to be encoded.

5.1.1. Szekely-Hungarian Rovas punctuation marks

Glyph	Name of the punctuation mark	Usage in texts
◌̸	REVERSED COMMA	RTL used as in the modern European scripts
◌̸◌̸	DOUBLE LOW-REVERSED-9 QUOTATION MARK	RTL as beginning quotation mark
✱	WORD SEPARATOR CROSS	LTR and RTL, as word separator
◌̸◌̸	DOUBLE COMMA-LIKE HYPHEN	RTL as historical hyphen
✱✱	DOUBLE CROSS FULL STOP	LTR and RTL, as period
⋘	BEGINNING MARK RIGHT	RTL
⋘	BEGINNING MARK LEFT	LTR
✱✱✱	END OF MESSAGE MARK	LTR and RTL
⊕	WORD SEPARATOR VERTICAL CROSS	RTL

In case of some traditional Rovas punctuation marks, there is a rule that one graphemic unit is word-level punctuation mark (e.g. ✱ WORD SEPARATOR CROSS), double graphemic unit is a sentence-level punctuation mark (✱✱ DOUBLE CROSS FULL STOP), and finally the triple graphemic unit is a message-level punctuation mark (e.g. ✱✱✱ END OF MESSAGE MARK). Consequently, the ⋘ LEFT WIGGLY FENCE (U+29D8) and ⋘ RIGHT WIGGLY FENCE (U+29D9) are not appropriate to use instead of the ⋘ BEGINNING MARK RIGHT and the ⋘ BEGINNING MARK LEFT. Therefore, the individual encoding of the ⋘ BEGINNING MARK RIGHT and ⋘ BEGINNING MARK LEFT is justified.

The punctuation marks above seem to be generic enough to be included into the Supplemental Punctuation block.

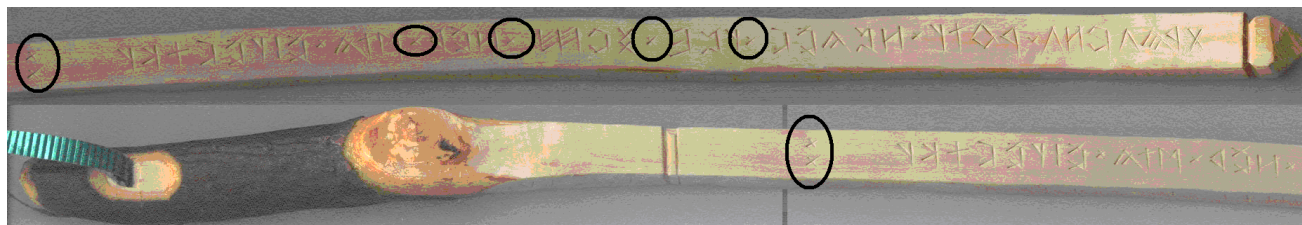


Figure 5.1.1-1: Two rows carved by Á. Zubrits in 2009. Note the consequent use of the ✱ WORD SEPARATOR CROSS and the ✱✱ DOUBLE CROSS FULL STOP. These are widely used in the Rovas carving orthography of the Hungarian scouts in Western countries (Zubrits 2009-2010).

5.1.2. Carpathian Basin Rovas punctuation marks

The Carpathian Basin Rovas uses only one punctuation mark cannot be found among the punctuation marks of the Szekely-Hungarian Rovas, since the WORD SEPARATOR VERTICAL CROSS punctuation mark is proposed for encoding in the Szekely-Hungarian Rovas already, since it was used in the both orthographies.

Glyph	Name of the punctuation mark	Usage in texts
⊥	WORD SEPARATOR VERTICAL CROSS	RTL
┆	WORD SEPARATOR VERTICAL BAR	RTL

The punctuation mark WORD SEPARATOR VERTICAL BAR seems to be generic enough to be included into the Supplemental Punctuation block.

5.2. *Rovas diacritic mark*

Accents are not used in the Rovas. Long vowels are different characters and long consonants are generally marked by duplication. However, there is the combining diacritic ◌̋ COMBINING MACRON-ACUTE (1DC4 in UCS) in a few Szekely-Hungarian Rovas relics, which indicates the duplication of a Rovas character if it is used in combination with that character (*Fig. 5.2-1*).



Figure 5.2-1: Alphabet and examples of Verpeléti Kiss (1935 – found by F. Sólyom, Sólyom, 2009). It used individual Rovas characters for DZ and DZS, moreover $\ddot{\text{z}}$ BEGINNING MARK LEFT and $\ddot{\text{z}}$ END OF MESSAGE MARK. It also presents the $\acute{\text{e}}$ COMBINING MACRON-ACUTE; see the Hungarian text: "kettő- / ző jegy" (meaning 'duplication mark') in the left bottom part of the picture.

5.3. Rovas numerals

5.3.1. Properties of the Rovas numerals

The Rovas numbering system is self-consistent and use distinct glyphs in series of 1 & 5 then 10 & 50, then 100 & 500, then 1000 (possibly later 5000 and 10 000). The Rovas numerals have only one version (there is no casing).

The Rovas digits have strong RTL properties. The Rovas numerical system differs from Roman digits in the following properties: the Rovas numbers have no subtractive parts, and there is an implicit multiplication that occurs when smaller digits occurs before another higher digit to the right, e.g. the meaning of the XII (two thousand) is two times one thousand.

For the DECIMAL SEPARATOR the , REVERSED COMMA can be used.

5.3.2. Proposed Rovas numerals

The Rovas numerals, which are proposed to encode are the followings:

I ONE, V FIVE, X TEN, ♯ FIFTY, ✱ ONE HUNDRED, ♯ FIVE HUNDRED, ✱ ONE THOUSAND

The existence of the Rovas numeral ♯ FIVE HUNDRED is attested in 1943 and then 1971 with slightly differing glyph, see *Fig. 5.3.2-1* and *Fig. 5.3.2-2*. Note that in the alternative proposal N4254, the ♯ FIVE HUNDRED is missing despite of its frequent use in the present-day Szekely-Hungarian Rovas printed orthography.

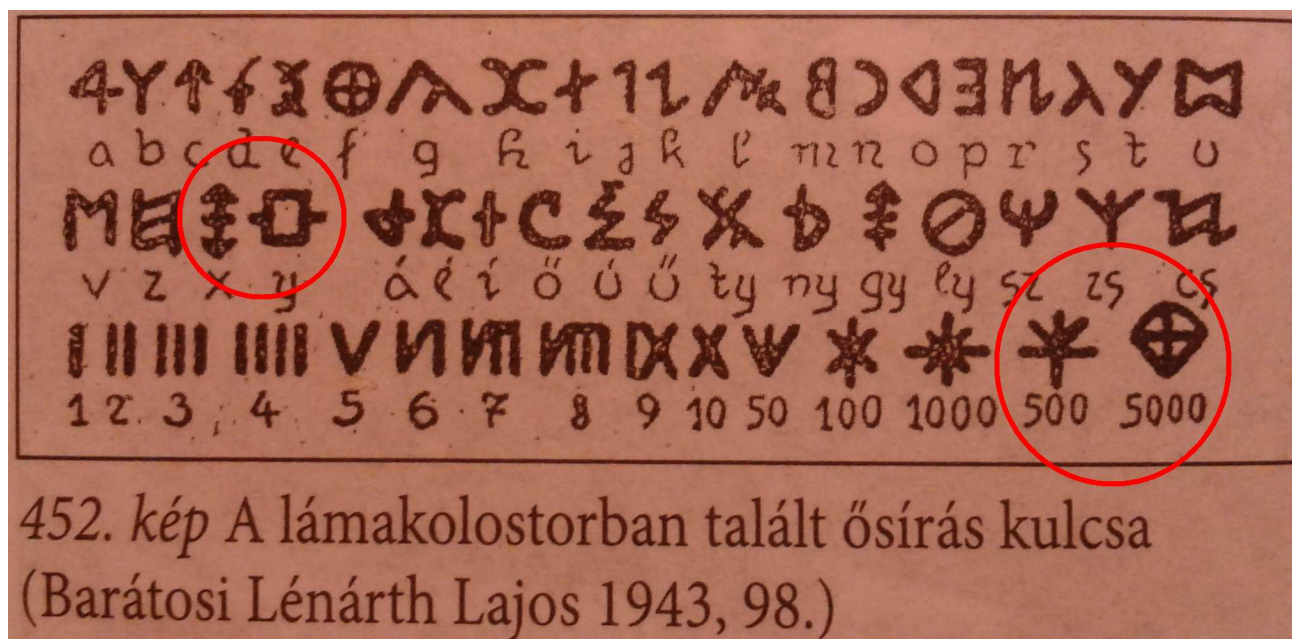


Figure 5.3.2-1: The alphabet of Lajos Barátosi Lénárth, 1943 (Mandics 2010: 386). He used Rovas characters for X, Y, FIVE HUNDRED and FIVE THOUSAND in his alphabet.

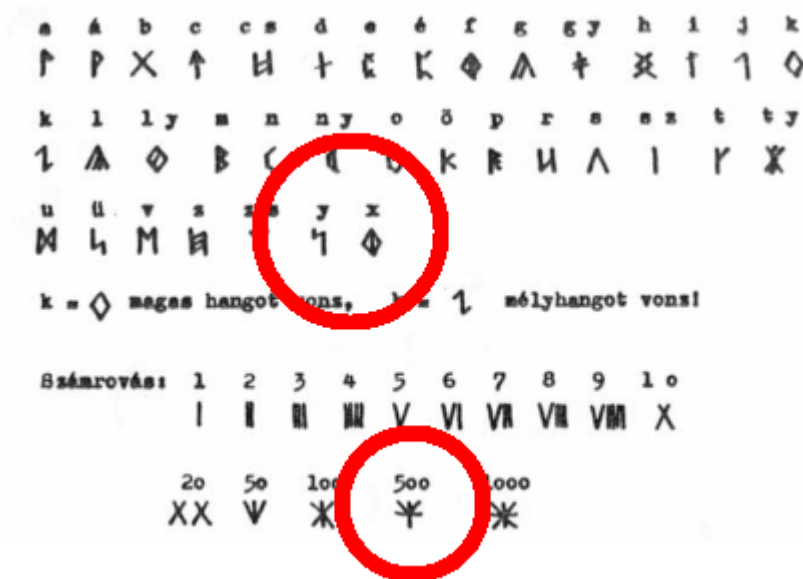


Figure 5.3.2-2: The alphabet of Z. Bárczy, 1971 (Bárczy 1971). He used Rovas characters for X, Y and FIVE HUNDRED in his textbook.

5.3.3. Postponed Rovas numerals

There is a demand for encoding individual Rovas numerals from 1 to 12 to represent the digits of the clock and the sequence numbers of months (see the expert contribution of Tamás Rumi, N4225). A specific property of the Rovas number representation is denoting the number FOUR with four vertical bars (||||) and not with a bar before the symbol of FIVE. Therefore, the encoding of the Rovas numerals | ONE, || TWO, ||| THREE, and |||| FOUR individually has the same reasons as the proposal has for encoding the Parthian and Pahlavi scripts (N3286R2, 2007-09-18) including the individual numbers | ONE, || TWO, ||| THREE, and |||| FOUR. This feature typical in the Middle-Iranian scripts and strengthening the supposition that the numerals of the Rovas script are related to those of the Parthian and Pahlavi scripts.

Moreover, there is a demand for encoding Rovas ZERO, higher Rovas numerals (especially FIVE THOUSAND and TEN THOUSANDS or TOMENY) and Rovas signs (PLUS, MINUS, PLUS-MINUS) as well.

Their use needs more evidence; therefore, this proposal recommends to postpone their encoding.

5.4. Rovas letters

In this proposal, several Rovas character name are composed of two elements, where the first element is an attribute, which reflects the topological features of the glyph and it has no linguistic relevance, and the second element represents one of the sound values of the character.

5.4.1. Szekely-Hungarian Rovas

Basic characters

4 A, 4 AA, X B, ↑ C, 4 CS, † D, 4 DZ, 4 DZS, 3 E, 3 CLOSE E, 3 EE, 4 F, 4 G, 4 GY, 3 H, 1 I, 1 II, 1 J, 4 K, 4 OPEN K, 4 L, 4 LY, 4 M, 3 N, 3 NY, 3 O, 3 OO, 3 OE, 3 OEE, 4 P, 4 Q, 4 R, 4 S, 1 SZ, 4 T, 4 TY, 4 U, 4 UU, 4 OPEN UE, 4 OPEN UEE, 4 CLOSE OE UE, 4 CLOSE OEE UEE, 4 V, 4 W, 4 X, 1 Y, 4 Z, 4 ZS.

Basic characters are missing from the alternative proposal N4254 as follows: $\mathbb{D}$ Z, $\mathbb{Y}$ DZS, $\mathbb{Q}$ Q, $\mathbb{W}$ W, $\mathbb{X}$ X, and $\mathbb{Y}$ Y. These Rovas characters came to be between 1629 and the 1930's. Their glyphs were slightly modified ever since.

DZ

This character represent an individual phoneme of the Hungarian language: /d͡z/ *voiced alveolar affricate*. The occurrence of the Rovas character for DZ is attested as early as in 1935, see *Fig. 5.2-1*. Note, that DZ is not the same as D+Z.

‡ DZS

This character represent an individual phoneme of the Hungarian language: /**ḑ̥**/ *voiced postalveolar affricate*. The occurrence of the Rovas character for DZS is attested as early as in 1935, see *Fig. 5.2-1*. Note, that DZS is not the same as D+ZS.

AQ

Its use is necessary for the representation and the assurance of the data loss-free transliteration of the mostly Latin – lately English - loanwords or proper names into Rovas, e.g. Aquincum: $\mathfrak{A}\mathfrak{M}\mathfrak{C}\mathfrak{U}\mathfrak{M}$. The occurrence of the Rovas character for Q is attested as early as in 1629 (*Fig. 5.4.1-12*). An example of its contemporary use is seen in *Fig. 5.4.1-1*.

[illegible]

Figure 5.4.1-1: Page 9 of the New Testament transcribed to Szekely-Hungarian Rovas (2011).

MW

Its use is necessary for the representation and the assurance of the data loss-free transliteration of the mostly historical family names, proper names and loanwords into Rovas. The occurrence of the Rovas character for W is attested in the 1930s (*Fig. 5.4.1-2*). Another example is presented in *Fig. 5.4.1-5*.

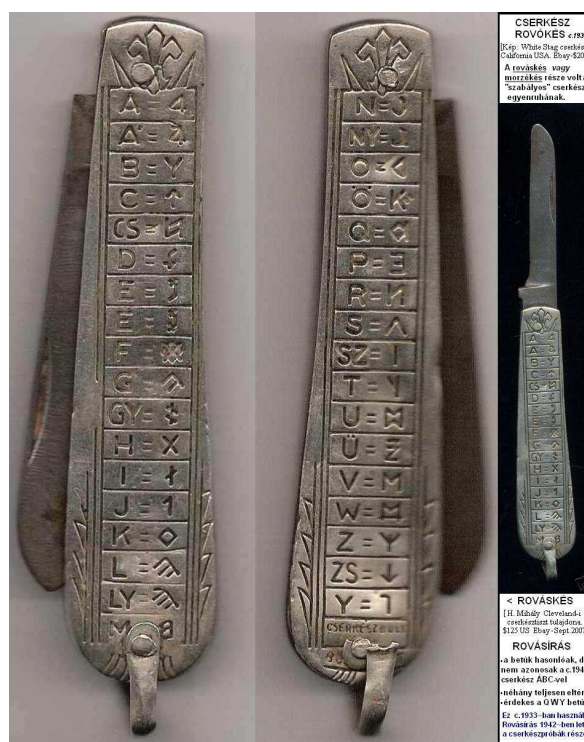


Figure 5.4.1-2: A carving knife used by Hungarian scouts from the 1930s (Horváth, M., ca. 1933, Zubrits, 2009, p. 310). It used individual Rovas characters for W and Y as well.

X

Its use is necessary for the representation and the assurance of the data loss-free transliteration of the mostly historical family names, proper names and loanwords into Rovas. The occurrence of the Rovas character for X is attested in 1629 (Fig. 5.4.1-12). Another relics, in which the Rovas character for X is used are the alphabet of L. Baráthosi Lénárth from 1943 (Fig. 5.3.2-1) and the alphabet of Z. Bárzy from 1971 (Fig. 5.3.2-2). Examples of its contemporary use are presented in Fig. 5.4.1-3 and Fig. 5.4.1-5.

H4 A2 0321M 4 ,013H3X43X3H3M 4 403 340A94 A1+33 323YHX⁵
 A90140 A2 343X0 A9014 04A3M⁶ ,33X33A4Y3H3 03YAS+311X 00+3Y1A4HT
 1343X0 4 04YACOM 040 340A94 A2 ,H3-0403A4 A2 A0041 31+34A4M ,A1
 :03YH3+H30A33 ,330X 04Y10Y1A4 3H3H30 04Y10+3⁷.A3XAS1Y3H33
 H3Y3 H000⁸ »3YH3 03Y3Y3Y 33X3M3 4 03010 44M A4330A4Y43 33013«

Figure 5.4.1-3: Page 183 of the New Testament transcribed to Szekely-Hungarian Rovas (2011).

Y

Its use is necessary for the representation and the assurance of the data loss-free transliteration of the mostly historical family names, proper names and loanwords into Rovas. The occurrence of the Rovas character for Y is attested as early as in 1629 (Fig. 5.4.1-12), later examples of occurrence are the alphabet of L. Baráthosi Lénárth from 1943 (Fig. 5.3.2-1) and the alphabet of Z. Bárzy from 1971 (Fig. 5.3.2-2). An example of its contemporary use is shown in Fig. 5.4.1-4 and Fig. 5.4.1-5.

3AΛCΥMΛ3A +4H9I XΛA3 H4 AΔTΛ3A34M3 H4 .O337XEH3I AΔTΛ3A34M3
 ITX ,3X3HXO O3D3 H3H3O 4 Y+3TH3YΛ3 34AH3O+ 3O+4) .YΛ4I3O 33X+3M3
 ,IΔHT343+4AΔT3I) O34H3AΔT A+ Y3O3+3HX3 TΛ3H 33A+ Y3O A3X+4Y4A3OΛ43

Figure 5.4.1-4: Page 138 of the New Testament transcribed to Szekely-Hungarian Rovas (2011).

.M H3Y3T3M 3343Y3T3M 1182 Wittmann Viktor u.
 .M 4AΔ3 H3AΛ4. M 1181 Wlassics Gyula u.
 .M 4AΔ3 H3AΛ4AΔM 1181 Wlassics Gyula u.
 .M 4AΔ3 H3AΛ4AΔM 1182 Wlassics Gyula u.
 .M AΔY3 I O 1148 Xántus u.
 H3Y A3A3T3 A X 1 1013 Ybl Miklós tér
 .M X43 1033 Zab u.

Figure 5.4.1-5: Page 237 of the book of the Hungarian zip codes in the chapter “Budapest Street Names” (Faragó 2012).

Reptile-like symbols

X AMB, X AND, Y ANT, A EMP, d ENC, T ENT, F TPRUS, X TPRU, O MB, 3 NAP,
 A NB, X UNK, O US

The term *reptile-like* originated from J. Telegdi (*“reptilium formas”* in Latin), who wrote the first Rovas textbook in 1598 (Thelegdi 1598).⁸ Their sound values differ from the original sound values of their compounds. They are historically used as syllables or individual words, and also applied in the present-day Szekely-Hungarian Rovas scripting (Fig. 5.4.1-6).

2. a) Írd le az alábbi szavak rovásírásos jelentését!

H3X H3A3T3O A3XO, OY, OXMH, IOX3H, O3A333O, H3A3, Y33A, XO
 H3XX, Y34X

3. a) Írd le az alábbi nevek rovásírásos jelentését!

.O3A3, A3Y, KX, KXΛ, Λ3H3, TX

Figure 5.4.1-6: Reptile-like symbols in the manuscript of the Rovas Scripting Textbook of D. Puskás (Puskás 2009).

The present-day use of F TPRUS and X TPRU is related to their reconstructed original meaning, the period of time (Vékony 2004: 9): F TPRUS may represent /e:v/ ‘year’ and X TPRU represents /ho:nop/ ‘month’. Therefore, they can be applied altogether with 3 NAP /nop/ ‘day’ representing

⁸ <http://books.google.hu/books?id=TyK8azCqC34C&pg=PA215>

the elements of date in forms, e.g. 𐌹, 𐌹, 𐌹 /year:....., month:, day:/ (Fig. 5.4.1-7& 5.4.1-8).

Bogárjelek eredete: Általában ismeretlen. A NAP 𐌹, TPRU 𐌹 és TPRUS 𐌹 esetében azonban valószínűsíthető, hogy rovásnaptárban alkalmazták időtartami jelölésére. A NAP 𐌹 eredetileg valószínűleg az N 𐌹, az O 𐌹 és a P 𐌹 betűk ligatúrája lehetett. Ha így van, akkor ez a magyar nyelv kora középkori nyelvallapotát rögzíti, később a “nap” szóban már “a” magánhangzót használtak, de a NAP 𐌹 bogárjel már nem változott. A TPRU 𐌹 és a TPRUS 𐌹 esetén a legújabb kutatások állapították meg, hogy a latin “temporius” szó rövidítése rejtőzik a nevükben és valószínűleg szintén rovásnaptárakban jelöltek időtartamot.

Bogárjelek alkalmazása: A bogárjelek többségét (kivéve: TPRU 𐌹 és TPRUS 𐌹 betűösszevonásként alkalmazzuk, ilyen használatukra a középkori emlékeinkben is vannak példák. A NAP 𐌹, TPRU 𐌹 és TPRUS 𐌹 bogárjeleket pedig időszakok megjelölésére használhatjuk, a NAP 𐌹 eredeti jelentése szerint “nap”-ot jelöl, a TPRU 𐌹 “hónap”-ot, a TPRUS 𐌹 “év”-et. A NAP 𐌹, TPRU 𐌹 és a TPRUS 𐌹 ilyen alkalmazása legújabbkori javaslat (nem kötelező), melynek célja ezen bogárjelek alkalmazásának élővé tétele. A NAP 𐌹 bogárjel kétjelentésű, betűösszevonásként is és időtartamként is használható.

Figure 5.4.1-7: Using the reptile-like symbols 𐌹 NAP, 𐌹 TPRU, & 𐌹 TPRUS in journal *Rovat* (Gribek, 2009).



Figure 5.4.1-8: Bottom part of the Rovas calendar for 2012 and Rovas ABC educational panel (published in 2011) with the reptile-like symbols 𐌹 TPRU /ho:nop/ ‘month’ and 𐌹 TPRUS /e:v/ ‘year’ (Rumi & Sípos 2011).

Historical characters

Ø DIAGONAL F, N GH, X CH, A SHARP K, I CIRCLE ENDED O, Z OPEN OE, / SIMPLE R, V SCH, 1 OPEN V

It is necessary to encode the listed historical characters to be able to reproduce the historical relics (even the Nikolsburg Alphabet, see Fig. 3-1) and use these characters in historical and linguistic texts. Note, that these are not glyph variants of other characters, since their origins differ.

In the alternative proposal N4254, the majority of these historical characters are missing; therefore, the character repertoire of the N4254 cannot be used for representing the historical Szekely-Hungarian Rovas relics (e.g. in paleographical publications). The Rovas characters missing from the N4254 or existing with erroneous character names are the followings:

Ø DIAGONAL F

The Ø DIAGONAL F was probably borrowed from the Glagolitic ꝥ FITA, which can be derived from the Greek θ THETA (*minuscule letter*, see Vékony 1986). The Ø DIAGONAL F has only historical significance (Vargyas relic, see Fig. 5.4.1-9). Oppositely, the unrelated Ɔ F is used in the present-day Szekely-Hungarian Rovas orthography.



Figure 5.4.1-9: Inscription from Vargyas (present-day Vârghiș, Szekelyland, Romania), a stone carving from the second half of the 12th century (Benkő, E. 1996a:79). Its meaning: /ⁱme: fioy t^e n^ekyd/ ‘[Woman,] here is your Son’, its transcription: ҮМѠ ҮНІѠ ꝥѠ (Vékony 2004:22; Zelliger 2010-2011). It is a citation from the *Gospel of John* (Ioh. 19, 26). In the inscription,

Ј CIRCLE ENDED O /o/ shows an occasional, local influence of the Glagolitic Ѣ ON /ɔ/.⁹

N GH

N GH /ɣ/ originated from the Parthian N HETH /ɣ/x/h/, and it exists in the Carpathians Basin Rovas as well. In the Hungarian language, in the 11th century, at the end of the words, /ɣ/ was vocalized, and it became /ɹ/ or /ȳ/ (E. Abaffy 2003b, p. 302, p. 312). The /ɣ/ and its preceding vowel were pronounced as diphthongs : /ɣɹ/ and /ȳȳ/. In the 12th-14th centuries, a monophthongization occurred: /ɣɹ/ and /ȳȳ/ became /o:/u:/ and /ø:/y:/, respectively (E. Abaffy 2003b, pp. 339-344). This process ended up to the 14th century (E. Abaffy 2003b, pp. 339-344). This linguistic process can also be detected in the development of the Szekely-Hungarian Rovas alphabet. Namely, the N GH /ɣ/ started to be used for representing /ø/ø:/y/y:/, then the glyph variations of the N GH /ɣ/ appeared as well: the ʌ OPEN UE and ʐ OPEN OE, which became individual characters by now. It is noteworthy that before the 12th century, the sound /ø/ø:/ did not exist in the Hungarian language. See also the discussion of the Vargyas relic (Fig. 5.4.1-9).

X CH

This character exists in the N4254; however, with erroneous name: ECH. The character-name “ECH” is in error, they do not comply with the Hungarian linguistic terminology (Demeczky 2012; Zelliger 2010-2012).

⁹ <http://books.google.hu/books?id=TyK8azCqC34C&pg=PA84>

▲ SHARP K

The ▲ SHARP K is most probably a descendant of the Carpathian Basin Rovas ⚡ KUE. The ▲ SHARP K is unrelated to the Szekely-Hungarian Rovas ⬠ K. An example for using it is presented in Fig. 5.4.1-10.



Figure 5.4.1-10: The Homoródkarácsonyfalva Relic (ca. 13th century, see Ráduly 2008; Ferenczi 1979; Ferenczi 1992: 56; Libisch 2004). The transcription is: *first row*: 𐰃 𐰄 + 𐰅 𐰆 /n^εm hⁱs^εn + n^εki/ *second row*: 𐰇 𐰈 𐰉 𐰊 𐰋 /hⁱs^εk fiu:n^εk/, it means: ‘He does not believe + Him \ I believe Son’ (Ioh. 3, 18), it is a citation from the *Gospel of John* (Vékony 2004; Zelliger 2010-2011).

⚡ CIRCLE ENDED O

The Szekely-Hungarian Rovas 𐰃 O is the derivative of the Carpathian Basin Rovas 𐰄 O, and the Szekely-Hungarian Rovas ⚡ CIRCLE ENDED O is the direct descendant of the Glagolitic 𐰆 ON (Vékony 1986). See also the discussion of the Vargyas relic in Fig. 5.4.1-9.

⚡ OPEN OE

This character exists in the N4254; however, with erroneous name: NIKOLSBURG OE. The relic-based naming is originated from the static model of the Rovas paleography from the first half of the 20th century. The system of the character-naming used in the proposals of the Hungarian NB is based on the phonetic value of the character and in case of more than one character representing the same sound value the differentiation is by their topological attributes. E.g. the Szekely-Hungarian Rovas capital letters of /ø/ are the followings:

𐰃	ROVAS CAPITAL LETTER OE
𐰄	ROVAS CAPITAL LETTER OEE
𐰅	ROVAS CAPITAL LETTER CLOSE OE UE
𐰆	ROVAS CAPITAL LETTER CLOSE OEE UEE
𐰇	ROVAS CAPITAL LETTER OPEN OE

𐰈 SCH

𐰈 SCH was derived from 𐰉 ZS, probably in the 17th century. They have distinct sound values: 𐰉 ZS /ʒ/ and 𐰈 SCH /ʃ/. Besides their historical significance, there is a need for their use in the present-day Szekely-Hungarian Rovas orthography, especially in German-origin Hungarian family names: *Fischer* 𐰉𐰊𐰋𐰌𐰍, *Schiller* 𐰉𐰊𐰋𐰌𐰍𐰎.

1 OPEN V

1 OPEN V /β/ was also common in the Carpathian Basin Rovas. 1 OPEN V disappeared from Szekely-Hungarian Rovas in the 12th-13th centuries, when the linguistic change /β>/b/v/ occurred in the Hungarian language (E. Abaffy 2003b, p. 303). Its use is attested in the Székelydália relic (Fig. 5.4.1-11).

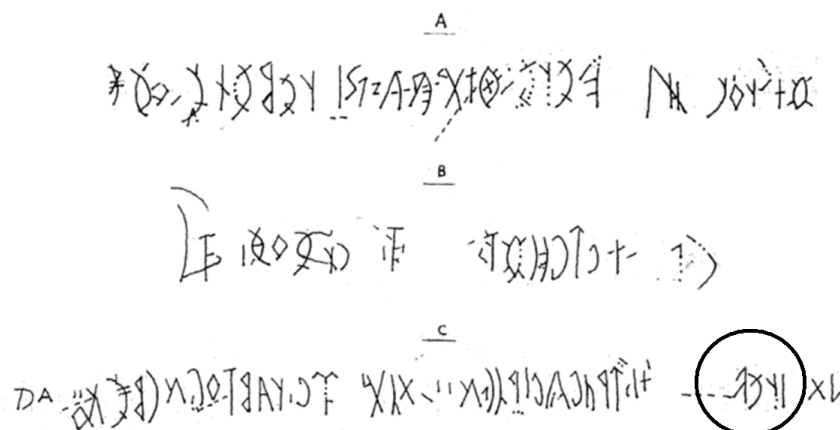


Figure 5.4.1-11: The Székelydália Inscription (14th c., Ráduly 2000) with 1 OPEN V in the word 1>Yl /εstεndεβ/ 'year' (archaic form of the present-day /εstεndø:/ 'year', Zelliger 2010-2011).

Ǻ CLOSE OE UE and ǻ CLOSE OEE UEE

The characters Ǻ CLOSE OE UE and ǻ CLOSE OEE UEE have been used for denoting both vowels /ø/ (lower mid front rounded vowel) and /y/ (high front rounded vowel). Among others, the famous linguist Gyula Németh also indicated in his Szekely-Hungarian Rovas alphabet that the character ǻ CLOSE OEE UEE denoted both vowels (Németh 1934).

Parallelisms

The clear majority of the Rovas characters represent individual phonemes. However, there are some character pairs representing the same phonemes, e.g. Ǿ F and Ǿ DIAGONAL F; 1 J and Ǿ LY; Ǿ K, 1 OPEN K and Ǿ SHARP K; Ǿ O and 1 CIRCLE ENDED O; X OE and Ǿ OPEN OE; Ǿ R and Ǿ SIMPLE R; Ǿ S and Ǿ SCH.

The case of Ǿ V and Ǿ W is slightly different, since earlier the same phoneme (*voiced labiodental fricative*) were represented by both of them, but the latest generations of Hungarian speakers can differentiate between the *voiced labiodental fricative* and the original sound value (*labiovelar approximant*) for Ǿ W in case of English loanwords. Moreover, their existence is based both on traditional and contemporary Rovas orthographies.

Differently, the 1 Y has multiple sound value, representing /i/ and /j/, especially in the traditional family names.

The character Ǿ X and Ǿ Q represents phoneme pairs, the Ǿ X /ks/; and Ǿ Q represents /kv/ in traditional names and loanwords.

Note, the characters Ǿ X, 1 Y as well have long-term traditions in the Szekely-Hungarian Rovas: in 1627, M. Bonyhai Moga used the first Rovas glyphs for X, Y and Q (Fig. 5.4.1-12).

them would lead to ambiguity, as the following example demonstrates. The Hungarian word *evvel* ‘with this’ can be transcribed with individual letters as $\mathbb{A}\mathfrak{Z}\mathbb{M}\mathfrak{M}\mathfrak{Z}$ and it can be written with a ligature as $\mathbb{A}\mathfrak{Z}\mathbb{M}\mathfrak{M}\mathfrak{Z}$, too. In the latter case, the $\mathbb{M}\mathbb{V}\mathbb{V}$ is a true ligature of $\mathbb{M}\mathbb{V} + \mathbb{M}\mathbb{V}$, where the $\mathbb{M}\mathbb{V}\mathbb{V}$ can be rendered by the ZERO-WIDTH JOINER. Consequently, the two distinct ligatures of two $\mathbb{M}\mathbb{V}$ characters ($\mathbb{M}\mathbb{W}$ and $\mathbb{M}\mathbb{V}\mathbb{V}$) would have different orthographical values: the $\mathbb{M}\mathbb{W}$ is an individual letter, but the $\mathbb{M}\mathbb{V}\mathbb{V}$ is duplicated letter.

5.4.2. Carpathian Basin Rovas Letters

Common with Szekely-Hungarian Rovas

The following Carpathian Basin Rovas characters are identical to the appropriate Szekely-Hungarian Rovas characters. Thus, there is no need to encode them individually. Instead, it is proposed to use the appropriate Rovas characters from the Szekely-Hungarian Rovas character sub-group.

$\mathbb{X}\mathbb{B}$, $\mathbb{U}\mathbb{C}\mathbb{S}$, $\mathbb{V}\mathbb{O}\mathbb{P}\mathbb{E}\mathbb{N}\mathbb{K}$, $\mathbb{O}\mathbb{L}\mathbb{Y}$, $\mathbb{N}\mathbb{G}\mathbb{H}$, $\mathbb{P}$, $\mathbb{I}\mathbb{S}\mathbb{Z}$, $\mathbb{V}\mathbb{O}\mathbb{P}\mathbb{E}\mathbb{N}\mathbb{V}$, $\mathbb{A}\mathbb{S}\mathbb{H}\mathbb{A}\mathbb{R}\mathbb{P}\mathbb{K}$

Not common with Szekely-Hungarian Rovas

The following characters have strong RTL direction.

$\mathbb{Y}\mathbb{F}\mathbb{O}\mathbb{R}\mathbb{K}\mathbb{E}\mathbb{D}\mathbb{A}$, $\mathbb{D}\mathbb{S}\mathbb{H}\mathbb{A}\mathbb{R}\mathbb{P}\mathbb{D}$, $\mathbb{E}\mathbb{D}\mathbb{I}\mathbb{A}\mathbb{G}\mathbb{O}\mathbb{N}\mathbb{A}\mathbb{L}\mathbb{E}$, $\mathbb{Y}\mathbb{F}\mathbb{O}\mathbb{R}\mathbb{K}\mathbb{E}\mathbb{D}\mathbb{E}$, $\mathbb{F}\mathbb{O}\mathbb{P}\mathbb{E}\mathbb{N}\mathbb{F}$, $\mathbb{G}\mathbb{F}\mathbb{O}\mathbb{R}\mathbb{K}\mathbb{E}\mathbb{D}\mathbb{G}$, $\mathbb{G}\mathbb{S}\mathbb{I}\mathbb{M}\mathbb{P}\mathbb{L}\mathbb{E}\mathbb{G}$, $\mathbb{H}\mathbb{S}\mathbb{H}\mathbb{A}\mathbb{R}\mathbb{P}\mathbb{H}$, $\mathbb{C}\mathbb{H}\mathbb{S}\mathbb{H}\mathbb{A}\mathbb{R}\mathbb{P}$, $\mathbb{I}\mathbb{A}\mathbb{N}\mathbb{G}\mathbb{L}\mathbb{E}\mathbb{D}\mathbb{I}$, $\mathbb{I}\mathbb{C}\mathbb{I}\mathbb{R}\mathbb{C}\mathbb{L}\mathbb{E}\mathbb{E}\mathbb{N}\mathbb{D}\mathbb{E}\mathbb{D}\mathbb{I}$, $\mathbb{I}\mathbb{A}\mathbb{R}\mathbb{C}\mathbb{H}\mathbb{E}\mathbb{D}\mathbb{I}$, $\mathbb{J}\mathbb{C}\mathbb{L}\mathbb{O}\mathbb{S}\mathbb{E}\mathbb{J}$, $\mathbb{K}\mathbb{U}\mathbb{E}$, $\mathbb{L}\mathbb{F}\mathbb{O}\mathbb{R}\mathbb{K}\mathbb{E}\mathbb{D}\mathbb{L}$, $\mathbb{L}\mathbb{S}\mathbb{I}\mathbb{M}\mathbb{P}\mathbb{L}$, $\mathbb{M}\mathbb{O}\mathbb{P}\mathbb{E}\mathbb{N}\mathbb{M}$, $\mathbb{N}\mathbb{G}$, $\mathbb{N}\mathbb{S}\mathbb{H}\mathbb{A}\mathbb{R}\mathbb{P}\mathbb{N}$, $\mathbb{O}\mathbb{P}\mathbb{E}\mathbb{N}\mathbb{O}$, $\mathbb{P}\mathbb{S}\mathbb{I}\mathbb{M}\mathbb{P}\mathbb{P}$, $\mathbb{Q}\mathbb{A}\mathbb{R}\mathbb{C}\mathbb{H}\mathbb{E}\mathbb{D}\mathbb{Q}$, $\mathbb{R}\mathbb{C}\mathbb{L}\mathbb{O}\mathbb{S}\mathbb{E}\mathbb{R}$, $\mathbb{S}\mathbb{C}\mathbb{L}\mathbb{O}\mathbb{S}\mathbb{E}\mathbb{S}$, $\mathbb{T}\mathbb{C}\mathbb{L}\mathbb{O}\mathbb{S}\mathbb{E}\mathbb{T}$, $\mathbb{T}\mathbb{O}\mathbb{P}\mathbb{E}\mathbb{N}\mathbb{T}$, $\mathbb{U}\mathbb{S}\mathbb{H}\mathbb{A}\mathbb{R}\mathbb{P}\mathbb{U}$, $\mathbb{U}\mathbb{F}\mathbb{O}\mathbb{R}\mathbb{K}\mathbb{E}\mathbb{D}\mathbb{U}$, $\mathbb{U}\mathbb{E}\mathbb{A}\mathbb{R}\mathbb{C}\mathbb{H}\mathbb{E}\mathbb{D}\mathbb{U}\mathbb{E}$, $\mathbb{Z}\mathbb{O}\mathbb{P}\mathbb{E}\mathbb{N}\mathbb{Z}$

5.5. Ligatures

Ligatures are widely used in the Rovas.¹⁰ These are usually not systematic; they are applied on occasion mainly for space saving purposes. In modern computing, the ligatures belong to the presentation and not the character definition; they should be generated by improved digital typesetting techniques.

6. Ordering

In ordering, the Common Template Table defined in the International Standard ISO/IEC 14651 is adapted (LaBonté 2007a, LaBonté 2007b). The ordering requires different levels:

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 each sub-group, the following order is required:

Szekely-Hungarian Rovas sub-group

$\mathbb{A} < \mathbb{A}\mathbb{A} < \mathbb{X}\mathbb{B} < \mathbb{C} < \mathbb{U}\mathbb{C}\mathbb{S} < \mathbb{D} < \mathbb{D}\mathbb{Z} < \mathbb{D}\mathbb{Z}\mathbb{S} < \mathbb{E} < \mathbb{E}\mathbb{C}\mathbb{L}\mathbb{O}\mathbb{S}\mathbb{E} < \mathbb{E}\mathbb{E} < \mathbb{F} < \mathbb{F}\mathbb{D}\mathbb{I}\mathbb{A}\mathbb{G}\mathbb{O}\mathbb{N}\mathbb{A}\mathbb{L} < \mathbb{G} < \mathbb{G}\mathbb{H} < \mathbb{G}\mathbb{Y} < \mathbb{H} < \mathbb{C}\mathbb{H} < \mathbb{I} < \mathbb{I}\mathbb{I} < \mathbb{J} < \mathbb{K} < \mathbb{A}\mathbb{S}\mathbb{H}\mathbb{A}\mathbb{R}\mathbb{P}\mathbb{K} <$

¹⁰ <http://books.google.hu/books?id=TyK8azCqC34C&pg=PA184>, Section 8.1.8.

1 OPEN K < 2 L < 3 LY < 4 M < 5 MB < 6 N < 7 NY < 8 O < 9 CIRCLE ENDED O < 10 OO <
 11 OE < 12 OPEN OE < 13 OEE < 14 P < 15 Q < 16 R < 17 SIMPLE R < 18 S < 19 SCH < 20 SZ < 21 T <
 22 TY < 23 U < 24 UU < 25 CLOSE OE UE < 26 OPEN UE < 27 CLOSE OEE UEE < 28 OPEN UEE <
 29 V < 30 OPEN V < 31 W < 32 X < 33 Y < 34 Z < 35 ZS < 36 AMB < 37 AND < 38 ANT < 39 EMP <
 40 ENC < 41 ENT < 42 MB < 43 NAP < 44 TPRU < 45 TPRUS < 46 NB < 47 UNK < 48 US

Carpathian Basin Rovas sub-group

1 FORKED A < 2 B < 3 CS < 4 SHARP D < 5 DIAGONAL E < 6 FORKED E < 7 OPEN F <
 8 FORKED G < 9 SIMPLE G < 10 SHARP H < 11 SHARP CH < 12 ANGLED I <
 13 CIRCLE ENDED I < 14 ARCHED I < 15 CLOSE J < 16 OPEN K < 17 SHARP K < 18 KUE <
 19 FORKED L < 20 SIMPLE L < 21 LY < 22 OPEN M < 23 N < 24 SHARP N < 25 NG < 26 OPEN O <
 27 GH < 28 P < 29 SIMPLE P < 30 ARCHED Q < 31 CLOSE R < 32 CLOSE S < 33 SZ < 34 CLOSE T <
 35 OPEN T < 36 SHARP U < 37 FORKED U < 38 ARCHED UE < 39 OPEN V < 40 OPEN Z

Rovas Numerals sub-group

1 ONE < 2 FIVE < 3 TEN < 4 FIFTY < 5 ONE HUNDRED < 6 FIVE HUNDRED <
 7 ONE THOUSAND

Level 2: This breaks ties on quasi-homographs (strings differ only because they have different diacritical marks). In ordering table (LaBonté 2010):

<[A] [Duplicating mark]>:

level 1 : [a][a]

level 2 : [distinction entry indicating that it is not exactly [A][A] but [A][duplicating mark]]

level 3 : [upper case]

[...]

<[b] [Duplicating mark]>:

level 1 : [b][b]

level 2 : [distinction entry indicating that it is not exactly [b][b] but [b][duplicating mark]]

level 3 : [lower case]

[...]

In the Rovas there is no diacritical mark; however, it cannot be discounted that someone will use combining characters in entering the data (LaBonté 2010).

Level 3: This level breaks ties for quasi-homographs that differ only because uppercase and lowercase characters are used. In the Szekely-Hungarian Rovas orthography all characters have uppercase and lowercase versions.

Level 4: In the case of the Rovas, the Level 4 ordering does not differ from the same level in the case of the usual Hungarian Latin orthography (LaBonté 2012).

7. Unicode Character Properties

In the following the proposed naming and coding of the ROVAS block is listed. These charts contain only proposed assignments.

7.1. Code chart of the **PUNCTUATION SYMBOLS** in *Supplemental Punctuation block in BMP*

2E00

Supplemental Punctuation (portion)

2E7F

	2E4
1	◌ 2E41
2	◌◌ 2E42
3	× 2E43
4	◌◌ 2E44
5	⌘ 2E45
6	⸢ 2E46
7	⸣ 2E47
8	⌘ 2E48
9	⌘ 2E49
A	◌ 2E4A

- 2E41 ◌ REVERSED COMMA
- Used in Szekely-Hungarian Rovas with right-to-left and boustrophedon directions
 - U+002C , comma
 - U+060C ﻛ Arabic comma
- 2E42 ◌◌ DOUBLE LOW-REVERSED-9 QUOTATION MARK
- used in Szekely-Hungarian Rovas with right-to-left and boustrophedon directions
 - U+201E „ double low-9 quotation mark
- 2E43 × WORD SEPARATOR CROSS
- used in Szekely-Hungarian Rovas
 - U+00D7 × Multiplication sign
- 2E44 ◌◌ DOUBLE COMMA-LIKE HYPHEN
- used in Szekely-Hungarian Rovas with right-to-left direction in historical Rovas relics
- 2E45 ⌘ DOUBLE CROSS FULL STOP
- used in Szekely-Hungarian Rovas
- 2E46 ⸢ BEGINNING MARK RIGHT
- used in Szekely-Hungarian Rovas
 - U+29D8 ⸢ LEFT WIGGLY FENCE

- 2E47 𐌿 BEGINNING MARK LEFT
- used in Szekely-Hungarian Rovas
- U+29D9 𐌿 RIGHT WIGGLY FENCE
- 2E48 𐌾 END OF MESSAGE MARK
- used in Szekely-Hungarian Rovas
- 2E49 𐌽 WORD SEPARATOR VERTICAL CROSS
- Used in historic Szekely-Hungarian Rovas inscriptions
 - Usually uses full cap height
- 002B Plus Sign
- 2E4A 𐌾 WORD SEPARATOR VERTICAL BAR
- Used in historic Carpathian Basin Rovas inscriptions

7.2. Code chart of the ROVAS NUMERALS sub-group of the ROVAS block in SMP

1x100

ROVAS Characters

1x10F

	1x10
0	𐌿 1x100
1	𐌿 1x101
2	𐌿 1x102
3	𐌿 1x103
4	𐌿 1x104
5	𐌿 1x105
6	𐌿 1x106
7	𐌿 1x107
8	𐌿 1x108
9	𐌿 1x109
A	𐌿 1x10A
B	𐌿 1x10B
C	𐌿 1x10C
D	𐌿 1x10D
E	𐌿 1x10E
F	𐌿 1x10F

NUMBERS

1x100; ▣ <reserved, shall not be used>
• Reserved for ROVAS NUMBER ZERO

1x101; | ROVAS NUMBER ONE;No;0;R;;;;N;;;;;

1x102; ▣ <reserved, shall not be used>
• Reserved for || ROVAS NUMBER TWO

1x103; ▣ <reserved, shall not be used>
• Reserved for ||| ROVAS NUMBER THREE

1x104; ▣ <reserved, shall not be used>
• Reserved for |||| ROVAS NUMBER FOUR

1x105; V ROVAS NUMBER FIVE;No;0;R;;;;N;;;;;

1x106; X ROVAS NUMBER TEN;No;0;R;;;;N;;;;;

1x107; V ROVAS NUMBER FIFTY;No;0;R;;;;N;;;;;

1x108; X ROVAS NUMBER ONE HUNDRED;No;0;R;;;;N;;;;;

1x109; V ROVAS NUMBER FIVE HUNDRED;No;0;R;;;;N;;;;;

1x10A; * ROVAS NUMBER ONE THOUSAND;No;0;R;;;;N;;;;;

1x10B; (This position shall not be used)

1x10C; (This position shall not be used)

1x10D; (This position shall not be used)

1x10E; (This position shall not be used)

1x10F; (This position shall not be used)

7.3. Code chart of the *SZEKELY-HUNGARIAN ROVAS* sub-group of the *ROVAS* block in *SMP*

1x000

ROVAS Characters

1x09F

	1x00	1x01	1x02	1x03	1x04	1x05	1x06	1x07	1x08	1x09
0	𐄀 1x000	𐄁 1x010	𐄂 1x020	𐄃 1x030	𐄄 1x040	𐄅 1x050	𐄆 1x060	𐄇 1x070	𐄈 1x080	𐄉 1x090
1	𐄐 1x001	𐄑 1x011	𐄒 1x021	𐄓 1x031	𐄔 1x041	𐄕 1x051	𐄖 1x061	𐄗 1x071	𐄘 1x081	𐄙 1x091
2	𐄚 1x002	𐄛 1x012	𐄜 1x022	𐄝 1x032	𐄞 1x042	𐄟 1x052	𐄠 1x062	𐄡 1x072	𐄢 1x082	𐄣 1x092
3	𐄤 1x003	𐄥 1x013	𐄦 1x023	𐄧 1x033	𐄨 1x043	𐄩 1x053	𐄪 1x063	𐄫 1x073	𐄬 1x083	𐄭 1x093
4	𐄮 1x004	𐄯 1x014	𐄰 1x024	𐄱 1x034	𐄲 1x044	𐄳 1x054	𐄴 1x064	𐄵 1x074	𐄶 1x084	𐄷 1x094
5	𐄸 1x005	𐄹 1x015	𐄺 1x025	𐄻 1x035	𐄼 1x045	𐄽 1x055	𐄾 1x065	𐄿 1x075	𐅀 1x085	𐅁 1x095
6	𐅂 1x006	𐅃 1x016	𐅄 1x026	𐅅 1x036	𐅆 1x046	𐅇 1x056	𐅈 1x066	𐅉 1x076	𐅊 1x086	𐅋 1x096
7	𐅌 1x007	𐅍 1x017	𐅎 1x027	𐅏 1x037	𐅐 1x047	𐅑 1x057	𐅒 1x067	𐅓 1x077	𐅔 1x087	𐅕 1x097
8	𐅖 1x008	𐅗 1x018	𐅘 1x028	𐅙 1x038	𐅚 1x048	𐅛 1x058	𐅜 1x068	𐅝 1x078	𐅞 1x088	𐅟 1x098
9	𐅠 1x009	𐅡 1x019	𐅢 1x029	𐅣 1x039	𐅤 1x049	𐅥 1x059	𐅦 1x069	𐅧 1x079	𐅨 1x089	𐅩 1x099
A	𐅪 1x00A	𐅫 1x01A	𐅬 1x02A	𐅭 1x03A	𐅮 1x04A	𐅯 1x05A	𐅰 1x06A	𐅱 1x07A	𐅲 1x08A	𐅳 1x09A
B	𐅴 1x00B	𐅵 1x01B	𐅶 1x02B	𐅷 1x03B	𐅸 1x04B	𐅹 1x05B	𐅺 1x06B	𐅻 1x07B	𐅼 1x08B	𐅽 1x09B
C	𐅿 1x00C	𐆀 1x01C	𐆁 1x02C	𐆂 1x03C	𐆃 1x04C	𐆄 1x05C	𐆅 1x06C	𐆆 1x07C	𐆇 1x08C	𐆈 1x09C
D	𐆉 1x00D	𐆊 1x01D	𐆋 1x02D	𐆌 1x03D	𐆍 1x04D	𐆎 1x05D	𐆏 1x06D	𐆐 1x07D	𐆑 1x08D	𐆒 1x09D
E	𐆔 1x00E	𐆕 1x01E	𐆖 1x02E	𐆗 1x03E	𐆘 1x04E	𐆙 1x05E	𐆚 1x06E	𐆛 1x07E	𐆜 1x08E	𐆝 1x09E
F	𐆟 1x00F	𐆠 1x01F	𐆡 1x02F	𐆢 1x03F	𐆣 1x04F	𐆤 1x05F	𐆥 1x06F	𐆦 1x07F	𐆧 1x08F	𐆨 1x09F

UPPERCASE LETTERS

- 1x000; 𐄀 ROVAS CAPITAL LETTER A
 1x001; 𐄐 ROVAS CAPITAL LETTER AA
 1x002; 𐄚 ROVAS CAPITAL LETTER B
 1x003; 𐄤 ROVAS CAPITAL LETTER C
 1x004; 𐄮 ROVAS CAPITAL LETTER CS

1x005; † ROVAS CAPITAL LETTER D
 → 1x00F; † rovas capital letter i
 1x006; ⚡ ROVAS CAPITAL LETTER DZ
 1x007; ¥ ROVAS CAPITAL LETTER DZS
 1x008; Ɔ ROVAS CAPITAL LETTER E
 1x009; Ɔ ROVAS CAPITAL LETTER CLOSE E
 → 1x00E; Ɔ rovas capital letter h
 1x00A; Ɔ ROVAS CAPITAL LETTER EE
 1x00B; ⦿ ROVAS CAPITAL LETTER F
 1x00C; ⦿ ROVAS CAPITAL LETTER G
 1x00D; † ROVAS CAPITAL LETTER GY
 1x00E; Ɔ ROVAS CAPITAL LETTER H
 → 1x009; Ɔ rovas capital letter close e
 1x00F; † ROVAS CAPITAL LETTER I
 → 1x005; † rovas capital letter d
 1x010; † ROVAS CAPITAL LETTER II
 1x011; † ROVAS CAPITAL LETTER J
 1x012; ⦿ ROVAS CAPITAL LETTER K
 1x013; † ROVAS CAPITAL LETTER OPEN K
 1x014; ⦿ ROVAS CAPITAL LETTER L
 1x015; ⦿ ROVAS CAPITAL LETTER LY
 → 1x03B; ⦿ rovas capital letter us
 → 1x03D; ⦿ rovas capital letter diagonal f
 1x016; Ɔ ROVAS CAPITAL LETTER M
 1x017; Ɔ ROVAS CAPITAL LETTER N
 1x018; Ɔ ROVAS CAPITAL LETTER NY
 1x019; Ɔ ROVAS CAPITAL LETTER O
 1x01A; Ɔ ROVAS CAPITAL LETTER OO
 1x01B; Ɔ ROVAS CAPITAL LETTER OE
 1x01C; Ɔ ROVAS CAPITAL LETTER OEE
 1x01D; Ɔ ROVAS CAPITAL LETTER P
 1x01E; Ɔ ROVAS CAPITAL LETTER Q
 1x01F; Ɔ ROVAS CAPITAL LETTER R
 1x020; Ɔ ROVAS CAPITAL LETTER S
 1x021; Ɔ ROVAS CAPITAL LETTER SZ
 1x022; Ɔ ROVAS CAPITAL LETTER T
 1x023; Ɔ ROVAS CAPITAL LETTER TY
 1x024; Ɔ ROVAS CAPITAL LETTER U
 1x025; Ɔ ROVAS CAPITAL LETTER UU
 1x026; Ɔ ROVAS CAPITAL LETTER CLOSE OE UE
 → 1x028; Ɔ rovas capital letter close oee uee
 1x027; Ɔ ROVAS CAPITAL LETTER OPEN UE
 → 1x029; Ɔ rovas capital letter open uee
 → 1x03F; Ɔ rovas capital letter gh
 → 1x042; Ɔ rovas capital letter open oe
 1x028; Ɔ ROVAS CAPITAL LETTER CLOSE OEE UEE
 → 1x026; Ɔ rovas capital letter close oe ue
 1x029; Ɔ ROVAS CAPITAL LETTER OPEN UEE

→ 1x027; 𐌛 rovas capital letter open ue
 → 1x03F; 𐌚 rovas capital letter gh
 → 1x042; 𐌛 rovas capital letter open oe
 1x02A; 𐌚 ROVAS CAPITAL LETTER V
 1x02B; 𐌛 ROVAS CAPITAL LETTER W
 1x02C; 𐌜 ROVAS CAPITAL LETTER X
 1x02D; 𐌝 ROVAS CAPITAL LETTER Y
 → 1x045; 𐌞 rovas capital letter open v
 1x02E; 𐌟 ROVAS CAPITAL LETTER Z
 1x02F; 𐌠 ROVAS CAPITAL LETTER ZS
 1x030; 𐌡 ROVAS CAPITAL LETTER AMB
 1x031; 𐌢 ROVAS CAPITAL LETTER AND
 1x032; 𐌣 ROVAS CAPITAL LETTER ANT
 → 1x034; 𐌤 rovas capital letter ent
 1x033; 𐌥 ROVAS CAPITAL LETTER EMP
 1x034; 𐌦 ROVAS CAPITAL LETTER ENT
 → 1x032; 𐌧 rovas capital letter ant
 1x035; 𐌨 ROVAS CAPITAL LETTER TPRUS
 1x036; 𐌩 ROVAS CAPITAL LETTER TPRU
 1x037; 𐌪 ROVAS CAPITAL LETTER MB
 1x038; 𐌫 ROVAS CAPITAL LETTER NAP
 1x039; 𐌬 ROVAS CAPITAL LETTER NB
 1x03A; 𐌭 ROVAS CAPITAL LETTER UNK
 1x03B; 𐌮 ROVAS CAPITAL LETTER US
 → 1x015; 𐌯 rovas capital letter ly
 → 1x03D; 𐌰 rovas capital letter diagonal f
 1x03C; 𐌱 ROVAS CAPITAL LETTER ENC
 1x03D; 𐌲 ROVAS CAPITAL LETTER DIAGONAL F
 → 1x015; 𐌳 rovas capital letter ly
 → 1x03B; 𐌴 rovas capital letter us
 1x03E; 𐌵 ROVAS CAPITAL LETTER CH
 1x03F; 𐌶 ROVAS CAPITAL LETTER GH
 → 1x027; 𐌛 rovas capital letter open ue
 → 1x029; 𐌷 rovas capital letter open uee
 → 1x042; 𐌛 rovas capital letter open oe
 1x040; 𐌸 ROVAS CAPITAL LETTER SHARP K
 1x041; 𐌹 ROVAS CAPITAL LETTER CIRCLE ENDED O
 1x042; 𐌺 ROVAS CAPITAL LETTER OPEN OE
 → 1x027; 𐌛 rovas capital letter open ue
 → 1x029; 𐌷 rovas capital letter open uee
 → 1x03F; 𐌚 rovas capital letter gh
 1x043; 𐌻 ROVAS CAPITAL LETTER SIMPLE R
 1x044; 𐌼 ROVAS CAPITAL LETTER SCH
 1x045; 𐌽 ROVAS CAPITAL LETTER OPEN V
 → 1x02D; 𐌝 rovas capital letter y
 1x046; (This position shall not be used)
 1x047; (This position shall not be used)
 1x048; (This position shall not be used)

1x049; (This position shall not be used)
 1x04A; (This position shall not be used)
 1x04B; (This position shall not be used)
 1x04C; (This position shall not be used)
 1x04D; (This position shall not be used)
 1x04E; (This position shall not be used)
 1x04F; (This position shall not be used)

LOWERCASE LETTERS

1x050; 4 ROVAS SMALL LETTER A
 1x051; 4 ROVAS SMALL LETTER AA
 1x052; X ROVAS SMALL LETTER B
 1x053; ↑ ROVAS SMALL LETTER C
 1x054; 𐌸 ROVAS SMALL LETTER CS
 1x055; † ROVAS SMALL LETTER D
 → 1x05F; † rovas small letter i
 1x056; 𐌹 ROVAS SMALL LETTER DZ
 1x057; 𐌺 ROVAS SMALL LETTER DZS
 1x058; 𐌻 ROVAS SMALL LETTER E
 1x059; 𐌼 ROVAS SMALL LETTER CLOSE E
 → 1x05E; 𐌼 rovas small letter h
 1x05A; 𐌽 ROVAS SMALL LETTER EE
 1x05B; 𐌾 ROVAS SMALL LETTER F
 1x05C; 𐌿 ROVAS SMALL LETTER G
 1x05D; 𐍀 ROVAS SMALL LETTER GY
 1x05E; 𐍁 ROVAS SMALL LETTER H
 → 1x059; 𐌼 rovas small letter close e
 1x05F; † ROVAS SMALL LETTER I
 → 1x055; † rovas small letter d
 1x060; 𐍂 ROVAS SMALL LETTER II
 1x061; 𐍃 ROVAS SMALL LETTER J
 1x062; 𐍄 ROVAS SMALL LETTER K
 1x063; 𐍅 ROVAS SMALL LETTER OPEN K
 1x064; 𐍆 ROVAS SMALL LETTER L
 1x065; 𐍇 ROVAS SMALL LETTER LY
 → 1x08B; 𐍇 rovas small letter us
 → 1x08D; 𐍇 rovas small letter diagonal f
 1x066; 𐍈 ROVAS SMALL LETTER M
 1x067; 𐍉 ROVAS SMALL LETTER N
 1x068; 𐍊 ROVAS SMALL LETTER NY
 1x069; 𐍋 ROVAS SMALL LETTER O
 1x06A; 𐍌 ROVAS SMALL LETTER OO
 1x06B; 𐍍 ROVAS SMALL LETTER OE
 1x06C; 𐍎 ROVAS SMALL LETTER OEE
 1x06D; 𐍏 ROVAS SMALL LETTER P
 1x06E; 𐍐 ROVAS SMALL LETTER Q
 1x06F; 𐍑 ROVAS SMALL LETTER R
 1x070; 𐍒 ROVAS SMALL LETTER S
 1x071; 𐍓 ROVAS SMALL LETTER SZ
 1x072; 𐍔 ROVAS SMALL LETTER T
 1x073; 𐍕 ROVAS SMALL LETTER TY
 1x074; 𐍖 ROVAS SMALL LETTER U
 1x075; 𐍗 ROVAS SMALL LETTER UU
 1x076; 𐍘 ROVAS SMALL LETTER CLOSE OE UE
 → 1x078; 𐍘 rovas small letter close oee uee

1x077; 𐌛 ROVAS SMALL LETTER OPEN UE
 → 1x079; 𐌚 rovas small letter open uee
 → 1x08F; 𐌞 rovas small letter gh
 → 1x092; 𐌟 rovas small letter open oe
 1x078; 𐌝 ROVAS SMALL LETTER CLOSE OEE UEE
 → 1x076; 𐌜 rovas small letter close oe ue
 1x079; 𐌚 ROVAS SMALL LETTER OPEN UEE
 → 1x077; 𐌛 rovas small letter open ue
 → 1x08F; 𐌞 rovas small letter gh
 → 1x092; 𐌟 rovas small letter open oe
 1x07A; 𐌶 ROVAS SMALL LETTER V
 1x07B; 𐌷 ROVAS SMALL LETTER W
 1x07C; 𐌸 ROVAS SMALL LETTER X
 1x07D; 𐌹 ROVAS SMALL LETTER Y
 → 1x095; 𐌺 rovas small letter open v
 1x07E; 𐌺 ROVAS SMALL LETTER Z
 1x07F; 𐌻 ROVAS SMALL LETTER ZS
 1x080; 𐌽 ROVAS SMALL LETTER AMB
 1x081; 𐌾 ROVAS SMALL LETTER AND
 1x082; 𐌿 ROVAS SMALL LETTER ANT
 → 1x084; 𐍀 rovas small letter ent
 1x083; 𐍁 ROVAS SMALL LETTER EMP
 1x084; 𐍂 ROVAS SMALL LETTER ENT
 → 1x082; 𐌿 rovas small letter ant
 1x085; 𐍃 ROVAS SMALL LETTER TPRUS
 1x086; 𐍄 ROVAS SMALL LETTER TPRU
 1x087; 𐍅 ROVAS SMALL LETTER MB
 1x088; 𐍆 ROVAS SMALL LETTER NAP
 1x089; 𐍇 ROVAS SMALL LETTER NB
 1x08A; 𐍈 ROVAS SMALL LETTER UNK
 1x08B; 𐍉 ROVAS SMALL LETTER US
 → 1x08D; 𐍊 rovas small letter diagonal f
 → 1x065; 𐍋 rovas small letter ly
 1x08C; 𐍌 ROVAS SMALL LETTER ENC
 1x08D; 𐍍 ROVAS SMALL LETTER DIAGONAL F
 → 1x065; 𐍋 rovas small letter ly
 → 1x08B; 𐍉 rovas small letter us
 1x08E; 𐍎 ROVAS SMALL LETTER CH
 1x08F; 𐍏 ROVAS SMALL LETTER GH
 → 1x077; 𐌛 rovas small letter open ue
 → 1x079; 𐌚 rovas small letter open uee
 → 1x092; 𐌟 rovas small letter open oe
 1x090; 𐍐 ROVAS SMALL LETTER SHARP K
 1x091; 𐍑 ROVAS SMALL LETTER CIRCLE ENDED O
 1x092; 𐍒 ROVAS SMALL LETTER OPEN OE
 → 1x077; 𐌛 rovas small letter open ue
 → 1x079; 𐌚 rovas small letter open uee
 → 1x08F; 𐌞 rovas small letter gh
 1x093; 𐍓 ROVAS SMALL LETTER SIMPLE R
 1x094; 𐍔 ROVAS SMALL LETTER SCH
 1x095; 𐍕 ROVAS SMALL LETTER OPEN V
 → 1x07D; 𐌹 rovas small letter y
 1x096; (This position shall not be used)

1x097; (This position shall not be used)
1x098; (This position shall not be used)
1x099; (This position shall not be used)
1x09A; (This position shall not be used)
1x09B; (This position shall not be used)
1x09C; (This position shall not be used)
1x09D; (This position shall not be used)
1x09E; (This position shall not be used)
1x09F; (This position shall not be used)

7.4. Code chart of the CARPATHIAN BASIN ROVAS sub-group of the ROVAS block in SMP

1x0A0

ROVAS Characters

1x0BF

	1x0A	1x0B
0	Ÿ 1x0A0	Ʒ 1x0B0
1	Ǝ 1x0A1	Ʒ 1x0B1
2	Ǝ 1x0A2	Ʒ 1x0B2
3	Ÿ 1x0A3	Ʒ 1x0B3
4	Ÿ 1x0A4	Ÿ 1x0B4
5	Ÿ 1x0A5	8 1x0B5
6	Ÿ 1x0A6	Ÿ 1x0B6
7	Ÿ 1x0A7	Ÿ 1x0B7
8	Ÿ 1x0A8	Ÿ 1x0B8
9	Ÿ 1x0A9	Ÿ 1x0B9
A	Ÿ 1x0AA	Ÿ 1x0BA
B	Ÿ 1x0AB	Ÿ 1x0BB
C	Ÿ 1x0AC	Ÿ 1x0BC
D	Ÿ 1x0AD	Ÿ 1x0BD
E	Ÿ 1x0AE	Ÿ 1x0BE
F	Ÿ 1x0AF	Ÿ 1x0BF

1x0A0; Ÿ ROVAS LETTER FORKED A
 1x0A1; Ǝ ROVAS LETTER SHARP D
 1x0A2; Ǝ ROVAS LETTER DIAGONAL E
 1x0A3; Ÿ ROVAS LETTER FORKED E

→ 1x022; ʏ rovas capital letter t
 1x0A4; ʏ ROVAS LETTER OPEN F
 → 1x045; ʏ rovas capital letter open v
 1x0A5; ʏ ROVAS LETTER FORKED G
 1x0A6; ʏ ROVAS LETTER SIMPLE G
 → 1x043; ʏ rovas capital letter simple r
 1x0A7; ʏ ROVAS LETTER SHARP H
 1x0A8; ʏ ROVAS LETTER SHARP CH
 1x0A9; ʏ ROVÁS LETTER ANGLED I
 → 1x011; ʏ rovas capital letter j
 → 1x0B4; ʏ rovas letter simple p
 1x0AA; ʏ ROVAS LETTER CIRCLE ENDED I
 1x0AB; ʏ ROVAS LETTER ARCHED I
 1x0AC; ʏ ROVAS LETTER CLOSE J
 → 1x018; ʏ rovas capital letter ny
 1x0AD; ʏ ROVAS LETTER KUE
 1x0AE; ʏ ROVAS LETTER FORKED L
 1x0AF; ʏ ROVAS LETTER SIMPLE L
 → 1x017; ʏ rovas capital letter n
 1x0B0; ʏ ROVAS LETTER OPEN M
 1x0B1; ʏ ROVAS LETTER NG
 1x0B2; ʏ ROVAS LETTER SHARP N
 1x0B3; ʏ ROVAS LETTER OPEN O
 1x0B4; ʏ ROVAS LETTER SIMPLE P
 → 1x011; ʏ rovas capital letter j
 1x0B5; ʏ ROVAS LETTER ARCHED Q
 1x0B6; ʏ ROVAS LETTER CLOSE R
 1x0B7; ʏ ROVAS LETTER CLOSE S
 1x0B8; ʏ ROVAS LETTER CLOSE T
 1x0B9; ʏ ROVAS LETTER OPEN T
 1x0BA; ʏ ROVAS LETTER SHARP U
 1x0BB; ʏ ROVAS LETTER FORKED U
 1x0BC; ʏ ROVAS LETTER ARCHED UE
 1x0BD; ʏ ROVAS LETTER OPEN Z
 1x0BE; (This position shall not be used)
 1x0BF; (This position shall not be used)

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9. Appendix: Proposal Summary form

ISO/IEC JTC 1/SC 2/WG 2 PROPOSAL SUMMARY FORM TO ACCOMPANY SUBMISSIONS FOR ADDITIONS TO THE REPERTOIRE OF ISO/IEC 10646¹¹ 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.
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A. Administrative

1. Title:	Revised proposal for encoding the Rovas in the UCS
2. Requester's name:	Jenő Demeczky, Dr. Gábor Hosszú, Tamás Rumi, László Sípós, & Dr. Erzsébet Zelliger
3. Requester type (Member body/Liaison/Individual contribution):	Individual contribution
4. Submission date:	October 14, 2012
5. Requester's reference (if applicable):	http://wiki.rovas.info , http://www.rovas.info
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:	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:	187
3. Proposed category (select one from below - see section 2.2 of P&P document):	
A-Contemporary ☒	B.1-Specialized (small collection) ☐
C-Major extinct ☐	B.2-Specialized (large collection) ☐
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

¹¹ Form number: N3152-F (Original 1994-10-14; Revised 1995-01, 1995-04, 1996-04, 1996-08, 1999-03, 2001-05, 2001-09, 2003-11, 2005-01, 2005-09, 2005-10, 2007-03, 2008-05)

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?	Tamás Rumi and László Sípos
If available now, identify source(s) for the font (include address, e-mail, ftp-site, etc.) and indicate the tools used:	
Tamás Rumi and László Sípos, FontCreator	
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?	Tamás Rumi, Rovas Info News Portal, Rovaspedia; László Sípos, Rovas Foundation
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:	Contemporary use by Hungarians, in Hungary, the Carpathian Basin and world-wide.
4. The context of use for the proposed characters (type of use; common or rare)	Common with increasing popularity
Reference:	All characters form a complete system; they are mostly used contemporary. Increasing number of home pages use Szekely-Hungarian Rovas.
5. Are the proposed characters in current use by the user community?	Yes
If YES, where? Reference:	In Hungary, in Romania (mainly in Szekelyland), in Slovakia, in Serbia, in Ukraine and in every place where Hungarians live. There are competitions of Szekely-Hungarian Rovas users in Germany, in USA, in Canada among others. Scholars and researchers dealing with Rovas all over the world.
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:	