

L2/09-312R

ISO/IEC JTC 1/SC 2/WG 2
PROPOSAL SUMMARY FORM TO ACCOMPANY SUBMISSIONS
FOR ADDITIONS TO THE REPERTOIRE OF ISO/IEC 10646¹.

Please fill all the sections A, B and C below.

Please read Principles and Procedures Document (P & P) from <http://www.dkuug.dk/JTC1/SC2/WG2/docs/principles.html> for guidelines and details before filling this form.

Please ensure you are using the latest Form from <http://www.dkuug.dk/JTC1/SC2/WG2/docs/summaryform.html>.

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A. Administrative

1. Title:	Proposed additions to the Runic Range, L2/09-312	
2. Requester's name:	Małgorzata Deroń	
3. Requester type (Member body/Liaison/Individual contribution):	Individual	
4. Submission date:	Oct. 29, 2009	
5. Requester's reference (if applicable):	prof. dr hab. Jacek Fisiak, prof. dr hab. Marcin Krygier	
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):		
Proposed name of script:		
b. The proposal is for addition of character(s) to an existing block:	Yes	
Name of the existing block:	Runic Range 16A0-16F0 [Combining Diacritical Marks Supplement 1DC0-1DFF]	
2. Number of characters in proposal:	variable: 7 + (1) + 16/[12 + 1] see: 2. Justification (ii) & 4. Description	
3. Proposed category (select one from below - see section 2.2 of P&P document):		
A-Contemporary	B.1-Specialized (small collection)	B.2-Specialized (large collection)
C-Major extinct	<input checked="" type="checkbox"/> D-Attested extinct	E-Minor extinct
F-Archaic Hieroglyphic or Ideographic		G-Obscure or questionable usage symbols
4. Is a repertoire including character names provided?	Yes	
a. If YES, are the names in accordance with the "character naming guidelines" in Annex L of P&P document?	Yes	
b. Are the character shapes attached in a legible form suitable for review?	Yes	
5. Who will provide the appropriate computerized font (ordered preference: True Type, or PostScript format) for publishing the standard?	Requester, True Type	
If available now, identify source(s) for the font (include address, e-mail, ftp-site, etc.) and indicate the tools used:	mderon@ifa.amu.edu.pl , FontCreator 5.6 Home Edition	
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)?	No	

8. Additional Information:

Submitters are invited to provide any additional information about Properties of the proposed Character(s) or Script that will assist in correct understanding of and correct linguistic processing of the proposed character(s) or script. Examples of such properties are: Casing information, Numeric information, Currency information, Display behaviour information such as line breaks, widths etc., Combining behaviour, Spacing behaviour, Directional behaviour, Default Collation behaviour, relevance in Mark Up contexts, Compatibility equivalence and other Unicode normalization related information. See the Unicode standard at <http://www.unicode.org> for such information on other scripts. Also see <http://www.unicode.org/Public/UNIDATA/UCD.html> and associated Unicode Technical Reports for information needed for consideration by the Unicode Technical Committee for inclusion in the Unicode Standard.

¹ Form number: N3152-F (Original 1994-10-14; Revised 1995-01, 1995-04, 1996-04, 1996-08, 1999-03, 2001-05, 2001-09, 2003-11, 2005-01, 2005-09, 2005-10, 2007-03, 2008-05)

C. Technical - Justification

1. Has this proposal for addition of character(s) been submitted before?	Yes
If YES explain	This proposal was originally submitted on Sept. 4 2009, following which the requester received valuable feedback from Rick McGowan, Karl Pentzlin, Peter Constable and Deborah W. Anderson, and revised the proposal accordingly.
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.)?	No
If YES, with whom?	
If YES, available relevant documents:	
3. Information on the user community for the proposed characters (for example: size, demographics, information technology use, or publishing use) is included?	Scholarly community
Reference:	
4. The context of use for the proposed characters (type of use; common or rare)	Rare
Reference:	
5. Are the proposed characters in current use by the user community?	Yes
If YES, where? Reference:	Scholarly publications on runology; see: 3. Bibliography
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)?	No
8. Can any of the proposed characters be considered a presentation form of an existing character or character sequence?	Yes
If YES, is a rationale for its inclusion provided?	Yes
If YES, reference:	Enclosed; see: 2. Justification (i)
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?	Yes
If YES, is a rationale for its inclusion provided?	Yes
If YES, reference:	Enclosed; see: 2. Justification (i)
11. Does the proposal include use of combining characters and/or use of composite sequences?	[Yes]
If YES, is a rationale for such use provided?	[Yes]
If YES, reference:	[Enclosed; see: 2. Justification (ii)]
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:	

	16A	16B	16C	16D	16E	16F	xxx
0	𐛆 16A0	𐛇 16B0	𐛈 16C0	𐛉 16D0	𐛊 16E0	𐛋 16F0	𐛌 xxx0
1	𐛍 16A1	𐛎 16B1	𐛏 16C1	𐛐 16D1	𐛑 16E1	𐛒 16F1	𐛓 xxx1
2	𐛔 16A2	𐛕 16B2	𐛖 16C2	𐛗 16D2	𐛘 16E2	𐛙 16F2	𐛚 xxx2
3	𐛜 16A3	𐛝 16B3	𐛞 16C3	𐛟 16D3	𐛠 16E3	𐛡 16F3	𐛢 xxx3
4	𐛤 16A4	𐛥 16B4	𐛦 16C4	𐛧 16D4	𐛨 16E4	𐛩 16F4	𐛪 xxx4
5	𐛮 16A5	𐛯 16B5	𐛰 16C5	𐛱 16D5	𐛲 16E5	𐛳 16F5	𐛴 xxx5
6	𐛶 16A6	𐛷 16B6	𐛸 16C6	𐛹 16D6	𐛺 16E6	𐛻 16F6	𐛼 xxx6
7	𐛾 16A7	𐛿 16B7	𐜀 16C7	𐜁 16D7	𐜂 16E6	𐜃 16F7	𐜄 xxx7
8	𐜆 16A8	𐜇 16B8	𐜈 16C8	𐜉 16D8	𐜊 16E8	𐜋 16F8	𐜌 xxx8
9	𐜎 16A9	𐜏 16B9	𐜐 16C9	𐜑 16D9	𐜒 16E9	16F9	𐜓 xxx9
A	𐜖 16AA	𐜗 16BA	𐜘 16CA	𐜙 16DA	𐜚 16EA	16FA	𐜛 xxxA
B	𐜞 16AB	𐜟 16BB	𐜠 16CB	𐜡 16DB	· 16EB	16FB	𐜣 xxxB
C	𐜬 16AC	𐜭 16BC	𐜮 16CC	◇ 16DC	⋮ 16EC	16FC	𐜯 xxxC
D	𐜲 16AD	𐜳 16BD	𐜴 16CD	⊗ 16DD	⊕ 16ED	16FD	⋮ xxxD
E	𐜶 16AE	𐜷 16BE	↓ 16CE	⊗ 16DE	↑ 16EE	16FE	𐜹 xxxE
F	𐜼 16AF	𐜽 16BF	↑ 16CF	⊗ 16DF	⊕ 16EF	16FF	⋮ xxxF

typical of a given runic alphabet – there being no extant identifiable standard (which is not to say that such models did not exist). “Seim (1998: 52-4) draws attention to the arbitrary treatment accorded to certain features in three representative presentations of standardized *futharks*: branches may be curved or straight, bows round or angular, open or closed, and connections with the vertical made at different heights” (Barnes 2006: 17-18). Consequently, there is little reason to select, for instance, the straight ƿ instead of the curved ƿ, or vice versa. Some scholars justify and explain their choices, e.g. Page (1999: 40), whose English epigraphical runes are shown “in their classical form, made up of straight lines only”, intended for being carved in wood, since “it is plausible that, in a society where pen, ink, paper or parchment were not easily come by but where everyone carried a knife, wood would be ideal for recording bargains, sending messages, declaring ownership, expressing orders and so on”. Other cases “give the impression of being the result of authorial whim (...) [and] reveal (...) arbitrariness, and a number of inexplicable oddities” (Barnes 2006: 18). Even futharks based on alphabet sequences, such as Kylvær and Vadstena (Table 1), Thames (Table 2), or Gørlev (Table 3), attest to either differing interpretations or differing representation choices among their respective authors.

If standardised futharks are once-removed from the reality of rune carvers and runic inscriptions, then the Unicode Runic Range is a twice-removed abstraction, being the outcome of “a long process of unification and analysis” (Rick McGowan, p.c.) of those standardised futharks. Some choices resulting from this process allow a degree of freedom in application, regardless of the names assigned to forms: one can, for instance, depict the particular shape of:

- the Runic Letter Long-Branch-Oss as the 16A8 ƿ or the 16AC ƿ,
- the Runic Letter Short-Twig-Oss as the 16AD ƿ, the 16A8 ƿ, or the 16AC ƿ,
- the Runic Letter Haglaz as the 16BA ƿ or the 16BB ƿ,
- the Runic Letter Sowilo as the 16CA ƿ or the 16CB ƿ,
- the Runic Letter Eolhx / Long-Branch-Madr as either the 16C9 ƿ or the 16D8 ƿ,
- the Runic Letter Short-Twig-Bjarkan as the 16D3 ƿ or the 16AF ƿ,
- the Runic Letter Calc / Long-Branch-Yr as either the 16E3 ƿ or the 16E6 ƿ.

All of these abstract realisations of their respective models can be found in standardised runic alphabets presented by Elliott (1959: 18, 22-23), Page (1999: 39, 42, 80-81, 202-203), Looijenga (2003: 6-7, 197-199, 333), and Spurkland (2005: 5, 11, 75), included here in Tables

1-3 and Figures 1 (a-i), 2 (a-j), 3 (a-i), as well as in the wealth of other academic publications, handbooks and articles.

In other cases, however, unification is detrimental to representation. 16BD † and 16C2 † are identical, even though selecting † for the SHORT-TWIG HAGALL would still leave the choice between representing that rune as either † or the 16C2 †. Moreover, there is a group of runes where single shapes exist in the Runic Range, even though in practice they occur in at least two variants. Of these, the straight ~ curved pairs: ƿ ~ ƿ̄ (16A0), ʀ ~ ʀ̄ (16A2), ʁ ~ ʁ̄ (16A6), ʀ (16B1) ~ ʀ̄, ƿ (16B9) ~ ƿ̄, ʁ (16D2) ~ ʁ̄, the closed ~ open pair: ƿ̄ ~ ƿ̄̄ (16D2), and the barred ~ dotted pair: † ~ †̄ (16D9), are the most common. These might be viewed as allographs in the sense of s ~ f positional allography (rather than the handwritten idiosyncratic allography), except that the context for their occurrence would depend on the techniques and materials used (e.g., wood/carved vs. stone/chiselled). However, in keeping with the practice of assigning shapes to certain abstract entities, I would like to propose introducing a straight vs. curved contrast as a *delineation* separating the Elder Futhark and Anglo-Saxon/Frisian runes from the Younger Futhark and medieval runes – in an attempt to force some degree of artificial uniformity purely for the purpose of encoding in the Unicode Standard. Alphabets included in the range would therefore be nominally standardised in the following way:

- (1, 2) Elder Futhark and Anglo-Frisian/Saxon runes – represented, where applicable, by staves with *straight twigs* and pointed bows (cf. Tables 1 & 2)
- (3a) Younger Futhark (long-branch) – represented, where applicable, by staves with *curved twigs*, bows, pockets or loops (cf. Table 3)
- (3b) Younger Futhark (short-twig) and medieval runes – represented, where applicable, by *curved twigs*, bows, pockets or loops, with or without staves (cf. Table 3)
- (4) Medieval runes – represented, where applicable, by *straight* and *curved twigs*, bows, pockets or loops, with or without staves.

The introduction of this particular distinction between *straight-twigged* and *curved-twigged* futharks serves a specific purpose: it facilitates a more thorough representation of runic inscriptions and adequately shows links between certain runes. One might argue that such is not the purpose of Unicode, that new characters should not be encoded “unless some evidence can be found to show they contrast and mean something different (that is, one letter can’t typically be substituted for the other and still be understood or, if it was substituted, it would be considered ‘wrong’)” (Deborah W. Anderson, p.c.). Such aspects as ‘correctness’ and intelligibility are difficult to judge from the distance of over a millennium (if they pertain to the original artefacts and their users), and characterised by flexibility in interpretation (as

far as modern scholars are concerned). While the very presence of a given shape in the runic inscription does not automatically presuppose the ability of its owner or even author to read and/or ‘write’, it is, nevertheless, highly probable to have been the case, especially for the latter. Therefore, a literate person would, most likely, be able to identify e.g. both \mathfrak{S} and \mathfrak{V} as representing the same rune, which, however, can also be said for \mathfrak{Y} and \mathfrak{Y} , or \mathfrak{L} and \mathfrak{L} , or other aforementioned cases for which adequate realisations, including the potential for variable use, do exist in the Runic Range. For instance, looking at the ‘s’ \mathfrak{S} (16CA) ~ \mathfrak{H} (16CB) and ‘h’ \mathfrak{N} (16BA) ~ \mathfrak{N} (16BB), it is noticeable that they represent distinct characters in the Unicode; nevertheless, both pairs appear in inscriptions found in Scandinavia, in England, and on the continent:

- \mathfrak{S} in: Nydam I $\mathfrak{P}\mathfrak{F}\mathfrak{X}\mathfrak{F}\mathfrak{X}\mathfrak{F}\mathfrak{S}\mathfrak{T}\mathfrak{Y}$ ‘wagagastiz’, Vimose IV $\mathfrak{X}\mathfrak{I}\mathfrak{S}\mathfrak{I}\mathfrak{O}\mathfrak{J}$ ‘gisaiøj’; Boarley $\mathfrak{S}\mathfrak{I}\mathfrak{L}$ ‘sil’, Skanomodu $\mathfrak{S}\mathfrak{K}\mathfrak{A}\mathfrak{N}\mathfrak{O}\mathfrak{M}\mathfrak{O}\mathfrak{D}\mathfrak{U}$ ‘skanomodu’ (Looijenga 2003: 156, 160, 278, 308);
- \mathfrak{H} in: Pforzen I $\mathfrak{G}\mathfrak{A}\mathfrak{S}\mathfrak{O}\mathfrak{K}\mathfrak{U}\mathfrak{N}$ ‘gasokun’, Pforzen II $\mathfrak{G}\mathfrak{I}\mathfrak{S}\mathfrak{A}\mathfrak{L}\mathfrak{I}$ ‘gisali’; Loveden Hill $\mathfrak{S}\mathfrak{I}\mathfrak{P}\mathfrak{A}\mathfrak{E}$ ‘sīpæ-’, Westeremden-A $\mathfrak{J}\mathfrak{I}\mathfrak{S}\mathfrak{U}\mathfrak{H}\mathfrak{I}\mathfrak{D}\mathfrak{U}$ ‘jisuhidu’ (Looijenga 2003: 253, 265, 281, 311);
- \mathfrak{N} in: Vimose II $\mathfrak{M}\mathfrak{A}\mathfrak{R}\mathfrak{I}\mathfrak{H}\mathfrak{A}$ ‘mariha’, Garbølle $\mathfrak{H}\mathfrak{A}\mathfrak{G}\mathfrak{I}\mathfrak{R}\mathfrak{A}\mathfrak{D}\mathfrak{A}\mathfrak{Z}$ ‘hagiradaz’; Caistor-by-Norwich $\mathfrak{R}\mathfrak{A}\mathfrak{I}\mathfrak{H}\mathfrak{A}\mathfrak{N}$ ‘raihan’, Wakerley $\mathfrak{B}\mathfrak{U}\mathfrak{H}\mathfrak{U}\mathfrak{I}$ ‘buhui’ (Looijenga 2003: 158, 164, 284-285, 287);
- \mathfrak{N} in: Thames scramasax $\mathfrak{F}\mathfrak{U}\mathfrak{P}\mathfrak{O}\mathfrak{R}\mathfrak{G}\mathfrak{W}\mathfrak{H}\mathfrak{N}\mathfrak{I}\mathfrak{J}\mathfrak{I}\mathfrak{P}\mathfrak{Z}\mathfrak{S}\mathfrak{T}\mathfrak{B}\mathfrak{E}\mathfrak{N}\mathfrak{G}\mathfrak{D}\mathfrak{L}\mathfrak{M}$ ‘fuporcgwhnijīpzstbengdlm æ a æ y ea’, Brandon pin $\mathfrak{F}\mathfrak{U}\mathfrak{P}\mathfrak{O}\mathfrak{R}\mathfrak{G}\mathfrak{W}\mathfrak{H}\mathfrak{N}\mathfrak{I}\mathfrak{J}\mathfrak{I}\mathfrak{P}\mathfrak{Z}\mathfrak{S}$ ‘fuporcgwhnijīpzs’; Bezenye I $\mathfrak{G}\mathfrak{O}\mathfrak{D}\mathfrak{A}\mathfrak{H}\mathfrak{I}\mathfrak{D}$ ‘godahid’, Friedberg $\mathfrak{H}\mathfrak{I}\mathfrak{L}\mathfrak{D}$ ‘hild’ (Looijenga 2003: 198, 199, 230, 241-242; Page 1999: 80, 81).

This co-occurrence of $\mathfrak{S} \sim \mathfrak{H}$ and $\mathfrak{N} \sim \mathfrak{N}$ in Elder Futhark and of $\mathfrak{N} \sim \mathfrak{N}$ in Anglo-Saxon/Frisian futhark¹, contrasted with the Unicode designation inferred from their naming, might suggest that there is scope to add the so-called ‘variants’ for other runes as well. It is true that second instances in the pairs mentioned above are less common than the first – the fact which probably influenced the existing Standard; the same, however, may be claimed with regard to other pairs, namely $\mathfrak{V} \sim \mathfrak{V}$, $\mathfrak{N} \sim \mathfrak{N}$, $\mathfrak{D} \sim \mathfrak{D}$, $\mathfrak{R} \sim \mathfrak{R}$, $\mathfrak{P} \sim \mathfrak{P}$, $\mathfrak{B} \sim \mathfrak{B}$, and $\mathfrak{Y} \sim \mathfrak{Y}$, which are currently unified to and represented by single characters: \mathfrak{V} , \mathfrak{N} , \mathfrak{D} , \mathfrak{R} , \mathfrak{P} , \mathfrak{B} , and \mathfrak{Y} . Of these, unification to \mathfrak{V} , \mathfrak{N} , and \mathfrak{D} seems to favour variants less common in both Elder Futhark and Anglo-Saxon/Frisian inscriptions *as interpreted* by Looijenga (2003)²; cf. Spurkland (2005)³. Excluding inscriptions that are impossible to read in the context, the differences between Looijenga and Spurkland, and instances of the less common or rare employment of certain shapes (e.g., $\mathfrak{V}/\mathfrak{V}$ as ‘l’, \mathfrak{N} as ‘r’, or \mathfrak{V} as ‘n’), there is still a staggering majority of examples which may be, and, in the case of Looijenga, are, transliterated using *straight twig* variants:

	f	u	þ
<i>straight twig</i>	ƿ	ᚢ	ᚦ
	58	188	71
<i>curved twig</i>	ƿ	ᚢ	ᚦ
	---	22	3

The same can be said for the Anglo-Saxon/Frisian futhork. Considering the parent-daughter relationship between the Elder Futhork and the Anglo-Saxon/Frisian runes, continuation, as well as changes, are to be expected. There are certain additions to represent sounds absent in the parent language; some runes, such as ᚥ and ᚢ, reflect shapes which also occurred in Elder Futhork as less common variants; the majority of characters, however, are identical to those in the parent alphabet, the *straight twig* ƿ, ᚢ, and ᚦ being among them⁴.

A special rune, occurring in both alphabets is the bind-rune ƿ. In Elder Futhork it represents the ‘ng’ sequence, while in Anglo-Saxon Futhork it is a variant of ‘œ’ (for futhorks see: Elliott 1959: 34, Page 1999: 80). According to Looijenga (2003: 102):

The [ŋ] rune ƿ may be a variant of ƿ. The rune’s square form ƿ or ƿ without a hasta only occurs in the futhork inscriptions of Kylver and Vadstena (both Sweden); in the Opedal (Norway) inscription its presence is uncertain. In semantically intelligible texts, it always appears with a headstaff, representing a bindrune, combining l and ƿ = ƿ (ing). Instances of texts containing the sequence **ing** are: **kingia** (Aquincum), **marings** (Szabadbattyán), **inguz** (Wijnaldum A), **witring** (Slemminge) and **ingo** (Køng). The one exception (just **ng**) is **rango** (Leṭcani).

With respect to the Anglo-Saxon context, Page (1999: 40) claims that it “appears occasionally epigraphically and rather more often in manuscripts”. Yet, despite its possible double function, this rune is not encoded, a less common variant appearing in its place.

Following the artificial division into straight-twigged and curved-twigged futhorks, the entities representing the long-branch and the short-twig runes would also be enriched by the addition of the curved R and B. Moreover, the alphabets in this third group would benefit from the aforementioned change of the dotted SHORT-TWIG HAGALL † (16D9) into a barred rune † and the addition of the closed-type LONG-BRANCH MADR ƿ rune. In the current version ƿ stands for both the long-branch and the medieval ‘m’, even though ƿ is an equally valid candidate for the long-branch alphabet (cf. Table 3), the introduction of which still leaves the medieval ‘m’ ƿ as a variant. Furthermore, ƿ can also double as a variant form of the Elder Futhork ‘ŋ’ ƿ (cf. Table 1).

Apart from offering greater flexibility in representing runes and a degree of uniformity currently absent, some of the proposed additions also facilitate demonstration of relationships between various shapes and symbols:

- the rune ‘f’ ƿ, cf. the Roman F,
 - the runes ‘u’ ʁ and ‘y’ ʁ, cf. the Roman V, the Old Italic V and Y,
 - the runes ‘þ’ þ and ‘d’ ƿ / ƿ, with ƿ / ƿ being a doubled/mirrored form of þ,
 - the rune ‘r’ ʀ, cf. the Roman R,
 - the runes ‘b’ ʁ and ‘p’ ʁ, c.f. the Roman B, the Old Italic ʁ,
- thus enabling the depiction of potential joint origins and evolution of forms.

Most importantly, however, all seven additions are in their way distinct: the straight-twig ƿ, ʁ, and þ cannot be considered to be variants of the curved-twig ƿ, ʁ, and þ; rather, the three pairs are allographs of 3 abstract entities: the *fehu-feoh-fé-f* rune, the *uruz-ūr-úrr-u* rune, and the *þurisaz-þorn-þurs-þ* rune, all unmarked with respect to curving. Similarly, ʀ and ʁ are not variants of the straight-twig ʀ and ʁ, but are realisations of the concept of the *raidō-rād-reið-r* and *berkanan-beorc-bjarkan-b* runes, just as † and † represent the abstract (short-twig) *hagall* and the abstract (long-branch) *madr*, respectively.

Within the Runic Range several dotted runes are encoded. Of these, ƿ (16B6), † (16BD/16C2), † (16C0), and † (16CD), as well as † (16D1) and † (16DB)⁵, can just as easily be achieved by applying a dot · combining mark to ƿ (16B4), † (16C1), † (16BE), † (16CD), † (16D0), and † (16DA), respectively. Moreover, there are such pairs as ʁ and ʀ, distinct in form, but not value, since both represent /p/, or † (16CD) and † (16CD) that *de facto*, if not according to their names, represent /s/⁶. This is mentioned not as a criticism, but to point out that some degree of redundancy and overlapping within the range is already present – which is only natural due to its unique, multi-alphabetical character and lack of a(n extant) standard for any of its *standardised* component futharks. It might therefore be possible to extend similar courtesy to certain other forms, approaching the issue of ‘variants’ less rigorously in recognition of the complexities and variformity of runic inscriptions.

(ii)

While other medieval runic alphabets are relatively well-represented in the Runic Range, the staveless futhark, also referred to as “Viking Age shorthand or ‘stenography’” (Spurkland 2005: 78), is altogether missing. Four of the already encoded shapes (16C1, 16CC, 16CD, and 16E7) resemble staveless runes minus an overline and a low line, but probably there has been no intention for these to stand for staveless runes. Therefore up to 16 additions would be necessary to incorporate the standardised staveless runic alphabet into Unicode. This can be done in two ways:

- by introducing 16 new forms with their two horizontal lines (overline and low line), or
- by introducing 12 forms to the Runic Range, as well as 1 combining mark consisting of an overline and a low line, and utilising the 4 shapes already present in the Runic Range, namely 16C1 |, 16CC †, 16CD ‡, and 16E7 ı.

	16 additions	12 additions: base characters	characters already encoded		
f	ƒ	ƒ			
u	u	u			
þ	þ	þ			
o	o	o			
r	r	r			
k	k		‡	16CD	c
h	h		†	16CC	R
n	n	o			
i	i			16C1	i
a	a	o			
s	s		ı	16E7	s
t	t	o			
b	b	o			
m	m	o			
l	l	o			
z	z	o			

(Mn)		–
		–

(iii)

It has also been suggested to me that “looking, e.g., at the table in http://en.wikipedia.org/wiki/Dalecarlian_runes, there are hints that there in fact exist Runic characters still unencoded (e.g. in the row labelled ‘z’)” (Karl Pentzlin, p.c.). While it is true that there are several runes as yet unencoded, this applies not only to Dalecarlian runes, but to all runic alphabets in general. To adequately represent them all, even in their abstracted form, would require a separate dedicated font. Following Barnes (2006: 17):

In the selection of the actual graphs to go into standardized *fuparks*, neatness and abstraction are the guiding principles. Printed runes, presumably because of the nature of printing, seem always to be characterised by regularity of form; and being, as it were, common denominators, they are based not on particular graphs in particular inscriptions but chiefly on conceptions of the features that distinguish the characters to be included.

This might be easier for futharks already present in the Runic Range and for staveless runes, than it is for Dalecarlian runes, the latter being a later development of medieval runes and exhibiting not only very little consistency even of possible concepts of distinguishing features, but also the influence of Latin markedly greater than that in the earlier futharks.

Table 4 gives an overview of Dalecarlian runes based on the chronologically arranged overview published in *Fornvännen* in 1906, with symbols being my own attempts at achieving some common denominators. Numerous runes resemble those already encoded in the Runic Range, though not always representing their designated letters and frequently in a mirror form, whereby it is difficult to establish their direct source. All such cases are left unmarked in Table 4; the shaded cells contain forms unencoded in the Runic Range in either their given or mirror shape.

I am advocating neither exclusion nor inclusion of these forms in the Unicode, as I do not feel sufficiently informed regarding late medieval and later developments of runes. This brief section is meant only as an acknowledgement of the existence of possible further extensions involving Dalecarlian runes in particular.

3. Bibliography

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4. Description

(i) ADDITIONS TO THE EXISTING 5 RUNIC ALPHABETS

7 additions to the Runic Range (16F1-16F7)

CODE	RUNE	DESCRIPTION
16F1		staff ⁷ + 2 straight right twigs upwards (lower from the middle up)
16F2		staff + straight right branch downwards from the top to the bottom
16F3		staff + right pointed loop
16F4		staff + right curved loop from the top and right straight branch from the middle downwards
16F5		staff + 2 right curved loops
16F6		top circle + headstaff
16F7		top square at 45 degree angle + headstaff

```
16A1;RUNIC LETTER FEHU FEOH;Lo;0;L;;;;;N;;;;;
16F2;RUNIC LETTER URUZ UR;Lo;0;L;;;;;N;;;;;
16F3;RUNIC LETTER THURISAZ THORN;Lo;0;L;;;;;N;;;;;
    → 00FE þ Latin small letter thorn
16F4;RUNIC LETTER REID R;Lo;0;L;;;;;N;;;;;
16F5;RUNIC LETTER BJARKAN B;Lo;0;L;;;;;N;;;;;
16F6;RUNIC LETTER CLOSED-M;Lo;0;L;;;;;N;;;;;
16F7;RUNIC LETTER BIND-RUNE ING;Lo;0;L;;;;;N;;;;;
```

1 change or 1 addition to the Runic Range (16BD/16F8)

CODE	RUNE	DESCRIPTION
16BD		existing encoding; identical with 16C2; middle dot to be replaced by a middle bar; OR new encoding
16F8		vertical + middle bar

```
16F8;RUNIC LETTER SHORT-TWIG-HAGALL2;Lo;0;L;;;;;N;;;;;
```

(ii) ADDITIONS REPRESENTING STAVELESS RUNES

The proposed shapes differ slightly from the standardised staveless futharks (Table 3) presented by Elliott (1959: 23) and Spurkland (2005: 77), inasmuch as they are roughly modelled on the *Gullskoen* font.

16 additions to the Runic Range (xxx0-xxxF)

CODE	RUNE	DESCRIPTION
xxx0	— ┆	low half-height vertical + middle point above; placed between, but not connected with, an overline and a low line
xxx1	— ┆ └	bow from the middle downwards, curved in its upper part; placed between, but not connected with, an overline and a low line
xxx2	— ┆ —	middle half-height vertical; placed between, but not connected with, an overline and a low line
xxx3	— ┆ ↘	low straight twig with a slant downwards to the right; placed between, but not connected with, an overline and a low line
xxx4	— ┆ └	bow from the middle downwards, curved in its lower part; placed between, but not connected with, an overline and a low line
xxx5	┆ —	top half-height vertical + middle point below; placed between, but not connected with, an overline and a low line
xxx6	— ┆	low half-height vertical; placed between, but not connecting with, an overline and a low line
xxx7	— ┆ ↘	middle straight twig with a slant downwards; placed between, but not connected with, an overline and a low line
xxx8	— ┆ ┆	vertical; placed between, but not connected with, an overline and a low line
xxx9	— ┆ ↗	middle straight twig with a slant upwards; placed between, but not connected with, an overline and a low line
xxxA	┆ —	high half-height vertical; placed between, but not connected with, an overline and a low line
xxxB	┆ — ↗	high straight twig with a slant upwards; placed between, but not connected with, an overline and a low line
xxxC	— ┆ ↗	low straight twig with a slant upwards; placed between, but not connected with, an overline and a low line
xxxD	— ┆ ┆ —	high double dot; placed between, but not connected with, an overline and a low line
xxxE	— ┆ ↘	high straight twig with a slant downwards; placed between, but not connected with, an overline and a low line
xxxF	— ┆ ┆ —	low double dot; placed between, but not connected with, an overline and a low line

```

xxx0;RUNIC LETTER STAVELESS-FE;Lo;0;L;;;;N;;;;;
xxx1;RUNIC LETTER STAVELESS-UR;Lo;0;L;;;;N;;;;;
xxx2;RUNIC LETTER STAVELESS-THURS;Lo;0;L;;;;N;;;;;
xxx3;RUNIC LETTER STAVELESS-OSS;Lo;0;L;;;;N;;;;;
xxx4;RUNIC LETTER STAVELESS-REID;Lo;0;L;;;;N;;;;;
xxx5;RUNIC LETTER STAVELESS-KAUN;Lo;0;L;;;;N;;;;;
xxx6;RUNIC LETTER STAVELESS-HAGALL;Lo;0;L;;;;N;;;;;
xxx7;RUNIC LETTER STAVELESS-NAUD;Lo;0;L;;;;N;;;;;
xxx8;RUNIC LETTER STAVELESS-ISS;Lo;0;L;;;;N;;;;;
xxx9;RUNIC LETTER STAVELESS-AR;Lo;0;L;;;;N;;;;;
xxxA;RUNIC LETTER STAVELESS-SOL;Lo;0;L;;;;N;;;;;
xxxB;RUNIC LETTER STAVELESS-TYR;Lo;0;L;;;;N;;;;;
xxxC;RUNIC LETTER STAVELESS-BJARKAN;Lo;0;L;;;;N;;;;;
xxxD;RUNIC LETTER STAVELESS-MADR;Lo;0;L;;;;N;;;;;
xxxE;RUNIC LETTER STAVELESS-LOGR;Lo;0;L;;;;N;;;;;
xxxF;RUNIC LETTER STAVELESS-YR;Lo;0;L;;;;N;;;;;

```

OR

12 additions to the Runic Range (xxx0-xxxB) and 1 addition to the Combining Diacritical Marks Supplement (1Dxx)

CODE	RUNE	DESCRIPTION
xxx0	‡	low half-height vertical + middle point above
xxx1	᳚	bow from the middle downwards, curved in its upper part
xxx2	‡	middle half-height vertical
xxx3	᳛	low straight twig with a slant downwards to the right
xxx4	᳜	bow from the middle downwards, curved in its lower part
xxx5	᳝	middle straight twig with a slant downwards
xxx6	᳞	middle straight twig with a slant upwards
xxx7	᳟	high straight twig with a slant upwards
xxx8	᳠	low straight twig with a slant upwards
xxx9	᳡	high double dot
xxxA	᳢	high straight twig with a slant downwards
xxxB	᳣	low double dot
1Dxx	— —	an overline and a low line; to be applied to the proposed xxx0-xxxB (above) and to 16CD, 16E7, 16C1, and 16CC

```

xxx0;RUNIC LETTER STAVELESS-FE;Lo;0;L;;;;N;;;;;
xxx1;RUNIC LETTER STAVELESS-UR;Lo;0;L;;;;N;;;;;
xxx2;RUNIC LETTER STAVELESS-THURS;Lo;0;L;;;;N;;;;;
xxx3;RUNIC LETTER STAVELESS-OSS;Lo;0;L;;;;N;;;;;
xxx4;RUNIC LETTER STAVELESS-REID;Lo;0;L;;;;N;;;;;
xxx5;RUNIC LETTER STAVELESS-NAUD;Lo;0;L;;;;N;;;;;
xxx6;RUNIC LETTER STAVELESS-AR;Lo;0;L;;;;N;;;;;
xxx7;RUNIC LETTER STAVELESS-TYR;Lo;0;L;;;;N;;;;;
xxx8;RUNIC LETTER STAVELESS-BJARKAN;Lo;0;L;;;;N;;;;;
xxx9;RUNIC LETTER STAVELESS-MADR;Lo;0;L;;;;N;;;;;
xxxA;RUNIC LETTER STAVELESS-LOGR;Lo;0;L;;;;N;;;;;
xxxB;RUNIC LETTER STAVELESS-YR;Lo;0;L;;;;N;;;;;
1Dxx;COMBINING RUNIC OVERLINE AND LOW LINE;Mn;???;NSM;;;;;N;;;;;

```

In the 16 additions variant, all characters would be of equal width, with no white space before or after. In the 12+1 additions variant, the sum total of a character width and white space would equal the width of the combining mark.

EARLY RUNIC INSCRIPTIONS FROM ENGLAND AND THE NETHERLANDS

Loveden Hill (Page 1999: 115)

sīþæbæ/ld þicþ hlaw

𐌺𐌰𐌿𐌸𐌰𐌺𐌰𐌺𐌰 𐌸𐌰𐌺𐌰 𐌸𐌰𐌺𐌰

Monkwearmouth I (Page 1999: 139)

tidfirþ

𐌹𐌸𐌺𐌰𐌺𐌰

Thornhill II (Page 1999: 141)

eadred | seteæfte | eateinne

𐌹𐌸𐌺𐌰𐌺𐌰
𐌺𐌰𐌸𐌰𐌺𐌰𐌺𐌰
𐌹𐌸𐌺𐌰𐌺𐌰

The Franks Casket (Page 1999: 174)⁸

fisc flodu ahof on fergenberig
warþ gasric grorn þær he on greut giswom

𐌹𐌺𐌰𐌺𐌰𐌺𐌰𐌺𐌰𐌺𐌰𐌺𐌰 𐌺𐌰𐌺𐌰𐌺𐌰𐌺𐌰
𐌺𐌰𐌺𐌰𐌺𐌰𐌺𐌰𐌺𐌰𐌺𐌰𐌺𐌰𐌺𐌰𐌺𐌰𐌺𐌰

Folkestone (Looijenga 2003: 305)

æniwulufu

𐌺𐌰𐌺𐌰𐌺𐌰𐌺𐌰

SWEDISH AND NORWEGIAN RUNIC INSCRIPTIONS IN THE ELDER FUTHARK

Eggja (Looijenga 2003: 341)

A: hin wArb nAseu maz mAdē þaim kAibA I bormoþa huni huwAz ob kam hArisa hi a lat
gotnA fiskz or??? nAuim suwimade fokli f?s????? galande

B: Alu misurki

C: nis solu sot uk ni sAkse stain skorin ni???? maz nAkdan isn??r??z ni wiltiz manz lAgi??

𐌺𐌰𐌺𐌰𐌺𐌰 𐌺𐌰𐌺𐌰𐌺𐌰 𐌺𐌰𐌺𐌰𐌺𐌰 𐌺𐌰𐌺𐌰𐌺𐌰 𐌺𐌰𐌺𐌰𐌺𐌰 𐌺𐌰𐌺𐌰𐌺𐌰 𐌺𐌰𐌺𐌰𐌺𐌰 𐌺𐌰𐌺𐌰𐌺𐌰
𐌺𐌰𐌺𐌰𐌺𐌰 𐌺𐌰𐌺𐌰𐌺𐌰 𐌺𐌰𐌺𐌰𐌺𐌰 𐌺𐌰𐌺𐌰𐌺𐌰 𐌺𐌰𐌺𐌰𐌺𐌰 𐌺𐌰𐌺𐌰𐌺𐌰 𐌺𐌰𐌺𐌰𐌺𐌰

* 𐌺𐌰𐌺𐌰

𐌺𐌰𐌺𐌰𐌺𐌰 𐌺𐌰𐌺𐌰𐌺𐌰 𐌺𐌰𐌺𐌰𐌺𐌰 𐌺𐌰𐌺𐌰𐌺𐌰 𐌺𐌰𐌺𐌰𐌺𐌰 𐌺𐌰𐌺𐌰𐌺𐌰 𐌺𐌰𐌺𐌰𐌺𐌰 𐌺𐌰𐌺𐌰𐌺𐌰

Reista (Looijenga 2003: 346)

iuþingaz
ekwakraz:unnam
wraitha

𐌺𐌰𐌺𐌰𐌺𐌰𐌺𐌰
𐌺𐌰𐌺𐌰𐌺𐌰𐌺𐌰𐌺𐌰
𐌺𐌰𐌺𐌰𐌺𐌰

Vetteland (Looijenga 2003: 351)

flagdafaikinaz ist
magozminassta ina
dazfaihido

𐌺𐌰𐌺𐌰𐌺𐌰𐌺𐌰𐌺𐌰 𐌺𐌰𐌺𐌰𐌺𐌰
𐌺𐌰𐌺𐌰𐌺𐌰𐌺𐌰𐌺𐌰𐌺𐌰 𐌺𐌰𐌺𐌰
𐌺𐌰𐌺𐌰𐌺𐌰𐌺𐌰𐌺𐌰

THE YOUNGER FUTHARK NORWEGIAN INSCRIPTIONS

Søgne (Spurkland 2005: 86)

auintr:risti:stin:þina
aftir:kunuat:sunsn

𐌰𐌺𐌹𐌳𐌹𐌸𐌰:𐌹𐌹𐌹𐌹:𐌹𐌹𐌹𐌹:𐌹𐌹𐌹𐌹
𐌹𐌹𐌹𐌹:𐌹𐌹𐌹𐌹:𐌹𐌹𐌹𐌹:𐌹𐌹𐌹𐌹

Skollevoll (Spurkland 2005: 88)

ranuauk:raisti:stain:aftir:akmunt
hrabisun:uarsin:skakr:b[arþi]

𐌹𐌹𐌹𐌹𐌹𐌹:𐌹𐌹𐌹𐌹:𐌹𐌹𐌹𐌹:𐌹𐌹𐌹𐌹:𐌹𐌹𐌹𐌹
𐌹𐌹𐌹𐌹𐌹𐌹:𐌹𐌹𐌹𐌹:𐌹𐌹𐌹𐌹:𐌹𐌹𐌹𐌹:𐌹𐌹𐌹𐌹

Valby (Spurkland 2005: 76)

auarþR fapi (u)lR

𐌰𐌺𐌹𐌳𐌹𐌸𐌰 𐌹𐌹𐌹𐌹 [𐌺]𐌹𐌹𐌹

MEDIEVAL RUNES

Øye (Spurkland 2005: 158)

her:huilir:þora:modir:eirikh:Prest:Pater:noster

𐌹𐌹𐌹𐌹:𐌹𐌹𐌹𐌹𐌹𐌹:𐌹𐌹𐌹𐌹:𐌹𐌹𐌹𐌹:𐌹𐌹𐌹𐌹:𐌹𐌹𐌹𐌹:𐌹𐌹𐌹𐌹:𐌹𐌹𐌹𐌹

Tvingvoll (Spurkland 2005: 162)

ek:biþ:firi:guþrs:sakar:yþr:læra:menn (...)

𐌹𐌹:𐌹𐌹𐌹:𐌹𐌹𐌹𐌹:𐌹𐌹𐌹𐌹:𐌹𐌹𐌹𐌹:𐌹𐌹𐌹𐌹:𐌹𐌹𐌹𐌹:𐌹𐌹𐌹𐌹

Hopperstad (Spurkland 2005: 167)

nu.er.balm.sunuaftan
troten.hiabe.þæimane

𐌺𐌹.𐌹𐌹.𐌹𐌹𐌹.𐌹𐌹𐌹𐌹𐌹𐌹
𐌹𐌹𐌹𐌹𐌹.𐌹𐌹𐌹𐌹.𐌹𐌹𐌹𐌹𐌹

er.þesar.runar.ræist.suaþæim.
er.þær.ræþr

𐌹𐌹.𐌹𐌹𐌹.𐌹𐌹𐌹𐌹.𐌹𐌹𐌹𐌹.𐌹𐌹𐌹𐌹𐌹
𐌹𐌹.𐌹𐌹𐌹.𐌹𐌹𐌹𐌹

Examples of R/R and B in inscriptions on runestones (image fragments: *Arild Hauge's Runes*):

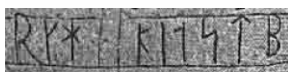
Anundshög



Aspa



Bårse Font



Glemminge



Hafstad



Tandberg



Veum



Examples of † in inscriptions on runestones (image fragments: *Arild Hauge's Runes*):

Asmild



Egå



Bække



Gunderup



Danevirke



Haddeby



Individual examples of † in inscriptions:

Aquincum (Looijenga 2003: 226)

fuparkgw ?laig : kingia

ƿNþþN<Xþ NNX : <þþ

Szabadbattyán (Looijenga 2003: 174)

marings

þþR †z

Wijnaldum A (Looijenga 2003: 325)

?ngz inguz ngz

Y † Y † † † † † †

Slemminge (Looijenga 2003: 166-167)

witring

þ†R †

Køng (Looijenga 2003: 170)

ingo

z †

Leţcani (Looijenga 2003: 171-172)

rango/rawo :adonsufhe

R†z : †Mz†zN†M

Examples of runes as parts of futharks are given below:

- Figures 1a-1i correspond to some of the futharks in Table 1,
- Figures 2a-2j correspond to some of the futharks in Table 2,
- Figures 3a-3i correspond to some of the futharks in Table 3.

Fig. 2j: *Malton Pin*
(Looijenga 2003: 199)

Malton Pin, Pickering, North Yorkshire (English Corpus, nr. 30).
fuporcglææ

𐀀𐀁𐀂𐀃𐀄𐀅𐀆𐀇𐀈𐀉𐀊

Fig. 3a: *Danish*
(Looijenga 2003: 6)

(3) The younger fupark, also known as 'Danish' fupark:

𐀀𐀁𐀂𐀃𐀄𐀅𐀆𐀇𐀈𐀉𐀊𐀋𐀌𐀍𐀎𐀏𐀐𐀑
f u þ o r k A/h n i a s t b m l R

Fig. 3b: *Gørlev*
(Elliott 1959: 22-23)

𐀀𐀁𐀂𐀃𐀄𐀅𐀆𐀇𐀈𐀉𐀊𐀋𐀌𐀍𐀎𐀏𐀐𐀑𐀒𐀓𐀔𐀕
f u þ a r k h n i a s t b m l R

Fig. 3c: *Gørlev*
(Page 1999: 202)

𐀀𐀁𐀂𐀃𐀄𐀅𐀆𐀇𐀈𐀉𐀊𐀋𐀌𐀍𐀎𐀏𐀐𐀑
f u þ a r k h n i a s t b m l R

Fig. 3d: *Gørlev*
(Spurkland 2005: 75)

𐀀𐀁𐀂𐀃𐀄𐀅𐀆𐀇𐀈𐀉𐀊𐀋𐀌𐀍𐀎𐀏𐀐𐀑
f u þ a r k h n i a s t b m l R

Fig. 3e: *Swedish-Norwegian*
runes
(Elliott 1959: 22-23)

𐀀𐀁𐀂𐀃𐀄𐀅𐀆𐀇𐀈𐀉𐀊𐀋𐀌𐀍𐀎𐀏𐀐𐀑𐀒𐀓𐀔𐀕
f u þ a r k h n i a s t b m l R

Fig. 3f: *Swedo-Norwegian*
runes
(Page 1999: 203)

𐀀𐀁𐀂𐀃𐀄𐀅𐀆𐀇𐀈𐀉𐀊𐀋𐀌𐀍𐀎𐀏𐀐𐀑
f u þ a r k h n i a s t b m l R

Fig. 3g: *Hedeby*
(Spurkland 2005: 75)

𐀀𐀁𐀂𐀃𐀄𐀅𐀆𐀇𐀈𐀉𐀊𐀋𐀌𐀍𐀎𐀏𐀐𐀑
f u þ a r k h n i a s t b m l R
þ þ þ

Fig. 3h: *Hälsinge*
(Elliott 1959: 23)

f u þ a r k h n i a s t b m l R, y

Fig. 3i: *Hälsingland*
(Spurkland 2005: 77)

f u þ a r k h n i a s t b m l R

Fig. 4: *Medieval runes*
(Spurkland 2005: 153)

𐀀𐀁𐀂𐀃𐀄𐀅𐀆𐀇𐀈𐀉𐀊𐀋𐀌𐀍𐀎𐀏𐀐𐀑
f u þ o r k h n i a s t b m l y
þ þ þ þ þ þ þ þ
e æ ø ø g d p c/z

Table 1: *The Elder Futhark*

	Loojenga (2003: 6)	Elliott (1959: 18) <i>Kyiver</i>	Page (1999: 42) <i>Kyiver</i>	Loojenga (2003: 333) <i>Kyiver</i>	Spurkland (2005: 5) <i>Kyiver</i>	Elliott (1959: 18) <i>Yadstena</i>	Page (1999: 42) <i>Yadstena</i>	Loojenga (2003: 198) <i>Yadstena</i>	Elliott (1959: 18) <i>Grumpan</i>	Loojenga (2003: 198) <i>Grumpan</i>	Elliott (1959: 18) <i>Charnay</i>	Loojenga (2003: 198) <i>Charnay</i>	Elliott (1959: 18) <i>Breza</i>	Loojenga (2003: 6) <i>Breza</i>
f	ƿ	ƿ	ƿ	ƿ	ƿ	ƿ	ƿ	ƿ	ƿ	ƿ	ƿ	ƿ	ƿ	ƿ
u	u	u	u	u	u	u	u	u	u	u	u	u	u	u
b	b	b	b	b	b	b	b	b	b	b	b	b	b	b
a	a	a	a	a	a	a	a	a	a	a	a	a	a	a
r	r	r	r	r	r	r	r	r	r	r	r	r	r	r
k	k	k	k	k	k	k	k	k	k	k	k	k	k	k
g	g	g	g	g	g	g	g	g	g	g	g	g	g	g
w	w	w	w	w	w	w	w	w	w	w	w	w	w	w
h	h	h	h	h	h	h	h	h	h	h	h	h	h	h
n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
i	i	i	i	i	i	i	i	i	i	i	i	i	i	i
j	j	j	j	j	j	j	j	j	j	j	j	j	j	j
i	i	i	i	i	i	i	i	i	i	i	i	i	i	i
p	p	p	p	p	p	p	p	p	p	p	p	p	p	p
z	z	z	z	z	z	z	z	z	z	z	z	z	z	z
s	s	s	s	s	s	s	s	s	s	s	s	s	s	s
t	t	t	t	t	t	t	t	t	t	t	t	t	t	t
b	b	b	b	b	b	b	b	b	b	b	b	b	b	b
e	e	e	e	e	e	e	e	e	e	e	e	e	e	e
m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
l	l	l	l	l	l	l	l	l	l	l	l	l	l	l
η	η	η	η	η	η	η	η	η	η	η	η	η	η	η
d	d	d	d	d	d	d	d	d	d	d	d	d	d	d
o	o	o	o	o	o	o	o	o	o	o	o	o	o	o

Table 2: *The Anglo-Saxon/Frisian runes*

	Page (1999: 39)	Looijenga (2003: 6)	Elliot (1959: 38) <i>Northumbrian</i>	Elliot (1959: 35) <i>Vienna Codex</i>	Elliot (1959: 34) <i>Thames</i>	Page (1999: 80) <i>Thames</i>	Looijenga (2003: 198) <i>Thames</i>	Page (1999: 81) <i>Brandon</i>	Looijenga (2003: 199) <i>Brandon</i>	Looijenga (2003: 199) <i>Malton Pin</i>
f	ƿ	ƿ	ƿ	ƿ	ƿ	ƿ	ƿ	ƿ	ƿ	ƿ
u	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ
b	ᵻ	ᵻ	ᵻ	ᵻ	ᵻ	ᵻ	ᵻ	ᵻ	ᵻ	ᵻ
o	ᵼ	ᵼ	ᵼ	ᵼ	ᵼ	ᵼ	ᵼ	ᵼ	ᵼ	ᵼ
r	ᵽ	ᵽ	ᵽ	ᵽ	ᵽ	ᵽ	ᵽ	ᵽ	ᵽ	ᵽ
c	ᵾ	ᵾ	ᵾ	ᵾ	ᵾ	ᵾ	ᵾ	ᵾ	ᵾ	ᵾ
g	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ
w	ᵻ	ᵻ	ᵻ	ᵻ	ᵻ	ᵻ	ᵻ	ᵻ	ᵻ	ᵻ
h	ᵼ	ᵼ	ᵼ	ᵼ	ᵼ	ᵼ	ᵼ	ᵼ	ᵼ	ᵼ
n	ᵽ	ᵽ	ᵽ	ᵽ	ᵽ	ᵽ	ᵽ	ᵽ	ᵽ	ᵽ
i	ᵾ	ᵾ	ᵾ	ᵾ	ᵾ	ᵾ	ᵾ	ᵾ	ᵾ	ᵾ
j	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ
ī	ᵻ	ᵻ	ᵻ	ᵻ	ᵻ	ᵻ	ᵻ	ᵻ	ᵻ	ᵻ
p	ᵼ	ᵼ	ᵼ	ᵼ	ᵼ	ᵼ	ᵼ	ᵼ	ᵼ	ᵼ
x	ᵽ	ᵽ	ᵽ	ᵽ	ᵽ	ᵽ	ᵽ	ᵽ	ᵽ	ᵽ
s	ᵾ	ᵾ	ᵾ	ᵾ	ᵾ	ᵾ	ᵾ	ᵾ	ᵾ	ᵾ
t	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ
b	ᵻ	ᵻ	ᵻ	ᵻ	ᵻ	ᵻ	ᵻ	ᵻ	ᵻ	ᵻ
e	ᵼ	ᵼ	ᵼ	ᵼ	ᵼ	ᵼ	ᵼ	ᵼ	ᵼ	ᵼ
m	ᵽ	ᵽ	ᵽ	ᵽ	ᵽ	ᵽ	ᵽ	ᵽ	ᵽ	ᵽ
l	ᵾ	ᵾ	ᵾ	ᵾ	ᵾ	ᵾ	ᵾ	ᵾ	ᵾ	ᵾ
ŋ	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ
æ	ᵻ	ᵻ	ᵻ	ᵻ	ᵻ	ᵻ	ᵻ	ᵻ	ᵻ	ᵻ
d	ᵼ	ᵼ	ᵼ	ᵼ	ᵼ	ᵼ	ᵼ	ᵼ	ᵼ	ᵼ
a	ᵽ	ᵽ	ᵽ	ᵽ	ᵽ	ᵽ	ᵽ	ᵽ	ᵽ	ᵽ

Table 3: *The Younger Futhark*

	Page (1999: 39)	Looijenga (2003: 6)	Elliot (1959: 38) <i>Northumbrian</i>	Elliot (1959: 35) <i>Vienna Codex</i>	Elliot (1959: 34) <i>Thames</i>	Page (1999: 80) <i>Thames</i>	Looijenga (2003: 198) <i>Thames</i>	Page (1999: 81) <i>Brandon</i>	Looijenga (2003: 199) <i>Brandon</i>	Looijenga (2003: 199) <i>Malton Pin</i>
æ	ƒ	ƒ	ƒ	ƒ	ƒ	ƒ	ƒ?			ƒ
y	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ			
ea	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ			
g	ᵿ	ᵿ	ᵿ							
k	ᵿ	ᵿ	ᵿ							
			io ᵿ cw ᵿ st ᵿ							

	Elliott (1959: 22-23) <i>Danish</i>	Looijenga (2003: 6) <i>Danish</i>	Page (1999: 202) <i>Gørlev</i>	Spurkland (2005: 75) <i>Gørlev</i>	Elliott (1959: 22-23) <i>Sw-Nor</i>	Page (1999: 203) <i>Sw-Nor</i>	Spurkland (2005: 75) <i>Hedeby</i>	Elliott (1959: 23) <i>Hålsinge</i>	Spurkland (2005: 77) <i>Hålsingland</i>
f	ƒ	ƒ	ƒ	ƒ	ƒ	ƒ	ƒ	ƒ	ƒ
u	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ
þ	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ
o	ƒ	ᵿ	ƒ	ƒ	ƒ	ƒ	ᵿ	ᵿ	ᵿ
r	ᵿ	ᵿ	ᵿ	ᵿ	R/R	ᵿ	ᵿ	ᵿ	ᵿ
k	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ
h	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ
n	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ
i	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ
a	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ
s	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ
t	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ
b	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ
m	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ
l	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ
z	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ	ᵿ

Table 4: *The Dalecarlian runes*

	1599	1600	1635	1669	1600-1700	1700	1706	1708	1712	1724	1726	1738	1749	1750	1759	1768	1773	1790	1795	1832
a	†	†	X		††		†	†X			X	X	†	X		X	X	X	X	X
b	B		B	β				B	B		bB		B	B			B	B	B	B
c	h						h				C		ss				C	C	C	C
d	D	D#	D		D	D	D	D	D	D	DPP	D	DP	DP			D	D	D	D
e	l	l	l	l	l	l	ll		l	l	llh	l	l	ll	l	l	l	l	l	l
f	ƿ	ƿ	ƿ		ƿ	ƿ	ƿ		ƿ	ƿ	ƿƿ	ƿ	ƿƿ	ƿƿ	ƿ	ƿ	f	f	ƿ	ƿƿ
g	ʀ	ʀ	ʀ			ʀ	ʀ	ʀ			ʀ		ʀ	ʀP		ʀ	ʀ	ʀ	ʀ	ʀ
h	✱	*			*								*				✱	✱		*
i	l	il	l		l	i	li			i	il	l	i	i	l	i	i	i	i	l
k	ʀ	ʀ	ʀ		ʀ		ʀʀʀ				ʀNʀ		ʀ	ʀ			K	K	ʀ	ʀ
l	l	l	l		l	l	l			l	l	L	l	l	L	L	L	L	l	L
m	ʀ			ʀ	ʀ		ʀ		ʀ		Mʀʀ			ʀʀ		ʀ	ʀʀ	ʀ	ʀ	ʀ
n	l	l	l	l	l	l	llh		l	l	llh	l	l	ll		l	l	ll	l	l
o	φ	φ	†φφ		l		φ				φ		φO	O		φ	O	O	φ	φ
p	†			†							†	†					†P	P	†P	†
q	q																C			C
r	R	R	R	R	R	R	R	R	R		Rʀ	R	R	R	R	R	R	R	R	R
s	l	l	ʀ	l	ʀ	l	ll	l	l	l	sl		l	l			l	l	l	l
t	1	1	1	1	1	1	1	T	1		T1		1	1		T1	1T	1T	1	1T
u	u	u	u	u	u	u	uu	u		u	uv		u	u	u	u	u	VW	u	u
x	h						Y				ʀ		↑		u	h	ʀY	D		h
y																	ʀY			ʀ
z																	ʀ			ʀ
å	✱	*				*	*	*					*				*	Å	*	*
ä	†	†												✱			†	†	†	†
ö	l						ǫ			ǫ	ǫ						ǫ	Ä		ǫ

(C.f. *Fornvännen* 1: 80-91)

6. Notes

1. Names of runic alphabets are used throughout the paper as abstractions.
2. Looijenga's (2003: 149-328) catalogue of c. 230 inscribed objects contains computerised runographic presentations of the inscriptions. It is divided into: 'Early Danish and South-east European Inscriptions', 'Bracteates with Runes', 'Continental Runic Inscriptions', 'Early Runic Inscriptions from England' and 'Runic Inscriptions in or from the Netherlands', which is followed by an appendix of 'Swedish and Norwegian Inscriptions in the Older Fuþark' (Looijenga 2003: 329-360). With respect to ƿ ~ ƿ̅, ʀ ~ ʀ̅, ʁ ~ ʁ̅ pairs, her analysis is overwhelmingly in favour of representing the Elder Futhark 'f', 'u', and 'þ' with the *straight-twigged* forms:
 - 'Early Danish and South-east European Inscriptions' (Looijenga 2003: 153-183): with the exception of Illerup V 'þ' Ɔ in 'gaupz', Kragehul I 'u' ʀ in 'muha', Gummarp 'b' ʁ in 'stAbA', the remaining runes in the total of 44 inscriptions, these ranging from single words to many lines of text, are represented by *straight-twigged* forms;
 - 'Bracteates with Runes' (Looijenga 2003: 201-221): with the exception of Eskartorp-F/Väsby-F '?' ƿ in 'f?hidu??', 'l' ʁ in 'uilaǫ', 'r' ʀ in 'erilaz', Kjellers Mose-C 'u' ʀ in 'iualu', Lyngø Gyde-C and Magelmose (II)-C 'l' ʀ in 'lakz', Raum Køge-C or Seeland (II)-C 'u' ʀ (all instances), Tirup Heide-C or Schonen (V) 'u' ʀ in 'ehwu', the remaining runes in the total of 48 inscriptions, these ranging from single words to sequences of many words, are represented by *straight-twigged* forms;
 - 'Continental Runic Inscriptions' (Looijenga 2003: 226-268): with the exception of Bezenye II 'b' ʁ in '?arsiboda', Bülach 'u' ʀ in 'du' and 'a f tmu', Griesheim 'k' ƿ and 'u' ʀ in 'kolo:agilaþrup', Kent '?' ʁ and '??' ʀ in 'w?f??', Liebenau 'w' ƿ in 'razwi', Niederstotzingen '?' ʀ in '?liub ?ud?d' and 'u' ʀ in 'bre?u', Nordendorf II 'k' ƿ in 'elk', Osthofen 'r' ʀ in 'furadi', Wurmlingen '?' ʀ preceding 'dorih', Pforzen II 'n' ƿ in 'ne', München-Aubing III 'u' ʀ in 'nm?u/k', the remaining runes in the total of 75 inscriptions, these ranging from single words to sequences of many words, are represented by *straight-twigged* forms;
 - 'Swedish and Norwegian Inscriptions in the Older Fuþark' (Looijenga 2003: 329-359): with the exception of Järsberg 'u' ʀ (all instances), Kalleby 'þ' Ɔ and 'u' ʀ in 'þrawijan', Noleby 'f' ƿ in and 'u' ʀ in the first line (vs. the remaining 7 instances of 'u' ʀ), Rävåsal 'w' Ɔ in 'hAriwulfz', Vallentuna 'u' ʀ and 'k' ƿ in 'hlAhAhAukzAlbu'; Barmen 'þ' ʁ and 'b' ʁ in 'ikþirbijizru', Tørvika B 'þ' Ɔ in an uninterpretable sequence, Tune 'þ' Ɔ in 'þrijoz', Setre 'u' ʀ (all instances), the remaining runes in the total of 48 inscriptions, these ranging from single words to multiple lines of text (inscriptions on runestones), are represented by *straight-twigged* forms.
3. Spurkland (2005: 22-51, 68), who analysed Norwegian runic inscriptions, has fewer examples supported by transliterations. Of these, his analysis of inscriptions in Elder Fuþark in 7 cases differs in presentation from Looijenga's:
 - the Eikeland brooch 'u' ʀ in 'runor' vs. 'u' ʀ (Looijenga 2003: 352),
 - the Tjurkö bracteate 'u' ʀ (all) vs. 'u' ʀ (Looijenga 2003: 218),
 - the Strøm whetstone 'þ' ʁ and 'u' ʀ in 'hapu' vs. 'þ' ʁ and 'u' ʀ (Looijenga 2003: 358),
 - the Tune stone 'þ' ʁ in 'þrijoz' vs. 'þ' ʁ (Looijenga 2003: 350),
 - the Bjørnerud bracteate 'u' ʀ in 'alu' vs. 'u' ʀ (Looijenga 2003: 202),
 - the Nordhulgo stone 'u' ʀ (both) vs. 'u' ʀ (Looijenga 2003: 345),
 - the Eggja stone 'u' ʀ, 'f' ƿ and 'k' ƿ (all) vs. 'u' ʀ, 'f' ƿ and 'k' ƿ (Looijenga 2003: 343).
4. Looijenga's representation of inscriptions from runic finds from England and the Netherlands:
 - 'Early Runic Inscriptions from England' (Looijenga 2003: 276-294): with the exception of Spong Hill 'u' ʀ in 'alu', Suffolk 's' ʁ in 'desaiona', Whitby I 'u' ʀ (all instances), Dover uninterpretable ʁ, Upper Thames Valley 'u' ʀ in 'benu', Whitby II 'u' ʀ (both instances), Isle of Wight 'r' ʀ and 'u' ʀ in 'gæræw?uotæ', Malton Pin 'c' ʀ in 'fuþorçglææ', the remaining runes in the total of 75 inscriptions, these ranging from single words to sequences of many words, are represented by *straight-twigged* forms;
 - 'Runic Inscriptions in or from the Netherlands' (Looijenga 2003: 303-325): with the exception of Oostum 'u' ʀ (all instances), Schweindorf 'u' ʀ in 'weladu', Britsum 'k' or 's' ƿ and 'u' ʀ in 'þ₂niabererdud' and 'æ' ʁ in 'bæræd', Westeremden A & B 'u' ʀ (all instances), Bernsterburen 'u' ʀ (all instances), Rasquert 'u' ʀ in 'ekumæditoka', the remaining runes in the total of 23 inscriptions, these ranging from single words to several lines of text, are represented by *straight-twigged* forms.
5. In their current form, but not when represented by 1 and ʀ̅.
6. Cf. Spurkland (2005: 151): "We should also mention that the short-twig variant of s could also have a dot, but with no consequence for its sound value. The result was two s-runes, 1 and ʀ̅. This dotting was not observed any more consistently than the rest."
7. Staff, stave, stem, or vertical.
8. Transliteration mine.