

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

Doc Type: Working Group Document**Title: Proposal to encode the Avestan script in the BMP of the UCS****Source: UC Berkeley Script Encoding Initiative (Universal Scripts Project)****Authors: Michael Everson and Roozbeh Pournader****Status: Liaison Contribution****Action: For consideration by JTC1/SC2/WG2 and UTC****Replaces: N2566, N1684****Date: 2006-10-20**

1. Introduction. The Avestan script was used to write two kinds of text: religious texts from the *Avesta*, written in the Avestan language (in two variants, Old Avestan and Young Avestan), and texts in Pāzand (that is, Middle Persian written in the Avestan script). The script was derived in the fifth or sixth century CE (some writers say as early as the fourth century CE) as a rationalization and improvement on the original (Book) Pahlavi script, which itself was derived from a variety of Aramaic. The Zoroastrians used modified letterforms to distinguish between signs which in Pahlavi had fallen together. Although Pahlavi script is used alongside Avestan in text, it behaves differently and the two cannot be unified. Pahlavi has cursive joining behaviour; Avestan does not. In Avestan, sometimes letters touch in kerning, but more often they do not. There are a few ligatures in Avestan, discussed below. Pahlavi is not further considered in this proposal.

2. Structure. Avestan is a simple alphabetic script written from right to left. Avestan letters are written separately, or touch in close kerning. Four ligatures are commonly used in manuscripts of the *Avesta*: 𐬀𐬀 SHE + 𐬀 A = 𐬀𐬀 *ša* (unligated 𐬀𐬀); 𐬀 SHE + 𐬀 CE = 𐬀𐬀 *šc* (unligated 𐬀𐬀); 𐬀 SHE + 𐬀 TE = 𐬀𐬀 *št* (unligated 𐬀𐬀); 𐬀 A + 𐬀 HE = 𐬀𐬀 *ah* (unligated 𐬀𐬀). Fonts which implement ligatures will typically treat these combinations as default ligatures, which can be broken with ZWNJ. The choice of representation of these ligatures in printed texts is a matter for the editor.

3. Character set. The Avestan alphabet is well-attested, and is extended here by only one character. The letter 𐬀 RE is modified to 𐬀 LE (or 𐬀 as in Figure 3) for use in Pāzand to represent [l] (see Figures 6 and 11). Some writers consider the digraphs 𐬀 *ii* and 𐬀 *uu* as letters and transliterate them as *y* and *v*, but they are properly encoded as two-character strings.

4. Punctuation. Avestan punctuation displays the usual inconsistency of any early writing system. The punctuation proposed here for encoding is based on the system Geldner established in his 1880 edition of the *Avesta*. The 𐬀 AVESTAN SEPARATION POINT follows each word in Avestan and is usually followed by a space (as is most Avestan punctuation); it is *not* a sentence delimiter like U+002E FULL STOP, and indeed Geldner uses it alongside the FULL STOP in his edition (see Figure 15). The 𐬀 AVESTAN COLON, 𐬀 AVESTAN SEMICOLON, and 𐬀 AVESTAN END OF SENTENCE indicate breaks of increasing finality, followed by 𐬀 AVESTAN END OF SECTION which itself may be doubled 𐬀𐬀 (sometimes with a space between 𐬀 𐬀) for extra finality (see Figures 16 and 17). The 𐬀 AVESTAN TURNED END OF SENTENCE and 𐬀 AVESTAN TURNED END OF SECTION are also attested, but were not used by Geldner. Sometimes the AVESTAN SEPARATION POINT may precede, or follow, other punctuation. Geldner says that the 𐬀 AVESTAN ABBREVIATION MARK “is employed for a sign

of abbreviation and repetition” and indeed he uses it extensively in his footnotes “for the sake of economizing space”.

5. Linebreaking. Geldner 1880 shows no hyphenation. In the manuscripts words may be broken arbitrarily, but it is unlikely that modern users will prefer this behaviour. A space normally follows most Avestan punctuation, and one may certainly expect a linebreak in such a position.

6. Ordering. No ordering is attested in antiquity, but the codepoint order of the Avestan letters reflects the most common current Iranianist practice (see Figure 2), which may have been established by the Parsee community itself. This suffices for all of the letters except ǃ LE, which should order on the second level with ǂ RE.

7. Character names. Names here are based on the transliteration values and are intended to be mnemonic.

8. Unicode Character Properties. Character properties are proposed here.

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0800;AVESTAN LETTER A;Lo;0;R;;;;N;;;;;
0801;AVESTAN LETTER AA;Lo;0;R;;;;N;;;;;
0802;AVESTAN LETTER AO;Lo;0;R;;;;N;;;;;
0803;AVESTAN LETTER AAO;Lo;0;R;;;;N;;;;;
0804;AVESTAN LETTER AN;Lo;0;R;;;;N;;;;;
0805;AVESTAN LETTER AAN;Lo;0;R;;;;N;;;;;
0806;AVESTAN LETTER AE;Lo;0;R;;;;N;;;;;
0807;AVESTAN LETTER AEE;Lo;0;R;;;;N;;;;;
0808;AVESTAN LETTER E;Lo;0;R;;;;N;;;;;
0809;AVESTAN LETTER EE;Lo;0;R;;;;N;;;;;
080A;AVESTAN LETTER O;Lo;0;R;;;;N;;;;;
080B;AVESTAN LETTER OO;Lo;0;R;;;;N;;;;;
080C;AVESTAN LETTER I;Lo;0;R;;;;N;;;;;
080D;AVESTAN LETTER II;Lo;0;R;;;;N;;;;;
080E;AVESTAN LETTER U;Lo;0;R;;;;N;;;;;
080F;AVESTAN LETTER UU;Lo;0;R;;;;N;;;;;
0810;AVESTAN LETTER KE;Lo;0;R;;;;N;;;;;
0811;AVESTAN LETTER XE;Lo;0;R;;;;N;;;;;
0812;AVESTAN LETTER XYE;Lo;0;R;;;;N;;;;;
0813;AVESTAN LETTER XVE;Lo;0;R;;;;N;;;;;
0814;AVESTAN LETTER GE;Lo;0;R;;;;N;;;;;
0815;AVESTAN LETTER GGE;Lo;0;R;;;;N;;;;;
0816;AVESTAN LETTER GHE;Lo;0;R;;;;N;;;;;
0817;AVESTAN LETTER CE;Lo;0;R;;;;N;;;;;
0818;AVESTAN LETTER JE;Lo;0;R;;;;N;;;;;
0819;AVESTAN LETTER TE;Lo;0;R;;;;N;;;;;
081A;AVESTAN LETTER THE;Lo;0;R;;;;N;;;;;
081B;AVESTAN LETTER DE;Lo;0;R;;;;N;;;;;
081C;AVESTAN LETTER DHE;Lo;0;R;;;;N;;;;;
081D;AVESTAN LETTER TTE;Lo;0;R;;;;N;;;;;
081E;AVESTAN LETTER PE;Lo;0;R;;;;N;;;;;
081F;AVESTAN LETTER FE;Lo;0;R;;;;N;;;;;
0820;AVESTAN LETTER BE;Lo;0;R;;;;N;;;;;
0821;AVESTAN LETTER BHE;Lo;0;R;;;;N;;;;;
0822;AVESTAN LETTER NGE;Lo;0;R;;;;N;;;;;
0823;AVESTAN LETTER NGYE;Lo;0;R;;;;N;;;;;
0824;AVESTAN LETTER NGVE;Lo;0;R;;;;N;;;;;
0825;AVESTAN LETTER NE;Lo;0;R;;;;N;;;;;
0826;AVESTAN LETTER NYE;Lo;0;R;;;;N;;;;;
0827;AVESTAN LETTER NNE;Lo;0;R;;;;N;;;;;
0828;AVESTAN LETTER ME;Lo;0;R;;;;N;;;;;
0829;AVESTAN LETTER HME;Lo;0;R;;;;N;;;;;
082A;AVESTAN LETTER YYE;Lo;0;R;;;;N;;;;;
082B;AVESTAN LETTER YE;Lo;0;R;;;;N;;;;;
082C;AVESTAN LETTER VE;Lo;0;R;;;;N;;;;;
082D;AVESTAN LETTER RE;Lo;0;R;;;;N;;;;;
082E;AVESTAN LETTER LE;Lo;0;R;;;;N;;;;;
082F;AVESTAN LETTER SE;Lo;0;R;;;;N;;;;;
0830;AVESTAN LETTER ZE;Lo;0;R;;;;N;;;;;
0831;AVESTAN LETTER SHE;Lo;0;R;;;;N;;;;;
0832;AVESTAN LETTER ZHE;Lo;0;R;;;;N;;;;;
0833;AVESTAN LETTER SHYE;Lo;0;R;;;;N;;;;;
0834;AVESTAN LETTER SSHE;Lo;0;R;;;;N;;;;;
0835;AVESTAN LETTER HE;Lo;0;R;;;;N;;;;;
0838;AVESTAN ABBREVIATION MARK;Po;0;R;;;;N;;;;;
0839;AVESTAN SEPARATION POINT;Po;0;R;;;;N;;;;;
083A;AVESTAN COLON;Po;0;R;;;;N;;;;;
083B;AVESTAN SEMICOLON;Po;0;R;;;;N;;;;;
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083C;AVESTAN END OF SENTENCE;Po;0;R;N;N;
083D;AVESTAN TURNED END OF SENTENCE;Po;0;R;N;N;
083E;AVESTAN END OF SECTION;Po;0;R;N;N;
083F;AVESTAN TURNED END OF SECTION;Po;0;R;N;N;

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Figures

| | | | | | | | | |
|----|-----|-----|----|-----|----------------|----|------|-----------------|
| 1 | 𐬀 | a | 17 | 𐬁 | k | 35 | 𐬃 | 𐬎 |
| 2 | 𐬁 | ā | 18 | 𐬂 | x | 36 | 𐬄 | 𐬎̄ |
| 3 | 𐬂 | ā̇ | 19 | 𐬃 | č | 37 | 𐬅 | 𐬎̄ ^v |
| 4 | 𐬃 | ā̇̇ | 20 | 𐬄 | x ^v | 38 | 𐬆 | n |
| 5 | 𐬄 | q | 21 | 𐬅 | g | 39 | 𐬇/𐬈 | 𐬎̄ |
| 6 | 𐬅/𐬆 | q̇ | 22 | 𐬆 | ġ | 40 | 𐬉 | 𐬎̄ |
| 7 | 𐬆 | ə | 23 | 𐬇 | ɾ | 41 | 𐬊 | m |
| 8 | 𐬇 | ē | 24 | 𐬈 | c | 42 | 𐬋 | 𐬎̄ |
| 9 | 𐬈 | e | 25 | 𐬉 | j | 43 | 𐬌 | y |
| 10 | 𐬉 | ē | 26 | 𐬊 | t | 44 | 𐬍 | v |
| 11 | 𐬊 | o | 27 | 𐬋 | θ | 45 | 𐬎 | r |
| 12 | 𐬋 | ō | 28 | 𐬌 | d | 46 | 𐬏 | š |
| 13 | 𐬌 | i | 29 | 𐬍/𐬎 | ð | 47 | 𐬐 | s |
| 14 | 𐬍 | ī | 30 | 𐬏/𐬐 | t̄ | 48 | 𐬑 | z |
| 15 | 𐬎 | u | 31 | 𐬑 | p | 49 | 𐬒 | š̄ |
| 16 | 𐬏 | ū | 32 | 𐬒 | f | 50 | 𐬓 | ž |
| | | | 33 | 𐬓 | b | 51 | 𐬔 | š̄ |
| | | | 34 | 𐬔 | β | 52 | 𐬕 | y |
| | | | | | | 53 | 𐬖(𐬗) | h |

Figure 1. Avestan alphabet from Geldner's 1880 edition of the *Avesta*.

Schrifttafel der Avesta-Schrift

| | | | | | | | | | |
|----------|-----------|----------------------|----------------------|-----------|-----------|----------|-----------|----------|----------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | |
| 𐬀 | 𐬁 | 𐬂 | 𐬃 | 𐬄 | 𐬅 𐬆 | 𐬇 | 𐬈 | | |
| <i>a</i> | <i>ā</i> | <i>ā̇</i> | <i>ā̈</i> | <i>a</i> | <i>ā̇</i> | <i>a</i> | <i>ā̈</i> | | |
| | | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| | | 𐬉 | 𐬊 | 𐬋 | 𐬌 | 𐬍 | 𐬎 | 𐬏 | 𐬐 |
| | | <i>e</i> | <i>ē</i> | <i>o</i> | <i>ō</i> | <i>i</i> | <i>ī</i> | <i>u</i> | <i>ū</i> |
| 17 | 18 | 19 | 20 | 21 | 22 | 23 | | | |
| 𐬑 | 𐬒 | 𐬓 | 𐬔 | 𐬕 | 𐬖 | 𐬗 | | | |
| <i>k</i> | <i>x</i> | <i>ẋ</i> | <i>x^v</i> | <i>g</i> | <i>ġ</i> | <i>γ</i> | | | |
| 24 | 25 | | | | | | | | |
| 𐬘 | 𐬙 | | | | | | | | |
| <i>c</i> | <i>j</i> | | | | | | | | |
| 26 | 27 | 28 | 29 | 30 | | | | | |
| 𐬚 | 𐬛 | 𐬜 | 𐬝 𐬞 | 𐬟 𐬠 | | | | | |
| <i>t</i> | <i>θ</i> | <i>d</i> | <i>δ</i> | <i>t</i> | | | | | |
| 31 | 32 | 33 | 34 | | | | | | |
| 𐬡 | 𐬢 | 𐬣 | 𐬤 | | | | | | |
| <i>p</i> | <i>f</i> | <i>b</i> | <i>β</i> | | | | | | |
| 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | | |
| 𐬧 | 𐬨 | 𐬩 | 𐬪 | 𐬫 𐬬 | 𐬭 | 𐬮 | 𐬯 | | |
| <i>ŋ</i> | <i>ŋ̇</i> | <i>ŋ^v</i> | <i>n</i> | <i>ṅ</i> | <i>n</i> | <i>m</i> | <i>ṁ</i> | | |
| 43 | 44 | 45 | 46 | | | | | | |
| 𐬲 | 𐬳 | 𐬴 𐬵 | 𐬶 | | | | | | |
| <i>y</i> | <i>γ</i> | <i>v</i> | <i>r</i> | | | | | | |
| 47 | 48 | 49 | 50 | 51 | 52 | | | | |
| 𐬷 | 𐬸 | 𐬹 | 𐬺 | 𐬻 | 𐬼 | | | | |
| <i>s</i> | <i>z</i> | <i>š</i> | <i>ž</i> | <i>ṧ</i> | <i>ž̇</i> | | | | |
| 53 | | | | | | | | | |
| 𐬽 𐬾 | | | | | | | | | |
| <i>h</i> | | | | | | | | | |

Figure 2. Avestan alphabet according to Hoffmann & Forssman 1996.

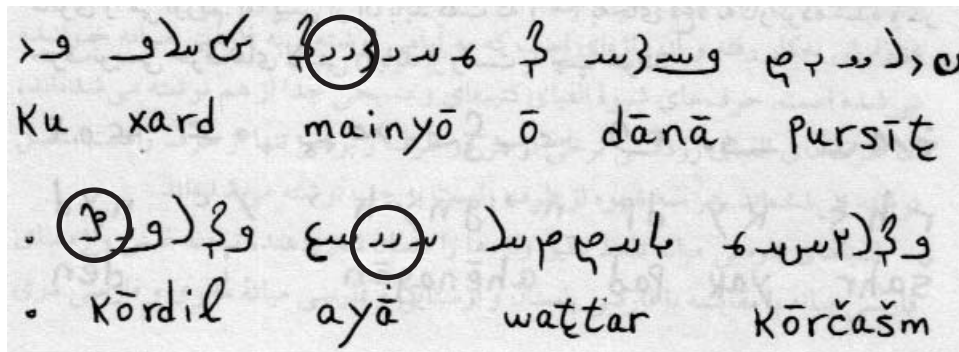


Figure 6. Handwritten sample of Avestan text with transliteration from Abolghassemi 1995, showing 𐬨 for *l* as well as 𐬯 *ii* transliterated as *y*.

جدول III. الفباى اوستايى يا «دين ديبرى»*

حرفهاى الفبا

| | | | | | | | | |
|------|------|------|------|--------------------------|------|------|------|------|
| 1 𐬀 | 2 𐬁 | 3 𐬂 | 4 𐬃 | 5 𐬄 | 6 𐬅 | 7 𐬆 | 8 𐬇 | 9 𐬈 |
| 10 𐬉 | 11 𐬊 | 12 𐬋 | 13 𐬌 | 14 𐬍 | 15 𐬎 | 16 𐬏 | 17 𐬐 | 18 𐬑 |
| 19 𐬒 | 20 𐬓 | 21 𐬔 | 22 𐬕 | 23 𐬖 | 24 𐬗 | 25 𐬘 | 26 𐬙 | 27 𐬚 |
| 28 𐬛 | 29 𐬜 | 30 𐬝 | 31 𐬞 | 32 𐬟 | 33 𐬠 | 34 𐬡 | 35 𐬢 | 36 𐬣 |
| 37 𐬤 | 38 𐬥 | 39 𐬦 | 40 𐬧 | 41 𐬨 | 42 𐬩 | 43 𐬪 | 44 𐬫 | 45 𐬬 |
| 46 𐬭 | 47 𐬮 | 48 𐬯 | 49 𐬰 | نویسه‌هاى بیوسته — 𐬱 𐬲 𐬳 | | | | |

Figure 7. Avestan alphabet from Adib-Soltani 2000, showing 𐬥 *ii* and 𐬬 *uu*. Also shown are the ligatures *ša* 𐬱, *šc* 𐬲, and *št* 𐬳.

(210) Das Awesta-Alphabet

| | Zeichen | Lautwert | | Zeichen | Lautwert | | Zeichen | Lautwert | | Zeichen | Lautwert | | Zeichen | Lautwert |
|---|---------|----------|----|---------|--------------|----|---------|----------|----|---------|----------|----|---------|----------|
| 1 | 𐬀 | a | 10 | 𐬊 | ā (nasal) | 19 | 𐬑 | ǰ | 28 | 𐬗 | f | 37 | 𐬙 | v |
| 2 | 𐬁 | ā | 11 | 𐬋 | i | 20 | 𐬌 | ǧ | 29 | 𐬘 | w | 38 | 𐬥 | v |
| 3 | 𐬂 | e | 12 | 𐬍 | ē | 21 | 𐬎 | t | 30 | 𐬙 | η | 39 | 𐬦 | r |
| 4 | 𐬃 | ē | 13 | 𐬏 | u | 22 | 𐬐 | d | 31 | 𐬚 | ñ | 40 | 𐬧 | s |
| 5 | 𐬄 | ə | 14 | 𐬑 | ū | 23 | 𐬒 | þ | 32 | 𐬛 | n | 41 | 𐬨 | z |
| 6 | 𐬅 | ā | 15 | 𐬓 | k | 24 | 𐬔 | ð | 33 | 𐬜 | n, m | 42 | 𐬩 | š |
| 7 | 𐬆 | o | 16 | 𐬕 | g | 25 | 𐬖 | ɛ | 34 | 𐬝 | m | 43 | 𐬪 | š |
| 8 | 𐬇 | ō | 17 | 𐬗 | h | 26 | 𐬘 | p | 35 | 𐬞 | y | 44 | 𐬫 | š |
| 9 | 𐬈 | á | 18 | 𐬙 | γ | 27 | 𐬚 | b | 36 | 𐬟 | y | 45 | 𐬬 | ž |

Figure 8. Avestan alphabet from Haarmann 1990, showing 𐬥 *ii* and 𐬬 *uu*. Also shown are the ligatures *ša* 𐬱, *šc* 𐬲, and *št* 𐬳.



(コペンハーゲン大学図書館所蔵 K1 (330 葉表) - Vidēvdāt 21.2~3)

Figure 9. Manuscript of the Avestan *Vidēvāt* text from Kōno *et al.* 2001. The blue text is in Avestan script with the ligatures *št*, *ah*, and *ša* marked in orange. The remaining text in black is Pahlavi script, with Aramaic and Middle Persian spellings. An error, scratched-out by the scribe, is shown in red in line 13.

1. [baēuu]arə.vāras.ciṭ mruiiā ašāum za-
2. raθuštra .: MDM ZK mtlg MYA l-LK w'l'n'
3. AMT slyškyh 'wptyt'W l-LK-c 'wptyt bywl w'l'n
4. -c YMRRRWN'-m. z 'hlwb' zltwšt .: yaskahe a-
5. panaštahe mahrkahe apanašt-
6. ahe .: ysk BRA OZLWNšnyh l'y mlg BRA OZLWN-
7. šnyh l'y .: jaene-yaskahe apana-
8. štah jaene.mahrkahe apa. .: znyt'
9. ysk PWN BRA OZLWNšnyh MHYTWNyt nlg PWN BRA
10. OZLWNšnyh gaḍahe apa.gaḍahe
11. apa.naštahe .: ZK g'd' LWTE g'd' BRA
12. OZLWNšnyh 'pz'l Y OLEš'n .: yezi uzirō.-huua
13. mərəncaiti arəzahuaa baēišaziiā-
14. t .: HT PWN 'pz'l mlncynyt PWN 'pyck wltšnyh
15. nyš'zynyt .: yezi arəzahuaa mərəncaiti
16. xšapō.huaa bišaziiāt .: HT PWN

۱۳۲۳ سال گلدنرد در سال ۱۳۲۵ بقول گلدنرد در سال ۱۳۲۳
 بدست هیربد مهربان کیخسرو مهربان اسفندیار مهربان مرزبان بهرام نوشته شده است
 الحال در کوبنهاگ موجود است
 A SPECIMEN OF THE OLDEST MANUSCRIPT OF THE YASNA, K5, COPENHAGEN LIBRARY

Figure 12. Sample from one of the earliest Yasna manuscripts, from Poure Davoud 1927.

AWESTISCH

| Zeichen | Lautwert | Bemerkungen | Zeichen | Lautwert | Bemerkungen |
|---------|----------|---|---|----------------|--|
| 𐬀 | a | Besser o. | 𐬁 | p | |
| 𐬂 | ā | Besser ō. | 𐬃 | f | Abart d. vorigen. |
| 𐬄 | i | | 𐬅 | b | Besser β. |
| 𐬆 | ī | | 𐬇 | w | Ursprünglich Ligatur. |
| 𐬈 | y | Inlautsform. | 𐬉 | n | |
| 𐬊 | y | Anlautsform. | 𐬋 | n | Ursprünglich Ligatur. |
| 𐬌 | u | | 𐬍 | m | |
| 𐬎 | ū | | 𐬏 | r | |
| 𐬑 | v | Inlautsform. | 𐬒 | s | |
| 𐬔 | v | Anlautsform. | 𐬕 | š | |
| 𐬗 | o | | 𐬘 | š | Verlesen, ursprünglich Ligatur u ā r. |
| 𐬙 | ō | | 𐬚 | š | š, besonders vory, ursprünglich Ligatur šy, šk. |
| 𐬛 | ə | } Besser o, u. | 𐬜 | z | |
| 𐬝 | ə | | | | |
| 𐬟 | ɞ | } Verlesen, gleich dem vorigen Zeichen, o, u. | Ligaturen, d. h. noch in den Handschriften mit dem Wert mehrerer Buchstaben verwendete Zeichen. | | |
| 𐬡 | h | | | | |
| 𐬣 | γ | Ältere Form des vorigen. | 𐬤 | ah | Besser oā. |
| 𐬦 | χ | | 𐬧 | ā | = ā + ə. |
| 𐬨 | h | Abart des vorigen. | 𐬩 | a | Besser on, un, mißbräuchlich auch für ə vor m verwendet. |
| 𐬫 | g | Besser γ, ursprünglich Ligatur γ + u. | 𐬬 | ā | Mißdeutet aus Ligatur o + i. |
| 𐬭 | ċ (tš) | | 𐬮 | e | } Ligatur γ + o. |
| 𐬯 | j | Besser ž, ältere Form d. vorigen. | 𐬰 | ē | |
| 𐬲 | ž | Ursprünglich Ligatur. | 𐬳 | x ^v | Besser χ + v. |
| 𐬵 | t | | 𐬶 | h ^v | Ältere Form des vorigen. |
| 𐬸 | t | Ältere Form des vorigen. | 𐬹 | hm | |
| 𐬺 | š | } Abarten des š. | 𐬻 | št | |
| 𐬽 | š | | | 𐬿 | šċ |
| 𐬿 | d | Besser đ. | 𐬾 | šā | Besser šo. |

Die Awesta-Typen sind Eigentum der Göttinger Gesellschaft der Wissenschaften und von der Universitätsdruckerei Kaestner in Göttingen zur Verfügung gestellt worden.

Allgemeines. Awesta, ungenau auch Zend oder Zendawesta genannt, ist die Bezeichnung für die heilige Literatur der Parsen, der Anhänger Zoroasters (Zarathustras). Die Sprache dieses Religionsstifters, dessen Leben nicht später als 1000 v. Chr. angesetzt werden darf, ist ein ostiranischer Dialekt, der bald ausstarb. Die ältesten Teile des Awesta gehen auf Zoroaster selbst oder seine nächste Umgebung zurück. Das übrige, sogen. jüngere Awesta ist erst später, z. T. in mittelpersischer Zeit, entstanden. Überliefert wurde das Awesta in Persien, also in Westiran, wo die Zoroasterlehre bis zum Eindringen des Islam Staatsreligion war. Unsere handschriftliche Überlieferung geht nicht über das Jahr 1200 n. Chr. rückwärts hinaus.

Das Awestaalphabet ist gegen 400 n. Chr. aus einem zeichenärmeren Alphabet semitischen Ursprungs umgeschrieben worden, dessen kursive Form im Pehlewialphabet (siehe dort) vorliegt. Durch Differenzierung der vorhandenen Buchstaben führte man einerseits besondere Vokalzeichen ein und suchte andererseits auch dem Konsonantenreichtum der Sprache gerechter zu werden. Das führte indes zu vielen Irrtümern, da die Schreiber selbst Mittelpersisch sprachen und jene alte ostiranische Sprache nicht mehr verstanden. Schriftgeschichtlich interessant ist die immer mehr zunehmende Verwendung von Ligaturen, die man später fälschlich als einfache Zeichen las und schrieb.

Die Awestaschrift wird von rechts nach links gelesen; eine feste Silbentrennung besteht in den Handschriften nicht.

Interpunktion.
o Worttrenner.
oo am Ende eines Satzes.

Literatur.
H. Reichelt, Awestisches Elementarbuch. Heidelberg: Winter 1909, aber ohne genügende Berücksichtigung der Schriftgeschichte.

Figure 13. Avestan alphabet in the font catalogue of the Reichsdruckerei, 1924.

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Figure 15. Passage of Avestan text from Geldner 1880 showing FULL STOP (with fletched arrow) alongside AVESTAN SEPARATION POINTS.

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Figure 16. Passage of Avestan text from Geldner 1880 showing AVESTAN COLON (centre) alongside AVESTAN END OF SENTENCE (top and bottom).

Punctuation is a weak point in the manuscripts. They have various signs of punctuation, indeed, but they have no system of punctuation. I had to devise a system for myself, based upon the signs that are found: thus, ∙ is a colon, ∙ semicolon or period, ∙∶ denotes the close of a paragraph or the end of a sentence, ∙° a greater division, ∙°° the end of a chapter. In texts with Pahlavi and Sanskrit translation, this version takes the place of punctuation. The text is cut up by the translation into sentences of varied length, sometimes of only one or two words. For the most part, however, the explanation is inserted at an actual break in the sentence. It is only in the rarest instances that the manuscripts vary in this traditional division of the sentence.¹ In the sâda-texts, on the contrary, the text runs along without break until the first large division, with a mark of punctuation thrown in only here and there.² A general exception is made in the Gâthâs, where the close of the strophe is regularly denoted by the star. Where the translation was wanting I was therefore often thrown upon my own resources as regards punctuation. In that case the punctuation may be regarded in doubtful instances simply as subjective. In the Vendidad I have adhered almost absolutely to the division of sentences by the Pahlavi translation, and have indicated the same either by a larger point (.), or by ∙ where the sentence ends. I regret that I did not do this consistently also in the Yasna; although even there the larger point for the most part denotes a division by the translation.³ Sometimes, however, I have departed from

Figure 17. Passage from Geldner’s 1880 grammar discussing his systematic use of ∙, AVESTAN COLON, ∙∶, AVESTAN SEMICOLON, ∙∶, AVESTAN END OF SENTENCE, and ∙° AVESTAN END OF SECTION, as well as his use of sentence-final FULL STOP, to be distinguished from AVESTAN SEPARATION POINT.



Figure 18. Passage of Avestan and Sanskrit text from Rashed Mohassel 2003. The text is interesting, because either the Avestan or the Sanskrit is inverted so that both have the same directionality. The Avestan text uses ligature 𐬀𐬀 *št* and ligature 𐬀𐬀 *ah*.

TABLE XXX - Row 08: AVESTAN

| | 080 | 081 | 082 | 083 |
|---|-----|-----|-----|-----|
| 0 | 𐬀 | 𐬁 | 𐬂 | 𐬃 |
| 1 | 𐬄 | 𐬅 | 𐬆 | 𐬇 |
| 2 | 𐬈 | 𐬉 | 𐬊 | 𐬋 |
| 3 | 𐬌 | 𐬍 | 𐬎 | 𐬏 |
| 4 | 𐬐 | 𐬑 | 𐬒 | 𐬓 |
| 5 | 𐬔 | 𐬕 | 𐬖 | 𐬗 |
| 6 | 𐬘 | 𐬙 | 𐬚 | |
| 7 | 𐬛 | 𐬜 | 𐬝 | |
| 8 | 𐬞 | 𐬟 | 𐬠 | ◦ |
| 9 | 𐬡 | 𐬢 | 𐬣 | ◦ |
| A | 𐬤 | 𐬥 | 𐬦 | ◦◦ |
| B | 𐬧 | 𐬨 | 𐬩 | ◦◦ |
| C | 𐬪 | 𐬫 | 𐬬 | ◦◦ |
| D | 𐬭 | 𐬮 | 𐬯 | ◦◦ |
| E | 𐬰 | 𐬱 | 𐬲 | ◦◦◦ |
| F | 𐬳 | 𐬴 | 𐬵 | ◦◦◦ |

G = 00
P = 00

A. Administrative

1. Title

Proposal to encode the Avestan script in the BMP of the UCS

2. Requester's name

UC Berkeley Script Encoding Initiative (Universal Scripts Project)

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

Liaison contribution.

4. Submission date

2006-10-20

5. Requester's reference (if applicable)

6. Choose one of the following:

6a. This is a complete proposal

Yes.

6b. More information will be provided later

No.

B. Technical – General

1. Choose one of the following:

1a. This proposal is for a new script (set of characters)

Yes.

1b. Proposed name of script

Avestan.

1c. The proposal is for addition of character(s) to an existing block

No.

1d. Name of the existing block

2. Number of characters in proposal

62.

3. Proposed category (A-Contemporary; B.1-Specialized (small collection); B.2-Specialized (large collection); C-Major extinct; D-Attested extinct; E-Minor extinct; F-Archaic Hieroglyphic or Ideographic; G-Obscure or questionable usage symbols)

Category C.

4a. Is a repertoire including character names provided?

Yes.

4b. If YES, are the names in accordance with the “character naming guidelines” in Annex L of P&P document?

Yes.

4c. Are the character shapes attached in a legible form suitable for review?

Yes.

5a. Who will provide the appropriate computerized font (ordered preference: True Type, or PostScript format) for publishing the standard?

Michael Everson.

5b. If available now, identify source(s) for the font (include address, e-mail, ftp-site, etc.) and indicate the tools used:

Michael Everson, Fontographer.

6a. Are references (to other character sets, dictionaries, descriptive texts etc.) provided?

Yes.

6b. Are published examples of use (such as samples from newspapers, magazines, or other sources) of proposed characters attached?

Yes.

7. 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. 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 Unicode Character Database <http://www.unicode.org/Public/UNIDATA/UnicodeCharacterDatabase.html> and associated Unicode Technical Reports for information needed for consideration by the Unicode Technical Committee for inclusion in the Unicode Standard.

See above.

C. Technical – Justification

1. Has this proposal for addition of character(s) been submitted before? If YES, explain.

Yes. See N2556, N1684.

2a. 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.

2b. If YES, with whom?

Hassan Rezaei Baghbidi (Department of Linguistics, University of Tehran), Hossein Masoumi Hamedani (Iranian Academy of Persian Language and Literature), Ali Reza Mohazab, Jost Gippert (TITUS Projekt), Desmond Durkin-Meisterernst, Günter Schweiger

2c. If YES, available relevant documents

<http://titus.fkdig1.uni-frankfurt.de/unicode/iranian/3tagung.htm>

3. Information on the user community for the proposed characters (for example: size, demographics, information technology use, or publishing use) is included?

Zoroastrians, Iranianists and other scholars.

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

Used liturgically and by scholars.

4b. Reference

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

Yes.

5b. If YES, where?

Religious and scholarly publications.

6a. After giving due considerations to the principles in the P&P document must the proposed characters be entirely in the BMP?

Yes.

6b. If YES, is a rationale provided?

Yes.

6c. If YES, reference

Accordance with the Roadmap. Avestan is used in modern Zoroastrian religion.

7. Should the proposed characters be kept together in a contiguous range (rather than being scattered)?

No.

8a. Can any of the proposed characters be considered a presentation form of an existing character or character sequence?

No.

8b. If YES, is a rationale for its inclusion provided?

8c. If YES, reference

9a. Can any of the proposed characters be encoded using a composed character sequence of either existing characters or other proposed characters?

No.

9b. If YES, is a rationale for its inclusion provided?

9c. If YES, reference

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

Yes.

10b. If YES, is a rationale for its inclusion provided?

Yes.

10c. If YES, reference

U+0838 AVESTAN ABBREVIATION SIGN bears a superficial resemblance to other rings in the UCS, such as U+02DA RING ABOVE, or U+2218 RING OPERATOR, but those are true circles, with different origins and uses, having nothing to do with Avestan; example of the rings also show that they are typically not drawn as true circles, but with strokes appropriate to Avestan letterforms. U+0970 DEVANAGARI ABBREVIATION SIGN would be more appropriately analogous, but a unification of the two would be inconvenient to users. U+0839 AVESTAN SEPARATION POINT looks like U+002E FULL STOP but is smaller and used alongside it in Avestan; it also could be said to look like U+10101 AEGEAN WORD SEPARATOR DOT, but we consider this to be a far-fetched proposal. The small 3-dot punctuations U+083A through U+083D look superficially similar to U+2056 THREE DOT PUNCTUATION, but the orientation is different and significant. The three down-pointing dot configurations have a particular size relation to each other within the context of Avestan. Since Avestan and the as-yet unencoded Pahlavi both share this punctuation, we are convinced that this collection of punctuation marks should be encoded as script-specific, strong RTL punctuation. The recently added U+061E ARABIC TRIPLE DOT PUNCTUATION MARK cannot be unified with the Avestan and Pahlavi punctuation either. Here again, the three Avestan characters have a specific size relation to each other, and the Arabic punctuation character is both historically unrelated to them, and needs to be consistently represented in proportion to Arabic letters and other punctuation; it also has the typical Arabic diamond-shape to its dots.

11a. Does the proposal include use of combining characters and/or use of composite sequences (see clauses 4.12 and 4.14 in ISO/IEC 10646-1: 2000)?

No.

11b. If YES, is a rationale for such use provided?

11c. If YES, reference

11d. Is a list of composite sequences and their corresponding glyph images (graphic symbols) provided?

No.

11e. If YES, reference

12a. Does the proposal contain characters with any special properties such as control function or similar semantics?

No.

12b. If YES, describe in detail (include attachment if necessary)

13a. Does the proposal contain any Ideographic compatibility character(s)?

No.

13b. If YES, is the equivalent corresponding unified ideographic character(s) identified?