

Title: Proposal to Encode the Mahajani Script in ISO/IEC 10646
Source: Script Encoding Initiative (SEI)
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1 Introduction

This is a proposal to encode the Mahajani script in the Universal Character Set (ISO/IEC 10646). It replaces “Preliminary Proposal to Encode the Mahajani Script in ISO/IEC 10646” (N3930 L2/10-377).

2 Background

Mahajani is a Brahmi-based writing system that was commonly used across northern India until the middle of the 20th century. It is a specialized commercial script used for writing accounts and financial records. It was used for recording several languages, namely Hindi, Marwari, and Punjabi. Mahajani was taught and used as a medium of education in Punjab, Rajasthan, Uttar Pradesh, Bihar, and Madhya Pradesh in schools known as चटशाला *caṭaśālā*-s, where students from merchant and trading communities learned the script and other writing skills required for business.¹

The name ‘Mahajani’ (Hindi महाजनी *mahājānī* < महाजन *mahājana* ‘banker’) refers to bankers and money lenders, who were the primary users of the script. It is similar to accounting scripts known as Sarrafi (Hindi सराफ़ी *sarrāfī* < Arabic سراف *ṣarrāf* ‘banker’)² and as Kothival (कोठीवाल *koṭhīvāla* ‘merchant’).³

The majority of Mahajani records are account books known as बही-खाता *bahī-khātā*. Other documents produced using the script are merchant diaries (रोज़नामा *roznāmā*); financial instruments, eg. bills of exchange (हुंडी *humḍī*); and letters (चिट्ठी *ciṭṭhī*). Several lithographed books for teaching the script were produced in the late 19th century. One such instructional manual is महाजनीसारहिस्साअवलवदोयम [*Mahājānī-sāra-hissā-avala-va-doyama*], written by Lālā Gaṅgādāsa Muṁśī Lālā in Delhi in the 19th century. It teaches the Mahajani script and explains methods of accounting and letter writing. It contains Hindi text in Mahajani, Devanagari, and the Perso-Arabic scripts (see Figure 5). Another primer is महाजनीसार [*Mahājānī-sāra*], which was written in Hindi by Śrīlāla in 1875 and published in Allahabad (see Figure 6 and Figure 7). Śrīlāla also published a supplementary edition of his text in Devanagari (see the comparison in Figure 8).

Several specimens of Mahajani appear in grammar books, script primers, and other such materials. Charts showing the script are given by George A. Grierson in *A Handbook to the Kaithi Character* (1899) and by Samuel Kellogg in *A grammar of the Hindī language* (1876). Gottlieb W. Leitner included numerous specimens of Mahajani as used in Punjab in *History of Indigenous Education in the Punjab* (1882).

Mahajani is not commonly used in present-day India. But, there is evidence that the script may not be entirely obsolete. In 2004, an article in the *Tribune* newspaper of Chandigarh, India reported on the demise

¹ Leitner 1882: 37.

² Kellogg 1876: 17 fn 31.

³ Hoernle 1880: 2.

of ‘Langdi Hindi’, which appears to be a form of the Haryanvi language used specifically for bookkeeping that is written in Mahajani. Although the Mahajani script is no longer in general use, it is an important key to the historical financial records of northern India.

2.1 Relationship to Other Scripts

Mahajani has similarities to Landa, Kaithi, and Devanagari. A comparison of these scripts is given in Table 2 and Table 3. See also the comparison of Mahajani with scripts of the Sharada family in Figure 18.

In structure and orthography, Mahajani resembles scripts of the Landa family used in Punjab and Sind,⁴ which are related to Sharada. The term *landā* (Punjabi ਲੰਡਾ; Hindi लंदा *laṇḍā*, ‘tailless, clipped’) refers to certain characteristics possessed by these writing systems, such as an abbreviated repertoire of vowel and consonant letters, the absence of vowel signs, inattention to word spacing, etc. As shown in the above tables, Mahajani and Landa have similar glyphs for vowel letters, but there are considerable differences in the glyph shapes of consonant letters.

Mahajani is often described as a derivative of Kaithi⁵ or a ‘tachygraphic abbreviation’ of Devanagari.⁶ While there are similarities between these scripts, the majority of Mahajani letterforms are distinct from those of Kaithi and Devanagari. Moreover, while Mahajani may have been influenced by Kaithi and Devanagari, it possesses structural, orthographic, and graphical features that are distinct from these scripts. Mahajani is used in documents alongside other scripts and there is a need to distinguish and represent it in plain text.

The term ‘Mahajani’ also refers to a style of writing other scripts when used in commercial activity. For example, the name ‘Mahajani Dogra’ refers to a form of the Dogra script used by merchants, which is written in a manner characteristic of the Mahajani or Landa style. The term ‘Mahajani’ has also been applied to the Gujarati script and to a form of Devanagari used for writing Marwari and other languages of Rajasthan.

Mahajani is closely related to a group of scripts called ‘Sarrafī’, or ‘banker’s script’. The form of Sarrafī as used in Delhi is shown in comparison to various styles of Landa in Figure 14–17. Another group of scripts closely related to Mahajani is that called ‘Baniautī’ (‘merchant’s script’) by Kellogg, shown in Table 12.

The origins of Mahajani and its relationship to other scripts is best expressed by John Beames in his Indo-Aryan grammar of 1872:

The Mahājani character differs entirely from that used for general purposes of correspondence, and is quite unintelligible to any but commercial men. It is in its origin as irregular and scrawling as the Sindhi, but has been reduced by men of business into a neat-looking system of little round letters, in which, however, the original Devanagari type has become so effaced as hardly to be recognizable, even when pointed out. Perhaps this is intentional. Secresy has always been an important consideration with native merchants, and it is probable that they purposely made their peculiar alphabet as unlike anything else as possible, in order that they alone might have the key to it.⁷

3 Writing System

3.1 Structure

Mahajani is based upon the Brahmi model, but it is structurally simpler and behaves as an alphabet. Vowel signs are not used. There is no VIRAMA. The script is written from left to right.

⁴ See Pandey 2010 for details.

⁵ Kellogg 1876: 17

⁶ Leitner 1882: 37.

⁷ Beames 1872: 55.

3.2 Vowel Letters

There are five vowel letters:  A,  I,  U,  E,  O. Other vowels are represented using these characters:  I is used for writing *II, *E, *AI and  U is used for *UU, *O, *AU.

3.3 Vowel Signs

Vowel signs are not written. The glyph  KA represents not only *ka*, but also any one of the syllables *ka*, *kā*, *ki*, *kī*, *ke*, etc. In cases where greater precision is required, a vowel letter may be written after a consonant to convey the intended vocalic context, eg. *ki* may be written   *ki*, but this also represents *kī* and *kaī*. In general, the value of a consonant letter must be inferred at the morphological level.

3.4 Consonant Letters

Consonant letters theoretically bear the inherent vowel /a/.

3.5 Consonant Conjuncts

Consonant clusters are not written in Mahajani using half-forms or ligatures or a visible VIRAMA. The elements of a consonant cluster are written sequentially using regular consonant letters.

3.6 Nasalization

Nasalization is not represented using special signs, such as ANUSVARA. The letter  NA is used in cases where nasalization is explicitly recorded. In several cases, words are written simply with nasalization deleted, eg. Devanagari  *humḍī* and Mahajani  *hḍ*.

3.7 NUKTA

The  NUKTA is used for writing sounds that are not represented by a unique character, such as allophonic variants and sounds that occur in local dialects or in loanwords. It has limited use in Mahajani.

The graphical structure of  BA contains a dot; however, this dot is not semantically equivalent to NUKTA. It does not decompose to NUKTA and is treated as an atomic character.

3.8 Digits

Mahajani does not have distinctive script-specific digits. Digits similar to those used in Devanagari and Gujarati are attested. The Mahajani digits are to be unified with those of Devanagari. See Section 5.3 for further details.

3.9 Number Forms

Fraction signs (, , etc.) and unit marks (, , etc.) are found in Mahajani documents (see Figure 2). These may be represented using the characters encoded in the ‘Common Indic Number Forms’ block (U+A830..U+A83F); see N3367 for more information.

The text below shows the use of fraction signs:

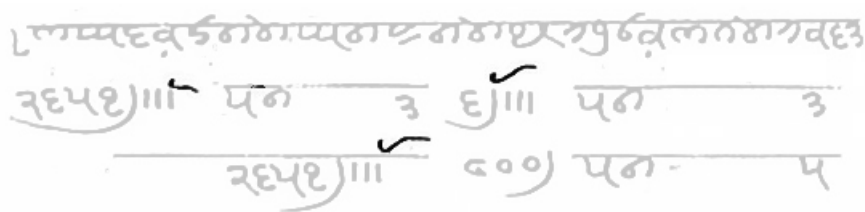


The currency sign U+A838 NORTH INDIC RUPEE SIGN is shown below:



3.10 Accounting Marks

A checkmark-like character is shown in Mahajani accounts. It is written over fraction signs and currency marks:



as well as over digits:



The character is not presently proposed for encoding because additional information on its usage is required.

3.11 Variant Forms

Several letters have glyphic variants: **ॐ** A is written as **३** and **४**; **५** CA as **५**; **३** PHA as **३**; **१** HA as **५**; etc. (see Section 4.3 for more details). Variant forms will be managed through fonts.

3.12 Word Boundaries

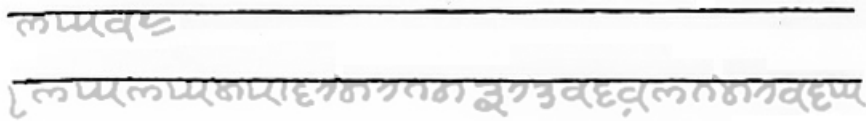
There are no formal rules for word spacing. Generally, word spacing is not observed.

3.13 Punctuation

There are no specific marks or formal rules for punctuation. Marks similar to a dash, middle dot, and colon are used, as are *daṇḍā*-s. These may be unified with corresponding characters in Latin and Devanagari.

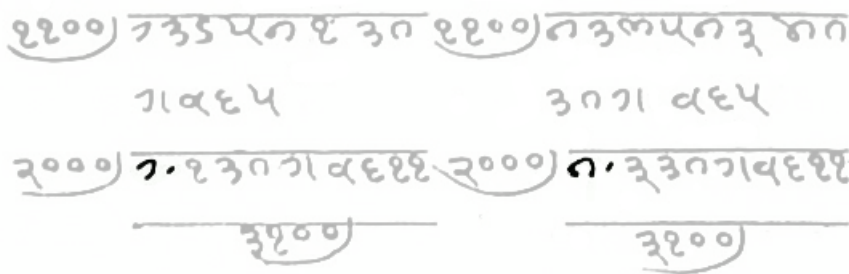
3.14 Ruled Lines

Ruled lines are used in Mahajani records as a method of titling and structuring documents. These lines are not identical to the head-stroke found in modern Devanagari letters.



3.15 Abbreviations

Abbreviations are indicated using the • ABBREVIATION SIGN:



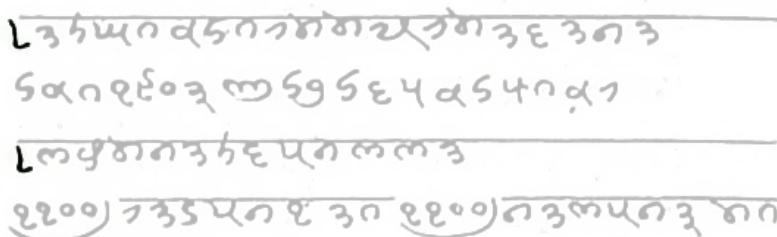
The abbreviations in the above are *ra*• (*रा* = रोकड़ *rokaḍ*) and *na*• (*ना* = नकल *nakal*), which are types of accounts. A colon-like character is also used for abbreviations:



In the above, the forms *ra*• and *ra*: represent *रा५* (= रुपय *rupaya* 'rupee'). They appear in the same line of the same text. Additional research is required to determine if this character should be encoded separately.

3.16 Section Marks

The *SECTION MARK* is used for indicating sections:



It is also used for indicating line continuation:

may be grouped with those of the latter two. The representative glyph shapes are based upon the eastern style of Mahajani, with some exceptions made in order to accommodate regional differences.

4.4 Notes on Proposed Characters

Notes on specific characters are given below:

- **A** The shape for  AA is based upon the forms shown by Śrīlāla, Kellogg, and Leitner. It is chosen over Gaṅgādāsa's  and Grierson's  because it is congruent with the proposed  O.
- **E** Attested by Kellogg as the unique character . Others show this letter written using  I. It is proposed for encoding because it is a distinct character.
- **O** This letter is represented by Kellogg as . It is congruent to Kellogg's and Śrīlāla's , being composed using a  *VOWEL SIGN O. Grierson shows  as O, which is composed of  BA +  NUKTA (also used for  NGA). It is unattested in Gaṅgādāsa and Śrīlāla, who write O using  U.
- **NNA** The character  NNA is proposed for encoding because it is a distinct character. It is shown by Grierson and Leitner, but not by Gaṅgādāsa, Kellogg, or Śrīlāla, who use  NA for NNA.
- **NYA** Usage of the character  NYA is rare. It is attested only in Grierson. Gaṅgādāsa, Kellogg, and Śrīlāla use  NA for NYA.
- **PHA** Attested by Grierson, Kellogg, and Śrīlāla as , but by Gaṅgādāsa as . The former shape is proposed as the normative form.
- **VA** The form  is chosen over  for VA because it is more common. If needed, the  form may be produced as  +  NUKTA.
- **RR** The character  is assigned the name RRA. It corresponds to Devanagari  DDDHA.
- **LIGATURE SHRI** The character  LIGATURE SHRI is an invocation (see Figure 7). It corresponds to Devanagari  (SHA + VIRAMA + RA + VOWEL SIGN II). It is proposed for independent encoding because Mahajani has neither a VIRAMA or the letter SHA that are required for its composition.

4.5 Characters Not Proposed

The following characters are not proposed for encoding:

- **II** Not attested as an independent character. It is written using  I.
- **UU** Not attested as an independent character. It is written using  U.
- **AI** Not attested as an independent character. It is written using  I.
- **AU** Not attested as an independent character. It is written using  U.
- **VOWEL SIGN AA** Attested as  in Grierson. Does not occur in other sources.
- **VOWEL SIGN I** Attested as  in Grierson. Does not occur in other sources.
- **VOWEL SIGN U** Attested as  in Grierson. Does not occur in other sources.

- VOWEL SIGN E Attested as ெ in Grierson. Does not occur in other sources.
- VOWEL SIGN O Attested as ெ in Kellogg. Does not occur in other sources.
- NGA Shown by Grierson as ெ. It is not a unique character, but a composite formed from ெ BA + ெ NUKTA. It is not attested in other sources. Gaṅgādāsa, Kellogg, and Śrīlāla use ெ NA for NGA.
- YA Shown by Grierson as ெ, which is identical to his ெ JA. Not attested in other sources. It is generally represented using ெ JA.
- SHA Shown by Grierson as ெ. Not attested in other sources. It is generally represented using ெ SA.
- SSA Shown by Grierson as ெ, which is identical to his ெ KHA. This letter is generally represented using ெ KHA.

5 Unicode Character Data

5.1 Character Properties

```

11150;MAHAJANI LETTER A;Lo;0;L;;;;N;;;;;
11151;MAHAJANI LETTER I;Lo;0;L;;;;N;;;;;
11152;MAHAJANI LETTER U;Lo;0;L;;;;N;;;;;
11153;MAHAJANI LETTER E;Lo;0;L;;;;N;;;;;
11154;MAHAJANI LETTER O;Lo;0;L;;;;N;;;;;
11155;MAHAJANI LETTER KA;Lo;0;L;;;;N;;;;;
11156;MAHAJANI LETTER KHA;Lo;0;L;;;;N;;;;;
11157;MAHAJANI LETTER GA;Lo;0;L;;;;N;;;;;
11158;MAHAJANI LETTER GHA;Lo;0;L;;;;N;;;;;
11159;MAHAJANI LETTER CA;Lo;0;L;;;;N;;;;;
1115A;MAHAJANI LETTER CHA;Lo;0;L;;;;N;;;;;
1115B;MAHAJANI LETTER JA;Lo;0;L;;;;N;;;;;
1115C;MAHAJANI LETTER JHA;Lo;0;L;;;;N;;;;;
1115D;MAHAJANI LETTER NYA;Lo;0;L;;;;N;;;;;
1115E;MAHAJANI LETTER TTA;Lo;0;L;;;;N;;;;;
1115F;MAHAJANI LETTER TTHA;Lo;0;L;;;;N;;;;;
11160;MAHAJANI LETTER DDA;Lo;0;L;;;;N;;;;;
11161;MAHAJANI LETTER DDHA;Lo;0;L;;;;N;;;;;
11162;MAHAJANI LETTER NNA;Lo;0;L;;;;N;;;;;
11163;MAHAJANI LETTER TA;Lo;0;L;;;;N;;;;;
11164;MAHAJANI LETTER THA;Lo;0;L;;;;N;;;;;
11165;MAHAJANI LETTER DA;Lo;0;L;;;;N;;;;;
11166;MAHAJANI LETTER DHA;Lo;0;L;;;;N;;;;;
11167;MAHAJANI LETTER NA;Lo;0;L;;;;N;;;;;
11168;MAHAJANI LETTER PA;Lo;0;L;;;;N;;;;;
11169;MAHAJANI LETTER PHA;Lo;0;L;;;;N;;;;;
1116A;MAHAJANI LETTER BA;Lo;0;L;;;;N;;;;;
1116B;MAHAJANI LETTER BHA;Lo;0;L;;;;N;;;;;
1116C;MAHAJANI LETTER MA;Lo;0;L;;;;N;;;;;
1116D;MAHAJANI LETTER RA;Lo;0;L;;;;N;;;;;
1116E;MAHAJANI LETTER LA;Lo;0;L;;;;N;;;;;
1116F;MAHAJANI LETTER VA;Lo;0;L;;;;N;;;;;
11170;MAHAJANI LETTER SA;Lo;0;L;;;;N;;;;;
11171;MAHAJANI LETTER HA;Lo;0;L;;;;N;;;;;
11172;MAHAJANI LETTER RRA;Lo;0;L;;;;N;;;;;
11173;MAHAJANI SIGN NUKTA;Mn;7;NSM;;;;N;;;;;
11174;MAHAJANI ABBREVIATION SIGN;Po;0;L;;;;N;;;;;
11175;MAHAJANI SECTION MARK;Po;0;L;;;;N;;;;;
11176;MAHAJANI LIGATURE SHRI;So;0;L;;;;N;;;;;

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5.2 ‘Confusable’ Characters

11150 MAHAJANI LETTER KA	; 112CA KHUDAWADI LETTER RRA
1115B MAHAJANI LETTER JA	; 112CD KHUDAWADI LETTER TA
11161 MAHAJANI LETTER DDHA	; 096D DEVANAGARI DIGIT SEVEN
11167 MAHAJANI LETTER NA	; 112CF KHUDAWADI LETTER DA
11169 MAHAJANI LETTER PHA	; 0969 DEVANAGARI DIGIT THREE
1116B MAHAJANI LETTER BHA	; 112C7 KHUDAWADI LETTER TTHA
11170 MAHAJANI LETTER SA	; 111B2 SHARADA LETTER HA
11171 MAHAJANI LETTER HA	; 003D EQUALS TO
11173 MAHAJANI SIGN NUKTA	; 0323 COMBINING DOT BELOW
11174 MAHAJANI ABBREVIATION SIGN	; 00B7 MIDDLE DOT

5.3 Script Extensions

The following entry is to be added to ScriptExtensions.txt:

```
# =====
# Script_Extensions=Deva XXXX

0966..096F      ; Deva XXXX # Nd  [10] DEVANAGARI DIGIT ZERO..DEVANAGARI DIGIT NINE

# Total code points: 10
# =====
```

where XXXX is the future ISO 15924 code for Mahajani:

6 References

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	1115	1116	1117
0	 11150	 11160	 11170
1	 11151	 11161	 11171
2	 11152	 11162	 11172
3	 11153	 11163	 11173
4	 11154	 11164	 11174
5	 11155	 11165	 11175
6	 11156	 11166	 11176
7	 11157	 11167	
8	 11158	 11168	
9	 11159	 11169	
A	 1115A	 1116A	
B	 1115B	 1116B	
C	 1115C	 1116C	
D	 1115D	 1116D	
E	 1115E	 1116E	
F	 1115F	 1116F	

Vowels

11150		MAHAJANI LETTER A
11151		MAHAJANI LETTER I
11152		MAHAJANI LETTER U
11153		MAHAJANI LETTER E
11154		MAHAJANI LETTER O

Consonants

11155		MAHAJANI LETTER KA
11156		MAHAJANI LETTER KHA
11157		MAHAJANI LETTER GA
11158		MAHAJANI LETTER GHA
11159		MAHAJANI LETTER CA
1115A		MAHAJANI LETTER CHA
1115B		MAHAJANI LETTER JA
1115C		MAHAJANI LETTER JHA
1115D		MAHAJANI LETTER NYA
1115E		MAHAJANI LETTER TTA
1115F		MAHAJANI LETTER TTHA
11160		MAHAJANI LETTER DDA
11161		MAHAJANI LETTER DDHA
11162		MAHAJANI LETTER NNA
11163		MAHAJANI LETTER TA
11164		MAHAJANI LETTER THA
11165		MAHAJANI LETTER DA
11166		MAHAJANI LETTER DHA
11167		MAHAJANI LETTER NA
11168		MAHAJANI LETTER PA
11169		MAHAJANI LETTER PHA
1116A		MAHAJANI LETTER BA
1116B		MAHAJANI LETTER BHA
1116C		MAHAJANI LETTER MA
1116D		MAHAJANI LETTER RA
1116E		MAHAJANI LETTER LA
1116F		MAHAJANI LETTER VA
11170		MAHAJANI LETTER SA
11171		MAHAJANI LETTER HA
11172		MAHAJANI LETTER RRA

Various signs

11173		MAHAJANI SIGN NUKTA
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Punctuation

11174		MAHAJANI ABBREVIATION SIGN
11175		MAHAJANI SECTION MARK

Word ligature

11176		MAHAJANI LIGATURE SHRI
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Figure 1: Proposed code chart and nameslist for Mahajani.

	A	B	C	D		A	B	C	D
A					TA				
I					THA				
U					DA				
E	—				DHA				
O	—				NA				
KA					PA				
KHA					PHA				
GA					BA				
GHA					BHA				
NGA	—	—			MA				
CA					YA	—	—		—
CHA					RA				
JA					LA				
JHA					VA				—
NYA	—	—			SHA	—	—		—
TTA					SSA	—	—		—
TTHA					SA				
DDA					HA				
DDHA					RRA		—	—	—
NNA	—	—							

Table 1: Mahajani letterforms from (A) Gaṅgādāsa, (B) Śrīlāla, (C) Grierson, and (D) Kellogg.

Figure 2: Table of Mahajani letters (from Gaṅgādāsa 18–?: 12). Also shown is a table of currency fractions titled ‘आनापाई’ *ānā pāī*.

३३

पहिला भाग

००००१०६	नाममहाजनी	ناممهاجنى	००००१०६	नाममहाजनी	ناممهاجنى
१६००००	केदारनाथ	کدیرناث	६०००००	दुसाशंकर	دوسا شکر
६२२०००	खैरातोलाल	خیراتی لال	५६००००	प्यारेलाल	پیاریلعل
००५०००	गोपीनाथ	گوبی ناٹھ	००५०००	फतहचंद	فتح چند
६०००००६६	धनस्यामदास	دھنشا داس	५०००००६६	बुलाकीदास	بلا قیداس
००००००००	नानकचंद	نانک چند	००००००	भीरामल	بھیکہال
५०००००००	चिरंजीलाल	چیرنجی لال	००००००००	मुन्नालाल	منالال
००००००००	छोतरमल	چوٹیرمل	००००००००	मोहनलाल	موہن لال
००००००००	जगन्नाथ	جگن ناٹھ	५०००००००	बकसीराम	بکشی رام
००००००००	मंडूमल	مندو مل	५०००००	खुसालराय	خوشا لرائے
००००००००	ठेकचंद	ٹیک چند	००००००००	सीरुचंद	سیل چند
००००००००	ठंडीमल	ٹنڈی مل	००००००००	रतनचंद	رتن چند
००००००००	हुगारमल	हुगरी مل	००००००००	मानकचंद	سانک چند
००००००००	ताराचंद	तारा چند	५०००००००	बनारसीदास	بناد سیداس
००००००००	अमनलाल	अमन लाल	००००००००००	ज्वालापरशद	جوالم پرشاد
००००००००	खुबचंद	خوب چند	००००००००००	मनोहरलाल	منوہر لال
००००००००	गंगाधर	गंगाधरी	००००००००	ठाकुरदास	ٹھاکर داس
००००००००	निहालसिंह	نیہال سنگھ	००००००००००	इसुरीप्रसाद	ایسری پرشاد
००००००००	घासीराम	گھसी رام	००००००००००	उत्तमचंद	اتم چند
००००००००	चेतराम	चित राम	००००००००	हीरालाल	ہیرالال
००००००००००	खुबीलचंद	خوبیل چند	००००००००००	सरवमीचंद	سارمہی چند
००००००००००	मावूमल	مہاو مل	००००००००००	मावूमल	مہاو مل
००००००००००	पिरभूदयाल	پر بھودیل	००००००००००	वजीरसिंह	وزیر سنگھ
००००००००००	किशोरीलाल	کیشوری لعل	००००००००००	केशरीचंद	کیشری چند

Figure 3: Personal names written in Mahajani, Devanagari, and Arabic scripts (from Gaṅgādāsa 18-?: 12).

Figure 5: Instructions for writing a हुंड़ी *humdī* 'bill of exchange' (from Gaṅgādāsa 18–?: 30).

स्वर			
नागरी	महाजनी	नागरी	महाजनी
अ	ॐ	लृ	×
आ		लृह	×
इ	८	ए	८
ई		ऐ	
उ	ॐ	ओ	ॐ
ऊ		औ	
ऋ	×	अं	×
ॠ	×	अः	×

महाजनी के लिखने में लगमात नहीं लगते परशब्द की आदि में स्वर हो तो उसे लिख देते हैं अथवा कहीं संदेह जान पड़े तो बीच में वाअंत में भी अलग कर स्वर लगा देते हैं ॥

जैसे			
नागरी	महाजनी	नागरी	महाजनी
आँवला	ॐ ५ ॐ	आगरा	ॐ १ १
उपमा	ॐ ५ ॐ	दूंदोर	८ ६ ॐ १

Figure 6: Table of Mahajani vowel letters (from Śrīlāla 1875: 1).

व्यंजन			
नागरी	महाजनी	नागरी	महाजनी
क	३	इ	६
ख	५५४	ध	२
ग	ग	न	१
घ	६	प	५
ङ	×	फ	३
च	५१५५	ब	४
छ	६	भ	९
ज	७	म	७
झ	६६	य	×
ञ	×	र	७
ट	२८	ल	७
ठ	६	व	५
ड	५	श	×
ढ	७७	ष	×
ण	२	स	५
त	२०८	ह	५१
थ	६६	श्री	२७

Figure 7: Table of Mahajani consonant letters (from Śrīlāla 1875: 2).

Figure 9: Fractions in Mahajani (from Śrīlāla 1875: 17).

PLATE I.

Devanāgarī	Kayathī	Mahajānī	English	Devanāgarī	Kayathī	Mahajānī	English	Devanāgarī	Kayathī	Mahajānī	English
अ	अ	ॐ	a	उ	ॐ	ॐ	ri	न	ॐ	ॐ	n
आ	आ	ॐ	ā	ऊ	ॐ	ॐ	ch	प	ॐ	ॐ	p
इ	इ	ॐ	i	ए	ॐ	ॐ	chh	फ	ॐ	ॐ	ph
उ	उ	ॐ	u	ज	ॐ	ॐ	j	ब	ॐ	ॐ	b
ऊ	ऊ	ॐ	ū	झ	ॐ	ॐ	jh	भ	ॐ	ॐ	bh
ऋ	ॐ	ॐ	ṛi	ञ	ॐ	ॐ	ṛi	म	ॐ	ॐ	m
ॠ	ॐ	ॐ	ṛi	ट	ॐ	ॐ	t	य	ॐ	ॐ	yj
ऌ	ॐ	ॐ	e	ठ	ॐ	ॐ	th	र	ॐ	ॐ	r
ॡ	ॐ	ॐ	ai	ड	ॐ	ॐ	d	ल	ॐ	ॐ	l
ओ	ॐ	ॐ	o	ढ	ॐ	ॐ	dh	व	ॐ	ॐ	v.b
औ	ॐ	ॐ	au	शा	ॐ	ॐ	n	श	ॐ	ॐ	s
क	क	ॐ	k	त	ॐ	ॐ	t	ष	ॐ	ॐ	sh,kh
ख	ख	ॐ	kh	थ	ॐ	ॐ	th	स	ॐ	ॐ	s
ग	ग	ॐ	g	द	ॐ	ॐ	d	ह	ॐ	ॐ	h
घ	घ	ॐ	gh	ध	ॐ	ॐ	dh				

COMBINATIONS OF VOWELS.

Devanāgarī	Kayathī	Mahajānī	English	Devanāgarī	Kayathī	Mahajānī	English
अक	अक	ॐ	aka	ऋक	ॐ	ॐ	rikri
आका	आका	ॐ	ākā	एके	ॐ	ॐ	eke
इकि	इकि	ॐ	iki	ऐकै	ॐ	ॐ	aikai
ईकी	ईकी	ॐ	ikī	ओको	ॐ	ॐ	oko
उकु	उकु	ॐ	uku	औकौ	ॐ	ॐ	aukau,
ऊकु	ऊकु	ॐ	ukū				

Table showing the corresponding forms of the Devanāgarī, Kayathī, Mahajānī and English alphabets.

Figure 10: Comparison of Mahajani, Kaithi, and Devanagari (from Grierson, 1899: Plate I).

Nāgarī.	Kaithī.	Mahājanī.	Nāgarī.	Kaithī.	Mahājanī.
अ	ल	ॐ	ठ	ठ	ॐ
आ	ला	ॐ	ड	ड	ॐ
इ	इ	ॐ	ढ	ढ	ॐ
ई	ई	ॐ	ण	ण	ॐ
उ	उ	ॐ	त	त	ॐ
ऊ	ऊ	ॐ	थ	थ	ॐ
ऋ	ॐ	ॐ	द	द	ॐ
ए	ॐ	ॐ	ध	ध	ॐ
ऐ	ॐ	ॐ	न	न	ॐ
ओ	ॐ	ॐ	प	प	ॐ
औ	ॐ	ॐ	फ	फ	ॐ
क	क	ॐ	ब	ब	ॐ
ख	ख	ॐ	भ	भ	ॐ
ग	ग	ॐ	म	म	ॐ
घ	घ	ॐ	य	य	ॐ
ङ	ङ	ॐ	र	र	ॐ
च	च	ॐ	ल	ल	ॐ
छ	छ	ॐ	व	व	ॐ
ज	ज	ॐ	श	श	ॐ
झ	झ	ॐ	ष	ष	ॐ
ञ	ञ	ॐ	स	स	ॐ
ट	ट	ॐ	ह	ह	ॐ

Figure 11: Comparison of Mahajani, Kaithi, and Devanagari (from Kellogg 1876: plate after p18).

TABLE I. (concluded).—HINDI ALPHABETS.

Nāgarī.	Kāyathī.	Mahājani.	Baniāñī.
उ ऋ ॠ ऌ ॡ	उ ऋ ॠ ऌ ॡ	उ ऋ ॠ ऌ ॡ	उ ऋ ॠ ऌ ॡ
ए ऐ ओ औ	ए ऐ ओ औ	ए ऐ ओ औ	ए ऐ ओ औ
अ इ ई	अ इ ई	अ इ ई	अ इ ई
इ ई	इ ई	इ ई	इ ई

TABLE I.—HINDI ALPHABETS.

Nāgarī.	Kāyathī.	Mahājani.	Baniāñī.
अ इ ई	अ इ ई	अ इ ई	अ इ ई
इ ई	इ ई	इ ई	इ ई
उ ऋ ॠ	उ ऋ ॠ	उ ऋ ॠ	उ ऋ ॠ
ए ऐ ओ	ए ऐ ओ	ए ऐ ओ	ए ऐ ओ

Figure 12: Comparison of Kaithi with other scripts used for writing Hindi (from Kellogg 1893: 26–27).

TABLE OF ALPHABETS.

	a	i	u	e	o	k	kh	g	gh	ñ	ch	chh	j	jh	ṇ	ṭ	ṭh	ḍ	ḍh	n	p	ph	b	bh	m	y	r	ṛh	l	v	h	s	ś
1 Pali 3 ^d Cent. B.C.	𑀀	𑀁	𑀂	𑀃	𑀄	𑀅	𑀆	𑀇	𑀈	𑀉	𑀊	𑀋	𑀌	𑀍	𑀎	𑀏	𑀐	𑀑	𑀒	𑀓	𑀔	𑀕	𑀖	𑀗	𑀘	𑀙	𑀚	𑀛	𑀜	𑀝	𑀞	𑀟	𑀠
2 Pali d ¹⁰	𑀀	𑀁	𑀂	𑀃	𑀄	𑀅	𑀆	𑀇	𑀈	𑀉	𑀊	𑀋	𑀌	𑀍	𑀎	𑀏	𑀐	𑀑	𑀒	𑀓	𑀔	𑀕	𑀖	𑀗	𑀘	𑀙	𑀚	𑀛	𑀜	𑀝	𑀞	𑀟	𑀠
3 Pali d ¹⁰ (Gimari)	𑀀	𑀁	𑀂	𑀃	𑀄	𑀅	𑀆	𑀇	𑀈	𑀉	𑀊	𑀋	𑀌	𑀍	𑀎	𑀏	𑀐	𑀑	𑀒	𑀓	𑀔	𑀕	𑀖	𑀗	𑀘	𑀙	𑀚	𑀛	𑀜	𑀝	𑀞	𑀟	𑀠
4 Gupta 5 th Cent A.D.	𑀀	𑀁	𑀂	𑀃	𑀄	𑀅	𑀆	𑀇	𑀈	𑀉	𑀊	𑀋	𑀌	𑀍	𑀎	𑀏	𑀐	𑀑	𑀒	𑀓	𑀔	𑀕	𑀖	𑀗	𑀘	𑀙	𑀚	𑀛	𑀜	𑀝	𑀞	𑀟	𑀠
5 Valabhi d ¹⁰	𑀀	𑀁	𑀂	𑀃	𑀄	𑀅	𑀆	𑀇	𑀈	𑀉	𑀊	𑀋	𑀌	𑀍	𑀎	𑀏	𑀐	𑀑	𑀒	𑀓	𑀔	𑀕	𑀖	𑀗	𑀘	𑀙	𑀚	𑀛	𑀜	𑀝	𑀞	𑀟	𑀠
6 Kutila 10 th Cent A.D.	𑀀	𑀁	𑀂	𑀃	𑀄	𑀅	𑀆	𑀇	𑀈	𑀉	𑀊	𑀋	𑀌	𑀍	𑀎	𑀏	𑀐	𑀑	𑀒	𑀓	𑀔	𑀕	𑀖	𑀗	𑀘	𑀙	𑀚	𑀛	𑀜	𑀝	𑀞	𑀟	𑀠
7 Kaithi	𑀀	𑀁	𑀂	𑀃	𑀄	𑀅	𑀆	𑀇	𑀈	𑀉	𑀊	𑀋	𑀌	𑀍	𑀎	𑀏	𑀐	𑀑	𑀒	𑀓	𑀔	𑀕	𑀖	𑀗	𑀘	𑀙	𑀚	𑀛	𑀜	𑀝	𑀞	𑀟	𑀠
8 Mahajani	𑀀	𑀁	𑀂	𑀃	𑀄	𑀅	𑀆	𑀇	𑀈	𑀉	𑀊	𑀋	𑀌	𑀍	𑀎	𑀏	𑀐	𑀑	𑀒	𑀓	𑀔	𑀕	𑀖	𑀗	𑀘	𑀙	𑀚	𑀛	𑀜	𑀝	𑀞	𑀟	𑀠
9 Devanagari	अ	इ	उ	ए	ऐ	ऑ	क	ख	ग	घ	ङ	च	छ	ज	झ	ट	ठ	ड	ढ	ण	त	थ	द	ध	न	प	फ	ब	भ	म	य	र	ल
10 Panjabi	ਅ	ਇ	ਉ	ਏ	ਐ	ਓ	ਕ	ਖ	ਗ	ਘ	ਙ	ਚ	ਛ	ਜ	ਝ	ਟ	ਠ	ਡ	ਢ	ਣ	ਤ	ਥ	ਦ	ਧ	ਨ	ਪ	ਫ	ਬ	ਭ	ਮ	ਯ	ਰ	ਲ
11 Bangali	অ	ই	উ	এ	ঐ	ঔ	ক	খ	গ	ঘ	ঙ	চ	ছ	জ	ঝ	ট	ঠ	ড	ঢ	ণ	ত	থ	দ	ধ	ন	প	ফ	ব	ভ	ম	য	র	ল
12 Oriya	ଅ	ଈ	ଉ	ଏ	ଐ	ଔ	କ	ଖ	ଗ	ଘ	ଙ	ଚ	ଛ	ଜ	ଝ	ଟ	ଠ	ଡ	ଢ	ଣ	ତ	ଥ	ଦ	ଧ	ନ	ପ	ଫ	ବ	ଭ	ମ	ଯ	ର	ଲ

Figure 13: Comparison of Mahajani and other scripts (from Hoernle 1880).

Set No 2
Comparison of the alphabets of Nagri Gurumukhi with Different Kinds of Landa Sarafi & with Thakuri and Dogri

Roman equivalent	गुरुमुखी Gurmukhi	नगरी Nagri	लान्दे I Lande I	लान्दे II Lande II	लान्दे III Lande III	पंजाबी लान्दे Punjabi Lande	पटियाली लान्दे Patiala Lande	लान्दे सराफी Lande Sarafi	दिल्ली सराफी Delhi Sarafi	फारसी Urdu Farsi Urdu Farsi	ताकुरी Thakuri	दोगरी Dogri	कुराकी Kuraki
u	उ uira	उ	उ	उ	उ	उ	उ	उ	उ	;	उ	उ	
a	अ aira	अ	अ	अ	अ	अ	अ	अ	अ	,	अ	अ	
i	इ iri	इ=ए	इ	इ	इ	इ	इ	इ	इ	इ	इ	इ	
o	ओ oira	ओ=आ	ओ	ओ	ओ	ओ	ओ	ओ	ओ	ओ	ओ	ओ	
h	ह hah	ह	ह	ह	ह	ह	ह	ह	ह	ह	ह	ह	
k	क kaka	क	क	क	क	क	क	क	क	क	क	क	
kh	ख khakha	ख=ख	ख	ख	ख	ख	ख	ख	ख	ख	ख	ख	

Figure 14: Comparison of various Landa forms with Delhi Sarafi (from Leitner 1882: Set 2).

g	ग gaga	ग	ग	ग	ग	ग	ग	ग	ग	ग	ग	ग	
gh	घ ghagha	घ	घ	घ	घ	घ	घ	घ	घ	घ	घ	घ	
	ङ nganga	ङ	ङ	ङ	ङ	ङ	ङ	ङ	ङ	ङ	ङ	ङ	
ch	च chachha	च	च	च	च	च	च	च	च	च	च	च	
chk	छ chkhachha	छ	छ	छ	छ	छ	छ	छ	छ	छ	छ	छ	
j	ज jagja	ज	ज	ज	ज	ज	ज	ज	ज	ज	ज	ज	
jh	झ jhaga	झ	झ	झ	झ	झ	झ	झ	झ	झ	झ	झ	
	ञ nyanya	ञ	ञ	ञ	ञ	ञ	ञ	ञ	ञ	ञ	ञ	ञ	
t	ट tainha	ट	ट	ट	ट	ट	ट	ट	ट	ट	ट	ट	

Figure 15: Comparison of various Landa forms with Delhi Sarafi (from Leitner 1882: Set 2).

h	ह halha	ह	ह	१	१	०	१	१	१	ह	ह	०	
d	ड dadda	ड	ड	ड	ड	ड	२	४	२	ड	ड	ड	
th	ठ thudha	ठ	ठ	२	२	२	७	१५	७	ठ	ठ	२०	
	ह hara	ह	ह	ह	ह	ह	११	२	११	ह	ह	ह	
i	इ itta	इ	इ	इ	इ	इ	२	३	२२	इ	इ	इ	
u	उ thudha	उ	उ	५	५	५	५	५	५	उ	उ	उ	
e	ए dadda	ए	ए	२	४	४	६	४	६	ए	ए	५	
a	अ dadda	अ	अ	५	५	५	५	५	५	अ	अ	अ	
N	न nanna	न	न	न	न	न	न	न	न	न	न	न	

Figure 16: Comparison of various Landa forms with Delhi Sarrafi (from Leitner 1882: Set 2).

P	प pappi	प	प	प	प	१	५	५	५	प	प	१	
ph	फ phupha	फ	फ	फ	फ	७	७	७	७	फ	फ	७	
b	ब bubba	ब	ब	ब	ब	५	५	५	५	ब	ब	५	
bh	ड bhabba	ड	ड	ड	ड	३	३	३	३	ड	ड	३	
m	म manma	म	म	म	म	५	५	५	५	म	म	५	
y	य yayya	य	य	य	य	५	५	५	५	य	य	५	
r	र rura	र	र	र	र	५	५	५	५	र	र	५	
l	ल lalla	ल	ल	ल	ल	५	५	५	५	ल	ल	५	
n	न nanna	न	न	न	न	५	५	५	५	न	न	५	
r	र rura	र	र	र	र	५	५	५	५	र	र	५	

Figure 17: Comparison of various Landa forms with Delhi Sarrafi (from Leitner 1882: Set 2).

	MAHAJANI	LANDA	KAITHI	DEVANAGARI		MAHAJANI	LANDA	KAITHI	DEVANAGARI
KA	३	२	क	क	DA	६	४	द	द
KHA	६	५	ख	ख	DHA	२	५	ध	ध
GA	७	७	ग	ग	NA	७	८	न	न
GHA	६	५	घ	घ	PA	५	५	प	प
NGA	—	२	उ	ङ	PHA	३	६	फ	फ
CA	५	४	च	च	BA	५	३	ब	ब
CHA	६	५	छ	छ	BHA	६	३	भ	भ
JA	७	४	ज	ज	MA	७	४	म	म
JHA	६	५	झ	झ	YA	—	७	य	य
NYA	३	८	ञ	ञ	RA	७	८	र	र
TTA	६	६	ट	ट	LA	७	७	ल	ल
TTHA	६	६	ठ	ठ	VA	५	६	व	व
DDA	६	३	ड	ड	SHA	—	—	श	श
DDHA	७	६	ढ	ढ	SA	६	७	स	स
NNA	२	६	ण	ण	HA	६	६	ह	ह
TA	२	३	त	त	RRA	६	३ (५)	(५)	(५)
THA	७	५	थ	थ					

Table 2: Comparison of consonant letters of Mahajani, Landa, Kaithi, and Devanagari.

	MAHAJANI	LANDA	KAITHI	DEVANAGARI		MAHAJANI	LANDA	KAITHI	DEVANAGARI
A	𑂔	𑂕	अ	अ	-A	—	—	—	—
AA	—	—	आ	आ	-AA	—	—	ा	ा
I	𑂖	𑂗	इ	इ	-I	—	—	ि	ि
II	—	—	ई	ई	-II	—	—	ी	ी
U	𑂘	𑂙	उ	उ	-U	—	—	ु	ु
UU	—	—	ऊ	ऊ	-UU	—	—	ू	ू
E	𑂚	—	ए	ए	-E	—	—	े	े
AI	—	—	ऐ	ऐ	-AI	—	—	ै	ै
O	𑂛	—	ओ	ओ	-O	—	—	ो	ो
AU	—	—	औ	औ	-AU	—	—	ौ	ौ

Table 3: Comparison of vowel letters and signs of Mahajani, Landa, Kaithi, and Devanagari.

**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>.

See also <http://www.dkuug.dk/JTC1/SC2/WG2/docs/roadmaps.html> for latest Roadmaps.

A. Administrative

1. Title:	Proposal to Encode the Mahajani Script in ISO/IEC 10646
2. Requester's name:	<i>Script Encoding Initiative (SEI) / Anshuman Pandey (pandey@umich.edu)</i>
3. Requester type (Member body/Liaison/Individual contribution):	<i>Liaison contribution</i>
4. Submission date:	<i>2011-07-12</i>
5. Requester's reference (if applicable):	
6. Choose one of the following:	
This is a complete proposal:	<i>Yes</i>
(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):	<i>Yes</i>
Proposed name of script:	<i>Mahajani</i>
b. The proposal is for addition of character(s) to an existing block:	
Name of the existing block:	
2. Number of characters in proposal:	<i>39</i>
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 ☐ 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?	<i>Yes</i>
a. If YES, are the names in accordance with the "character naming guidelines" in Annex L of P&P document?	<i>Yes</i>
b. Are the character shapes attached in a legible form suitable for review?	<i>Yes</i>
5. Fonts related:	
a. Who will provide the appropriate computerized font to the Project Editor of 10646 for publishing the standard?	<i>Anshuman Pandey</i>
b. Identify the party granting a license for use of the font by the editors (include address, e-mail, ftp-site, etc.):	<i>Anshuman Pandey (pandey@umich.edu)</i>
6. References:	
a. Are references (to other character sets, dictionaries, descriptive texts etc.) provided?	<i>Yes</i>
b. Are published examples of use (such as samples from newspapers, magazines, or other sources) of proposed characters attached?	<i>Yes</i>
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)?	<i>Yes</i>

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 Unicode Character Database (<http://www.unicode.org/reports/tr44/>) and associated Unicode Technical Reports for information needed for consideration by the Unicode Technical Committee for inclusion in the Unicode Standard.

¹ Form number: N3902-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, 2009-11, 2011-03)

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.)?	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?	Yes
Reference: <i>Size of user community is unknown.</i>	
4. The context of use for the proposed characters (type of use; common or rare)	Common
Reference: <i>Script used for accounting throughout northern India. See text of proposal for details.</i>	
5. Are the proposed characters in current use by the user community?	Yes
If YES, where? Reference: <i>By merchants in India and by specialists of South Asian bookkeeping</i>	
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?	Yes
If YES, is a rationale for its inclusion provided?	
If YES, reference: <i>See text of proposal.</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?	
If YES, reference: <i>Nukta; see text of proposal.</i>	
Is a list of composite sequences and their corresponding glyph images (graphic symbols) provided?	
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 characters?	No
If YES, are the equivalent corresponding unified ideographic characters identified?	
If YES, reference:	