

Proposal to encode the Prishthamatra for Sharada

Srinidhi A
srinidhi.pinkpetals24@gmail.com

Sridatta A
sridatta.jamadagni@gmail.com

October 13, 2017

1 Introduction

This document requests to add a new character to the Sharada block.

Glyph	Code	Character name
	111CE	SHARADA VOWEL SIGN PRISHTHAMATRA E

2 Description

The Prishthamatra is a vowel sign used in early and medieval Sharada documents along with regular forms. In the historic Prishthamatra orthography, the vowel signs for e, ai, o, and au are also represented using vowel sign prishthamatra e (which goes on the left side of the consonant) alone or in combination with U+111BC SHARADA VOWEL SIGN E, 111B3 SHARADA VOWEL SIGN AA. It corresponds to  U+094E DEVANAGARI VOWEL SIGN PRISHTHAMATRA E. In similar way Prishthamatra is proposed for Sharada. The table given below provides the comparison of Prishthamatra and regular Orthography.

Vowel Sign	Prishthamatra Orthography	Regular Orthography	Example
e	 <111CE>		 se
ai	 <111CE, 111BC >		 rai
o	 <111CE, 111B3>		 to
au	 <111CE, 111B3, 111BC>		 bhau

The use of *prishthamatra* declined in the 15th century as documented by *Jonaraja* of Kashmir in his work *Dvitiya Rajatarangini*.

The vowel sign o can be written in three ways ,  and .

3 Character Data

3.1 Character Properties In the format of UnicodeData.txt:

111CE; SHARADA VOWEL SIGN PRISHTHAMATRA E;Mc;0;L;;;;;N;;;;;

3.2 Syllabic Categories In the format of IndicSyllabicCategory.txt:

Indic_Syllabic_Category=Vowel_Dependent

111CE; Vowel_Dependent # Mc SHARADA VOWEL SIGN PRISHTHAMATRA

3.3 Positional Categories In the format of IndicPositionalCategory.txt:

111CE; Left # Mc SHARADA VOWEL SIGN PRISHTHAMATRA E

Other properties are similar to that of Devanagari.

4 References

Deambi, Bhushan Kumar Kaul. *Corpus of Śāradā inscriptions of Kashmir: with special reference to origin and development of Śāradā script*. Agam Kala Prakashan, Delhi, 1982.

5 Attestations

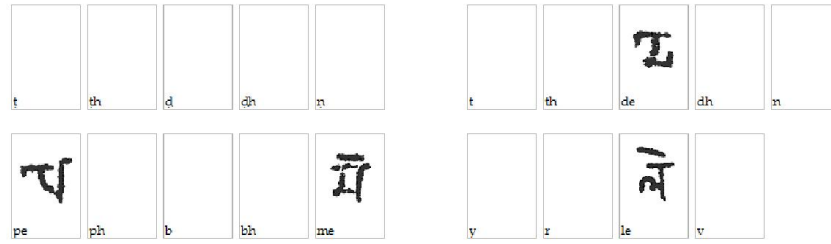


Figure 1. Use of PRISHTHAMATRA E along with regular forms in Hund Inscription of Kāmeśvarī Devī (from IndoSkript).



Figure 2. Use of PRISHTHAMATRA E for e along with regular forms in Bakhshali manuscript (from IndoSkript).

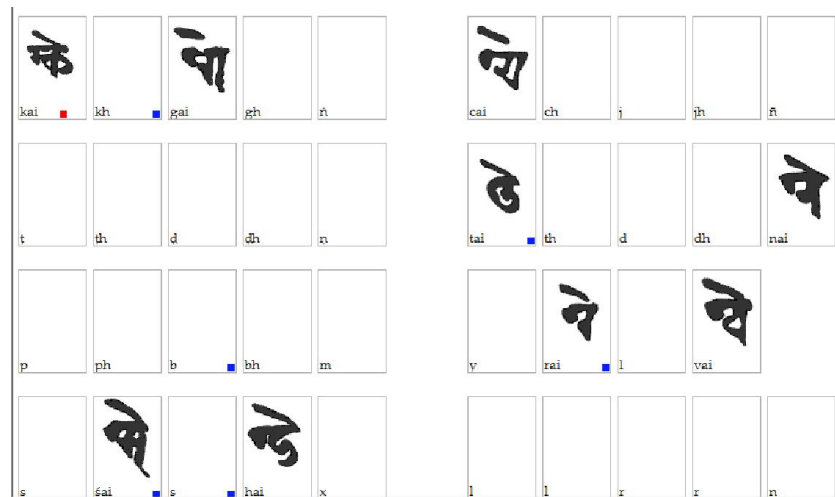


Figure 3. Use of PRISHTHAMATRA E for ai in Bakhshali manuscript (from IndoSkript).



Figure 4. Use of PRISHTHAMATRA E for o in Bakshali manuscript (from IndoSkript).

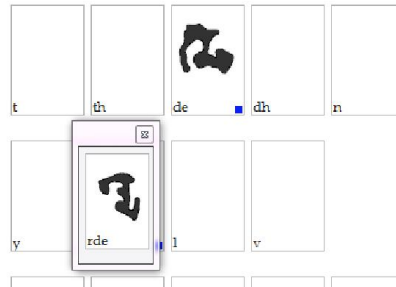


Figure 5. Use of PRISHTHAMATRA E in the Inscription of the Reign of Queen Didda, Srinagar dated 992 CE (from IndoSkript).

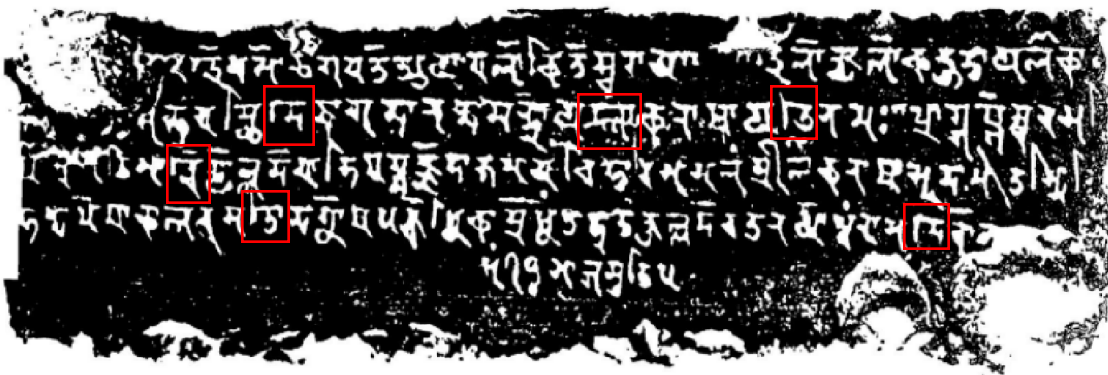


Figure 6. Use of PRISHTHAMATRA E in the Arigom inscription of Ramadeva dated 1197 CE. This also

inscription also illustrates three forms of Vowel Sign O as in lo 

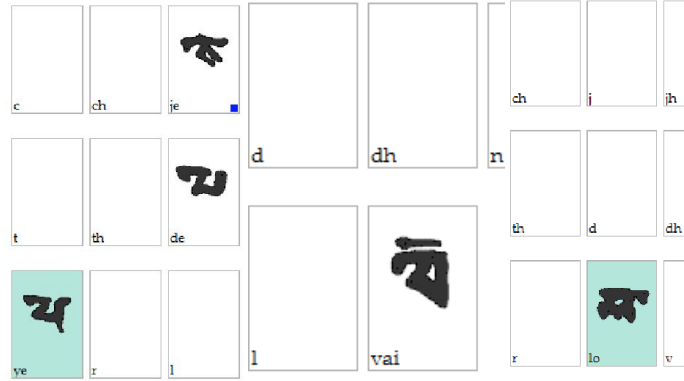


Figure 7. Use of PRISHTHAMATRA E in the Vejibror Inscription of the Reign of Rajadeva dated 1236 CE (from IndoSkript).

5. The medial *e* is expressed either by the *pr̥ṣṭhamātrā* or by the superscribed stroke above the consonant. The former is important as it constitutes an important proof of the age of the manuscript. The practice of forming the medial *e* by the *pr̥ṣṭhamātrā* had become obsolete in Kashmir in the 15th century as is attested to by the evidence of Jonarāja²⁰ who while recounting an anecdote regarding a forgery in a deed of sale (*vikrayapatraka*) remarks, “in order to express the *e* following a consonant the clerks formerly used to write a stroke behind the consonants. But as in course of time the script (*lipi*) became changed, the writers of today²¹ write the stroke expressing *e* over the consonant.”²² This would show that our manuscript where the earlier method is frequently employed must belong to a period earlier than the 15th century. The above evidence of Jonarāja is corroborated by the rare use of *pr̥ṣṭhamātrā* in forming the medial *e* in the later *Śāradā* manuscripts where the *pr̥ṣṭhamātrā*, as will be subsequently shown is restored to only occasionally to denote the medial *ai*.

Figure 8. Jonaraja’s documentation about Prishthamatra (from Deambi 1982: 74).

—	a	ā	i	ī	u	ū	r	e	ai	o	au
—	अ	आ	इ	ई	उ	ऊ		ए	व		औ
k	क	क	के	की	ऊ	ऊ	क	क क	क	क	क
kh	ख	ख	खे	खी				ख			
g	ग	ग	गे		गु	गु	ग			ग	ग
gh	घ	घ									
c	च	च	चे	ची				च	च	च	
ch	छ		छे								
j	ज	ज		जे						ज	
ṭ	ट		टे					ट			
ṭh	ठ		ठे								
ḍ			ड़े					ड़			
ḍh		ढ	ढे								
ṇ	न	न	ने	नी		न		न न	न	न	

Figure 9. Use of Prishthamatra in the manuscript of Abhidharmadīpa, ca. the 11th Century.

—	a	ā	i	ī	u	ū	r	e	ai	o	au
t	त	ता	ति	ती	तु	तू	रु	ते तु	तै	तौ	तौ
th	थ	था	थि						थै	थौ	
d	द	दा	दि	दी	दु	दू	रु	दे		दौ	दौ
dh	ध	धा	धि	धी			रु	धे धु	धै	धौ	
n	न	ना	नि	नी	नु			ने नु	नै	नौ	नौ
p	प	पा	पि	पी	पु	पू	रु	पे		पौ	पौ
ph	फ										
b	ब	बा	बि	बी	बु		रु			बौ	
bh	भ	भा	भि			भू	रु	भे भु		भौ	भौ
m	म	मा	मि	मी	मु	मू	रु	मे		मौ	मौ
y	य	या		यी	यु			ये यु	यै	यौ	यौ

Figure 10. Use of Prishthamatra in the manuscript of Abhidharmadīpa, ca. the 11th Century.

TABLE NO. 2C
THE ŚĀRADĀ ALPHABET
8th – 10th CENTURIES A.D.
MEDIAL VOWELS

	I	II	III	IV	V	VI	VII	VIII	IX
	HUND INSCRIPTION	COINS OF UTPALS	SARAHAN PRASASTI	DEWAI INSCRIPTION	BARIKOT INSCRIPTION	S.P.S. MUSEUM IMAGE INSCRIPTION	SRINAGAR INSCRIPTION	BRAHMOR COPPER PLATE	SUNGAL COPPER PLATE
ā	𑖅		𑖅𑖅𑖅	𑖅	𑖅	𑖅	𑖅	𑖅	𑖅𑖅
ā			𑖅𑖅	𑖅𑖅	𑖅	𑖅	𑖅	𑖅𑖅	𑖅𑖅
i	𑖅		𑖅	𑖅	𑖅	𑖅	𑖅	𑖅𑖅	𑖅𑖅
i	𑖅		𑖅		𑖅	𑖅	𑖅	𑖅𑖅	𑖅𑖅
i	𑖅		𑖅					𑖅	
u	𑖅𑖅		𑖅			𑖅	𑖅	𑖅	𑖅
u	𑖅		𑖅𑖅		𑖅			𑖅	𑖅𑖅
u			𑖅				𑖅	𑖅𑖅	𑖅
ū	𑖅		𑖅					𑖅	𑖅
ū	𑖅		𑖅					𑖅	𑖅
ū			𑖅𑖅						
ṛ	𑖅		𑖅𑖅𑖅			𑖅		𑖅𑖅	𑖅
e	𑖅𑖅	𑖅	𑖅𑖅			𑖅	𑖅	𑖅𑖅	𑖅𑖅
ai			𑖅				𑖅	𑖅𑖅	𑖅
o	𑖅𑖅	𑖅	𑖅𑖅𑖅				𑖅𑖅	𑖅𑖅	𑖅𑖅𑖅
au	𑖅		𑖅𑖅				𑖅𑖅	𑖅	𑖅

Figure 11. Use of Prishthamatra in the Sharada inscriptions of 8th-10th centuries CE (from Deambi, 1982).

TABLE NO. 3C
THE ŚARADĀ ALPHABET
11th - 13th CENTURIES
MEDIAL VOWELS

	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV	XVI	XVII	XVIII
	COINS OF RULERS OF KASHMIRA & MAHMUD OF GHAZNI	DACCAN STONE INSCRIPTION (L) 12 (A.D. 1036)	BHAKUND INSC. ŚĀSTRĀ (410) 4 A.D. (1028 - 29)	KULAIT COPPER PLATE OF SOMAVARMAN, 11 TH CENT.	CHAMBA COPPER PLATE OF SOMAVARMAN & ĀJAYAVARMAN, 11 TH CENT.	THUNDU COPPER PLATE OF ĀJAYAVARMAN 11 TH CENT.	LUT FOUNTAIN INSC. ŚĀSTRĀ (41) 81 (A.D. 1105 - 6)	S.P.S. MUSEUM INSC. OF JAYASIMHA (L) 35 (A.D. 1159)	TAPAR INSC. OF PARMĀNDA - DEVA (L) 23 (A.D. 1159)	DEVI - RI - KOTHI INSC. OF RĀJĀNĀKA NĀGAPĀLA A.D. - 1159 - 61	NĀRĀYANA IMAGE INSCRIPTION OF R. NĀGAPĀLA	SALHI FOUNTAIN INSC. OF R. LUDRAPĀLA ŚĀSTRĀ (42) 46 (A.D. 1170)	ARIGOMI STONE INSC. (L) 75 (A.D. 1197)	DEVI - RI - KOTHI INSC. OF R. RĀNAPĀLA	MULA - KIHAR FOUNTAIN INSCRIPTION	BAJNATH PRASASTIS SAKA - 1126 A.D. - 1204	SAI - FOUNTAIN INSC. OF ĀJAYAPĀLA ŚĀSTRĀI (A.D. - 1225?)	BIJBEHARA STONE INSC. OF RĀJADEVA (Saka) 58 (A.D. - 1236)
ā		𑆳	𑆳𑆳	𑆳𑆳	𑆳𑆳	𑆳𑆳	𑆳𑆳	𑆳	𑆳	𑆳𑆳	𑆳	𑆳𑆳	𑆳	𑆳𑆳	𑆳𑆳	𑆳𑆳	𑆳𑆳	𑆳𑆳
i	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳
ī	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳
u		𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳
ū			𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳
ṛ		𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳
Ṛ		𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳
e		𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳
ē		𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳
ai			𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳
āi		𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳
o			𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳
ō			𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳
au			𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳	𑆳

Figure 12. Use of Prishthamatra in the Sharada inscriptions of 11th-13^h centuries CE (from Deambi, 1982).

TABLE NO. 4c
THE ŚĀRADĀ ALPHABET
 14TH — 16TH CENTURIES
 MEDIAL VOWELS

	I	II	III	IV	V	VI	VII	VIII
	KOTIHER INSC.	KHONMUH INSC. KALI 4530	PESHAWAR MUSEUM INSCRIPTION.	HARIPARBAT STONE GRAVE STONE INSC.	USHKUR RELIEF INSCRIPTION	S.P.S. MUSEUM STORAGE VESSEL INSC.	WULAR-HAMA INSCRIPTION	ZAJI - NAI INSCRIPTION
ā	मस	म	गव	ड	रप	ड	मास	टाग
i	चि	नि	नि	डि	डि		त्रिचि	नि
ē	डि	गी	मी				मी	डी
u	मुम	मुल	पुपु	गुख	मु		पुपु	पुपु
ū	पु	पुमु	पु					
r	रुप	मु	पु	रु				रु
e	द्व	म	उक	म	म		म	क
ai	वै	नै						
o	त्रे	ये	अ		के		व	
au	रे	ये	न		अ			प

Figure 13. Use of Prishthamatra in the Sharada inscriptions of 14th-16th centuries CE (from Deambi, 1982).

TABLE NO. 5C						
THE ŚĀRADĀ ALPHABET IN MANUSCRIPTS						
12 TH 16 TH CENTURY						
MEDIAL VOWELS						
	I	II	III	IV	V	
	BAKSHALI MS C. 12 TH CENT	MS. OF MUNI-MĀTĀ- MANI-MĀLĀ C. 14 TH CENT.	MS. OF SUNUNTALA C. 16 TH CENT.	MS. OF ĀDI-SABHĀ- PARVAN OF MAHĀBHĀRATA C. 16 TH CENT.	MS. OF KATHĀ- SARIT-SĀGAR C. 16 TH CENT.	MS. OF BĀLA- BODHINI H. 1158 (A.D. 1745)
ā	कृकृकृ	कृकृ	कृ	कृ	कृकृ	कृकृ
ā	कृकृकृ	कृकृकृ	कृ	कृकृ	कृकृ	कृकृ
i	कृकृ	कृ	कृ	कृ	कृ	कृ
ī	कृकृ	कृ	कृ	कृ	कृ	कृ
u	कृकृकृ	कृकृ	कृ	कृकृ	कृकृ	कृकृ
ū	कृकृकृ	कृकृकृ	कृकृ	कृकृ	कृकृकृ	कृकृ
ṛ	कृकृ	कृकृ	कृ	कृ	कृकृ	कृकृ
e	कृकृ	कृकृ	कृ	कृ	कृ	कृ
ai	कृकृ	कृकृ	कृ	कृ	कृकृ	कृ
o	कृकृ	कृकृ	कृ	कृ	कृ	कृ
au	कृकृ	कृ	कृ	कृ	कृ	कृ

Figure 14. Use of Prishthamatra in the Sharada manuscripts of 14th-16th centuries CE (from Deambi, 1982).

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://std.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://std.dkuug.dk/JTC1/SC2/WG2/docs/summaryform.html>.

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

A. Administrative

1. Title:	<i>Proposal to encode the Prishthamatra for Sharada</i>		
2. Requester's name:	<i>Srinidhi A and Sridatta A</i>		
3. Requester type (Member body/Liaison/Individual contribution):	<i>Individual contribution</i>		
4. Submission date:	<i>October 13, 2017</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):			
Proposed name of script:			
b. The proposal is for addition of character(s) to an existing block:			
Name of the existing block:	<i>Sharada</i>		
2. Number of characters in proposal:	<i>1</i>		
3. Proposed category (select one from below - see section 2.2 of P&P document):			
A-Contemporary	☐	B.1-Specialized (small collection)	☐
C-Major extinct	☐	D-Attested extinct	☐
		B.2-Specialized (large collection)	☒
		E-Minor extinct	☐

¹ Form number: N4502-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, 2012-01)

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. Fonts related:

a. Who will provide the appropriate computerized font to the Project Editor of 10646 for publishing the standard?

Anshuman Pandey

b. Identify the party granting a license for use of the font by the editors (include address, e-mail, ftp-site, etc.):

Anshuman Pandey<pandey@umich.edu>

6. References:

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

Yes

b. Are published examples of use (such as samples from newspapers, magazines, or other sources)

of proposed characters attached?

Yes

7. Special encoding issues:

Does the proposal address other aspects of character data processing (if applicable) such as input,

presentation, sorting, searching, indexing, transliteration etc. (if yes please enclose information)?

Yes

See the text of the proposal

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.

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?	N/A
Reference:	
4. The context of use for the proposed characters (type of use; common or rare)	Common
Reference:	
5. Are the proposed characters in current use by the user community?	No
If YES, where? Reference:	
6. After giving due considerations to the principles in the P&P document must the proposed characters be entirely in the BMP?	N/A
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)?	N/A
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, or could be confused with, an existing character?	No
If YES, is a rationale for its inclusion provided?	
If YES, reference:	
11. Does the proposal include use of combining characters and/or use of composite sequences?	
If YES, is a rationale for such use provided?	Yes
If YES, reference:	See the text of proposal
Is a list of composite sequences and their corresponding glyph images (graphic symbols) provided?	N/A
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?	
If YES, are the equivalent corresponding unified ideographic characters identified?	No
If YES, reference:	