# Proposal for representing the Devanagari 'bhale mīṇḍu' in Unicode

Anshuman Pandey

pandey@umich.edu pandey.github.io/unicode

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## 1 Introduction

This is a proposal to encode ten new Devanagari characters in Unicode, which are used for representing a class of auspicious signs that have been attested in inscriptions and manuscripts since the 11th century:

Glyph	Codepoint	Character name
ĮĮ	U+11B00	DEVANAGARI HEAD MARK
Ú	U+11B01	DEVANAGARI HEAD MARK WITH HEADSTROKE
Ū,	U+11B02	DEVANAGARI SIGN BHALE
τ	U+11B03	DEVANAGARI SIGN BHALE WITH HOOK
ΓĘ	U+11B04	DEVANAGARI SIGN EXTENDED BHALE
र्प	U+11B05	DEVANAGARI SIGN EXTENDED BHALE WITH HOOK
Ų	U+11B06	DEVANAGARI SIGN WESTERN FIVE-LIKE BHALE
Ū	U+11B07	DEVANAGARI SIGN WESTERN NINE-LIKE BHALE
Ŋ	U+11B08	DEVANAGARI SIGN REVERSED NINE-LIKE BHALE
0	U+11B09	DEVANAGARI SIGN MINDU

As the 'Devanagari' (U+0900) and 'Devanagari Extended' (U+A8E0) blocks in the BMP are full, the proposed characters should be allocated to 'Devanagari Extended-A' (U+11B00 .. U+11B4F) in the SMP. The representative glyphs have been designed by the proposal author in conformity with glyphs used in the Devanagari code charts.

## 2 Background

Numerous Devanagari inscriptions and manuscripts from western and central India, produced since the 11th century, begin with signs such as:

# ιισο ιιάο παο πάο άο σο μο πο σο

They express the Sanskrit term सिद्धम् siddham 'may it be accomplished'. These siddham signs may be classified as a subset of maṅgala signs, which represent a "benediction or an auspicious word" (Sircar 1965: 92). They are functionally similar to the U+A8FC DEVANAGARI SIGN SIDDHAM (see Pandey 2012b), but differ from it both graphically and structurally. These signs often occur concurrently with another category of maṅgala signs, oṃ characters: U+0950 DEVANAGARI OM and JU+A8FD DEVANAGARI JAIN OM (see Pandey 2013). In fact, siddham expressions typically precede oṃ invocations in benedictions, eg. ।। प्रिणा अनामासर्वज्ञायः॥, as in the following folio of the Jñātadharmakathā from 1589 CE (Bodleian Library, Prakrit d.4, f.1v):



Signs for *siddham* and om are palaeographically, semantically, and graphically distinct, and were treated separately for centuries. By the 17th century, usage of the  $\sim$  *siddham* diminished in northern Devanagari and auspicious signs coalesced into the ubiquitous  $\stackrel{*}{>}$ . However, usage of UCO, etc. continued in western and central India, especially in Jaina orthography for Devanagari. The convention of writing *siddham* before *om* continued as well. The importance of *siddham* signs in Jaina traditions is observed by the fact that they are used consistently in benedictions, while *om* is not. Indeed, *siddham* signs may be considered to be part of 'standard' benedictions for certain Jaina schools, such as the Śvētāmbara sect.

Today, these *siddham* signs are used predominantly in Jaina orthography for Devanagari. Jaina practioners and scholars refer to them using the Gujarati and Rajasthani terms भले *bhale* ('may it be blessed') or भले भीण्डु *bhale mīṇḍu*. As this usage indicates a semantic divergence from the original *siddham* expression of "may it be accomplished", it is appropriate to refer to these signs as *bhale* instead of as *siddham* characters. Moreover, it is appropriate to consider the *bhale* signs as a palaeographical sub-class of *siddham* characters.

Despite their common occurrence in inscriptions and manuscripts, in printed scholarly materials, and continued usage by Jaina practioners and scholars, these western and central *siddham* signs cannot be represented in digital Devangari plain text because the necessary characters are not available in Unicode. This document proposes the encoding of new Devanagari characters that will enable usage of the *bhale mīṇḍu* signs in order to support the full representation of Devanagari texts.

## 3 Description of characters

### 3.1 Relationship to other characters

The western and central Devanagari *siddham* signs are functionally similar to, but structurally and graphically distinct from the conventional and more ancient  $\smile$  U+A8FC DEVANAGARI SIGN SIDDHAM (see Pandey 2012b), and its analogues, such as  $\smile$  U+115C1 SIDDHAM SIGN SIDDHAM and  $\smile$  U+0FD3 TIBETAN MARK INITIAL BRDA RNYING YIG MGO MDUN MA, as well as extended forms such as  $\circledcirc$  U+0C77 TELUGU SIGN SIDDHAM and  $\circledcirc$  U+0C84 KANNADA SIGN SIDDHAM. These *siddham* signs differ in the same regard from other auspicious signs used in north Indic scripts, such as  $\smile$  U+111DA SHARADA EKAM (see Pandey 2011b), and the  $\bar{a}nj\bar{i}$  signs used in eastern Indic scripts, eg. 9 U+0980 BENGALI ANJI (see Pandey 2012a),  $\rho$  U+11480 TIRHUTA ANJI (see Pandey 2011a),  $\bar{b}$  U+AAF2 MEETEI MAYEK ANJI.

The western and central Devanagari *siddham* signs have a more complex structure than other *siddham* signs in that they consist of multiple elements and have variant representations that involve distinctive alternate forms. They are as complex as Tibetan auspicious forms, such as ♥ U+0F04 TIBETAN MARK INITIAL YIG MGO MDUN MA.

### 3.2 Structure and Typology

The auspicious signs are often considered atomic characters in Jaina orthographic and cultural traditions. However, they may be analyzed as sequences of graphemes for purposes of character encoding. For example, U(0), U(0), U(0), U(0), U(0), U(0), U(0), U(0) should be considered a sequence of a 'head-mark' (U(0)) followed by the 'core' (U(0)) of the expression. The 'core' itself may be interpreted as an atomic character, but it also may be further analyzed as an initial (U(0)) + a terminal (U(0)) element. Such a decomposition is practical because various combinations of these components are attested, and there are combinations in which only two components are present.

Throughout this section, the compound to is a proxy for the 'core', unless explicitly stated. The 'core' or 'head-mark' + 'core' is often accompanied by a || double danda, which may follow the core, eg. ||to||, but may also precede the head-mark, eg. ||to||. In some sources, the head-mark is absent, eg. ||to||, and in other cases it may both precede the core and follow the double danda, eg. ||to|||. There are several combinations, as shown by Kapadia (1936, appendix 2, p. 12):

Of special note is the variable presence of the  $\mathbb{Q}$  element. It is doubled in  $\|\mathbb{Q}\mathbb{Q}\|$ ; while it is absent in  $\|\mathbb{Q}\|$ . In fact, Kapadia (1936, appendix 2, p. 4–5) shows variants of  $\mathbb{Q}$  in isolation (see fig. 3), which further supports the analysis described here. Another variation, in which the head-mark is replaced by double *danda*, eg.  $\|\mathbb{Q}\|$ , occurs in a manuscript of the *Brhatkalpasūtracūrni*, as noted by Kapadia (1936: 248):

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Begins.— (text) fol. 1 ॥ ६॥ तो कप्पति निग्गंथाण वा etc.

"— (tabbā) fol. 1 ॥ ६ ०॥ हिवें ईहां वैतकल्पस्तनो अर्थ लिपीयें
छ । वैतकल्प एहवो नाम किम कहायुं ते शिष्य प्रक्रवाऽनंतर अत्र गुरु उत्तर कहें छें पापनें विदारें ते भणी वैतकल्प etc.
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While \$\text{to}\$ is typically followed by \$\text{\text{l}}\$ double \$danda\$, in some sources it is both preceded and followed by the \$\text{\text{l}}\$ head mark. The below excerpt from the first folio of the \$Anuyogadvaras\tilde{u}tra\$ (Cambridge MS Add. 1266.2) shows distinctive usage of both the head-mark and double \$danda\$:

प ६०<mark>५ या</mark> वात्रागा या। ताणे पेव्विदेषम्नत्रं।तंजवा। त्रातिणिवीवियनाणे। स्वताणं विदेनाणे मणप्यव्न णाक्तव्वनाणे। तत्रव्यारिमाणाञ्च विषाञ्च विश्वाञ्च । जो विद्यानाणे। स्वताणे स्वव्याणे स्वव्याना । स्वयाणसम्बद्धासास्य द्वारास्य स्वाय स्वयास्य स्वयाणस्य विद्यास्य स्वयाणस्य विद्यास्य स्वयास्य स्वयास्य स्वयास्य

Although the  $\| \sqrt{0} \|$  and  $\sqrt{0} \|$  may be interpreted as atomic signs, the variation in the forms of the elements suggests that they should be represented as a sequence of characters instead of as an atomic sign. While this approach would require multiple characters where users may expect a single character, it allows for complete representation of the sign and its variant forms, as well as the individual representation of its elements. Accordingly,  $\| \sqrt{0} \|$  and its alternates should be treated as being composed of three distinct elements, which are referred to here as 'head-mark' +  $bhale + m\bar{v}_{\mu}du$ , by mapping terms from the modern Jaina name for the sign to its components.

### 3.3 Palaeographical origins

These auspicious signs are commonplace in Jaina manuscripts, and referenced in reproductions and transliterations of texts in scholarly literature. However, there is little concensus regarding their origins. Some scholars suggest that they are stylized forms of auspicious Jaina utterances. In his catalogue of manuscripts at the Royal Library of Berlin, Weber (1892: xvi) explained that the 'Diagramm' [100] is an invocatory formula, such as *arham*, *om*, *aim*, *namah* (see text in fig. 1). But, this explanation is unsatisfactory as such words are fully written following the sign in various sources. Bhattacharya (2000) dispels the notion that U to represents *om* or *arham*, and asserts that it was originally a sign for *siddham*. The proposal author agrees.

In the catalogue of the Jaina manuscripts at Strausbourg, Tripāṭhi (1975: 39) offers a general description of the sign Uto, but does not touch upon its origins. He writes that the sign consists of two elements: the first resembling "the 'siddham' symbol (representing the figure '9' as written in modern Devanāgarī)" and the second resembling a sign taking the shape of the letters tha, cha, etc." He further mentions that "[s]ome Indian publications print the sign in Devanāgarī numerals ('50', "60' or '90')". Although Tripāṭhi refers to Weber's 'Diagramm', it is clear from his description that he is referring to the 'core' to portion of the Ilto. Following that, is it likely that the elements to which Tripāṭhi refers are to and to. However, he does not provide additional information about the resemblance of the first element to "the 'siddham' symbol", the usage of numbers in transliterations, or any details on the alternate forms. Furthermore, Tripāṭhi avoids issues of the semantic and palaeographical identity of the signs by transliterating them all using "§O".

To be sure, the forms of the initial 'core' or *bhale* sign do not resemble other characters in conventional Devanagari. However, when considering historical styles, it is loosely possible to see similarities with digits:

- u conventional ५ FIVE
- ធ alternate form ፍ of ሪ EIGHT
- ū, π alternate form τ of ?

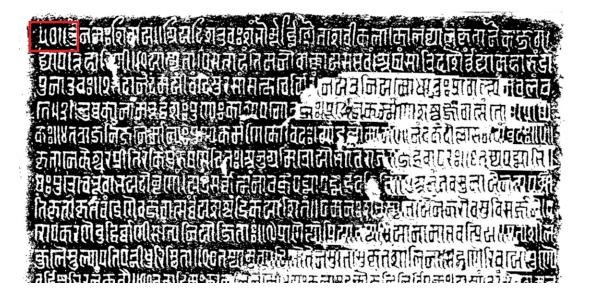
This may explain Tripāṭhi's reference to the usage of numbers for transliterating the sign; however, as shown later in this section, there is no similarity between the *bhale* and digits used in Jain manuscripts. A more plausible explanation is that the *bhale* is based on a rotated form 6 of the  $\sim$  *siddham*, whose representation was angularized, capped with a headstroke, and further normalized over time according to the conventions of the Jaina style of Devanagari into the shape  $\bar{q}$ . The top-hooks may be consider embellishments, perhaps with esoteric significance.

A primitive form of τω appears in a palm-leaf manuscript containing the *Bṛhaccūrṇivyākhyā* (British Library, MS Or. 1386, f.1v, excerpt), a Śvetāmbara Jaina treatise written in the 13th century:



Here, the same structure of  $\mathfrak{g}$  is found in the  $\mathfrak{k} \circ$  sign at the beginning of the text. It is easy to visualize the normalization of  $\mathfrak{k}$  into  $\mathfrak{g}$  taking place by making the second stroke angular, while retaining the top-curl. The appearance of the  $\mathfrak{k} \circ$  also helps to explain why certain scholars chose to represent the sign as '60' in transliteration as it resembles the modern Devanagari  $\mathfrak{k} \circ$ .

Similarly, the origin of U0 may be traced to 40, which bears resemblance to the modern Devanagari 40. The U0 appears in a step-well inscription from vs 1350 (1293 CE) at Surwaya, modern Madhya Pradesh, during the reign of the Yajavapāla ruler Gaṇapati (Sircar 1962: plate after p. 342):



In the following folio of a copy of the  $\dot{S}r\bar{\imath}p\bar{a}lakath\bar{a}$  (British Library, Or. 2126 ms A), written in 1487 vs (1537 CE), the auspicious sign  $\mathbb{Q}$  (red) resembles the digit 9 (green). The  $\mathbb{Q}$  is written as  $\mathbb{Q}$  to differentiate it from usage of  $\mathbb{Q}$  for zero (blue):

By the 19th century, any palaeographical relationship between digits and *bhale* signs was gone. Manuscripts show standardized usage of certain *bhale* signs and distinguish them from digits. A folio of a *Prakīrṇaka* (Cambridge MS Add. 1816) written in 1920 vs (1863 CE) shows the distinction between the elements of the auspicious sign (red) and digits (blue), which are used as line numbers and illuminated in orange in the source. The  $\mathfrak l$  differs from '5' ( $\mathfrak l$ ) and other digits, and the  $\mathfrak l$  differs from the zero in "10' (last blue box).

्णिण विन्नित्रीत्रीत्राम्य साव्ह्य ती गिर्द्र उद्घित्र ए ए ति वस्ति व स्वार्थ व स्वार्य व स्वार्थ व स्वर्थ व स्वर्य व स्वर्य व स्वर्य स्वर्थ व स्व

A folio of the  $Jamb\bar{u}dv\bar{\iota}pa$  no  $v\bar{\iota}c\bar{a}ra$  (Cambridge MS Add. 1266.6), written in 1879 vs (1929 CE) also shows a distinction between the first element  $\hat{\mathfrak{t}}$  (red) of the auspicious sign and the digits. Here the second element  $\mathbb{I}$  is similar in shape to the digit zero shown in the number '10' (last blue box); however, the  $\mathbb{I}$  is angular, while the zero is more curved  $\mathbb{I}$ , and annotated with an arch diacritic above.

एकि। अथ्र ज्रह्यीपना वार संघेपमा ज्या वेसे वंगा जायण दिस्स्म वार्ने विस् र विचारी ये वे अस्थिपए कला यं जाजन गोलां बोपा स्वारे तथा ली ने आकार के स्वार्ण विस्मानि आकार के वार लो तिला यं जाजन गोलां बोपा स्वारे के कमल ने करण का ति आकार के वार लो के वार लो ते तिला है के वार लो के

The distinction between the  $m\bar{n}\dot{q}u$  sign and zero is observed is numerous manuscripts, for example, in the first folio of the  $Tattv\bar{a}rth\bar{a}dhigamas\bar{u}tra$  (Cambridge MS Or. 127):

पिणामिश्रमार्गास्ति तारं नेतारं कमिल्ह्य शामित्रामारं विश्वत वार्ता बंदेतद्गु णलश्च १ सम्पर्दश्चित्रतानचारिवाणिमाञ्चमार्गाः १त वार्यश्च माम्पर् दर्शनं ३ तिल्समिदिधामा घा अवावाजीवा श्ववं धसंवरति क्रिंगो वास्ति वं पना मखापना इक्तावतस्ति नासः ६ अमाण म येर थि गमः अमिह श्चामित्र वास्ति वास्ति

The difference between 0 (red) and zero (blue) is readily apparent in printed conventional Devangari, such as the following excerpt from a manuscript of the *Anuyogadvārāntargatasādhūpamādvādaśī* in Kapadia's catalogue (1936: 365):

```
Begins.— (text) fol. 12 । ए ए शिग्रुहभ्यों नमः ।।

उरग १ गिरि २ जलण २ सागर ४ नहयल ५ तरुगण ६ समो य जो होई ॥

भमर ७ भिय ८ धराणि ९ जलरुह १० वि ११ पवण १२ समो य
सो समणो ॥ १॥ ।
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The relationship between these signs and digits is unknown. Whatever their palaeographical origins may be, these signs were fossilized as auspicious characters and carry semantics that distinguish them from digits and other characters.

# 4 Proposed Characters

Although originally *siddham* signs, the proposed characters are used today primarily by readers and writers of Jaina texts. For this reason, the names of the proposed Unicode characters is based on the terminology for the signs in modern Gujarati and Rajastani. The signs  $\mathbb{Q}$ ,  $\mathbb{Q}$ ,  $\mathbb{Q}$ ,  $\mathbb{Q}$ ,  $\mathbb{Q}$ ,  $\mathbb{Q}$ ,  $\mathbb{Q}$  are referred to as *bhale* characters; and  $\mathbb{Q}$  is referred to as *mīndu*. Transliterations have been normalized without diacritics in adherence to

Unicode naming conventions. Additional descriptions and examples of usage for the proposed characters are provided below.

#### 4.1 Headmarks

Two headmarks are proposed for encoding:

- U DEVANAGARI HEAD MARK
- [] DEVANAGARI HEAD MARK WITH HEADSTROKE

In Jaina manuscripts, the U is typically the first written sign. It has an alternate form U with a headstroke, The U resembles the U double *danda* with a south-eastward diagonal below-base extension of the left descender. The U is semantically and functionally distinct from double *danda*, and occurs concurrently with it. The U and U are both common forms of the head-mark, and are represented distinctively in both manuscripts and in printed sources.

	Manuscript	Print
-U	गण्दिणाश्रीयुरुस्योत्रमातम्।	fol. 1 <sup>b</sup> ए ६०॥ ए लैं नमः श्रीशांतिनाथाय । ए
	Laghudaṇḍaka (Cambridge MS Add. 1266.9)	(Kapadia 1936: 63)
Ú	एए छ। अदिन मः। तणं कालणं।	fol. Ib ए र्प्छ ॥ श्रीगुरुस्यो नमः ।
	Jñātādharmakathā (Cambridge MS Add. 2286)	(Kapadia 1936: 75)

Kapadia represents  $\mathbb{Q}$  using the vowel letter  $\mathbb{Q}$  e, likely due to the absence of a dedicated punch, and  $\mathbb{Q}$  using a modified form of  $\mathbb{Q}$ , without a headstroke.

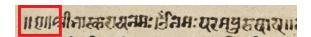
Some sources show concurrent usage of U (red) and U (blue), such as a copy of the *Yatijītakalpasūtra* from vs 1456 (Kapadia 1936: 283),

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Begins.-- (text) fol. 1ª कथपवयणपणामो etc.
,, — (com.) fol. 1ª ए ६ ७ ए है नमः श्रीजिनप्रवचनाय ॥
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and an undated copy of the Nandīsūtra (Kapadia 1936: 296):

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Begins.— fol. 1<sup>b</sup> ए र्ष् थ्य श्रीगौतमाय नमः ॥
जयइ जगजीवजोणी etc., as in No. 608.
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The  $\mathbb{Q}$  is also used as the primary benedictory phrase, as  $\|\mathbb{Q}\|$  in a 19th century copy of the *Sukhabodhikā* (Cambridge MS Corpus Christi 33.B.4.1):



The distinctive representations of U and U and their concurrent usage in both manuscripts and in printed materials, particularly scholarly publications, requires an encoding of these signs as separate characters.

### 4.2 Bhale signs

The following 4 conventional *bhale* signs are proposed for encoding:

- **Ū** DEVANAGARI SIGN BHALE
- ξ DEVANAGARI SIGN BHALE WITH HOOK
- **G** DEVANAGARI SIGN EXTENDED BHALE
- ர் DEVANAGARI SIGN EXTENDED BHALE WITH HOOK

The distinctiveness of these signs is evident from manuscripts, inscriptions, and printed sources:

	Manuscript / Inscription	Print
Ū,	Kşetrasamāsavrtti (Cambridge MS Add. 2223)	fol. 1 <sup>b</sup> ६७ ॥ नमो अरिहंताणं etc. (Kapadia 1936: 181)
ជ្	Kālakācāryakathā (British Library Or. 13475)	fol. 1 <sup>b</sup> ॥ ੯੍ਹ ॥ <b>ਚੋਂ ਜਸ: ।</b> (Kapadia 1936: 175)
<u></u>	एजणाउन्सावीतराजात्याम Kalpasūtra (Cambridge MS Add. 2205)	fol. 1 <sup>a</sup> ए फ ७ ए श्रीसर्वज्ञाय नमः ॥  Kalpāntarvācaya (Kapadia 1936: 204)
Ľ	एरिणा तमःसिद्धिः। Kalpasūtra	_ _

The  $\mathfrak{L}$ ,  $\mathfrak{L}$ ,  $\mathfrak{L}$ ,  $\mathfrak{L}$  may be considered conventional *bhale* signs. They may occur concurrently in the same source. This is typically the case with manuscripts that contain both the canonical text and a commentary. The authors of the original and the commentary are different, and each author may have preferred a different auspicious sign. Both  $\mathfrak{L}$  (red) and  $\mathfrak{L}$  (blue) occur in the canonical text and the commentary, respectively, in a manuscript of the *Bṛhatkalpasūtracūrṇi*, dated vs 1218 (Kapadia 1936: 249):

Kapadia (1936) shows ornamental representation of the  $\mathfrak{t}$  (see fig. 2, 3) where the top-hook is reduplicated as an ascending series of curls:



### 4.3 Digit-like signs

The following 3 digit-like *bhale* signs are proposed for encoding:

- U DEVANAGARI SIGN WESTERN FIVE-LIKE BHALE
- **U** DEVANAGARI SIGN WESTERN NINE-LIKE BHALE
- **M** DEVANAGARI SIGN REVERSED WESTERN NINE-LIKE BHALE

The U, U, U occur less frequently in the extant sources. They are given names that reference the Jaina style digits they resemble, even though they do have have any numerical properties.

The distinctiveness of these signs is evident from manuscripts, inscriptions, and printed sources:

	Manuscript / Inscription	Print
Ų	Sircar 1962: plate following p. 342	leaf 1 <sup>b</sup> ५ ७ ॥ नमः सन्वेज्ञाय ॥ (Kapadia 1936: 274)
Ū	Śrīpālakathā (British Library Or. 2126 ms. A)	_ _
N	mourteanडलिमेला Śrāddhavidhi-viniścaya (BL Or. 2120 ms. B)	fol. 1 <sup>b</sup> ए ०० ए <b>हैं नमः श्रीजिनप्रवचनाय</b> Jītakalpasūtra (Kapadia 1936: 268)

Both ξ (red) and ψ (blue) occur in the canonical text and the commentary, respectively, in a manuscript of the *Bṛhatkalpasūtracūrṇi*, dated vs 1218 (Kapadia 1936: 249):

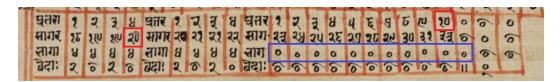
### 4.4 The auspicious circle: mīndu

The following character is proposed for representing the second element used in various representations of the auspicious sign:

#### **U** DEVANAGARI SIGN MINDU

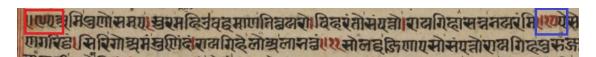
The terminal element  $\mathbb{Q}$  in  $\mathbb{Q}\mathbb{Q}$ ,  $\mathbb{Q}\mathbb{Q}$ , etc. is called  $m\bar{n}ndu$  'circle' in Gujarati. It resembles the styles of the digit zero  $\mathbb{Q}$  and  $\mathbb{Q}$  used in Jaina manuscripts. But, it differs from the normative  $\circ$  U+0966 DEVANAGARI DIGIT ZERO. It also resembles  $\circ$  U+0966 DEVANAGARI ABBREVIATION SIGN. As shown in § 3.3, the  $\mathbb{Q}$  has a representation that is distinct from  $\circ$  when conventional Devanagari digits are used.

However, usage of 0 for representing zero is attested in several Jaina manuscripts, particularly those containing cosmological texts. In a version of the *Samgrahaṇīratna* by Śrīcandra from the 17th century (British Library Or. 2116C), the 0 is used as zero for writing 10, 20, etc. (red) and it occurs concurrently with o U+0966 DEVANAGARI DIGIT ZERO (blue):



This indicates that 0 also possess a semantic identity of 'zero', even though that attribute may not be present in typical representations of the auspicious symbol.

In numerous manuscripts, the  $\mathbb{Q}$  and the typical Jaina style  $\mathbb{Q}$  of  $\circ$  are written distinctively, for example, in the following excerpt of a manuscript of the  $\acute{S}r\bar{\imath}p\bar{a}lakath\bar{a}$  (British Library, Or. 2126 ms A). Here,  $m\bar{\imath}n\dot{q}u$  is written as  $\mathbb{Q}$ , while the zero is written as  $\mathbb{Q}$ :



The above indicates that there is an understood difference between  $m\bar{\nu}_{\mu}du$  and zero, even though the graphical representations may be the same in some sources.

The T is contrasted from the conventional Devanagari zero by Kapadia (1936: 200):

```
Begins.— fol. 1º ए ६ ० ।।

पुरिमचरिमाण कप्पो मंगलं वद्धमाणितित्थांमि ।

इह परिकहिआ जिण १ गणहराई(इ) थेराविल चरित्तं । ३ । १ ।
आचेलक्क १(द्)देसि अ २ सिज्जायर ३ रायपिंड ४ किईकम्मे ॥ ।
वय ६ जिट्ट ७ पडिक्कमणे ८ मासं ९ पज्जोसवणकम्पे १० ॥ २° есс.
```

The term  $m\bar{t}ndu$  may be applied to both  $\circ$  and 0, as some representations of the auspicious sign are written with the conventional  $\circ$  instead of 0. Such usage is shown in following printed reproduction of text from the  $Nand\bar{t}s\bar{u}travisamapadapary\bar{t}aya$  (Kapadia 1936: 309):

```
Begins.--- fol. 16 र्ष्  । जै नमो जिनाय।

जयतीति जेतव्यजयेन विजयते । ऐकांतिक इति नैश्चियकः । आत्यंतिक
इति अव्यवच्छेदपरः । etc.
```

The contrastive representation of  $\mathbb{Q}$  and  $\circ$  requires that  $\mathbb{Q}$  be encoded as a separate character. Although it may represent 'zero' in some instances, it is defined as a non-numeric character. It may be necessary to encode  $\mathbb{Q}$  as a separate character — potentially, DEVANAGARI DIGIT WESTERN ZERO — in the future in order to properly distinguish between  $m\bar{t}ndu$ , the normative zero, and the Western zero, as shown above in the manuscript of thhe  $Samgrahan\bar{t}ratna$ .

# 5 Recommendations for Input Methods

While users may treat the *bhale*  $m\bar{n}ndu$  as an atomic unit, the components of the sign are proposed for encoding as separate characters. Therefore, users may expect to 'type' the sign using a single key in a Devanagari input method. In order to facilitate intuitive access to the characters required for representing *bhale*  $m\bar{n}ndu$ , the following recommendations are made:

- U, U: group with DOUBLE DANDA
- ជុ, ជុ, ភ្, ປຸ, ປ, Մ, ທ: group with either OM or SIDDHAM
- 0: group with the bhale signs or with ZERO or the ABBREVIATION SIGN

Defining keys for pre-composed combinations of the head-mark  $+ bhale + m\bar{\imath}ndu$  is not recommended.

### 6 Character Data

#### Character Properties: UnicodeData.txt

```
11B00;DEVANAGARI HEAD MARK;Po;0;L;;;;N;;;;
11B01;DEVANAGARI HEAD MARK WITH HEADSTROKE;Po;0;L;;;;N;;;;
11B02;DEVANAGARI SIGN BHALE;Po;0;L;;;;N;;;;
11B03;DEVANAGARI SIGN BHALE WITH HOOK;Po;0;L;;;;N;;;;
11B04;DEVANAGARI SIGN EXTENDED BHALE;Po;0;L;;;;N;;;;
11B05;DEVANAGARI SIGN EXTENDED BHALE WITH HOOK;Po;0;L;;;;N;;;;
11B06;DEVANAGARI SIGN WESTERN FIVE-LIKE BHALE;Po;0;L;;;;N;;;;
11B07;DEVANAGARI SIGN WESTERN NINE-LIKE BHALE;Po;0;L;;;;N;;;;
11B08;DEVANAGARI SIGN REVERSED WESTERN NINE-LIKE BHALE;Po;0;L;;;;N;;;;
```

#### Linebreaking Properties: LineBreak.txt

```
11B00..11B09;BB # PO [10] DEVANAGARI HEAD MARK..DEVANAGARI SIGN MINDU
```

### 7 References

Bhattacharya, Gouriswar. 2000. "The *Bhale* Symbol of the Jainas". In *Essays on Buddhist, Hindu, Jain Iconography & Epigraphy*, ed. by Enamul Haque, pp. 349–360. Studies in Bengal Art Series, no. 1. Dhaka: The International Centre for Study of Bengal Art.

- Kapadia, Hiralal Rasikdas. 1936. Descriptive Catalogue of the Government Collections of Manuscripts Deposited at the Bhandarkar Oriental Research Institute, Volume XVII: Jaina Literature and Philosophy, Part II (a): Āgamika Literature. Poona: Bhandarkar Oriental Research Institute.
- Katare, Sant Lal. 1960. "Tehri Plate of Chandella Trailokyavarman, Samvat 1264". *Epigraphia Indica*, vol. 31 (1955–1956), pp. 70–73.
- Pandey, Anshuman. 2011a. "Proposal to Encode the Tirhuta Script in ISO/IEC 10646" (L2/11-175R, WG2 N4035), https://www.unicode.org/L2/L2011/11175r-tirhuta.pdf
- . 2011b. "Proposal to Encode the Sign EKAM for Sharada in ISO/IEC 10646" (L2/11-430R, WG2 N4158), https://www.unicode.org/L2/L2011/11430r-sharada-ekam.pdf
- ——. 2012a. "Proposal to Encode the Sign ANJI for Bengali" (L2/12-121, WG2 N4157), http://www.unicode.org/L2/L2012/12121-bengali-anji.pdf
- ——. 2012b. "Proposal to Encode the Sign SIDDHAM for Devanagari" (L2/12-123R, WG2 N4260), http://www.unicode.org/L2/L2012/12123r2-devanagari-siddham.pdf
- ——. 2013. "Proposal to Encode the JAIN OM for Devanagari in ISO/IEC 10646" (L2/13-056, WG2 N4408), http://www.unicode.org/L2/L2013/13056-devanagari-jain-om.pdf
- Sircar, D. C. 1962. "Two Inscriptions at the Time of Ganapati". *Epigraphia Indica*, vol. 32 (1957–1958), pp. 339–346.
- ——. 1965. *Indian Epigraphy*. Delhi: Motilal Banarsidass.
- . 1966. Indian Epigraphical Glossary. Delhi: Motilal Banarsidass.
- Tripāṭhi, Chandrabhāl B. 1975. *Catalogue of the Jaina Manuscripts at Strasbourg*. Indologia Berolinensis, Band 4. Leiden: E. J. Brill.
- Weber, A. F. 1892. Die Handschriften-Verzeichnisse der Königlichen Bibliothek zu Berlin. Fünfter Band. Verzeichniss der Sanskrit- und Prâkrit-Handschriften. Zweiter Band, Dritte Abteilung. Berlin: A. Asher & Co.

# 8 Acknowledgments

I would like to thank Srinidhi A. for bringing the *bhale mīṇḍu* signs to my attention many years ago.

Jede Jaina-Handschrift beginnt¹) mit einem Diagramm von etwa folgender Gestalt: nto, welches den sonstigen Einleite-Formeln, wie: arham, om, aim, namah noch vorhergeht. Bühler hat darin wohl mit Recht das Wort: a rham erkannt, welches im Verlauf mehrfach sich noch dahinter findet. Die Zeichen gehören einer alten Schriftstufe²) an, vermuthlich eben der Zeit, in welcher die Jaina-Texte überhaupt zuerst schriftlich aufgezeichnet wurden, und sind aus derselben mit getreuer Pietät, ob auch unter erheblicher Variation, fortgeführt worden. — Es ist eigenthümlich, dass sich ein ähnliches Diagramm gelegentlich auch bei brähmanischen Werken, so z. B. in dem schönen Mspt. des Catapathabrähmana 1464 – 70³) vorfindet. Entweder weil dasselbe wirklich etwa von einem Jaina selbst geschrieben ist?, oder etwa weil der kalligraphische Einflus der schönen und guten Jaina-Handschriften bei einem solchen allmälig unverständlich gewordenen heiligen Schnörkel auch auf die brähmanischen Schreiber sich geltend machte.

Figure 1: Description by A. F. Weber of the "Diagramm" used in Jaina manuscripts (1892: xvi). The invocation is depicted here as nto using the n variant of n with a headstroke. Weber writes, "Every Jaina manuscript begins with a 'diagram' that has the following form, nto, which represents an invocatory formula, such as arham, om, aim, namah, etc.

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#### Jaina Literature and Philosophy

knows it full well that z when written with its circular bottom to its left stands for z in the Jaina' script. The late Babu Rajendralal Mitra mistook the Jaina character for z as z as can be seen from his work "A Catalogue of Sanskrit Manuscripts in the Library of His Highness the Maharāja of Bikanera" (Calcutta, 1880), No. 1537 (p. 702) and No. 1780² (p. 719) respectively.

Now I may say a few words about some of the symbols given in the two plates of this appendix. The very first symbol given in the first square of the first plate is read as *bhale* (No) in Gujarātī. It may be ornamented at times for which the reader is referred to the 68th and the 69th squares occurring in the last line of the second plate. Bhale occurs in the beginning of Jaina Mss. in various ways, some of which are as under:—

ໍ່ ຊັບທຸກຊົນທຸກຊຣ໌ບທຸກບຸຊົນທຸ ຊຸຊົນທຸ ບຸຊົນທຸ ບຸບຸຊົທຸກຊຸຊົນ, ທຸຊົນນທຸກຊົນ and ເບເຊັນເ<sup>3</sup>

The second symbol occurring in the second square of the first plate appears to be the same as one evaluated as it by Pandit Gaurishankar Hirachand Ojha in his work *The Palæography of India*, plate XXVII. It is sometimes found in the beginning of *Jaina* Mss. 4, like the one preceding it and the one following it. Usually we have the first symbol noted above. At times this (£), too, appears without a portion above the horizontal stroke i. e. as £. 5 Thus *Jaina* Mss. begin in a number of ways.

In Prof. A. B. Keith's Catalogue of the Sanskrit and Prakrit Manuscripts from the Library of the India Office (vol. II, pt. II) one comes across the phrase "Jaina diagram" 6.

A question is likely to be raised here as to what is meant by this Jaina diagram. My surmise is that it stands for (i) any one of the

Appendix 11

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first three symbols given in the first three squares of the 1st plate, (ii) one of its variants or (iii) the combinations of one of them with or without a danda or dandas and a cipher or ciphers. <sup>1</sup>

Figure 2: Excerpt from Kapadia (1936, appendix 2, p. 12–13) providing details about the & symbol. The plates referenced in the text are provided here in fig. 3.

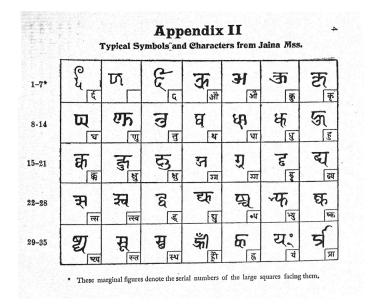
<sup>1-2</sup> Vāṇāṅga-sūtra is written for Thāṇāṅga-sūtra and Vāṇāṅga-tripāṭha for Thāṇāṅga-tripāṭha.

See the following pages in order:-

<sup>23, 2, 127, 4, 16, 61, 63, 95, 83, 111, 38</sup> and 118.

See p. 204. See p. 181.

<sup>6</sup> See vol. II, pt. II, pp. 1241, 1243 etc.



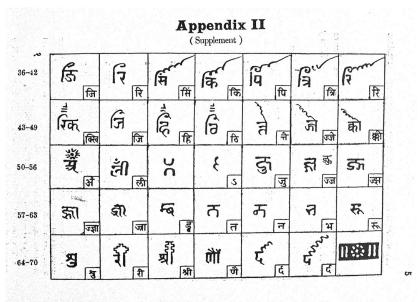


Figure 3: Tables from Kapadia (1936, appendix 2, p. 4–5) showing various characters attested in Jain manuscripts. Variations of the & sign are given in the first two squares of the box.

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7. THE CITATIONS

"edit" our Texts. It is our aim to present the passages cited from our Manuscripts in a form which is readable, but the main consideration is to present the original Text as faithfully as possible. This was also felt by WEBER ("Die Aufgabe des Verfassers eines

#### § 7.3.1 Beginning of the Manuscript

Kataloges ist nicht die eines Kritikers").4

The present paragraph covers the first three components of the list mentioned in § 7.1.2.

- (1) Symbols. Nearly all the Śvetâmbara Manuscripts from North and Western India start with an auspicious symbol which is now called "bhale" by the Jainas. Keith calls it "Jaina-diagram" and his explanation has been recorded by Kāpadīā (on the basis of a letter received from Keith). Weber suggests a derivation from "a-rha-m", and in our Ser. No. 179 bhale is in fact followed by the word arham. The form of the sign varies a good deal. However it consists basically of two elements. The first of these elements shows a remote similarity to what D. C. Sircar calls the "siddham" symbol (resembling the figure "9" as written in modern Devanāgarī), while the second element resembles a sign taking the shape of the letters tha, cha etc. —Weber, Schubring and Janert drop the bhale from their citations. Some Indian publications print the sign in Devanāgarī numerals ("50", "60" or "90"). We always reproduce it as §O. 11
- (2) Namaskāra-phrases. The bhale is sometimes followed by om (Ser. Nos. 1, 30, 137 etc.). 12 But more often we find formulas like śrī-Gautamāya namaḥ (Ser. No. 20), namo Vītarāgāya (Ser. Nos. 30 etc.), namaḥ Sarvajñāya (Ser. No. 1), hrī śrī-gurubhyo namaḥ (Ser. No. 137), or simply namaḥ (Ser. No. 108). It might be mentioned here that we find pañca-gurubhyo namaḥ only in Digambara Manuscripts. The namaskāras are especially informative when they refer to historical persons. We have for instance om namaḥ śrī-Jinabhadra-gaṇi-kṣamāśramaṇebhyaḥ in Ser. No. 45 (Viśeṣâvaśyaka-bhāṣya) and śrī-Vidyānandi-gurubhyo namaḥ in Ser. No. 107 (Tattvārtha-sūtra with Rājavārttika). There is at least one case where it is almost certain that the namaskāra is from the pen of the author himself. Ser. No. 14 is Bhāvavijaya's Sugamā on the Uttarâdhyayana-sūtra. Here the namaskāra is "śrī-Śaṅkheśvara-Pārśvanāthāya namaḥ", and the author's Praśasti also begins with a salutation to Śaṅkheśvara-Pārśvanātha. It would therefore appear that Bhāvavijaya is responsible for the namaskāra.—The namaskāra-phrases are reproduced in full by Weber and Kāpadā. Schubring and Velankar drop them completely. Janert (Ind. Hss. 1) merely writes "~".
- (3) likhyate-phrases. Just after the Namaskāra-phrase, there may appear a reference to the text from the pen of the scribe. Mostly it is in the form: atha ... likhyate, liṣyate etc. We cite a few examples from the Strasbourg Collection: atha Ratnatrayapūjā likhyate (Ser. No. 258); atha Pūjyapāda-svāmī-kṛta Samādhiśata[ka]-kī deśa-bhāṣā-maya Vacanikā likhyate (Ser. No. 161); atha granthakī Vacanikā vananēkā sambaṃdha

Figure 4: Description of the *bhale* symbol in Jain manuscripts by Tripāṭhi (1975: 39).

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<sup>&</sup>lt;sup>4</sup> Albrecht Weber, Verzeichnis 2.3, Vorwort, p. xvii.

<sup>&</sup>lt;sup>5</sup> Cat. BhORI 17.2, Appx. 2, p. 12.

Cat. IO, Vol. 2, p. 1241 etc.
 Cat. BhORI, 17.2, Appx. 2, p. 13, note 1.

<sup>8</sup> Verzeichnis 2.3, p. xvi.

<sup>9</sup> D. C. SIRCAR, Ind. Epigraphy, p. 92; Ind. Pal. 136.

<sup>10</sup> See e.g. PUNYAVIJAYA, Cat. Jesalmer.

<sup>&</sup>lt;sup>11</sup> In Cat. BhORI, 17.3 foll., KĀPADIĀ uses a symbol corresponding to the standard form of bhale.

<sup>&</sup>lt;sup>12</sup> For om in Jaina Mss. see Cat. BhORI, 17.2, Appx. 1, p. 2.

# ISO/IEC JTC 1/SC 2/WG 2

# PROPOSAL SUMMARY FORM TO ACCOMPANY SUBMISSIONS FOR ADDITIONS TO THE REPERTOIRE OF ISO/IEC 10646.1

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

Please read Principles and Procedures Document (P & P) from <a href="http://std.dkuug.dk/JTC1/SC2/WG2/docs/principles.html">http://std.dkuug.dk/JTC1/SC2/WG2/docs/principles.html</a> 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: Representing the Devanagari 'bhale mindu' in Unicode				
2. Requester's name: Anshuman Pandey <pandey@umich.edu></pandey@umich.edu>				
3. Requester type (Member body/Liaison/Individual contribution): Expert contribution				
4. Submission date: 2021-05-21				
5. Requester's reference (if applicable):				
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:  h. The proposed is fee addition of character(s) to an existing block:  Voc				
b. The proposal is for addition of character(s) to an existing block:  Name of the existing block:  **Devanagari Extended-A***				
2. Number of characters in proposal:				
3. Proposed category (select one from below - see section 2.2 of P&P document):				
A-Contemporary X 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?  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,	oto ):			
Anshuman Pandey	=iC.).			
References:     a. Are references (to other character sets, dictionaries, descriptive texts etc.) provided?  Yes  Yes				
b. Are published examples of use (such as samples from newspapers, magazines, or other sources)				
of proposed abarestors attached?				
7. Special encoding issues:				
Does the proposal address other aspects of character data processing (if applicable) such as input,				
	'es			
procentication, containing, and containing, and contained attention of the process and containing and an arrangement of the process and containing and conta	99			
8. Additional Information:				
Submitters are invited to provide any additional information about Properties of the proposed Character(s) or S	crint			
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, I				
Collation behaviour relevance in Mark Un contexts. Compatibility equivalence and other Unicode normalization				

related information. See the Unicode standard at <a href="http://www.unicode.org">http://www.unicode.org</a> for such information on other scripts. Also see Unicode Character Database (<a href="http://www.unicode.org/reports/tr44/">http://www.unicode.org/reports/tr44/</a>) and associated Unicode Technical Reports for information needed for consideration by the Unicode Technical Committee for inclusion in the Unicode Standard.

<sup>&</sup>lt;sup>1</sup> 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)

### C. Technical - Justification

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,	No		
user groups of the script or characters, other experts, etc.)?	INO		
If YES, with whom?			
If YES, available relevant documents:			
3. Information on the user community for the proposed characters (for example:	Voc		
size, demographics, information technology use, or publishing use) is included?	Yes		
Reference: See text of proposal			
One tout of managed	Common		
Reference: See text of proposal	;;		
5. Are the proposed characters in current use by the user community?	Yes;		
If YES, where? Reference: The Jain religious community and scholars			
6. After giving due considerations to the principles in the P&P document must the proposed characters be			
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).	? Yes		
8. Can any of the proposed characters be considered a presentation form of an existing	A.L.		
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	A.L.		
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)	A.L.		
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?	No		
If YES, is a rationale for such use provided?			
If YES, reference:			
Is a list of composite sequences and their corresponding glyph images (graphic symbols) provided	1? <i>N/A</i>		
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:			