

Proposal to Encode the Modi Script in ISO/IEC 10646

Anshuman Pandey
Department of History
University of Michigan
Ann Arbor, Michigan, U.S.A.
pandey@umich.edu

November 5, 2011

1 Introduction

This is a proposal to encode the Modi script in the Universal Character Set (ISO/IEC 10646). It replaces the following documents:

- L2/09-249R “Preliminary Proposal to Encode the Modi Script in ISO/IEC 10646”
- N3780 L2/10-084 “Revised Code Chart and Names List for the Modi Script”

2 Background

Modi (मोडी, *modī*) is a Brahmi-based script used mainly for writing Marathi (ISO 639-3: mar), an Indo-Aryan language spoken in western and central India, predominantly in the state of Maharashtra. Modi was also used for writing various other regional languages such as Hindi, Gujarati, Kannada, Konkani, Persian, Tamil, and Telugu. According to an old legend, the Modi script was brought to India from Sri Lanka by Hemādri Paṇḍit, known also as Hemāḍpant, who was the chief minister of Rāmacandra (r. 1271–1309), the last king of the Yadava dynasty. Another tradition credits the creation of the script to Bālājī Avajī, the secretary of state to the Maratha king Shivaji Raje Bhonsle (r. 1642–1680), also known as Chhatrapati Shivaji Maharaj. While the veracity of such accounts are difficult to ascertain, it is clear that Modi derives from the Nagari family of scripts and is a modification of the Nagari model intended for continuous writing. More historically, Modi emerged as an administrative writing system in the 16th century before the rise of the Maratha dynasties. It was adopted by the Marathas as an official script beginning in the 17th century and it was used in such a capacity in Maharashtra until the middle of the 20th century. In the 1950s the use of Modi was formally discontinued and the Devanagari script, known as ‘Balbodh’, was promoted as the standard writing system for Marathi. A revival of Modi has occurred over the past decade and its user community continues to grow.

There are thousands of Modi documents preserved in South Asia and Europe. The majority of these are in various archives in Maharashtra, while smaller collections are kept in Denmark and other countries, owing to the presence of these Europeans in Tanjore, Pondicherry, and other regions in South Asia through the 19th century. The earliest extant Modi document is dated to the early 17th century. While the majority of Modi documents are official letters, land records, and other administrative documents, the script was also

used in education, journalism, and other routine activities before the 1950s. Printing in Modi began in the early 19th century after Charles Wilkins cut the first metal fonts for the script in Calcutta (see figures 36 and 37). Newspapers were published in Modi (see figure 38); primers were produced for teaching the script in schools (see figure 30); and various personal papers and diaries were kept in the script.

At present, Modi users regularly publish books and magazines in the script (see figure 39). Several institutions now offer tutorials for learning Modi, which range from weekend workshops organized by the Maharashtra State Department of Archives (see *Daily News and Analysis* 2011) to formal courses offered by Bharat Itihas Samshodhak Mandal (BISM) in Pune. Some colleges also offer certifications in Modi, which are recognized by the Government of Maharashtra. The revival of Modi runs parallel to a growing need for Modi experts to catalogue and manage the vast archives of Modi documents at BISM and other locations. The Government of India has allocated funds for the cataloguing of these archives, which is being done by teams recently trained as Modi experts (see *Times of India* 2011).

Modi users have developed support for using the script on computers, mainly in the form of digitized fonts. But given the lack of a character-encoding standard for the script, users these fonts are based upon legacy encodings or are mapped to Unicode blocks such as Devanagari. Electronic materials are produced as images or in Portable Document Format (PDF). But, these solutions do not allow for the representation of Modi in plain text. The lack of a Unicode standard for Modi impedes its use in basic computing activities, such as writing e-mails, creating websites, and in digital publishing, as well as in larger scale efforts such as localization and internationalization. An encoding for Modi in the UCS will permit its representation in plain text, which will meet the needs of the growing Modi user community. It will also provide a standard foundation upon which the community may develop new resources for the script.

2.1 Relationship to Devanagari

Although Modi is based upon the same model as Devanagari, it differs considerably from the latter in terms of letterforms, rendering behaviors, and orthography. A comparison of the two scripts is shown in figure 3 and 4. The shapes of some consonants, vowels, and vowel signs are similar. The actual differences are visible in the behaviors of these characters in certain environments, such as consonant-vowel combinations and in consonant conjuncts, that are standard features of Modi orthography. Proper representation of Modi in plain-text requires the preservation of its distinct rendering behaviors. This can only be accomplished at the character level, through character content that is independent of font changes or other formatting.

3 Proposal Details

3.1 Script Name and Allocation

The characters are proposed for encoding in a new script block to be named ‘Modi’.

3.2 Allocation

The block is allocated to the Supplementary Multilingual Plane (SMP) at the range U+11600..1165F.

3.3 Character Repertoire

A total of 79 characters is required to encode a basic character set for Modi. The character names follow the UCS convention for Indic scripts. The proposed code chart and names list are shown in figures 1 and 2.

3.4 Font

The Modi font used in this document was designed by the proposal author. The letterforms are inspired by the Chitnisi style of Modi used during the Peshve era.

3.5 Encoding Principles

The proposed encoding for Modi seeks to represent the script in plain text. It is understood that Modi is a highly stylistic and cursive script. The proposed Modi glyphs shown in the code chart are an attempt to represent the basic graphical structure of Modi letters, as is done in traditional *bārākhadī*, or charts showing the consonant letters written with each vowel sign. The joining features and other stylistic elements of the script should be considered typographic matters and managed through the design of fonts and other features at the presentation level.

4 Writing System Details

4.1 Structure

The general structure (phonetic order, *mātrā* reordering, use of *virāma*, etc.) of Modi is similar to that of Devanagari. Several consonant-vowel combinations are written as ligatures. Consonant clusters are represented as conjuncts. Some consonants have special behaviors when they occur in certain environments. These are described below.

4.2 Styles

There are several styles of Modi. The earliest is the ‘proto-Modi’ of the 12th century, known as Adyakalin आद्यकालीन. A distinct Modi form emerges during the 13th century and is known as Yadavakalin यादव कालीन. The next stage of development is the Bahamanikalin बहमनी कालीन of the 14th–16th century, followed by the Shivakalin शिव कालीन of the 17th century. The well-known Chitnisi form develops during this period. In the 18th century, various Modi styles began to proliferate. This era is known as Peshvekalīn पेशवे कालीन, which lasted until 1818. The distinct styles of Modi used during this period are known as Chitnisi, Bilavalkari, Mahadevapanti, and Ranadi. The final stage of Modi is associated with English rule and is called Anglakalin आंगल कालीन. This form were used from 1818 until 1952.

Four of the most well-known historical forms are Bahamani (figure 26), Chitnisi (figure 27), Peshve (figure 28), and Anglakal (figure 29). Another style of Modi was used in the primary school books produced during the 19th and 20th centuries (figures 30 and 31). This form was not written in the typical cursive style, a feature that was consciously avoided in order to ensure legibility.

4.3 Virāma

The Modi ् VIRAMA is identical in function to the corresponding character in other Indic scripts. The Marathi name for this sign is *halant*.

4.4 Vowels

There are 14 vowel letters:

अ	A	उ	U	लृ	VOCALIC L	ऐ	O
आ	AA	ऊ	UU	लृ	VOCALIC LL	औ	AU
इ	I	ऋ	VOCALIC R	ए	E		
ई	II	ॠ	VOCALIC RR	ऐ	AI		

Generally, the distinction between regular and long forms of *i* and *u* are not preserved in Modi. The letter ई II may represent both *i* and *ī*; उ U may be used for writing both *u* and *ū*. However, both regular and long forms are proposed for encoding because they are attested in script charts as distinct letters. The vocalic letters are shown in Modi charts, but as is the case in other Indic scripts, their inclusion is more a matter of tradition than usage. Modi ऋ VOCALIC R may be transcribed as <उ RA, ी VOWEL SIGN II> *rī*.

Some vowel letters may be represented using a sequence of a base vowel-letter and a combining vowel sign. This practice is not recommended. The independent vowel letter is always to be used:

RECOMMENDED	NOT RECOMMENDED
ऐ VOWEL LETTER E	अ VOWEL LETTER A + ऐ VOWEL SIGN E
औ VOWEL LETTER AI	अ VOWEL LETTER A + औ VOWEL SIGN AI
ऐ VOWEL LETTER O	आ VOWEL LETTER AA + ऐ VOWEL SIGN E
औ VOWEL LETTER AU	आ VOWEL LETTER AA + औ VOWEL SIGN AI

4.5 Vowel Signs

There are 13 combining vowel signs:

आ	SIGN AA	ऊ	SIGN UU	लृ	SIGN VOCALIC LL	औ	SIGN AU
इ	SIGN I	ऋ	SIGN VOCALIC R	ए	SIGN E		
ई	SIGN II	ॠ	SIGN VOCALIC RR	ऐ	SIGN AI		
उ	SIGN U	लृ	SIGN VOCALIC L	ऐ	SIGN O		

The descriptor ‘VOWEL SIGN’ used in the names of these characters is abbreviated as ‘-’ throughout this document, eg. ‘VOWEL SIGN AA’ is referred to as ‘-AA’.

The sign ी -II is used for writing both *i* and *ī*; उ -U is used for both *u* and *ū*. As is the case for encoding the independent letters I and UU, the dependent vowel signs corresponding to these letters are also proposed for encoding because they are attested as distinct characters in script charts and other materials.

Certain consonant-vowel combinations are represented as ligatures. These are described in Section 4.7 and illustrated in Table 1.

4.6 Consonants

There are 34 consonant letters:

क	KA	न	NYA	ध	DHA	ल	LA
ख	KHA	त	TTA	ण	NA	व	VA
ग	GA	थ	TTHA	प	PA	श	SHA
घ	GHA	ड	DDA	फ	PHA	स	SSA
ङ	NGA	ढ	DDHA	ब	BA	ह	HA
च	CA	ण	NNA	भ	BHA	र	RA
छ	CHA	ल	LA	म	MA	ळ	LLA
ज	JA	ट	THA	य	YA		
झ	JHA	ड	DA	र	RA		

Each consonant letter bears an inherent vowel, represented by /a/ (ऐ अ). This inherent vowel is silenced using ् VIRAMA. When certain consonants appear in combination with certain dependent vowel signs, they are normally represented as ligatures (see Section 4.7). Similarly, when certain consonant letters appear in consonant conjuncts or in sequences with other consonants, there are distinct rules that govern their representation (see Section 4.8).

4.7 Consonant-Vowel Combinations

Consonant-vowel (CV) combinations are represented by attaching vowel signs to a consonant letter or as ligatures.

1. Method 1: CV as base letter + sign

(a) Combination with no shaping changes

Only 8 consonants are represented in all CV combinations with no change to glyph shapes: घ GHA, ङ NGA, छ CHA, ढ DDHA, ण NNA, श SHA, स SSA, ळ LLA.

(b) Combination with contextual form of consonant letter

There are 7 consonant letters that take a contextual form when they combine with certain vowel signs: थ THA, द DA, ध DHA, प PA, म MA, य YA, र RA. The contextual forms never occur independently and occur only in CV combinations with the vowel signs below:

	regular	contextual	occurs with
THA	थ	थ	ं -AA, उ -U, ू -UU, े -O, ै -AU
DA	द	द	ं -AA, े -O, ै -AU
DHA	ध	ध	ं -AA, ू -UU, े -O, ै -AU
PA	प	प	ं -AA, उ -U, ू -UU, े -O, ै -AU
MA	म	म	उ -U, ू -UU
YA	य	य	उ -U, ू -UU
RA	र	र	ं -AA, उ -U, ू -UU, े -O, ै -AU

2. Method 2: CV as ligature

Certain CV combinations with ீ -AA, ு -U, ூ -UU, ௃ -O, ௄ -AU are represented as ligatures. Generally, the ligature consists of a reduced or half-form of the consonant letter and a contextual form of the vowel sign. These ligatures are illustrated in table 1.

(a) Ligatures with -AA, -O, -AU

When the vowel signs ீ -AA, ௃ -O, ௄ -AU, combine with certain consonant letters, the vertical descender ீ in the signs changes to the contextual form ு. Ligatures formed with these vowel signs can be divided into two classes based upon the structure of the consonant:

- i. *Consonants with looped right-hand terminals* The final upwards stroke is directed downwards and looped once at the baseline before being joined to the loop of the contextual vowel sign. This behavior is exhibited by the following letters: ீ KA, ு JHA, ௃ NYA, ௄ PHA. For example, <ଐ KA, ீ -AA> → ு.
- ii. *Consonants without looped right-hand terminals* The final upwards stroke is truncated and directed rightwards in order to join to the contextual vowel sign: This behavior is exhibited by the following letters: ு KHA, ு JA, ு TTA, ு TTHA, ு NA, ு BA, ு LA, ு VA. For example, <ଐ KHA, ீ -AA> → ு.

(b) Ligatures with -U, -UU

The vowel signs ு -U and ூ -UU take the shapes ு and ூ, respectively, and are writing as ligatures when combined with ு CA, ு JHA, ௃ NYA, ு DHA, ு BA, ு LA, ு VA. For example, <ଐ CA, ு -U> → ு and <ଐ CA, ூ -UU> → ூ.

(c) Atomic Ligatures

Certain CV combinations are written as atomic ligatures. For example, <ଐ CA, ீ -AA> → ு; <ଐ SA, ீ -AA> → ு; <ଐ SA, ு -U> → ு. A complete list of such ligatures is given in table 1.

4.8 Consonant Conjuncts

Consonant clusters are generally represented as conjuncts. Conjuncts are formed by writing VIRAMA after each bare consonant in a cluster. Certain consonants have contextual shapes and rendering behaviors when they are written as part of a conjunct.

1. **Ligatures** Two conjuncts are written as atomic ligatures: <ଐ KA, ு VIRAMA, ு SSA> → ு *ksa* ; and <ଐ TA, ு VIRAMA, ு RA> → ு *tra*.
2. **Half Forms** C₁ is generally represented using a half-form. Some examples are: TA ு → ு; SA ு → ு; MA ு → ு; DA ு → ு. The half-form of ு DA is used for writing ு <ଐ DA, ு VIRAMA, ு NA>, the Modi equivalent of Devanagari ு <ଐ JA, ு VIRAMA, ு NYA> *jña*.
3. **Contextual Forms** Some consonants have a contextual form when they appear in a cluster: THA ு → ு; PA ு → ு; MA ு → ு; YA ு → ு. For example, ு <ଐ TA, ு VIRAMA, ு YA>. The list of consonants that exhibit this behavior is given in Section 4.7, item 1(b).

4.9 Forms of RA

When written independently, the letter 𑀓 RA retains its basic shape:



- It is recommended that the encoded representation of *eyelash RA* in Modi be identical to that in Devanagari: <ᳵ RA, ○ VIRAMA,

ZWJ

 ZWJ>.

(a) *Rakār* The subjoined form 𐎠𐎢𐎫𐎠𐎡𐎹 *rakār*. For instance *pra*:

(b) *Vattu* The subjoined form 𐤆 *vattu*. For instance *stra*:

(c) **Special ligatures** Some consonant clusters with RA are represented as distinct ligatures. The most common of these is the conjunct <TA, VIRAMA, RA> *tra*:

(a) $\mathfrak{K}$ KA Sequences of $\langle \text{KA}, \text{RA} \rangle$ are represented using distinct ligatures: As shown below, the sequence $\langle \text{KA}, \text{RA} \rangle$ *kara* is written using the ligature $\mathfrak{K}$:

Contrast *kara* with <KA, VIRAMA, RA> *kra*:

The sequence <KA, -AA, RA> *kāra* is written as the ligature :

સૂક્ષ્મ રૂપાંતરિત વર્ણો પાછો. રાગિણીનું સૂક્ષ્મ રૂપાંતરિત પાશ્વર્યમુખી

Vowel signs that modify RA in such ligatures are written normally, eg. <KA, RA, -AA> *karā*:

સૂક્ષ્મ રૂપાંતરિત = 'સૂક્ષ્મ રૂપાંતરિત, રૂપાંતરિત રૂપાંતરિત, રૂપાંતરિત રૂપાંતરિત' રૂપાંતરિત

- (b) **SA** When RA occurs after SA (<SA, RA>) it takes the shape ્:

સૂક્ષ્મ રૂપાંતરિત રૂપાંતરિત રૂપાંતરિત રૂપાંતરિત રૂપાંતરિત રૂપાંતરિત રૂપાંતરિત રૂપાંતરિત રૂપાંતરિત રૂપાંતરિત

- (c) **Other letters** In sequences with consonant letters that have a right descender, RA takes the shape ્. For instance <TA, RA> *tara*:

સૂક્ષ્મ રૂપાંતરિત રૂપાંતરિત રૂપાંતરિત રૂપાંતરિત રૂપાંતરિત રૂપાંતરિત રૂપાંતરિત રૂપાંતરિત રૂપાંતરિત રૂપાંતરિત

Contrast the above with <TA, VIRAMA, RA> *tra*:

સૂક્ષ્મ રૂપાંતરિત રૂપાંતરિત રૂપાંતરિત રૂપાંતરિત રૂપાંતરિત રૂપાંતરિત રૂપાંતરિત રૂપાંતરિત રૂપાંતરિત રૂપાંતરિત

- (d) **Rounded letters** After rounded letters such as ક KHA, ઢ DHA, ઘ HA, the letter RA takes the shape ્. Shown below are the sequences <KHA, RA> and <HA, -E, RA>, respectively:

સૂક્ષ્મ રૂપાંતરિત રૂપાંતરિત રૂપાંતરિત રૂપાંતરિત રૂપાંતરિત રૂપાંતરિત રૂપાંતરિત રૂપાંતરિત રૂપાંતરિત રૂપાંતરિત

As indicated above, the change in the shape of RA in these environments is not suppressed by the presence of a vowel sign attached to the preceding consonant.

- (e) **Vowel signs** When RA follows vowels signs whose graphical structure contains vertical descenders, such as -AA, -II, and -O, it takes the shape ્. For example, observe its form in the word <TA, -AA, RA, NNA, -O, RA> *tāraṇora*:

સૂક્ષ્મ રૂપાંતરિત રૂપાંતરિત રૂપાંતરિત રૂપાંતરિત રૂપાંતરિત રૂપાંતરિત રૂપાંતરિત રૂપાંતરિત રૂપાંતરિત રૂપાંતરિત

When it occurs after -II, it attaches to the bottom of the vowel sign. The word *jahāgīrī* below contains the sequence <-II, RA, -II>:

સૂક્ષ્મ રૂપાંતરિત રૂપાંતરિત રૂપાંતરિત રૂપાંતરિત રૂપાંતરિત રૂપાંતરિત રૂપાંતરિત રૂપાંતરિત રૂપાંતરિત રૂપાંતરિત

When RA occurs after the vowel sign -U, the two characters form the ligature ્. The sequence <PA, -U, RA> *pura* appears below:

शामल्या अपुनल छंजयभंन देपु प दमपि ठामलेग मफ झुज,

Vowel signs that modify RA in this ligature are written in the normal practice. For instance, <PA, -U, RA, -E> *pure*:

शामल्या अपुनल छंजयभंन देपु प दमपि ठामलेग मफ झुज,

- (f) *Punctuation* When written after DANDA or DOUBLE DANDA in certain environments, RA is written as ॠ and attached to the terminal of the DANDA. See Section 4.12 for additional details.

4.9.1 Nasalization

Nasalization is indicated using ॠ ANUSVARA.

4.10 Ruled Lines and Headstrokes

Several manuscripts and books show Modi with a head-line similar to that of Devanagari. The line is not a headstroke, but a typographic device. In general practice, lines are drawn upon a page prior to writing. The text is then written with the Modi letters hanging from the line. In some cases, lines are used in Modi text for emphasis, titling, or sectioning.

The specimen below shows the indiscriminate use of ruled lines. The text is written upon ruled lines, but numbers are written freely, except for the last value, which is a total of the preceding figures:

८०००६. तोठमघयगीअचयमवले
 २०००६. पंनचिमचिमपेनिसपपंचनचा
 येनीचमवले
 २०००६. पंनचिमचिमपेनिसपपंचनचा
 येनीचमवले
 २०००६. पंनचिमचिमपेनिसपपंचनचा
 येनीचमवले
 ८०००६.

Although the line is not part of a character's graphical structure it was incorporated into the design of glyphs for the first Modi metal fonts. This was likely an attempt to represent the appearance of hand-written Modi documents. The practice of designing Modi glyphs with headstrokes continues in digital typography.

If there is a requirement to represent Modi without the headstroke, font developers should produce sets of Modi fonts with head-strokes and without. This will facilitate the representation of Modi text that is not written under ruled lines.

4.11 Word and Section Boundaries

Traditionally, word boundaries are generally not marked in Modi. This is on account of Modi being an administrative script, which is characterized by the practice of rapid writing without lifting the pen. Paragraph and other section boundaries are indicated in some Modi documents through the use of whitespace. Modern practice uses spaces and various punctuation conventions, including DANDA and Western marks.

Spacing in a typical Modi document looks like:

હુમાવેંહુચદેઘરેમન્યવીવીષઈહુઘીઘહીઈવેપ્રદ્ધેંઆધસસીત
 યેગેંદેઈથીંદીંહંદેઇમનપયાકગરવનઈહુઘાઘઈમેંઈનેમા
 મ્યામીરૂધીધીએનિહીધીવતોલેમડુનિહુઆવેંમ્યાનિહુઘી

The practice of marking such boundaries depended upon the scribe or the occasion. The following specimen is written with word-spacing; it is not known if spacing was introduced intentionally, perhaps in order to enhance legibility:

ઉપર - આજ કાલે ૩૧ વડો ૧ મગ
 આજ કાલે ૧૨ મગ મેડુ યાડ, થનોજ
 મઠમ ૧૪૭ મમને ઉજવડ થલા ૧૨
 જવડ મગ થઇ

The manner of marking word boundaries changes between printed and written Modi. In some printed books, word and sentence boundaries are marked. In the specimen below, word boundaries are indicated with spaces and the ends of sentences are marked using a period:

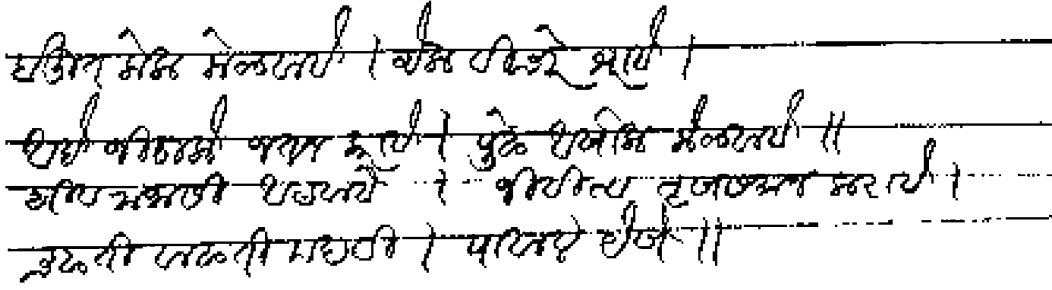
ઘેવ ડરિમિટ ઊસ્યાનપર થઇ. જેં દ્વંધીં
 દ્વંધીં મીતોડ તેં ઘેવ પાઇતો.
 ઊસ્યેં ડરિમિટોં તો ઊમતો.
 ઊસ્યા મનંતીર પીચદુ તો મળતો.

4.12 Punctuation

Modi books printed by the American Tract Society use Latin punctuation, such as comma and semi-colons:

નાડેંદુળ ઘેનિન પ્રમંચામશાનરીન. ઊંછેંદમ
 ઘાંદેદમ, ઘનીયાનીગોરુદીચઇ; ઘેવ

More commonly used are the | DANDA and || DOUBLE DANDA.



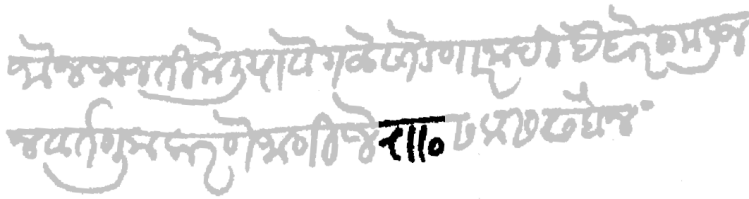
These characters exhibit special behavior in Modi. For example, in the figure below the sequence <DOUBLE DANDA, RA> results in the ligation of the two characters using a contextual form of RA:

६.	नाद	रा॥र	राहणार
९.	छाद	द॥र	दस्तुर
१०.	छादे	ब॥र	बरोबर
११.	छाद गाद	सब र॥र	सब रजिस्टर

The usage of double *daṇḍā* in such cases requires that distinctive *daṇḍā*-s be encoded for Modi. Therefore, the Modi | DANDA and || DOUBLE DANDA are proposed for independent encoding and disunification from the corresponding Devanagari characters on account of the special behavior required of these characters. The ligating behavior (eg. <|| DOUBLE DANDA, ॠ RA> → ||) is to be handled at the font level.

4.13 Abbreviations

Abbreviations are indicated using the ◦ ABBREVIATION SIGN:



4.14 Various Signs

1. ॐ ARDHACANDRA This sign is used for transcribing sounds used in English names and loanwords.
2. ○ VISARGA This sign represents an allophone of ॠ RA or ॡ SA at word-final position in Sanskrit orthography.

4.15 Special Signs

Several special signs are used in Modi documents for invocations. The Devanagari श्री *śrī* is written at the top of letters and other correspondence. There are also several Modi-specific signs, such as ॐ *īm*. Some

of these signs are shown in figures 23 and 24. Additional research is required in order to determine the meaning, usage, and suitability of encoding these characters. Of these, only the following character is currently proposed for encoding.

1. J HUVA This sign is written as an invocation in several Modi documents. It is derived from the Arabic *huva*.

J

मधुवन

धुवमधुवनमधुवनमधुवन
गाधधनधुवनमधुवनमधुवन
मधुवनमधुवनमधुवनमधुवन

4.16 Digits

Modi has a full set of decimal digits: ० ZERO, १ ONE, २ TWO, ३ THREE, ४ FOUR, ५ FIVE, ६ SIX, ७ SEVEN, ८ EIGHT, ९ NINE.

4.17 Number Forms and Unit Marks

Several number forms and unit marks are used for writing Modi. The majority of these are to be represented using characters already encoded in the “Common Indic Number Forms” block (U+A830 .. U+A83F):¹

1. *Currency signs* Currency values are written using J U+A838 NORTH INDIC RUPEE MARK.
2. *Fraction signs* Basic fraction signs used in Modi are identical to those used in other northern Indic scripts. The signs are part of a base-16 system:

I	U+A830 NORTH INDIC FRACTION ONE QUARTER
II	U+A831 NORTH INDIC FRACTION ONE HALF
III	U+A832 NORTH INDIC FRACTION THREE QUARTERS
┐	U+A833 NORTH INDIC FRACTION ONE SIXTEENTH
≡	U+A834 NORTH INDIC FRACTION ONE EIGHTH
≡	U+A835 NORTH INDIC FRACTION THREE SIXTEENTHS

The absence of intermediate units is indicated by the ५ U+A837 NORTH INDIC PLACEHOLDER MARK, which is called *आळी ālī* or *अळी ālī* in Marathi.

The ० U+A836 NORTH INDIC QUARTER MARK is used for representing *ānnā* values.

3. *Other signs* There are other number forms in Modi documents that are not yet encoded in the UCS. One of these is ‘÷’, which appears to be associated with fraction notation:

¹ See Pandey 2007 for detailed descriptions of these characters.

श्रद्धापात्रपि द्याप रुन क्वाडर वस्ते चेन एगुतर गत्ते स द्याप च सरे
 च्छेडा ॥ १ ॥ जीन ग्यापे वी घरां चे ए च्य मनें ण र घरा ण पो च्चु न पी छे म
 जीन पे त छे

- છુટે ત્યામધાળાઢ્યધીરેંઠરઢ્ઢરેચેમરેધરાતીઢરઢ્ઢતીમીસુધીસુધ્યા
 ઈપન્નઈસીંઆડગુવસ્તેંત ૮૦૦૭ છુટેધેચઢરે છુડાપાઠપીરેતેં
 - છીરિંપાપધેમતાં ૮૮૯૭ આઃ ધીઓધીધાસી રેખેંછુધેંવમપાંવન
 - ડીરેતાન્નચીઢીરેયાનીનઈમિગુત્ત ગામધિધમેધ્યાધાધતી તીનીઆડ
 - ચીધાસી ૯૦૦૭ ચઢરે રેખેંછુધેંં ધરઢાધેનીધાધતી ઈવ ૯૦૦૭

4.18 Collation

ੳ_A < ੲ_{AA} < ੱ_I < ੰ_{II} < ੴ_U < ੵ_{UU} < ੠_{VOCALIC R} < ੡_{VOCALIC RR} <
 ੢_{VOCALIC L} < ੣_{VOCALIC LL} < ੲ_E < ੳ_{AI} < ੴ_O < ੵ_{AU} < ੠_{KA} < ੡_{KHA} <
 ੢_{GA} < ੣_{GHA} < ੱ_{NGA} < ੰ_{CA} < ੴ_{CHA} < ੵ_{JA} < ੠_{JHA} < ੡_{NYA} < ੳ_{TTA} <
 ੴ_{TTHA} < ੱ_{DDA} < ੰ_{DDHA} < ੴ_{NNA} < ੵ_{TA} < ੲ_{THA} < ੱ_{DA} < ੰ_{DHA} <
 ੳ_{NA} < ੴ_{PA} < ੠_{PHA} < ੲ_{BA} < ੳ_{BHA} < ੠_{MA} < ੴ_{YA} < ੰ_{RA} < ੳ_{LA} <
 ੴ_{VA} < ੱ_{SHA} < ੰ_{SSA} < ੴ_{SA} < ੲ_{HA} < ੠_{LLA} < ੰ_{SIGN AA} < ੰ_{SIGN I} <
 ੰ_{SIGN II} < ੰ_{SIGN U} < ੰ_{SIGN UU} < ੰ_{SIGN VOCALIC R} < ੰ_{SIGN VOCALIC RR} <
 ੰ_{SIGN VOCALIC L} < ੰ_{SIGN VOCALIC LL} < ੰ_{SIGN E} < ੰ_{SIGN AI} < ੰ_{SIGN O} <
 ੰ_{SIGN AU}

5 Character Data

5.1 Character Properties

```
11600;MODI LETTER A;L0;0;L;;;;N;;;;;
```

```

11601;MODI LETTER AA;Lo;0;L;;;;;N;;;;;
11602;MODI LETTER I;Lo;0;L;;;;;N;;;;;
11603;MODI LETTER II;Lo;0;L;;;;;N;;;;;
11604;MODI LETTER U;Lo;0;L;;;;;N;;;;;
11605;MODI LETTER UU;Lo;0;L;;;;;N;;;;;
11606;MODI LETTER VOCALIC R;Lo;0;L;;;;;N;;;;;
11607;MODI LETTER VOCALIC RR;Lo;0;L;;;;;N;;;;;
11608;MODI LETTER VOCALIC L;Lo;0;L;;;;;N;;;;;
11609;MODI LETTER VOCALIC LL;Lo;0;L;;;;;N;;;;;
1160A;MODI LETTER E;Lo;0;L;;;;;N;;;;;
1160B;MODI LETTER AI;Lo;0;L;;;;;N;;;;;
1160C;MODI LETTER O;Lo;0;L;;;;;N;;;;;
1160D;MODI LETTER AU;Lo;0;L;;;;;N;;;;;
1160E;MODI LETTER KA;Lo;0;L;;;;;N;;;;;
1160F;MODI LETTER KHA;Lo;0;L;;;;;N;;;;;
11610;MODI LETTER GA;Lo;0;L;;;;;N;;;;;
11611;MODI LETTER GHA;Lo;0;L;;;;;N;;;;;
11612;MODI LETTER NGA;Lo;0;L;;;;;N;;;;;
11613;MODI LETTER CA;Lo;0;L;;;;;N;;;;;
11614;MODI LETTER CHA;Lo;0;L;;;;;N;;;;;
11615;MODI LETTER JA;Lo;0;L;;;;;N;;;;;
11616;MODI LETTER JHA;Lo;0;L;;;;;N;;;;;
11617;MODI LETTER NYA;Lo;0;L;;;;;N;;;;;
11618;MODI LETTER TTA;Lo;0;L;;;;;N;;;;;
11619;MODI LETTER TTHA;Lo;0;L;;;;;N;;;;;
1161A;MODI LETTER DDA;Lo;0;L;;;;;N;;;;;
1161B;MODI LETTER DDHA;Lo;0;L;;;;;N;;;;;
1161C;MODI LETTER NNA;Lo;0;L;;;;;N;;;;;
1161D;MODI LETTER TA;Lo;0;L;;;;;N;;;;;
1161E;MODI LETTER THA;Lo;0;L;;;;;N;;;;;
1161F;MODI LETTER DA;Lo;0;L;;;;;N;;;;;
11620;MODI LETTER DHA;Lo;0;L;;;;;N;;;;;
11621;MODI LETTER NA;Lo;0;L;;;;;N;;;;;
11622;MODI LETTER PA;Lo;0;L;;;;;N;;;;;
11623;MODI LETTER PHA;Lo;0;L;;;;;N;;;;;
11624;MODI LETTER BA;Lo;0;L;;;;;N;;;;;
11625;MODI LETTER BHA;Lo;0;L;;;;;N;;;;;
11626;MODI LETTER MA;Lo;0;L;;;;;N;;;;;
11627;MODI LETTER YA;Lo;0;L;;;;;N;;;;;
11628;MODI LETTER RA;Lo;0;L;;;;;N;;;;;
11629;MODI LETTER LA;Lo;0;L;;;;;N;;;;;
1162A;MODI LETTER VA;Lo;0;L;;;;;N;;;;;
1162B;MODI LETTER SHA;Lo;0;L;;;;;N;;;;;
1162C;MODI LETTER SSA;Lo;0;L;;;;;N;;;;;
1162D;MODI LETTER SA;Lo;0;L;;;;;N;;;;;
1162E;MODI LETTER HA;Lo;0;L;;;;;N;;;;;
1162F;MODI LETTER LLA;Lo;0;L;;;;;N;;;;;
11630;MODI VOWEL SIGN AA;Mc;0;L;;;;;N;;;;;
11631;MODI VOWEL SIGN I;Mc;0;L;;;;;N;;;;;
11632;MODI VOWEL SIGN II;Mc;0;L;;;;;N;;;;;
11633;MODI VOWEL SIGN U;Mn;0;NSM;;;;;N;;;;;
11634;MODI VOWEL SIGN UU;Mn;0;NSM;;;;;N;;;;;
11635;MODI VOWEL SIGN VOCALIC R;Mn;0;NSM;;;;;N;;;;;
11636;MODI VOWEL SIGN VOCALIC RR;Mn;0;NSM;;;;;N;;;;;
11637;MODI VOWEL SIGN VOCALIC L;Mn;0;NSM;;;;;N;;;;;
11638;MODI VOWEL SIGN VOCALIC LL;Mn;0;NSM;;;;;N;;;;;
11639;MODI VOWEL SIGN E;Mn;0;NSM;;;;;N;;;;;
1163A;MODI VOWEL SIGN AI;Mn;0;NSM;;;;;N;;;;;
1163B;MODI VOWEL SIGN O;Mc;0;L;;;;;N;;;;;
1163C;MODI VOWEL SIGN AU;Mc;0;L;;;;;N;;;;;
1163D;MODI SIGN ANUSVARA;Mn;0;NSM;;;;;N;;;;;

```

```

1163E;MODI SIGN VISARGA;Mc;0;L;;;;N;;;;;
1163F;MODI SIGN VIRAMA;Mn;9;L;;;;N;;;;;
11640;MODI SIGN ARDHACANDRA;Mn;0;NSM;;;;N;;;;;
11641;MODI DANDA;Po;0;L;;;;N;;;;;
11642;MODI DOUBLE DANDA;Po;0;L;;;;N;;;;;
11643;MODI ABBREVIATION SIGN;Po;0;L;;;;N;;;;;
11644;MODI SIGN HUVA;So;0;L;;;;N;;;;;
11650;MODI DIGIT ZERO;Nd;0;L;;0;0;0;N;;;;;
11651;MODI DIGIT ONE;Nd;0;L;;1;1;1;N;;;;;
11652;MODI DIGIT TWO;Nd;0;L;;2;2;2;N;;;;;
11653;MODI DIGIT THREE;Nd;0;L;;3;3;3;N;;;;;
11654;MODI DIGIT FOUR;Nd;0;L;;4;4;4;N;;;;;
11655;MODI DIGIT FIVE;Nd;0;L;;5;5;5;N;;;;;
11656;MODI DIGIT SIX;Nd;0;L;;6;6;6;N;;;;;
11657;MODI DIGIT SEVEN;Nd;0;L;;7;7;7;N;;;;;
11658;MODI DIGIT EIGHT;Nd;0;L;;8;8;8;N;;;;;
11659;MODI DIGIT NINE;Nd;0;L;;9;9;9;N;;;;;

```

5.2 Linebreaking

Linebreaking properties of Modi characters given in the data format of LineBreak.txt:

```

11600..1162F; AL    # LETTER A .. LETTER LLA
11630..11640; CM    # SIGN AA .. SIGN ARDHACANDRA
11641..11642; BA    # DANDA .. DOUBLE DANDA
11643; BA           # ABBREVIATION SIGN
11644; AL           # SIGN HUVA
11650..11659; NU    # DIGIT ZERO .. DIGIT NINE

```

5.3 Syllabic Categories

Syllabic categories given in the data format of IndicSyllabicCategory.txt:

```

# Indic_Syllabic_Category=Bindu
1163D      ; Bindu      # Mn      SIGN ANUSVARA

# Indic_Syllabic_Category=Visarga
1163E      ; Visarga    # Mc      SIGN VISARGA

# Indic_Syllabic_Category=Virama
1163F      ; Virama     # Mn      SIGN VIRAMA

# Indic_Syllabic_Category=Vowel_Independent
11600..1160D ; Vowel_Independent # Lo    [14] LETTER A .. LETTER AU

# Indic_Syllabic_Category=Vowel_Dependent
11630..11632 ; Vowel_Dependent  # Mc    [3] VOWEL SIGN AA .. VOWEL SIGN II
11633..1163A ; Vowel_Dependent  # Mn    [8] VOWEL SIGN U .. VOWEL SIGN AI
1163B..1163C ; Vowel_Dependent  # Mc    [2] VOWEL SIGN O .. VOWEL SIGN AU

# Indic_Syllabic_Category=Consonant
1160E..1162F ; Consonant      # Lo    [34] LETTER KA .. LETTER LLA

```

5.4 Matra Categories

Matra categories given in the data format of IndicMatraCategory.txt:

```

# Indic_Matra_Category=Right
11630          ; Right # Mc      VOWEL SIGN AA
11632          ; Right # Mc      VOWEL SIGN II
1163B..1163C   ; Right # Mc      [2] VOWEL SIGN O .. VOWEL SIGN AU

# Indic_Matra_Category=Left
11631          ; Left  # Mc      VOWEL SIGN I

# Indic_Matra_Category=Top
11639..1163A   ; Top   # Mn      [2] VOWEL SIGN E .. VOWEL SIGN AI

# Indic_Matra_Category=Bottom
11633..11638   ; Bottom # Mn      [6] VOWEL SIGN U .. VOWEL SIGN VOCALIC LL
1163F          ; Bottom # Mn      SIGN VIRAMA

```

5.5 ‘Confusable’ Characters

Below is a list of Modi characters that may resemble others encoded in the UCS:

11608	MODI LETTER VOCALIC L	; 090C	DEVANAGARI LETTER VOCALIC L
11609	MODI LETTER VOCALIC LL	; 0961	DEVANAGARI LETTER VOCALIC LL
11610	MODI LETTER GA	; 0917	DEVANAGARI LETTER GA
11611	MODI LETTER GHA	; 0918	DEVANAGARI LETTER GHA
11612	MODI LETTER NGA	; 0919	DEVANAGARI LETTER NGA
11614	MODI LETTER CHA	; 091B	DEVANAGARI LETTER CHA
11616	MODI LETTER JHA	; 091D	DEVANAGARI LETTER JHA
11617	MODI LETTER NYA	; 091E	DEVANAGARI LETTER NYA
11625	MODI LETTER BHA	; 092D	DEVANAGARI LETTER BHA
1162C	MODI LETTER SSA	; 0937	DEVANAGARI LETTER SSA
1162F	MODI LETTER LLA	; 0933	DEVANAGARI LETTER LLA
11631	MODI VOWEL SIGN I	; 0940	DEVANAGARI VOWEL SIGN II
11633	MODI VOWEL SIGN U	; 0941	DEVANAGARI VOWEL SIGN U
11634	MODI VOWEL SIGN UU	; 0942	DEVANAGARI VOWEL SIGN UU
11635	MODI VOWEL SIGN VOCALIC R	; 0943	DEVANAGARI VOWEL SIGN VOCALIC R
11636	MODI VOWEL SIGN VOCALIC RR	; 0944	DEVANAGARI VOWEL SIGN VOCALIC RR
11637	MODI VOWEL SIGN VOCALIC L	; 0962	DEVANAGARI VOWEL SIGN VOCALIC L
11638	MODI VOWEL SIGN VOCALIC LL	; 0963	DEVANAGARI VOWEL SIGN VOCALIC LL
11639	MODI VOWEL SIGN E	; 0947	DEVANAGARI VOWEL SIGN E
1163D	MODI SIGN ANUSVARA	; 0902	DEVANAGARI SIGN ANUSVARA
1163E	MODI SIGN VISARGA	; 0903	DEVANAGARI SIGN VISARGA
1163F	MODI SIGN VIRAMA	; 094D	DEVANAGARI SIGN VIRAMA
11643	MODI ABBREVIATION SIGN	; 0970	DEVANAGARI ABBREVIATION SIGN
11645	MODI SIGN HUVA	; 0644	ARABIC LETTER LAM
11650	MODI DIGIT ZERO	; 0966	DEVANAGARI DIGIT ZERO

Modi digits (U+11650..U+11659) may be considered ‘confusable’ with Devanagari digits (U+0966..U+096F).

6 References

American Tract Society. 1837. “First Book”. Bombay.

———. 1837. *Yacavicara*. Bombay.

Carey, William. 1810. *A dictionary of the Mahratta language*. Serampore: Serampore Missionary Press.

Daily News and Analysis. 2011. “With 4,000 followers, Modi script is going strong” (May 6, 2011). http://www.dnaindia.com/india/report_with-4000-followers-modi-script-is-going-strong_1540025

- Dīkṣit, Moreśvar G. and V. G. Khobarekar. 1969. मराठेकालीन प्रसिद्ध व्यक्तींची हस्ताक्षरयुक्त पत्र [Marāṭhekālīna prasiddha vyaktīmācī hastākṣarayukta patra]. पुराभिलेख विभाग — ऐतिहासिक प्रकाशन क्र० १. मुंबई: शासकीय मध्यवर्ती मुद्रणालय.
- Faulmann, Carl. 1880. *Das Buch der Schrift: Enthaltend die Schriftzeichen und Alphabete aller Zeiten und aller Völker der Erdkreises*. Zweite Vermehrte und verbesserte Auflage. Wein: Der Kaiserlich-Königlichen Hof- und Staatsdruckerei.
- Grierson, George A. 1905. *The Linguistic Survey of India*. Vol. VII. Indo-Aryan Family. Southern Group. Specimens of the Marathi language. Calcutta: Office of the Superintendent of Government Printing, India.
- Gupte, B. A. 1905. “The Modi Character”. *Indian Antiquary*, vol. XXXIV, p. 27–30.
- Kulkarnī, Madhukar. 1999. अक्षर लेणी [Akṣara leṇī]. मराठ्यांच्या इतिहासातील ओजस्वी पत्रांचा मोडी-मराठी लिप्यंतर संग्रह. Pune: Mānasamāna Prakāśana.
- Kunte, B. G. [ed]. 1987. *Illustrative Modi Documents*. Maharashtra State Archives, Government of Maharashtra. Bombay: Government Central Press.
- म्हात्रे, कृष्णाजी [Mhātre, Kṛṣṇājī]. 2009. मोडी लिप्यंतर कौशल्य (Modī Lipyaṁtar Kauśalya). मुंबई: शील प्रकाशन.
- Muller, Eric. 2004. “Devanagari Eyelash Ra”. <http://unicode.org/~emuller/iwg/p8/utcdoc.html>
- Naik, Bapurao S. 1971. *Typography of Devanagari*. 1st rev. ed. Vol. 1. Bombay: Directorate of Languages, Government of Maharashtra.
- Navalkar, Ganpatrao R. 1925. *The Student’s Marāṭhī Grammar*. 4th ed. Poona: Scottish Mission Press.
- Ojḥā, Gaurīśaṅkara Hīrācanda. 1971. भारतिय प्राचीन लिपिमाला [Bhāratīya prācīna lipimālā = The Palæography of India]. Reprint of the rev. and enl. 2nd ed., 1918; first ed. published in 1894 under the title *Prācīna lipimālā*. New Delhi: Munshiram Manoharlal.
- Pandey, Anshuman. 2007. “Proposal to Encode North Indic Number Forms in ISO/IEC 10646.” ISO/IEC JTC1/SC2/WG2 N3367 L2/07-354. October 7, 2007. <http://std.dkuug.dk/jtc1/sc2/wg2/docs/n3367.pdf>
- . 2009. “Preliminary Proposal to Encode the Modi Script in ISO/IEC 10646.” L2/09-249R. <http://www.umich.edu/~pandey/09249-modi.pdf>
- . 2010. “Revised Code Chart and Names List for the Modi Script.” ISO/IEC JTC1/SC2/WG2 N3780 L2/10-084. <http://std.dkuug.dk/jtc1/sc2/wg2/docs/n3780.pdf>
- पठवर्धन [Paṭhavardhana]. nd. म्हेळी पळीवें पुस्तक (Modī Pahile Pustak) [= First Book for Modi]. पुणे: दत्तत्रेय परशुराम जोशी.
- Ross, Fiona. 1999. *The Printed Bengali Character and its Evolution*. Richmond: Curzon.
- Strandberg, Elisabeth [ed]. 1983. *The Modī Documents from Tanjore in Danish Collections*. Beiträge zur Südasiensforschung, Südasiens-Institut, Universität Heidelberg, Band 81. Wiesbaden: Franz Steiner Verlag.
- Times of India*. 2011. “25 women help decipher Modi scripts” (March 9, 2011). http://articles.timesofindia.indiatimes.com/2011-03-09/pune/28671782_1_modi-script-peshwa-era

7 Acknowledgments

This proposal owes a great deal to many individuals across the globe. Foremost, I would like to thank Rajesh Khilari (Mumbai), an expert and teacher of Modi, for helping me to understand the intricacies of Modi. He reviewed drafts of the proposal, gave feedback on the representative glyph shapes, provided specimens of Modi documents, and explained the orthographic requirements for properly writing Modi. He also put me in touch with various Modi experts, without whose feedback and advise, this proposal would not be complete. I would also like to thank Suresh Pethe (Pune), for his diligence in acquiring images of *Khabardar*, the first Modi newspaper, from Bharat Itihas Sanshodhak Mandal (BISM), and I express my gratitude to BISM for providing access to the documents. Dhondopant Apte, Somesh Bartakke, Nikhil Bellarykar, Shirish Bhagavat, Abhay Bhagwat, Sameer Ghate, Aanand Kharde, Dhananjay Mirashi, Bhushan Pathak, Venantius J. Pinto, and several others provided comments on drafts of the proposal and the design of the Modi typeface.

I am grateful to Professor Madhav Deshpande (University of Michigan, Ann Arbor) for his comments on the proposal and for providing insight into the different forms of *repha* in Marathi orthography. I also thank Lee Schlesinger (Ann Arbor) for providing a copy of Pathavardhana's *Moḍī Pahile Pustak*.

This project was made possible in part by a grant from the United States National Endowment for the Humanities, which funded the Universal Scripts Project (part of the Script Encoding Initiative at the University of California, Berkeley). Any views, findings, conclusions or recommendations expressed in this publication do not necessarily reflect those of the National Endowment for the Humanities.

	1160	1161	1162	1163	1164	1165
0	ॐ 11600	ग 11610	घ 11620	ा 11630	ँ 11640	० 11650
1	प 11601	घ 11611	ज 11621	ी 11631	। 11641	१ 11651
2	ॢ 11602	ड 11612	ळ 11622	ी 11632	॥ 11642	२ 11652
3	ॢ 11603	उ 11613	झ 11623	ु 11633	० 11643	३ 11653
4	ॢ 11604	छ 11614	घ 11624	ू 11634	५ 11644	४ 11654
5	ॢ 11605	ज 11615	झ 11625	ृ 11635		५ 11655
6	ॢ 11606	झ 11616	म 11626	ृ 11636		६ 11656
7	ॢ 11607	झ 11617	ल 11627	ृ 11637		७ 11657
8	ॢ 11608	उ 11618	उ 11628	ृ 11638		८ 11658
9	ॢ 11609	उ 11619	ॢ 11629	े 11639		९ 11659
A	ॢ 1160A	ड 1161A	प 1162A	ँ 1163A		
B	ॢ 1160B	ढ 1161B	श 1162B	ो 1163B		
C	ॢ 1160C	ज 1161C	ष 1162C	ौ 1163C		
D	ॢ 1160D	त 1161D	उ 1162D	ं 1163D		
E	ॢ 1160E	घ 1161E	घ 1162E	ः 1163E		
F	ॢ 1160F	घ 1161F	क 1162F	् 1163F		

Figure 1: Proposed code chart for Modi.

Independent vowels

11600	ॐ	MODI LETTER A
11601	ॐ	MODI LETTER AA
11602	ॐ	MODI LETTER I
11603	ॐ	MODI LETTER II
11604	ॐ	MODI LETTER U
11605	ॐ	MODI LETTER UU
11606	ॐ	MODI LETTER VOCALIC R
11607	ॐ	MODI LETTER VOCALIC RR
11608	ॐ	MODI LETTER VOCALIC L
11609	ॐ	MODI LETTER VOCALIC LL
1160A	ॐ	MODI LETTER E
1160B	ॐ	MODI LETTER AI
1160C	ॐ	MODI LETTER O
1160D	ॐ	MODI LETTER AU

Consonants

1160E	ॐ	MODI LETTER KA
1160F	ॐ	MODI LETTER KHA
11610	ॐ	MODI LETTER GA
11611	ॐ	MODI LETTER GHA
11612	ॐ	MODI LETTER NGA
11613	ॐ	MODI LETTER CA
11614	ॐ	MODI LETTER CHA
11615	ॐ	MODI LETTER JA
11616	ॐ	MODI LETTER JHA
11617	ॐ	MODI LETTER NYA
11618	ॐ	MODI LETTER TTA
11619	ॐ	MODI LETTER TTHA
1161A	ॐ	MODI LETTER DDA
1161B	ॐ	MODI LETTER DDHA
1161C	ॐ	MODI LETTER NNA
1161D	ॐ	MODI LETTER TA
1161E	ॐ	MODI LETTER THA
1161F	ॐ	MODI LETTER DA
11620	ॐ	MODI LETTER DHA
11621	ॐ	MODI LETTER NA
11622	ॐ	MODI LETTER PA
11623	ॐ	MODI LETTER PHA
11624	ॐ	MODI LETTER BA
11625	ॐ	MODI LETTER BHA
11626	ॐ	MODI LETTER MA
11627	ॐ	MODI LETTER YA
11628	ॐ	MODI LETTER RA
11629	ॐ	MODI LETTER LA
1162A	ॐ	MODI LETTER VA
1162B	ॐ	MODI LETTER SHA
1162C	ॐ	MODI LETTER SSA
1162D	ॐ	MODI LETTER SA
1162E	ॐ	MODI LETTER HA
1162F	ॐ	MODI LETTER LLA

Dependent vowel signs

11630	ॐ	MODI VOWEL SIGN AA
11631	ॐ	MODI VOWEL SIGN I
11632	ॐ	MODI VOWEL SIGN II
11633	ॐ	MODI VOWEL SIGN U
11634	ॐ	MODI VOWEL SIGN UU
11635	ॐ	MODI VOWEL SIGN VOCALIC R
11636	ॐ	MODI VOWEL SIGN VOCALIC RR
11637	ॐ	MODI VOWEL SIGN VOCALIC L
11638	ॐ	MODI VOWEL SIGN VOCALIC LL
11639	ॐ	MODI VOWEL SIGN E
1163A	ॐ	MODI VOWEL SIGN AI
1163B	ॐ	MODI VOWEL SIGN O
1163C	ॐ	MODI VOWEL SIGN AU

Various signs

1163D	ॐ	MODI SIGN ANUSVARA
-------	---	--------------------

1163E	ॐ	MODI SIGN VISARGA
1163F	ॐ	MODI SIGN VIRAMA = halant
11640	ॐ	MODI SIGN ARDHACANDRA • used for transcribing English

Punctuation

11641		MODI DANDA
11642		MODI DOUBLE DANDA

Sign

11643	ॐ	MODI ABBREVIATION SIGN
-------	---	------------------------

Invocation sign

11644	ॐ	MODI SIGN HUVA
-------	---	----------------

Digits

11650	ॐ	MODI DIGIT ZERO
11651	ॐ	MODI DIGIT ONE
11652	ॐ	MODI DIGIT TWO
11653	ॐ	MODI DIGIT THREE
11654	ॐ	MODI DIGIT FOUR
11655	ॐ	MODI DIGIT FIVE
11656	ॐ	MODI DIGIT SIX
11657	ॐ	MODI DIGIT SEVEN
11658	ॐ	MODI DIGIT EIGHT
11659	ॐ	MODI DIGIT NINE

Figure 2: Proposed names list for Modi.

	A	AA	I	II	U	UU	R	O	AU
KA	क	क			उम	(उम)	रुम	ने	नै
KHA	ख	ख			उग	(उग)		दे	दै
GA	ग					उग			
CA	उ	उ			उग	उग		उे	उै
JA	ज	ज			उम	(उम)		मे	मै
JHA	झ	झ			उग	उग		दे	दै
NYA	न	न			उग	उग		ने	नै
TTA	ट	ट						ले	लै
TTHA	ठ	ठ						ले	लै
DDA	ड		ड	ड					
TA	त				उग	(उग)			
THA	थ	था			यु	यु		थे	थै
DA	द	द			उग	उग		दे	दै
DHA	ध	धा			उग	यु		थे	थै
NA	न	न			उम	(उम)		मे	मै
PA	प	पा			पु	(पु)		पो	पौ
PHA	फ	फ			फु	(फु)		फे	फै
BA	ब	ब			उग	उग		दे	दै
BHA	भ	भ						मे	मै
MA	म	म			मु	उग		मे	मै
YA	य	न			यु	(यु)		ने	नै
RA	र	रा			स	(स)		रो	रौ
LA	ल	ल	ल	(ल)	उग	उग		ले	लै
VA	व	व			उग	उग		ले	लै
SA	श	श			उग	उग		जे	जै
HA	ह	ह			उग	उग		दे	दै

Table 1: Regular consonant-vowel combinations in Modi.

	A	B		A	B		A	B		A	B
A	अ	अ	KA	क	क	DA	द	द	ZERO	०	०
AA	प	प	KHA	ख	ख	DHA	ध	ध	ONE	१	१
I	ई	ई	GA	ग	ग	NA	न	न	TWO	२	२
II	ई	ई	GHA	घ	घ	PA	प	प	THREE	३	३
U	उ	उ	NGA	—	ङ	PHA	फ	फ	FOUR	४	४
UU	ऊ	ऊ	CA	च	च	BA	ब	ब	FIVE	५	५
R	—	ऋ	CHA	छ	छ	BHA	भ	भ	SIX	६	६
RR	—	ॠ	JA	ज	ज	MA	म	म	SEVEN	७	७
L	—	लृ	JHA	झ	झ	YA	य	य	EIGHT	८	८
LL	—	लृ	NYA	न्य	न्य	RA	र	र	NINE	९	९
E	ऐ	ऐ	TTA	त	त	LA	ल	ल			
AI	औ	औ	TTHA	ठ	ठ	VA	व	व			
O	ऐ	ऐ	DDA	ड	ड	SHA	श	श			
AU	ऐ	ऐ	DDHA	ढ	ढ	SSA	ष	ष			
			NNA	ण	ण	SA	स	स			
			TA	त	त	HA	ह	ह			
			THA	थ	थ	LLA	ळ	ळ			

Table 2: Comparison of basic Modi characters in (‘A’) the ‘Hemadree’ font by Somesh Bartakke and (‘B’) the font designed by Anshuman Pandey.

[illegible]

Figure 3: Comparison of consonant-vowel combinations in Modi and Devanagari (from Strandberg 1983: 32, 33).

[illegible]

Figure 4: Comparison of consonant-vowel combinations in Modi and Devanagari (from Strandberg 1983: 34, 35).

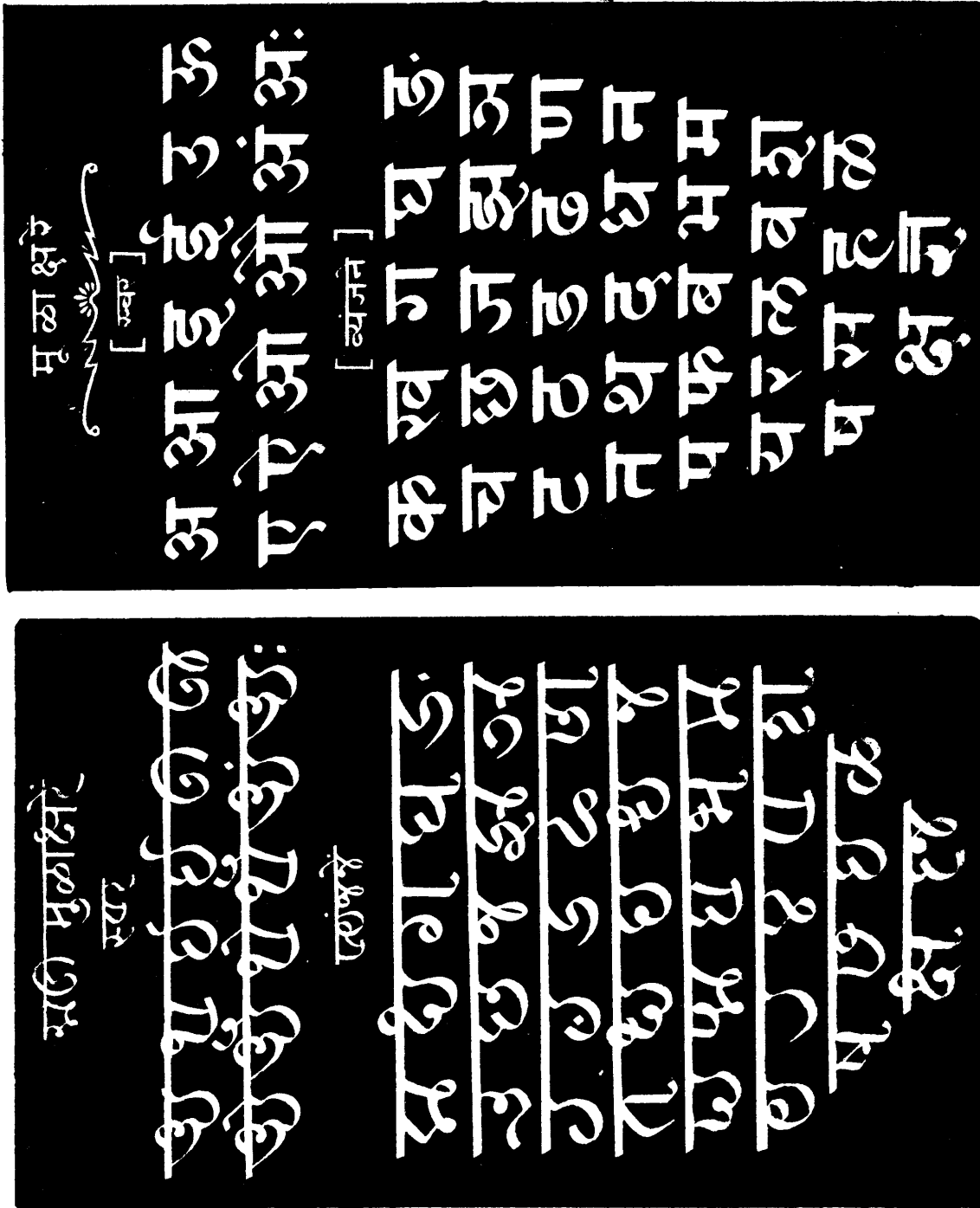


Figure 5: Comparison of consonant-vowel combinations in Modi and Devanagari (from Strandberg 1983: 30, 31).

મોહિ મુલ્કાક્ષરે.	સાક્ષમ્ સીદ્ધિશ્ચિત્તુ સે સે સે સે સે સં સં સં
શ પા ઈ ઈં ઉ ઊ ઇ ઈં ઈં ઈં ઈં ઈં ઈં ઈં	અમા અની અનિ અનુ અં અં અં અં અં અં અં
સ ઈ ગ ઘ ઙ ઙ ઙ ઙ ઙ ઙ ઙ ઙ ઙ	ગ ગ ગ ગ ગ ગ ગ ગ ગ ગ ગ ગ ગ ગ
ડ ઢ ઢ ઢ ઢ ઢ ઢ ઢ ઢ ઢ ઢ ઢ ઢ	ઘ ઘ ઘ ઘ ઘ ઘ ઘ ઘ ઘ ઘ ઘ ઘ ઘ
મ ય ણ ણ ણ ણ ણ ણ ણ ણ ણ ણ ણ	ડ ડ ડ ડ ડ ડ ડ ડ ડ ડ ડ ડ ડ
સાક્ષમ્ સીદ્ધિશ્ચિત્તુ સે સે સે સે સે સં સં સં	ઢ ઢ ઢ ઢ ઢ ઢ ઢ ઢ ઢ ઢ ઢ ઢ ઢ
ઇ ઈ ઈ ઈ ઈ ઈ ઈ ઈ ઈ ઈ ઈ ઈ ઈ	ઘ ઘ ઘ ઘ ઘ ઘ ઘ ઘ ઘ ઘ ઘ ઘ ઘ
ગ ગ ગ ગ ગ ગ ગ ગ ગ ગ ગ ગ ગ ગ	ઙ ઙ ઙ ઙ ઙ ઙ ઙ ઙ ઙ ઙ ઙ ઙ ઙ
ઘ ઘ ઘ ઘ ઘ ઘ ઘ ઘ ઘ ઘ ઘ ઘ ઘ	ચ છ છ છ છ છ છ છ છ છ છ છ છ
ડ ડ ડ ડ ડ ડ ડ ડ ડ ડ ડ ડ ડ	છ હ હ હ હ હ હ હ હ હ હ હ હ હ હ
ડ ડ ડ ડ ડ ડ ડ ડ ડ ડ ડ ડ ડ	ઝ ઞ ઞ ઞ ઞ ઞ ઞ ઞ ઞ ઞ ઞ ઞ ઞ
છ છ છ છ છ છ છ છ છ છ છ છ છ છ	ટ ઠ ઠ ઠ ઠ ઠ ઠ ઠ ઠ ઠ ઠ ઠ ઠ
જ ઞ ઞ ઞ ઞ ઞ ઞ ઞ ઞ ઞ ઞ ઞ ઞ	ડ ડ ડ ડ ડ ડ ડ ડ ડ ડ ડ ડ ડ

Figure 6: Modi table (from Naik 1971: 130, 131).

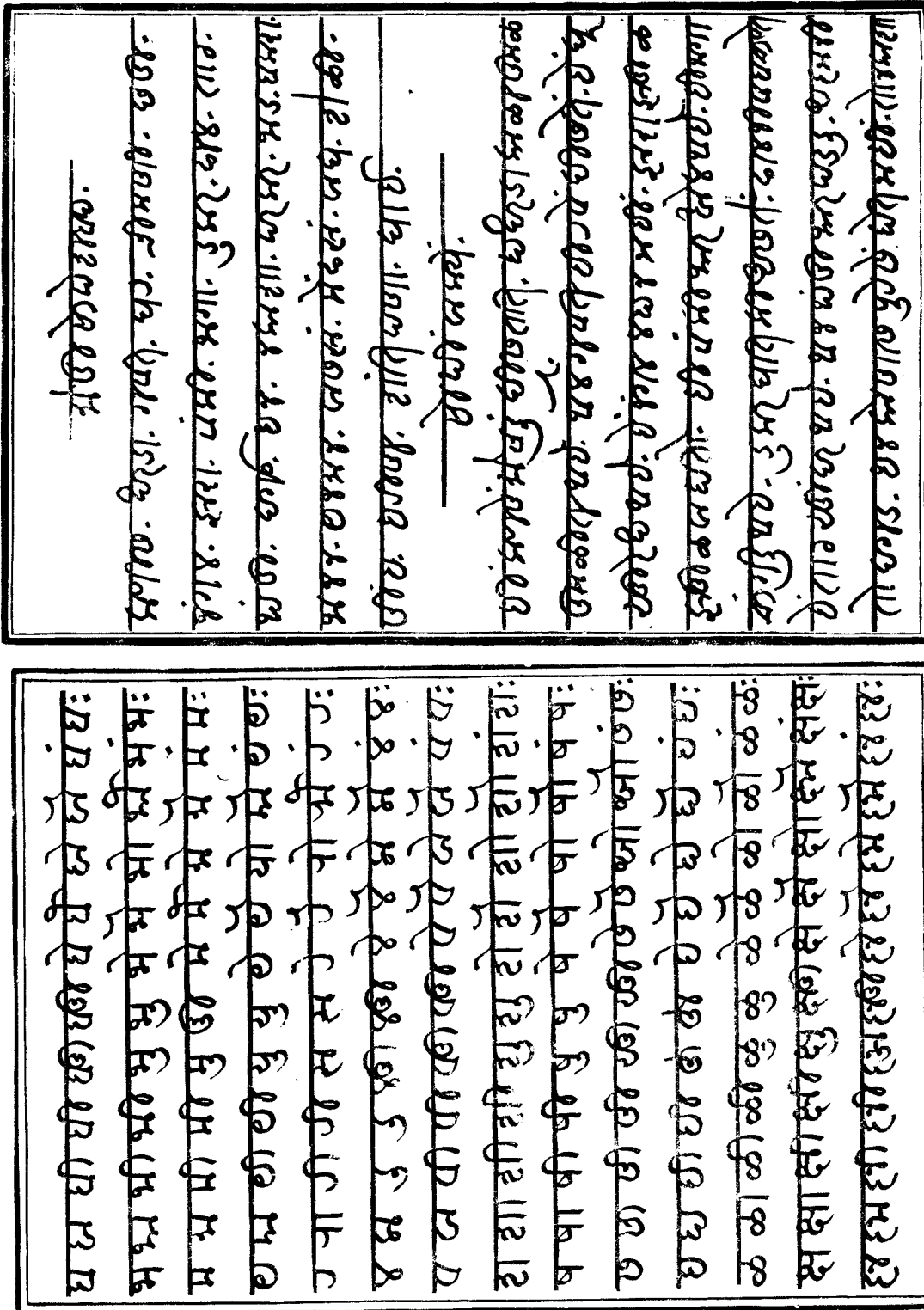


Figure 7: Modi table (from Naik 1971: 132, 133).

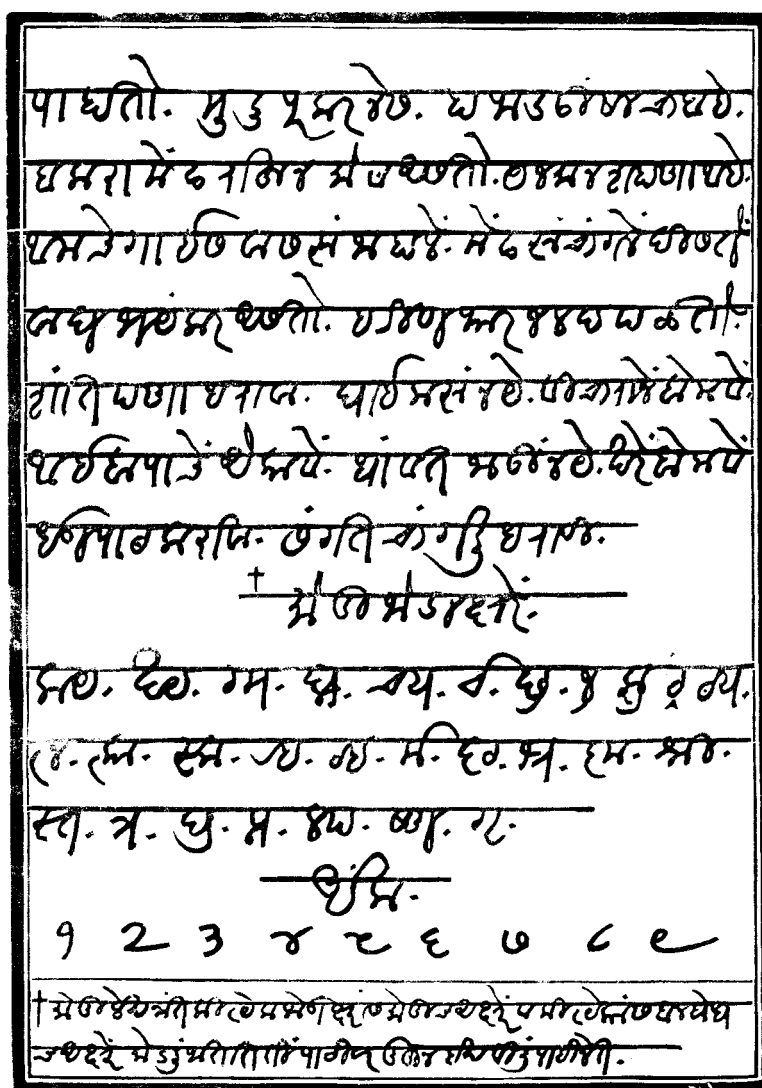


Figure 8: Modi table (Naik 1971: 134).

मोडी (मराठी) लिपि.

अ आ इ ई उ ऊ ऋ ॠ ए ऐ ओ औ अं अः क ख
ग घ ङ च छ ज झ ञ ट ठ ड ढ ण त थ द ध न प
ग घ उ उ ँ ष श स र ल व श ष स ह ळ का कि की कु
म्भ ए अ म य उ ष ए श ष उ घ ष ळ मी मी मि
कू के कै को कौ कं कः १ २ ३ ४ ५ ६ ७ ८ ९
शि प्रै प्रै प्रै प्रै प्रं प्रः १ २ ३ ४ ५ ६ ७ ८ ९

Figure 9: Chart of Modi (from Ojhā 1999: 79).

1. MODI CHARACTERS.

1. The Modi letters are thus written and pronounced :—

Vowels.

अ a, आ a, ई i, ऊ u, ऐ e, औ ai, ए o, ऐ au, अं am, अः ah

Consonants.

क ka	ड da	म ma
ख kha	ढ dha	य ya
ग ga	ण na	र ra
घ gha	त ta	ल la
उ na	थ tha	व va
उ cha	ड da	श sa
छ chha	ड dha	ष sha
ज ja	न na	स sa
झ jha	प pa	ह ha
ञ ña	फ pha	ळ la
ट ta	ब ba	क्ष ksha
ठ tha	भ bha	ड्न दnya

2. The following are three Modi *Bārākhadīs*, or modies of syllabification :—

ka ká ki kí ku ku ké kai ko kau kam kah.

म म मी मी मि मि मे मे मे मे मं मः

ga gá gi gí gu gu ge gai go gau gam gah.

ग गा गी गी गि गि गे गे गो गो गं गः

tu tá ti tí tu tu te tai to tau tam tah.

ठ ठ ठी ठी ठु ठु ठे ठे ठे ठे ठं ठः

Figure 10: Chart of Modi printed in metal types (from Navalkar 1925: 374).

Marāṭhī is usually written in the so-called Bālbōdh or in the so-called Mōḍī character.¹

Written character.

Bālbōdh, *lit.* 'teachable to children' is identical with Dēva-nāgarī, and has been described in Vol. v. Part ii, pp. 7 and ff.

It is used in almost all printed books, and also, to a great extent, in private transactions and letters. The Mōḍī character is almost totally confined to the latter kind of writing. An example of its use will be found on pp. 259 and ff. It consists of the following signs :—

VOWELS.

ਊ ^a ਧ ^ā ਈ ^{i, ī,} ਊ ^{u, ū,}
ਓ ^ē ਐ ^{ai} ਔ ^ō ਐ ^{au} ਐ ^{am} ਧ: ^{ah}

CONSONANTS.

ਕ ^{ka} ਖ ^{kha} ਗ ^{ga} ਘ ^{gha} ਙ ^{ṅa}
ਚ ^{cha} ਛ ^{chha} ਜ ^{ja} ਝ ^{jha} ਞ ^{ṇa}
ਟ ^{ṭa} ਠ ^{ṭha} ਡ ^{ḍa} ਢ ^{ḍha} ਣ ^{ṇa}
ਤ ^{ta} ਥ ^{tha} ਦ ^{da} ਧ ^{dha} ਨ ^{na}
ਪ ^{pa} ਫ ^{pha} ਬ ^{ba} ਭ ^{bha} ਮ ^{ma}
ਯ ^{ya} ਰ ^{ra} ਲ ^{la} ਵ ^{va}
ਸ਼ ^{śa} ਸ਼ ^{sha} ਸ਼ ^{sa} ਹ ^{ha}
ਲ਼ ^{la} ਕ਼ ^{ksha} ਢ਼ ^{dnya}

The forms of the vowels given above are only used at the beginning of words or syllables. When the vowels follow a consonant they are expressed by means of secondary signs in the same way as in the Dēvanāgarī alphabet. For the sake of teaching these signs the alphabet is disposed in *Bārākhḍīs*, or series of twelve letters, each containing a consonant combined with all possible vocalic sounds. Such *Bārākhḍīs* are :—

ਕ-ਕੁ-ਕੀ-ਕਿ-ਕੁ-ਕੁ-ਕੇ-ਕੈ-ਕੋ-ਕਾ-ਕਮ-ਕਹ:
ਗ-ਗੁ-ਗੀ-ਗਿ-ਗੁ-ਗੁ-ਗੇ-ਗੈ-ਗੋ-ਗਾ-ਗਮ-ਗਹ:
ਫ-ਫੁ-ਫੀ-ਫਿ-ਫੁ-ਫੁ-ਫੇ-ਫੈ-ਫੋ-ਫਾ-ਫਮ-ਫਹ:
ਟ-ਟੁ-ਟੀ-ਟਿ-ਟੁ-ਟੁ-ਟੇ-ਟੈ-ਟੋ-ਟਾ-ਟਮ-ਟਹ:

A short note on the *Modi Character* by B. A. Gupte will be found in the *Indian Antiquary*, Vol. xxxiv, 1905, pp. 27 and ff.

Figure 11: Chart of Modi from the *Linguistic Survey of India* (from Grierson 1905: 20).

COMPARATIVE MODIFICATIONS OF THE MODI CHARACTER.

<i>Bālbôdh.</i> (Head-lines to Characters separately.)	<i>Môdi.</i> (Single head-line to all the Characters.)	<i>Bālbôdh.</i> (Head-lines to Characters separately.)	<i>Môdi.</i> (Single head-line to all the Characters.)
क	म	ध	छ ⁶
ख	ऐ	न	च
ग	ग ¹	प	ज
घ	घ ²	फ	झ
ङ	उ ³	ब	ञ
च	उ or च	भ	म
छ	छ	म	य ⁷
ज	य	य	र
झ	झ	र	ल
ञ	ण	ल	व
ट	ठ	श	ष
ठ	ढ	ष	स
ड	उ or ढ ⁴	स	ह
ढ	ढ ⁴	ह	ळ
ण	ण	ळ	क्ष
त	त or प	क्ष	ज्ञ
थ	थ ⁵		
द	घ		

The chief merit of the Môdi Character consists in the addition of vowel signs, thus:—

<i>Bālbôdh.</i>	<i>Môdi.</i>
अ आ इ ई उ ऊ a ā i ī u ū	अ आ इ ई उ ऊ
क का कि की कु कू K Kā Ki Kī Ku Kū	क का कि की कु कू

(There is no distinction between long and short *i* and *u*.)

(The whole line could be written without lifting the pen for the addition of the *ī* or *ū*.)

¹ No change.

² No change.

³ Change in the angular shape ढ to उ.

⁴ Angular.

⁵ Note ऐ *supra*; the change is in the position of the loop.

⁶ The loop is from left to right, and not from right to left as in ऐ.

⁷ Mark the loop.

⁸ Note छ and च (d and h); the difference is in the rounding of the right-hand upper corner in the first.

⁹ Interchangeable with ञ above.

Figure 12: Chart of Modi from the *Indian Antiquary* (from Gupta 1905: 29).

MARATHI SCH.									
Zeichen	Wert	Zeichen	Wert	Zeichen	Wert	Zeichen	Wert	Zeichen	Wert
अ	a	क	ka	ज	ña	न	na	ल	la
आ	ā	ख	kha	ट	ṭa	प	pa	व	va
इ	i	ग	ga	ड	ḍa	फ	pha	श	sa
उ	u	घ	gha	ढ	ḍha	ब	ba	ष	śa
र	r	म	ña	ण	ṇa	भ	bha	ष	śa
ए	e	च	tśa, tsa	त	ta	म	ma	ह	ha
ई	ai	छ	tśha, tsha	थ	tha	य	ya		
ओ	o	न	dźa, dza	द	da	र	ra		
औ	au	स	dźha, dzha	ध	dha	ल	la		

Ligaturen.									
स्व	swa	प्र	pra	व	wā	क्ष	kśa	न्त	nta
स्थ	stha	दृ	pr	ह	hā	क्ष्य	kśya	द्व	ddha
त्र	tra	ष्ट	śḍha	तु	tu	मह	mha	क्त	cta
ज्य	dźya	क्र	kra	त्या	tya	दय	dya		

Vokalverbindung: क्क kā, की ki, कु ku, के ke, कै kai, को ko, कौ kau, र्क rk, क्क kā.

Die Marāṭhen, welche einen Theil des Dekhan erobert haben, sind die einzigen Bewohner dieses Theiles von Indien, welche sich der Sanskritsprache bedienen, sie schreiben dieselbe entweder mit *Devanagari* und nennen diese Schrift *Bālboḍh* oder mit ihrer eigenen Schrift, die *Mod* heisst. Diese Schrift schwankt zwischen *Gudžaratisch* und *Devanagari*, die Form म ña scheint eine Zusammenziehung von *Sindh* ३ ka und *Devanagari* न zu sein. Mit der *Devanagari* hat sie die Verbindung der Zeichen sowohl durch die Schreiblinie (welche aber nicht wie bei uns unter, sondern über den Buchstaben hinläuft) als auch die Verbindungen der Kon-

sonanten gemein, doch ist der herabreichende Strich noch nicht so konsequent ausgebildet und selbst bei manchen ँ -Formen nicht isolirt, während andere mit der *Devanagari* übereinstimmen, z. B. पा yā. Die Unterscheidung zwischen i und ī, u und ū ist nicht zu bemerken, auch scheint kein eigenes Zeichen für tha vorhanden zu sein, denn dieses wird durch ta oder auch durch त wiedergegeben.

Die Sanskritlaute tś, dź lauten nur vor e, i und ī in gleicher Weise, vor a, o, u, r, l wie ts und dz; um tśa und dźa zu schreiben wird von manchen Schreibern ein ya eingeschoben oder ein Punkt unter die Zeichen gesetzt.

Figure 13: Specimens of glyphs from a Modi metal font (from Faulmann 1880: 124).

In all cases the *akṣara* with short *i* and *u* may also be used for long *i* and *u* and vice versa. Among the variants occurring in our material we may list those which are not so easily recognisable:



Figure 14: Variant forms of consonant letters and consonant-vowel combinations (from Strandberg 1983: 36).

Moreover the following less recognisable ligatures, which are not represented on the charts at all, occur in our material.

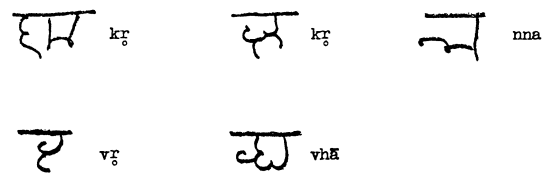


Figure 15: More variant forms of consonant-vowel combinations (from Strandberg 1983: 37).

एकाच अक्षराचे विविध प्रकार

जु - ऊ ण णि णी
 ली - री उ उ डी
 खा - धि आ जा ख
 स - ष ण रू ष
 च - छ ष ष च
 कु - कू कू कू —
 डी - डी णि डी ण
 लु - लू उ
 ला - लू ष
 सा - स स स
 गु - गु णि
 खु - खि धि
 ढ - ढ ढ
 आ - अ अ
 ख - धि ज
 मु - मि मु
 ण - ण ण
 थु - थु ण

Figure 16: Variant forms of consonant letters and consonant-vowel combinations. Courtesy of Rajesh Khilari.

समान दिसणारे शब्द

उ तु जु डी गु खु
 णि णि(णि) णि णि णि णि

डु मु ली लु हु खु
 णि णि णि(ड) उ णि(णि) णि

सा मा का या हा
 स स स स स

स क ला म था
 स स स स स

ब ह द प ह
 घ घ घ घ घ

ठा टा वा ज न ल
 ल ल ल न न न

प ण व स ख ण
 प प प प ज ज

Figure 17: Modi letters and combinations that are graphically similar. Courtesy of Rajesh Khilari.

चार प्रकार खालीलप्रमाणे —

६अ) काही व्यंजनांनंतर जोडाक्षरात 'र' आल्यास तो 'र' असा लिहितात. तेथे एक गोष्ट लक्षात घ्यायला हवी की 'र' हे जोडाक्षरातील पुढे येणारे व्यंजन असेल तर व, 'र' असे लेखन. म्हणजे या जोडाक्षरात 'र' चा उच्चार पूर्ण आहे.

रगरेर, प्राणेर, मृच्छा, धुप, वज्र, शिखा, पञ्च

प्रीत, व्रत, (छा+र) = श्रेष्ठ, (छा+र) = स्नात,

यात र, र, ठा, च, र, ष, र

या व्यंजनांनंतर 'र' जोडून येणारी जोडाक्षरे मोडी लिपीत नाहीत.

मृ+र = मृ असे जोडाक्षर मोडी लिपीत आढळत नाही. मात्र

मृलेमृ, मृष्ट, मृष्ट असे इंग्रजी शब्द मोडी लिपीत आले आहेत.

६आ) 'रेफ' / 'रफार' 'र' या व्यंजनांनंतर येणाऱ्या अक्षरावर 'र' असे चिन्ह दिले जाते.

उदा. ररेफ, पुर्प, पर्व, रैर, रद्विर्द, वरत,

यात 'र' चा उच्चार 'र' च्या मागील अक्षराबरोबर (ररेफ) होतो व त्या अक्षरावर आघात (जोर) येतो. अशा वेळेला जोडाक्षरात येणारे र हे व्यंजन पुढील अक्षरावर 'रेफ' हे चिन्ह देउन दर्शविले जाते. याला रफार असेही म्हणतात.

मोडी शब्दातील रफार (रेफ) कोणत्या अक्षरावर येईल यासंबंधी मोडी लिपीत गोंधळ आढळून येतो. उदा. : ररेफ ऐवजी ररेफ

रपुर्प ऐवजी रपुर्प, रद्विर्द ऐवजी रद्विर्द,

अशी चुकीची रूपे लिहिलेली आढळतात.

Figure 19: Description of the forms of २ RA (from Mhātre 2009: 26). Continued in figure 20.

६३) 'र' हे व्यंजन जोडाक्षरात आधी आले तर 'ः' या चिन्हाने दाखविले जाते. हे चिन्ह 'र' या व्यंजनानंतर येणाऱ्या अक्षरात जोडतात.

उदा. **ज्या, मज्ज, घीळ, मरु, खीच्या**
सुन्या या शब्दात 'र' नंतर य हे अक्षर आले आहे. ते उच्चारताना सु + ः + या असे उच्चारले जाते. मागील अक्षरावर आघात (जोर) मुळीच दिला जात नाही. उलट सूर्य या शब्दाचा उच्चार करताना सू वर आघात येतो व 'र' चा उच्चार सू बरोबर (सूर + य) होतो.

एकंदरीत 'र' या व्यंजनाचा उच्चार त्याच्यापुढील अक्षरासह होतो व 'र' च्या मागील अक्षरावर आघात किंवा जोर दिला जात नाही. तेव्हा 'र' व्यंजनाऐवजी 'र' असेल तर 'ः' हे चिन्ह केव्हा वापरायचे व 'ः' हे चिन्ह केव्हा वापरायचे ते लक्षात येईल.

मोडी लिपीतील सर्व 'उ' कार ऱ्हस्व असतात, 'उ' काराबाबत मोडी लिपीत ऱ्हस्व दीर्घ भेदाभेद नाही. त्यामुळे **खीर्, खीच्या**

यातील '**खी**' सारखाच काढतात.

६४) 'ट' आणि 'ड' नंतर 'र' आल्यास हे चिन्ह ट किंवा ड च्या खाली येते.

उदा. : ट्राम, ड्रम, षड्स, राष्ट्र : **ल्रम ड्रम षड्स नाष्ट्र**

उ आणि **ड** या व्यंजनानंतर 'र' जोडून येणारी जोडाक्षरे मोडी लिपीत नाहीत.

'र' बाबत जोडाक्षरात वारंवार होणाऱ्या चुका

सु + र - स्र : **स्रोण, स्नाण, षस्राणधी, शृश्र**

सु + त् + र - स्त्र : **स्त्री, एस्त्र, ठीरस्त्राण, टास्त्री**

७) ज्या शब्दाचे पहिले अक्षर 'र, री, रे, रै, रं' ने सुरू होते अशा वेळी '**रु**' या मुळाक्षरानेच शब्द सुरू होतो.

उदा. : **रुमगीरी, रीतीने, रेपछंडा, रैम, रंम.**

रा 'ना' किंवा रु : **स** असे काढतात.

उदा. : **रुमराम, नामचंघ, नामवाण, रुमचे, रुमड**

Figure 20: Description of the forms of ८ RA (from Mhātre 2009: 27). Continued in figure 21.

- ८) मोडी लिपीमध्ये **रराखि** (र रा री) अशी बालबोधसदृश अक्षरे काढलेली आढळतात.

उदा. **रार**, **रराज**, **रराह**, **ररात**, **रराह**, **रराखि**, **रराखि**, **ररो**

- ९) मोडी ही मराठीची जलद लिहिण्यासाठी वापरली जाणारी लपेटीदार लिपी त्या लपेटीदार वळणात 'र' पूर्णपणे आडवा काढलेला आढळतो.

उदा. **रंघ** (नंबर), **रंघ** (हुजूर), **रंघ** (लवकर)

रंघे (हजार) **रंघ** (सावनूर)

रंघ (करोबर) **रंघ** (हरलेकर)

'र' हे अक्षर मोडी लिपीत मुळाक्षरांच्या पायाशी, कमरेत, कुशीत, पोटात आणि डोक्यावर कोठेही कसेही घुसून आपले अस्तित्व दाखवून देते.

'र' हे मोडी लिपीत जास्तीत जास्त व्यंजनांना निरनिराळ्या प्रकारे जोडण्यात येणारे एकमेव अक्षर आहे.

- १०) 'र' शी संबंधित अक्षरे व जोडाक्षरे :

क+र=कर	क	क	क	म+र=मर	म	म	र+क=क	क
ग+र=गर	ग	ग	ग	व+र=वर	व	व	र+म=म	म
त+र=तर	त	त	त	श+र=शर	श	श	र+प=प	प
द+र=दर	द	द	द	स+र=सर	स	स	र+य=य	य
प+र=पर	प	प	प	स+त+र=सतर	स	त	र+व=व	व
ब+र=बर	ब	ब	ब	ह+र=हर	ह	ह	र+ह=ह	ह
भ+र=भर	भ	भ	भ	ट+र=टर	ट	ट	र+ख=ख	ख
घ+र=घर	घ	घ	घ	ड+र=डर	ड	ड	र+च=च	च
ख+र=खर	ख	ख	ख	र+ष=ष	र	ष	र+घ=घ	घ
फ+र=फर	फ	फ	फ					

Figure 21: Description of the forms of ʔ RA (from Mhātre 2009: 28).

J

मधरत्नराक्षसीधमरणींक्षीराषियांणींछदतवस्तगाद्यधन
 उफरमेतन्निनमोदीतरुंगरगीनरतरसंधाडियांणींछाद्य
 पयाद्यरणींछेवेणिमिन्वेनपगणाउभगिनरुगिरसीतेंद
 हुनतरसंधाडिउहेनिनघट्टुपघट्ट्यावेतमनवेनिमनघ
 मचेमनघट्टततडिषीघाउपघट्टुकिमयेधंघराहनपणी
 द्यापाखगिनरुमवेतंस्थान्मउमवेदमचेतयेतयेतेतेकिमघ
 धीज्जितेचण्डेठकांम्रतकुमघाउवेसात्वीवरुरीघतात
 धयेत्यादरीतांरुमचेउरदीपुणीपरपठंभाषीयांउकिमघ
 देवांतीयेचयेत्यांणीवेकांगतीपतेवेनिमनघमचेवीता
 डिआरवेमपधेनफुहुतरेनेंमगीप्ररुनहेनिनपाणी
 द्यांरुमचेमनघट्टततउंतोपघेठेठुकिमीयापीषेठि
 धनप्ररीतांवेमपधेनधीधेगमीप्ररुनहेनिनपाणीद्व्यां
 रुमीप्रधीधीणीउरपारनरुमिनिमीनेकांणीरुमचेतं
 स्थान्मचेदीवेरद्याद्यपघट्ट्यादरीतांरुमीहुणीद्व्याप्रम
 णेंपरापुचमगिननीश्र्वहेंदहुनरुमवतींवेन्डिहुंकिम
 चेधीनमगीधंघरापीरुमचाद्यपपुषीमनपुगीछे

Figure 22: Document showing the invocation sign J HUVA (from Strandberg 1983: 192).

• दकार, छकार, इकार इ. संबंधी संकेत •	५१७
याखेरीज रेषेप्रारंभी दकार, छकार, इकार वा शून्य काढण्याचा प्रघात होता. त्याचे स्पष्टीकरण पुढीलप्रमाणे.	
ॐ	बरोबरीच्या जहागीरदार, सरदार इ. ना प्रारंभी द काढून रेषा काढीत आणि त्यावर लेखन सुरू करीत.
ॐ	सामान्य सेवकास पत्र पाठवताना केवळ ई हे अक्षर प्रारंभी काढले जाई.
॥ॐ	अष्टप्रधानातील तोलामोलाच्या पदाधिकाऱ्यास पत्र पाठवताना ई अक्षरापूर्वी दोन उभ्या रेषा काढीत.
॥ॐ	देशमुख, देशकुलकर्णी यांना पत्र लिहिताना भरीव टिब, दोन रेषा व ई हे अक्षर काढीत.
:॥ॐ	बड्या जहागीरदारास वतनदारास पत्र लिहिताना दोन टिब, दोन रेषा व ई कार काढीत.
ॐ	केवळ छ हे अक्षर देशमुख, देशपांडे यांना जाणाऱ्या पत्राच्या प्रारंभी लिहित.
॥छ	काही प्रसंगी विशेष स्नेहभाव व्यक्त करण्यासाठी दोन उभ्या रेषा व छ अक्षरापूर्वी काढत.
ॐ ॥	शून्य देऊन रेषा काढल्याने ब्रह्म्याचा निर्देश केला जाई तर दोन उभ्या रेषा ह्या हरिहराच्या प्रतीक समजत तर द, ई, इत्यादी अक्षराने स्नेहभाव व्यक्त केला जात असे.

Figure 23: Modi signs used as invocations in correspondence. Examples of some signs are given in figure 24.

2

मेधवर्ग
 उमउममधनपुमेवहीनमगधियागो
 पपधोयोममउमकेधंघकमंघजिघम
 मेधवर्ग

पुष्पिणी पद्मी प्रताप न सन्निभ

૧૫
 મોઘીજ્ઞાનવપ્રમોહુદ્યાનવસ્તગમ્ય હી
 ણિવ્યવ્રવનુહીપંડિતપ્રમમનહિરંત્રીયે

॥६॥

मेघीधानपनघमेरुक्वानस्तगाध — एषिरधुन्यधजित्त

सप्तमसखीएजंसीयेशीउठि श्रीवापुनछादुपाधननिमेषासख

॥१॥
मेरी प्रार्थना है कि तुम सब लोग स्वस्थ रहो
और मेरी प्रार्थना है कि तुम सब लोग स्वस्थ रहो

गण एडिटा/हनुमतीपत्राणि २५
दुर्गा/त्रिकुटी/पीठ/त्रिकुटी

43

Figure 25: Document showing Modi written upon ruled lines and in free form (from Dīkṣit and Khobarekar 1969: 209).

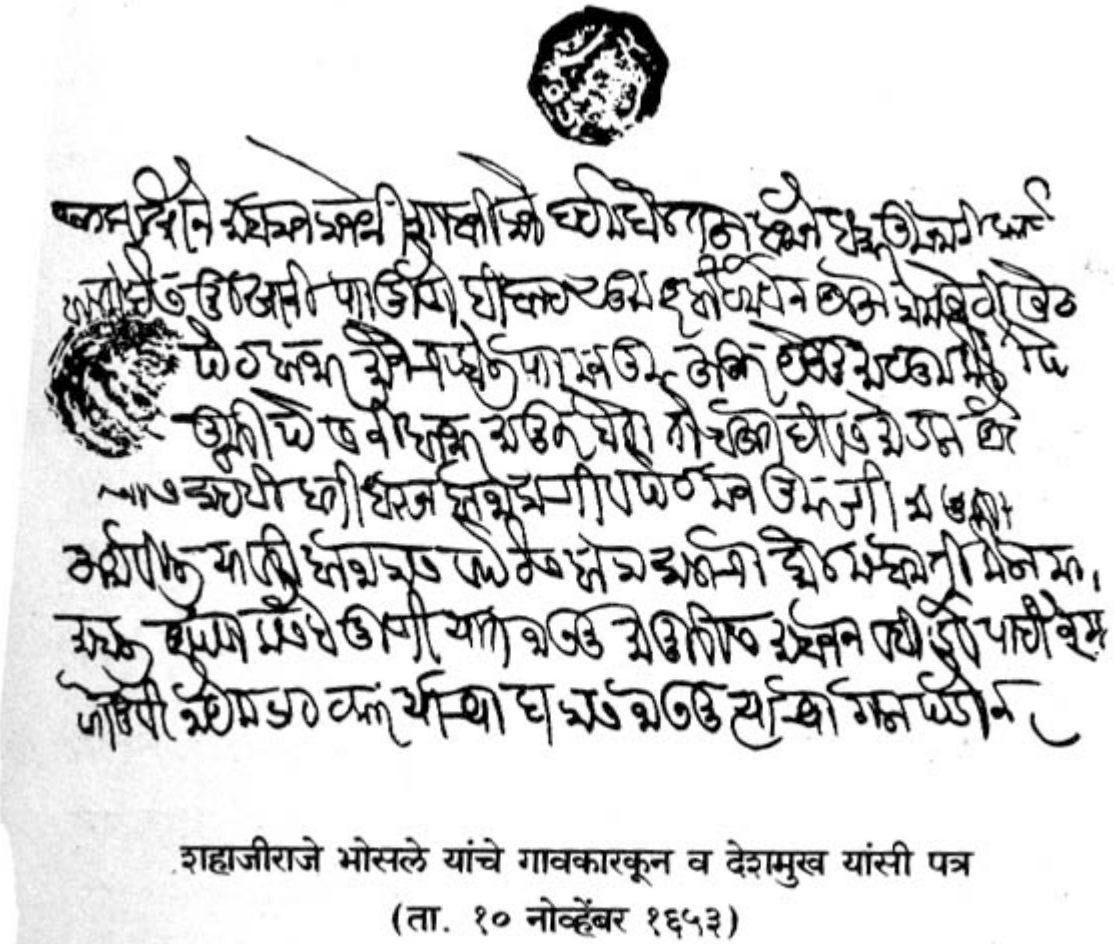
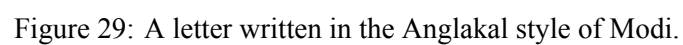


Figure 26: A letter written by Shahaji Raje Bhonsle in the Bahamani style of Modi.

श्री
 जगन्मयां पराशरितसाम्नाय
 जगन्मयां पराशरितसाम्नाय
 पोमय पराशरितसाम्नाय
 पोमय पराशरितसाम्नाय
 पोमय पराशरितसाम्नाय
 पोमय पराशरितसाम्नाय
 पोमय पराशरितसाम्नाय

Figure 28: A letter written by Madhavrao in the Peshve style of Modi.



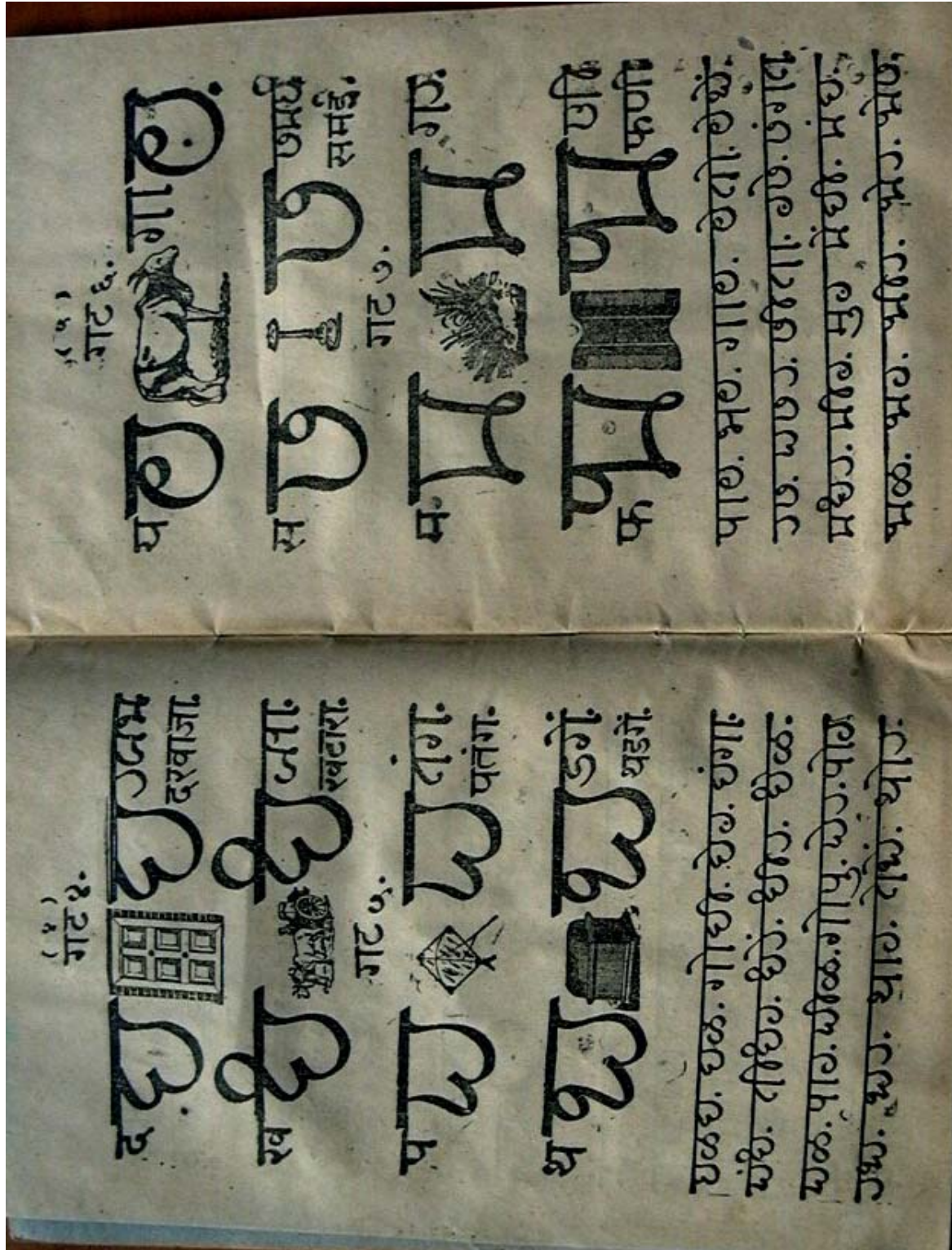


Figure 30: Excerpt from a 20th century Modi school book (from Pathavardhana: 4-5).

श्री

भास्त्रीधूपारिणामन्यभा

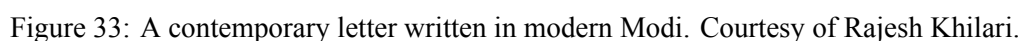
શ્રીમદ્ધનુમદ્ધરુણીગોષ્ઠી

પ્રમાણિત

[illegible]

ਪ੍ਰਭਾਤ ਪੰਨਾ

51



[2]

MAHRATTA DICTIONARY.



वस.

वसणी, *a.* out of debt, not in debt.

वसण्, *a.* not having a piece of the cloth which is worn round the loins tucked in behind.

वसण्चोमण्, *a.* of an unascertained terrific form.

वसण्च, *a.* unspeakable, unfit to be spoken, obscene.

वसण्चनीय, *a.* unspeakable, unutterable, unfit to be spoken, obscene.

scene.

वसण्ण, *a.* ingenuous, frank, honest, sincere.

वसण्णीय, *a.* improper to be done, improper.

वसण्णीदेव, *a.* without bored ears, (an epithet of reproach to a Musulman.)

वसण्णी, *a.* useless.

वसण्णी, *a.* useless, unfit for any purpose, indolent.

वसण्णीण्येरा, *a.* useless, unfit for any purpose, indolent.

वसण्णीण्य, *a.* useless, not fit for any purpose.

वसण्णीय, *a.* unfit to be done.

वक्रा.

वक्रण, *a.* unfeeling, unmerciful.

वक्रण्येरा, *a.* without tergiversation, sincere, undissembled, unadulterated.

वक्रण्ण, *s.* bad fortune, an unfortunate thing.

वक्रण्ण्येरा, *ad.* suddenly, unexpectedly.

वक्रण्ण, *s.* malice, revenge in the mind.

वक्रण्णन, *a.* composed, undisturbed, unanxious.

वक्रण्ण्ये, *s.* useless, improper.

वक्रण्णनण, *a.* causeless, needless, useless.

वक्रण्ण, *a.* out of season, unseasonable. *s.* a famine,

वक्रण्णन, *a.* born out of due time, abortive.

वक्रण्णन्येरा, *a.* born out of the proper time,

वक्रण्ण्ये, *ad.* prematurely.

वक्रण्ण्णन, *a.* destitute, not possessing any thing,

वक्रण्ण्ण्येरा, *a.* unshared, undivided.

वक्रण्ण्ण्ण्येरा, *a.* unartificial, not counterfeited, genuine, pure,

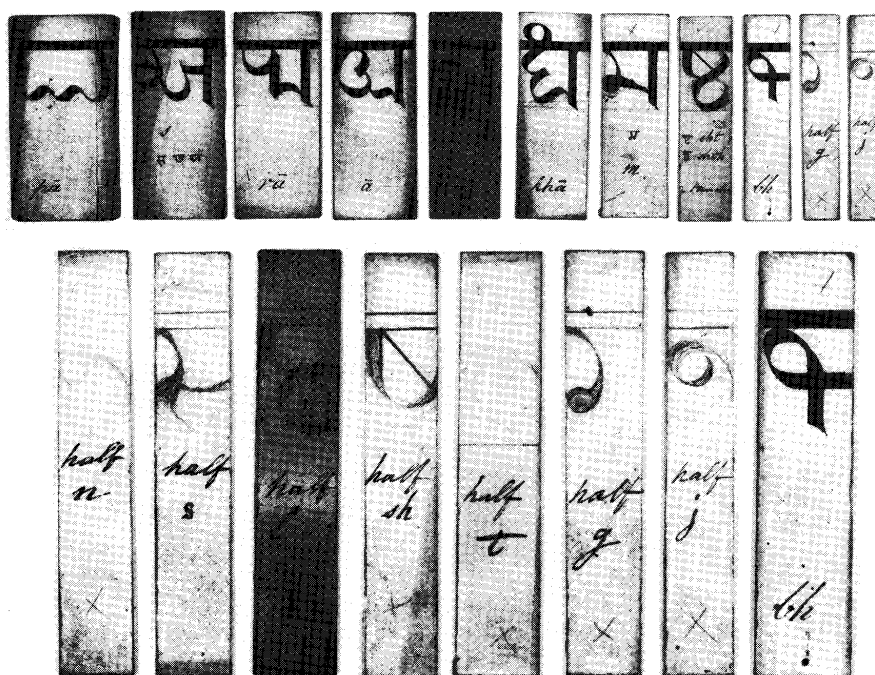
वक्रण्ण्ण्येरा, *s.* an elder sister.

वक्रा, *a.* eleven.

वक्राच, *a.* the eleventh.

वक्राचपीक्राच, *a.* unascertained, uncertain.

Figure 34: Excerpts from Carey's *A dictionary of the Mahratta language* (from Carey 1810: 1–2).



મીઘઈ~ઉંઘઈ~તંત~ઘઈ~તીઘઈ~મીઘ~તાં~મં~મગ~મં~દાળીદં
 ઇ~પન~વદઘાઘન~ઘીઘઈ~ત્યામઈ~તંત~પનમ~ઘીનમ~ઘીસપ~ઘીત્ત્યાચ~
 ઘ્યાપઘાઘાઘત~ત્યાઘત~મીઘતમીંઘણીનપઘઘઘત~તં~ઘીચત~।

क ँ णि ए अ म ई ग घ च छ न स र व ळ
 उ ढ ण त थ द ध न ढ फ य ञ म य र ळ
 प ञ ष उ ण ङ ा ः ि िं ~ ~ ~ ~ ि ~ ~ ~
 म णि क ऋ ऌ ध णि य घ ङ्गि य णि न व णि
 त त्र द ध न णि त ढ णि ण्गि प्र य ष म म णि
 ष रु स ङ ङ्गि ण्गि प श्र ष्ट ङ्गि झ ञ ढ ङ
 ङ ङ ई ग ङ त न श ष ष ण ण ण ण ण
 १ २ ३ ४ ५ ६ ७ ८ ९ १०

55



Figure 38: First page of the *Khabardar*, the first newspaper printed in Modi. Courtesy of Bharat Itihas Sanshodhak Mandal (BISM) and Suresh Pethe.



Figure 39: Cover of *Modi Vaibhav*, a monthly magazine published in Modi. Courtesy of Rajesh Khilari.

**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 Modi 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>2011-11-05</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>Modi</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>79</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>
	<i>See proposal for additional details</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 <http://www.unicode.org/Public/UNIDATA/UCD.html> and associated Unicode Technical Reports for information needed for consideration by the Unicode Technical Committee for inclusion in the Unicode Standard.

¹ Form number: N3702-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)

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.)?	Yes
If YES, with whom?	
Rajesh Khilari <rajeshkhilari@gmail.com> Madhav Deshpande <mmdesh@umich.edu>	
If YES, available relevant documents:	
See citations in text of proposal	
3. Information on the user community for the proposed characters (for example: size, demographics, information technology use, or publishing use) is included?	Yes
Reference:	
Marathi-speaking communities in India and elsewhere; institutions exist for the promotion and use of Modi; historians, linguists, and other specialists in India and Europe. See text of proposal for additional details.	
4. The context of use for the proposed characters (type of use; common or rare)	Common
Reference:	
Administrative documents from the Maratha period and from European countries with former presence in Marathi-speaking regions of South Asia. Also, personal correspondence and private documents of Marathi speakers See text of proposal for additional details.	
5. Are the proposed characters in current use by the user community?	Yes
If YES, where? Reference:	
There is an active scholarly community, primarily in Maharashtra, India and in parts of Europe, engaged in the study of Modi and documents written in the script. See text of proposal for further details.	
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:	
See text of proposal.	
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:	
Combining vowel signs; see text of proposal	
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?	Yes
If YES, describe in detail (include attachment if necessary)	
Virama; see text of proposal	
13. Does the proposal contain any Ideographic compatibility character(s)?	No
If YES, is the equivalent corresponding unified ideographic character(s) identified?	
If YES, reference:	