Title
Proposal to Encode the Kaithi Script in ISO/IEC 10646

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Proposal to Encode the Kaithi Script in ISO/IEC 10646

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December 13, 2007

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A. Administrative

1. Title: Proposal to Encode the Kaithi Script in ISO/IEC 10646
2. Requester’s name: University of California, Berkeley Script Encoding Initiative (Universal Scripts Project); author: Anshuman Pandey (pandey@umich.edu)
3. Requester type (Member Body/Liaison/Individual contribution): Liaison contribution
4. Submission date: December 13, 2007
5. Requester’s reference (if applicable): N/A
6. Choose one of the following:
   (a) This is a complete proposal: Yes
   (b) or, More information will be provided later: No

B. Technical - General

1. Choose one of the following:
   (a) This proposal is for a new script (set of characters): Yes
      i. Proposed name of script: Kaithi
   (b) The proposal is for addition of character(s) to an existing block: No
      i. Name of the existing block: N/A
2. Number of characters in proposal: 71
3. Proposed category: C - Major extinct
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. Who will provide the appropriate computerized font (ordered preference: True Type, or PostScript format) for publishing the standard?: Anshuman Pandey; True Type format
   (a) If available now, identify source(s) for the font and indicate the tools used: The letters of the digitized Kaithi font are based on normalized forms of letters of Kaithi metal fonts and, in some cases, on written forms. The font was drawn by Anshuman Pandey with Metafont and converted to True Type with FontForge.
6. References:
   (a) Are references (to other character sets, dictionaries, descriptive texts etc.) provided?: Yes
   (b) Are published examples of use (such as samples from newspapers, magazines, or other sources) of proposed characters attached?: Yes
7. Special encoding issues:
   (a) Does the proposal address other aspects of character data processing (if applicable) such as input, presentation, sorting, searching, indexing, transliteration etc. (if yes please enclose information)? Yes; see proposal for additional details.
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. Character properties and numeric information are included.
C. Technical - Justification

1. Has this proposal for addition of character(s) been submitted before?: Yes; this proposal is a revision of “Proposal to Encode the Kaithi Script in Plane 1 of ISO/IEC 10646” (L2/05-343).
2. Has contact been made to members of the user community (for example: National Body, user groups of the script or characters, other experts, etc.)? No
   (a) If Yes, with whom?: N/A
      i. If Yes, available relevant documents: N/A
3. Information on the user community for the proposed characters (for example: size, demographics, information technology use, or publishing use) is included? Yes
   (a) Reference: Awadhi, Bhojpuri, Magahi, and Maithili speakers; as well as linguists, historians, legal scholars working with sources from colonial South Asia.
4. The context of use for the proposed characters (type of use; common or rare): Common
   (a) Reference: Court records from colonial India, pedagogical materials from north India, commercial and accounting records; religious and literary texts; bibles printed in north India during the 19th and early 20th century.
5. Are the proposed characters in current use by the user community?: It is difficult to ascertain if Kaithi is presently used in India. However, specialists in the fields enumerated in C.3(a) are actively using the script.
   (a) If Yes, where? Reference: In India, the United States, and other localities.
6. After giving due considerations to the principles in the P&P document must the proposed characters be entirely in the BMP?: No
   (a) If Yes, is a rationale provided?: N/A
      i. If Yes, reference: N/A
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
   (a) If Yes, is a rationale for its inclusion provided?: N/A
      i. If Yes, reference: N/A
9. Can any of the proposed characters be encoded using a composed character sequence of either existing characters or other proposed characters? No
   (a) If Yes, is a rationale provided?: N/A
      i. If Yes, reference: N/A
10. Can any of the proposed character(s) be considered to be similar (in appearance or function) to an existing character? Yes
    (a) If Yes, is a rationale for its inclusion provided? Yes
       i. If Yes, reference: See text of proposal
11. Does the proposal include use of combining characters and/or use of composite sequences? Yes
    (a) If Yes, is a rationale for such use provided? Yes
       i. If Yes, reference: See text of proposal
    (b) Is a list of composite sequences and their corresponding glyph images (graphic symbols) provided? Yes
       i. If Yes, reference: See text of proposal
12. Does the proposal contain characters with any special properties such as control function or similar semantics? Yes
    (a) If Yes, describe in detail (include attachment if necessary): Virama
13. Does the proposal contain any Ideographic compatibility character(s)? No
    (a) If Yes, is the equivalent corresponding unified ideographic character(s) identified? N/A
       i. If Yes, reference: N/A
1 Introduction

This is a proposal to encode the Kaithi script in the Supplementary Multilingual Plane (Plane 1) of the Universal Character Set (ISO/IEC 10646).

1.1 Description

Kaithi is a major independent writing system that was used throughout northern India, in the region encompassing the modern states of Bihar and Uttar Pradesh. The script was also used in Mauritius, Trinidad, and other areas that were populated by north Indian diaspora communities. Kaithi was used for writing Bhojpuri, Magahi, Urdu, and several other regional languages allied with Hindi.

Kaithi is a distinct writing system with an independent scribal and printing tradition. It is related to Devanagari, Gujarati, and other major north Indic scripts in much the same way as the latter scripts are related to each other. Kaithi is considered the ancestor of Syloti Nagri, Mahajani, and other scripts. On account of its strong scribal tradition, Kaithi was used alongside Devanagari, Persian, and other scripts commonly used in northern India. Several of these bimodal documents are preserved.

The importance of Kaithi in north Indian society can be measured by the activities for which it was employed and by the number of materials written and printed in the script. Use of Kaithi for administrative purposes is attested from at least the 16th century through the first decade of the 20th century. Kaithi was also used for routine writing, commercial transactions, correspondence, and personal records. Despite its characterization as a secular script, Kaithi was also used for writing religious and literary manuscripts.

The significance of Kaithi grew when the British governments of the Bengal Presidency (of which Bihar was a territory) and the North-Western Provinces & Oudh (hereafter, NWP&O) selected the script for use in administration and education. The first impetus of growth was the standardization of written Kaithi in 1875 by the government of NWP&O for the purpose of adapting the script for use in formal education. The second was the selection of Kaithi by the government of Bihar as the official script of the courts and administrative offices of the Bihar districts in 1880. Thereafter, Kaithi replaced the Persian script as the writing system of record in the judicial courts of Bihar. Additionally, on account of the rate of literacy in Kaithi, the governments of Bihar and NWP&O advocated Kaithi as the medium of written instruction in their primary schools.

The standardization of Kaithi was followed by the development of metal fonts and printing facilities for the script. The British government printed census schedules and accounting records in Kaithi. Private Indian publishers also printed books in Kaithi; however, printing in Kaithi was furthest developed and propagated by Western missionaries, who, recognizing the popularity of Kaithi, preferred it over Devanagari for printing translations of Christian literature in the regional languages of north India.

Kaithi remained the popular script for the languages of northern India until the early 20th century, at which time it yielded to the growing importance of Devanagari. The script was also maintained in areas outside of South Asia by the descendants of north Indian emigrants. Government gazetteers report that Kaithi was used in a few districts of Bihar through the 1960s. It is possible that Kaithi is still used today in very limited capacity in these districts and in rural areas of north India. Nevertheless, on account of the magnitude of documents in Kaithi, the script remains important to modern scholars working with such sources.

1.2 Justification for Encoding

An encoding for Kaithi in the Universal Character Set (UCS) will benefit users who require the ability to preserve, represent, and reproduce written and printed Kaithi documents in digital media. A standard encoding for Kaithi will provide users with the means to identify, store, and process Kaithi text in electronic
plain-text, not merely at the graphical presentation level. The identification of Kaithi in plain-text is required for properly distinguishing between Kaithi and other scripts in bисcriptual documents.

There is active research in India and the United States on Kaithi source materials. Specialists in the United States are studying court records from Bihar written in Kaithi. Archivists of the Government of India are engaged in a project to preserve manuscripts in Kaithi. Non-specialist users are seeking to preserve personal records in the script. A digital standard for Kaithi will benefit individual researchers and preservation projects and will contribute to further study of the Kaithi script and source materials.

1.3 Acknowledgments

This project was made possible in part by a grant from the United States National Endowment for the Humanities (NEH), which funded the Universal Scripts Project (part of the Script Encoding Initiative at the University of California, Berkeley).

Digital reproductions of folios from a manuscript of the Mahāganapatīstotra (shown in Figure 19 and Figure 20) are used here with permission from the University of Pennsylvania Libraries.

A digital reproduction of a folio from a manuscript of the Tale of Sudama (shown in Figure 29) is used here with permission from Sam Fogg, London.

Several fonts are used in this proposal for the comparison of Kaithi with other scripts. The Devanagari font was designed by Frans Velthuis for his “devnag” package for the \( \TeX \) typesetting system. The “New Surma” font for Syloti Nagri was developed by Sylheti Translation and Research (STAR). The “ItXGuj” font for Gujarati was developed by Shrikrishna Patil.

1.4 Proposal History

This proposal is a revision of the draft proposal titled “Proposal to Encode the Kaithi Script in Plane 1 of ISO/IEC 10646” (L2/05-343), submitted to the Unicode Technical Committee on October 25, 2005. It incorporates recommendations made by Michael Everson in “Towards an encoding of the Kaithi script in the SMP of the UCS” (ISO/IEC JTC1/SC2/WG2 N3014 L2/05-368) upon a review of L2/05-343.

The major differences between the draft proposal and the present revision are the addition of KAITHI LETTER NGA and KAITHI LETTER NYA; the removal of dançōs and the word and sentence separators; and the removal of fraction and unit signs. The fraction and unit signs were proposed for separate encoding by the present author in “Proposal to Encode North Indic Number Forms in ISO/IEC 10646” (ISO/IEC JTC1/SC2/WG2 N3367 L2/07-354) and accepted by the UTC on August 9, 2007. The present version of this proposal also contains additional specimens that further demonstrate the importance of the Kaithi writing system and the significance of its scribal and printing traditions.
2 Characters Proposed

The 71 letters in this proposal comprise the core set of Kaithi letters and signs. This set is sufficient for the general encoding and processing of Kaithi documents.

Consonants There are 35 consonant letters:

- KAITHI LETTER KA
- KAITHI LETTER KHA
- KAITHI LETTER GA
- KAITHI LETTER GHA
- KAITHI LETTER CA
- KAITHI LETTER CHA
- KAITHI LETTER JA
- KAITHI LETTER JHA
- KAITHI LETTER NYA
- KAITHI LETTER TTA
- KAITHI LETTER TT THA

Vowels There are 10 independent vowels:

- KAITHI LETTER A
- KAITHI LETTER AA
- KAITHI LETTER I
- KAITHI LETTER II

Vowel Signs There are 9 dependent vowel signs:

- KAITHI VOWEL SIGN AA
- KAITHI VOWEL SIGN I
- KAITHI VOWEL SIGN II

Various Signs There are 5 various signs:

- KAITHI SIGN CANDRABINDU
- KAITHI SIGN ANUSVARA

Digits There are 10 digits:

- KAITHI DIGIT ZERO
- KAITHI DIGIT ONE
- KAITHI DIGIT TWO
- KAITHI DIGIT THREE

Punctuation There are 2 punctuation marks:

- KAITHI ABBREVIATION SIGN
- KAITHI ENUMERATION SIGN
2.1 Characters Not Proposed

The following characters are attested in printed and written Kaithi materials, but they are not proposed for consideration at present for one or more of the following reasons: (a) insufficient information regarding the characters and their properties; (b) the possibility of representing a character with another of similar or equal function; or (c) a policy recommendation made by the UTC. Space is available in the Kaithi block to accommodate the possible inclusion of these characters in the future.

LETTER VOCALIC R  Two sources show the use of छ Vowel Sign Vocalic R in Kaithi (see discussion in section 5.2). However, the sources do not indicate an independent Kaithi LETTER VOCALIC R, which would be the equivalent of ऋ U+090B DEVANAGARI LETTER VOCALIC R (r). Since an independent Kaithi LETTER VOCALIC R has not been identified, it is unclear if the dependent vowel sign should be proposed for encoding.

DANDA and DOUBLE DANDA  The Unicode Standard currently recommends the use of U+0964 DEVANAGARI DANDA and U+0965 DEVANAGARI DOUBLE DANDA when these signs are to be used with other Indic scripts. The consensus is that introducing script-specific ḍandās is similar to introducing distinct punctuation, as commas and periods, for each script. As for Indic scripts, the claim may be made for Kaithi that script-specific ḍandās are necessary to ensure stylistic compatibility between ḍandās and other characters. However, the UTC has stated that unless evidence is presented to warrant the encoding of script-specific ḍandās, the recommendation is to unifying these characters with those of Devanagari. Although several specimens show distinctive Kaithi ḍandās, they are not sufficiently distinct typologically to justify disunion with Devanagari ḍandās. See section 5.8 for further discussion.

WORD SEPARATOR and SENTENCE SEPARATOR  A previous version of this proposal suggested the encoding of two punctuation characters for delimiting word and sentence boundaries. These were ← KAITHI WORD SEPARATOR and = KAITHI SENTENCE SEPARATOR. The usage and shapes of these characters is not consistent in Kaithi texts. Furthermore, existing characters in the UCS are semantically adequate for representing such punctuation, namely the U+2E37 WORD SEPARATOR MIDDLE DOT for word boundaries, U+0964 DEVANAGARI DANDA, and U+0965 DEVANAGARI DOUBLE DANDA for paragraph, sentence, and other line terminations and boundaries. See section 5.7 for further discussion.

2.2 Basis for Character Shapes

The Kaithi script proposed for encoding in the UCS is the Standard Kaithi developed by the British governments of Bihar and the NWP&O in the 19th century. The proposed script is an extension of Standard Kaithi that includes letters that are attested in manuscripts, printed books, alphabet charts, and other character inventories of the script. These lesser-used letters are KAITHI LETTER NGA, KAITHI LETTER NYA, KAITHI LETTER NNA, and KAITHI LETTER SSA (see Figure 41 and Figure 42).

The characters of the proposed Kaithi script are normalized forms of characters of the Kaithi metal font developed by George A. Grierson for use in the Linguistic Survey of India, which is representative of Standard Kaithi. While Grierson’s fonts do not contain the rare letters mentioned above, the fonts produced by the Baptist Mission Press of Calcutta contain these letters. The forms of the rare letters are based on the forms cut by the Baptist Mission Press. Digits and punctuation are derived from forms found in manuscripts and script charts. The sources for the proposed characters are shown in Table 2 (consonants), Table 3 (vowels), and Table 4 (nasal consonants). Kaithi typefaces and regional styles are discussed further in section 5.16.

The font for the proposed Kaithi script was drawn by Anshuman Pandey. The digitized letterforms were designed to express fidelity to the appearance of Kaithi fonts used in the Linguistic Survey of India.
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Table 1: Glyph chart and character names and properties for the Kaithi script.
<table>
<thead>
<tr>
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<th>B</th>
<th>C</th>
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</table>

Table 2: Comparison of consonant letters in Kaithi fonts used by Grierson in the Linguistic Survey of India (columns ‘A’ and ‘B’) and by the Baptist Mission Press (columns ‘C’ and ‘D’) with the digitized Kaithi font developed by Anshuman Pandey (column ‘E’).
### Table 3: Comparison of vowel letters of Kaithi fonts used by Grierson in the *Linguistic Survey of India* (columns ‘A’ and ‘B’) and by the Baptist Mission Press (columns ‘C’ and ‘D’) with the digitized Kaithi font developed by Anshuman Pandey (column ‘E’). Note: AM represents letter A with sign anusvara; AH represents letter A with sign visarga.

<table>
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<tr>
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</table>

### Table 4: Comparison of regional variants of the nasal consonant letters found in hand-written Kaithi with the digitized form (column 4). Characters taken from Grierson (1899: Plate II).

<table>
<thead>
<tr>
<th></th>
<th>TIRHUTI</th>
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<th>MAGAHI</th>
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<tr>
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</tbody>
</table>
3 Technical Features

3.1 Name

The name of the script in the UCS shall be Kaithi. The Latin transliteration as recommended by ISO 15919 is Kaithi.\(^1\) This proposal uses the name ‘Kaithi’ without diacritics.

3.2 Classification

Kaithi is classified as a “Category C” (major extinct) as per the criteria specified in ISO/IEC JTC 1/SC 2/WG 2 N3002.\(^2\) Kaithi is historically significant and there exists a substantial body of literature written and printed in the script.

3.3 Allocation

Kaithi is currently allocated in the Supplementary Multilingual Plane (SMP) (Plane 1) of the UCS at the range U+11080..U+110CF.\(^3\) The five rows allocated for Kaithi in the SMP are sufficient for encoding the script and provide space for the inclusion of additional characters, should the need arise. The glyph chart in Table 1 shows the characters proposed for encoding.

3.4 Encoding Model

The Kaithi script is an abugida of the Brahmic type. It is written from left to right. The formation of syllables in Kaithi follows the pattern common to north Indic scripts. The encoding model for Kaithi may be based on the model implemented for Devanagari.

Consonant letters bear the inherent vowel \(a\) (KAITHI LETTER A) when unaccompanied by a vowel sign. The inherent vowel is changed by applying a vowel sign to the consonant. Vowel signs are placed above, below, and to the right of the consonant to which they are applied. The exception is KAITHI VOWEL SIGN I, which is written to the left of the consonant. The inherent vowel is suppressed by the virama (KAITHI SIGN VIRAMA) to produce the bare consonant.

A sequence of consonants (in which all but the final consonant is bare) is written as a consonant conjunct, which may occur as (a) a true ligature; (b) half-forms of all consonants in the cluster except the final consonant, which assumes a full form; and (c) a sequence of full-form consonants marked with an explicit virama except for the final consonant.

3.5 Character Properties

Vowels  All independent vowels have the following properties:

- General Category: Lo (Letter, Other)
- Combining Class: 0 (Spacing, split, enclosing, reordrant, and Tibetan subjoined)
- Bidirectional Class: L (Left-to-Right)

Vowel Signs  The dependent vowel signs are divided into two classes based upon their spacing attributes. The first class consists of the non-spacing marks KAITHI VOWEL SIGN U, KAITHI VOWEL SIGN UU, KAITHI VOWEL SIGN E, and KAITHI VOWEL SIGN AI, which have the following properties:

General Category: Mn (Mark, Nonspacing)
Combining Class: 0 (Spacing, split, enclosing, reordrant, and Tibetan subjoined)
Bidirectional Class: NSM (Non-Spacing Mark)

The second class consists of the spacing marks **kaithi vowel sign aa**, **kaithi vowel sign i**, **kaithi vowel sign ii**, **kaithi vowel sign o**, and **kaithi vowel sign au**, which have the following properties:

- General Category: Mc (Mark, Spacing Combining)
- Combining Class: 0 (Spacing, split, enclosing, reordrant, and Tibetan subjoined)
- Bidirectional Class: L (Left-to-Right)

**Consonants** All consonants have the following properties:

- General Category: Lo (Letter, Other)
- Combining Class: 0 (Spacing, split, enclosing, reordrant, and Tibetan subjoined)
- Bidirectional Class: L (Left-to-Right)

**Various Signs** The **kaithi sign candrabindu** and **kaithi sign anusvara** are non-spacing marks that belong to the general category “Mn,” are of combining class “0,” and possess the bidirectional class value “NSM.”

The **kaithi sign visarga** is a spacing mark that belongs to the general category “Mc,” is of combining class “0,” and possesses the bidirectional class value “NSM.”

The **kaithi sign virama** is a non-spacing mark that belongs to the general category “Mn,” has a combining class value of “9” (Viramas), and has the bidirectional class value “NSM.”

The **kaithi sign nukta** is a non-spacing mark that belongs to the general category “Mn,” has a combining class value of “7” (Nuktas), and is of the bidirectional class value “NSM.”

**Punctuation** The **kaithi abbreviation sign** and **kaithi enumeration sign** have the following properties:

- General Category: Po (Punctuation, Other)
- Combining Class: 0 (Spacing, split, enclosing, reordrant, and Tibetan subjoined)
- Bidirectional Class: L (Left-to-Right)

**Digits** All digits have the following properties:

- General Category: Nd (Number, Decimal Digit)
- Combining Class: 0 (Spacing, split, enclosing, reordrant, and Tibetan subjoined)
- Numerical Value: {0, 1, 2, 3, 4, 5, 6, 7, 8, 9}
- Bidirectional Class: L (Left-to-Right)

### 3.5.1 Unicode Character Database Format

The properties for Kaithi characters in the Unicode Character Database format are:

- 11080;KAITHI SIGN CANDRABINDU;Mn;0;NSM;;;;;
- 11081;KAITHI SIGN ANUSVARA;Mn;0;NSM;;;;;
- 11082;KAITHI SIGN VISARGA;Mc;0;L;;;;;
- 11083;KAITHI LETTER A;Lo;0;L;;;;;
- 11084;KAITHI LETTER AA;Lo;0;L;;;;;
- 11085;KAITHI LETTER I;Lo;0;L;;;;;
- 11086;KAITHI LETTER II;Lo;0;L;;;;;
- 11087;KAITHI LETTER U;Lo;0;L;;;;;
- 11088;KAITHI LETTER UU;Lo;0;L;;;;;
- 11089;KAITHI LETTER E;Lo;0;L;;;;;
### 3.6 Collation

The collating order for Kaithi is dependent upon the language represented. Generally, languages written in Kaithi follow the sort order used for modern standard Hindi. Independent vowel letters are sorted before consonant letters. Charts and tables of Kaithi and other north Indic scripts are inconsistent in their placement of the signs candrabindu, anusvāra, and visarga with regard to the vowels. In some sources they appear at the beginning of the vowels and at the end in others. The collation pattern used in modern Hindi dictionaries places these signs at the head of the vowel order and written in combination with Kaithi letter a.

The preferred collating order for candrabindu, anusvāra, visarga, and independent vowels in Kaithi is:

\[
\text{aṁ ām aḥ a ā i ī u ū e ē i ī o ō āu}
\]

Dependent vowel signs are sorted in the same position as their independent shape. Consonants with dependent vowels are sorted first by consonant letter and then by the vowel sign (including candrabindu, anusvāra, and visarga) attached to the letter:

\[
\text{kaṁ kaḥ ka kā ki kī ku kū ke kai ko kau}
\]

The pattern for consonants is as follows:

\[
\text{ka kha ga gha ṅa ca cha ja jha ŋa ṭa ṭha ṭa ra ṭha ṭa ṇa ṇa ta}
\]

The letter DDSHA is sorted in the same position as DDA, and RHA is sorted with DDHA. Cases in which the only difference between lexical forms is the unflapped and flapped retroflex stops (or nukta and non-nukta forms), eg. _padhanā and parhanā, the unflapped letter is sorted first. All letters written with Kaithi sign nukta are sorted by the same principle.

In some sources, the dental nasal NA, is used as the homorganic nasal letter in nasal-consonant conjuncts for all articulation classes except for the labial class (see Figure 40). The NA should be sorted as a member of the class to which the accompanying consonant in the conjunct belongs (see section 5.4 for further details).

### 3.7 Typology of Characters

On account of their structure Kaithi consonant letters may be grouped into four typological classes:

1. **Class 1**: Letters with full-height descenders:

\[
\text{ka kha ga gha ca ŋa na tha dha na}
\]

2. **Class 2**: Letters with short descenders at the top:

\[
\text{pa ba bha ma ya ra va śa śa sa ha}
\]
3. Class 3: Letters with rounded tops and no full-height descenders:

\[
\begin{array}{cccc}
\text{na} & \text{ta} & \text{dha} & \text{rha} \\
\end{array}
\]

\[
\begin{array}{cccc}
\text{cha} & \text{ja} & \text{ta} & \text{la} \\
\end{array}
\]

4. Class 4: Letters with right-facing hooked tops and no full-height descenders:

\[
\begin{array}{cccc}
\text{jha} & \text{pha} & \text{da} & \text{ra} & \text{da} & \text{ha} \\
\end{array}
\]

The structure of letters influences the placement of vowel signs, \textit{anusvāra}, \textit{virāma}, and \textit{nukta}:

- For Class 1 letters, above-base and below-base vowel signs are joined to the appropriate extremes of the descender. The \textit{anusvāra} is centered above the top extreme of the descender. The \textit{virāma} may be connected to the descender or positioned below it.

Examples: \(]\text{ku}; \text{cu}; \text{mu}; \text{su}; \text{ke}; \text{ne}; \text{re}; \text{paṃ}; \text{n}\)

- For Class 2 letters, above-base vowel signs are attached to the top of the descender and below-base vowel signs are centered below the letter. The \textit{anusvāra} is positioned above the top extreme of the descender. The \textit{virāma} is centered below the letter.

Examples: \(]\text{dh}; \text{te}; \text{de}; \text{phe}; \text{taṃ}; \text{ph}\)

- For Class 3 letters, above-base vowel signs are attached to the center of the top curve and below-base vowel signs are centered below the letter. The \textit{anusvāra} is centered above the letter. The \textit{virāma} is centered below the letter.

Examples: \(]\text{chu}; \text{lu}; \text{je}; \text{taṃ}; \text{l}\)

- For Class 4 letters, above-base vowel signs are attached to the end of the hook and below-base vowel signs are centered below the letter. The \textit{anusvāra} is centered above the letter. The \textit{virāma} is centered below the letter.

Examples: \(]\text{jhu}; \text{the}; \text{he}; \text{dam}; \text{th}\)
4 Background

4.1 Origins

Kaithi is traditionally associated with the scribal community, the Kayasthas, of north India and its literary practices.\(^4\) As such, Kaithi is regarded as a secular script used for routine purposes and differentiated from formal scripts like Devanagari, which were reserved for literary uses.

Based upon its structural characteristics and geographic distribution, Kaithi is classified among the eastern group of scripts used for the New Indo-Aryan languages; which also includes Bengali, Maithili, and Oriya.\(^5\) These scripts are descended from the Proto-Bengali or Gaudī branch of Nagari, which is derived from the Gupta script. Suniti Kumar Chatterji states that

> the old Dēva-nāgarī style of the Indian alphabet which prevailed in Northern and Western India [which is the Gupta or ‘Proto-Nāgarī’ script] from the 7th century, namely, the «Kaithi» script, came to Magadha by way of the Bhōjpuriyā tract; and this Kaithi alphabet has held the ground till now. Kaithi because of its simplicity has spread to Mithilā as well, where only the Brāhmans and other upper classes keep up the old Maithilī character.\(^6\)

There is insufficient information to establish a date regarding the origin of Kaithi. It is clear that Kaithi had developed into an independent and important writing system by the 16th century, during which time it was used in the official documents of Sher Shah Suri (1486–1545), the founder of the Sur dynasty of northern India.\(^7\) Manuscripts from the 17th century suggest that Kaithi was well-established as a medium for literary production.\(^8\) By this time, the script had spread beyond the clerical domain and was adapted for general usage. By the 19th century, Kaithi was recognized as an official script of British administration in Bihar and NWP&O, and metal fonts for the script were developed.

4.2 Name

The name ‘Kaithi’ (कैथी) is derived from the Sanskrit term कायस्थ kāyastha, which refers to the name of the scribal community of north India.\(^9\) The term kaitthi is the colloquial rendition of kāyastha or kāyathī, which means “scribal” or “of the scribe.” The script is also referred to as Kaithināgarī. During the British period, the name was romanized as ‘Kayathi’. This was later simplified to ‘Kaithi’ and was adopted by the Government of Bihar as the official name and Latin spelling of the script. The name Kaithi is transliterated in British books as both ‘Kaithi’ and ‘Kaithí’.

4.3 Definitions

It is possible to establish three different meanings of ‘Kaithi’.

1. The formal name of a historical script used in Bihar and northern India.
2. The name of a family of scripts used throughout northern India.
3. The name of a style of writing.

The Kaithi being proposed here for encoding in the UCS is (1), the formal name of a historical script used in Bihar, NWP&O, and throughout northern India.

Style of Writing  Kaithi is used to refer to a style of writing, similar to the terms ‘Mahājanī’, ‘Moḍī’, and ‘Lānda’. These terms refer to particular styles of writing and to the formal names for distinct regional historical scripts, eg. Modi in Maharashtra, Mahajani in Rajasthan, Landa in Panjab. As terms for writing styles, these names refer to scripts used for routine purposes that were adapted for rapid writing without

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regard for accuracy or consistency. The terms themselves are adjectives that describe the perceived nature of the styles. As such, kaithī means ‘scribal’, mahājanī means ‘mercantile’, modī means ‘bent’, lanḍā means ‘clipped’. Other terms such as sarrāfī ‘banker’ and vāṇiārī ‘mercantile’ are used to refer to further derivatives of these script styles.

Class of Scripts These scripts are contrasted from those that are called nāgarī, a term meaning ‘urbane’ or ‘refined’, which are considered more formal writing styles. Nowadays, the term Nagari is almost synonymous with Devanagari, but Nandinagari and Jaimanagari are historically distinct regional scripts that were also called Nagari. The term Nagari, however, is also polysemic. Nagari also refers to the western script family that that evolved from the Gupta Brahmi script, the other two being the northern-western Sharada and the eastern Gaudi, or proto-Bengali, the ancestor of Kaithi. The scripts that descended from the Nagari script may be considered to be of the nāgarī class. Therefore, since Kaithi is descended from the Nagari branch of Gupta, it is accurate to state that the kaithī class of scripts are a subtype of the nāgarī class, or that Kaithi is a Nagari script just as Devanagari is a Nagari script. Figure 43 shows the relationship of Indic scripts depicted as a family tree, in which Kaithi and Devanagari are sibling members of the Nagari family.

4.4 Languages Written in the Script

Kaithi was the traditional script of the Bhojpuri and Magahi languages, and the popular script of the Awadhi and Maithili languages. At present, these languages are written in Devanagari. Kaithi was also used to write Urdu or the “Hindustani” lingua franca, although now the Perso-Arabic script is associated with Urdu.

‘Bihari’ Several sources refer to Kaithi as the script of the ‘Bihari’ language. This association is misleading since there is no ‘Bihari’ language or family term. The term ‘Bihari’ was introduced by Grierson for referring collectively to the Eastern sub-family of the Modern Indo-Aryan languages, which includes Bhojpuri, Magahi, and Maithili. Grierson wrote, “Bihāri means properly the language of Bihar” and it “occupies a middle place between Bengali and Eastern Hindi.”

Similarly, Hoernle wrote that Kaithi is the script of ‘Eastern Hindi’, a term that refers to Bhojpuri, Magahi, and Maithili. It is for this reason that Kaithi is called a ‘Bihari’ script; however, its geographic distribution and influence extended beyond the districts of Bihar (see section 6 for further discussion).

Awadhi Kaithi was the common script for Awadhi, which is spoken predominantly in Uttar Pradesh and also in Nepal, Madhya Pradesh, and Bihar. Historically, Awadhi was written in both Kaithi and Devanagari. The Baiswari variety of Awadhi was also written in Kaithi. By the early 20th century, Devanagari had completely replaced Kaithi as the formal script for Awadhi, it was used for informal communication through the middle of the century. A specimen of Awadhi written in Kaithi appears in Figure 10.

Bhojpuri Kaithi was the traditional script for Bhojpuri, which is spoken predominantly in Uttar Pradesh and Bihar, with significant speaker populations in Madhya Pradesh and in Nepal. Bhojpuri speakers are also found outside of South Asia in Mauritius, Guyana, Trinidad, South Africa, Suriname, and Fiji; locations where the Kaithi scripts was also used. Presently, Devanagari is used for literary and formal activity in Bhojpuri. But, it is suggested that Kaithi is still used for informal communication. Ethnologue also suggests current activity. A specimen of Bhojpuri written in Kaithi appears in Figure 6 and a printed specimen in Figure 14.

Magahi Kaithi was the traditional script of Magahi, which is spoken predominantly in Bihar, with significant populations of speakers in Jharkhand, and West Bengal. Devanagari is now preferred for formal use in

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11 Grierson, 1903b: 1.
12 “Closely related to the Bengali script are the Gujarati and Kaithi scripts which were developed for writing the Gujarati and Bihari languages, respectively. Bihari is now written with Devanagari” (Coulmas, 1991: 190).
13 Hoernle, 1880: 1.
14 Grierson, 1904a: 14.
15 Hoernle, 1880: vii.
17 Grierson, 1903b: 48.
21 Grierson, 1903b: 35.
and literary activity, but research suggests that Kaithi may still be used for “personal communication and in semi-legal transactions.”22 A specimen of Magahi written in Kaithi is given in Figure 8 and a printed specimen in Figure 12.

Maithili Maithili is spoken in Bihar and Nepal. In 2004, it was included in the Eighth Schedule of the Constitution of India and recognized as an official language of India. Maithili is traditionally written in the Mithilāksara (also known as Tirahuta script). Brahmins used the Mithilāksara script, while Kayasthas and other communities used Kaithi.23 Devanagari began to replace both Kaithi and the Maithili script at the turn of the twentieth century.24 A specimen of Maithili written in Kaithi appears in Figure 7 and a printed specimen is given in Figure 13.

Urdu Kaithi was used for writing Urdu in the law courts of Bihar when it replaced Perso-Arabic as the official script during the 1880s. The majority of extant legal documents from Bihar from the British period are in Urdu written in Kaithi. There is a substantial number of such manuscripts, specimens of which are given in Figure 21, Figure 22, and Figure 23.

Other Languages At times languages spoken in areas bordering the Kaithi region were written in the script. Kaithi was used for writing Bengali on the border of Bihar and Bengal.25 A specimen of Bengali in Kaithi appears in Figure 11. On the Western periphery in Rajasthan, the Marwari language was at times written in Kaithi; a specimen of which appears in Figure 29.

4.5 Standardization and Growth

The Education Commission Report (1884) for Bihar states that “the Persian character was much affected by the higher classes of Muhammadans and learned Hindus; but the Kaithi character was known and used in every village in Behar by Hindus and Muhammadans alike.”26 The popularity of Kaithi captured the attention of the British administrators of the Bengal Presidency. In 1880, Sir Ashley Eden, the Lieutenant-Governor of Bengal, issued a directive that established Kaithi as the official script of the Bihar government and ordered its exclusive use in the courts of the province.27 Eden’s goal was to replace the incumbent Persian script with a writing system more familiar to the population of Bihar.28 By January of 1881, the use of the Persian script was forbidden and only Kaithi or Devanagari were permitted in the courts.29

Eden’s adoption of Kaithi as the official script of Bihar was preceded by, and built upon, earlier British efforts to promote the script, as well as the practices of pre-British governments, like that of Sher Shah Suri, who ensured that his declarations be written both in the Persian language in the Perso-Arabic script as well as in local languages in Kaithi.30 The most important modern development for Kaithi occurred in 1875, when J. C. Nesfield, the Director of Public Instruction for Oudh, sought to develop a standardized Kaithi script in order to enlarge its utility for administrative and instructional purposes.

The British promotion of Kaithi raised the profile of the script within years. In his preface to Edward H. Palmer’s Oriental Penmanship, a manual for the formal scripts of north India, Frederic Pincott writes that

The derivative forms of Nāgarī,—such as the Kaithî, Mahājanî, Moḍî, Sarrāfî, Lundi, &c., &c.,—are not illustrated in this book, in that they are either local, or confined to special classes of people, and cannot, therefore, claim sufficient importance to lead to their general adoption in official documents. It may, however, be counted on as certain that, in the course of a few years, the Kaithî character will come into much more general use than is at present the case. It has been recognized officially in the province of Bihâr, and will shortly spread to the North-West Provinces, where, indeed, it is almost universally employed by Hindûs, although it has not yet been recognized in Courts and Kachharîs.31

Within a decade, the official status conferred upon Kaithi was met with approval, as is evident from Grierson’s dedication in the Handbook to theKaithi Character:

To the Honorable Sir Ashley Eden, K.C.S.I., Lieutenant-Governor of Bengal, who, by first introducing Kaithi as the sole official character of our law courts, has done more for Bihár than a decade of legislation.32

4.6 Decline

The factors that generated the official recognition of Kaithi also brought it into competition with Devanagari and Perso-Arabic and ultimately to its demise. In 1880, Rudolf Hoernle wrote that Devanagari “will probably in course of time entirely supersede the Kaithi; perhaps not altogether an advantage, as it can be written with less rapidity and ease than its rival.”33

The decline of Kaithi is generally attributed to the socio-political conditions of pre-Independence India. In 1893, the Government of Bengal bowed to pressure from advocates of Devanagari and cancelled its earlier dictate regarding the exclusive use of Kaithi, but by 1894, the government reversed its decision and restored the official position of Kaithi on the grounds that there were insufficient numbers of professionals fluent in Devanagari, the majority of whom knew only Kaithi.34 The political character of scripts in north India only increased. In the early 20th century, organizations such as the Nagari Pracharini Sabha advocated the exclusive use of Hindi in Devanagari over regional languages and scripts. Thus, the linkage of Hindi exclusively with Devanagari “is a phenomenon that owes its origins primarily to the politics and sentiments of the past century.”35 The Nagari Pracharini Sabha was largely successful in popularizing Devanagari over

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regional scripts including Kaithi. Kaithi continued as the official script in the courts of Bihar until at least 1913, at which time Devanagari became the preferred script owing to a momentous rise in its political and social currency.\(^{36}\) Yet, Kaithi was so entrenched in Bihar, that the script was maintained concurrently with Devanagari. The District Gazetteer of Purnea of 1963 states that while the Devanagari script is widely used, the “Kaithi script is in vogue but declining in use.”\(^{37}\)

The accuracy of Hoernle’s forecast is evident in the contemporary dominance of Devanagari as the common script of Hindi and other north Indian languages. However, Grierson asserted in *A Handbook to the Kaithi Character* that “in the North-West Provinces, west of Benáras ... Hindi may fairly claim to be the vernacular of the country; but it is not, never was, and never can be, the vernacular of Bihár.”\(^{38}\) A similar claim can be made for the replacement of Kaithi by Devanagari.

### 4.7 Usage

The significance of Kaithi is evident from an examination of the contexts in which it was employed. The standardization of Kaithi led to the development of printing in Kaithi. However, the script was used in a broad spectrum of spheres, from routine administration to the annotation of Sanskrit manuscripts and from Christian proselytization to personal correspondence. These contexts are briefly discussed below.

#### Typeface Development

Due to its continued importance in government, Kaithi was “raised to the dignity of type in Bihar” despite it being “primarily a cursive written hand.”\(^{39}\) The development of printing for Kaithi grew out of Nesfield’s standardization of the script. Nesfield produced the first set of Kaithi metal fonts based on the improved and standardized script. These fonts were used to print primers for elementary levels of the vernacular schools of NWP&O. The government of Bihar also commissioned Kaithi fonts after granting it official status in 1880. Following government interest in Kaithi, private publishers began printing in the script. Rámadìna Simha, the director of Khadgavilās Press in Bankipur, Bihar approached Grierson about Kaithi types, who commissioned Kaithi types in Calcutta through the assistance of the government.\(^{40}\)

#### Government Proclamations

Kaithi appears alongside Persian text in a land grant issued by Sher Shah Suri on December 19, 1540 (see Figure 30). The Kaithi text is a transliteration of the Persian content of the *sanad* (warrant). Such documents with both Perso-Arabic and Indic scripts from the Delhi Sultanate and Mughal periods are rare; *sanad* and *farmān* (order) documents were overwhelmingly written in Persian. The use of Kaithi in the *sanad* of Sher Shah Suri indicates an official recognition of the script by his government.\(^{41}\)

#### Court Records

There is a substantial number of court documents in Kaithi. Figure 21, Figure 22, and Figure 23 show samples of documents submitted to the courts of Bihar. Samples of legal documents written in Kaithi, along with Roman transliteration of the documents appear in:


#### Book Publishing

The standardization of Kaithi in 1875 made it suitable for the printing of books. Kaithi entered the world of print through the major publishers, Khadgavilās Press and Munshi Naval Kishor of Lucknow. The Khadgavilās Press of Sāhib Prasād Simha in Bankipur (near Patna) began printing Hindi grammars and primary-school readers in Kaithi script in 1886. After Kaithi was established as the official script of Bihar, the Khadgavilās Press was the first printing house in Bihar to acquire Kaithi types and to begin printing Kaithi documents and books. Soon after, Khadgavilās Press began to publish Kaithi documents for the government, which ranged from agricultural and general administrative registers.\(^{42}\) In Awadh, the

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\(^{36}\) King, 1989: 192.  
\(^{38}\) Grierson, 1899: vi.  
\(^{39}\) Grierson, 1903b: 11.  
\(^{40}\) Simha, 1986: 249–250.  
\(^{41}\) Srivastava, 1974: 2.  
\(^{42}\) Simha, 1986: 249–250.
publisher of Urdu books, Munshi Naval Kishor of Lucknow, printed several professional texts and education primers in Kaithi.

Although the Kaithi printing tradition grew in strength, it did not become as influential as the Devanagari tradition. Writing on the condition of Kaithi publishing in 1893, Kellogg stated that books are printed in Kaithi, but “it is by no means as common as the Devanágarí.” Hoernle corroborates Kellogg, stating that Kaithi “is used in printing as well as in writing; but owning to the preponderance of H. H. [High Hindi], which has adopted the Devanágarí, the latter is much more common in books.” Although several religious and secular books were printed in Kaithi, the position of Devanagari as a formal and learned script led to the growth of printing in Devanagari. Scholars suggest that the “unavailability of typesetting for Kaithi” also led to diminished activity in Kaithi publishing.

**Education**

By 1881, the standard Kaithi had being prescribed for general use in the primary and middle vernacular schools of Bihar. “In Bihar, it [Kaithi] is used for teaching the lower classes, to whom a knowledge of Dēva-nāgarī is an unnecessary luxury, the elements of a primary education.” Used initially for printing elementary school primers, textbooks in standard Kaithi quickly appeared in primary and middle vernacular schools and were established for use in scribal examinations. It was known “from the commencement of education operations in Behar, that Kaithi was the popular character” of the province. As the British brought village schools of Bihar under government supervision, administrators learned that these schools taught their students to read and write in Kaithi. Therefore, Kaithi was retained in the schools of Bihar because the script “was the only one which could be employed with any hope of success, if the system of instruction was to be kept on the really broad and popular basis on which it rested.”

While Bihar retained Kaithi, the government of NWP&O ultimately adopted the reverse policy. The *Report on Indigenous Education and Vernacular Schools* of 1854 shows that 77,368 primers were printed in Kaithi, while 25,151 were printed in Devanagari in the province. Even though schools in which the Kaithi script was the prescribed written medium outnumbered those in which Devanagari was used, the government enacted a policy promoting Devanagari. The prevalence of standardized Hindi (as opposed to Avadhī, Bhojpuri, etc.) in the majority of the districts of the NWP&O motivated government officials to replace Kaithi with Devanagari in scribal schools in which the vernacular language was the medium of instruction, not formal Hindi. The schools of Bihar continued to use the script until at least 1913.

**Manuals and Script Primers**

Several manuals and script primers for Kaithi were printed and written during the 19th century. These were produced for use in scribal schools, for British colonial administrators, and for professional scribes to assist with the reading and writing of Kaithi. A few of these manuals and primers are:


- **Hanumānaprasāda. 1877. Kaithi varnamālā.** A Kaithi reader. Lucknow. 4 pages.

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Proposal to Encode the Kaithi Script in ISO/IEC 10646

Anshuman Pandey


**Census Schedules** The popularity of Kaithi led other British administrators to employ the script in other bureaucratic endeavors, including census operations. Henry Beverly, the Inspector General of Registration in Bengal, listed Kaithi as one of the scripts in which census schedules and forms were printed:

The various forms required for the census were, with some few exceptions, printed at the larger Government Press ... near Calcutta. These forms had to be translated into several languages to suit the different nationalities to be found in Bengal. Thus, a Bengali translation was required for Bengal Proper; Hindustani in both the Persian and Kaithi character for Behar; Oorya for Orissa; Hindee in the Nagri character for Chota Nagpore and the Sonthal Pergunnahs, and Nepalese for some parts of Darjeeling.\(^{54}\)

**Commercial Transactions** Kaithi was used for recording commercial transactions. Receipts were the most common commercial documents written in Kaithi.\(^{55}\) Figure 24 shows a form printed in Devanagari and completed in Kaithi hand writing. Several official documents are similar to this receipt.

**Literary and Religious Works** The use of Kaithi in administrative and legal affairs largely dissociated it from liturgical scribal practices. However, due to its ubiquity, Kaithi was adapted for writing religious and literary works. It was used both as the sole orthographic vehicle in some manuscripts and in others it served a more annotative function. Nonetheless, the presence of Kaithi and Devanagari on a single manuscript proves that Kaithi is distinct from Devanagari.

An impressive illuminated manuscript of the *Sudamacaritra*, from the *Bhāgavata Purāṇa*, is in the Marwari language written entirely in Kaithi. The manuscript is from Bikaner, Rajasthan and is dated to the early 19th century. Since the language is Marwari, one might expect the script to be the Mahajani script, which is more commonly associated with Rajasthani languages, or the Gujarati script. A comparison of the letterforms in the manuscript with Mahajani and Gujarati indicates that the script is distinctly Kaithi. The *Miragāvati* of Qutban was originally in written in 1503 in Avadhi in the Persian script. Out of the five extant manuscripts of the Sufi romance, four are in Kaithi and one is in the Persian hand.\(^{56}\) Similarly, the 16th century *Padmāvat* of Malik Muhammad Jayasi was also originally written in Avadhi in the Persian script, but several derivative manuscripts are written in Kaithi.\(^{57}\)

Although Devanagari was the preferred script for recording Hindu religious texts, Kaithi was also used for the production of religious manuscripts. A manuscript of the *Mahāganapati stotra* is remarkable for the fact that the content is written in both Devanagari and Kaithi (see Figure 19 and Figure 20). The *stotra* itself is Sanskrit written in Devanagari, but the commentary, which is also Sanskrit, is written in the Maithili style of Kaithi. Moreover, the last folio contains several annotations written in the Bhojpuri style of Kaithi. In other religious works, the sacred scribal importance of Devanagari influences Kaithi orthography. A manuscript of Jīvā Gosvāmī’s *samkalpapatri*, or what Mukherjee and Wright call a “testamentary document,” was written in “Sanskritized Braj” in “Nagarized Kaithi.”\(^{58}\) Dated to 1665, the manuscript contains instructions and other matters related to the custody of the temples and libraries of the Caitanyapanthī Gaudīya Vaishnava sect founded by Jīvā Gosvāmī in Vrindavan.

Several manuscripts of the *Rāmacaritamānasā* of Tulsī Dās are written in Kaithi. Almost 10 percent of extant 17th century manuscripts of the text are in Kaithi.\(^{59}\)

\(^{54}\) Beverly, 1874: 76.  
\(^{55}\) “Kaithee and Bengla are used in the payment receipts and bills of ghat maanghies, contractors and others” (J. S. Jha, 1966: ii.).  
\(^{57}\) Grierson, 1904a: 14.  
\(^{58}\) Mukherjee and Wright, 1979: 298.  
Several literary and religious manuscripts are preserved in India, England, and in the United States:

- **Mahāganapatistotra** [anonymous]. [undated]. Miscellaneous stotra materials in the Devanagari and Kaithi scripts. Manuscript held at University of Pennsylvania (Poleman number 1876; University of Pennsylvania number 2584). Dimensions: 22.3cm × 11.9cm; 8–9 lines; stotra material in Kaithi script on ff.2–5. 5ff. 8.7a5 × 4.75. 8–9 lines.

- **The Sudamacaritra** (“Tale of Sudama”). 1745-6 (Samvat 1802). Bikaner. Marwari language in Kaithi script. Ink, gold and opaque water-color on paper, 43 folios, 24 lines of text per page, 42 illustration running down the outer margin of the page, 1 full-page painting (f. 1v), 19th century pasteboard binding with marbled doublures, 29cm × 19.2cm.

- **The Miragāvatī** of Qutban. Originally written in Awadhi in the Perso-Arabic script in c.1503. Of six existing manuscripts, four are in Kaithi and one in the Perso-Arabic. The manuscripts are known as the following: the Caukhambhā (origin: Benares; script: “Kaithī-nāgarī); Bhārata Kalā Bhavana (origin: Benares; script: “Kaithī”); Anūpa Saṃskṛta Pustakālāya (origin: Bikaner; script: “Kaithī-lipi”); Maner Šarīf (origin: Patna; script: Perso-Arabic); Delhi (origin: Delhi; script: Perso-Arabic); and Ekaḍalā (origin: Fatehpur; script: “Kaithī lipi”).

**Linguistic Studies** The association of Kaithi with the languages of Bihar led Grierson to use Kaithi metal fonts for all printed specimens of Bhojpuri, Magahi, and Maithili in volume five of the monumental Linguistic Survey of India, Volume V (1903).

Given its exclusive use in the law courts of Bihar, Grierson published his *A Handbook to the Kaithi Character* (1881) in order to introduce the script to aspiring British legal specialists in India.

Grierson’s work remains the most comprehensive study of Kaithi orthography and usage to date.

**Government Seals** Kaithi appears in official government seals. It was one of three scripts used in the official seal of the Supreme Court of Appeals in Calcutta, the other two being Persian and Bengali (see Figure 31). The use of Kaithi in an official seal suggests the prominence of the script in administration and further highlights the status of Kaithi as a script of state. One might expect such seals to contain text in Devanagari, but the absence of this script in official seals suggests that, by at least the 1850s, Devanagari had not acquired its contemporary importance.

**Missionary Operations** The status of Kaithi as the common script of north India made it suitable to missionaries and bible societies who hoped to proselytize in the region. Once Kaithi was standardized by the government and metal types of the script were issued, Christian missionaries developed their own Kaithi metal fonts. Several bibles were printed in Kaithi (see Figure 25 and Figure 26). The importance of Kaithi in north India, and therefore, its value to missionaries, prompted the teaching of Kaithi in western universities. Kaithi was taught in the United States, most notably in the Department of Comparative Religion at the University of Chicago, where future missionaries to India were required to take a course in Hindi, which consisted of

> [...] a careful study of the grammar of the Hindī language, both literary and provincial; the ordinary rules of syntax; exercises in Hindī composition and conversation; the writing of the language in the native character (both Nāgarī and Kaithī); [...]61

There was active communication about the publication of Christian literature in India. In particular, the annual report of The Baptist Missionary Society provided listing of languages and scripts in which such literature appeared. Kaithi features prominently as the script preferred by the Society for publishing portions

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of the bible in Hindi.\(^{62}\)

A few of the bibles printed in Kaithi include:


**Personal Records and Correspondence**  Kaithi was used for maintaining family records, private correspondence, and transactional accounts. Thomas Metcalf writes that the use “of distinctive scripts such as Kayathī and Mahajuni was common practice among Indian families, many of whom, especially among the mercantile community, wished in this way to preserve their records from prying eyes of uninitiated outsiders.”\(^{63}\)

**Kaithi and Immigrant Communities**  When large numbers of Bhojpuri-speakers migrated to Trinidad, Mauritius, and elsewhere during the 19th and 20th centuries, they carried the Kaithi script with them. The present author was contacted by two individuals who trace their families’ ancestry to north India and whose ancestors maintained the use of Kaithi outside of India: Mr. Nigel Ramoutar and Dr. Dipendra Sinha. Mr. Ramoutar’s family migrated from eastern Uttar Pradesh to Trinidad at the turn of the 20th century. His grandparents maintained family records and personal correspondence in Kaithi, which have been preserved by his family in Trinidad. Dr. Sinha, whose family hails ancestrally from Bihar, informed the author that Kaithi was used by migrant Indian communities in Jamaica, as well. At present it is unknown exactly how prevalent the use of Kaithi was in Trinidad, Jamaica, and other locations in the Caribbean.

Immigrants brought to Mauritius manuscripts of the *Hanumāṇa Cāḷīṣā* and the *Rāmacaritamānasā*. These manuscripts were in Standard Hindi written in Kaithi, and were circulated widely within the immigrant communities.\(^{64}\) The use and preservation of the Kaithi script by immigrants is evidence for the popular strength of the script.

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\(^{62}\) The *Journal of Sacred Literature* often published information about the progress of activity. In a section titled “Intelligence” in the fifth volume, the *Journal* reports that “From the 61st (1853) Report of the Baptist Missionary Society we learn that ... [t]he Hindooee Gospels, in the Kaithi character, have been undertaken and carried through the press to John vii., by the joint labours of Mr. Leslie and Mr. Parsons of Monghir.”\(^{63}\) Metcalf, 1967: 673fn11. \(^{64}\) Ramyead, 1988: 24–25.
Epigraphical Records  Inscriptional records in Kaithi are rare. However, the archaeology gallery at the Bharata Kala Bhavan at Banaras Hindu University reportedly holds in its collections a copper plate bearing an inscription in Sanskrit written in Kaithi. The text of the inscription is a land grant by Baj Bahadur Chandradeva (fl.1090), a ruler of the Gahadavala dynasty of Kanyakubja, in modern western Uttar Pradesh. If the script truly is Kaithi, the Chandradeva inscription would be the earliest attested use of Kaithi.

Modern Scholarship  In February 2006, the National Mission for Manuscripts of the Government of India held a manuscriptology and palaeography workshop at the Khuda Baksh Oriental Public Library in Patna, Bihar. The intent was to train researchers to read Kaithi and other historic north Indic scripts for the purpose of cataloguing and preserving manuscripts.

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5 Orthography

5.1 Distinguishing Features

Two of the most distinguishing features of Kaithi are the absence of the head-stroke and the presence of ‘serifs’ at the terminals of vertical strokes in metal fonts.

5.2 Vowels

Use of Vowel Signs  In some cases no distinction is made between KAITHI LETTER I and KAITHI LETTER II, or between KAITHI LETTER U and KAITHI LETTER UU. The tendency is to use the long vowels for writing both lengths in both the independent and dependent forms. However, the distinction between short and long forms are observed in print, primarily to preserve accuracy of pronunciation. This practice generally does not affect the other vowels.

VOCALIC R  The vowel sign  for the Kaithi equivalent of र U+090B DEVANAGARI LETTER VOCALIC R (r) appears in several documents. It’s use typically suggests an attempt to strictly preserve the pronunciation or to represent the origin of Sanskrit loan words in regional languages. The independent vowel letter does not appear to exist in Kaithi; the consonant-vowel combination ꩤ ꩥ (KAITHI LETTER RA + KAITHI VOWEL SIGN II) is used as a substitute. The sign is shown in writing in the specimen below as a part of a consonant-vowel ligature (र) with KAITHI LETTER KA.

<table>
<thead>
<tr>
<th>Devanagari</th>
<th>Kaithi</th>
<th>Mahajani</th>
<th>English</th>
</tr>
</thead>
<tbody>
<tr>
<td>र</td>
<td>ꩤ</td>
<td>ꩥ</td>
<td>rihri</td>
</tr>
</tbody>
</table>

The example below shows this sign used in print for transcribing the word drśṭi in Kaithi.

Since the independent letter for a Kaithi r has not been identified, it remains unclear whether the dependent vowel sign should be proposed for encoding.

5.3 Consonants

Sibilant Consonants  In the languages of Uttar Pradesh and Bihar, there is a practice of assimilating retroflex and dental sibilants with the palatal sibilant. This is reflected in Kaithi orthography through the writing of ꩣ KAITHI LETTER SSA and ꩤ KAITHI LETTER SA as ꩥ KAITHI LETTER SHA. Both KAITHI LETTER SHA and KAITHI LETTER SA are found in the Kaithi specimens in the Linguistic Survey of India.

In a specimen of Maithili, the word khusṭi is written with LETTER SA as khusṭi.

and in a specimen of Magahi it is written with LETTER SHA as khusṭi.

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67 Hoernle, 1880: 2. 68 Grierson, 1899: Plate I. 69 Eastwick, 1858: Plate VIII. 70 Grierson, 1903b: 74. 71 Grierson, 1903b: 74.
In some varieties of Hindi, the retroflex sibilant श is pronounced as the aspirated velar stop क्ष and is written as कैथी लेटर क्ष. There are, however, no standard conventions regarding such practices and the correct spelling of words with the appropriate sibilant letter rests largely with the writer’s knowledge of lexical sources. For example, in Figure 3, Grierson shows the Kaithi counterpart of ष U+0937 DEVANAGARI LETTER SSA as श कैथी लेटर शा, but in Figure 15, he shows ष कैथी लेटर SSA. Although rare in Kaithi documents, कैथी लेटर SSA is nevertheless attested and should be considered part of the character inventory. Its proposed form is based on the shape of the letter as found in Figure 15.

Nasal Consonants  Letters for the velar (कैथी लेटर न्गा), palatal (कैथी लेटर न्या), and retroflex (कैथी लेटर न्ना) nasals are attested, but rarely found in use. They appear, however, in tables of the Kaithi script and are included here for completeness (see Figure 3, Figure 4, and Figure 36).

The shapes of कैथी लेटर न्गा and कैथी लेटर न्या slightly resemble variant forms of कैथी लेटर ई and कैथी लेटर उ, respectively. It is possible that these two vowel letters were used to represent the rare independent forms of न्गा and न्या, but it is also possible that the resemblance is more likely attributable to the close structure of the characters.

The कैथी लेटर न्ना is used frequently in the bibles published by the Calcutta Bible Society. In the following they write प्रेम नाव using the letter:

The letters बा and वा  In the languages of Bihar there is no distinction between /b/ and /v/. A difference between the two sounds was made in writing by adding a dot to the letter for बा.72 Commonly, कैथी लेटर बा is used for both /b/ and /v/, but in cases where phonetic accuracy is required, कैथी लेटर वा is used to represent /v/. The following example shows a differentiation between बा and वा through the use of the underdot to represent वा:73

However, the Kaithi font used by the Calcutta Bible Society (1851) uses the underdotted form of या, as noted in the name दयुद:    

The difference between श and ष is a stylistic variation, not a phonological difference that is differentiated orthographically as in the case of Bengali ष U+094F BENGALI LETTER YA and ष U+09DF BENGALI LETTER YYA. Presumably, the underdot was applied to the Kaithi या in order to distinguish it from ष कैथी लेटर CA.

Generally, न is often written in place of द as in the word नद्योजन jog (from Skt. योजन yoga) “suitable”.

5.4 Nasalization

Anusvāra  In Kaithi the anusvāra is used to represent true vowel nasalization. It is not used for indicating class nasals in nasal-consonant conjuncts, as is the practice in writing Hindi in Devanagari. A peculiar practice of marking nasalization is used in the bibles printed by the Calcutta Bible Society. In the example below, nasalization is marked using (A) a small open-circle and (B) a dot:

A  
B

The open-circle mark (A) is anusvāra used to represent homorganic nasals, while the dot (B) is anusvāra used to indicate true vowel nasalization (a function also provided by candrabindu).

Candrabindu  Grierson states that the candrabindu is generally not used for indicating nasalization in Kaithi, however he shows the use of candrabindu to indicate the transcription of Devanagari ज्ञा in Kaithi:

Nasal-Consonant Conjuncts  Nasal-consonant conjuncts are written either as ligatures with the half-form of the appropriate class nasal letter or with the full form of the nasal letter marked with an explicit virāma. A peculiar manner for writing such ligatures is used in the printed Kaithi specimens in the Linguistic Survey of India. For nasal-consonant conjuncts that are written as ligatures, the dental nasal क काईती लेटर ना, is used as the generic nasal marker for all articulation classes (see Figure 40). For example, the conjunct न्ता is represented appropriately as न्ता. However, the conjunct न्दा is represented as न्दा. Unlike the case of न्ता, where the dental nasal letter ना is allied with the dental stop ता, in न्दा, the dental nasal is used to represent the the retroflex nasal न since the following consonant, दा, is a retroflex stop. In such instances, काईती लेटर ना should be sorted as a member of the class to which the second element of the conjunct belongs.

The form of nasal-consonant conjuncts is not uniform in Grierson. In a specimen of Magahi, Grierson uses virāma to write the न्दा conjunct:

and in a specimen of Maithili, he uses a ligature to represent the न्दा conjunct:

5.5 Consonant-Vowel Ligatures

In writing, syllables composed of consonants with vertical descenders at the right edge and the vowels य and य are represented as distinct consonant and vowel sign combinations or as ligatures. The latter is often a swash technique that results from rapid writing. In such cases, the vowels य and य may at times be written in

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75 Grierson, 1903b: 75.  
76 Grierson, 1899: Plate I.  
77 Grierson, 1903b: 129.  
78 Grierson, 1903b: 75.
a manner that resembles the dependent forms of u and a. Therefore, these forms of u and a are often curved leftward and over the consonant letter. Generally, the appropriate consonant-vowel combination is apparent from context.

In the excerpt below, the labeled portions indicate consonant-vowel ligatures. Portions ‘A’ and ‘B’ are the syllable ki ṛ + ॐ = की; portion ‘C’ is gu ṛ + ॐ = गु; and ‘D’ is khu ṛ + ॐ = खु.79

In the following excerpt, portions ‘A’ and ‘D’ are the syllable tu; portion ‘B’ is the syllable du; and portion ‘C’ is the syllable ku.80

Such consonant-vowel ligatures are found only in written documents. In written documents ṛ + ॐ might appear as ओ, but in print the tendency is to use the mātrā form of vowels explicitly, such as ओ. In the Kaithi font used by the Calcutta Bible Society, the mātrā form of u is a shallow arc and appears structurally related to the swash form found in written documents; when the right descender merges with the vowel sign to form a left hook. In the excerpt below, portion ‘A’ is the syllable su, ‘B’ is bhu, and ‘C’ is mu. This shape of the u mātrā may have been derived from the practice of writing u as ligatures:

The font used by Grierson in the Linguistic Survey of India has distinct mātrā forms for u. The forms of u mātrā in the words marked ‘A,’ ‘B,’ and ‘D’ represent the typical shape of the dependent vowel; for example ku ṛ + ॐ as कु instead of कृ. The shape of the syllable hu in portion ‘C’ is a ligature designed to accommodate the descending tail of ha with the u mātrā. The combination ṛ + ॐ is written as हु to avoid the appearance हू.81

Other forms include ṛ + ॐ, which appear in print as ओ, but in written documents as ओ.

5.6 Consonant Conjuncts

There is substantial irregularity in the writing of conjuncts in Kaithi. This is due in part to the manner in which consonant clusters are handled in the languages that Kaithi was used to represent. In spoken Awadhi, Bhojpuri, and Magahi, there is a tendency to simplify consonant clusters through metathesis, or the insertion of a vowel between two consonants. This process is reflected in Kaithi orthography. For example:

Sanskrit \textit{karma} (Dev. कार्म) becomes \textit{karam} (Kai. कऱम); Sanskrit \textit{pradeśa} प्रदेश becomes \textit{pardes} पऱडेस; and Sanskrit \textit{snāna} (Dev. स्नान) becomes \textit{asanān} (Kai. असनाण). Other practices of simplifying include:

Sanskrit \textit{vyavahāra} (Dev. व्यवहार) becomes \textit{beohār} (Kai. बऱहाण); Sanskrit \textit{jñāna} ज्ञान is simplified to \textit{giṇā} गऱण.

In instances where metathesis does not occur, the representation of the cluster as a conjunct depended upon the diligence of the scribe or in the case of printing, on the limitations of the font. Therefore, conjuncts may be written as ligatures, with half-forms, with explicit virama, or implied. For example, the conjunct \textit{mba} may be written as भ or मो or मव. When encoding Kaithi in Unicode, conjuncts should always be written with \textit{virāma}. The conjunct \textit{mba} should be expressed as

\[ \text{KAITHI LETTER MA} + \text{KAITHI VIRAMA} + \text{KAITHI LETTER BA} \]

In instances where there is a requirement to encode conjuncts as they appear in a source document, then U+200C ZERO WIDTH NON-JOINER and U+200D ZERO WIDTH JOINER should be used. The sequence भ written with a half-form of KAITHI LETTER MA is expressed explicitly in Unicode as

\[ \text{KAITHI LETTER MA} + \text{KAITHI VIRAMA} + \text{U+200D ZERO WIDTH JOINER} + \text{KAITHI LETTER BA} \]

The form भ is expressed as

\[ \text{KAITHI LETTER MA} + \text{KAITHI VIRAMA} + \text{U+200C ZERO WIDTH NON-JOINER} + \text{KAITHI LETTER BA} \]

In Writing At times, the scribe would write conjuncts with an explicit \textit{virāma}, at other times he would produce the conjunct using a true conjunct form. Conjuncts, however, appear more often in Maithili documents (see Figure 4). The example below shows the two consonant conjunct \textit{pra} in the word \textit{pragana} marked ‘A’ and the three consonant conjunct with dependent vowel sign \textit{ṣṭr} in the word \textit{distṛkat} marked ‘B’.

\[
\begin{array}{c}
\text{A} \\
\text{B}
\end{array}
\]

Figure 4 shows conjuncts that may be encountered in the Maithili style of written Kaithi. Some Kaithi documents also show ‘false’ conjuncts, especially when the second element of the conjunct is \textit{ra}. In the following example the word \textit{paraganār} is written \textit{praganāt}:

\[
\begin{array}{c}
\text{A} \\
\text{B}
\end{array}
\]

The example below illustrates a case where a ligature is used to write the conjunct \textit{mpu}, but not \textit{rna} in the word \textit{sampurna}:

\[
\begin{array}{c}
\text{A} \\
\text{B}
\end{array}
\]

In writing, doubled consonants are written only once. A word like \textit{patta} पत्त is written \textit{pata} पऱत. The use of \textit{virāma} in printed Kaithi, as opposed to using a single character, may arise from the intention to represent phonological accuracy in published documents.

\[ \text{Grierson, 1899: Plate X.} \quad \text{Kellogg, 1893: 23.} \]
In Print  In printed Kaithi, consonant clusters are represented both as ligatures and with virāma. It is unknown whether this is a reflection of actual practice or a limitation in the Kaithi fonts used for typesetting. In metal fonts, there existed a limited number of character primitives that could be used to produce conjuncts. The application of these primitives in the formation of conjuncts, however, does not appear to follow any patterns.

In some instances, consonant clusters are written using conjunct forms, as is done in the word accā, where a half form of ca is attached to the full form of cha:  

\[ \text{की नतन (चा) से चा चा (चा) हो गया दिशा से होने के पालोंग का श्रो देख} \]

but in another specimen, a virāma is used to write the cluster cca: 

\[ \text{कैद, नैश्चि गो भना कहिओ चण्डी चण्डी (चा) हो चा है देख ले है नन अभ्यास देख} \]

Another example of inconsistent use of conjuncts is shown below. The word दोस्त doṣt is written in two ways in the Linguistic Survey of India. In the example below, the cluster sta is written with a ligature: 

\[ \text{कैद, नैश्चि गो भना कहिओ चण्डी चण्डी (चा) हो चा है देख ले है नन अभ्यास देख} \]

but in another specimen the conjunct is represented with a virāma form: 

\[ \text{दो देख से अभ्यास देख देख जो नीचो नवारी है भगवान नागरी गोलार देख} \]

The example below shows the use of कैथी लेटर sa to represent कैथी लेटर ssa. Here it is used in a half-form to write the conjunct sta: 

\[ \text{पून आतार होई अत्र से आता चर्चा पार मानक ला गुण से से ई गोला देख} \]

5.7 Word Boundaries

Although lack of punctuation is not foreign to Indic scribal traditions, in Kaithi the lack of word boundaries results from the practice of rapid writing used in courts and other administrative offices. Standardization of Kaithi began to change this. Grierson writes “it is not customary to leave any space between the words, but the Standard Kaithi, however, used in Government offices, does separate its words.” The practice of marking word boundaries also depended upon the scribe; those who were detail-oriented indicated word boundaries consistently, others showed minial regard for such practices. Nonetheless, the manner of marking word boundaries changes between printed and written Kaithi.

In printed Kaithi, word boundaries are generally marked by spaces and the end of sentences are distinguished using the danda or double danda. The example below shows the use of dashes to mark word boundaries:

\[ \text{Grierson, 1903b: 253.} \quad \text{Grierson, 1903b: 75.} \quad \text{Grierson, 1903b: 168} \quad \text{Grierson, 1899: 4.} \quad \text{Grierson, 1903b: 82.} \]
Proposal to Encode the Kaithi Script in ISO/IEC 10646

Anshuman Pandey

The following example shows the use of the word separator being written at the beginning and end of a word:

A previous version of this proposal suggested the encoding of \texttt{\textsc{kaithi word separator}} for representing the word-boundary marker. Such a character is important for properly distinguishing word-boundary marks from dashes and other homoglyphic punctuation marks. However, the inconsistent nature of marking word boundaries in Kaithi makes it difficult to determine the appearance of a character suitable for this purpose; eg. the length of the dashes varies within a single line, and it is also difficult to determine whether the scribe intended to produce a line, or if the scribe intended to write a dot, which was produced as a dash due to the speed and direction of writing. Second, there are several dot, dot-like, and word-separator characters already encoded in the UCS which — although part of different script blocks and in some cases graphically dissimilar to the shapes found in Kaithi — are similar in semantic function. Among these existing word-boundary characters are

- \texttt{U+00B7 MIDDLE DOT}
- \texttt{U+16EB Runic word separator middle dot}
- \texttt{U+2E37 Word separator middle dot}
- \texttt{U+10100 Aegean word separator line}
- \texttt{U+10101 Aegean word separator dot}
- \texttt{U+1039F Ugaritic word divider}
- \texttt{U+103D0 old persian word divider}
- \texttt{U+1091F Phoenician word separator}
- \texttt{U+12470 cuneiform punctuation sign old assyrian word divider}

It is not necessary to encode a Kaithi-specific word separator. Existing dash characters and the \texttt{U+2E37 Word separator middle dot} may serve the purpose and of representing word boundaries as requirements dictate.

5.8 Sentence and Paragraph Boundaries

Characters for indicating sentence and paragraph boundaries are more common than those for word boundaries. Grierson writes that “Kaithi has no stops except the full period.” But, there is no uniform convention for indicating sentence or paragraph boundaries in Kaithi. In the majority of manuscripts the text is written continuously without delimitation of sentence boundaries. Several scribes, however, employed various orthographic devices to mark such terminations.

Grierson, 1899: Plate XVII.
Described below are some of the characters used to separate sentences and paragraphs. It is unnecessary to encode these separately since existing characters in the UCS may be used to adequately represent them. Since the danḍā was introduced in printed Kaithi to mark sentence and paragraph terminations, the the Devanagari danḍā and double danḍā are sufficient for representing such boundaries as requirements dictate.

**Danḍā** In printed Kaithi, the danḍā and double danḍā are used to indicate line endings and similar terminations. The function of danḍā and double danḍā in Kaithi is identical to that of Devanagari and other Indic scripts.

The shapes of danḍā and double danḍā in Grierson’s Kaithi and Devanagari metal fonts are distinct. The specimens below compare the forms of danḍā in the metal fonts used by Grierson for printing Kaithi and Devanagari in the *Linguistic Survey of India*:92

![Kaithi and Devanagari danḍā](image)

The Kaithi forms of danḍā differ structurally from the Devanagari forms. The Kaithi forms possess a serif-like feature at the extremes of the danḍā. The Devanagari forms do not have this feature.

The following example shows the use of danḍās in written text. The danḍās are written with serifs:93

![Kaithi text with danḍā](image)

The following example shows the use of danḍās in printed text. These danḍās are identical to the magnified forms from the *Linguistic Survey of India* shown above:94

![Devanagari text with danḍā](image)

The example below shows the use of a danḍā and a middle dot to indicate sentence boundaries:95

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92 Grierson, 1903b  
93 Grierson, 1899: Plate XXX.  
94 Grierson, 1903b: 253.  
95 Grierson, 1899: Plate XXX.
The variety of conventions used for indicating sentence boundaries suggests that a generic character be used for such a purpose.

Given the direction of the current debate on the unification of danḍās across Indic scripts, it is not necessary to separately encode Kaithi danḍās, despite their distinct shapes. They may be unified with the Devanagari forms.

**Swash Marks** In addition to danḍā and double danḍā, sentences and paragraphs are often terminated with swash-like horizontal lines. The specimens in Figure 7 and Figure 22 illustrate the manner in which the end of a paragraph is marked with two types of lines that fill the remainder of the line and extend to the margin of the text block.\(^{96}\)

The horizontal line used for marking the end of sentences can be adequately represented using existing dash characters. It is not necessary to encode the horizontal line termination as a separate character. The sentence-terminating swash mark is similar in semantic function to several characters already encoded in the UCS:

- U+10FB GEORGIAN PARAGRAPH SEPARATOR
- U+1368 ETHIOPIC PARAGRAPH SEPARATOR
- U+2028 LINE SEPARATOR
- U+2029 PARAGRAPH SEPARATOR

More formally, in printed Kaithi, the swash marks are semantically identical to danḍā and are represented as such.

**Other Marks** The specimen below shows the use of a cross to mark phrase boundaries, while dashes are used to separate words.\(^{97}\)
5.9 Hyphenation

Hyphenation at line boundaries is rare in written Kaithi, but does appear in printed documents. In manuscripts, the scribe would simply break off writing anywhere in a word, and continue on the next line. If hyphenation were to be applied, it would occur within words at syllabic boundaries. The example below shows a hyphen splitting the word फैतेंगियत at a line boundary.98

An interesting example of hyphenation occurs in the example below. Here hyphenation splits a conjunct formed with virāma in the word barāṁhan वारांहने. This example also illustrates metathesis in the consonant conjunct hma, which is rendered mha.99

5.10 Abbreviation

Abbreviation is common in Kaithi documents, but there is no uniform method of representing such. Abbreviation is indicated by placement of a sign at the point of elision or by ligature. Given the variety of methods for writing abbreviations, it is necessary to encode a character that represents an abbreviation. A sign identical in function to ु+0970 devanagari abbreviation sign would enable such representation. The different forms of representing abbreviations as shown below could be considered graphical variants of a single character representing a single semantic function. Therefore, there is no need to encode the characters independently. They should be unified with the proposed kaithi abbreviation sign. The variant graphical forms and ligatures should be controlled at the font level.

Circle The ॐ KAITHI ABBREVIATION SIGN is found in written documents. It is identical in function to ु+0970 devanagari abbreviation sign. The Kaithi abbreviation sign resembles the digit zero, however, the two are distinguishable through context. This sign is used to abbreviate common words and phrases, primarily at the beginning of legal documents. For example, in the following, the abbreviation ॐ ('l.',) using a variant form of ॐ KAITHI LETTER LA, represents the Sanskrit likhitam लिखितम्, meaning “it is written” and is abbreviated due to its common use as an introductory element in written statements submitted to the courts.

Colon The following shows the use of a visarga-like character for marking abbreviations. In the example below, portion ‘A’ (सः) se. is an abbreviation for the title सेख ‘sheikh’; portion ‘B’ न: tā. is an abbreviation for the word ताईरिख tārikh ‘date’.100

98 Grierson, 1903b: 202. 99 Grierson, 1903b: 296. 100 Grierson, 1899: Plate XII.
Below-Base Slash  Another method of abbreviation is evidenced in the following example. A virgule-like mark is written in the portion ‘B’ (‘を探’) to abbreviate the word amment “November.” The text in portion ‘A’ is the same form shown in the example above.\(^{101}\)

Ligatures  Another method, which is rare, is to indicate abbreviation through creation of ligatures. The circled portion below shows the word mudā used as an abbreviation for the word  meaningless (muda’an):

The word mudā has a wavy form of kaithi vowel sign aa attached to kaithi letter da. This form may be encoded in plain text using kaithi abbreviation sign, as  meaningless. The actual graphical representation of the syllable  meaningless with a wavy vowel sign should be controlled at the font level.

Although kaithi abbreviation sign is semantically and graphically identical to U+0970 devanagari abbreviation sign, it is necessary to encode it separately as an element of the Kaithi script in order to correctly represent abbreviated forms that appear as ligatures.

5.11 Enumeration

The kaithi enumeration sign is used in writing enumerated lists and numeric sequences. It is found written before, above, or below a digit or sequence of digits. It is a stylized version of kaithi letter na and is an abbreviation of nambar, which is the transliteration of the English word ‘number’. In its basic function it is identical to N\(\text{°}\) U+2116 numero sign, the sign for indicating ordinal numbering in the Latin alphabet. The following specimen from a legal document illustrates the use of the enumeration sign to indicate numeric ordering in two distinct contexts:

\(^{101}\) Grierson, 1899: Plate XIII.
The circled portion labeled ‘A’ shows the enumeration sign written above the digit. It functions here to indicate the first item in an enumerated list. Portion ‘B’ shows the enumeration sign written under the numerical sequence. It is used here to indicate a court-case number. Portions ‘C’ and ‘D’ are identical in function to ‘B’. It appears as though the enumeration sign is written through the digit in ‘C’, but this is most likely the result of the descending stroke of the digit, as compared with ‘D’. Here the enumeration signs refer to plaintiffs (مداًن muda’ān) ‘1’ and ‘2’ in the given case.

The function of the enumeration sign in portion ‘A’ is different from its function in ‘B’, ‘C’, and ‘D’. In the former, it is used as a label in an enumerated list. In the latter three, it is used to mark specific numerical references. Nevertheless, there is no need to encode these forms separately as they may be considered positional variants of the same sign.

The following example shows the enumeration sign written in-line before the number being marked. Portion ‘E’ is the Kaithi text ꠏےہ۔

5.12 Nukta

The ꠐ KAITHI SIGN NUKTA is commonly used to distinguish ꠐ KAITHI LETTER BA from ꠐ KAITHI LETTER VA. It is also written under ꠐ KAITHI LETTER YA to produce the variant form ꠐ. In some cases, the nukta is written below letters to represent sounds from Urdu. For example, the following specimen represents the sound of ꠐ U+0632 ARABIC LETTER ZAIN by placing nukta under KAITHI LETTER JA in the word نزدیک nazdīk.\(^\text{102}\)

The Kaithi o Hindi barnamala also shows the use of nukta under KAITHI LETTER JA to represent ꠐ U+0632 ARABIC LETTER ZAIN. Similar to ꠐ U+095B DEVANAGARI LETTER ZA, KAITHI LETTER JA with nukta may also be used to transliterate ꠐ U+0630 ARABIC LETTER THAL, ꠐ U+0636 ARABIC LETTER DAD, ꠐ U+0638 ARABIC LETTER ZAH, and ꠐ U+0698 ARABIC LETTER ZEH. Also used in the text is a nukta under KAITHI LETTER KA, similar to Devanagari ꠐ U+0958 DEVANAGARI LETTER QA to represent ꠐ U+0642 ARABIC LETTER QAF:

\(^\text{102}\) Grierson, 1903b: 74.
In a similar manner, the following shows the use of nukta under Kaithi letter kha, similar to Devanagari \( \text{क्ष} \) \text{U+0959 DEVANAGARI LETTER KHHA} to represent \( \text{ख} \) \text{U+062E ARABIC LETTER KHHA}:

\[
\text{क्ष} \rightarrow \text{X}\]

The following example shows the use of nukta under Kaithi letter pha, similar to Devanagari \( \text{प} \) \text{U+095E DEVANAGARI LETTER FA} to represent \( \text{फ} \) \text{U+0641 ARABIC LETTER FEH}:

\[
\text{प्रागृहीत्तमस्मृतीर्प्राप्ते} \rightarrow \text{प्रात्स्मृतीर्प्राप्ते}
\]

The forms of Kaithi letters in the Kaithi or Hindi barnamala appear heavily influenced by Devanagari. This influence is most evident in the use of nukta with Kaithi letters to indicate sounds not native to Hindi phonology. Although the nukta letters appear in a few Kaithi sources, they are generally not listed in inventories of Kaithi letters, and they may be considered a late innovation. Therefore, rather than reproducing the repertoire of nukta letters found in Kaithi documents, it is preferable to encode KAITHI SIGN NUKTA so that such letters may be created as the need arises.

Combinations of consonants and KAITHI SIGN NUKTA are to be treated as regular consonants.

### 5.13 Ruled Lines

Several manuscripts and books show Kaithi written and printed with a headstroke similar to that of Devanagari. The line, however, is not a headstroke, but a typographic device used for emphasis, titling, or sectioning that is not part of the actual script. Hoernle writes that “These lines must not be confounded with the headstroke of the Devanagari, and in native writing the two are easy to distinguish”[^103]

There are two practices regarding the use of lines. In some traditions, only the first line of a document is written on a ruled line[^104]. This was most likely done to assist with writing speed since aligning the heights of characters with the lines added additional effort. The other practice was to produce lines on an entire page and to hang the letters from the lines.[^105]

The following example shows a line used only for the first line:[^106]

[^103]: Hoernle, 1975: 1fn1.
[^104]: Grierson, 1899: 4.
[^105]: Hoernle, 1975: 1fn1.
[^106]: Grierson, 1899: Plate XVII.
The following example shows the use of ruled lines for written Kaithi:

Some Kaithi fonts were designed with headstroke, presumably to render similarity between Kaithi letters and Devanagari type:

Figure 37 shows a comparison of hand-written Devanagari and Kaithi. At first glance, it appears that the Kaithi is written with the head-stroke similar to the Devanagari. Comparing the two scripts, it becomes clear that the head-stroke accompanying the Kaithi letters is actually a ruled-line, which unlike the actual head-stroke of the Devanagari letters, is not broken between individual letters.

5.14 Digits

The Kaithi digits are typologically similar to those of Devanagari. The differences lie in the style of writing the digits. Figure 5 shows variant forms of Kaithi digits. Figure 18 shows a comparison of digits of Kaithi, Devanagari, and other scripts.

5.15 Number Forms and Unit Marks

Number forms and unit marks are commonly found in Kaithi documents. Among these are fractions (eg. \( \frac{1}{16} \) (north indic fraction one sixteenth), \( \frac{1}{2} \) (north indic fraction one half), etc.), currency (eg. \( \text{रू} \) north indic rupee mark), and other marks (eg. \( \text{४} \) north indic quantity mark). A few of these are depicted in Figure 5. These signs are important for the complete representation of Kaithi in the UCS; however, these signs are not exclusive to Kaithi. They are used across several north Indic scripts, including Devanagari, Gujarati, Gurmukhi, Mahajani, Maithili, and Modi. For this reason, the present author proposed that the number forms and unit marks be encoded independently in the UCS. The characters

---

107 Grierson, 1899: Plate XI.
were accepted by the UTC and placed into a future block to be named “Common Indic Number Forms” (U+A830..U+A83F).108

5.16 Regional Variants

There are three styles of Kaithi, one each associated with the Bhojpuri, Magahi, and Maithili languages.109 The three styles are compared in Figure 3. Grierson describes the Bhojpuri style as “the most legible” (Figure 6); the Maithili as “the most elegant” (Figure 7); and the Magahi as “a mean between the two” (Figure 8).110 Of these, the Magahi style was adopted by the government of Bengal for official purposes in Bihar and was the basis for the development of Standard Kaithi.111

The differences between the three styles are due to local scribal traditions. For instance, characters of the Maithili style of Kaithi are influenced by the Maithili script. As a result, there are variant shapes of a few characters. Encoding these styles separately is unnecessary and variants should be unified with the prevailing form of the letter. The presentation distinctions of the three traditions should be considered a matter of font design and controlled at the font level.

The variant characters are:

<table>
<thead>
<tr>
<th>Kaithi Letter A</th>
<th>Standard</th>
<th>Variant</th>
</tr>
</thead>
<tbody>
<tr>
<td>言えば</td>
<td>方</td>
<td></td>
</tr>
<tr>
<td>Kaithi Letter AA</td>
<td>聞く</td>
<td>聞く</td>
</tr>
<tr>
<td>Kaithi Letter I</td>
<td>イ</td>
<td>イ</td>
</tr>
<tr>
<td>Kaithi Letter II</td>
<td>イ</td>
<td>イ</td>
</tr>
<tr>
<td>Kaithi Letter KA</td>
<td>イ</td>
<td>イ</td>
</tr>
</tbody>
</table>

5.17 Typefaces

There are at least four sets of Kaithi metal fonts known to the present author. Two of these sets were used by George A. Grierson for printing Kaithi specimens in the Linguistic Survey of India. Two Kaithi metal fonts were developed by the Baptist Mission Press of Calcutta. The letters of this font share the fundamental structure of letters in Standard Kaithi, but the glyphs are cut in the style of Devanagari letters. A comparison of these four font is shown in Table 2 and Table 3.

Superficially, the fonts produced by Grierson and the Calcutta Bible Society appear substantially different. Grierson’s font:

The Calcutta Bible Society’s font:

The Hindi bibles of the Baptist missionaries in Calcutta were generally printed in Kaithi fonts bearing the headstroke. The Baptist Missionary Press cut their Kaithi fonts in a manner that made the characters resemble Devanagari letters. Other Kaithi fonts, such as those used by Grierson to print the specimens of the ‘Bihari’ languages in the Linguistic Survey of India, do not bear the headstroke.

There is also stylistic variation in Kaithi metal types, of which three have been identified by the present author. Two different fonts were used by Grierson in the Linguistic Survey of India, as shown in the table of Kaithi letters in Figure 15 and in the specimen of Maithili, shown in Figure 13. Another used by the Calcutta Bible Society, shown in Figure 25. Unfortunately, Grierson did not indicate the origin of the Kaithi font used to print specimens of the Bhojpuri, Magahi, and Maithili in the Linguistic Survey of India. It is also unclear if the types in the Linguistic Survey of India were based on those commissioned by Nesfield or if they were a new set produced by Grierson.

The specimen below from Hoernle’s A Comparative Grammar of the Gaudjian (Aryo-Indian) Languages shows Kaithi letters printed in contrast with Devanagari letters:¹¹²

that there is only one sign for each of the following groups of Nāgarī letters: 1) \( \text{\textit{a}} \) (properly \( \text{\textit{n}} \)) for the nasals \( \text{\textit{r}} \, \text{\textit{a}}, \text{\textit{r}} \, \text{\textit{n}}, \text{\textit{r}} \, \text{\textit{n}} \); 2) \( \text{\textit{a}} \) (a combination of \( \text{\textit{s}} \) and \( \text{\textit{j}} \)) for the sibilants \( \text{\textit{s}}, \text{\textit{s}}, \text{\textit{s}}, \text{\textit{s}} \); 3) \( \text{\textit{a}} \) for the labials \( \text{\textit{b}} \) and \( \text{\textit{v}} \); 4) \( \text{\textit{a}} \) (properly \( \text{\textit{j}} \)) for the palatais \( \text{\textit{d}}, \text{\textit{j}} \) and \( \text{\textit{y}} \); and also that of the two forms of \( \text{\textit{ch}} \) one is very much like to one of the two forms of \( \text{\textit{dh}} \), the other to one of the two forms of \( \text{\textit{y}} \). For the vowels Kaithi has only four fundamental signs: \( \text{\textbf{\textit{a}}, \text{\textit{a}}, \text{\textit{a}, \text{\textit{a}}, \text{\textit{a}, \text{\textit{e}}}} \). The others

¹¹² Hoernle, 1880: 1.
6 Relationship to Other Scripts

The Kaithi script is related to Devanagari, Gujarati, Bengali, and other major north Indian scripts in much the same way as the latter scripts are related to each other. It is no more similar in typology or genealogy to any other script based on northern Brahmi as are any of the other scripts derived from the same source. Of the major scripts, Kaithi is considered to be most closely related to Gujarati and Devanagari. In the discussion below, it is shown that Kaithi is distinct from these two scripts.

While the exact origins of Kaithi are unclear, there is more information available about its descendents. Kaithi is considered to be the source from which regional north Indic scripts are derived, such as Mahajani and Sylheti Nagari, and quite possibly the modern Gujarati script.

Hoernle wrote that of the “four principal types of alphabet” employed in northern India — “the Kaithí, the Bangálí, the Oríá and the Gurmukhí” — “[t]he Kaithí is the most widely spread; it is used in writing not only in Eastern, but also, slightly modified, in Western Hindústán, Maráthá and Gujarát. In G. [Gujarati] and sometimes in E. H. [Eastern Hindustan] is it adopted also in print.” Hoernle suggests that other scripts found in the Hindi region are derived from Kaithi: “[T]here are two sub-types much in use in the area occupied by the Kaithí, to which they are the most nearly related. There are the Nágarí or Devanágarí and the Mahájaní or Koṭhivál. The first is an improvement, the second a corruption of the Kaithí or of its more ancient original.”

6.1 Relationship to Gujarati

The relationship of Kaithi to Gujarati and to Devanagari is best expressed within the framework of Kaithi as a class of scripts. Of the modern north Indic scripts descended from Brahmi, Kaithi bears the greatest resemblance to the Gujarati script. It is highly probable that Gujarati is descended from Kaithi. In fact, in the Linguistic Survey of India, Grierson writes that Kaithi “is in general use all over the north of India, from the Gujerat coast to the river Kosi” in Bihar. To be sure, Kaithi and Gujarati are the only major north Indian scripts without the distinctive headstroke common to other scripts. They are also the major ‘running hands’ or common scripts to be cast in metal type and used for the printing of books and other documents.

It is the absence of the headstroke that is noted in The Unicode Standard, Version 5.0 as the historical link between Kaithi and Gujarati:

The Gujarati script is a North Indian script closely related to Devanagari. It is most obviously distinguished from Devanagari by not having a horizontal bar for its letterforms, a characteristic of the older Kaithi script to which Gujarati is related. The Gujarati script is used to write the Gujarati language of the Gujarat state in India.

However, Grierson’s statement that Kaithi “is in general use all over the north of India” complicates the relationship between Kaithi and Gujarati. The statement suggests that the script used in Gujarati is none other than Kaithi. To be sure, in some sources the names Kaithi and Gujarati are regarded as synonyms. The Book of a Thousand Tongues provides excerpts of bibles printed in the Gujarati language in the “Gujarati or Kaithi characters,” but also shows specimens of the “Bihár” languages as being in the “Kaithi character.” Despite the use of the same name, the actual metal types used for printing Gujarati and “Bihari” are different and are identical to the types used by Grierson for printing Gujarati and “Bihari” in the Linguistic Survey of India, as shown in Figure 32.

Grierson’s Terminology In Grierson’s descriptions of the relationship between Gujarati and other scripts, he refers to different orthographic categories represented by generic script names. For instance, in 1903, Grierson wrote that Gujarati “is based on the same original as Dēva-nāgarī, and closely resembles the ordinary

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Kaithí character employed all over Northern India.” But in 1899 he wrote that the Gujarati script “corresponds to what is known as the Mahājanī script in Upper India” and to what is “known as Vāṇīāī or Ṣarāftī” in Gujarat. It follows that Grierson equates Mahajani with Kaithi. However, the script formally known as ‘Mahajani’ in north India is typologically distinct from Gujarati and Kaithi, as shown in Figure 36. Grierson also writes that the “Moḍh, Gujarátī, and Kaithí alphabets ... possess a great similarity of character” while Mahajani is “still a further corruption, for cursive purposes” of Devanagari. In 1904, Grierson suggested that Mahajani and Landa are more likely derived from a different ancestor found in north-western India, related more directly to Sharada than to Devanagari.

As is evident from Grierson’s shifting classifications of Gujarati, generic terms should not be relied upon when determining the directionality or hierarchy of influence with regard to related scripts. Nor should formal names for historical scripts and names of script classes be conflated or considered as static. It is advisable to take into consideration Hoernle’s admission that

The general likeness of these four types [the Kaithī, the Bangālī, the Orīā and the Gurmukhī] to one another as well as to the older Kutila and Gupta is unmistakable, though their exact relation among themselves, their origin and age are matters not as yet fully elucidated.

**Class or Formal Name?** The problem with the synonymy between Kaithi and Gujarati is determining which definition of ‘Kaithi’ is being referred to. Is it Kaithi, as the formal name of a historical script, or Kaithi, as class or family of script styles? Further analysis of Grierson proves that the term ‘Kaithi’ being used as a synonym of Gujarati is in fact Kaithi as the name of a family of scripts. Although Grierson cites the prevalence of Kaithi from Bihar to Gujarat, he states that “[t]hroughout this great tract it has of course many variations, some depending upon locality and others upon individual handwriting.” Thus, ‘Kaithi’ is a family of scripts whose regional forms developed into distinct scripts. The differentiation of the Kaithi class into regional writing systems accounts for the relationship between modern Kaithi and Gujarati and other scripts. At home in Bihar and NWP&O, ‘Kaithi’ retained its name; in the eastern reaches of its geographically spread, it developed into Syloti Nagri; and in the western periphery it assumed the name associated with the language current in that region, Gujarati. Diringer concludes by stating that “Bihari Kaithi” and Gujarati “(if the latter is at all connected with the Kaithi) are essentially different.”

Thus from the Kaithi family of scripts descended the Gujarati, Bihari, and Syloti regional forms. It is, therefore, reasonable to articulate that the ‘Kaithi’ script, which Grierson referred to as being “in general use” across north India, is the eponymous source whose regional styles developed into distinct historical regional scripts in Bihar, Gujarat, and Bengal. David Diringer supports this view when he refers to the specific development of regional styles of this the Kaithi family as “Bihari Kaithi” and Gujarati. He writes that “[t]he Gujarati character is essentially the literary, refined form of the script, now represented in its cursive form by the Kaithi type.” While Gujarati may be considered a script of the ‘Kaithi’ family or style, it is now formally known as Gujarati just as “Bihari Kaithi” is known formally as Kaithi.

But, genetic affinity is not the sole determinant of script classification and significance. Grierson writes that among this family of scripts, “Gujarátí, the most western, differs little from Kaithí, the most eastern, and a Tirhutiá paṭṇwârī finds little difficulty in reading a Gujarátī book.” This reductive mutual intelligibility does not diminish the distinctiveness of a script that is determined by its cultural and sociological value. Despite the ability of Grierson’s village account, however, in reading the Gujarati script with equal proficiency as the Kaithi, the printing tradition associated with Gujarati embodies a particular characteristic associated with

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Figure 2: Relationship of Kaithi to selected Nagari-based scripts

the regional Gujarati linguistic, scribal, and print traditions. Although Kaithi typefaces from Bihar could
be used to typeset Gujarati books, the likelihood of such is parallel to the typesetting of Panjabi books using
Sharada instead of Gurmukhi.

The standardization and official recognition of a script and the subsequent adaption of the script in print
technology suggests that the script is an independent writing system with a distinct typology and scribal
tradition. Although it was “primarily a cursive written hand,” Kaithi was “raised to the dignity of type in
Bihar and Gujarat” In Gujarat, Kaithi was “elevated to the position of a national character.” In Bihar,
Kaithi received the same status: “[a] fount of Kaith type is adopted by the Bengal Government for official
publications in the vernacular, intended for publication in Bihar, in which this deficiency has been supplied,
and books are now printed in Patna in the same type, so that gradually the written character is becoming
more correct in this respect.”

6.2 Relationship to Devanagari

While there exists a closer relationship between Kaithi and Gujarati, many specialists associate Kaithi with
Devanagari. Kaithi is often considered a corruption or cursive — parivartita rupa or ghasita saily —
form of Devanagari. Such characterizations are inaccurate. The relationship between the two scripts is more
appropriately described as one of parallel development rather than linear descent. Grierson, the foremost
authority on Kaithi, states that while Kaithi and Devanagari are related, “the two alphabets arose pari passu,
from an older original still found existing in inscriptions and the like.” The emergence of Kaithi and De-
anagari from a common source explains the similarity of certain letter shapes, but the differences between
them highlight the divergence in the development and use of the two scripts. In fact, as shown in Figure 2,
Kaithi and Devanagari belong to different sub-families of Nagari.

Apart from typological differences, the fundamental distinction between Kaithi and Devanagari lies in the
sphere of use. Grierson wrote that “[w]hile not so complete as the Deva-nāgari, for some of the rarer

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131 A point of interest is that while Grierson’s patwārī from Bihar could ably read Kaithi and Gujarati, a scribe from Vrindavan
(in present-day western Uttar Pradesh) charged with copying into Devanagari the Kaithi manuscript of Jīvā Gosvāmī was unable to
decipher the Kaithi (Mukherjee and Wright, 1979: 298ff4). Also, detailing his plan to travel to the Tirhut division of Bihar in 1915
for the purpose of taking up legal cases against the British government, Mahatma Gandhi, a native speaker of Gujarati, wrote in in
his The Story of My Experiments with Truth, that “[I find it difficult to understand the local dialect of Hindi, and I shall not be able to
read papers written in Kaithi or Urdu.” (Gandhi, 1929: 367). 132 Grierson, 1903b: 11. 133 Grierson, 1903b: 11. 134 Grierson,
letters are altogether wanting, it [Kaithi] bears to that alphabet much the same relation that the English current written hand does to the printed character.”

Grierson’s description suggests that Kaithi was the regular ‘cursive’ script used for routine purposes, while Devanagari was the ‘calligraphic’ script used for formal purposes. However, this does not mean that Kaithi was simply the cursive or hand-written form of Devanagari or that Devanagari is merely the formalized print version of Kaithi. The written form of Devanagari differs from Kaithi just as the printed form of Devanagari differs from the printed form of Kaithi. Through this orthographic division of labor, Kaithi was used to record the Bhojpuri, Magahi, and Maithili languages, while the Devanagari was used for Sanskrit and the formal styles of Hindi. Therefore, Kaithi is not as ‘complete’ a script as Devanagari because it was adapted for use with languages that did not possess the complex phonological features of Sanskrit and as such did not demand the preservation of such features in written form.

The scripts classified within the aforementioned categories may indeed possess similar features, such as the absence of the head-stroke, but the development of specific features among these regional styles resulted in modern writing systems that are not only typologically distinct from their historical siblings, but that are also tied to region-specific literary and cultural traditions. Grierson writes that “[t]he oldest books published in the Gujarātī language were printed in the Dēva-nāgarī type” and that the introduction of Gujarati metal type “is a matter within the memory of the present generation.”

6.3 Relationship to Syloti Nagri

The differentiation of the Kaithi family into regional scripts explains the relationship between Kaithi and Syloti Nagri. James Lloyd-Williams, the author of the Syloti Nagri proposal, states that Syloti Nagri is “a form of Kaithi.” As such, Lloyd-Williams suggests that while Gujarati may be considered the western-most member of the Kaithi family, the distinction of the eastern-most member should go to Syloti Nagri, not the Bihari Kaithi.

He writes that Syloti Nagri is most closely related to the Magahi style of Kaithi, however the features of the Syloti Nagri script, as well as distinct letterforms and orthographic devices, justify its status as an independent script separate from Kaithi.

6.4 Comparison of Kaithi, Gujarati, and Devanagari

The differences between the standard Kaithi, Gujarati, and Devanagari scripts are evident in the typographic tradition that developed around the scripts. The differences between them are evident through a comparison of the Kaithi and Gujarati metal fonts used in the Linguistic Survey of India shown in Figure 32. Table 6 and Table 7 illustrates the differences between Kaithi, Gujarati, Devanagari, and Syloti Nagri through a comparison of the digitized fonts for each script. A statistical breakdown of is given in Table 5.

These comparisons indicate that while several Kaithi, Gujarati, and Devanagari letterforms possess structural similarities, many are unique to the specific script. Apart from structure, the four scripts compared differ substantially in their representation and style. Thus, the similarities between the scripts owe more to reciprocal influences from contact than to unidirectionality.

Some letters in Kaithi and Gujarati have similar appearance, but different semantic value. For instance, न kaithi letter ja resembles न U+0AB3 gujarati letter lla. Kaithi lacks the letter for lla. Grierson shows a form of the consonant-vowel ligature for hr as ꞌ. This ligature is identical in shape to ꞌ kaithi letter jha. This ligature would be written as ꞌ hart in Kaithi.
<table>
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Table 5: Statistical comparison of similarity of letters across Kaithi, Gujarati, and Devanagari.
### Table 6: A comparison of the consonant letters of the Kaithi, Gujarati, Devanagari, and Syloti Nagri scripts

<table>
<thead>
<tr>
<th>Kaithi</th>
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Table 7: A comparison of vowel letters and signs of the Kaithi, Gujarati, Devanagari, and Syloti Nagri scripts

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</tr>
<tr>
<td>au</td>
<td>ऐ</td>
<td>ऐ</td>
<td>ऐ</td>
<td>—</td>
<td>-au</td>
<td>ऐ</td>
<td>ऐ</td>
<td>ऐ</td>
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Table 8: A comparison of digits of the Kaithi, Gujarati, Devanagari, and Syloti Nagri scripts. Note: Syloti Nagri uses Bengali digits.

<table>
<thead>
<tr>
<th></th>
<th>Kaithi</th>
<th>Gujarati</th>
<th>Devanagari</th>
<th>Syloti Nagri</th>
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<th>Gujarati</th>
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7 References


Proposal to Encode the Kaithi Script in ISO/IEC 10646
Anshuman Pandey


महागानपतिस्तोत्र [Mahāgānapatisṭotra] (anonymous). (undated). Miscellaneous stotra materials in the Devanagari and Kaithi scripts. Manuscript held at University of Pennsylvania (Poleman number 1876;
University of Pennsylvania number 2584).


Varmā, Śivaśaṅkara Prasāda. 1972. देवनागरी लिपि: ऐतिहासिक तथा भाषावैज्ञानिक अध्ययन [Devanāgarī
Figure 3: A comparison of the three regional forms of Kaithi, eg. the Tirhuti (Maithili), Magahi, and Bhojpuri (from Grierson, 1899: Plate II).
Plate III.

Combinations of consonants

Strong conjuncts.

Weak conjuncts.

Mixed conjuncts.

*Pronounced like ey, with a nasal accent.*

Figure 4: A list of Kaithi conjuncts used in the Maithili (Tirhut) style of Kaithi. These forms rarely appear in the Magahi or Bhojpuri styles (from Grierson, 1899: Plate III).
Figure 5: Currency, weights, and measures signs that appear in Kaithi documents (from Grierson, 1899: Plate IV). These signs are proposed for inclusion in the UCS in a separate proposal.
Figure 6: Specimen of hand-written Bhojpuri style of Kaithi (from Grierson, 1899: Plate XXVIII).
Figure 7: Specimen of hand-written Maithili style of Kaithi (from Grierson, 1899: Plate X).
Figure 8: Specimen of hand-written Magahi style of Kaithi (from Grierson, 1899: Plate XXVII).
BIHĀRĪ.

MAITHILI DIALECT (SOUTHERN VARIETY). (BEGUSARAI, NORTHERN MONGHYR.)

SPECIMEN II.

A FOLK-TALE.

Figure 9: Excerpt from a specimen of Maithili written in the Magahi style of Kaithi (from Grierson, 1903b: 82).
Figure 10: Specimen of Awadhi (from Grierson, 1904a: 51) written in what Grierson called “a sort of mixture of Dēva-nāgarī and Kaithī,” which was “current in the District amongst the educated classes” (from Grierson, 1904a: 49)
Figure 11: A specimen of the form of Bengali spoken in the Purnea region of Bihar written in the Kaithi script (from Grierson, 1903a: 140).
BIHÄRI.

MAGAHÌ DIALECT. (GAYA DISTRICT.)

**Specimen I.**

Figure 12: A specimen of Magahi printed in Kaithi type (from Grierson, 1903b: 124).

59
BIHARI.

MAITHILI DIALECT (AS USED BY HINDUS OF THE LOWER CASTES).

(DARBHANGA DISTRICT.)

Figure 13: A specimen of Maithili printed in Kaithi type (from Grierson, 1903b: 74).
Biharī.

Bhojpurī Dialect.

Western Sub-dialect. (District Azamgarh.)

Specimen I.

(Babu Rama Smaran Lal, 1898.)

एक श्रद्धा के लूटे गए है। आगे भोजपुरी श्रद्धा उपस्थिति के लूटे गए है। आगे भोजपुरी श्रद्धा उपस्थिति के लूटे गए है।

Figure 14: A specimen of Bhojpurī printed in Kaithi type (from Grierson, 1903b: 253).
KAITHÍ OR KĀYATHĪ ALPHABET.

VOWELS.

\[ \begin{align*}
\text{a} & \quad \text{ā} \\
\text{ə} & \quad \text{ī} \\
\text{e} & \quad \text{ē} \\
\text{ai} & \quad \text{i} \\
\text{au} & \quad \text{u} \\
\text{ă} & \quad \text{ah}
\end{align*} \]

CONSONANTS.

\[ \begin{align*}
\text{Gutturals.} & \quad \text{ka} \quad \text{ga} \quad \text{gha} \\
\text{Palatals.} & \quad \text{cha} \quad \text{ja} \quad \text{jha} \\
\text{Cerebrals.} & \quad \text{ta} \quad \text{tha} \quad \text{da} \quad \text{dha} \\
\text{Dentals.} & \quad \text{ta} \quad \text{tha} \quad \text{da} \quad \text{dha} \quad \text{na} \\
\text{Labials.} & \quad \text{pa} \quad \text{pha} \quad \text{ma} \\
\text{Semi-Vowels.} & \quad \text{va} \quad \text{la} \quad \text{va} \\
\text{Sibilants.} & \quad \text{sá} \quad \text{sha} \quad \text{sa} \\
\text{Aspirate.} & \quad \text{há}
\end{align*} \]

\[ a, \text{ being inherent in each consonant, is only written when initial in a word or syllable; thus, we write } \text{ap, } \text{tua, } \text{but } \text{pa, } \text{ta. } \text{The other vowels, when following a consonant, are substituted for the inherent } \text{a, } \text{and, in this case, they take the following forms:} \]

\[ a \text{ (not expressed); } \text{ā} \]

\[ ë, \text{ī, ō, ū; } \text{ē, ŵ; } \text{ai, ō, au.} \]

Thus, the several vowel sounds, when they follow consonants, are written as follows:

\[ \text{ka, } \text{ka, } \text{ki, } \text{ê, } \text{ku, } \text{kū, } \text{kē, } \text{kai, } \text{kō, } \text{kau.} \]

The vowel mark \( \text{ā} \) is called \( \text{anuśārā} \) as in Dēva-nāgari. It denotes the nasalization of a preceding vowel, and can therefore never begin a syllable. It is written over, or to the right of the preceding vowel: \( \text{as, } \text{āma, } \text{bāh} \). It is used for both the \( \text{anuśārā} \) and the \( \text{anuśārā} \) of Dēva-nāgari. The mark \( \text{ā} \) is called \( \text{bīṣārg} \), and indicates a weak aspiration. It is only found in pure Sanskrit words, and even then, though occurring in the original, is commonly omitted in Hindi; \( \text{ā} \) \( \text{dūkh} \) written and pronounced \( \text{ā} \) \( \text{dūkh} \).

Figure 15: A table showing the characters of the Kaithi script in the *Linguistic Survey of India* (from Grierson, 1903b: 12).
THE KAITHI CHARACTER,
in which the Hindui is usually written, and many works, intended chiefly for the more illiterate classes, are now frequently printed, is here subjoined.

I. AS PRINTED.

VOWELS.

| आ, इ, ई, ऊ, ऋ, ए, ऐ, ओ, औ | अंग, भाह |

CONSONANTS.

| ढ, ठ, द, ठ, ढ, ठ | र, ल, व |

II. AS COMMONLY WRITTEN, the letters being suspended from a continuous top-line.

CONSONANTS.

| घ, घ, घ, घ, घ | न, न, न |

VOWELS.

| आ, इ, ई, ऊ, ऋ, ए, ऐ, ओ, औ |

Figure 16: A table of the Kaithi script (from Eastwick, 1858: Plate I).
Figure 17: Inventory of Kaithi letters (from Śākyavamśa, 1974: 64)

Figure 18: Comparison of numerals of Kaithi and other scripts (from Śākyavamśa, 1974: 76)
Figure 19: Folios 1b and 2a from the Mahāgaṇapatiṣṭotra written in Devanagari and Kaithi (continued in Figure 20). The reproductions of these folios are used with permission from the University of Pennsylvania.
Folio 1a: Invocatory text in Devanagari (lines 1-2) and Kaithi (lines 3-4).

Folio 4a: Text in Kaithi and Devanagari. This folio contains two styles of Kaithi. Lines 1 and 2 are written in the Maithili style; lines 3–7 are in the Bhojpuri style.

Figure 20: Folios 1a and 4a from the *Mahaganapatistotra* written in Devanagari and Kaithi (continued from Figure 19). The reproductions of these folios are used with permission from the University of Pennsylvania.
Figure 21: Excerpt from a plaint from the district court of Patna, Bihar hand-written in Kaithi (from Bihar High Court of Judicature, 1939).
Figure 22: Excerpt from a plaint from the district court of Bhagalpur, Bihar hand-written in Kaithi (from Bihar High Court of Judicature, 1939).
Figure 23: Excerpt from a statement from the district court of Ranchi, Bihar hand-written in Kaithi (from Bihar High Court of Judicature, 1939).
Figure 24: A rent receipt granted by the Pirpattidar of Dugni (Principality of Seraikella) written in Kaithi on a form printed in Devanagari (from Government of Bihar, 1954: plate following p.288).
The Book of Genesis and Part of Exodus, in Kaithi.

Proposal to Encode the Kaithi Script in ISO/IEC 10646

Figure 25: The title, first, and second pages of the Book of Genesis printed in Kaithi type (from Calcutta Bible Society, 1851). The Kaithi font used here resembles Devanagari in the use of the headstroke, but distinct Kaithi letters can be identified.
Figure 26: The English title, Hindi title, and first page of the Hindi translation of the New Testament in Kaithi type (from Bible Translation Society, 1850). The Kaithi font used here is similar to that shown in Figure 25; it resembles Devanagari in the use of the headstroke, but distinct Kaithi letters can be identified. Note, in particular, the use of कैथी लेटर नना in the word नना, which appears in last word of the fifth sentence on the Kaithi title page.
BIHARI: Magahi dialect
Devanagari characters

कविका किन्तु ब्रह्म जीवन दियावात का जीवन का चमत्कार देख।

BICOL

16 § Huli ta an Dios namoot na gayo sa kinaban, na itinano sa an siay nga Aking bongtong, tagan’an an iiay man na minatubod sa siay daa mapahamak, kundi magaigua nina bulaay na daa nin kapatusan.
17 Huli ta an Dios da nagmgoro kan siay nga Aki sa kinaban na magsitot kan kinaban; kundi tagan’an an kinaban ikalitgias huli siaya.
18 An minatubod sa siay, daa, sinisitotan: an daa minatubod nasilotan na, huli ta da nagtubod sa gharan kan Aking bongtong nin Dios.
19 Asin ini iyo an sikoc, na an ilao napatligi sa kinaban, asin an maga nga tu ao nameeto pang labi sa diklim ki sa liwanag; huli ta an sindang maga nga guibo maraat.
20 Huli ta an diisay man na nagguigibo nga maraot naaogghi sa liwanag, asin daa minadolok sa ilaa, tagan’an an siay nga maga nga guibo nga magkasagrad.
21 Alagad an nagguigibo nga kitotoohan mi dadolok sa ilaa, tagan’an an siay nga guibo mahayag, na an maga iyan nahaman sa Dios.

1928


BIHARI: Bhojpuri dialect
Kathi characters

कम्हती खेन नाम मे बसन म पल पल देखे के पांडे उनका पर विचार करे से जासा न आये जाय निजी यात्रा।

1913

Spoken by about 20,000,000 people in Bengal, India. First publication, St. John’s Gospel in 1911 at Calcutta by the BFBS; tr. by Miss Robertson, of the Regions Beyond Missionary Union, with native assistance. Revised edition, Devanagari characters, 1934.

BIHARI: Kortha dialect

काउ की जै कोथ प्रमेय के धक्का पर चले, बैढ हमरे भाद बहोन भार मय देख।

Devanagari characters: Mk. 3-35

Spoken by over 300,000 people in Manbhum district of Bengal, India. First publication, St. Mark’s Gospel in 1895 at Pethurah, Manbhum, India, by the Santal Mission Press; tr. by A. Campbell of the United Free Church Mission and a native Christian, Ishwar Sabai.

Figure 27: Entries for the ‘Bihari’ languages in The Book of a Thousand Tongues showing specimens from bibles published in Kaithi and Devanagari type (from American Bible Society, 1938: 69). The Kaithi font used here is identical to that used in the Linguistic Survey of India.
Figure 28: A folio from the "Ekadalā" manuscript of Miragāvatī c.1828 (from Miśra, 1963: plate 2).
Figure 29: A folio from the *Tale of Sudama*, India, Bikaner, 1745-6 CE, No. 9028, Sam Fogg, London. Image © Sam Fogg, London
Figure 30: A sanad of Sher Shah Suri, dated December 19, 1540 (947 A. H.), bear the Persian text of the warrant in the Perso-Arabic and Kaithi scripts (from Jalaluddin, 1978: Plate I).
Figure 31: A letter to the Supreme Civil Court of Appeals in Calcutta. The letter is written in the high Persian idiom and sīkastā style common in courts of law. The seal at the top contains text in the Perso-Arabic (first two lines), Bengali (middle two lines), and Kaithi (bottom two lines) scripts. The Kaithi text reads "मोहर अदालत दिवानी शादर 1850" (mohar adalat divānī šadār 1850) is a transliteration of the Urdu "مہر عدالت دوہائی صدر 1850," meaning "the seal of the Supreme Civil Court of Appeals" (from Stewart, 1825: plate 12, p.54–55).
Figure 32: Comparison of Kaithi (from Grierson, 1903b: 124), Gujarati (from Grierson, 1908: 365), and Devanagari (from Grierson, 1916: 95) types from the Linguistic Survey of India.
Figure 33: Comparison of hand-written Kaithi (from Ojhâ, 1971: Plate LXXVIII) and Gujarati letters (from Ojhâ, 1971: Plate LXXIX).

<table>
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<tr>
<th>TABLE 13.1: KAITHI OR KÂYATHI SCRIPT WITH DEVANĀGARI EQUIVALENTS AND TRANSLITERATIONS</th>
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<tbody>
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<td>Vowels</td>
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<tr>
<td>Stops</td>
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<td>ख kh ग g घ gh</td>
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<td>Spirants</td>
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<tr>
<td>श s ष s च c छ ch</td>
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<tr>
<td>Others</td>
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<tr>
<td>Anusvāra</td>
</tr>
<tr>
<td>अ am</td>
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<tr>
<td>Visarga</td>
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<tr>
<td>अ ah</td>
</tr>
</tbody>
</table>

Figure 34: Comparison of Kaithi and Devanagari (from S. Verma, 2003: 502).
KAITHI

VOEWFs.

\( \text{Kaithi} \)

\( \text{Devanagari} \)

\( \text{Consonants.} \)

\begin{array}{|c|c|c|c|c|c|c|c|c|}
\hline
\text{k} & \text{kh} & \text{g} & \text{gh} & \text{ng} & \text{h} & \text{y} & \text{sh} \\
\text{ch} & \text{chh} & \text{j} & \text{jh} & \text{n} & \text{r} & \text{sh} \\
\text{t} & \text{th} & \text{d} & \text{dh} & \text{n} & \text{l} & \text{sh} \\
\text{tp} & \text{ph} & \text{b} & \text{bh} & \text{m} & \text{v} \\
\hline
\end{array}

DEVANAGARI

VOEWFs.

\( \text{Short, अ इ उ ऊ ए ऐ ओ औ एँ एः} \) \text{; anuswāra.}

\( \text{Long, आ इ उ ऊ ए ऐ ओ औ एँ एः} \) \text{; visarga.}

\( \text{Consonants.} \)

\begin{array}{|c|c|c|c|c|c|c|c|c|}
\hline
\text{Hard.} & \text{Soft.} & \text{Nasals.} & \text{Sibilants.} & \text{Semi-
\text{vowels, etc.} \\
\hline
\text{Gutturals.} & \text{क} & \text{ग} & \text{उ} & \text{ह} \\
\text{Palatals.} & \text{च} & \text{ज} & \text{श} & \text{ष} & \text{श} \\
\text{Cerebrals.} & \text{ट} & \text{ड} & \text{ण} & \text{व} & \text{र} & \text{व} \\
\text{Dentals.} & \text{त} & \text{द} & \text{न} & \text{स} & \text{ल} \\
\text{Labials.} & \text{प} & \text{ब} & \text{म} & \text{v} \\
\hline
\end{array}

Figure 35: Comparison of Kaithi and Devanagari metal fonts used in Eastwick (1858). Both the Kaithi and Devanagari fonts are produced with the top-line, but the distinctiveness of both scripts is evident.
Figure 36: A comparison of the Kaithi script with the Devanagari and Mahajani (from Grierson, 1899: Plate I).
Figure 37: A table from *Kaithi vo hindi barnamālā*, a Kaithi script primer, showing the Kaithi and Devanagari scripts in parallel. The Kaithi letters in this primer are drawn in conformity to the Devanagari style, which is most noticeable in the presence of the headstroke. Note the difference in the headstroke in Devanagari and Kaithi (from *Kaithī vo hindī barnamālā*, 1882: 2).
Figure 38: Comparison of writing techniques in Kaithi and Devanagari (from *Kaiith vo hindt barnamālā*, 1882: 8).
Figure 39: Comparison of scripts descended from proto-Bengali (from Jensen, 1969: 370).
Figure 40: Comparison of Kaithi with other scripts used for writing Hindi (from Kellogg, 1893: 26–27).

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<th>Mahdg</th>
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Figure 41: Comparison of Kaithi with other Indic scripts (from Mule, 1974: 163-165).

<table>
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<th>Kaithi</th>
<th>Punjabi</th>
<th>Bengali</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image4" alt="Kaithi Characters" /></td>
<td><img src="image5" alt="Punjabi Characters" /></td>
<td><img src="image6" alt="Bengali Characters" /></td>
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<th>Telugu</th>
</tr>
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<tbody>
<tr>
<td><img src="image7" alt="Kaithi Characters" /></td>
<td><img src="image8" alt="Tamil Characters" /></td>
<td><img src="image9" alt="Telugu Characters" /></td>
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<tr>
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<th>Malayalam</th>
<th>Kannada</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image10" alt="Kaithi Characters" /></td>
<td><img src="image11" alt="Malayalam Characters" /></td>
<td><img src="image12" alt="Kannada Characters" /></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Kaithi</th>
<th>Marathi</th>
<th>Gujarati</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image13" alt="Kaithi Characters" /></td>
<td><img src="image14" alt="Marathi Characters" /></td>
<td><img src="image15" alt="Gujarati Characters" /></td>
</tr>
</tbody>
</table>
Figure 42: Comparison of Kaithi with other Indic scripts (from Naik, 1971: Table 13).
Figure 43: A family tree of north Indic scripts showing Kaithi as a member of the Nagari family (from Singh, 1991: 16).

Figure 44: The relationship of Kaithi to other Indic scripts (from Naik, 1971: Plate 36).