L2/08-017

Draft Proposal to Encode the Sharada Script in ISO/IEC 10646

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ISO/IEC JTC 1/SC 2/WG 2
PROPOSAL SUMMARY FORM TO ACCOMPANY SUBMISSIONS
FOR ADDITIONS TO THE REPERTOIRE OF ISO/IEC 10646[1]

Please fill all the sections A, B and C below. Please read Principles and Procedures Document (P & P) from http://www.dkuug.dk/JTC1/SC2/WG2/docs/principles.html for guidelines and details before filling this form.
Please ensure you are using the latest Form from http://www.dkuug.dk/JTC1/SC2/WG2/docs/summaryform.html.
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A. Administrative

1. Title: **Draft Proposal to Encode the Sharada 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: **January 18, 2008**
5. Requester's reference (if applicable): **N/A**
6. Choose one of the following:
   (a) This is a complete proposal: **No**
   (b) or, More information will be provided later: **Yes**

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: **Sharada**
   (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: **80**
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 Sharada font are based on normalized forms of written Sharada found in manuscripts. 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.**

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[1] Form number: N3102-F (Original 1994-10-14; Revised 1995-01, 1995-04, 1996-04, 1996-08, 1999-03, 2001-05, 2001-09, 2003-11, 2005-01, 2005-09, 2005-10, 2007-03)

C. Technical - Justification

1. Has this proposal for addition of character(s) been submitted before?: **No**
2. Has contact been made to members of the user community (for example: National Body, user groups of the script or characters, other experts, etc.)? **Yes**
   (a) If Yes, with whom?:
   - **Dr. Jürgen Hanneder (hanneder@staff.uni-marburg.de), Philipps-Universität, Marburg, Germany**
   - **Dr. Walter Slaje (walter.slaje@indologie.uni-halle.de), Martin-Luther-Universität, Halle, Germany**

   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: **Epigraphists, linguists, and historians working with ancient and medieval India.**
4. The context of use for the proposed characters (type of use; common or rare): **Common**
   (a) Reference: **Inscriptions, coins, and manuscripts in Sanskrit, Kashmiri, and the regional languages of northern South Asia.**
5. Are the proposed characters in current use by the user community?: **The script is in very limited use by the Kashmiri Pandit community. However, there is a scholarly community engaged in study of Sharada manuscripts.**
   (a) If Yes, where? Reference: **In India, Germany, and the United States.**
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 Sharada script in the Supplementary Multilingual Plane (Plane 1) of the Universal Character Set (ISO/IEC 10646).

It is not a complete proposal. This document provides technical details about the Sharada script and examples of its use so that the Unicode Technical Committee may provide comments and recommendations to the proposal author regarding potential issues in encoding or implementing the script. Pending response from the UTC, the proposal will be revised to address any concerns raised. The revision will also include an expanded description of the orthographic features of Sharada, with examples from manuscripts; details on the Sharada manuscript tradition; and additional background information about the script.

1.1 Description

The Sharada script is a major historical Brahmi-based script of South Asia and it was the principal script of Kashmir until the 20th century. It was used extensively from the 8th century CE for inscriptions on stone, copper, and other media to as late as the 18th century. Manuscripts of Vedic and classical Sanskrit text were first written in Sharada beginning in the 12th century, meeting the apex of scribal production by the 18th century. Metal types for Sharada were developed in the 19th century CE by Western missionary organization for printing bibles. Its use continued in a limited fashion into the 20th century CE, and it became obsolete by the 1950s, when an expanded Perso-Arabic script was established as the official script for Kashmiri. Sharada is not used at present, except for ceremonial purposes by the Kashmiri Pandit community. However, scholarly study of Sharada continues to grow, especially in Germany.

1.2 Acknowledgments

The author is indebted to Dr. Jürgen Hanneder (Philipps-Universität, Marburg, Germany) for his generosity in sharing his knowledge of Sharada, for providing specimens of Sharada characters, and for offering detailed comments on the forms and styles of Sharada characters.

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).

1.3 Proposal History

This document is the first formal proposal for encoding Sharada in the UCS. The present author submitted a proposal titled “Request to Allocate the Sharada Script in the Unicode Roadmap” (L2/05-377) on November 21, 2005. The intent was to bring the matter of Sharada to the Unicode Technical Committee (UTC). The script was allocated in the Supplmentary Multilingual Plane at the range U+11280..U+112DF on December 8, 2005. Sharada was re-allocated at the range U+11180..U+111DF on September 21, 2006.

	1118	1119	111A	111B	111C	111D
0	𑆀	𑆙	𑆩	𑆫	𑆳	॰
1	𑆁	𑆚	𑆪	𑆬	𑆴	०
2	𑆂	𑆛	𑆫	𑆭	𑆵	७
3	𑆃	𑆜	𑆬	𑆮	𑆶	७
4	𑆄	𑆝	𑆭	𑆯	𑆷	८
5	𑆅	𑆞	𑆮	𑆰	𑆸	५
6	𑆆	𑆟	𑆯	𑆱		६
7	𑆇	𑆠	𑆰	𑆲		७
8	𑆈	𑆡	𑆱	𑆳		८
9	𑆉	𑆢	𑆲	𑆴		७
A	𑆊	𑆣	𑆳	𑆵		
B	𑆋	𑆤	𑆴	𑆶		
C	𑆌	𑆥	𑆵	𑆷		
D	𑆍	𑆦	𑆶	𑆸		
E	𑆎	𑆧	𑆷	𑆹		
F	𑆏	𑆨	𑆸	𑆺		

Table 1: Proposed glyph chart for Sharada

2 Characters Proposed

The 80 letters in this proposal comprise the core set of Sharada letters and signs. This set is sufficient for the general encoding and processing of Sharada documents.

Consonants There are 34 consonant letters:

𑆑	SHARADA LETTER KA	𑆜	SHARADA LETTER DDA	𑆫	SHARADA LETTER MA
𑆒	SHARADA LETTER KHA	𑆝	SHARADA LETTER DDHA	𑆬	SHARADA LETTER YA
𑆓	SHARADA LETTER GA	𑆞	SHARADA LETTER NNA	𑆭	SHARADA LETTER RA
𑆔	SHARADA LETTER GHA	𑆟	SHARADA LETTER TA	𑆮	SHARADA LETTER LA
𑆕	SHARADA LETTER NGA	𑆠	SHARADA LETTER THA	𑆯	SHARADA LETTER LLA
𑆖	SHARADA LETTER CA	𑆡	SHARADA LETTER DA	𑆰	SHARADA LETTER VA
𑆗	SHARADA LETTER CHA	𑆢	SHARADA LETTER DHA	𑆱	SHARADA LETTER SHA
𑆘	SHARADA LETTER JA	𑆣	SHARADA LETTER NA	𑆲	SHARADA LETTER SSA
𑆙	SHARADA LETTER JHA	𑆤	SHARADA LETTER PA	𑆳	SHARADA LETTER SA
𑆚	SHARADA LETTER NYA	𑆥	SHARADA LETTER PHA	𑆴	SHARADA LETTER HA
𑆛	SHARADA LETTER TTA	𑆦	SHARADA LETTER BA		
𑆝	SHARADA LETTER TTHA	𑆧	SHARADA LETTER BHA		

Vowels There are 14 independent vowels:

𑆀	SHARADA LETTER A	𑆎	SHARADA LETTER VOCALIC RR
𑆁	SHARADA LETTER AA	𑆏	SHARADA LETTER VOCALIC L
𑆂	SHARADA LETTER I	𑆐	SHARADA LETTER VOCALIC LL
𑆃	SHARADA LETTER II	𑆪	SHARADA LETTER E
𑆄	SHARADA LETTER U	𑆫	SHARADA LETTER AI
𑆅	SHARADA LETTER UU	𑆬	SHARADA LETTER O
𑆆	SHARADA LETTER VOCALIC R	𑆭	SHARADA LETTER AU

Vowel Signs There are 13 dependent vowel signs:

𑆰𑆾	SHARADA VOWEL SIGN AA	𑆰𑇃	SHARADA VOWEL SIGN VOCALIC L
𑆰𑆿	SHARADA VOWEL SIGN I	𑆰𑇄	SHARADA VOWEL SIGN VOCALIC LL
𑆰𑇀	SHARADA VOWEL SIGN II	𑆰𑇁	SHARADA VOWEL SIGN E
𑆰𑇁	SHARADA VOWEL SIGN U	𑆰𑇂	SHARADA VOWEL SIGN AI
𑆰𑇂	SHARADA VOWEL SIGN UU	𑆰𑆾𑆪	SHARADA VOWEL SIGN O
𑆰𑇃	SHARADA VOWEL SIGN VOCALIC R	𑆰𑆾𑆫	SHARADA VOWEL SIGN AU
𑆰𑇄	SHARADA VOWEL SIGN VOCALIC RR		

Various Signs There are 9 various signs:

◌𑆀	SHARADA SIGN CANDRABINDU	◌𑆳	SHARADA SIGN JIHVAMULIYA
◌𑆁	SHARADA SIGN ANUSVARA	◌𑆴	SHARADA SIGN UPADHMANIYA
◌𑆂	SHARADA SIGN VISARGA	𑇍	SHARADA OM
◌𑇀	SHARADA SIGN VIRAMA	𑇎	SHARADA EKAM
𑆫	SHARADA AVAGRAHA		

Digits There are 10 digits:

𑇐	SHARADA DIGIT ZERO	𑇔	SHARADA DIGIT FOUR	𑇘	SHARADA DIGIT EIGHT
𑇑	SHARADA DIGIT ONE	𑇕	SHARADA DIGIT FIVE	𑇙	SHARADA DIGIT NINE
𑇒	SHARADA DIGIT TWO	𑇖	SHARADA DIGIT SIX		
𑇓	SHARADA DIGIT THREE	𑇗	SHARADA DIGIT SEVEN		

2.1 Basis for Character Shapes

The Sharada characters proposed here are normalized forms of hand-written characters found in manuscripts. The normalized forms are derived from a comparison of hand-written Sharada characters. These sources are compared to the proposed forms in Table 2 (consonants), Table 3 (vowels), and Table 4 (digits). The normalized forms were designed by observing the most common shapes and features of a given character across different sources.

For purposes for introducing a standardized script, existing typefaces serve as the best source because they imply that a conscious effort was previously made to establish acceptable forms of characters of a script. Metal fonts for Sharada appear to have been produced, but information on them is limited. Figure 13 shows a specimen from a bible in the Kashmir language printed Sharada. It is the only example of printed Sharada found by the present author. On account of the absence of specimens of Sharada metal fonts, the normalized characters are based on hand-written forms.

Part of the difficulty in determining normalized forms for a script like Sharada lies in deciding where, along an evolutionary timeline that stretches for a millenium, a snapshot of a script should be taken. Next, additional research and analysis is required in order to establish whether that particular snapshot is sufficiently representative to serve as a standard or normalized form of that script. For Sharada, the 13th century represents a major transformation of the script. Most specialists agree that the script before this period is of a different type than what developed afterwards. The earlier script is considered "Sharada proper" and that which followed is termed modern Sharada.[1]. The distinction may be simplified as the difference between Sharada of the inscriptions and Sharada of the manuscripts.

The Sharada script proposed here is Modern Sharada. The decision to encode modern Sharada as the normative script rests on the fact that the majority of extant Sharada materials are manuscripts, which are written in the modern script. An analysis of numerous Sharada manuscripts shows that the style, forms, and orthography of the script maintain a certain uniformity over time (for example, compare the Sharada in the Bakhshali manuscript of the 12th century (Figure 4) with that of the specimen in the *Linguistic Survey of India* from the late 19th century (Figure 18). Such uniformity suggests that the essence and nature of Sharada was best

[1] Kaye, 1927: 10

captured with the fluidity of pen and ink on birch bark than through the relatively unyielding medium of stone or copper.

2.2 Characters Not Proposed

The following characters are attested in written Sharada 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 Sharada block to accommodate the possible inclusion of these characters in the future.

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 concensus is that introducing script-specific *daṇḍā*s is similar to introducing distinct punctuation, as commas and periods, for each script. As for Indic scripts, the claim may be made for Sharada that script-specific *daṇḍā*s are necessary to ensure stylistic compatbility between *daṇḍā*s and other characters. However, the UTC has stated that unless evidence is presented to warrant the encoding of script-specific *daṇḍā*s, the recommendation is to unify these characters with those of Devanagari.

Signs for Representing Vedic Sanskrit Sharada has signs for representing Vedic 'accents'. It may be possible to unify Sharada signs for Vedic with the characters proposed by Michael Everson, Peter Scharf, et al. in "Proposal to encode characters for Vedic Sanskrit in the BMP of the UCS" (ISO/IEC JTC1/SC2/WG2 N3235 L2/07-095). A determination will be made upon further research of the matter.

Signs for Representing Kashmiri Accent signs were introduced to modern Sharada for the purpose of representing vowels of the Kashmiri language, all of which could not be expressed using the standard Brahmi-based vowel signs. Due to limited information on writing Kashmiri in Sharada, the full repertoire and semantics of these signs remains to be determined. Those that have been identified are graphically similar to *nukta*, Devanagari *virāma*, Devanagari *anudatta*, etc. These signs are supplementary characters; they are not part of the core set of Sharada characters.

Table 2: Comparison of hand-written Sharada consonants shown in Slaje (column 'A'), Ojhā (column 'B'), and Grierson (column 'C') with digitized forms designed by Pandey (column 'D').

Table 3: Comparison of hand-written Sharada vowels shown in Slaje (column ‘A’), Ojhā (column ‘B’), and Grierson (column ‘C’) with digitized forms designed by Pandey (column ‘D’).

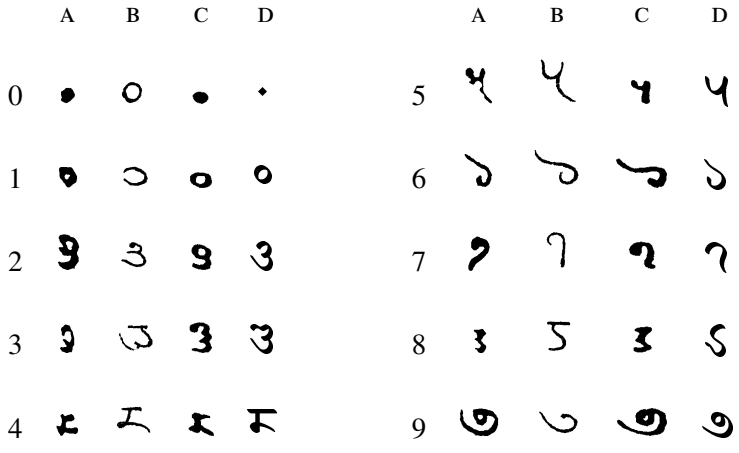

Table 4: Comparison of hand-written Sharada digits shown in Slaje (column ‘A’), Ojhā (column ‘B’), and Grierson (column ‘C’) with digitized forms designed by Pandey (column ‘D’).

CONSONANTS			
𑆑	*ka*	*kov ka*	SHARADA LETTER KA
𑆒	*kha*	*khvani kha*	SHARADA LETTER KHA
𑆓	*ga*	*gagar ga*	SHARADA LETTER GA
𑆔	*gha*	*gasi ga*	SHARADA LETTER GHA
𑆕	*ṅa*	*narug na*	SHARADA LETTER NGA
𑆖	*ca*	*catuv ca*	SHARADA LETTER CA
𑆗	*cha*	*chvatin cha*	SHARADA LETTER CHA
𑆘	*ja*	*zayi za*	SHARADA LETTER JA
𑆙	*jha*	*zashin za*	SHARADA LETTER JHA
𑆚	*ña*	*khvana phuti na*	SHARADA LETTER NYA
𑆛	*ṭa*	*ar manta*	SHARADA LETTER TTA
𑆜	*ṭha*	*sar mantha*	SHARADA LETTER TTHA
𑆝	*ḍa*	*dud da*	SHARADA LETTER DDA
𑆞	*ḍha*	*daka da*	SHARADA LETTER DDHA
𑆟	*ṇa*	*nanaguri na*	SHARADA LETTER NNA
𑆠	*ta*	*tov ta*	SHARADA LETTER TA
𑆡	*tha*	*thashi tha*	SHARADA LETTER THA
𑆢	*da*	*dadav da*	SHARADA LETTER DA
𑆣	*dha*	*dun da*	SHARADA LETTER DHA
𑆤	*na*	*nastuv na*	SHARADA LETTER NA
𑆥	*pa*	*paduri pa*	SHARADA LETTER PA
𑆦	*pha*	*pharin pha*	SHARADA LETTER PHA
𑆧	*ba*	*bub ba*	SHARADA LETTER BA
𑆨	*bha*	*bayi ba*	SHARADA LETTER BHA
𑆩	*ma*	*mov ma*	SHARADA LETTER MA
𑆪	*ya*	*yava ya*	SHARADA LETTER YA
𑆫	*ra*	*raka ra*	SHARADA LETTER RA
𑆬	*la*	*lava la*	SHARADA LETTER LA
𑆭	*ḷa*	*bodu dud da*	SHARADA LETTER LLA
𑆮	*va*	*vasha va*	SHARADA LETTER VA
𑆯	*śa*	*shekar sha*	SHARADA LETTER SHA
𑆰	*ṣa*	*phori sha*	SHARADA LETTER SSA
𑆱	*sa*	*sus sa*	SHARADA LETTER SA
𑆲	*ha*	*hala ha*	SHARADA LETTER HA

Table 5: Transliteration and traditional Kashmiri names of Sharada consonants

		INDEPENDENT VOWELS	
𑆃	*a*	*adau a*	SHARADA LETTER A
𑆄	*ā*	*aitav a*	SHARADA LETTER AA
𑆅	*i*	*yeyev ye*	SHARADA LETTER I
𑆆	*ī*	*yisherav yi*	SHARADA LETTER II
𑆇	*u*	*vopal vo*	SHARADA LETTER U
𑆈	*ū*	*vopal ba u*	SHARADA LETTER UU
𑆉	*ṛ*	*renav*	SHARADA LETTER VOCALIC R
𑆊	*ṝ*	*rakhav*	SHARADA LETTER VOCALIC RR
𑆋	*ḷ*	*leyev*	SHARADA LETTER VOCALIC L
𑆌	*ḹ*	*lisav*	SHARADA LETTER VOCALIC LL
𑆍	*e*	*talavya ye*	SHARADA LETTER E
𑆎	*ai*	*toli ai*	SHARADA LETTER AI
𑆏	*o*	*vutho o*	SHARADA LETTER O
𑆐	*au*	*ashidi au*	SHARADA LETTER AU
		DEPENDENT VOWEL SIGNS	
𑆰	*-ā*	*vahay*	SHARADA VOWEL SIGN AA
𑆱	*-i*	*munthar*	SHARADA VOWEL SIGN I
𑆲	*-ī*	*ar munthar*	SHARADA VOWEL SIGN II
𑆳	*-u*	*khuru*	SHARADA VOWEL SIGN U
𑆴	*-ū*	*ar khuru*	SHARADA VOWEL SIGN UU
𑆵	*-ṛ*	*renav ra*	SHARADA LETTER VOCALIC R
𑆶	*-ṝ*	*rakhav ru*	SHARADA LETTER VOCALIC RR
𑆷	*-ḷ*	*leyev la*	SHARADA LETTER VOCALIC L
𑆸	*-ḹ*	*lisav la*	SHARADA LETTER VOCALIC LL
𑆹	*-e*	*hvandu*	SHARADA VOWEL SIGN E
𑆺	*-ai*	*hvanjor*	SHARADA VOWEL SIGN AI
𑆻	*-o*	*oku shyur*	SHARADA VOWEL SIGN O
𑆼	*-au*	*okushi vahay*	SHARADA VOWEL SIGN AU
		VARIOUS SIGNS	
𑆀	*ṃ*	*adi candra phyoru*	SHARADA SIGN CANDRABINDU
𑆁	*ṁ*	*mas phyori am*	SHARADA SIGN ANUSVARA
𑆂	*ḥ*	*do phyori ah*	SHARADA SIGN VISARGA
𑆿		*morith*	SHARADA SIGN VIRAMA
𑇀	*ḥ*	*jihvamuliya*	SHARADA SIGN JIHVAMULIYA
𑇁	*ḥ*	*upadhmaniya*	SHARADA SIGN UPADHMANIYA
𑆫	*’*	*do adau a*	SHARADA AVAGRAHA

Table 6: Transliteration and traditional Kashmiri names of Sharada vowels and signs

3 Technical Features

3.1 Name

The name of the script in the UCS shall be Sharada. The Latin transliteration as recommended by ISO 15919 is Śāradā.[2] This proposal uses the name 'Sharada', normalized without diacritics.

3.2 Character Names

The names of the characters follow the convention used for Devanagari and other Indic scripts. However, there are traditional Kashmiri names for the letters and signs of Sharada, which differ from the common Indic tradition of naming letters according to their phonetic values. The Kashmiri names are given in Table 5 (consonants) and Table 6 (vowels). Further discussion of character names is made in section 4.2.

3.3 Classification

Sharada is classified as a "Category C" (major extinct) as per the criteria specified in ISO/IEC JTC 1/SC 2/WG 2 N3002.[3] However, its present use by the Kashmiri Pandit community, albeit in a highly restricted manner, represents a specialized use of the script, which would qualify it as "Category B.1" (specialized) script. Sharada is historically significant and there exists a substantial body of literature written and printed in the script.

3.4 Allocation

Sharada is currently allocated in the Supplementary Multilingual Plane (SMP) (Plane 1) of the UCS at the range U+11180..U+111DF.[4] The six rows allocated for Sharada in the SMP are sufficient for encoding the script. The entire script may be encoded in five rows with sufficient space remaining for the inclusion of additional characters, should the need arise. The glyph chart in Table 1 shows the characters proposed for encoding and the accompanying character properties are given in section 3.6.1

3.5 Encoding Model

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

Consonant letters bear the inherent vowel *a* (SHARADA LETTER A) when unaccompanied by a vowel sign. The inherent vowel is suppressed by the *virāma* (SHARADA SIGN VIRAMA) to produce the bare consonant. The inherent vowel is changed by applying a vowel sign to the consonant. With two exceptions, all vowel signs are written either above or below the consonant letter. The exceptions are SHARADA VOWEL SIGN I, which is written to the left of the consonant, and SHARADA VOWEL SIGN II, which is written to the right.

A sequence of consonants (in which all but the final consonant has no vowel) is written as a consonant conjunct, which may occur as (a) a true ligature; (b) half-forms of all consonants except the final consonant, which assumes a full form; or (c) a combination of the above.

[2] International Organization for Standardization, 2001; Stone, 2004. [3] International Organization for Standardization, 2005: 4.
[4] Unicode Roadmap Committee, 2007.

3.6 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 SHARADA VOWEL SIGN U, SHARADA VOWEL SIGN UU, SHARADA VOWEL SIGN E, SHARADA VOWEL SIGN AI, SHARADA VOWEL VOCALIC R, SHARADA VOWEL VOCALIC RR, SHARADA VOWEL VOCALIC L, SHARADA VOWEL VOCALIC LL, and SHARADA VOWEL SIGN O, 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 SHARADA VOWEL SIGN AA, SHARADA VOWEL SIGN I, SHARADA VOWEL SIGN II, and SHARADA 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 SHARADA SIGN CANDRAINDU, SHARADA SIGN ANUSVARA, SHARADA SIGN JIHVAMULIYA, and SHARADA SIGN UPADMANIYA are non-spacing marks that belongs to the general category "Mn," are of combining class "0," and possess the bidirectional class value "NSM."

The SHARADA 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 SHARADA SIGN VIRAMA is a spacing mark that belongs to the general category "Mc," has a combining class value of "9" (Viramas), and has the bidirectional class value "L."

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)

3.6.1 Unicode Character Database Format

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

```
11180;SHARADA SIGN CANDRABINDU;Mn;0;NSM;;;;;N;;;;;
11181;SHARADA SIGN ANUSVARA;Mn;0;NSM;;;;;N;;;;;
11182;SHARADA SIGN VISARGA;Mc;0;L;;;;;N;;;;;
11183;SHARADA LETTER A;Lo;0;L;;;;;N;;;;;
11184;SHARADA LETTER AA;Lo;0;L;;;;;N;;;;;
11185;SHARADA LETTER I;Lo;0;L;;;;;N;;;;;
11186;SHARADA LETTER II;Lo;0;L;;;;;N;;;;;
11187;SHARADA LETTER U;Lo;0;L;;;;;N;;;;;
11188;SHARADA LETTER UU;Lo;0;L;;;;;N;;;;;
11189;SHARADA LETTER VOCALIC R;Lo;0;L;;;;;N;;;;;
1118A;SHARADA LETTER VOCALIC RR;Lo;0;L;;;;;N;;;;;
1118B;SHARADA LETTER VOCALIC L;Lo;0;L;;;;;N;;;;;
1118C;SHARADA LETTER VOCALIC LL;Lo;0;L;;;;;N;;;;;
1118D;SHARADA LETTER E;Lo;0;L;;;;;N;;;;;
1118E;SHARADA LETTER AI;Lo;0;L;;;;;N;;;;;
1118F;SHARADA LETTER O;Lo;0;L;;;;;N;;;;;
11190;SHARADA LETTER AU;Lo;0;L;;;;;N;;;;;
11191;SHARADA LETTER KA;Lo;0;L;;;;;N;;;;;
11192;SHARADA LETTER KHA;Lo;0;L;;;;;N;;;;;
11193;SHARADA LETTER GA;Lo;0;L;;;;;N;;;;;
11194;SHARADA LETTER GHA;Lo;0;L;;;;;N;;;;;
11195;SHARADA LETTER NGA;Lo;0;L;;;;;N;;;;;
11196;SHARADA LETTER CA;Lo;0;L;;;;;N;;;;;
11197;SHARADA LETTER CHA;Lo;0;L;;;;;N;;;;;
11198;SHARADA LETTER JA;Lo;0;L;;;;;N;;;;;
11199;SHARADA LETTER JHA;Lo;0;L;;;;;N;;;;;
1119A;SHARADA LETTER NYA;Lo;0;L;;;;;N;;;;;
1119B;SHARADA LETTER TTA;Lo;0;L;;;;;N;;;;;
1119C;SHARADA LETTER TTHA;Lo;0;L;;;;;N;;;;;
1119D;SHARADA LETTER DDA;Lo;0;L;;;;;N;;;;;
1119E;SHARADA LETTER DDHA;Lo;0;L;;;;;N;;;;;
1119F;SHARADA LETTER NNA;Lo;0;L;;;;;N;;;;;
111A0;SHARADA LETTER TA;Lo;0;L;;;;;N;;;;;
111A1;SHARADA LETTER THA;Lo;0;L;;;;;N;;;;;
111A2;SHARADA LETTER DA;Lo;0;L;;;;;N;;;;;
111A3;SHARADA LETTER DHA;Lo;0;L;;;;;N;;;;;
111A4;SHARADA LETTER NA;Lo;0;L;;;;;N;;;;;
111A5;SHARADA LETTER PA;Lo;0;L;;;;;N;;;;;
111A6;SHARADA LETTER PHA;Lo;0;L;;;;;N;;;;;
111A7;SHARADA LETTER BA;Lo;0;L;;;;;N;;;;;
111A8;SHARADA LETTER BHA;Lo;0;L;;;;;N;;;;;
111A9;SHARADA LETTER MA;Lo;0;L;;;;;N;;;;;
111AA;SHARADA LETTER YA;Lo;0;L;;;;;N;;;;;
111AB;SHARADA LETTER RA;Lo;0;L;;;;;N;;;;;
111AC;SHARADA LETTER LA;Lo;0;L;;;;;N;;;;;
111AD;SHARADA LETTER LLA;Lo;0;L;;;;;N;;;;;
111AE;SHARADA LETTER VA;Lo;0;L;;;;;N;;;;;
111AF;SHARADA LETTER SHA;Lo;0;L;;;;;N;;;;;
111B0;SHARADA LETTER SSA;Lo;0;L;;;;;N;;;;;
111B1;SHARADA LETTER SA;Lo;0;L;;;;;N;;;;;
111B2;SHARADA LETTER HA;Lo;0;L;;;;;N;;;;;
111B3;SHARADA VOWEL SIGN AA;Mc;0;L;;;;;N;;;;;
111B4;SHARADA VOWEL SIGN I;Mc;0;L;;;;;N;;;;;
111B5;SHARADA VOWEL SIGN II;Mc;0;L;;;;;N;;;;;
111B6;SHARADA VOWEL SIGN U;Mn;0;NSM;;;;;N;;;;;
111B7;SHARADA VOWEL SIGN UU;Mn;0;NSM;;;;;N;;;;;
111B8;SHARADA VOWEL SIGN VOCALIC R;Mn;0;NSM;;;;;N;;;;;
```

```
111B9;SHARADA VOWEL SIGN VOCALIC RR;Mn;0;NSM;;;;;N;;;;;
111BA;SHARADA VOWEL SIGN VOCALIC L;Mn;0;NSM;;;;;N;;;;;
111BB;SHARADA VOWEL SIGN VOCALIC LL;Mn;0;NSM;;;;;N;;;;;
111BC;SHARADA VOWEL SIGN E;Mn;0;NSM;;;;;N;;;;;
111BD;SHARADA VOWEL SIGN AI;Mn;0;NSM;;;;;N;;;;;
111BE;SHARADA VOWEL SIGN O;Mn;0;NSM;;;;;N;;;;;
111BF;SHARADA VOWEL SIGN AU;Mc;0;L;;;;;N;;;;;
111C0;SHARADA SIGN VIRAMA;Mc;9;L;;;;;N;;;;;
111C1;SHARADA SIGN AVAGRAHA;Lo;0;L;;;;;N;;;;;
111C2;SHARADA SIGN JIHVAMULIYA;Mn;0;NSM;;;;;N;;;;;
111C3;SHARADA SIGN UPADHMANIYA;Mn;0;NSM;;;;;N;;;;;
111C4;SHARADA OM;Lo;0;L;;;;;N;;;;;
111C5;SHARADA EKAM;Lo;0;L;;;;;N;;;;;
111D0;SHARADA DIGIT ZERO;Nd;0;L;;0;0;0;N;;;;;
111D1;SHARADA DIGIT ONE;Nd;0;L;;1;1;1;N;;;;;
111D2;SHARADA DIGIT TWO;Nd;0;L;;2;2;2;N;;;;;
111D3;SHARADA DIGIT THREE;Nd;0;L;;3;3;3;N;;;;;
111D4;SHARADA DIGIT FOUR;Nd;0;L;;4;4;4;N;;;;;
111D5;SHARADA DIGIT FIVE;Nd;0;L;;5;5;5;N;;;;;
111D6;SHARADA DIGIT SIX;Nd;0;L;;6;6;6;N;;;;;
111D7;SHARADA DIGIT SEVEN;Nd;0;L;;7;7;7;N;;;;;
111D8;SHARADA DIGIT EIGHT;Nd;0;L;;8;8;8;N;;;;;
111D9;SHARADA DIGIT NINE;Nd;0;L;;9;9;9;N;;;;;
```

3.7 Collation

The collating order for Sharada is based on Sanskrit and followed the pattern for Devanagari. Independent vowel letters are sorted before consonant letters. The signs *candrabindu*, *anusvāra*, and *visarga* appear at the head of the vowel order and are written in combination with SHARADA LETTER A.

The collating order for *candrabindu*, *anusvāra*, *visarga*, and independent vowels in Sharada is:

𑆀𑆾	𑆀𑆻	𑆀𑆼	𑆀	𑆁	𑆃	𑆄	𑆅	𑆆	𑆇	𑆈	𑆉	𑆊	𑆋	𑆌	𑆍
aṁ̐	*aṃ*	*aḥ*	*a*	*ā*	*i*	*ī*	*u*	*ū*	*ṛ*	*ṝ*	*ḷ*	*ḹ*	*e*	*ai*	*o*	*au*

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. A consonant with *virāma* is sorted last.

𑆏𑆾	𑆏𑆻	𑆏𑆼	𑆏	𑆏𑆀	𑆏𑆁	𑆏𑆂	𑆏𑆃	𑆏𑆄	𑆏𑆅	𑆏𑆆	𑆏𑆇	𑆏𑆈	𑆏𑆉	𑆏𑆊	𑆏𑆋	𑆏𑆌	𑆏𑆍
kaṁ̐	*kaṃ*	*kaḥ*	*ka*	*kā*	*ki*	*kī*	*ku*	*kū*	*kṛ*	*kṝ*	*kḷ*	*kḹ*	*ke*	*kai*	*ko*	*kau*	*k*

The pattern for consonants is as follows:

𑆏	𑆐	𑆑	𑆒	𑆓	𑆔	𑆕	𑆖	𑆗	𑆘	𑆙	𑆚	𑆛	𑆜	𑆝	𑆞	𑆟
ka	*kha*	*ga*	*gha*	*ṅa*	*ca*	*cha*	*ja*	*jha*	*ña*	*ṭa*	*ṭha*	*ḍa*	*ḍha*	*ṇa*	*ta*	*tha*

𑆠	𑆡	𑆢	𑆣	𑆤	𑆥	𑆦	𑆧	𑆨	𑆩	𑆪	𑆫	𑆬	𑆭	𑆮	𑆯	𑆰
da	*dha*	*na*	*pa*	*pha*	*ba*	*bha*	*ma*	*ya*	*ra*	*la*	*ḷa*	*va*	*śa*	*ṣa*	*sa*	*ha*

4 Background

4.1 Name

The name Sharada is postulated to be derived from the name of the tutelary deity of Kashmir, Śāradā (𑆮𑆳𑆤𑆢), the goddess of knowledge and the arts, and another name of the goddess Sarasvatī. The name is not found in early sources and is considered to be of relatively later origin.[5]

4.2 Character Names

4.3 Origins and Development

Sharada is descended from Gupta Brahmi through the Kutila script, and became differentiated from Kutila in the 8th century CE.[6] B. K. Kaul Deambi, a specialist of Sharada, estimates the advent of Sharada at c.750.[7] Deambi holds that the script went through three significant stages of development. The earliest phase is represented by inscriptions and coins of the 8th through 10th centuries. The middle phase by inscriptions and coins of the 11th through 14th centuries. The last phase took place between the 15th and 16th centuries, and is represented by inscriptional and manuscript records.[8]

From an epigraphical perspective, Jiwan Upadhyay suggests a different timeline: a period of transition from the Kutila to Sharada during the the 8th–9th century; a period of early development during the 9th–10th century; and the stage of final development during the 11th–13th century.[9] He states that the history of "Śāradā proper" ends with the Baijnath *praśati* inscriptions from Kangra, dated to Saka 1126 (1204 CE).[10] Upadhaya's "Śāradā proper" refers to inscriptional Sharada. The form of Sharada after the 13th century is considerably different from earlier records.[11]

According to Deambi, the earliest known record in Sharada is a stone-slab inscription found at the village Hund (Attock District) of northern Punjab in Pakistan. It is dated *samvat* 168–169, which corresponds roughly to 774–775 CE.[12] Upadhyay disagrees with Deambi's assessment of the Hund inscription, stating that the forms resemble Sharada inscriptions of the 10th or 11th century.[13] Upadhyay suggests that the earliest examples of Sharada appear on the coins of the Varman dynasty of Kashmir (855–939 CE).[14]. Deambi and Upadhyay agree here, as Deambi states that the earliest coin inscriptions were those struck by rulers of the Utpala dynasty of the late 9th and early 10th centuries.[15] The Utpala dynasty was founded by Avanti Varman.

The latest inscriptional record in Sharada, dated to *vikram* 1846, corresponding to 1789, was found at Digom (Kapal Mochan, Shopian district) of southern Kashmir in India.[16]

The earliest manuscript in Sharada is dated to the 12th century. This is the Bakhshali manuscript, named after the village in the Peshawar district of the central North-West Frontier Province, Pakistan where it was found.*Deambi, 1982: 67.* The manuscript is a mathematical treatise written in Sanskrit and is significant for its treatment of advanced topics in mathematics (see Figure 4).

A birch-bark manuscript of the *Muni-mata-maṇi-mālā* from the 14th century is significant as it represents the middle stage of development of Sharada. The final stages of development of Sharada are evidenced in the 16th century birch-bark manuscripts of the Kashmiri recension of Kālidāsa's *Śakuntalā*; the *Ādi Parva* and *Sabhā Parva* of the *Mahābhārata*; and the *Kathāsaritasāgara*.[17]

[5] Upadhyay, 1998: 2. [6] Archaeological Survey of India, 2007; Upadhyay, 1998: 22. [7] Deambi, 1982: 60 [8] Deambi, 1982: 4. [9] Upadhyay, 1998: 28, 32, 44. [10] Upadhyay, 1998: 3–4. [11] Upadhyay, 1998: 4. [12] Deambi, 1982: 24. [13] Upadhyay, 1998: 3. [14] Upadhyay, 1998: 3 [15] Deambi, 1982: 25. [16] Deambi, 1982: 62. [17] Deambi, 1982: 76.

4.4 Geographic Distribution

The historical geographic distribution of Sharada is shown in Figure 1. Inscriptions in Sharada have been found chiefly in Gandhara, Afghanistan; Swat Valley in north-west Pakistan; throughout the Kashmir region; Ladakh; the state of Jammu, India; the districts of Chamba and Kangra in present-day Himachal Pradesh, India; and as far south as in the village of Palam, south-west of Delhi. The core distribution of Sharada is roughly the area between longitudes 72° and 78° east and latitudes 32° and 36° north.[18]

On account of the Sharada script being used by the Kashmiri Pandit community, the script was maintained in areas outside of Kashmir and surrounding regions. Bühler notes that "[i]n consequence of the frequent emigrations of the travel-loving Kashmīrian Pandits, §'āradā MMS. are found in many towns of North-Western India and further east in Benares, and marginal glosses in Śāradā characters are found even in ancient Nāgri MSS. from Western India."[19]

4.5 Languages Written in the Script

The Sharada script was used to write both Sanskrit and Kashmiri. With regard to Kashmiri, it was one of four scripts used for the language, the other three being Devanagari, Perso-Arabic, and Latin.[20] While Sharada was well-suited for Sanskrit, it did not represent all of the phonetic characteristics of Kashmiri, namely vowels.

4.6 Usage

Modern The use of Sharada for general and educatithonal purposes is attested through the first quarter of the 20th century.[21] At present, the use of Sharada is very limited. It is used for ritual purposes (horoscopes, etc.) by the Kashmiri Pandit community.[22]

[18] Kaye, 1927: 3. [19] Bühler, 1904: 76. [20] Koul 2003: 899. [21] Grierson 1919: 254. [22] Koul 2003: 899.

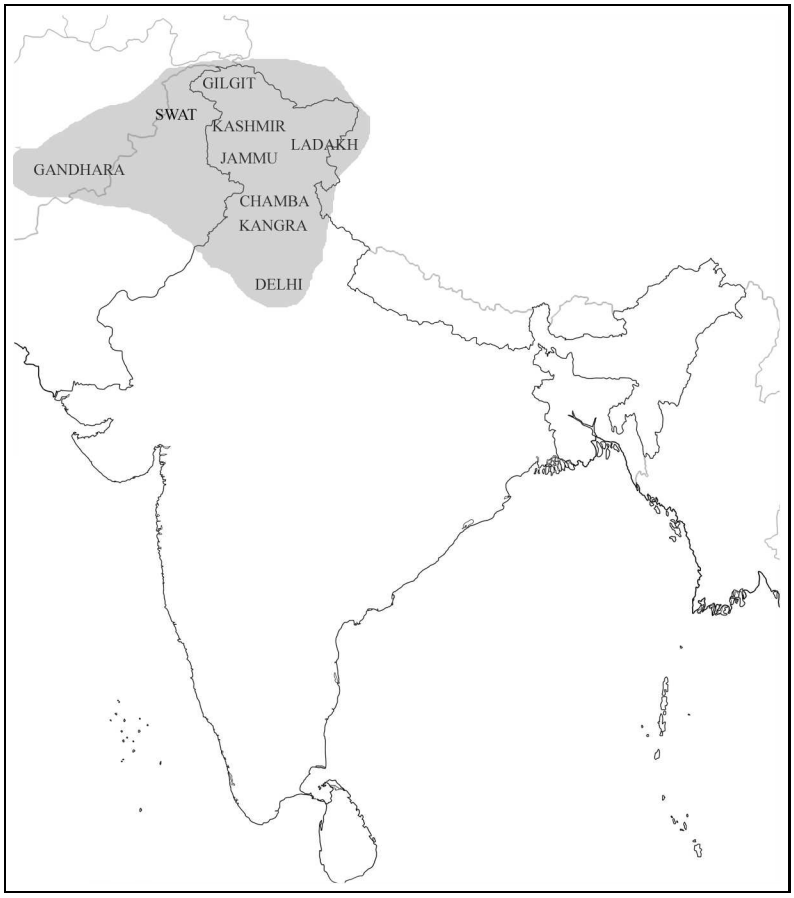

Figure 1: Historical geographic distribution of Sharada

5 Orthography

5.1 Distinguishing Features

Georg Bühler states that "[a] general characteristic of the Śāradā of all periods is found in the stiff, thick strokes which give the characters an uncouth appearance and a certain resemblance to those of the Kuṣāna period."[23]

Another distinguishing feature is the manner in which the top-strokes of letters are treated. Typically, the top-stroke of Sharada characters do not connect to the following character.

5.2 Special Signs

Virama The sign ◌𑆀 SHARADA SIGN VIRAMA is written to the right of the consonant letter it modifies. This practice differs from the usual mode in Indic scripts of writing *virāma* beneath consonants, eg. Sharada 𑆑𑆀 *k* and Devanagari क् *k*. While the Sharada *virāma* is a spacing mark, its basic semantics are identical to those of *virāma* of Devanagari and other major Indic scripts.

Avagraha The sign 𑆥 SHARADA AVAGRAHA is used for representing the elision of word-initial 𑆃 *a*, which is then substituted by *avagraha*. It is written at the at the baseline. This practice differs from the usual practice

[23] Bühler, 1904: 76.

in Devanagari and other scripts of writing *avagraha* at the normal letter height, attached to the top stroke.

Jihvamuliya The sign 𑆳 SHARADA SIGN JIHVAMULIYA is used for representing a velar fricative [x] that occurs only before the unvoiced velar stops KA and KHA. Is written as a combining sign with the following consonant, eg. 𑆑𑆳 *ḥka*. This practice differs from that in Devanagari, where *jīhvamulīya* is written before the consonant, eg. ५क *ḥka*.

Upadhmaniya The sign 𑆴 SHARADA SIGN UPADHMANIYA is used for representing a bilabial fricative [ɸ] that occurs only before the unvoiced labial stops PA or PHA. It is written as a combining sign with the following consonant, eg. 𑆦𑆴 *ḥpa*. This practice differs from that in Devanagari, where *upadhmanīya* is written before the consonant, eg. ५प *ḥpa*.

Ekam The sign 𑆿 SHARADA EKAM is a sacred sign in Kashmiri Shaivism, similar to 𑆠 SHARADA OM.

5.3 Consonant Conjuncts

Sharada has an extensive set of consonant conjuncts. See Figure 7, Figure 8, Figure 9, and Figure 10 for a list of Sharada conjuncts in comparison with those of Devanagari.

5.4 Headstroke

Sharada typically does not have a headstroke similar to Devanagari. Some letters are written with the headstroke, other are not, and not all letters with headstroke necessarily join to the headstrokes of precedining or following letters.

5.5 Digits

Sharada digits are modeled after the decimal system, however, the notation system is most unique in the use of a dot for zero and a circle for one.

5.6 Printing

There are no existing printing types for Sharada. Grierson writes that a metal font for Sharada had been cut in Calcutta by the Serampore Missionaries, who used it in 1821 to print the New Testament in Kashmiri.[24] However, he discovered that the font "and the punches, had long disappeared, having been sold as waste metal."[25] It it quite probable that the Sharada text shown in Figure 13 was printed in this type, since the bible itself was printed at Serampore.

[24] Grierson 1919: 236. [25] Grierson 1919: 235fn1.

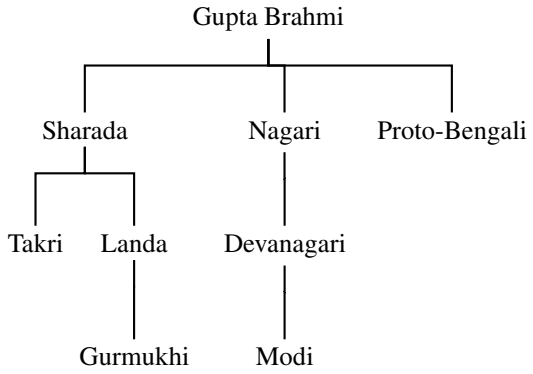

Figure 2: Relationship of Sharada to the Nagari scripts

6 Relationship to Other Scripts

The Sharada script shares structural affinity to major scripts like Devanagari and Gurmukhi, as well as to minor scripts like Takri. Sharada is based on the same principles as Devanagari, but differ in the forms of the letters.

However, the overall appearance of Sharada letters is quite different from those of Devanagari and Gurmukhi. The most distinctive features of Sharada are *virāma* and the digits. While functionally the same as in Devanagari, in Sharada, *virāma* follows the consonant immediately to the right, attaching to the top-line, instead of below the consonant.

Sharada is related to Takri, Gurmukhi, and Landa. Figure 2 shows the relationship of Sharada to other scripts. A comparison of Sharada, Gurmukhi, Takri, and Devanagari is given in Table 7 (consonants), Table 8 (vowels), Table 9 (digits), and Table 10 (signs).

	SHARADA	TAKRI	GURMUKHI	DEVANAGARI		SHARADA	TAKRI	GURMUKHI	DEVANAGARI
ka	𑆑	𑚇	ਕ	क	*tha*	𑆞	𑚞	ਥ	थ
kha	𑆒	𑚈	ਖ	ख	*da*	𑆟	𑚟	ਦ	द
ga	𑆓	𑚉	ਗ	ग	*dha*	𑆠	𑚠	ਧ	ध
gha	𑆔	𑚊	ਘ	घ	*na*	𑆡	𑚡	ਨ	न
ṅa	𑆕	𑚋	ਙ	ङ	*pa*	𑆢	𑚢	ਪ	प
ca	𑆖	𑚌	ਚ	च	*pha*	𑆣	𑚣	ਫ	फ
cha	𑆗	𑚍	ਛ	छ	*ba*	𑆤	𑚤	ਬ	ब
ja	𑆘	𑚎	ਜ	ज	*bha*	𑆥	𑚥	ਭ	भ
jha	𑆙	𑚏	ਝ	झ	*ma*	𑆦	𑚦	ਮ	म
ña	𑆚	𑚐	ਞ	ञ	*ya*	𑆧	𑚧	ਯ	य
ṭa	𑆛	𑚑	ਟ	ट	*ra*	𑆨	𑚨	ਰ	र
ṭha	𑆜	𑚒	ਠ	ठ	*la*	𑆩	𑚩	ਲ	ल
ḍa	𑆝	𑚓	ਡ	ड	*ḷa*	𑆪	𑚪	ਲ਼	ळ
ṛa	—	𑚔	ੜ	ड़	*va*	𑆫	𑚫	ਵ	व
ḍha	𑆞	𑚕	ਢ	ढ	*śa*	𑆬	𑚬	ਸ਼	श
ṛha	—	—	ਫ਼	ढ़	*ṣa*	𑆭	—	—	ष
ṇa	𑆟	𑚖	ਣ	ण	*sa*	𑆮	𑚭	ਸ	स
ta	𑆠	𑚗	ਤ	त	*ha*	𑆯	𑚮	ਹ	ह

Table 7: A comparison of the consonant letters of Sharada, Takri, Gurmukhi, and Devanagari.

	INDEPENDENT VOWELS					DEPENDENT VOWEL SIGNS				
	SHARADA	TAKRI	GURMUKHI	DEVANAGARI		SHARADA	TAKRI	GURMUKHI	DEVANAGARI
a	𑆃	𑚀	ਅ	अ	*-a*	—	—	—	—
ā	𑆄	𑚁	ਆ	आ	*-ā*	𑆰	𑚶	ਾ	ा
i	𑆅	𑚂	ਇ	इ	*-i*	𑆱	𑚷	ਿ	ि
ī	𑆆	𑚃	ਈ	ई	*-ī*	𑆲	𑚸	ੀ	ी
u	𑆇	𑚄	ਉ	उ	*-u*	𑆳	𑚹	ੁ	ु
ū	𑆈	𑚅	ਊ	ऊ	*-ū*	𑆴	𑚺	ੂ	ू
ṛ	𑆉	—	—	ऋ	*-ṛ*	𑆵	—	—	ृ
ṝ	𑆊	—	—	ॠ	*-ṝ*	𑆶	—	—	ॄ
ḷ	𑆋	—	—	ऌ	*-ḷ*	𑆷	—	—	ॢ
ḹ	𑆌	—	—	ॡ	*-ḹ*	𑆸	—	—	ॣ
e	𑆏	𑚇	ਏ	ए	*-e*	𑆺	𑚻	ੇ	े
ai	𑆐	𑚈	ਐ	ऐ	*-ai*	𑆻	𑚼	ੈ	ै
o	𑆑	𑚉	ਓ	ओ	*-o*	𑆼	𑚽	ੋ	ो
au	𑆒	𑚊	ਔ	औ	*-au*	𑆾	𑚾	ੌ	ौ

Table 8: A comparison of vowel letters and signs of Sharada, Takri, Gurmukhi, and Devanagari.

	SHARADA	TAKRI	GURMUKHI	DEVANAGARI		SHARADA	TAKRI	GURMUKHI	DEVANAGARI
0	𑇐	𑚐	੦	०	*5*	𑇕	𑚕	੫	५
1	𑇑	𑚑	੧	१	*6*	𑇖	𑚖	੬	६
2	𑇒	𑚒	੨	२	*7*	𑇗	𑚗	੭	७
3	𑇓	𑚓	੩	३	*8*	𑇘	𑚘	੮	८
4	𑇔	𑚔	੪	४	*9*	𑇙	𑚙	੯	९

Table 9: A comparison of digits of Sharada, Takri, Gurmukhi, and Devanagari.

	SHARADA	TAKRI	GURMUKHI	DEVANAGARI
om	𑇉	—	ੴ	ॐ
jiv	𑇄◌	—	—	ऽ
upd	𑇃◌	—	—	॥

Table 10: A comparison of signs of Sharada, Takri, Gurmukhi, and Devanagari.

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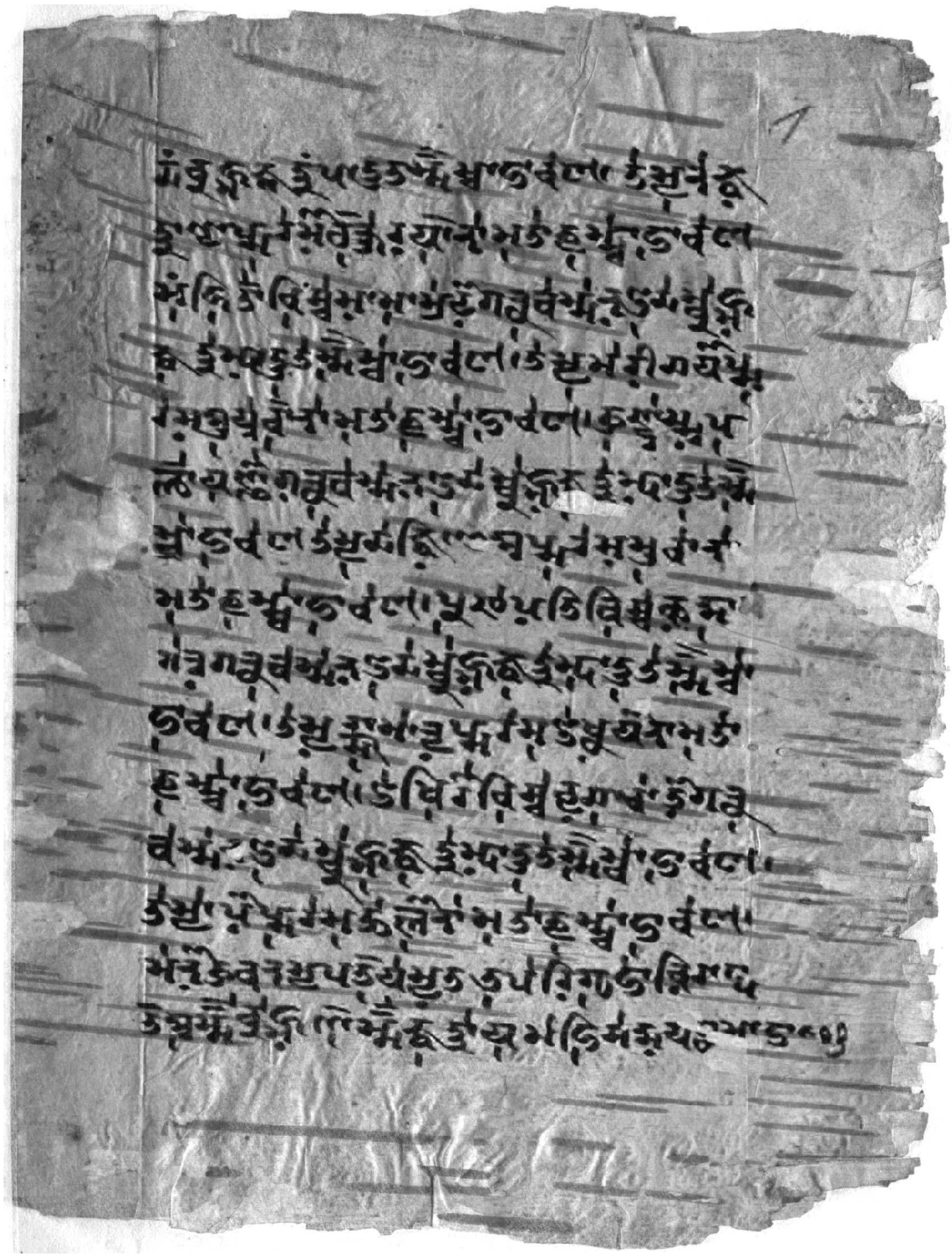


Figure 3: Folio 1 (front) of a birch-bark manuscript of the Kashmiri Paippalada recension of the *Atharvaveda*. Text is Sanskrit written in the Sharada script. (From digitized version produced by Anthos Imprint, 2001.)

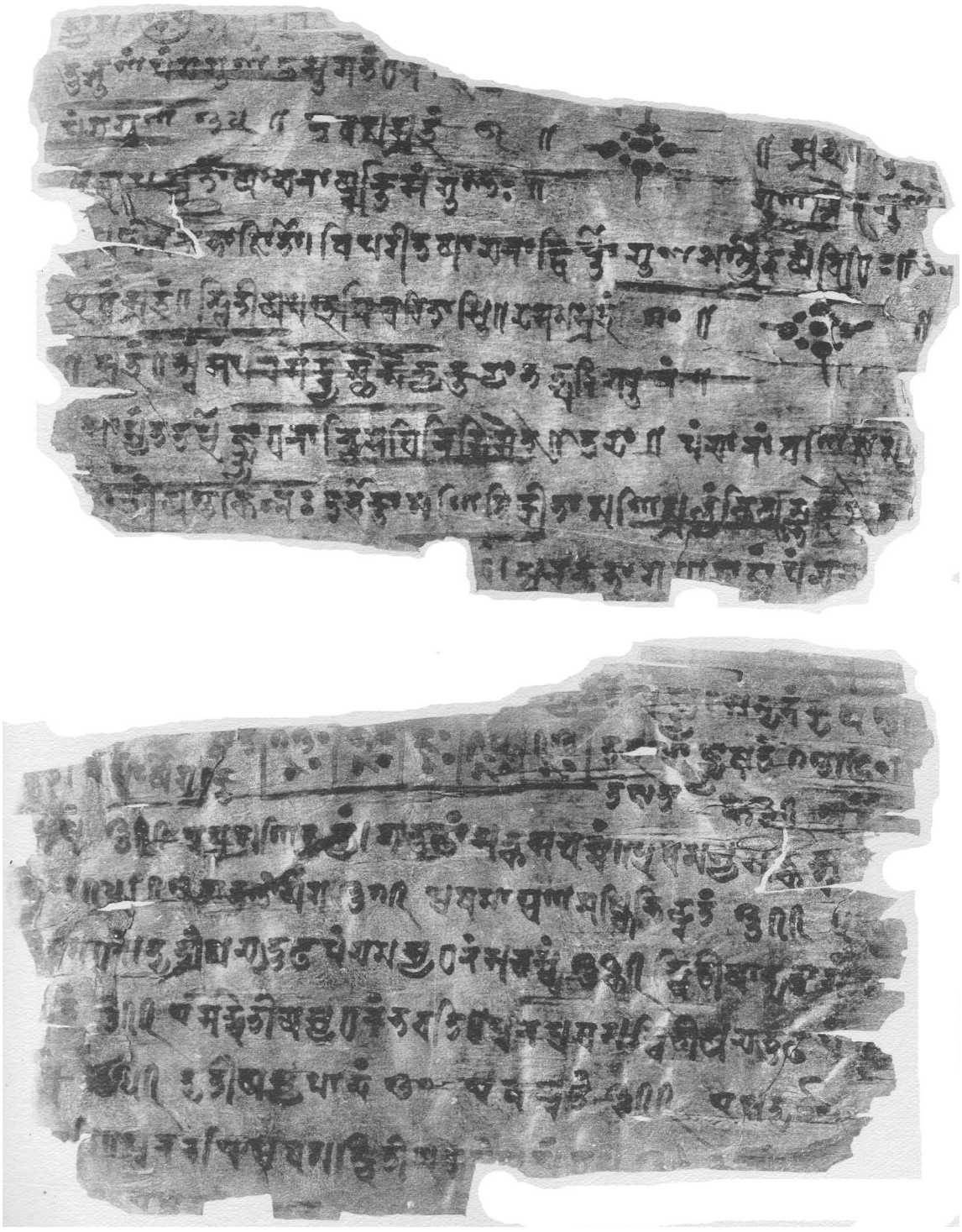
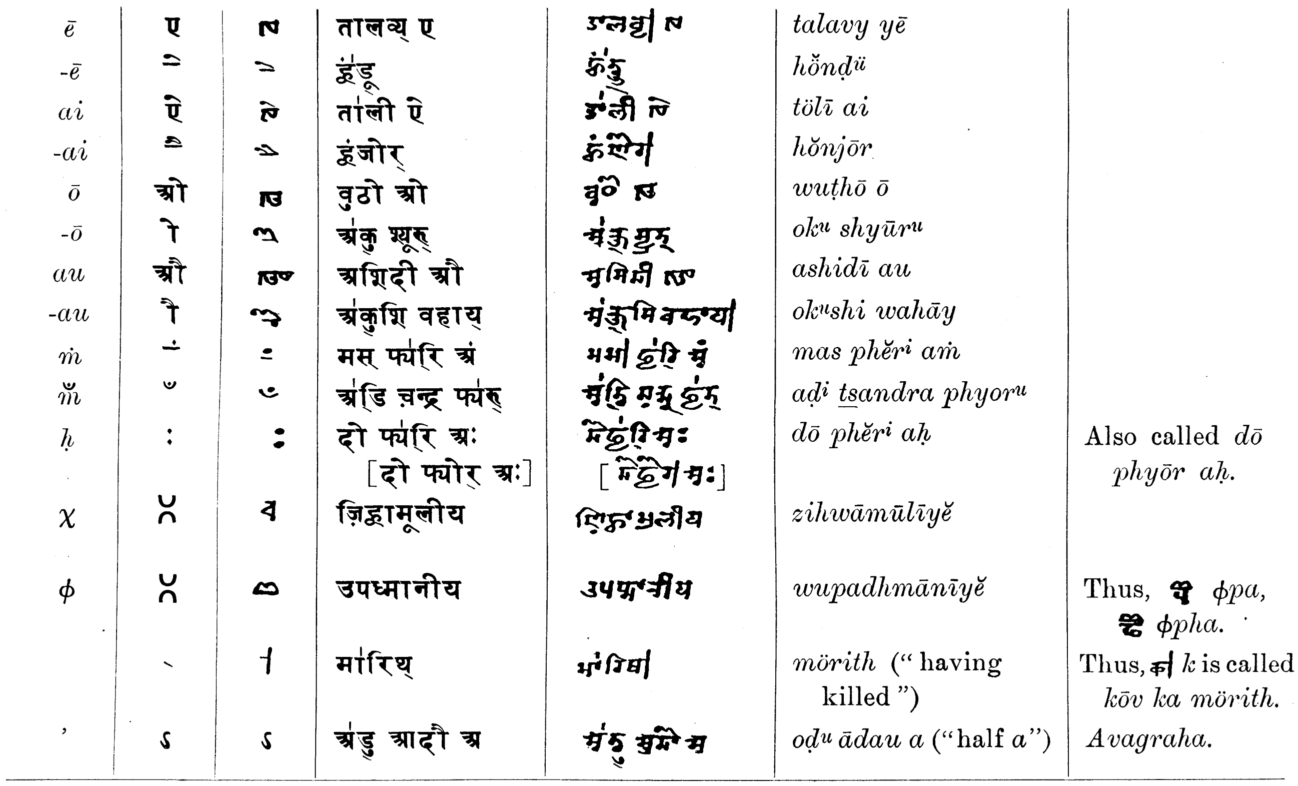


Figure 4: Folio 1 of the Bakhshali manuscript. Text is Sanskrit written in the Sharada script (from Kaye, 1927: Plate II).

Roman.	Nāgarī.	Śāradā.	Kāshmīrī name in Nāgarī.	Kāshmīrī name in Śāradā.	Kāshmīrī name in Roman.	Remarks.
ōṁ	ओं	𑇄	ओंकारा ओं	𑇄𑆑𑆳𑆫𑆳 𑇄	*ōṁkārā ōṁ*	
sva	स्व	𑆱𑇀𑆮	स्वयं सो	𑆱𑇀𑆮𑆪𑆁 𑆱𑆾	*sŏyaṁ sō*	
sti	स्ति	𑆱𑇀𑆠𑆴	त्यविस् ते	𑆠𑇀𑆪𑆮𑆴𑆱𑇀 𑆠𑆼	*tĕvis tē*	
ēkaṁ		𑇅	अकु सं गोर् (एकं)	𑆃𑆑𑆶 𑆱𑆁 𑆓𑆾𑆫𑇀 (𑆌𑆑𑆁)	*ok^u saṁ gōr*	Read as *ēkaṁ*.
si	सि	𑆱𑆴	स्यदिव् से	𑆱𑇀𑆪𑆢𑆴𑆮𑇀 𑆱𑆼	*sĕdiv sē*	
ddhaṁ	द्धं	𑆢𑇀𑆣𑆁	दमर् दं	𑆢𑆩𑆫𑇀 𑆢𑆁	*damar daṁ*	There are no sonant aspirates in Kāshmīrī.
a	अ	𑆃	आदौ अ	𑆄𑆢𑆿 𑆃	*ādau a*	
ā	आ	𑆄	ऐतव् आ	𑆎𑆠𑆮𑇀 𑆄	*aitav ā*	
-ā	ा	𑆳	वहाय्	𑆮𑆲𑆳𑆪𑇀	*wahāy*	
i	इ	𑆅	ययव् ये	𑆪𑆪𑆮𑇀 𑆪𑆼	*yĕyĕv yē*	
-i	ि	𑆴	मून्थर्	𑆩𑆷𑆤𑇀𑆡𑆫𑇀	*mūnth^ar*	
ī	ई	𑆆	इशरव् ई	𑆅𑆯𑆫𑆮𑇀 𑆆	*yishĕrav yī*	

Roman.	Nāgarī.	Śāradā.	Kāshmīrī name in Nāgarī.	Kāshmīrī name in Śāradā.	Kāshmīrī name in Roman.	Remarks.
-ī	ी	𑆵	अर् मून्थर्	𑆃𑆫𑇀 𑆩𑆷𑆤𑇀𑆡𑆫𑇀	*ar mūnth^ar*	
u	उ	𑆇	व्वपल् वो	𑆮𑇀𑆮𑆥𑆬𑇀 𑆮𑆾	*wŏpal wō*	
-u	ु	𑆶	खूरु	𑆒𑆷𑆫𑆶	*khūr^u*	
ū	ऊ	𑆈	व्वपल् बा ऊं	𑆮𑇀𑆮𑆥𑆬𑇀 𑆧𑆳 𑆈𑆁	*wŏpal bā ū̆*	
-ū	ू	𑆷	अर् खूरू	𑆃𑆫𑇀 𑆒𑆷𑆫𑆷	*ar khūr^ü*	
ṛ	ऋ	𑆉	ऋंनव् ऋं	𑆉𑆁𑆤𑆮𑇀 𑆉𑆁	*ṛĕnav ṛĕ*	
-ṛ	ृ	𑆸	Same name as for the initial form. Thus, कृ *kṛ* is called *kōv kahas tal ṛĕnav ṛĕ*, or *ṛĕnav ṛĕ* under *kōv ka*, i.e. *ṛ* under *ka*.			
ṝ	ॠ	𑆊	र्खव् ॠं [कॄ]	𑆫𑇀𑆒𑆮𑇀 𑆊𑆁 [𑆑𑆹]	*^rakhav r^ü*	
-ṝ	ॄ	𑆹	Same name as for the initial form. Thus, कॄ *kṝ* is called *kōv kahas tal ^rakhav r^ü*.			
ḷ	ऌ	𑆋	ऌयव् ऌं	𑆋𑆪𑆮𑇀 𑆋𑆁	*lĕyĕv ḷĕ*	
-ḷ	ॢ	𑆺	Same name as for the initial form. Thus, कॢ *kḷ* is called *kōv kahas tal lĕyĕv ḷĕ*.			
ḹ	ॡ	𑆌	लीसव् ॡ	𑆬𑆵𑆱𑆮𑇀 𑆌	*līsav ḹ*	
-ḹ	ॣ	𑆻	Same name as for the initial form, as above.			

Figure 5: Sharada vowels and various signs (Grierson 1916: 681–682).



ē	ए	तालव्य् ए	*talavy yē*	
-ē	े	हुंडू	*hŏnḍ*^{ü}	
ai	ऐ	ताली ऐ	*tölī ai*	
-ai	ै	हुंजोर्	*hŏnjōr*	
ō	ओ	वुठो ओ	*wuṭhō ō*	
-ō	ो	अंकु श्यूरु	*ok*^{u} *shyūr*^{u}	
au	औ	अशिदी औ	*ashidī au*	
-au	ौ	अंकुशि वहाय्	*ok*^{u}*shi wahāy*	
ṁ	ं	मस् फ्यरि अं	*mas phĕr*^{i} *aṁ*	
m̐	ँ	अंडि चन्द्र फ्यरु	*aḍ*^{i} *tsandra phyor*^{u}	
ḥ	:	दो फ्यरि अः [दो फ्योर् अः]	*dō phĕr*^{i} *aḥ*	Also called *dō phyōr aḥ.*
χ	ᳵ	ज़िह्वामूलीय	*zihwāmūlīyĕ*	
φ	ᳶ	उपध्मानीय	*wupadhmānīyĕ*	Thus, *φpa*, *φpha*.
	`	मांरिथ्	*mörith* ("having killed")	Thus, क् *k* is called *kōv ka mörith.*
'	ऽ	अंडु आदौ अ	*oḍ*^{u} *ādau a* ("half *a*")	*Avagraha.*

Figure 6: Sharada vowels and various signs (Grierson 1916: 683).

Roman.	Nāgarī.	Śāradā.	Kāshmīrī name in Nāgarī.	Kāshmīrī name in Roman.	Remarks.
ka	क	𑆑	कोव् क	*kōv ka*	
kha	ख	𑆒	खॊनि ख	*khŏn^{i} kha*	
ga	ग	𑆓	गगर् ग	*gagar ga*	
gha	घ	𑆔	गॊसि ग [घ]	*gös^{i} ga [gha]*	The Kāshmīrī language does not possess the letter *gha*.
ṅa	ङ	𑆕	नारुग् न	*nārug na*	
ca	च	𑆖	च़ाटुव् च़	*t͟sāṭuv t͟sa*	
cha	छ	𑆗	छ़ॊटिञ् छ़	*t͟shŏṭiñ t͟sha*	
ja	ज	𑆘	ज़ॆयि ज़	*zäy^{i} za*	
jha	झ	𑆙	ज़ॊशिञ् ज़ [झ]	*zöshiñ za [jha]*	The Kāshmīrī language does not possess the letter *jha*.
ña	ञ	𑆚	खॊन फुटि ञ	*khŏna phuṭ^{i} ñĕ*	
ṭa	ट	𑆛	अर्-मॉँट	*ar-mā̃ṭa*	
ṭha	ठ	𑆜	सर्-मॉँठ	*sar-mā̃ṭha*	
ḍa	ड	𑆝	डुड् ड	*ḍuḍ ḍa*	The Kāshmīrī language does not possess the letters *ḍha* or *ṇa*.
ḍha	ढ	𑆞	डक ड [ढ]	*ḍaka ḍa [ḍha]*	
ṇa	ण	𑆟	नानगुरि न [ण]	*nānagur^{i} na [ṇa]*	
ta	त	𑆠	तोव् त	*tōv ta*	
tha	थ	𑆡	थॊशि थ	*thösh^{i} tha*	
da	द	𑆢	ददव् द	*dadav da*	
dha	ध	𑆣	दूञ् द [ध]	*dūñ da [dha]*	The Kāshmīrī language does not possess the letter *dha*.
na	न	𑆤	नस्तुव् न	*nastuv na*	
pa	प	𑆥	पडुरि प	*paḍur^{i} pa*	
pha	फ	𑆦	फरिञ् फ	*phariñ pha*	
ba	ब	𑆧	बुब् ब	*bub ba*	
bha	भ	𑆨	बॊयि ब [भ]	*böy^{i} ba [bha]*	The Kāshmīrī language does not possess the letter *bha*.
ma	म	𑆩	मोव् म	*mōv ma*	

Figure 7: Sharada consonants (Grierson 1916: 684–685).

Roman.	Nāgarī.	Śāradā.	Kāshmīrī name in Nāgarī.	Kāshmīrī name in Śāradā.	Kāshmīrī name in Roman.	Remarks.
ya	य	𑆬	याव य	𑆬𑆮𑆳 𑆬	*yāwa yĕ*	
ra	र	𑆭	रक र	𑆭𑆑 𑆭	*raka ra*	
la	ल	𑆮	लाव ल	𑆮𑆳𑆳 𑆮	*lāwa la*	
va	व	𑆯	वश् व	𑆯𑆫 𑆯	*washĕ wa*	
śa	श	𑆫	शकर् श	𑆫𑆑𑆭𑆴 𑆫	*shĕkar shĕ*	
ṣa	ष	𑆷	फोरि श [ष]	𑆥𑆴𑆭𑆺 𑆫 [𑆷]	*phör^{i} shĕ* [*ṣa*]	The Kāshmīrī language does not possess the letter *ṣa*.
sa	स	𑆱	सुस् स	𑆱𑆳𑆱 𑆱	*sus sa*	
ha	ह	𑆲	हाल ह	𑆲𑆮 𑆲	*hāla ha*	
kṣa	क्ष	𑆓𑆷	क्रालि व्ठि क्ष	𑆓𑆭𑆮𑆺𑆯𑆺𑆠𑆺 𑆓𑆷	*kŏli vĕṭh^{i} kshĕ*	
tra	त्र	𑆢𑆭	त्रुक तोव् त्र	𑆢𑆭𑆳𑆑 𑆢𑆴𑆯𑆺 𑆢𑆭	*truka tov tra*	
jña	ज्ञ	𑆛𑆞	(ज़्यि ज़हस् तल् खून फुटि ञ्)	(𑆛𑆺𑆬𑆺 𑆛𑆲𑆱𑆴 𑆢𑆮𑆺 𑆓𑆳𑆦 𑆥𑆳𑆠𑆺 𑆞𑆴)	(*zày^{i} zahas tal khŏna phuṭ^{i} ñĕ*)	This compound has no special name, and is simply spelt out, *khŏna phuṭ^{i} ñĕ* (=*ña*) under *zày^{i} za* (=*ja*).
ḷa	ळ	𑆜	बंडु डुड् ड (वा बंडु रक र)	𑆠𑆺𑆯𑆳 𑆛𑆳𑆛𑆴 𑆛 (𑆠𑆺𑆯𑆳 𑆭𑆑 𑆭)	*boḍ^{u} ḍuḍ ḍa* (or *boḍ^{u} raka ra*)	
ḷha	ळ्ह	There is no equivalent for this letter in Śāradā.				

Figure 8: Sharada consonants (Grierson 1916: 686–687).

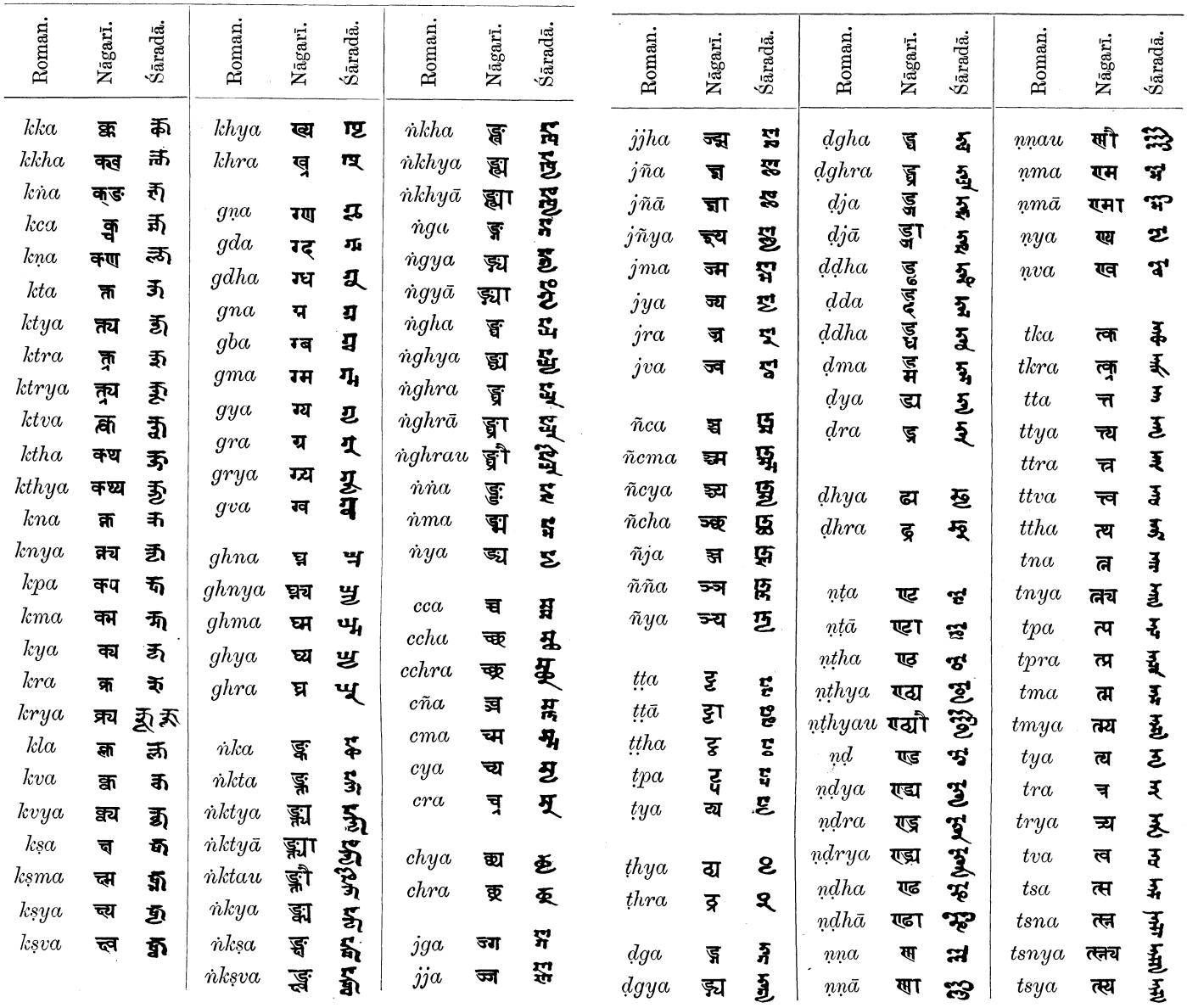


Figure 9: Sharada conjuncts (Grierson 1916: 694–695).

Roman.	Nāgarī.	Śāradā.
thna	थ्न	𑆣𑆺𑆦
thya	थ्य	𑆣𑆺𑆬
dga	द्ग	𑆤𑆺𑆜
dgha	द्घ	𑆤𑆺𑆝
dghra	द्घ्र	𑆤𑆺𑆝𑆺𑆫
dda	द्द	𑆤𑆺𑆤
ddya	द्द्य	𑆤𑆺𑆤𑆺𑆬
ddha	द्ध	𑆤𑆺𑆥
ddhya	द्ध्य	𑆤𑆺𑆥𑆺𑆬
dna	द्न	𑆤𑆺𑆦
dba	द्ब	𑆤𑆺𑆧
dbha	द्भ	𑆤𑆺𑆨
dbhya	द्भ्य	𑆤𑆺𑆨𑆺𑆬
dma	द्म	𑆤𑆺𑆩
dya	द्य	𑆤𑆺𑆬
dra	द्र	𑆤𑆺𑆫
drya	द्र्य	𑆤𑆺𑆫𑆺𑆬
dva	द्व	𑆤𑆺𑆭
dvya	द्व्य	𑆤𑆺𑆭𑆺𑆬
dhna	ध्न	𑆥𑆺𑆦
dhnya	ध्न्य	𑆥𑆺𑆦𑆺𑆬
dhma	ध्म	𑆥𑆺𑆩
dhya	ध्य	𑆥𑆺𑆬
dhra	ध्र	𑆥𑆺𑆫
dhrya	ध्र्य	𑆥𑆺𑆫𑆺𑆬
dhva	ध्व	𑆥𑆺𑆭
nka	न्क	𑆦𑆺𑆑
nta	न्त	𑆦𑆺𑆠
ntya	न्त्य	𑆦𑆺𑆠𑆺𑆬
ntra	न्त्र	𑆦𑆺𑆠𑆺𑆫
ntha	न्थ	𑆦𑆺𑆣
nda	न्द	𑆦𑆺𑆤
ndra	न्द्र	𑆦𑆺𑆤𑆺𑆫
ndha	न्ध	𑆦𑆺𑆥
ndhra	न्ध्र	𑆦𑆺𑆥𑆺𑆫
nna	न्न	𑆦𑆺𑆦
npa	न्प	𑆦𑆺𑆪
npra	न्प्र	𑆦𑆺𑆪𑆺𑆫
npha	न्फ	𑆦𑆺𑆫
nma	न्म	𑆦𑆺𑆩
nya	न्य	𑆦𑆺𑆬
nra	न्र	𑆦𑆺𑆫
nṣa	न्ष	𑆦𑆺𑆱
nsa	न्स	𑆦𑆺𑆰
pta	प्त	𑆪𑆺𑆠
ptya	प्त्य	𑆪𑆺𑆠𑆺𑆬
pna	प्न	𑆪𑆺𑆦
ppa	प्प	𑆪𑆺𑆪
pma	प्म	𑆪𑆺𑆩
pya	प्य	𑆪𑆺𑆬
pra	प्र	𑆪𑆺𑆫
pla	प्ल	𑆪𑆺𑆮
mna	म्न	𑆩𑆺𑆦
mpa	म्प	𑆩𑆺𑆪
mpra	म्प्र	𑆩𑆺𑆪𑆺𑆫
mba	म्ब	𑆩𑆺𑆧
mbha	म्भ	𑆩𑆺𑆨
mma	म्म	𑆩𑆺𑆩
mya	म्य	𑆩𑆺𑆬
mra	म्र	𑆩𑆺𑆫
mla	म्ल	𑆩𑆺𑆮
mva	म्व	𑆩𑆺𑆭
yya	य्य	𑆬𑆺𑆬
yva	य्व	𑆬𑆺𑆭
rr̥	र्ऋ	𑆫𑆺𑆰
rka	र्क	𑆫𑆺𑆑
rkha	र्ख	𑆫𑆺𑆒
rga	र्ग	𑆫𑆺𑆜
rgha	र्घ	𑆫𑆺𑆝
rca	र्च	𑆫𑆺𑆞
rcha	र्छ	𑆫𑆺𑆟
rja	र्ज	𑆫𑆺𑆠
rṭa	र्ट	𑆫𑆺𑆡
rṭha	र्ठ	𑆫𑆺𑆢
rḍa	र्ड	𑆫𑆺𑆣
rḍha	र्ढ	𑆫𑆺𑆤
rṇa	र्ण	𑆫𑆺𑆥
rta	र्त	𑆫𑆺𑆦
rtha	र्थ	𑆫𑆺𑆧
rda	र्द	𑆫𑆺𑆨
rdha	र्ध	𑆫𑆺𑆩
rpa	र्प	𑆫𑆺𑆪
rpha	र्फ	𑆫𑆺𑆫
rba	र्ब	𑆫𑆺𑆬
rbha	र्भ	𑆫𑆺𑆭
rma	र्म	𑆫𑆺𑆮
rya	र्य	𑆫𑆺𑆯
rla	र्ल	𑆫𑆺𑆰
rva	र्व	𑆫𑆺𑆱
rśa	र्श	𑆫𑆺𑆲
rṣa	र्ष	𑆫𑆺𑆳
rsa	र्स	𑆫𑆺𑆴
rha	र्ह	𑆫𑆺𑆵
lka	ल्क	𑆮𑆺𑆑
lpa	ल्प	𑆮𑆺𑆪
lpha	ल्फ	𑆮𑆺𑆫
lma	ल्म	𑆮𑆺𑆩
lya	ल्य	𑆮𑆺𑆬
lra	ल्र	𑆮𑆺𑆫
lla	ल्ल	𑆮𑆺𑆮
lva	ल्व	𑆮𑆺𑆭
vna	व्न	𑆭𑆺𑆦
vya	व्य	𑆭𑆺𑆬
vra	व्र	𑆭𑆺𑆫
vva	व्व	𑆭𑆺𑆭
śca	श्च	𑆲𑆺𑆞
ścya	श्च्य	𑆲𑆺𑆞𑆺𑆬
śna	श्न	𑆲𑆺𑆦
śya	श्य	𑆲𑆺𑆬
śra	श्र	𑆲𑆺𑆫
śrya	श्र्य	𑆲𑆺𑆫𑆺𑆬
śla	श्ल	𑆲𑆺𑆮
śva	श्व	𑆲𑆺𑆭
śvya	श्व्य	𑆲𑆺𑆭𑆺𑆬
śśa	श्श	𑆲𑆺𑆲
ṣṭa	ष्ट	𑆱𑆺𑆟
ṣṭya	ष्ट्य	𑆱𑆺𑆟𑆺𑆬
ṣṭra	ष्ट्र	𑆱𑆺𑆟𑆺𑆫
ṣṭrya	ष्ट्र्य	𑆱𑆺𑆟𑆺𑆫𑆺𑆬
ṣṭva	ष्ट्व	𑆱𑆺𑆟𑆺𑆭
ṣṭvā	ष्ट्वा	𑆱𑆺𑆟𑆺𑆭𑆾
ṣṭh	ष्ठ	𑆱𑆺𑆠
ṣṭhā	ष्ठा	𑆱𑆺𑆠𑆾
ṣṇa	ष्ण	𑆱𑆺𑆣
ṣṇya	ष्ण्य	𑆱𑆺𑆣𑆺𑆬
ṣpa	ष्प	𑆱𑆺𑆪
ṣpra	ष्प्र	𑆱𑆺𑆪𑆺𑆫
ṣpha	ष्फ	𑆱𑆺𑆫
ṣma	ष्म	𑆱𑆺𑆩
ṣya	ष्य	𑆱𑆺𑆬
ṣva	ष्व	𑆱𑆺𑆭

Figure 10: Sharada conjuncts (Grierson 1916: 696–697).

Rom.	Nāg.	Śār.
stra	स्त्र	𑆳𑆺𑆫
stva	स्त्व	𑆳𑆺𑆭
stha	स्थ	𑆳𑆺𑆥
sna	स्न	𑆳𑆺𑆦
snya	स्न्य	𑆳𑆺𑆦𑆺𑆬
spa	स्प	𑆳𑆺𑆪
spha	स्फ	𑆳𑆺𑆫
sma	स्म	𑆳𑆺𑆩
smya	स्म्य	𑆳𑆺𑆩𑆺𑆬
sya	स्य	𑆳𑆺𑆬
sra	स्र	𑆳𑆺𑆫
sva	स्व	𑆳𑆺𑆭
ssa	स्स	𑆳𑆺𑆰
sha	स्ह	𑆳𑆺𑆵
hṇa	ह्ण	𑆵𑆺𑆣
hna	ह्न	𑆵𑆺𑆦
hma	ह्म	𑆵𑆺𑆩
hya	ह्य	𑆵𑆺𑆬
hra	ह्र	𑆵𑆺𑆫
hla	ह्ल	𑆵𑆺𑆮
hva	ह्व	𑆵𑆺𑆭

Figure 11: Sharada conjuncts (Grierson 1916: 698).

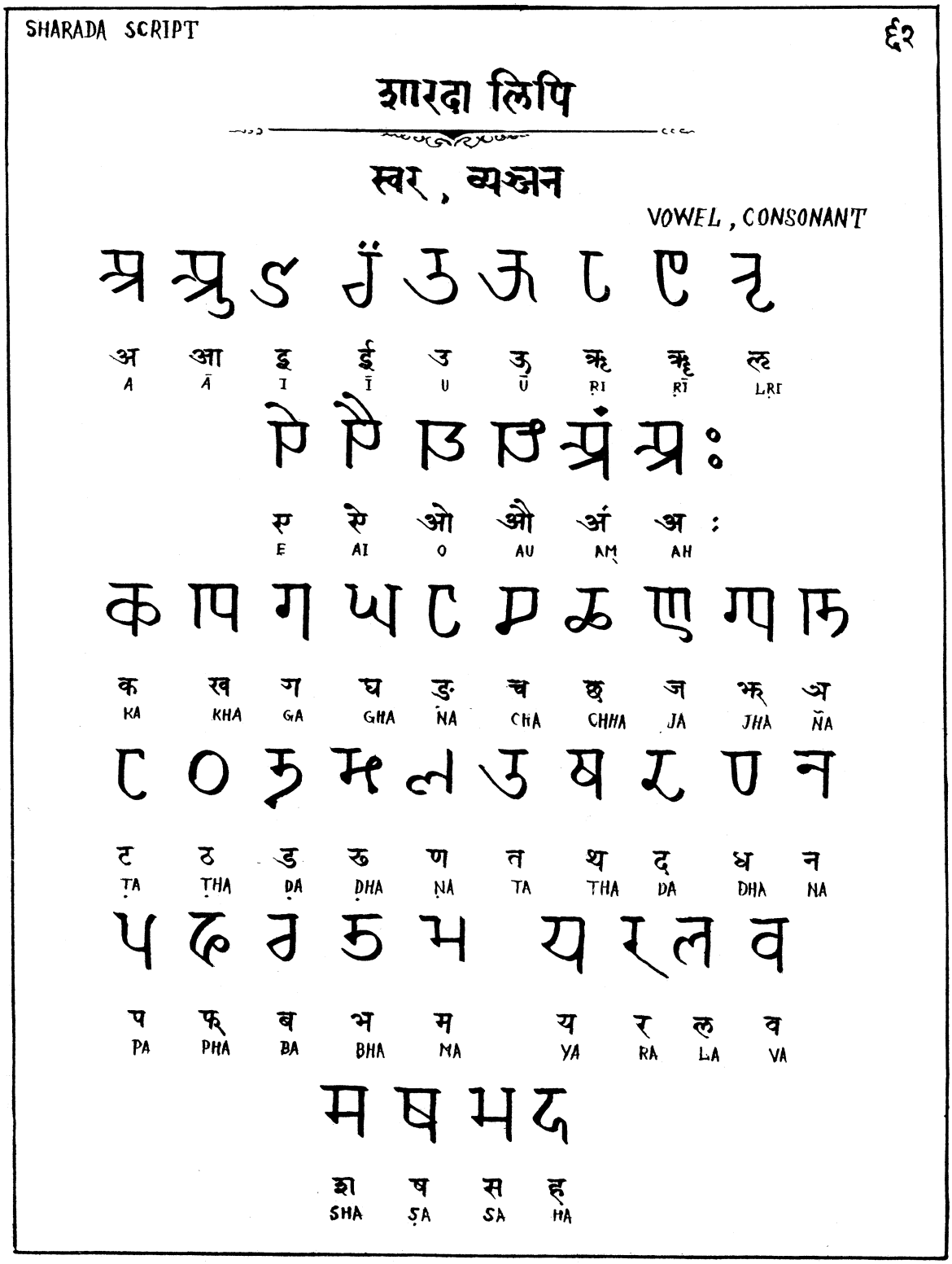


Figure 12: Inventory of Sharada letters (Śākyavaṃśa 1974: 62).

KAREN: Sgau dialect 453

Burmese characters

Jn. 3.15-23; 1937

Spoken in the Province of Pegu and Tenasserim, Burma. Reduced to written form by Jonathan Wade, of the American Baptist Missionary Union, about 1830, using the Burmese characters with new values and some diacritical marks. First publication, the New Testament in 1843 at Tavoy by the American and Foreign Bible Society; tr. by Francis Mason, Mr. Wade and San Quala, a native Christian. Bible, 1853. Other versions of note: Revised version: St. Luke's Gospel and 1 Peter, ABMU, Rangoon, 1874; revised by E. B. Cross; New Testament, 1880; Bible, 1896. Conti version: St. Matthew's Gospel, Roman Catholic Mission, Toungoo, 1888; tr. by G. Conti. CP: BFBS.

KARRÉ 454

Ouone chi hang joukouli ta, mi ko̱ ke hi poumboui. Goune a me, joukou ko̱ tousaou a me, ke ma lime-na ya, yé ke yana kambelè.

Spoken in the mountains of French Equatorial Africa. First publication, St. John's Gospel in 1931 by the BFBS; tr. by Miss Estelle Myers, of the Ubangi-Chari Mission, with two natives; the Acts, 1934; St. Luke's Gospel, 1935; St. Mark's Gospel, 1936; St. Matthew's Gospel, 1937. Selections, by the Mission Oubangui-Chari Evangélique at Bassai, 1934.

KASHMIRI 455

Sarada characters

Jn. 3.14–17; 1821

Persian characters

Jn. 3.16–20; 1929

Spoken by more than 1,000,000 people in Kashmir, Northern India. First publication, New Testament in 1821 at the Mission Press, Serampore; tr. by the Serampore missionaries (see No. 87). Pentateuch, 1827; Joshua-2 Kings, 1832. Old Testament, BFBS, Lahore, 1899; tr. by J. H. Knowles, CMS. Other versions: Wade version (Persian character): the Gospels, BFBS, Lahore, 1882; tr. by T. R. Wade, CMS; Acts, 1883; New Testament, 1884. Revised by J. H. Knowles: Gospels, 1899; St. Luke's Gospel, 1912; tr. by E. F. Clive. St. Matthew's and St. Mark's Gospels, 1913; St. John's Gospel, 1914. CP: BFBS.

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Figure 13: Entry for the Kashmiri languages in *The Book of a Thousand Tongues* showing a specimen of a bible printed in Sharada type (from American Bible Society, 1938: 190).

Figure 14: Comparison of Sharada forms found in major records (from Kaye, 1927: Table 1)

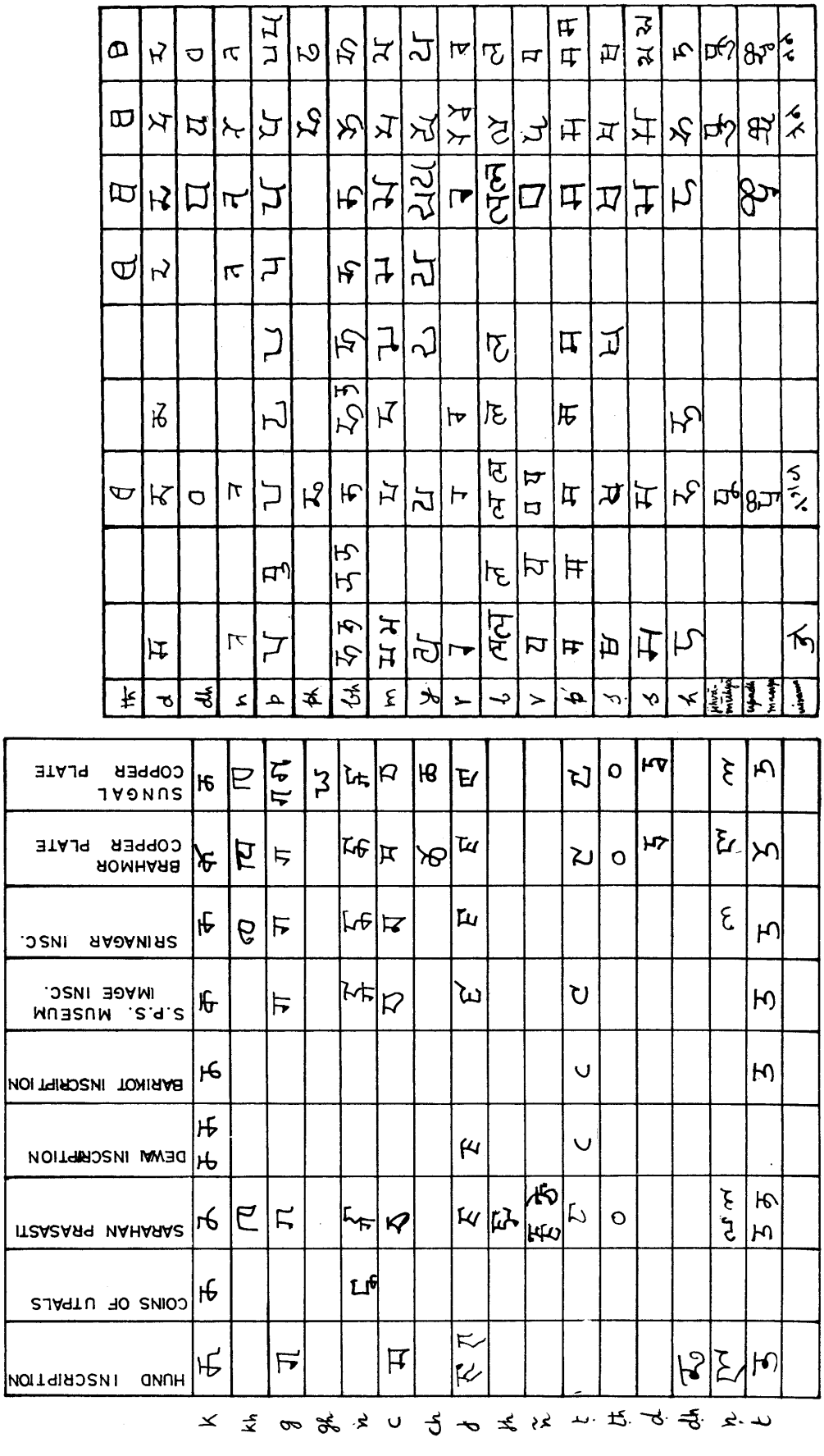


Figure 15: Comparison of Sharada forms found in inscriptions from 8th–10th century (from Deambi, 1982: Table 2b). Compare with forms found in inscriptions from 14th–16th century, as shown in Figure 16.

Figure 16: Comparison of Sharada forms found in inscriptions from 14th–16th century (from Deambi, 1982: Table 4b). Compare with forms found in manuscripts from 12th–16th century, as shown in Figure 17.

Figure 17: Comparison of Sharada forms found in manuscripts from 12th–16th century (from Deambi, 1982: Table 5b). Compare with forms found in inscriptions from 14th–16 century, as shown in Figure 16.

KĀSHMĪRĪ.

SPECIMEN I.

(ŚĀRADĀ CHARACTER.)

(Mahāmahōpādhyāya Paṇḍit Mukund Rām Śāstrī, 1896.)

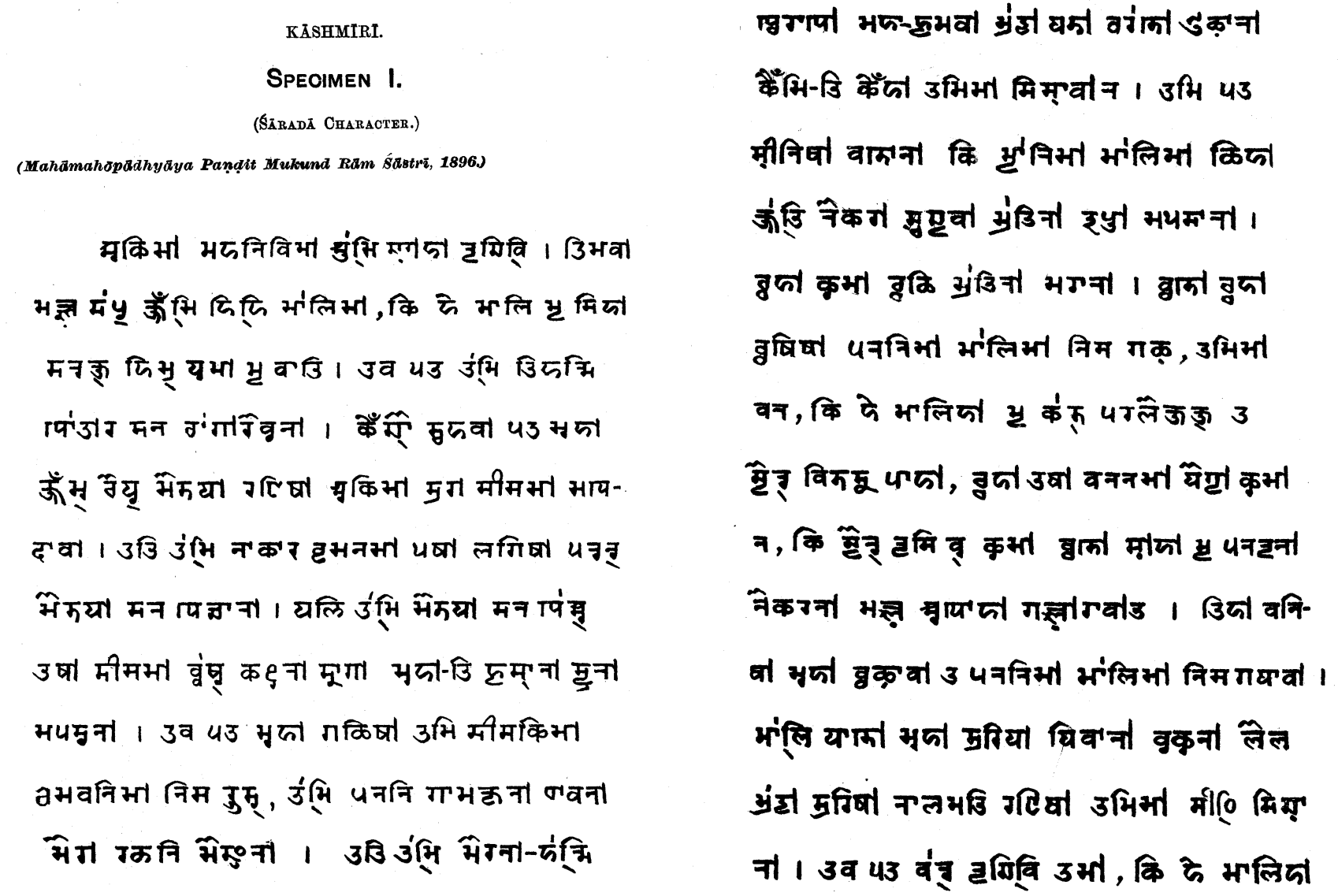


Figure 18: Specimens of Kashmiri in hand-written modern Sharada from 1896 (from Grierson, 1919: 317–318). The text contains idiosyncratic diacritics for the purposes of representing the vowel sounds of Kashmiri, which cannot be fully expressed natively in Sharada.

Plate LXXVII.

लिपिपत्र ७७वां.

वर्तमान शारदा (कश्मीरी), टाकरी और गुरमुखी (पंजाबी) लिपियां.

शारदा (कश्मीरी) लिपि.

अ आ इ ई उ ऊ ऋ ॠ ऌ ए ऐ ओ औ अं अः क ख ग

घ ङ च छ ज झ ञ ट ठ ड ढ ण त थ द ध न प

फ ब भ म य र ल व श ष स ह का कि की कु कू

के कै को कौ कं कः १ २ ३ ४ ५ ६ ७ ८ ९ ०.

टाकरी लिपि.

अ आ इ ई उ ऊ ए ऐ ओ औ अं क ख ग घ ङ च

छ ज झ ञ ट ठ ड ढ ण त थ द ध न प फ ब भ

म य र ल व श ष स ह का कि की कु कू के कै

को कौ कं १ २ ३ ४ ५ ६ ७ ८ ९ ०.

गुरमुखी (पंजाबी) लिपि.

अ आ इ ई उ ऊ ए ऐ ओ औ अं अः क ख ग घ

ङ च छ ज झ ञ ट ठ ड ढ ण त थ द ध न प

फ ब भ म य र ल व श ष स ह ख़ ग़ ज़ फ़ का

कि की कु कू के कै को कौ कं कः १ २ ३ ४ ५ ६ ७ ८ ९ ०

Figure 19: Comparison of Sharada, Takri, and Gurmukhi (Ojhā 1971: Plate LXXVII).

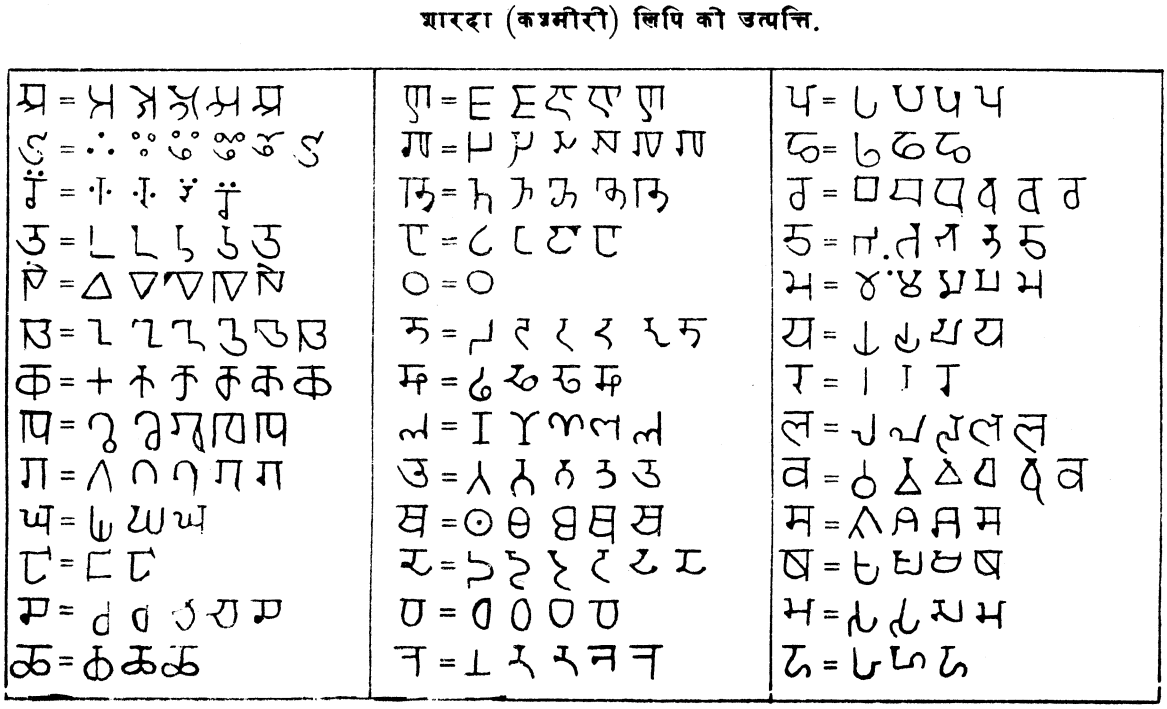
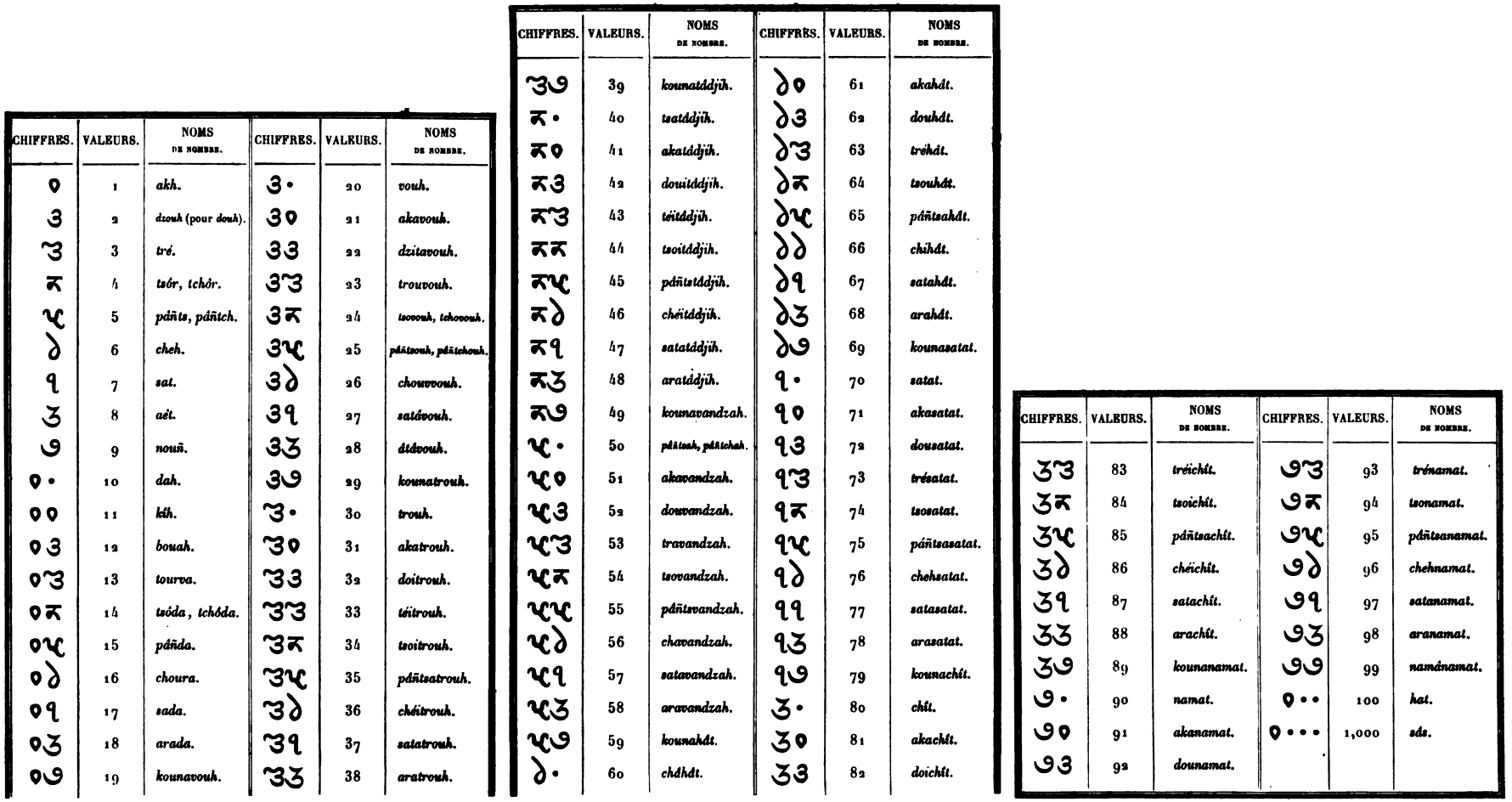


Figure 20: Stages of development of Sharada characters from Brahmi (Ojhā 1971: Plate LXXXII).



CHIFFRES.	VALEURS.	NOMS DE NOMBRE.
०	1	*akh.*
३	2	*dzouh* (pour *douh*).
३	3	*tré.*
४	4	*tsór, tchór.*
५	5	*páñts, páñtch.*
६	6	*cheh.*
७	7	*sat.*
८	8	*aét.*
९	9	*nouñ.*
०•	10	*dah.*
००	11	*kth.*
०३	12	*bouah.*
०३	13	*tourva.*
०४	14	*tsóda, tchóda.*
०५	15	*páñda.*
०६	16	*choura.*
०७	17	*sada.*
०८	18	*arada.*
०९	19	*kounavouh.*

CHIFFRES.	VALEURS.	NOMS DE NOMBRE.
३०	20	*vouh.*
३०	21	*akavouh.*
३३	22	*dzitavouh.*
३३	23	*trouvouh.*
३४	24	*tsovouh, tchovouh.*
३५	25	*páñtsouh, páñtchouh.*
३६	26	*chouvvouh.*
३७	27	*satávouh.*
३८	28	*átávouh.*
३९	29	*kounatrouh.*
३•	30	*trouh.*
३०	31	*akatrouh.*
३३	32	*doitrouh.*
३३	33	*téitrouh.*
३४	34	*tsoitrouh.*
३५	35	*páñtsatrouh.*
३६	36	*chéitrouh.*
३७	37	*satatrouh.*
३८	38	*aratrouh.*

CHIFFRES.	VALEURS.	NOMS DE NOMBRE.
३९	39	*kounatáddjih.*
४•	40	*tsatáddjih.*
४०	41	*akatáddjih.*
४३	42	*douitáddjih.*
४३	43	*téitáddjih.*
४४	44	*tsoitáddjih.*
४५	45	*páñtstáddjih.*
४६	46	*chéitáddjih.*
४७	47	*satatáddjih.*
४८	48	*aratáddjih.*
४९	49	*kounavandzah.*
५•	50	*páñtsah, páñtchah.*
५०	51	*akavandzah.*
५३	52	*douvandzah.*
५३	53	*travandzah.*
५४	54	*tsovandzah.*
५५	55	*páñtsvandzah.*
५६	56	*chavandzah.*
५७	57	*satavandzah.*
५८	58	*aravandzah.*
५९	59	*kounahát.*
६•	60	*chdhát.*

CHIFFRES.	VALEURS.	NOMS DE NOMBRE.
६०	61	*akahát.*
६३	62	*douhát.*
६३	63	*tréhát.*
६४	64	*tsouhát.*
६५	65	*páñtsahát.*
६६	66	*chihát.*
६७	67	*satahát.*
६८	68	*arahát.*
६९	69	*kounasatat.*
७•	70	*satat.*
७०	71	*akasatat.*
७३	72	*dousatat.*
७३	73	*trésatat.*
७४	74	*tsosatat.*
७५	75	*páñtsasatat.*
७६	76	*chehsatat.*
७७	77	*satasatat.*
७८	78	*arasatat.*
७९	79	*kounachít.*
८•	80	*chít.*
८०	81	*akachít.*
८३	82	*doichít.*

CHIFFRES.	VALEURS.	NOMS DE NOMBRE.
८३	83	*tréichít.*
८४	84	*tsoichít.*
८५	85	*páñtsachít.*
८६	86	*chéichít.*
८७	87	*satachít.*
८८	88	*arachít.*
८९	89	*kounanamat.*
९•	90	*namat.*
९०	91	*akanamat.*
९३	92	*dounamat.*

CHIFFRES.	VALEURS.	NOMS DE NOMBRE.
९३	93	*trénamat.*
९४	94	*tsonamat.*
९५	95	*páñtsanamat.*
९६	96	*chehnamat.*
९७	97	*satanamat.*
९८	98	*aranamat.*
९९	99	*namánamat.*
०••	100	*hat.*
०•••	1,000	*sds.*

Figure 21: The numbers 1 to 100 in Sharada (from Pihan, 1860: 86–88).

NUMERALS

Roman.	Nāgarī.	Śāradā.	Kāshmīrī (Nāgarī).	Kāshmīrī (Śāradā).	Trans-literation.
1	१	𑇑	अख्	𑆃𑆒𑇀	*akh*
2	२	𑇒	ज़ह्	𑆘𑆲𑇀	*z^a^h*
3	३	𑇓	त्र्य	𑆠𑇀𑆫𑆷	*trĕ*
4	४	𑇔	च़ोर्	𑆖𑆺𑆫𑇀	*tsōr*
5	५	𑇕	पाँछ़्	𑆥𑆳𑆀𑆗𑇀	*pō̃tsh*
6	६	𑇖	षह्	𑆰𑆲𑇀	*shĕh*
7	७	𑇗	सथ्	𑆱𑆡𑇀	*sath*
8	८	𑇘	ऐठ्	𑆍𑆜𑇀	*aiṭh*
9	९	𑇙	नव्	𑆤𑆮𑇀	*nav*
10	१०	𑇑𑇐	दह्	𑆢𑆲𑇀	*dah*
11	११	𑇑𑇑	काह्	𑆑𑆳𑆲𑇀	*kāh*
20	२०	𑇒𑇐	वुह्	𑆮𑆶𑆲𑇀	*wuh*
30	३०	𑇓𑇐	त्रह्	𑆠𑇀𑆫𑆲𑇀	*tr^a^h*
100	१००	𑇑𑇐𑇐	हथ्	𑆲𑆡𑇀	*hath*
1000	१०००	𑇑𑇐𑇐𑇐	सास्	𑆱𑆳𑆱𑇀	*sās*

Figure 22: Sharada numerals (Grierson 1916: 698).

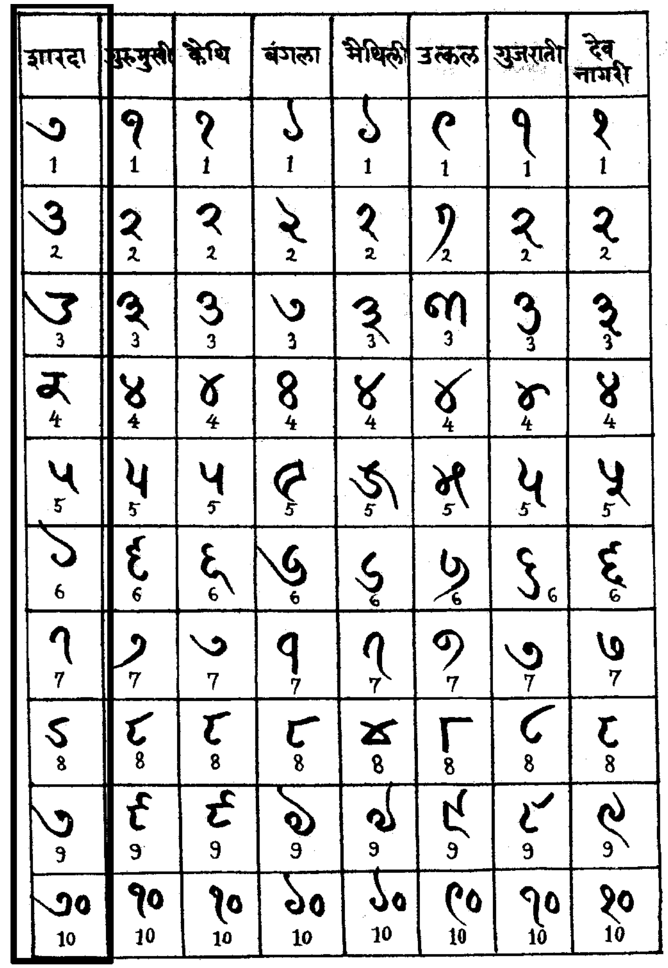


Figure 23: Inventory of Sharada numerals (Śākyavaṃśa 1974: 76).

Figure 24: Comparison of Gurmukhi, Landa, Takri, and Sharada letters (from Grierson, 1916b: 625).

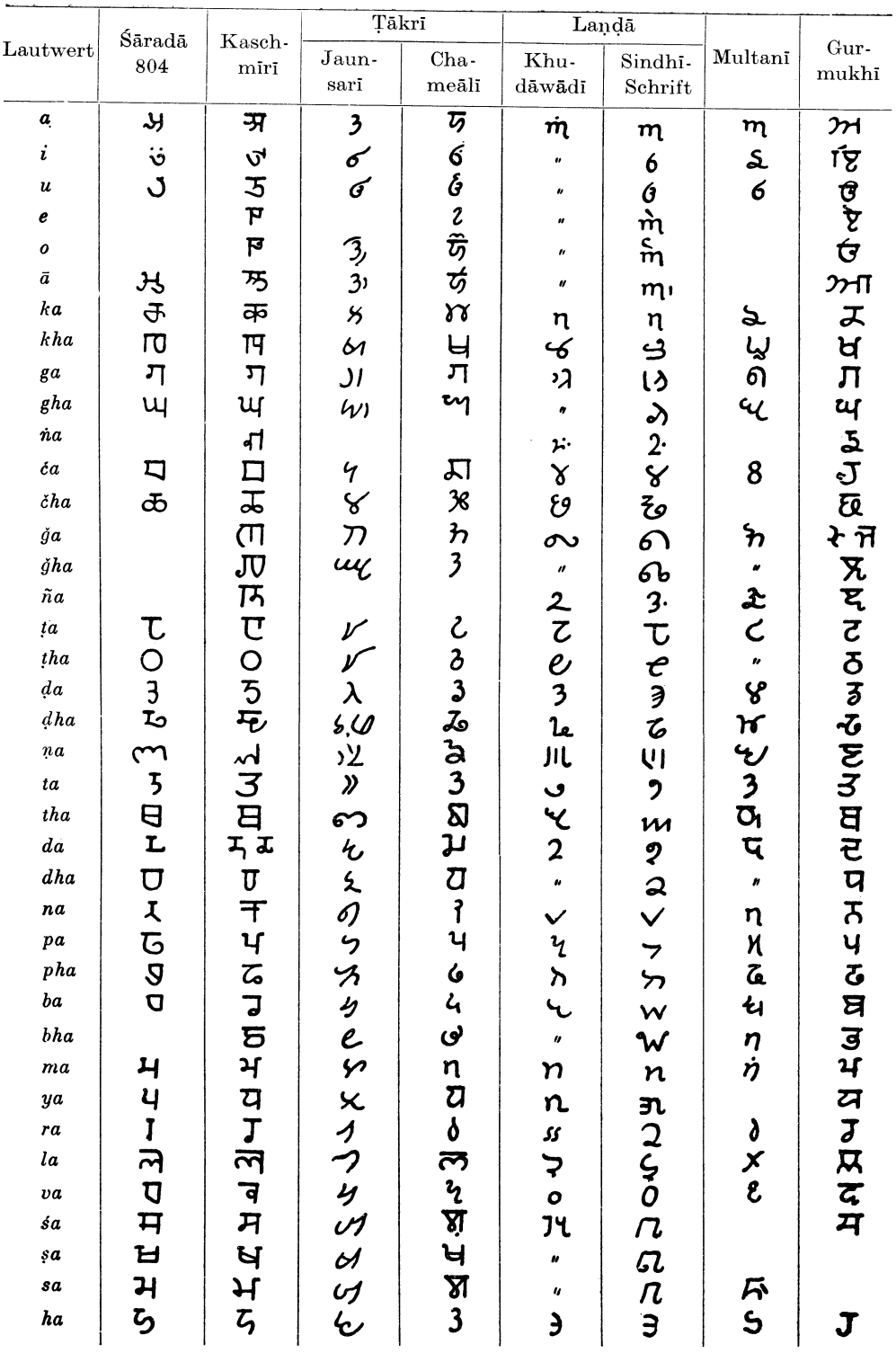


Figure 25: Comparison of Sharada and its descendents (from Jensen, 1969: 366).

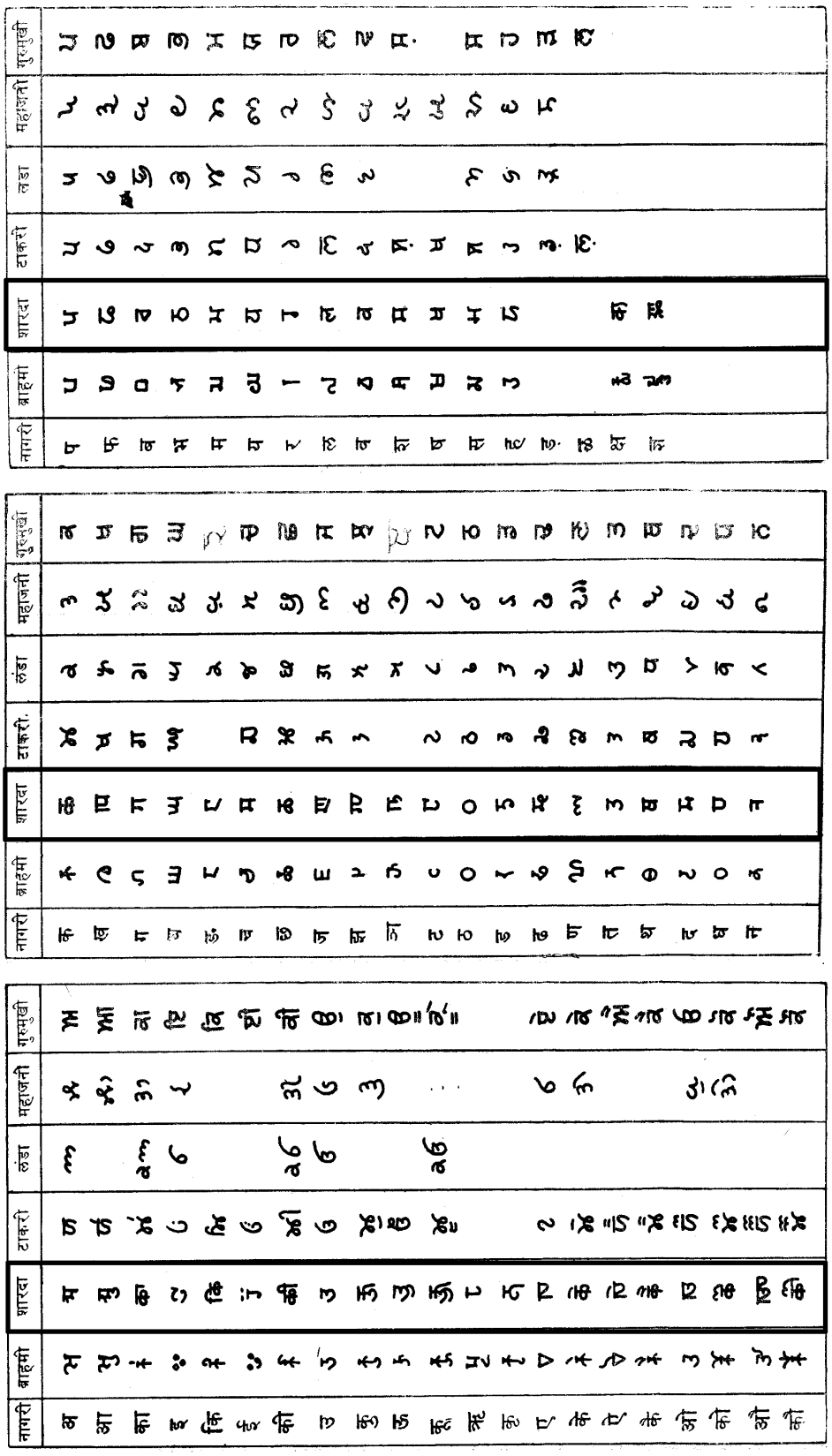


Figure 26: Comparison of Sharada with other Indic scripts (from Mule, 1974: 160–162).