Proposal to Encode Kirat Rai script in the Universal Character Set
Biswajit Mandal and Lorna Evans
14 February 2022

1 Introduction

This is a proposal to encode the Kirat Rai script in the Universal Character Set. Kirat Rai is used in Sikkim and West Bengal, India, for writing the Bantawa (Rai) language. It supersedes the following documents:

- N4037 L2/11-145 Introducing the Kirat Rai Script. [7]
- N4018 L2/11-105 Introducing the Khambu Rai Script. [8]
- L2/21-132 Preliminary document towards advancing the Kirat Rai script. [5]

2 Background

2.1 Overview

The Bantawa (बान्तावा *bāntāwā*) language (ISO 639-3: bap) is a Tibeto-Burman language of the Kiranti family that is spoken in eastern Nepal, the state of Sikkim, and West Bengal of India. It is also known as An Yüng, Bantaba, Bantawa Dum, Bantawa Rai, Bantawa Yong, Bantawa Yüng, Bontawa, and Kirawa Yüng. The approximate number of total speakers of Bantawa throughout Nepal and India is 370,000 [18]. While Devanagari is used for writing Bantawa in Nepal, the Kirat Rai (ꢒ꣄ꢮ꣄ꢰꢶ꣄ ꢭꢶꢥꢶ) script is recognized as the official script to write the same language in Sikkim.

The terms Bantawa, Rai, Kira(n)t(i) and Khambu are used rather interchangeably and inconsistently. Kirat is a macro-ethnonym while Rai is a surname. Khambu is an endonym linked to ethnic area called Khambuwan while Bantawa is both a glottonym and micro-ethnonym. Refer to the table below for the categories of these terms.
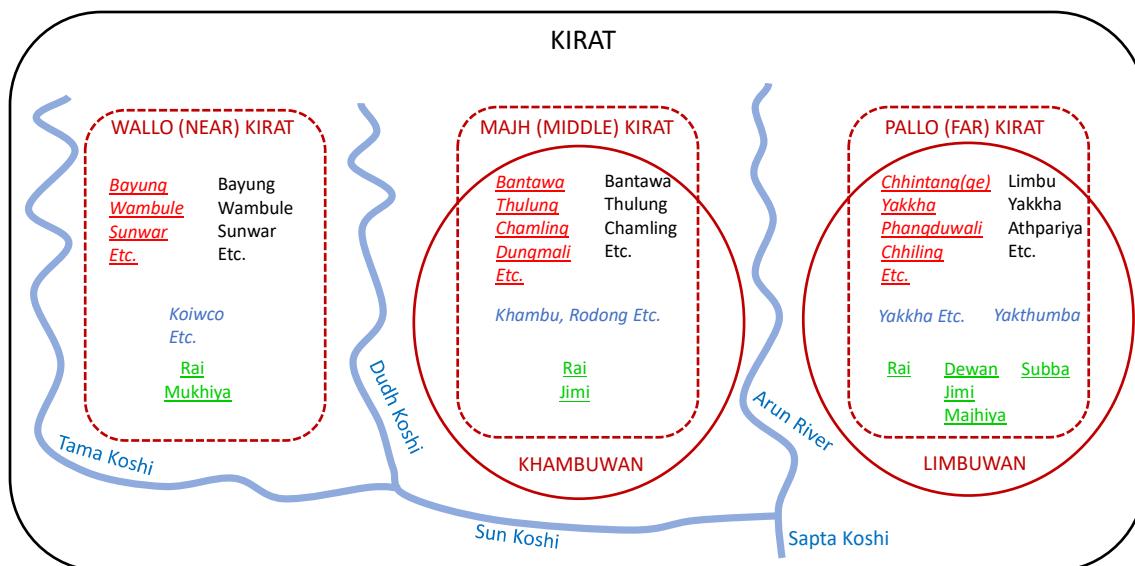

Diagram 1. Some examples of identity categories that refer to different groups within Kirat [4]

The origin of the *Kirat Rai* script goes as far back as the 1920s in which Mahaguru Tika Ram Rai of Darjeeling invented the *'Sumhung Lipi'* for preparing *'Sumhung'* (religious Rai book). It was derived from the Old Kirat Lipi (from which the Limbus have derived the Sirijonga Lipi or Limbu script). See

Table 4 for a comparison of Kirat Rai and Limbu scripts. In 1969, Guru Kripasalyan Rai of West Sikkim reintroduced and popularized that script as *'Kripasalyan Lipi'* by publishing his book *'Rāī Akṣarko Barṇamālā'*.

In 1995, the Sikkim Legislative Assembly passed Bill and included Bantawa language as Official Language of the State along with Nepali, Bhutia, Lepcha and Limbu. In the Bill the Bantawa language is referred to as 'Rai' language. In 1996, the Bantawa language was recognized as the lingua franca among the Kirat Rai people of the Sikkim State in the annual meeting of the *Akhil Kirat Rai Sangh Sikkim*. In 1998, *Khambu Rai* script (L2/11-105) was adopted as the official script of Kirat Rai until 1999. In 2000, a team under the leadership of Bhakta Bahadur Rai and B.B. Rokdung Rai reshaped the glyphs and redesigned the *Khambu Rai* script into the current *Kirat Rai* script (L2/11-145) taking into account orthographical, phonological, and printing issues, etc. They removed some redundant letters after phonological analysis. They reshaped all the diacritics and added some extra signs and a vowel. The comparison of these scripts can be seen in Table 3.

Since 2000, the *Kirat Rai* script has remained stable and is still used as the official script for the Kirat Rai language (in India) and the *Khambu Rai* script is no longer in use. The first ever computer font was created by Bikram Rai in 2000 which is used in this proposal. Kirat Rai script is also called 'Khambu Rai Lipi' in West Bengal [2]. In January 2003 two textbooks, *Rāī Chāmāri Lāchep* ⟨ᤛᤠ ᤛᤠᤱ⟨ᤠ ᤘᤠᤘᤢᤢ (Rai alphabet textbook) for primary class and *Rāī Yaṅ Chāpalāyāk-Busī Dak* ⟨ᤛᤠᤷ ᤕᤢ ᤛᤠᤛᤢᤘᤠᤜ-ᤔᤢᤎᤢ ᤐᤧ (for class I) have been printed by the AKRS. (see Figures 20-28) [9].

2.2 Usage

The Kirat Rai script is currently used in writing and print for various purposes:

- *Educational Materials:* Primary educational materials for teaching Bantawa and Kirat Rai are published by Govt. of Sikkim. Examples of script primers are ᤈᤢᤏᤢ-ᤏᤢᤕ-ᤘᤠᤳᤏᤢᤕ *Hopchāp-Cāichāp* (2021), ᤅᤢᤸ ᤕᤱᤱᤢ ᤏᤢᤛᤔᤢ-ᤱᤱ *Ān Yaṅ-o Chāpbopcaṅ* (2019), ᤛᤢᤛᤠᤜᤏᤢ *Yāyātum* (2021) and ᤅᤢᤸ ᤏᤢᤕ_ᤛᤠᤛᤔᤢᤕ *Ān Chāplābop* (2021). The Department of Education of the Government of Sikkim is publishing Bantawa Rai school textbooks up to upper secondary level education. Central Board of Secondary Education is conducting Board examination for Rai (Bantawa) every year. (see Fig.12) [3]
- *Literary Works:* Bantawa poetry ᤔᤢᤛᤢᤛᤢᤈᤢ ᤔᤷᤱᤢᤛᤧᤸᤱ *Sāvāyiṅsā Sinpāsin* and novel ᤔᤢᤛᤧ-ᤛᤷᤸᤱ *Summit* are printed in this script.
- *Newspapers:* A Bantawa ('Rai') edition of the *Sikkim Herald* (ᤔᤢᤱᤶᤛᤧᤸᤛᤠ ᤈ᤟⟨ᤠᤢ) is produced in Kirat Rai. The newspaper was first published in 2000 and maintains an active circulation (see Fig.13). The first edition was written by Bhakta B. Rai. Now editions are written by Prabhat Shiwahang Rai [16].
- *Linguistic Works:* Grammar book of Bantawa for elementary level i.e. ⟨ᤛᤠᤷ ᤕᤱᤱᤷ ᤔᤠᤷ᤟ᤙᤢᤢ *Rāī Yaṅo Sāseṅayaṅ* (2011) by Prabhat Shiwahang Rai (see Fig.15) and Nepali-Rai Dictionary i.e. नेपाली-राई चित्रमय शब्दकोश *Nepālī-Rāī Citramay Śabdakoś* by B.B.Rokdung written in this script (see Fig.14). [15]
- *Government Records:* Proceedings of the Sikkim legislative assembly are translated into Bantawa using the script.
- *Academic Works:* The script is used in several scholarly works on the Bantawa language and it is also the focus of scholarly attention.
- *Ephemera:* West Bengal Khambu Rai Development Board, Darjeeling produces and distributes Kirat Rai Chart (see Fig 5a & 5b).
- *Digital Resources*: Kirat Rai has been adapted for use in digital media. A digitized font for the script named 'Kirat Rai font' was developed by Bikram Rai. It is based upon a non-Unicode encoding and is mapped to Latin letters. The font is used for publishing the *Sikkim Herald* [16] and by *CBSE* [3] in their question paper.

3 Writing System

3.1 Script Name

The original proposal documents were for two scripts: Kirat Rai and Khambu Rai. It has also been called 'Kirat' or 'Rai'. 'Rai' would be too generic a name for the script as that term is widely used even with last names of individuals in the region. We suggest 'Kirat Rai' (most commonly used) or 'Kirat Khambu Rai' as the name for the script. 'Kirat Rai' is used in this document. The proposed characters are intended for representing historical and current forms of Kirat Rai.

3.2 Structure

Kirat Rai is an alpha syllabic writing system based on a simplified Brahmi model. It is written from left to right. The script does not have the rendering complexity of traditional Brahmic scripts (no reordering, no combining marks, and no conjuncts). Consonants may have an inherent vowel; it typically is pronounced [a] or [ʌ], normally never occurs in final position. The script has no system of conjuncts but it has *virama* and *saat* to mute the inherent vowel [§3.6.1]. There is a vowel letter which functions as a vowel carrier.

The set consists of 58 characters: 1 independent vowel, 31 consonants, 8 vowels, 6 other signs, 2 punctuation marks, and 10 digits.

There is absence of *letter nna* and *letter ssa* in Kirat Rai as per Brahmi model. In L2/11-145, the letter *SA* was placed after *SHA* per the normal Brahmi model. This proposal places the letter *SA* before the letter *SHA* as this is the order used in Kirat Rai (see Fig. 3).

3.3 Independent Vowel

There is a single vowel letter which functions as a vowel carrier. Other vowels are represented as dependent signs (see Fig. 1, 5a, 6, 7, 10). Independent forms of other vowels are produced by writing those vowels with this letter.

letter	Name of the character
ᥩ	KIRAT RAI LETTER A

3.4 Consonants

There are 31 consonants. Two of the consonants are not always included in the alphabet charts (see Fig. 4, 6). These are KIRAT RAI LETTER NYA and KIRAT RAI LETTER SHA. However, there certainly is evidence of usage in many of the charts and school books (see Fig. 3, 5b, 10, 24, 25). KIRAT RAI LETTER NYA (see Fig. 3, 4, 5b, 10, 24) and KIRAT RAI LETTER DDHA (see Fig. 3, 4, 5b, 6, 9, 10, 25) are difficult to find in running text (these sounds may not occur in Bantawa, but they are likely used for borrowed words). They are however, taught in the school books referenced. Thus, all of these should be encoded:

letter	Name of the character
ह	KIRAT RAI LETTER KA
ख	KIRAT RAI LETTER KHA
ग	KIRAT RAI LETTER GA
घ	KIRAT RAI LETTER GHA
३	KIRAT RAI LETTER NGA
च	KIRAT RAI LETTER CA
छ	KIRAT RAI LETTER CHA
ज	KIRAT RAI LETTER JA
झ	KIRAT RAI LETTER JHA
ञ	KIRAT RAI LETTER NYA
ट	KIRAT RAI LETTER TTA
ठ	KIRAT RAI LETTER TTHA
ड	KIRAT RAI LETTER DDA
ढ	KIRAT RAI LETTER DDHA
त	KIRAT RAI LETTER TA
थ	KIRAT RAI LETTER THA
द	KIRAT RAI LETTER DA
ध	KIRAT RAI LETTER DHA
न	KIRAT RAI LETTER NA
प	KIRAT RAI LETTER PA
फ	KIRAT RAI LETTER PHA
ब	KIRAT RAI LETTER BA
भ	KIRAT RAI LETTER BHA
म	KIRAT RAI LETTER MA
य	KIRAT RAI LETTER YA
र	KIRAT RAI LETTER RA
ल	KIRAT RAI LETTER LA
व	KIRAT RAI LETTER VA
स	KIRAT RAI LETTER SA
श	KIRAT RAI LETTER SHA
ह	KIRAT RAI LETTER HA

3.5 Vowel Signs

There are 8 "dependent" vowels (see Fig. 1, 5a, 6, 7, 10, 22):

letter	name of the character
I	KIRAT RAI VOWEL SIGN AA
⅄	KIRAT RAI VOWEL SIGN I
∩	KIRAT RAI VOWEL SIGN U
∩̥	KIRAT RAI VOWEL SIGN UE
℮	KIRAT RAI VOWEL SIGN E
℮℮	KIRAT RAI VOWEL SIGN AI
I℮	KIRAT RAI VOWEL SIGN O
I℮℮	KIRAT RAI VOWEL SIGN AU

These vowel signs can be used with KIRAT RAI LETTER A or with consonants. For example, a+au (ℨII℮℮) or pa+au (ЬII℮℮) are used.

These should all be encoded atomically. This is because linguistically these vowels are not composed of two separate characters, they are single vowels in their own right. It is true that the custom encoded Kirat Rai font uses decomposed vowel signs as a matter of expediency, but this decision should not influence the right way to encode the script. Because the glyph for some of the vowels (aa and e) are part of the shape of the last 3 vowels (ai, o, au) there should be canonical decompositions for the last 3 vowels. With these decompositions, Do Not Use tables are not necessary.

Following the similar **New Tai Lue** vowel sign names, these are called "VOWEL SIGN". **New Tai Lue** also gives these the General Category of "Lo" (Other_Letter).

3.5.1 VOWEL SIGN UE <U>

This proposal includes KIRAT RAI VOWEL SIGN UE which was not included in L2/11-145. It represents central unrounded closed phoneme *ü* [ɨ]. Bantawa language does have this unique type of phoneme in comparison to other Kiranti languages. It is represented in Devanagari with उ and sometimes by अ. For examples: ℨ∩̥ *Hü* हु/ह 'Blood' and Ь∩̥ *Pü* पु/प 'Snake', etc.

Because this is a separate vowel, and because the circle is usually positioned above the loop (See Fig. 5a, 10, 28), there should not be an attempt to encode this as *vowel sign u* plus *sign yupi*.

See Fig. 1, 5a, 10, 17d, 28.

3.6 Various Signs

There are 6 various signs. This proposal includes the *virama* proposed in L2/11-145. The name for *candrabindu* was changed to *anusvara* (as discussed in 3.6.2) and adds four more signs as discussed below (see Fig. 10):

letter	name of the character
°	KIRAT RAI SIGN ANUSVARA
⁞	KIRAT RAI SIGN TONPI
°	KIRAT RAI SIGN VISARGA
˗	KIRAT RAI SIGN VIRAMA
ᶺ	KIRAT RAI SIGN SAAT
°	KIRAT RAI SIGN YUPI

Because the Kirat Rai Signs are all visually on the baseline, and the modifier letters that were similar are mostly below the baseline, it seems best to encode these in the Kirat Rai block. This will mean there will not be font fallback issues.

The spacing signs, VIRAMA, ANUSVARA, TONPI, VISARGA, and SAAT could be assigned a General Category of "Lm" (Modifier_Letter) or of "Lo" (Other_Letter). Because these characters have the appearance of modifier letters, we have used "Lm". Examples of other characters using "Lm":

```
0559;ARMENIAN MODIFIER LETTER LEFT HALF RING;Lm;0;L;;;;;N;;;;;
06E5;ARABIC SMALL WAW;Lm;0;AL;;;;;N;;;;;
07FA;NKO LAJANYALAN;Lm;0;R;;;;;N;;;;;
1C7A;OL CHIKI MU-GAAHLAA TTUDDAAG;Lm;0;L;;;;;N;;;;;
```

Following 0970 DEVANAGARI ABBREVIATION SIGN, YUPI has been assigned a General Category of "Po" (Other_Punctuation).

3.6.1 Difference between Sign Anusvara < ˚ > and Sign Tonpi < ⁛ >
SIGN ANUSVARA < ˚ > is used to denote *n* [n] and *ṅ* [ŋ] phonemes. In Devanagari it corresponds to *anusvara* U+0902 (see Fig. 2). For examples: ꠲꠱ꠞꠥꠛ꠲ꠟ *Mānāklen* 'Tomorrow', ꠲꠱ꠓꠟꠔ *Mānsāwā* 'Bless'and ꠪꠳ꠞꠥꠞ꠲ꠟ *Pancāyet* 'Panchayat', etc.

Nasalization mark [˜] is denoted by SIGN TONPI < ⁛ > in the script (see Fig. 2). It corresponds in Devanagari to *candrabindu* U+0901. For example: ꠽ꠞ꠲ꠟ *Chōwā* 'Bird', ꠞꠔꠟꠔ *Yāsã̄wā* 'Curse' and ꠽ꠞꠅꠞꠟ *Chẽiwā* 'Brother'.

See Fig. 2, 18a, 18b, 18c, 22, 28.

3.6.2 Sign Visarga <⁝>
Glottal Stop [ʔ] phoneme of the script is represented by SIGN VISARGA <⁝>. It is denoted in Devanagari by *visarga* U+0903. The Glottal stop is sometimes shown by <ꠛ> instead of < ⁝ > (see Fig. 2, 17e, 27). For example: ꠛꠔꠟ or ꠛꠛꠔꠟ *Cāʔwā* 'Water', ꠅꠔꠟ or ꠅꠛꠔꠟ *Āʔwā* 'Oil'and ꠲ꠔꠟ or ꠲ꠛꠔꠟ *Māʔwā* 'Black Bird' etc.

3.6.3 Difference between Sign Virama <˳> and Sign Saat <ˎ>
Both the signs are used to mute the inherent vowel sound. There is no regular form of conjunctions or geminated letter in the script. SIGN SAAT <ˎ> is only used to mute the inherent vowel of the first letter of the word; all other places are represented by SIGN VIRAMA <˳>. Both the signs are represented in Devanagari by *virama* U+094D. For example: ꠉꠞꠔꠞꠟ *Bhyāksin* 'Vaccine', ꠉꠞꠔꠟ *Hyānī* 'There', ꠉꠞꠔꠟ *Hyuni* 'Down', ꠲꠳ꠎꠟ *Mhumā* 'Quarrel' ꠛꠟ꠲ꠟꠞ *Sukhkhim* 'Sikkim', ꠅꠎꠔ *Aṅkā* 'Me' and ꠟꠞꠞ *Khāṭmā* 'To go', etc.

See Fig. 17a, 17b, 17c, 22.

3.6.4 Sign Yupi <⸰>
Sign Yupi is used to make abbreviations in Bantawa language (see Fig. 17d, 19b, 19c, 19d). For example: ꠇ⸰ is for 'Dr.' (Doctor), ꠇ⸱ꠞ⸰꠪⸰ is for 'D.G.P.' (Director General of Police), etc.

In legacy encodings SIGN YUPI was sometimes used with VOWEL SIGN U to form VOWEL SIGN UE <ꠎ> (see Fig. 1 and 6). Since this is an abbreviation sign, using SIGN YUPI with VOWEL SIGN U to form VOWEL SIGN UE is not acceptable.

3.7 Punctuation
Kirat Rai uses DANDA </> and DOUBLE DANDA <//> at the end of the sentence (see Fig.13, 16, 21, 22). Many Indic scripts use the *danda* and *double danda* from the Devanagari block. The Kirat Rai *danda* and *double danda* are used in a similar way to how they are used in Devanagari. However, in order to visually differentiate the *danda* from KIRAT RAI VOWEL SIGN AA <l>, these are always slanted in Kirat Rai. Thus, these are proposed for encoding in the Kirat Rai block.

Kirat Rai *sign Chamri* <-> is typically used to join two different words to form compound term (see Fig. 15 and 16). It should be unified with the corresponding HYPHEN-MINUS U+002D. For example: ᤕᤠᤡ-ᤒᤢᤴ '*Sāyā-Buṅ*' Turban, etc. There are no other script-specific punctuation marks.

The following "Latin" marks are used:

. , ; : ? ! :- – _ \ * ' ' " " ( ) { } [ ] < >

3.8 Digits

There is a full set of decimal digits: 𐴰 ZERO, 𐴱 ONE, 𐴲 TWO, 𐴳 THREE, 𐴴 FOUR, 𐴵 FIVE, 𐴶 SIX, 𐴷 SEVEN, 𐴸 EIGHT, 𐴹 NINE (see Fig. 5a, 7, 8, 10, 11, 13, 22, 23).

4 Collation

Nasalized vowels should come before the corresponding non-nasalized vowel (and before any other consonant). An example (fictional) of how words should sort is as follows:

  a. ꯑ꯫ꯑ
  b. ꯑ꯫ꯑ
  c. ꯑꯨ꯫ꯑ
  d. ꯑꯨ꯮ꯑ
  e. ꯑꯑ
  f. ꯑ꯮꯫ꯑ
  g. ꯑ꯮ꯑ
  h. ꯑ�.ꯑ
  i. ꯑ꯳ꯑ

This sort order with *anusvara*, *tonpi*, and *visarga* sorting first has been approved by AKRS.

The collation order is as follows:

˚ ANUSVARA < ˸ TONPI < ˸ VISARGA < 𐴤 A < 𐴐 KA < 𐴑 KHA < 𐴒 GA < 𐴓 GHA < 𐴔 NGA < 𐴕 CA < 𐴖 CHA < 𐴗 JA < 𐴘 JHA < 𐴙 NYA < 𐴚 TTA < 𐴛 TTHA < 𐴜 DDA < 𐴝 DDHA < 𐴞 TA < 𐴟 THA < 𐴠 DA < 𐴡 DHA < 𐴢 NA < 𐴣 PA < 𐴤 PHA < 𐴥 BA < 𐴦 BHA < 𐴧 MA < 𐴨 YA < 𐴩 RA < 𐴪 LA < 𐴫 VA < 𐴬 SA < 𐴭 SHA < 𐴮 HA < ꯤ AA < ꯤ I < ꯦ U < ꯦ UE < ꯧ E < ꯨ AI < ꯩ O < ꯪ AU < ꞏ VIRAMA < ˰ SAAT < ˳ YUPI < / DANDA < // DOUBLE DANDA < 𐴰 DIGIT ZERO < 𐴱 DIGIT ONE < 𐴲 DIGIT TWO < 𐴳 DIGIT THREE < 𐴴 DIGIT FOUR < 𐴵 DIGIT FIVE < 𐴶 DIGIT SIX < 𐴷 DIGIT SEVEN < 𐴸 DIGIT EIGHT < 𐴹 DIGIT NINE

4.1 Default Unicode Collation Element Table

Contractions will automatically be added to the UCA because of canonical decompositions for AI, O and AU.

```
16D67 16D67 ; … # KIRAT RAI VOWEL SIGN AI
16D63 16D67 ; … # KIRAT RAI VOWEL SIGN O
16D63 16D67 16D67 ; … # KIRAT RAI VOWEL SIGN AU
16D69 16D67; … # KIRAT RAI VOWEL SIGN AU
16D63 16D68; … # KIRAT RAI VOWEL SIGN AU
```

5 Character Data

5.1 Character Properties

In the format of UnicodeData.txt:

```
16D40;KIRAT RAI SIGN ANUSVARA;Lm;0;L;;;;;N;;;;;
16D41;KIRAT RAI SIGN TONPI;Lm;0;L;;;;;N;;;;;
16D42;KIRAT RAI SIGN VISARGA;Lm;0;L;;;;;N;;;;;
16D43;KIRAT RAI LETTER A;Lo;0;L;;;;;N;;;;;
16D44;KIRAT RAI LETTER KA;Lo;0;L;;;;;N;;;;;
16D45;KIRAT RAI LETTER KHA;Lo;0;L;;;;;N;;;;;
16D46;KIRAT RAI LETTER GA;Lo;0;L;;;;;N;;;;;
16D47;KIRAT RAI LETTER GHA;Lo;0;L;;;;;N;;;;;
16D48;KIRAT RAI LETTER NGA;Lo;0;L;;;;;N;;;;;
16D49;KIRAT RAI LETTER CA;Lo;0;L;;;;;N;;;;;
16D4A;KIRAT RAI LETTER CHA;Lo;0;L;;;;;N;;;;;
16D4B;KIRAT RAI LETTER JA;Lo;0;L;;;;;N;;;;;
16D4C;KIRAT RAI LETTER JHA;Lo;0;L;;;;;N;;;;;
16D4D;KIRAT RAI LETTER NYA;Lo;0;L;;;;;N;;;;;
16D4E;KIRAT RAI LETTER TTA;Lo;0;L;;;;;N;;;;;
16D4F;KIRAT RAI LETTER TTHA;Lo;0;L;;;;;N;;;;;
16D50;KIRAT RAI LETTER DDA;Lo;0;L;;;;;N;;;;;
16D51;KIRAT RAI LETTER DDHA;Lo;0;L;;;;;N;;;;;
16D52;KIRAT RAI LETTER TA;Lo;0;L;;;;;N;;;;;
16D53;KIRAT RAI LETTER THA;Lo;0;L;;;;;N;;;;;
16D54;KIRAT RAI LETTER DA;Lo;0;L;;;;;N;;;;;
16D55;KIRAT RAI LETTER DHA;Lo;0;L;;;;;N;;;;;
16D56;KIRAT RAI LETTER NA;Lo;0;L;;;;;N;;;;;
16D57;KIRAT RAI LETTER PA;Lo;0;L;;;;;N;;;;;
16D58;KIRAT RAI LETTER PHA;Lo;0;L;;;;;N;;;;;
16D59;KIRAT RAI LETTER BA;Lo;0;L;;;;;N;;;;;
16D5A;KIRAT RAI LETTER BHA;Lo;0;L;;;;;N;;;;;
16D5B;KIRAT RAI LETTER MA;Lo;0;L;;;;;N;;;;;
16D5C;KIRAT RAI LETTER YA;Lo;0;L;;;;;N;;;;;
16D5D;KIRAT RAI LETTER RA;Lo;0;L;;;;;N;;;;;
16D5E;KIRAT RAI LETTER LA;Lo;0;L;;;;;N;;;;;
16D5F;KIRAT RAI LETTER VA;Lo;0;L;;;;;N;;;;;
16D60;KIRAT RAI LETTER SA;Lo;0;L;;;;;N;;;;;
16D61;KIRAT RAI LETTER SHA;Lo;0;L;;;;;N;;;;;
16D62;KIRAT RAI LETTER HA;Lo;0;L;;;;;N;;;;;
16D63;KIRAT RAI VOWEL SIGN AA;Lo;0;L;;;;;N;;;;;
16D64;KIRAT RAI VOWEL SIGN I;Lo;0;L;;;;;N;;;;;
16D65;KIRAT RAI VOWEL SIGN U;Lo;0;L;;;;;N;;;;;
16D66;KIRAT RAI VOWEL SIGN UE;Lo;0;L;;;;;N;;;;;
16D67;KIRAT RAI VOWEL SIGN E;Lo;0;L;;;;;N;;;;;
16D68;KIRAT RAI VOWEL SIGN AI;Lo;0;L;16D67 16D67;;;;N;;;;;
16D69;KIRAT RAI VOWEL SIGN O;Lo;0;L;16D63 16D67;;;;N;;;;;
16D6A;KIRAT RAI VOWEL SIGN AU;Lo;0;L;16D63 16D67 16D67;;;;N;;;;;
16D6B;KIRAT RAI SIGN VIRAMA;Lm;0;L;;;;;N;;;;;
16D6C;KIRAT RAI SIGN SAAT;Lm;0;L;;;;;N;;;;;
16D6D;KIRAT RAI SIGN YUPI;Po;0;L;;;;;N;;;;;
16D6E;KIRAT RAI DANDA;Po;0;L;;;;;N;;;;;
16D6F;KIRAT RAI DOUBLE DANDA;Po;0;L;;;;;N;;;;;
16D70;KIRAT RAI DIGIT ZERO;Nd;0;L;;0;0;0;N;;;;;
16D71;KIRAT RAI DIGIT ONE;Nd;0;L;;1;1;1;N;;;;;
16D72;KIRAT RAI DIGIT TWO;Nd;0;L;;2;2;2;N;;;;;
16D73;KIRAT RAI DIGIT THREE;Nd;0;L;;3;3;3;N;;;;;
16D74;KIRAT RAI DIGIT FOUR;Nd;0;L;;4;4;4;N;;;;;
16D75;KIRAT RAI DIGIT FIVE;Nd;0;L;;5;5;5;N;;;;;
16D76;KIRAT RAI DIGIT SIX;Nd;0;L;;6;6;6;N;;;;;
16D77;KIRAT RAI DIGIT SEVEN;Nd;0;L;;7;7;7;N;;;;;
16D78;KIRAT RAI DIGIT EIGHT;Nd;0;L;;8;8;8;N;;;;;
16D79;KIRAT RAI DIGIT NINE;Nd;0;L;;9;9;9;N;;;;;
```

5.2 Linebreaking

In the format of LineBreak.txt:

```
16D40..16D42 ; AL  #  [03] KIRAT RAI SIGN ANUSVARA .. KIRAT RAI SIGN VISARGA
16D43..16D62 ; AL  #  [32] KIRAT RAI LETTER A .. KIRAT RAI LETTER HA
16D63..16D6A ; AL  #  [08] KIRAT RAI VOWEL SIGN AA .. KIRAT RAI VOWEL SIGN AU
16D6B..16D6D ; AL  #  [03] KIRAT RAI SIGN VIRAMA .. KIRAT RAI SIGN YUPI
16D6E..16D6F ; BA  #  [02] KIRAT RAI DANDA.. KIRAT RAI DOUBLE DANDA
16D70..16D79 ; NU  #  [10] KIRAT RAI DIGIT ZERO .. KIRAT RAI DIGIT NINE
```

5.3 'Confusable' Characters

Below is a list of Kirat Rai characters that are 'confusable' with those encoded in other script blocks:

16D40 KIRAT RAI SIGN ANUSVARA	;	00B0	DEGREE SIGN
		02DA	RING ABOVE
16D42 KIRAT RAI SIGN VISARGA	;	0983	BENGALI SIGN VISARGA
		A789	MODIFIER LETTER COLON
16D4B KIRAT RAI LETTER JA	;	11088	KAITHI LETTER UU
16D4E KIRAT RAI LETTER TTA	;	096A	DEVANAGARI DIGIT FOUR
16D50 KIRAT RAI LETTER DDA	;	0909	DEVANAGARI LETTER U
16D52 KIRAT RAI LETTER TA	;	1109E	KAITHI LETTER TA
16D5C KIRAT RAI LETTER YA	;	0A9A	GUJARATI LETTER CA
16D63 KIRAT RAI VOWEL SIGN AA	;	0B3E	ORIYA VOWEL SIGN AA
		007C	VERTICAL LINE
		0964	DEVANAGARI DANDA
16D6B KIRAT RAI SIGN VIRAMA		02CD	MODIFIER LETTER LOW MACRON
16D6C KIRAT RAI SIGN SAAT	;	02F0	MODIFIER LETTER LOW UP ARROWHEAD
16D6D KIRAT RAI SIGN YUPI	;	02F3	MODIFIER LETTER LOW RING
		0970	DEVANAGARI ABBREVIATION SIGN
16D6E KIRAT RAI DANDA	;	2215	DIVISON SLASH
16D70 KIRAT RAI DIGIT ZERO	;	0030	DIGIT ZERO

5.4 Script Metadata

Script_Metadata

Name	**Kirat Rai**
Size	**58**
Origin Country	**India**
Density	**1**
Likely language	**Bantawa**
Lang_Code	**bap**
ID Usage	**Limited Use**
RTL?	**No**
LB letters?	**No**
Shaping req?	**No**
IME?	**No**
Case?	**No**

	16D4	16D5	16D6	16D7
0	̊ 16D40	Ʒ 16D50	ⳍ 16D60	O 16D70
1	̣ 16D41	Ƹ 16D51	Ɑ̆ 16D61	ƻ 16D71
2	̈ 16D42	ⱺ 16D52	Ʒ̆ 16D62	ⳍ 16D72
3	Ȝl 16D43	Ƹ 16D53	I 16D63	Ȝ 16D73
4	ⱥ 16D44	Ƹ 16D54	ⱬ 16D64	Ȝ 16D74
5	ꝇ 16D45	ƹ 16D55	Ω 16D65	Ƈ 16D75
6	Ꝭ 16D46	ⱱ 16D56	Ω̥ 16D66	Ƈ 16D76
7	Ƹ 16D47	ɣ 16D57	ⱹ 16D67	℔ 16D77
8	Ȝ 16D48	ɥ 16D58	ⱹⱹ 16D68	Ƽ 16D78
9	Ⴒ 16D49	Ⴆ 16D59	Ⱪ 16D69	Ƽ 16D79
A	ⱦ 16D4A	ⱺ 16D5A	ⱪⱪ 16D6A	░░
B	Ȝ 16D4B	Ⴕ 16D5B	- 16D6B	░░
C	Ⱨ 16D4C	Ⴍ 16D5C	∧ 16D6C	░░
D	Ⱬ 16D4D	ⱺ 16D5D	̥ 16D6D	░░
E	Ⴗ 16D4E	Ⴔ 16D5E	/ 16D6E	░░
F	Ɑ 16D4F	Ɑ 16D5F	// 16D6F	░░

Various signs

16D40	˚	KIRAT RAI SIGN ANUSVARA
		→ 02DA ˚ ring above
16D41	⁝	KIRAT RAI SIGN TONPI
16D42	⁚	KIRAT RAI SIGN VISARGA
		→ A789 ꞉ modifier letter colon

Letters

16D43	ꛄ	KIRAT RAI LETTER A
		• also used as a vowel carrier
16D44	ꛅ	KIRAT RAI LETTER KA
16D45	ꛆ	KIRAT RAI LETTER KHA
16D46	ꛇ	KIRAT RAI LETTER GA
16D47	ꛈ	KIRAT RAI LETTER GHA
16D48	ꛉ	KIRAT RAI LETTER NGA
16D49	ꛊ	KIRAT RAI LETTER CA
16D4A	ꛋ	KIRAT RAI LETTER CHA
16D4B	ꛌ	KIRAT RAI LETTER JA
16D4C	ꛍ	KIRAT RAI LETTER JHA
16D4D	ꛎ	KIRAT RAI LETTER NYA
16D4E	ꛏ	KIRAT RAI LETTER TTA
16D4F	ꛐ	KIRAT RAI LETTER TTHA
16D50	ꛑ	KIRAT RAI LETTER DDA
16D51	ꛒ	KIRAT RAI LETTER DDHA
16D52	ꛓ	KIRAT RAI LETTER TA
16D53	ꛔ	KIRAT RAI LETTER THA
16D54	ꛕ	KIRAT RAI LETTER DA
16D55	ꛖ	KIRAT RAI LETTER DHA
16D56	ꛗ	KIRAT RAI LETTER NA
16D57	ꛘ	KIRAT RAI LETTER PA
16D58	ꛙ	KIRAT RAI LETTER PHA
16D59	ꛚ	KIRAT RAI LETTER BA
16D5A	ꛛ	KIRAT RAI LETTER BHA
16D5B	ꛜ	KIRAT RAI LETTER MA
16D5C	ꛝ	KIRAT RAI LETTER YA
16D5D	ꛞ	KIRAT RAI LETTER RA
16D5E	ꛟ	KIRAT RAI LETTER LA
16D5F	ꛠ	KIRAT RAI LETTER VA
16D60	ꛡ	KIRAT RAI LETTER SA
16D61	ꛢ	KIRAT RAI LETTER SHA
16D62	ꛣ	KIRAT RAI LETTER HA

Vowel signs

16D63	ꛤ	KIRAT RAI VOWEL SIGN AA
		→ 007C | vertical line
		→ 0964 । devanagari danda
16D64	ꛥ	KIRAT RAI VOWEL SIGN I
16D65	ꛦ	KIRAT RAI VOWEL SIGN U
16D66	ꛧ	KIRAT RAI VOWEL SIGN UE
16D67	ꛨ	KIRAT RAI VOWEL SIGN E
16D68	ꛩ	KIRAT RAI VOWEL SIGN AI
		≡ 16D67 ꛨ 16D67 ꛨ
16D69	ꛪ	KIRAT RAI VOWEL SIGN O
		≡ 16D63 ꛤ 16D67 ꛨ
16D6A	ꛫ	KIRAT RAI VOWEL SIGN AU
		≡ 16D63 ꛤ 16D67 ꛨ 16D67 ꛨ

Various signs

16D6B	ꛬ	KIRAT RAI SIGN VIRAMA
		→ 02CD ˍ modifier letter low macron
16D6C	ꛭ	KIRAT RAI SIGN SAAT
		→ 02F0 ˰ modifier letter low up arrowhead

16D6D	˳	KIRAT RAI SIGN YUPI
		• intended for Kirat Rai-specific abbreviations
		→ 02F3 ˳ modifier letter low ring
		→ 0970 ॰ devanagari abbreviation sign

Punctuation

16D6E	⁄	KIRAT RAI DANDA
		= danda
		→ 0964 । devanagari danda
16D6F	⫽	KIRAT RAI DOUBLE DANDA
		= double danda
		→ 0965 ॥ devanagari double danda

Digits

16D70	꛰	KIRAT RAI DIGIT ZERO
16D71	꛱	KIRAT RAI DIGIT ONE
16D72	꛲	KIRAT RAI DIGIT TWO
16D73	꛳	KIRAT RAI DIGIT THREE
16D74	꛴	KIRAT RAI DIGIT FOUR
16D75	꛵	KIRAT RAI DIGIT FIVE
16D76	꛶	KIRAT RAI DIGIT SIX
16D77	꛷	KIRAT RAI DIGIT SEVEN
16D78	꛸	KIRAT RAI DIGIT EIGHT
16D79	꛹	KIRAT RAI DIGIT NINE

6 Letter of Support from Akhil Kirat Rai Sangh Sikkim (AKRS)

AKHIL KIRAT RAI SANGH SIKKIM

HEAD OFFICE: GANGTOK

Branch Office:
Hotel Khambuwan Building, Central Park Namchi
Regd. No. 443/1990

Ref. No. 06/AKRSS/2021   Date: 21/07/2021

To

Dr. Deborah Anderson
Unicode Technical Director,
Unicode Technical Committee
USA

Sub:- Background of Kirat Rai script and Supporting Letter for Kirat Rai script in UCS reg:-

Respected Madam,

About Kirat Rai language and official status: Kirat is a sub-group of Sino-Tibetan family.It has Limbus and Rais. Kirat Rai language also known as Bantawa or Rai language. People from ancient Khambuwan region considered as Khambu Rai. Khambu Rai people having a common surname as Rai. Khambu Rai having 26-28 dialects like Bantawa,Khulung,Chambling,Yakkha, Khaling etc. Bantawa dialect considered as standard language for Khambu Rais.After getting official status Bantawa called as Kirat Rai or Rai language.In 1995, Kirat Rai language get official status in Sikkim and AKRS declared Kirat Rai script for Kirat Rai language in 1998.Script of Limbus and Kirat Rais derived from Old Kiranti script.Limbu script or Sirijonga Lipi previously known as Kirati Lipi.

About Kirat Rai script:- Kirat Rai script was invented by late Mahaguru Tika Ram Rai resident of Daragaon, Darjeeling, West Bengal a century ago. He wrote Simhung (Rai religious book), It is derived from Old Kiranti Lipi. That time this script called as Sumhung Lipi. Later on, in 1969 late Guru Kripasalyan Rai reintroduced this script through his "Rai Aksharko Barnamala" book. This script again rewrite and reshaped in 1999 by Late B.B.Rai of Tikpur the script as a 'Khambu Rai script' as per L2/11-105. Due to printing reason and other font issues a committee under B.B.Rai they started to reshaped and modified the all the letters and Glyphs. They removed all the unnecessary letters those are not required as per Rai (Bantawa) phonology. They changed the all the diacritic marks and added Chak (Virama),Saat,Chwa (Anusvara),Tonpi,Laisom (Visarga), Yupi and Chomri (Hyphen). They set Letter SA before letter SHA. They removed letters vocalic R, vocalic RR, NNA,SSA,RRA, RHA,Ligature: KSHA,TRA, GYA.They added a new letter UE in vowel

P.T.O. ⟶

AKHIL KIRAT RAI SANGH SIKKIM

HEAD OFFICE: GANGTOK

Branch Office:
Hotel Khambuwan Building, Central Park Namchi
Regd. No. 443/1990

Ref. No. 06/AKRSS/2021   Date: 21/07/2021

Cont.: Page1

section. And they named this script as Kirat Rai script. Govt. of Sikkim officially registered this script as Kirat Rai script.

Now a days we are using current Kirat Rai script. Kripasalyan's Khambu Rai is not using anymore and there is no change to use Khambu Rai script again. And we are assuring that Kirat Rai script will not revised in future. Our humble request to you and your committee to encode our Kirat Rai script in Unicode and approved by UTC. We are Kirat Rai people is looking for your support.

Thanking you

Yours sincerely

(Chandra Khaling)
President
Akhil Kirat Rai Sangh Sikkim

7 Tables

A	B	C	D	IPA	A	B	C	D	IPA
			अ	/a/				क	/ka/
			आ	/aː/				ख	/kʰa/
			ा					ग	/ga/
			इ	/i/				घ	/gʰa/
			ि					ङ	/ŋa/
		-	ई	/iː/				च	/ca,tsa/
		-	ी					छ	/cʰa,tsʰa/
			उ	/u/				ज	/dza/
			ु					झ	/dzʰa/
		-	ऊ	/uː/				ञ	/ɲa/
		-	ू					ट	/ʈa/
		-	ऋ	/ɾi/				ठ	/ʈʰa/
		-	ृ					ड	/ɖa/
		-	ॠ	/ɾiː/				ढ	/ɖʰa/
		-	ॄ					ण	/ɳa/
-	-		उ	/ɨ/				त	/ta/
-	-		-					थ	/tʰa/
			ए	/e/				द	/da/
			े					ध	/dʰa/
			ऐ	/ɛ/				न	/na/
			ै					प	/pa/
			ओ	/o/				फ	/pʰa/
			ो					ब	/ba/
			औ	/au/				भ	/bʰa/
			ौ					म	/ma/
								य	/ja/
								र	/ra/
								ल	/la/
								व	/wa/
								श	/ʃa/
							-	ष	/ʂa/
								स	/sa/
-	-	॰	ॐ					ह	/ha/
-	-	-	॰				-	ड़	/ɽa/
◌	-	∶	◌				-	ढ़	/ɽʰa/
-	-	^	-				-	क्ष	/kʃa/
◌	◌	॰	◌				-	त्र	/tra/
◌ः	◌	∶	◌				-	ज्ञ	/gja/

Table 3: Comparison table of Kripasalyan Lipi (1969) in column 'A', Khambu Rai (1999) in column 'B', Kirat Rai (2000) in column 'C', and Devanagari in column 'D'. See Fig. 29, 30, 31.

A	B	A	B	A	B

Kirat Rai and Limbu comparison glyphs (columns A and B)

Table 4: Comparison table of Kirat Rai in column 'A' and Limbu in column 'B'.

8 Figures

Figure 1: Vowels of Kirat Rai (Rai Alphabet) from ᰳᰏᰈᰮᰈ ᰤᰪᰀ Sumhuṅ Chāmārī (सुमहुङ छामारी), Sandiwa (5:2000)

ᔕᎥᏒ = भ औछाप = भौ = ९ (नौ अङ्क)

ᒪᎥᏒ = प औछाप = पौ = १० (दस अङ्क)

(-) = ᘓᏦ = चक् - दुइ बेग्ला बेग्लै अक्षरहरू जोड़ेर एउटा शब्द बनाउँदा प्रयोग गरिने।

जस्तै : ᒻᎯᏒᔕᎮ = खातामा   ᒻᎯᏒᔕ-Ꭾ = जानु।

ᑕᎮᎧᎧᑕ = सायाबुङ = ᑕᎮᎧ-ᑕᎧᑕ = फेटा।

ᑕᎮᎩᏝ-ᑕᏝᎩ - साप्वा-सीन

Figure 2: Various signs of Kirat Rai (SIGN YUPI not included) from ᑕᎧᎩᎩᎧᑕ ᎩᔕᎮᏝᑕ Sumhuṅ Chāmārī (सुमहुङ छामारी), Sandiwa (6:2000)

राई भाषामा व्यञ्जन-वर्ण ३१ वटा छन्।

व्‍या3्‍2॰४॰‍ाप (चाइछाप) : व्यञ्जन-वर्ण (consonants)

क	ख	ग	घ	ङ
च	छ	ज	झ	अ
ट	ठ	ड	ढ	त
थ	द	ध	न	प
फ	ब	भ	म	य
र	ल	व	स	श
		ह		

Figure 3: Consonants of Kirat Rai (Rai Alphabet) from ट्ण्‍प्‍3्‍न्‍3 ४॰‍ा॰॰‍ा८्‍2 Sumhuṅ Chāmārī (सुमहुङ छामारी), Sandiwa (6:2000)

Figure 4: Consonant chart of Kirat Rai (letter SHA not included), [courtesy: Human Resource Development Department, Govt. of Sikkim]

Figure 5 (a): Chart of Kirat Rai vowels, signs and numerals (sign YUPI not included), [courtesy: West Bengal Khambu Rai Development Board, Darjeeling]
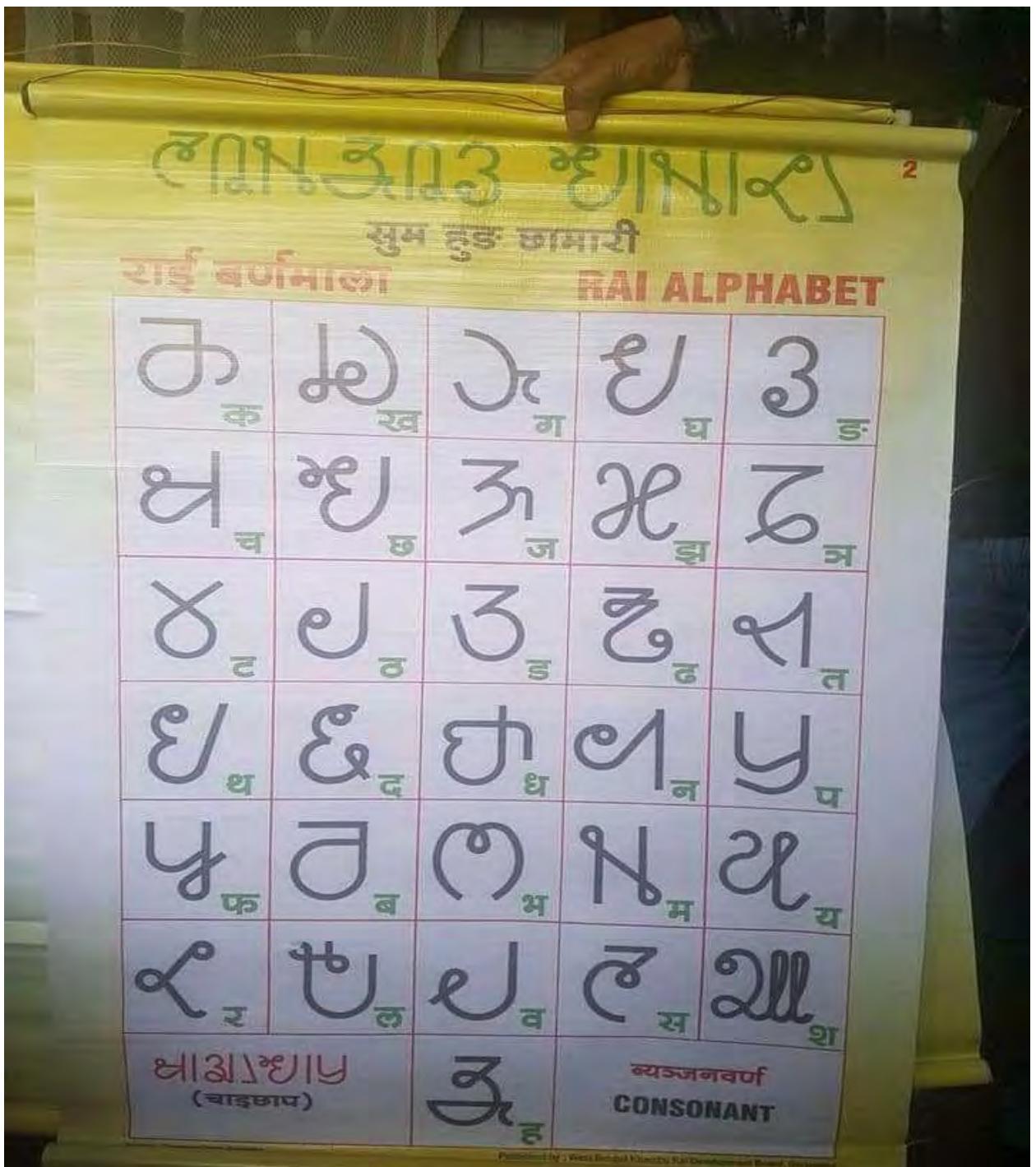
Figure 5(b): Chart of Kirat Rai (Rai Alphabet) consonants, [courtesy: West Bengal Khambu Rai Development Board, Darjeeling]

Figure 6: Chart of Kirat Rai scripts (letter NYA and SHA not included) from आप रउआ॰ॆ ॰ाॅॆॅ॰्॰3 Ān Yaṅ-o Chāpbopcaṅ (Rai Language Text Book-I), Rai and Rai (5:2019)

Figure 7: Signs of Kirat Rai scripts (sign YUPI not included) from '⟨ᒷᐯ ᒲᘊᘜᒊᕋ ᕁᓑᕽᕼᕵᒊ Rāī Yaṅ-o Chāpalāyāk ᘃᐯᕉᕒᓀᘜᕇ-ᕒ' (Rai Language Text Book-II), Rai and Rai (28:2019)

Figure 8: Digits of Kirat Rai scripts from ᤀᤠᤴ ᤕᤢᤱᤣᤠ ᤆᤠᤳᤰᤢᤰᤫᤠᤴᤪᤰᤩ Ān Yaṅ-o Chāpbopcaṅ (Rai Language Text Book-I), Rai and Rai (62, 63:2019)

Figure 9: Wood sculpture of Kirat Rai script [posted in a Kirat Rai Facebook group].

Figure 10: Handwritten form of Kirat Rai scripts from ᤖᤠᤤ ᤌᤠᤔᤠᤖᤡ ᤗᤠᤆᤣᤸ *Rāī Chāmāri Lāchep* (Rai Alphabet Book), AKRS (2003)
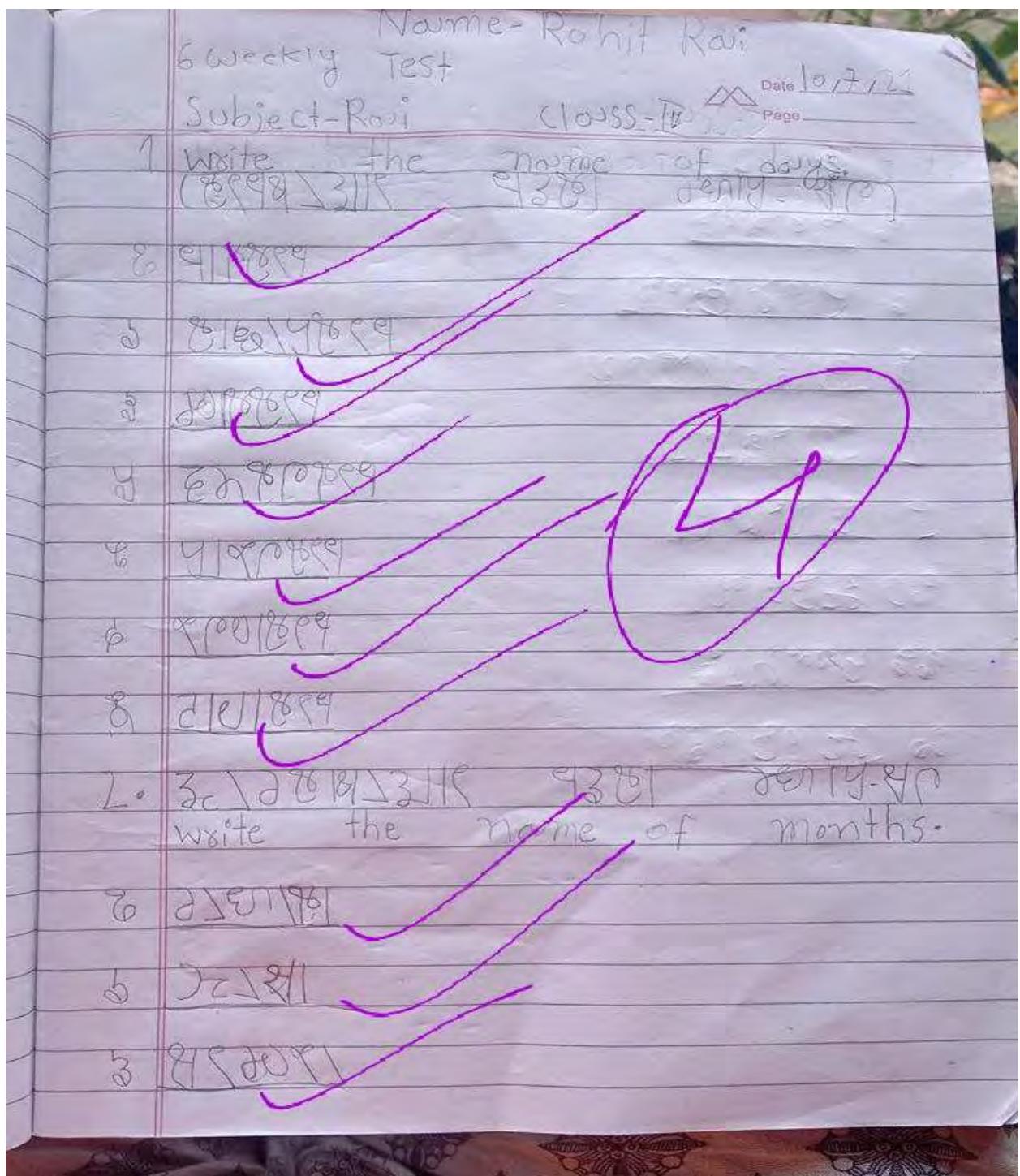
Figure 11: Digitally signed online class test note of a standard fourth student. [Source: B.B. Rokdung Rai]

Roll No.

Candidates must write the Code on the title page of the answer-book.

- Please check that this question paper contains **6** printed pages.
- Code number given on the right hand side of the question paper should be written on the title page of the answer-book by the candidate.
- Please check that this question paper contains **16** questions.
- Please write down the Serial Number of the question in the answer-book before attempting it.
- 15 minute time has been allotted to read this question paper. The question paper will be distributed at 10.15 a.m. From 10.15 a.m. to 10.30 a.m., the students will read the question paper only and will not write any answer on the answer-book during this period.

RAI

Time allowed : 3 hours   Maximum Marks : 80

The question paper is divided into *four* sections :

Section A : Reading Comprehension	15 Marks
Section B : Composition (Writing)	25 Marks
Section C : Grammar	15 Marks
Section D : Literature	25 Marks

.58   1   P.T.O.

Figure 12: Front page of 'Rai' question paper in Kirat Rai script [courtesy: Central Board of Secondary Education]

Figure 13: First page of Sikkim Herald 'Rai Edition ᘓᘉꡖᘙ᤻ᘙᘗᘔ ᤳᘜ᤻ᘔᘖᘉᤵ' (23rd April, 2021)
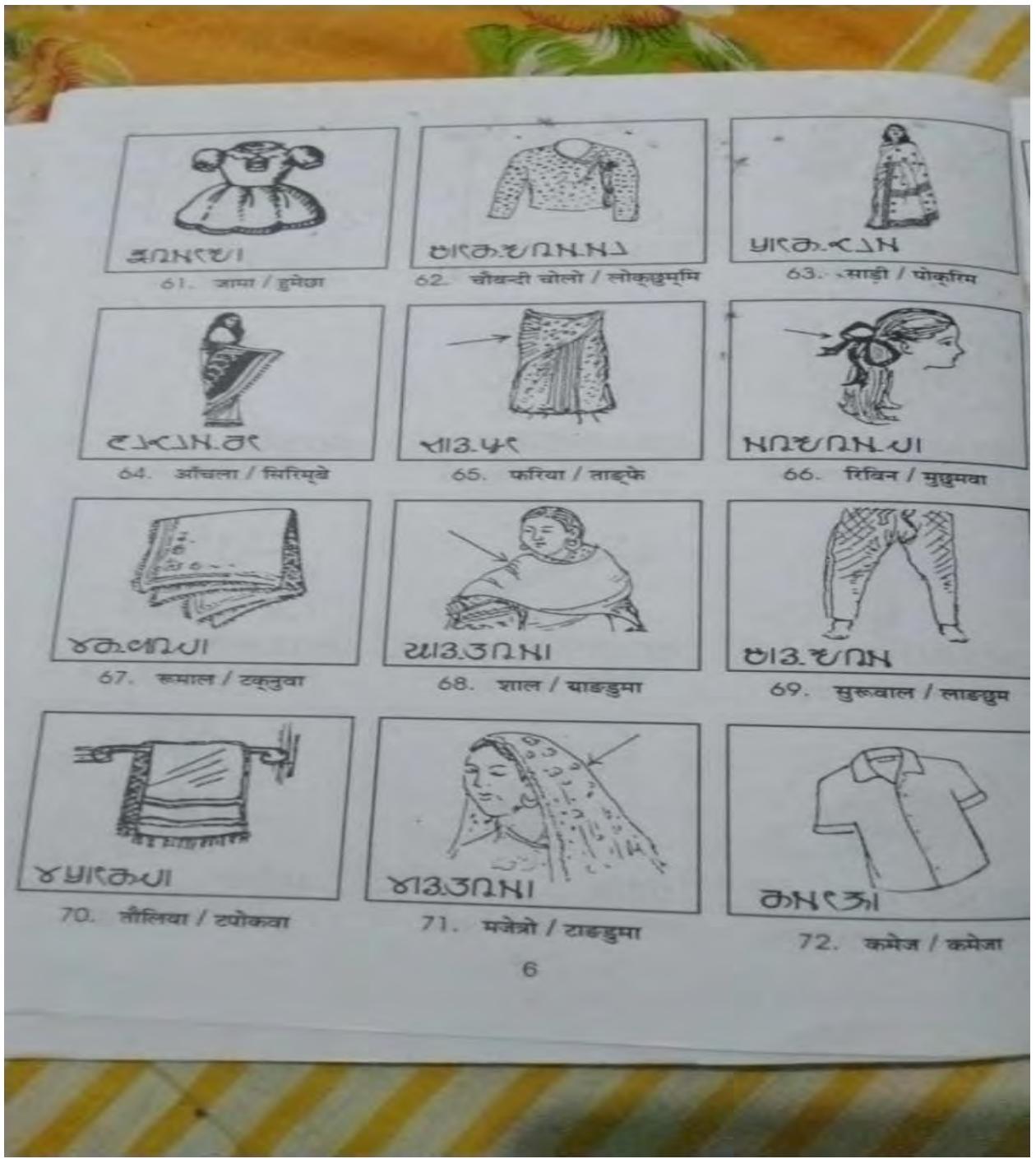
Figure 14: A page from 'नेपाली-राई चित्रमय शब्दकोश' Nepālī-Rāī Citramay Śabdakoś, Rokdung (6:2019)

ꯗꯟꯠꯟꯙ ꯛꯟꯋꯠꯟ

- = पढ्नु
- = विज्ञान
- = विधि
- = अध्याय
- = अध्यापन
- = ध्वनी
- = सूक्ष्म
- = खण्ड
- = रेखा चित्र
- = सहयोग
- = पूर्ण
- = विद्वान
- = परिवार
- = उप-परिवार
- = विकल्प
- = लेख्यरूप
- = स्वर चिह्न
- = तरीका
- = अपबाद
- = एकाक्षरी
- = चिह्न
- = संयोजक
- = चलन
- = लेख्यरूप
- = साहित्य
- = स्तर
- = रिमा

- = पदचिह्न
- = भूमिका
- = अन्तराष्ट्रीय
- = पद्धति
- = स्वयं, आफै
- = विशेषता
- = रूपमा
- = गर्हौँ
- = भेद्
- = रूप
- = वचन
- = संख्या
- = हिसाब
- = वार्तालाप
- = काल
- = अलग
- = विभक्ति
- = कारण
- = फरक
- = सामान्य
- = बाहेक
- = महत्त्व
- = सम्बन्धकारक
- = नकारात्मक
- = सम्भावना
- = अप्रत्यक्ष रूपमा
- = विशेषता

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Figure 15: A page from ꯮꯭ꯖꯗ ꯌꯝ꯮ꯠꯞ ꯒꯟꯡ꯭ꯖꯌ꯮ ꯒꯟꯃꯗ Rāī Yaṅ-o Sāseṅyaṅ Sumsī Rai Grammar Book for class III, IV and V, Rai (46:2011)

Figure 16: It demonstrates use of signs and punctuation of Kirat Rai from '𑵬𑵬 𑵬𑵬𑵬𑵬 𑵬𑵬𑵬𑵬𑵬𑵬𑵬 Rāī Yaṅ-o Chāpalāyāk 𑵬𑵬𑵬𑵬.𑵬-3' (Rai Language Text Book-III), Rai and Rai (11:2019)

Figure 17(a): It shows the use and position of sign SAAT from आप रऽआ ऄयऀय्ब3 Ān Yaṅ-o Chāpbopcaṅ (Rai Language Text Book-I), Rai and Rai (11:2019)

Figure 17(b): It shows the use and position of sign VIRAMA from आप रऽआ ऄयऀय्ब3 Ān Yaṅ-o Chāpbopcaṅ (Rai Language Text Book-I), Rai and Rai (13:2019)

Figure 17(c): It shows the use and position of sign SAAT, VIRAMA and Chamri (Hyphen). [Courtesy: Sikkim Herald]
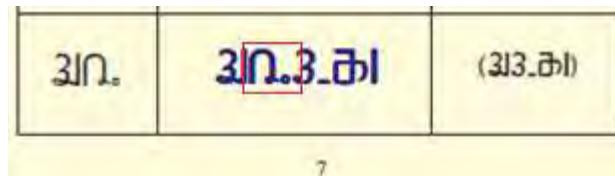
Figure 17(d): It shows the use and position of sign UE from आप रऽआ ऄयऀय्ब3 Ān Yaṅ-o Chāpbopcaṅ (Rai Language Text Book-I), Rai and Rai (7:2019)

Figure 17 (e): It shows the use and position of sign VISARGA from आप रऽआ ऄयऀय्ब3 Ān Yaṅ-o Chāpbopcaṅ (Rai Language Text Book-I), Rai and Rai (6:2019)

Figure 18 (a): It shows the use and position of sign ANUSVARA as *ṅ*. [courtesy: Sikkim Herald]

Figure 18(b): It shows the use and position of sign ANUSVARA as *n*. [courtesy: Sikkim Herald]
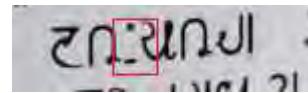
Figure 18(c): It shows the use and position of sign TONPI from ᤕᤠᤱ ᤏᤢᤔᤠᤰᤋᤢᤶ Yaṅ Numāktum (Rai Language Text Book-VIII), page no.42.

Figure 19 (a): It shows the use and position of sign YUPI as an alternative of UE from ᤕᤠᤱ ᤏᤢᤔᤠᤰᤋᤢᤶ Yaṅ Numāktum (Rai Language Text Book-VIII), page no.43.

Figure 19 (b): It shows the use and position of sign YUPI as an alternative of UE from cover of ᤑᤡᤖᤤᤘᤠ ᤕᤠᤱ ᤏᤢᤔᤠᤰ-ᤋᤢᤶ Kirawa Yang Numaktum (Rai Language Text Book-VII).
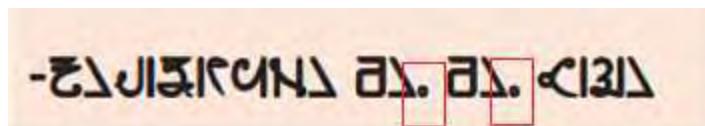
Figure 19 (c): It shows the use and position of sign YUPI as a punctuation mark from '᤻ᤖᤠᤡ ᤕᤠᤱᤠᤧ ᤚᤠᤵᤠᤗᤠᤕᤠᤰ Rāī Yaṅ-o Chāpalāyāk ᤀᤠᤕᤢᤗ-ᤔ-3' (Rai Language Text Book-III), Rai and Rai (2019)

Figure 19 (d): It shows the use and position of sign YUPI as a punctuation mark. [Courtesy: Sikkim Herald]
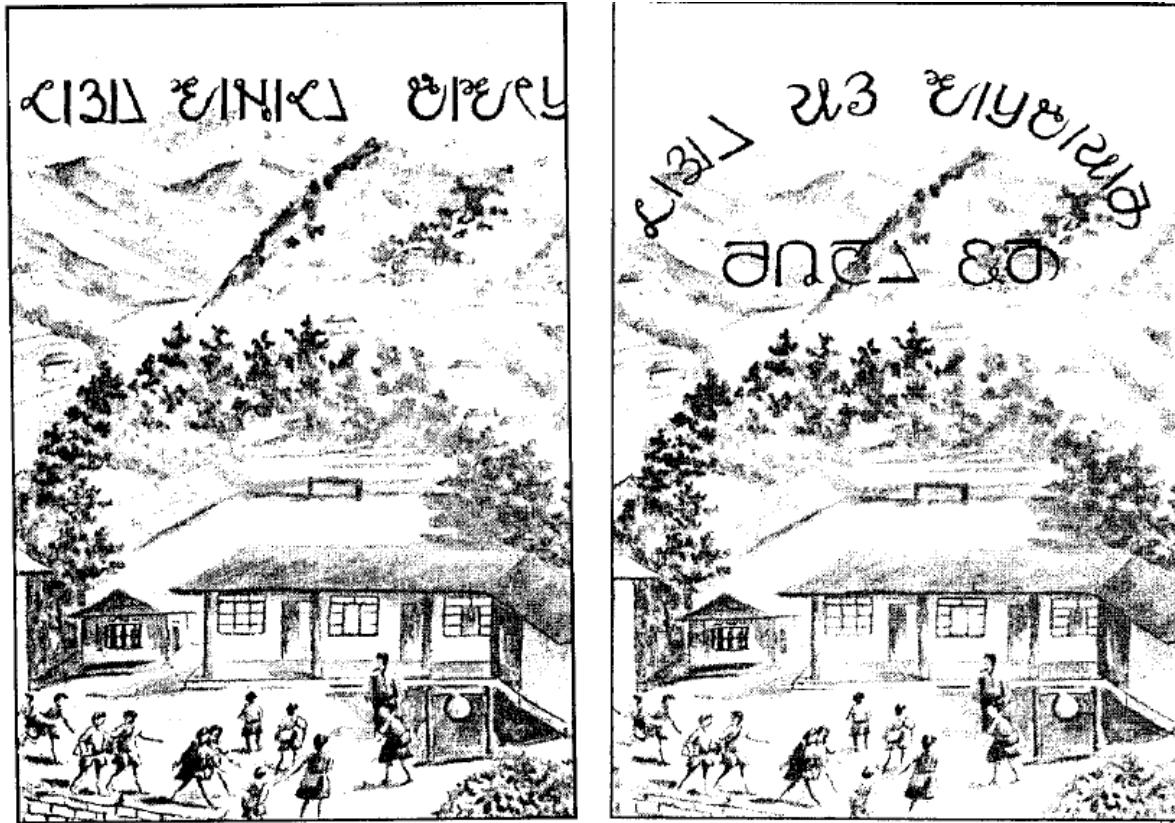
Figure 20: Covers of first two primer of Kirat Rai .i.e. ⟨।3।⟩ ⁸ᴵᴺᴵ⟨⟩ ʊᴵᵘᶜᴜ Rāī Chāmāri Lāchep (Left, p. 48) and ⟨।3।⟩ ꓳ3 ⁸ᴵᴜᵊᴵꓳᶦᵊ-ꓱ।⟨⟩ ᵋꓒ Rāī Yaṅ Chāpalāyāk-Busī Dak (Right, p. 49). AKRS (2003)
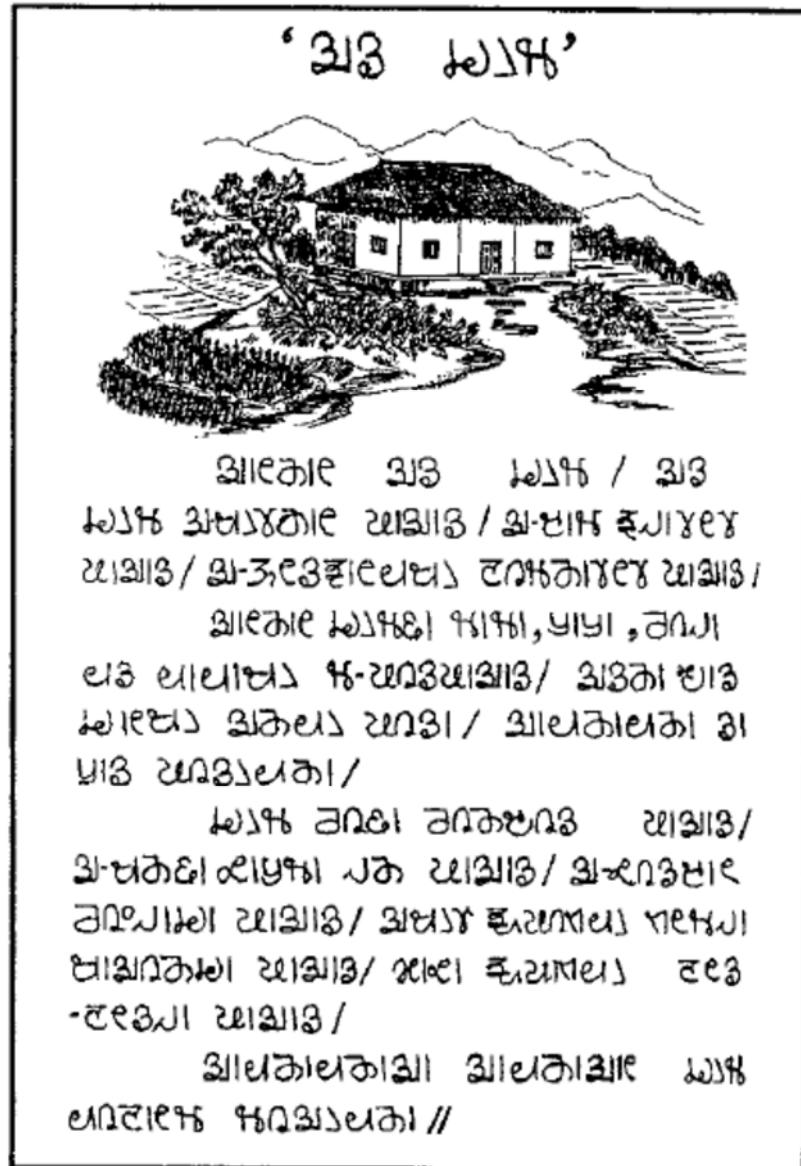
Figure 21: Handwritten form of Kirat Rai, chapter आ३ ढᴏᴏᴎ Aṅ Khīm 'My House' from ᴄᴎ३ᴎᴎ ᴬᴎ३ Rāī Yaṅ Chāpalāyāk-Busī Dak. AKRS (2003)
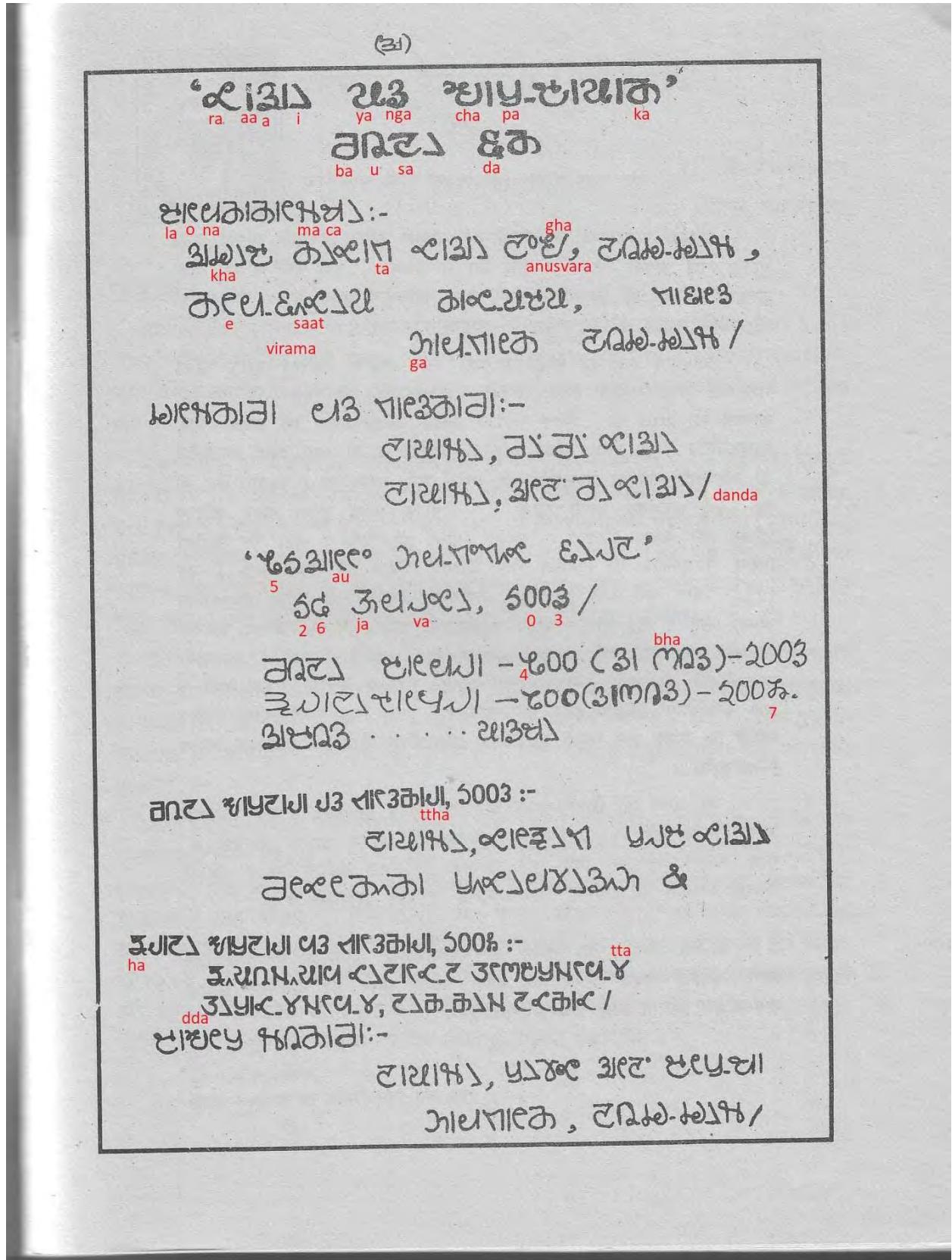
Figure 22: Class 1. AKRS (2003)

Figure 24: KIRAT RAI LETTER NYA. Class 1. AKRS (2003)
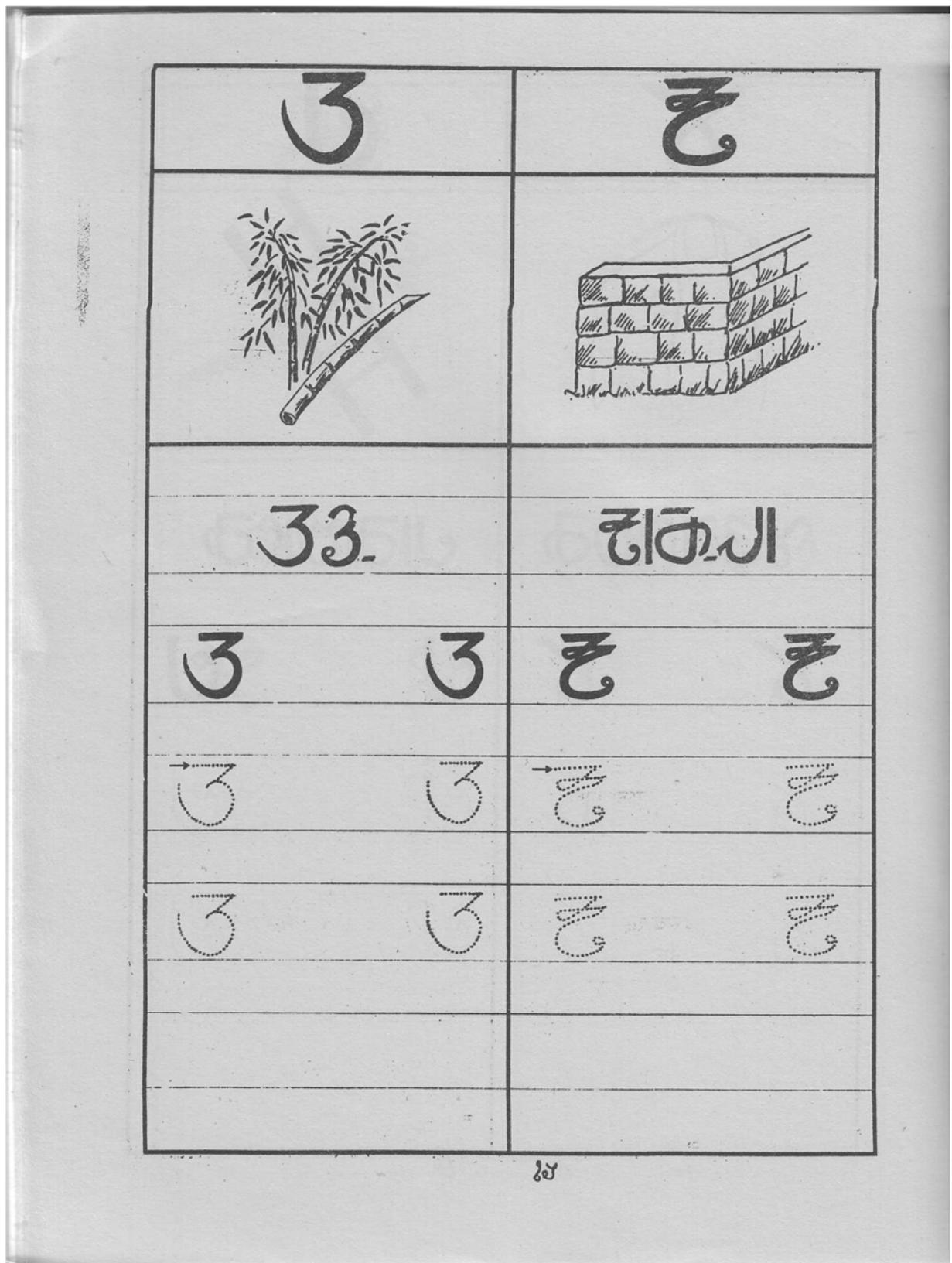
Figure 25: KIRAT RAI LETTER DDHA. Class 1. AKRS (2003)

Figure 26: Class 1. AKRS (2003)

sha

pha

visarga

Figure 27: Class 1. AKRS (2003)

Figure 28: Class 1. AKRS (2003)
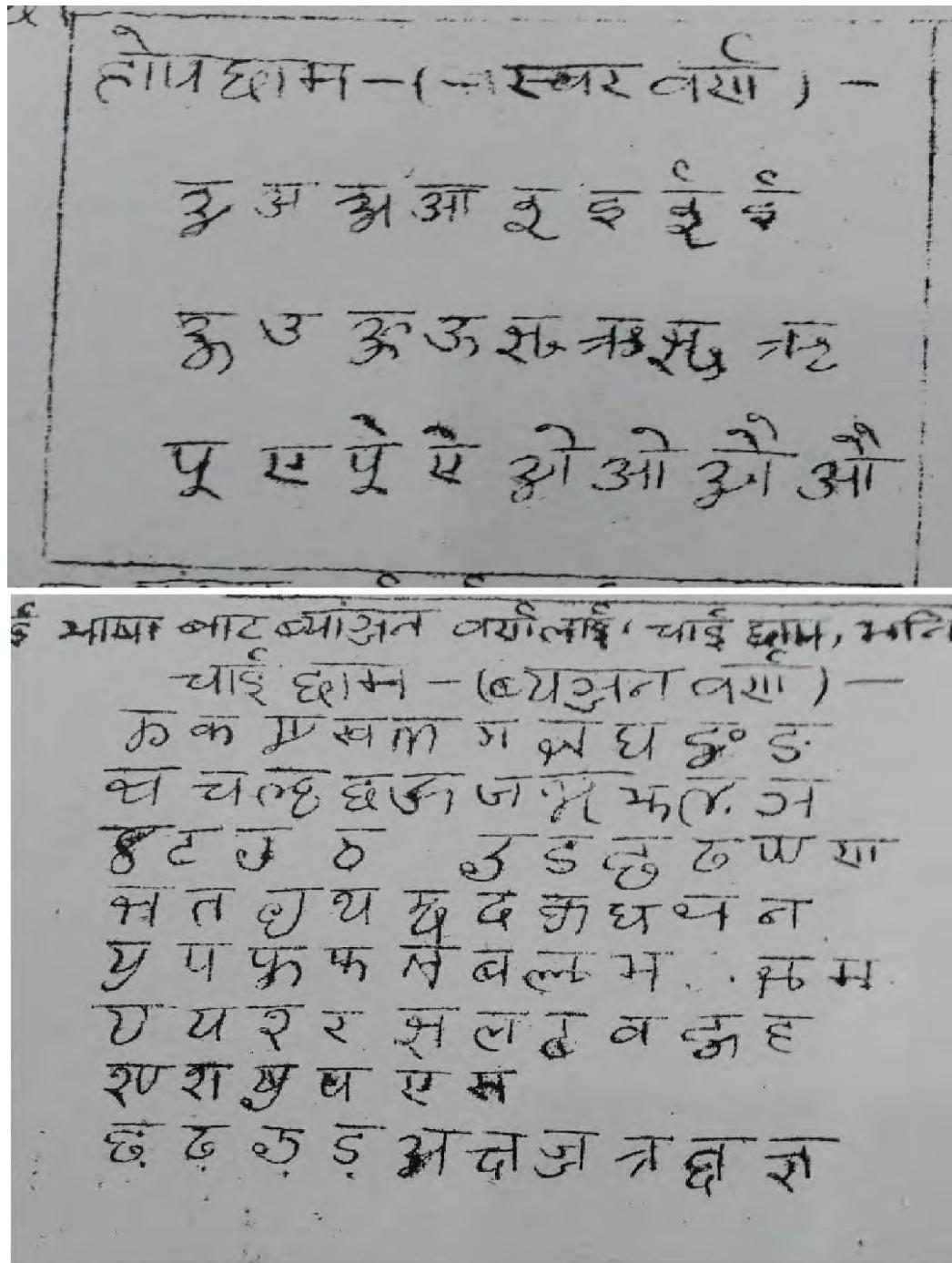
Figure 29: Picture of Kripasalyan Lipi, from 'राई अक्षरको बर्णमाला Rāī Akṣarko Barṇamālā', Kripasalyan (2:1969)

Figure 30: Picture of Khambu Rai Lipi revised by late B.B. Rai from Kripasalyan Lipi, '𑰛𑰜 𑰰𑰲𑰲 𑰱𑰳𑰴𑰵 बुसु किराव़ा चाईछाप *Busu Kirāwā Cāīchāp* - प्राथमिक किरात राई वर्णमाला ', AKRS (2, 3:1999)

7.09 Rai Script of Khambu-Rai:

The Khambu-Rai languages of 38 sub-tribes is written in Khambu-Rai script developed by Late Kripasalyan Rai in 1981-82 from the Devnagari script. The Khambu-Rai language (Bantawa language) is taught in schools up to the primary level ever since the Khambu-Rai language was recognized as one of the official languages of Sikkim in 1997.

The Khambu-Rai script has the same letters as that of Devnagari with 14 vowels, 13 vowel signs, and 38 consonants (Rai, Krishnadas in Lipi Sangalo (ed) by Limboo, R.B. 1998:54-59).

Figure 31: Picture of Khambu Rai 1998 (Subba, p. 98).

9 Acknowledgements

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<table>
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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://std.dkuug.dk/JTC1/SC2/WG2/docs/principles.html **for guidelines and details before filling this form.**
Please ensure you are using the latest Form from http://std.dkuug.dk/JTC1/SC2/WG2/docs/summaryform.html**.**
See also http://std.dkuug.dk/JTC1/SC2/WG2/docs/roadmaps.html **for latest** *Roadmaps***.**

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</table>

A. Administrative

1. **Title:**	*Proposal to Encode Kirat Rai script in the Universal Character Set*
2. Requester's name:	*Biswajit Mandal and Lorna Evans*
3. Requester type (Member body/Liaison/Individual contribution):	*Individual contribution*
4. Submission date:	*11 February 2022*
5. Requester's reference (if applicable):	
6. Choose one of the following:	
This is a complete proposal:	*Y*
(or) More information will be provided later:	

B. Technical – General

1. Choose one of the following:	
a. This proposal is for a new script (set of characters):	*Y*
Proposed name of script:	*Kirat Rai*
b. The proposal is for addition of character(s) to an existing block:	
Name of the existing block:	
2. Number of characters in proposal:	*58*
3. Proposed category (select one from below - see section 2.2 of P&P document):	

A-Contemporary	*Y*	B.1-Specialized (small collection)		B.2-Specialized (large collection)	
C-Major extinct		D-Attested extinct		E-Minor extinct	
F-Archaic Hieroglyphic or Ideographic			G-Obscure or questionable usage symbols		

4. Is a repertoire including character names provided?	*Y*
a. If YES, are the names in accordance with the "character naming guidelines" in Annex L of P&P document?	*Y*
b. Are the character shapes attached in a legible form suitable for review?	*Y*
5. Fonts related:	
a. Who will provide the appropriate computerized font to the Project Editor of 10646 for publishing the standard?	
SIL	
b. Identify the party granting a license for use of the font by the editors (include address, e-mail, ftp-site, etc.):	
OFL	
6. References:	
a. Are references (to other character sets, dictionaries, descriptive texts etc.) provided?	*Y*
b. Are published examples of use (such as samples from newspapers, magazines, or other sources) of proposed characters attached?	*Y*
7. Special encoding issues:	
Does the proposal address other aspects of character data processing (if applicable) such as input, presentation, sorting, searching, indexing, transliteration etc. (if yes please enclose information)?	*Y*

8. Additional Information:
Submitters are invited to provide any additional information about Properties of the proposed Character(s) or Script that will assist in correct understanding of and correct linguistic processing of the proposed character(s) or script. Examples of such properties are: Casing information, Numeric information, Currency information, Display behaviour information such as line breaks, widths etc., Combining behaviour, Spacing behaviour, Directional behaviour, Default Collation behaviour, relevance in Mark Up contexts, Compatibility equivalence and other Unicode normalization related information. See the Unicode standard at http://www.unicode.org for such information on other scripts. Also see Unicode Character Database (http://www.unicode.org/reports/tr44/) and associated Unicode Technical Reports for information needed for consideration by the Unicode Technical Committee for inclusion in the Unicode Standard.

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[1] Form number: N4502-F (Original 1994-10-14; Revised 1995-01, 1995-04, 1996-04, 1996-08, 1999-03, 2001-05, 2001-09, 2003-11, 2005-01, 2005-09, 2005-10, 2007-03, 2008-05, 2009-11, 2011-03, 2012-01)

C. Technical - Justification

1. Has this proposal for addition of character(s) been submitted before?	*Y*
If YES explain *Preliminary version was made by Anshuman Pandey in 2011 (L2/11-145 and L2/11-105 and the related Khambu Rai L2/11-105)*	
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.)?	*Y*
If YES, with whom? *Akhil Kirat Rai Sangh Sikkim (AKRS)*	
If YES, available relevant documents: *In this document, section 7.*	
3. Information on the user community for the proposed characters (for example: size, demographics, information technology use, or publishing use) is included?	*Y*
Reference: *This document*	
4. The context of use for the proposed characters (type of use; common or rare)	
Reference:	
5. Are the proposed characters in current use by the user community?	*Y*
If YES, where? Reference: *This document*	
6. After giving due considerations to the principles in the P&P document must the proposed characters be entirely in the BMP?	*N*
If YES, is a rationale provided?	
If YES, reference:	
7. Should the proposed characters be kept together in a contiguous range (rather than being scattered)?	*Y*
8. Can any of the proposed characters be considered a presentation form of an existing character or character sequence?	*Y*
If YES, is a rationale for its inclusion provided?	*Y*
If YES, reference: *This document*	
9. Can any of the proposed characters be encoded using a composed character sequence of either existing characters or other proposed characters?	*Y*
If YES, is a rationale for its inclusion provided?	*Y*
If YES, reference: *This document*	
10. Can any of the proposed character(s) be considered to be similar (in appearance or function) to, or could be confused with, an existing character?	*Y*
If YES, is a rationale for its inclusion provided?	*Y*
If YES, reference: *This document*	
11. Does the proposal include use of combining characters and/or use of composite sequences?	*N*
If YES, is a rationale for such use provided?	
If YES, reference:	
Is a list of composite sequences and their corresponding glyph images (graphic symbols) provided?	
If YES, reference:	
12. Does the proposal contain characters with any special properties such as control function or similar semantics?	*N*
If YES, describe in detail (include attachment if necessary)	
13. Does the proposal contain any Ideographic compatibility characters?	*N*
If YES, are the equivalent corresponding unified ideographic characters identified?	
If YES, reference:	