Proposal to Encode Chisoi in the Universal Character Set

Biswajit Mandal

(biswajitmandal.bm90@gmail.com)

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1. Introduction
This is a proposal to encode Chisoi in the Universal Character Set. Chisoi is used to in West Bengal, Odisha and Jharkhand for writing the Kurmali /Kudmali language. This document provides a description of the writing system, implementation details, a code chart and names list, and a few specimens.

2. Backgrounds
Chisoi (চিসৌই) is a script used for writing Kurmali (Devanagari:कुर्मालि, Bengali:কুড়মালি, Odia:କୁଡ଼ମାଲି, Chisoi:চিসৌই)[ISO 639-3:kyw][12], is an Indo-Aryan language of 556,089 people (census 2011) primarily spoken in Saraikela Kharswan District, East Singhbhum District, West Singhbhum District, Ranchi District of Jharkhand; Mayurbhanj District, Kendujhar District, Jajpur District and Sunargarh District of Odisha; Purulia District, Bankura District, Jhargram District and Paschim Medinipur District of West Bengal. It is also mother tongue of some people of Chhattisgarh, Assam and other parts of India even in Bangladesh and Nepal. Kurmali language is spoken by Kurmi people, mainly. It also spoken by many other people of Jungle Mahal area i.e, Bagal, Kamar, Kamhar, Tanti, Harhi, Muchi, Napit, Dhopa, Dhai, etc. It was recognized as an additional official language of Jharkhand and West Bengal.[12]

Kurmali Language written in four scripts i.e. Chisoi, Devanagari, Bengali and Odia. Devanagari and Bengali are commonly used in official purposes in Jharkhand and West Bengal, but Chisoi is the own script of Kurmali Language. Many peoples and Kurmali linguists created their own Kurmali script in last few decades, but unfortunately those are not accepted by the people and not implemented later. Jayanta Kumar Mahata of Bamundiha village, Medinipur district had invented Chisoi scripts in 1986. He gets inspiration to create a new writing system from his grandfather. His grandfather was one of the famous Kurmali folklore singer of his time. He started to collect various ancient symbols, Rangolis, Alpanas, ritual signs of Kurmali communities from his school time [see fig.1]. After completing his graduation, he created Chisoi script in 1986. Most of the letters derived from ख, reflects their deity बुधबाबा ।

![Figure 1: Showing various Kurmali traditional symbols as well as Rangoli and Alpanas.](image)

All India Kurmali Chisoi-A Society opened first Kurmali private elementary schools and adult education center in 2009. Now, more than 100 schools are running in all over the Jungle Mahal region. These schools are specifically for Kurmali mother tongue and Chisoi learning. In 2009, some schools got formal recognition from state Govt. Nowadays, 10 Kurmali elementary schools are running under Govt. of India’s Sarva Shiksha Abhiyan सर्व शिक्षा अभियान and Samagra Shiksha Abhiyan समग्र शिक्षा अभियान schemes, like Gadra, Sonakhuli, Joypur, Barsole, Dwarkanath, etc. [see fig.10][see fig.16]

One digitized font “KurmaliChisoy” (True Type) available for Chisoi, was designed by Pankaj Mahato in the year 2000. All the Kurmali books, magazines, banners, pamphlets, etc used this font. Another True Type font “Chisoi” designed by Nurul Alam Ador and Biswajit Mandal in the year of 2021, specifically for this proposal. “Chisoi” True Type Font is used in the proposed code chart and names list. This font is accepted by various Kurmali associations. [see table no.1]

2.1 Usage

Chisoi is currently used in writing and print for various purposes:

- **Educational Materials**
  Primary level educational materials for Kurmali in Chisoi published by All India Kurmali Chisoi-A Society, Raghunathpur, Jhargram District (W.B.). Examples of primers are ‘Kurma Ciso Cinhāp’ अॅॅ षाय एसिय एक्रे म्यालॅ एफ फॉर क्राॅ क्राॅ एसी हिन्दी for class-1 [1] and ‘Kurma Ciso Cinhāp Dōri Khārā’ अॅॅ षाय एसिय एक्रे म्यालॅ एफ फॉर क्राॅ क्राॅ एसी हिन्दी for class-2, etc in 2009.[see fig.7][2]

- **Newspaper**
  A weekly newspaper of Kurmali ‘Āddās’ अड्डा in Chisoi first time published in 1st Dec 2016, edited by Narayan Mahata[see fig.5][10]. Now it is not publishing from 2 years due to COVID pandemic. New edition will be published in new font so soon. Another monthly magazine ‘Pōrôm’ पटरम (2017) published in Bengali, sometime it carries Kurmali articles.[see fig.20][11]

- **Ephemera**
  ‘Kurma Chisoi-A Teachers’ Association’ अॅॅ षाय एसिय एक्रे म्यालॅ एफ फॉर क्राॅ क्राॅ एसी हिन्दी produces and distributed various posters, banners and pamphlets.[see fig.8]

- **Linguistic works**
  The Kurmali-to-English dictionary in Chisoi ‘Kurma Sārā bārār’ अॅॅ षाय एसिय एक्रे म्यालॅ एफ फॉर क्राॅ क्राॅ एसी हिन्दी edited by Narayan Mahata in 2014. [see fig.14][8]

- **Literary Works**
  Kurmali poetry book ‘Kurma Cāri Dīsa’ अॅॅ षाय एसिय एक्रे म्यालॅ एफ फॉर क्राॅ क्राॅ एसी हिन्दी written by poet Mangal Mahata written in both Chisoi and Bengali scripts in 2016 [see fig.22][7]. Another Kurmali poetry book ‘Cāriceṭhā’ एसिय एफ फॉर क्राॅ क्राॅ एसी हिन्दी written by linguist Narayan Mahata in 2014 [see fig.23][6]. The Kurmali prose in Chisoi ‘Bulān’ फॉर क्राॅ क्राॅ एसी हिन्दी written by Maniklal Mahata in 2018 [see fig.21][9].

- **Workshops**
3. **Script**

The script is assigned the name ‘Chisoi’. The proposed characters are intended for presenting current forms of Chisoi. The set consists of 41 characters: 28 letters, 2 signs, 1 punctuation and 10 digits.

3.1 **Structure**

Chisoi (also called as Kurmali Cisoi and Cisoi lipi or Cisoi lipi) is written from left-to-right. It has a feature of an alphabet: vowels are written as full letters, with no vowel-modifiers. However consonants may have an inherent vowels; it typically is pronounced [a] or [a], normally never occurs in final position but some cases it can occur during to pronounce ‘Tadbhav’ words. It means Sanskrit words with some variations. For examples: sāntō ‘Peaceful, mōstō’ Big in size, obgōntō’ Known, etc[see fig.18].

The script has no regular system of conjuncts but it has virama to mute the inherent vowel[see fig.2,3,4 &5]. The letter ḍ JARAH [ʰ] is used after consonants to indicate aspirations: ḍ khō [kʰɔ], ḍ ghō [gʰɔ], ḍ chō [ʧʰɔ], ḍ jhō [dʱɔ], etc.

Chisoi is an alphabetical script that is written from left-to-right. There are no attested ligatures. The typical didactic presentation of Chisoi is shown with one major section; signs are included in this section. The section is a chart with ten rows and three columns, where first to fourth, sixth and seventh row’s first letter is a vowel, and the letter names are based on Brahmic style.
3.2 Chisoi Sign ANUSVARA <\vV>

The sign (\vV) is written on the top of the vowels and consonants in question except JARAH. It is a nasalization mark of Chisoi. It corresponds to the Candrabindu in Devanagari, Bengali and Odia. Its IPA is [\text{\textgl{\textprime}}]. For examples: \text{\textgl{[\textprime]}} [\text{\textgl{\textprime}\textgl{\textprime}}], \text{\textgl{[\textprime]}} [\text{\textgl{\textprime}a}], \text{\textgl{[\textprime]}} [\text{\textgl{\textprime}i}], \text{\textgl{[\textprime]}} [\text{\textgl{\textprime}k\textprime}], \text{\textgl{[\textprime]}} [\text{\textgl{\textprime}g\textprime}], etc. To represent the nasalized aspirated consonants, the position of sign (\vV) will on the top of the consonant letter, not on the top of JARAH. For examples: \text{\textgl{\textprime}t\textprime} [\text{\textgl{\textprime}t\textprime\textprime}], \text{\textgl{\textprime}v\textprime} [\text{\textgl{\textprime}v\textprime\textprime}], \text{\textgl{\textprime}a\textprime} [\text{\textgl{\textprime}a\textprime\textprime}], \text{\textgl{\textprime}e\textprime} [\text{\textgl{\textprime}e\textprime\textprime}], \text{\textgl{\textprime}i\textprime} [\text{\textgl{\textprime}i\textprime\textprime}], \text{\textgl{\textprime}u\textprime} [\text{\textgl{\textprime}u\textprime\textprime}], etc.[see fig.13]

In the attached specimens SIGN ANUSVARA shown as (\varnothing), it is due to lack of Unicode standard font. The actual sign of ANUSVARA is (\vV). It has similarity in glyph with ‘COMBINING RING ABOVE’ U+030A (\textgl{\textprime}), but this proposal for separate encoding of CHISOI SIGN ANUSVARA.

3.2.1 Position of Chisoi Sign ANUSVARA <\vV>

The position of sign (\vV) will on the top of the both vowels and consonants. But in the old font “KurmaliChisoy” shows different positions for different letters. It occurs due lack of Unicode standardization. Actually the correct position of sign (\vV) is the top middle of the letters. For example:

Figure 2: Comparison between original font (first line) and new font (bottom line). Old font is showing non similarities in position of Anusvara but the new font showing accurate top middle position of Anusvara.
3.3 Chisoii letter JARAH 

The letter (§) JARAH ‘jôrōhô’ जारह means ‘to add’. It is used after consonants to indicate aspirations [ʱ]. JARAH never place in the initial position of any Kurmali words, always used after consonants. It never carry SIGN ANUSVARA < снов> and VIRAMA <॒>.

In Kurmali writing system there is no use of visarga. JARAH is the unique character which is not available in Devanagari, Bengali and Odia scripts because it used to make aspirated consonants. For examples: ठ[को]+§[५]=ठ[को], भ[घर]+§[५]=भ[घर], ध[धर]+§[५]=ध[धर], ढ[ढर]+§[५]=ढ[ढर], etc.

It has similarity in glyph with ‘BENGALI SIGN VISARGA’ U+0983 (§), but this proposal for separate encoding of CHISOI LETTER JARAH [see fig.12].

3.4 Chisoii Sign VIRAMA ॒

It is also known as ‘Sisô’ झट्टट. The sign (॒) is written in the beneath of the letters in question. Chisoii has no regular system of conjuncts, VIRAMA functions as like to mute the inherent vowel either [a] or [e] of the consonants. For examples: ठ[को]+॒=ठ[क], भ[घर]+॒=भ[घ], ध[धर]+॒=ध[ध], ढ[ढर]+॒=ढ[ढ], etc.

To represent the inherent vowel less aspirated consonants, the position of sign (॒) will beneath of the consonant letter, not beneath of JARAH. For examples: ठ[को]+॒=ठ[क], भ[घर]+॒=भ[घ], ध[धर]+॒=ध[ध], ढ[ढर]+॒=ढ[ढ], etc.[see fig.12]

3.4.1 Other uses of Chisoii Sign VIRAMA ॒


Virama with LETTER I: if vowel LETTER I य़ contains VIRAMA ॒, so left sided consonant as well vowel letter will pronounce with [o] sound. For examples: टरमूङ [टरमूङ] ‘Eight’, टरमूङ [टरमूङ] ‘warrior’ and टरमूङ [टरमूङ] ‘Chisoii’[see fig.12].

3.5 Chisoii letter AAI ०

It is a diphthong vowel letter with combination of LETTER AA and LETTER I. Its glyph is a combination of two letters ठ+०=०. Its IPA is [ai]. To represent this sound we use आ (in Devanagari), आ (in Bengali) and ଆ (in odia). For examples: आह ‘आह’आह/आह/आह, Mirror and आह ‘आह’आह/आह/आह, name of a month, etc.

3.6 Chisoii letter RRA१

| Proposal to Encode Chisoii in the Universal Character Set |
It is the voiced retroflex flap ṛ[ɽ] of Chisoi. To represent this sound we use ṛ (in Devanagari), ṛ (in Bengali) and ṛ (in odia). For examples: दोगर (dɔgɔʳ) ‘dumb’/अंगड़/অংগড়/ଅଙ୍ଗଙ୍ଗର, ‘Stupid’, दोगर-बगर (dɔgɔʳ-bɔgɔʳ) ‘dumb-bag’/অংগড়-বংগড়/ଅଙ୍ଗଙ୍ଗର/ବଙ୍ଗଙ୍ଗର, ‘Meaningless’, etc.

3.5 Digits

There is full set of decimal digits: 0 ZERO, 1 ONE, 2 TWO, 3 THREE, 4 FOUR, 5 FIVE, 6 SIX, 7 SEVEN, 8 EIGHT, 9 NINE [see fig.25].

3.6 Punctuations

Chisoi uses DANDA (।) in place of full stop. It has similarity in glyphs with DEVANAGARI DANDA U+0964. But this proposal is for separate encoding of DANDA. There are no script-specific punctuation marks. Latin marks, such as ; ’ “ () ? / - and ! are used [see fig.24].

4. Character names

The name of the script is Chisoi ‘Cisoi’ कसौ ‘Symbol’. The name Chisoi first time found in the literature of Kurmali ‘Kurmāli Cisoi Cinhāp’. Proposed character names for this proposal are given below [see table no.1].

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>צר</td>
<td>ṣ</td>
<td>[ʂ]</td>
<td>ẓ</td>
<td>K</td>
<td>ǝ</td>
<td>[k]</td>
<td>ṭ</td>
<td>NGA</td>
<td>े</td>
<td>[ŋ]</td>
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<td>[b]</td>
<td>ԝ</td>
<td>RA</td>
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<td>[r]</td>
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<td>[ɽ]</td>
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<td>TA</td>
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<td>ɾ</td>
<td>NYA</td>
<td>ɻ</td>
<td>[ɻ]</td>
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</tr>
</tbody>
</table>

Table 1: column A is showing letters and signs, column B is proposed character names, column C is showing original or indigenous name of letters and column D is showing IPA.
5. Character Shapes

The Chisoi proposed here for encoding in the UCS in the Standard Chisoi, the font “CHISOI” for the proposed was drawn by Nurul Alam Ador and Biswajit Mandal in the year 2021 [see fig.9]. The original font “KURMALICHISOY” was drawn by Pankaj Mahato in the year 2009. All the Kurmali books, documents, specimens, etc those attached here are in original font. The new “CHISOI” font used here because original font having lots of imperfections, that is lack of standard qualities in glyphs, problems in positioning of signs, non collinearity in letters and perfect spacing problems in letters. The comparison table no. 1 includes Pankaj Mahato’s original font “KURMALICHISOY” and new “CHISOI” font [see table no.2].

5.1 Shapes and collinearities

In the original font having the problem of standard quality in glyphs of letters as well as having problem in coaxial of letters. Some letters heights and sizes are different from others. Attached specimens are showing this problem. The new font is perfectly collinear and good looking.

![Figure 3: Comparison between original font (first line) and new font (bottom line). Old font is showing non collinearities of letters but the new font showing perfect collinearities as well as beautiful sorts.](image)

![Figure 4: Comparison between original font (first line) and new font (bottom line). Old font is showing the wrong position and size of letter AAI, I and NGI but the new font showing the perfectness.](image)

5.2 Space between two letters

We are having the proper spacing and gap problem between two letters in the original font. Letters are not perfectly set in the position that is why some letters become stuck with each other and looking like a conjunction.[see fig.13]

![Figure 5: Comparison between original font (first line) and new font (bottom line). Old font is showing the spacing problems between two letters but the new font showing accurate gap between two letters.](image)
6. Tentative Characters Properties

<table>
<thead>
<tr>
<th>Code</th>
<th>Character</th>
<th>Value</th>
<th>Owners</th>
<th>Punctuation</th>
<th>Width</th>
<th>Script</th>
<th>Orientation</th>
<th>Style</th>
<th>Width</th>
<th>Script</th>
<th>Orientation</th>
<th>Style</th>
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7. Collations

The collation order is as follows:

A < BA < AAI < AA < AGA < TA < LE < SA < NA < I < KA < RA < MA < HA < RRA < U < DA < LA < O < NYA < NGA < CA < JA < PA < ANUSVARA < YA < ADD < TTA < JARAH < SIGN VIRAMA < DANDA < DIGIT ZERO < DIGIT ONE < DIGIT TWO < DIGIT THREE < DIGIT FOUR < DIGIT FIVE < DIGIT SIX < DIGIT SEVEN < DIGIT EIGHT < DIGIT NINE

8. Acknowledgement

I would like to thank Jayanta kumar Mahata, Narayan Mahata, Nurul Alom Ador, All India Kurmali Chisoi - ASociety and Kurmali Chisoi - A Teachers’ Associations for support on a draft of this proposal and sharing insights on various aspects of encoding Chisoi.
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**Letters and signs**

xxx00 .CODE 0010000 CHISOI LETTER A
xxx01  CODE 0010001 CHISOI LETTER BA
xxx02  CODE 0010010 CHISOI LETTER AA
xxx03  CODE 0010011 CHISOI LETTER GA
xxx04  CODE 0010100 CHISOI LETTER TA
xxx05  CODE 0010101 CHISOI LETTER TA
xxx06  CODE 0010110 CHISOI LETTER E
xxx07  CODE 0010111 CHISOI LETTER SA
xxx08  CODE 0011000 CHISOI LETTER NA
xxx09  CODE 0011001 CHISOI LETTER I
xxx0A  CODE 0011010 CHISOI LETTER KA
xxx0B  CODE 0011011 CHISOI LETTER RA
xxx0C  CODE 0011100 CHISOI LETTER MA
xxx0D  CODE 0011101 CHISOI LETTER HA
xxx0E  CODE 0011110 CHISOI LETTER RRA
xxx0F  CODE 0011111 CHISOI LETTER U
xxx10  CODE 0100000 CHISOI LETTER DA
xxx11  CODE 0100001 CHISOI LETTER LA
xxx12  CODE 0100010 CHISOI LETTER O
xxx13  CODE 0100011 CHISOI LETTER NYA
xxx14  CODE 0100100 CHISOI LETTER NGA
xxx15  CODE 0100101 CHISOI LETTER CA
xxx16  CODE 0100110 CHISOI LETTER JA
xxx17  CODE 0100111 CHISOI LETTER PA
xxx18  CODE 0101000 CHISOI SIGN ANUSVARA
xxx19  CODE 0101001 CHISOI LETTER YA
xxx1A  CODE 0101010 CHISOI LETTER DDA
xxx1B  CODE 0101011 CHISOI LETTER TTA
xxx1C  CODE 0101100 CHISOI LETTER JARAH
xxx1D  CODE 0101101 CHISOI SIGN VIRAMA

**Punctuation**

xxx1F  CODE 0101111 CHISOI DANDA

**Digits**

xxx20  CODE 0110000 CHISOI DIGIT ZERO
xxx21  CODE 0110001 CHISOI DIGIT ONE
xxx22  CODE 0110010 CHISOI DIGIT TWO
xxx23  CODE 0110011 CHISOI DIGIT THREE
xxx24  CODE 0110100 CHISOI DIGIT FOUR
xxx25  CODE 0110101 CHISOI DIGIT FIVE
xxx26  CODE 0110110 CHISOI DIGIT SIX
xxx27  CODE 0110111 CHISOI DIGIT SEVEN
xxx28  CODE 0111000 CHISOI DIGIT EIGHT
xxx29  CODE 0111001 CHISOI DIGIT NINE
References


[12]. Kur̃māli Language, Wikipedia.
https://en.m.wikipedia.org/wiki/Kurmali_language
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Table 2: Comparison of Chisoi font ‘KurmaliChisoy’ drawn by Pankaj Mahato(column ‘ORG’) and Nurul Alam Ador and Biswajit Mandal’s font ‘Chisoi’(column ‘NEW’)
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Table 3: Comparison of basic letters of Chisoi with Devanagari, Bengali and Odia. In Chisoi letter Jarah is used to make aspirated letters but it is absent in Devanagari, Bengali and Odia.
Figure 6: A chart showing letters of Chisoi with Bengali pronunciation from firstever draft of ‘Kuṛmāli Cisoi Cinhāp’ (1986).
Figure 7: A chart showing letters of Chisoi with Bengali pronunciation from book ‘Kuŗmāli Cisoi Cinhāp’ (page no. 15) (2009)[1]
Figure 8: A school wall showing letters of Chisoi (2019).
Figure 9: showing chart of Chisoi drawn by a school student.
Figure 10: Showing the front page of Kurmali newspaper ‘Āddās’ (2017).
Figure 11: Showing the back page of Kurmali newspaper ‘Āddās’ with Chisoi chart (2017).
Figure 12: handwritten form of heading showing the spelling of Chisoi क्षी having LETTER I with VIRAMA from the cover of Kurmali primer ‘कुर्माली चिसोइ चिंहाप’ (for class-I)(2009).[1]
Figure 13: Showing the banner of Kurmali Chiso-A Teachers’ Association having spacing problems between two letters.

Figure 14: Showing the keyboard layout of new ‘Chiso’ font (2021).
Figure 15: Showing the class 4th annual examination question paper of Kurmali subject from Sonakhuli Kurmali Primary School ESTD-2009 (2019).
Proposal to Encode Chisoi in the Universal Character Set

Figure 16: Showing the Chisoi teaching is going on in ‘Anganwāḍi’ Courtyard Shelter school.
Figure 17: Showing the positioning of Jarah and Virama from book ‘Kurmāli Ciso Cinhāp’ (for class-I) (page no. 14)(2009).[1]
Figure 18: Showing the positing of Chisoi sign Anusvara from book ‘Kuṛmāli Cisoi Cinhāp’ by Kuruṃali Cisoi Cinhāp (for class-I) (page no. 13)(2009).[1]
Figure 19: Showing the front page of Kurmali-English Dictionary ‘Kurmali Sārā bōārāṛ’ (page no. 01)(2014).[8]
Figure 20: Showing the logo of ‘Sarva Šikṣā Abhiyān’ Education for All written in Chisoi from (2019).
Figure 21: Showing the Kurmali poem chart drawn by a student from Gadra Kurmali primary school.
Figure 22: Showing the school banner and classroom of ‘Gādrā Kurmāli Poraimāri Iskul’  in 2009.

Gādrā Kurmāli Poraimāri Iskul

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Figure 23: Showing the diary maintaining in Chisoi provided by Narayan Mahata. (2020, Jan)
Figure 24: Showing the Chisoi punctuation mark DANDA from book ‘Kur̪māli Cisoi Cinhāp’ (2009). [1]
Figure 25: Showing the Chisoi digits from book ‘Kurmāli Cisoi Cinhāp’ class-I, last page (2009).[1]
Figure 26: Showing the monthly magazine ‘Pôrôm’ written in both Kurmali and Bengali (2016). [11]
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Figure 27: Showing the first poem of Kurmali book বুলান ‘Bulān’ written in both Chisoi and Bengali script (page no. 02)(2018).[9]
Figure 28: Showing Kurmali poem ‘Muduṅ Musuṅ’ Muduṅ Musuṅ from book ‘Kurmāli Cāri Disā’  Kurmāli Cāri Disā (page no. 15)(2014).[7]
Figure 29: Showing the 5th poem ‘Sārul Pujā’ written in both Chisoi and Bengali scripts from book ‘Cāriceṭhā’ (page no. 05)(2014).[6]
A. Administrative

1. Title: Proposal to Encode the Chisoi in Universal Character Set
2. Requester’s name: Biswajit Mandal (biswajtmandal.bm90@gmail.com)
3. Requester type (Member body/Liaison/Individual contribution): Individual Contribution
4. Submission date: 29/05/2021
5. Requester’s reference (if applicable):
6. Choose one of the following:
   Yes
   (or) More information will be provided later:
   No

B. Technical – General

1. Choose one of the following:
   a. This proposal is for a new script (set of characters):
      Yes
      Proposed name of script: Chisoi
   b. The proposal is for addition of character(s) to an existing block:
      Name of the existing block:
      2. Number of characters in proposal: 41
      3. Proposed category (select one from below - see section 2.2 of P&P document):
         A-Contemporary X B.1-Specialized (small collection) B.2-Specialized (large collection)
         C-Major extinct D-Attested extinct E-Minor extinct
         F-Archaic Hieroglyphic or Ideographic G-Obscure or questionable usage symbols
      4. Is a repertoire including character names provided?
         Yes
         a. If YES, are the names in accordance with the “character naming guidelines” in Annex L of P&P document?
            Yes
         b. Are the character shapes attached in a legible form suitable for review?
            Yes
      5. Fonts related:
         a. Who will provide the appropriate computerized font to the Project Editor of 10646 for publishing the standard?
            Biswajit Mandal (biswajtmandal.bm90@gmail.com)
         b. Identify the party granting a license for use of the font by the editors (include address, e-mail, ftp-site, etc.):
            Nurul Alom Ador(nurulalomador@gmail.com) and Biswajit Mandal(biswajtmandal.bm90@gmail.com)
      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:
            Yes
      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)?
      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.

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C. Technical – Justification

1. Has this proposal for addition of character(s) been submitted before?
   **No**
   If YES explain

2. Has contact been made to members of the user community (for example: National Body, user groups of the script or characters, other experts, etc.)?
   **Yes**
   If YES, with whom?
   **Jayanta kumar Mahata, Narayan Mahata**
   If YES, available relevant documents:
   **See citations in text of proposal**

3. Information on the user community for the proposed characters (for example: size, demographics, information technology use, or publishing use) is included?
   **Yes**
   Reference:
   **See text of proposal**

4. The context of use for the proposed characters (type of use; common or rare)
   common
   Reference:
   **See text of proposal**

5. Are the proposed characters in current use by the user community?
   **Yes**
   If YES, where? Reference:
   **See text of proposal**

6. After giving due considerations to the principles in the P&P document must the proposed characters be entirely in the BMP?
   **No**
   If YES, is a rationale provided?
   If YES, reference:

7. Should the proposed characters be kept together in a contiguous range (rather than being scattered)?
   **Yes**

8. Can any of the proposed characters be considered a presentation form of an existing character or character sequence?
   **No**
   If YES, is a rationale for its inclusion provided?
   If YES, reference:

9. Can any of the proposed characters be encoded using a composed character sequence of either existing characters or other proposed characters?
   **No**
   If YES, is a rationale for its inclusion provided?
   If YES, reference:

10. Can any of the proposed character(s) be considered to be similar (in appearance or function) to, or could be confused with, an existing character?
    **No**
    If YES, is a rationale for its inclusion provided?
    If YES, reference:

11. Does the proposal include use of combining characters and/or use of composite sequences? control function or similar semantics?
    **No**
    If YES, is a rationale for such use provided?
    control function or similar semantics?
    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?
    **No**
    If YES, describe in detail (include attachment if necessary)

13. Does the proposal contain any Ideographic compatibility characters?
No
If YES, are the equivalent corresponding unified ideographic characters identified?
If YES, reference: