

Universal Multiple-Octet Coded Character Set
 International Organization for Standardization
 Organisation internationale de normalisation
 Международная организация по стандартизации

Doc Type: Working Group Document**Title: Final proposal to encode the Ol Chiki script in the UCS****Source: Michael Everson****Status: Individual Contribution****Action: For consideration by JTC1/SC2/WG2 and UTC****Date: 2005-09-05**

This is a revision of N1956 and N2505 and contains the proposal summary form.

Introduction

The Ol Chiki script, also called Ol Cemet', Ol Ciki, or simply Ol, was invented by Pandit Raghunath Murmu in the first half of the 20th century CE to write Santali, a Munda language of India. Ol Chiki is alphabetic, sharing none of the syllabic properties of the other Indic scripts. The Ol Chiki script has received some official recognition and Raghunath has been honoured by the Orissan government. Ol Chiki has recently been promoted by some Santal organizations, with uncertain success, for use in certain other Munda languages in the Chota Nagpur area as well as the Dravidian Kuḍux language.

According to the Ethnologue, Santali's various dialects are spoken by 5.8 million people with 25% to 50% literacy, mostly in India with a few in Nepal and Bangladesh. The Ol Chiki script is used for the southern dialect of Santali as spoken in the Orissan Mayurbhañj district. While this dialect has only six vowels, the Santal Parganas dialect has eight or nine vowels. The extra Santal Parganas vowels are made by combining three vowels with the diacritic GAAHLAA TTUDDAAG.

Glyph placement

Ol Chiki is written from left to right, and consists of letters which represent consonants or vowels. In addition to these, a number of modifier letters are used to indicate tone, nasalization, length, and deglottalization. There are no combining characters. When both the nasalizing <˘> MU TTUDDAAG and the modifying <˙> GAAHLAA TTUDDAAG are applied to a syllable, a third character, <˙˘> MU-GAAHLAA TTUDDAAG, is used. Ol Chiki keyboards have keys for all three (see Figure 9); there is no advantage to adding rendering complexity to Ol Chiki rendering by combining these two.

Digits and punctuation

Digits have distinctive forms. In the samples viewed at present, European COMMA, EXCLAMATION MARK, and QUESTION MARK are used, as are "English quotation marks". The FULL STOP is not used, doubtless because it can be confused with <˙> GAAHLAA TTUDDAG. Both ı PUNCTUATION MUCAAD (ᱵᱟ ᱢᱟᱨᱟᱝᱜᱟᱴ) *mucăd* [mucət'] and ıı PUNCTUATION DOUBLE MUCAAD are used in poetry; PUNCTUATION MUCAAD is also used in prose. In Figure 4, a sort of high ellipsis can be seen; this should be added to the standard, but it is not certain whether this should be script-specific or generic punctuation. (Probably the latter.)

Gottalization and aspiration

The AHAD character is used to deglottalize consonants, a unique feature of the writing system which, as Zide 1996 says: "certainly increases the efficiency of writing Santali.... This neatly preserves the

Glyph variants

Names and ordering

D _{LA} , <i>la, la</i> , [ɔ]	O _{AT} , <i>at, at</i> , [t]	G _{AG} , <i>ak', ag</i> , [k', g]	3 _{ANG} , <i>an, am</i> , [ŋ]	P _{AL} , <i>al, al</i> , [l]
Ḑ _{LAA} , <i>lā, lā</i> , [a]	Ḑ _{AAK} , <i>āk, āk</i> , [k]	Ḑ _{AAJ} , <i>āc', aj</i> , [c', dʒ]	Ḑ _{AAM} , <i>ām, ām</i> , [m]	Ḑ _{AAW} , <i>āw, āw</i> , [wv]
Ḑ _{LI} , <i>li, li</i> , [i]	Ḑ _{IS} , <i>is, is</i> , [s]	Ḑ _{IH} , <i>ih, ih</i> , [h, ʔ]	Ḑ _{INY} , <i>iñ, iñ</i> , [ɲ]	Ḑ _{IR} , <i>ir, ir</i> , [r]
Ḑ _{LU} , <i>lu, lu</i> , [u]	Ḑ _{UC} , <i>uc, uc</i> , [c]	Ḑ _{UD} , <i>ut', ud</i> , [t', d]	Ḑ _{UNN} , <i>uñ, uñ</i> , [ɲ]	Ḑ _{UY} , <i>uy, uy</i> , [h]
Ḑ _{LE} , <i>le, le</i> , [e]	Ḑ _{EP} , <i>ep, ep</i> , [p]	Ḑ _{EDD} , <i>ed, ed</i> , [d]	Ḑ _{EN} , <i>en, en</i> , [n]	Ḑ _{ERR} , <i>eṛ, eṛ</i> , [ɾ]
Ḑ _{LO} , <i>lɔ, lɔ</i> , [o]	Ḑ _{OTT} , <i>ot, ot</i> , [t]	Ḑ _{OB} , <i>op', ob</i> , [p', b]	Ḑ _{OV} , <i>oṽ, oñ, [ṽ]</i>	Ḑ _{OH} , <i>oh, oh</i> , [ʰ]

Processing

- 1 The nasalization mark <> MU TTUDDAAG 1C78 (ᐃᑦ ᓂᕐᐅᐳᐱᐢ) *mū tuḍäg* [mū tuḍək'] can follow any vowel, long or short. In the sources consulted, I have found ᐅ , ᐱ , ᖅ , ᐳ , and ᐴ .
- 2 The vowel modifier <> GAAHLAA TTUDDAAG 1C79 (ᐭᐱᐱᐤ ᓂᕐᐅᐳᐱᐢ) *gählă tuḍäg* [gəhlə tuḍək'] follows ᐅ 1C5A *a*, ᐶ 1C5F *ā*, and ᐷ 1C6F *e*. In the sources consulted, I have found all three: ᐅ . *ö* [ɔ] , ᐶ . *ǎ* [ə] , and ᐷ . *ě* [e] .
- 3 The nasalization mark <> MU TTUDDAG 1C78 and the vowel modifier <> GAAHLAA TTUDDAAG 1C79 when used together form the mark <:> MU-GAAHLAA TTUDDAG 1C7A (ᐃᑦ ᐭᐱᐱᐤ ᓂᕐᐅᐳᐱᐢ) *mū gählă tuḍäg* [mū gəhlə tuḍək'] in the text stream. Example: ᐩ . *gå*.
- 4 The length mark ~ RELAA 1C7B (ᐳᐵᐱᐤ) *relă* [rela:] may combine with any oral or nasal vowel.
- 5 The glottal protector - PHAARKAA 1C7C (ᐱᐱᐱᐤᐱᐱᐤ) *phārkā* [pʰa:rka:] follows the four glottal consonants when preceding a consonant or vowel (otherwise the glottal consonant is deglottalized by position, so ᐱ-ᐅ is [k'ɔ] and ᐱᐅ is [qp]).

6 The deglottalizing 𑌒 AHAD 1C7D (𑌒𑌒𑌒) *ahad* [ɔhɔt'] can only follow four consonants: 𑌒 *k'* (becomes -𑌒𑌒 -g), 𑌒 -c' (becomes 𑌒𑌒 -j), 𑌒 -t' (becomes 𑌒𑌒 -d), 𑌒 -p' (becomes 𑌒𑌒 -b).

Implementations

R. C. Hansdah and N. C. Murmu have made a number of Ol Chiki fonts available; these all map the Ol Chiki characters to ASCII characters. Revising these to UCS fonts will be easily accomplished. Ol Chiki presents no implementation problems.

Collating order

The collation would appear to be alphabetic and to follow the order of the characters in the code table. I have not seen an ordered wordlist.

Unicode Character Properties

```
1C50;OL CHIKI DIGIT ZERO;Nd;0;L;;0;0;0;N;;;;;
1C51;OL CHIKI DIGIT ONE;Nd;0;L;;1;1;1;N;;;;;
1C52;OL CHIKI DIGIT TWO;Nd;0;L;;2;2;2;N;;;;;
1C53;OL CHIKI DIGIT THREE;Nd;0;L;;3;3;3;N;;;;;
1C54;OL CHIKI DIGIT FOUR;Nd;0;L;;4;4;4;N;;;;;
1C55;OL CHIKI DIGIT FIVE;Nd;0;L;;5;5;5;N;;;;;
1C56;OL CHIKI DIGIT SIX;Nd;0;L;;6;6;6;N;;;;;
1C57;OL CHIKI DIGIT SEVEN;Nd;0;L;;7;7;7;N;;;;;
1C58;OL CHIKI DIGIT EIGHT;Nd;0;L;;8;8;8;N;;;;;
1C59;OL CHIKI DIGIT NINE;Nd;0;L;;9;9;9;N;;;;;
1C5A;OL CHIKI LETTER LA;Lo;0;L;;;;;N;;;
1C5B;OL CHIKI LETTER AT;Lo;0;L;;;;;N;;;
1C5C;OL CHIKI LETTER AG;Lo;0;L;;;;;N;;;
1C5D;OL CHIKI LETTER ANG;Lo;0;L;;;;;N;;;
1C5E;OL CHIKI LETTER AL;Lo;0;L;;;;;N;;;
1C5F;OL CHIKI LETTER LAA;Lo;0;L;;;;;N;;;
1C60;OL CHIKI LETTER AAK;Lo;0;L;;;;;N;;;
1C61;OL CHIKI LETTER AAJ;Lo;0;L;;;;;N;;;
1C62;OL CHIKI LETTER AAM;Lo;0;L;;;;;N;;;
1C63;OL CHIKI LETTER AAW;Lo;0;L;;;;;N;;;
1C64;OL CHIKI LETTER LI;Lo;0;L;;;;;N;;;
1C65;OL CHIKI LETTER IS;Lo;0;L;;;;;N;;;
1C66;OL CHIKI LETTER IH;Lo;0;L;;;;;N;;;
1C67;OL CHIKI LETTER INY;Lo;0;L;;;;;N;;;
1C68;OL CHIKI LETTER IR;Lo;0;L;;;;;N;;;
1C69;OL CHIKI LETTER LU;Lo;0;L;;;;;N;;;
1C6A;OL CHIKI LETTER UC;Lo;0;L;;;;;N;;;
1C6B;OL CHIKI LETTER UD;Lo;0;L;;;;;N;;;
1C6C;OL CHIKI LETTER UNN;Lo;0;L;;;;;N;;;
1C6D;OL CHIKI LETTER UY;Lo;0;L;;;;;N;;;
1C6E;OL CHIKI LETTER LE;Lo;0;L;;;;;N;;;
1C6F;OL CHIKI LETTER EP;Lo;0;L;;;;;N;;;
1C70;OL CHIKI LETTER EDD;Lo;0;L;;;;;N;;;
1C71;OL CHIKI LETTER EN;Lo;0;L;;;;;N;;;
1C72;OL CHIKI LETTER ERR;Lo;0;L;;;;;N;;;
1C73;OL CHIKI LETTER LO;Lo;0;L;;;;;N;;;
1C74;OL CHIKI LETTER OTT;Lo;0;L;;;;;N;;;
1C75;OL CHIKI LETTER OB;Lo;0;L;;;;;N;;;
1C76;OL CHIKI LETTER OV;Lo;0;L;;;;;N;;;
1C77;OL CHIKI LETTER OH;Lo;0;L;;;;;N;;;
1C78;OL CHIKI MU TTUDDAG;Lm;0;L;;;;;N;;;;;
1C79;OL CHIKI GAAHLAA TTUDDAAG;Lm;0;L;;;;;N;;;;;
1C7A;OL CHIKI MU-GAAHLAA TTUDDAAG;Lm;0;L;;;;;N;;;;;
1C7B;OL CHIKI RELAA;Lm;0;L;;;;;N;;;;;
1C7C;OL CHIKI PHAARKAA;Lm;0;L;;;;;N;;;;;
1C7D;OL CHIKI AHAD;Lm;0;L;;;;;N;;;;;
1C7E;OL CHIKI PUNCTUATION MUCAAD;Po;0;L;;;;;N;;;;;
1C7F;OL CHIKI PUNCTUATION DOUBLE MUCAAD;Po;0;L;;;;;N;;;;;
```

Hembram, S. M., et al. 1972. *Adibasi Ol script = ᱠᱟᱱᱟᱢ ᱵᱤᱨ ᱵᱤᱨ ᱵᱤᱨ* (at'ip'asi al ciki). Calcutta: Adibasi Socio-Educational & Cultural Association.

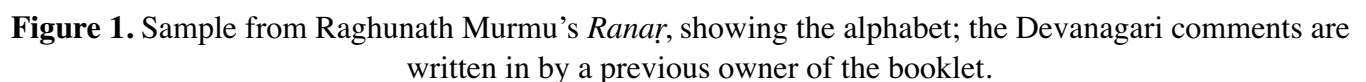
Hembram, Smt. Mary. 1993. *ᱵᱤᱨ ᱵᱤᱨ*. (Ol Ita). Midnapur, West Bengal: Smt. Mary Hembram.

Konay Lal Tudu. 1978. *ᱵᱤᱨ ᱵᱤᱨ*. (Ol cemed). Rairungpur, Orissa: [s.n.].

Murmu, Nilamani, ed. 1998. *ᱠᱟᱱᱟᱢ ᱵᱤᱨ ᱵᱤᱨ*. (Bhañj Parāyni). Rairungpur, Orissa: Mayurbhanj Adibasi Students Association.

Murmu, Raghunath. 1972. *ᱠᱟᱱᱟᱢ* [Ranaṛ]: *A Santali grammar in Santali*. Singhbhum, Bihar: Adibasi Socio-Educational & Cultural Association.

Zide, Norman. 1996. "Scripts for Munda languages", in Peter T. Daniels and William Bright, eds. *The world's writing systems*. New York; Oxford: Oxford University Press. ISBN 0-19-507993-0



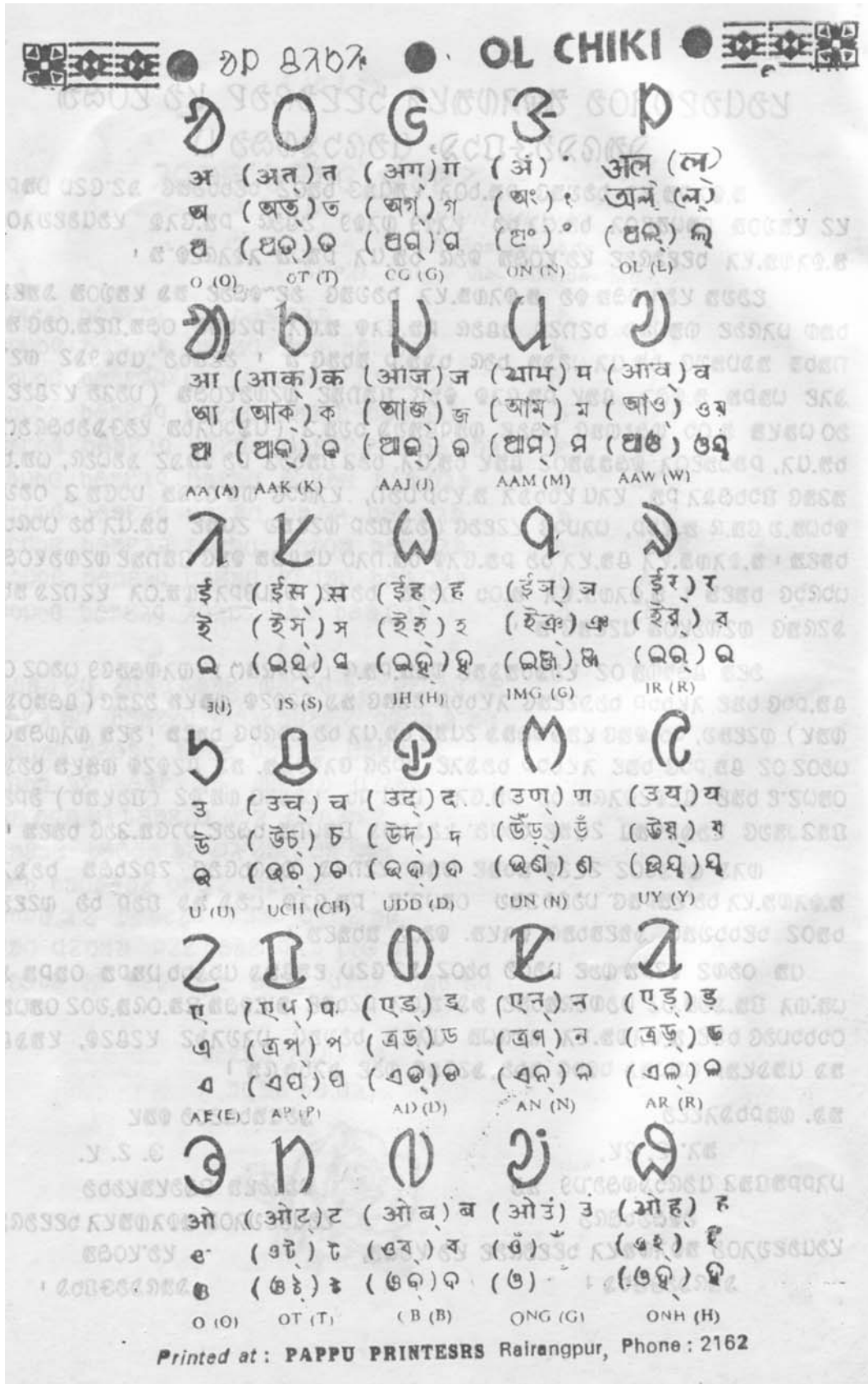
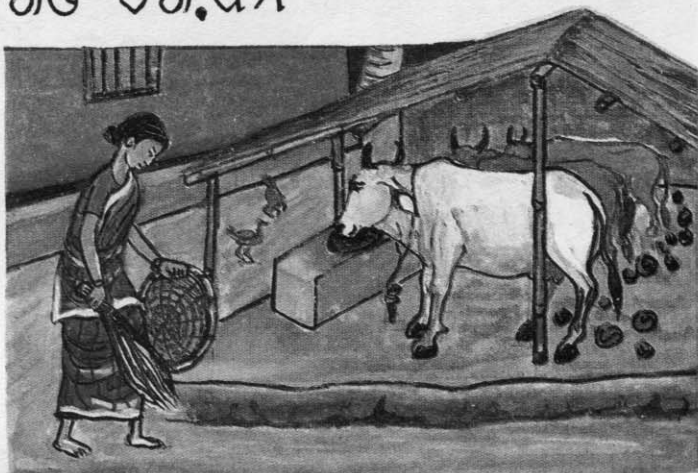


Figure 2. Sample from the magazine *Bhanj Parayni*, showing alphabet with Devanagari, Bengali, Oriya, and Latin transliterations.

උරුමයේ වගාව

උරුමයේ වගාව
 වගාවේ වගාව
 වගාවේ වගාව
 වගාවේ වගාව
 වගාවේ වගාව
 වගාවේ වගාව



වගාවේ වගාව
 වගාවේ වගාව
 වගාවේ වගාව
 වගාවේ වගාව
 වගාවේ වගාව
 වගාවේ වගාව

වගාවේ වගාව
 වගාවේ වගාව
 වගාවේ වගාව
 වගාවේ වගාව
 වගාවේ වගාව
 වගාවේ වගාව



Figure 3. Sample from the children's primer *Al Itā*, showing use of PUNCTUATION MUCAAD and PUNCTUATION DOUBLE MUCAAD.

විනිසුරු රාජ:රත්න ප්‍රතිපත්ති

ନିକଟ - ଯୁଗରୁ ଆରମ୍ଭ. ୨୩
 ଘଟ. ୧୩୦ - ୧୩୧ - ୧୩୨ ଘଟ. ୧୩୩

U797 6202,

[illegible][illegible]

ඉන්දුන ව්‍යංග් නිවැරදි ගිණිත
 නිවැරදි ‘ඉන්දු’ යනු වසරයෙන් පසු
 ‘ගිණිත-ගිණිත’ වැරදි ගිණිත නිවැරදි
 වැරදි. නිවැරදි නිවැරදි නිවැරදි වසර
 ගිණිත නිවැරදි නිවැරදි ගිණිත-වැරදි
 “වැරදි. ගිණිත යනු” । නිවැරදි ව්‍යංග්
 ගිණිත. ගිණිත ගිණිත ගිණිත ගිණිත ගිණිත
 නිවැරදි නිවැරදි ගිණිත ගිණිත ගිණිත ගිණිත

(අනෙක් බැලීමේදී මෙමගින් එමගින් ඇතුළු
 වුවද, බැලීමේදී මෙම බැලීමේදී මෙම බැලීමේදී
 මෙම බැලීමේදී මෙම බැලීමේදී මෙම බැලීමේදී

ව්‍යාප්ත නිවැරදි නිවේශන මාර්ගය මත පද
 වැන වැන ඉන්ද්‍රියයෙන් දිව්‍ය දේශන මාර්ගයට
 මාර්ගයට පිටින් නිවේශනය වැඩෙනු ලබන
 මාර්ගයෙන් ඉන්ද්‍රියයෙන් දිව්‍ය දේශන මාර්ගයට
 නිවේශනය වැඩෙනු ලබන මාර්ගයට වැඩෙන
 බවින් නිවේශනය වැඩෙන බවින් මාර්ගයට
 නිවේශනය වැඩෙන බවින් මාර්ගයට වැඩෙන
 නිවේශනය වැඩෙන බවින් මාර්ගයට වැඩෙන

[illegible][illegible]

Figure 4. Sample from the magazine *Bhanj Parayni*, showing the use of quotation marks and both PUNCTUATION MUCAAD and PUNCTUATION DOUBLE MUCAAD.

Note the use of the high ellipsis here. This character should be encoded in the UCS.

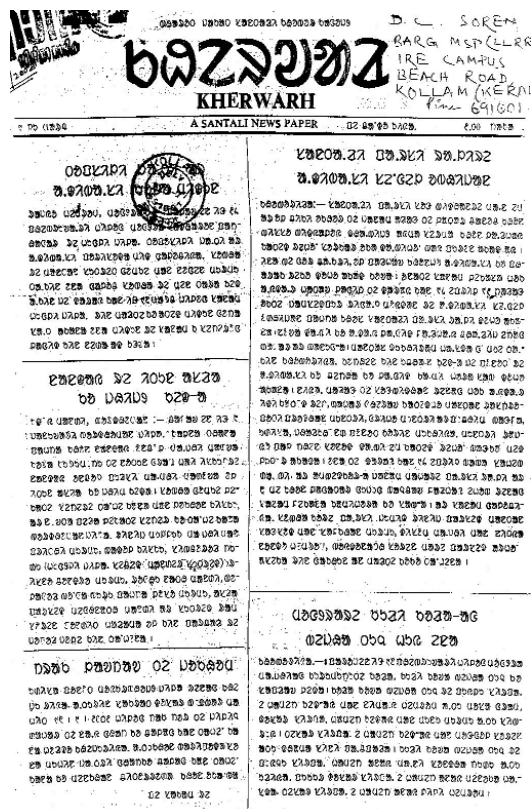


Figure 6. Sample from the newspaper *Kherwarh*.

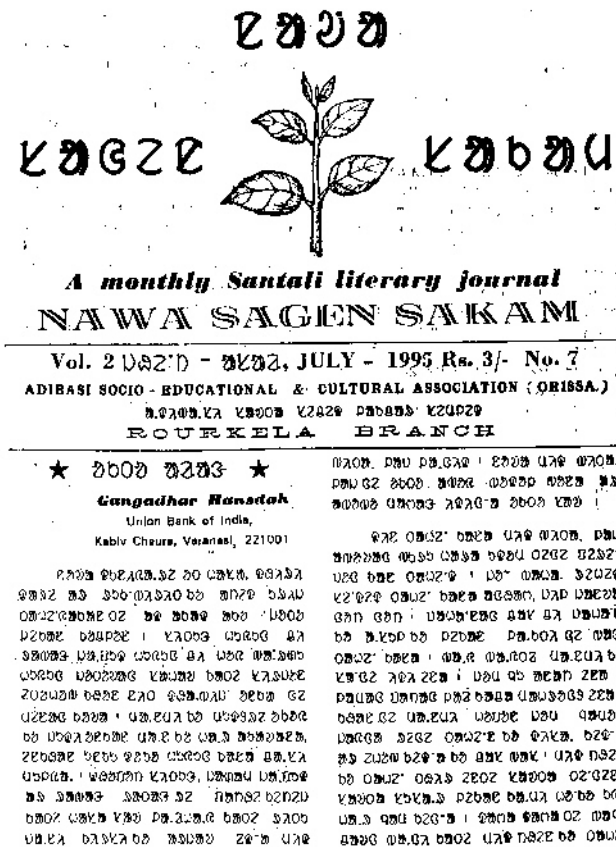


Figure 7. Sample from the literary journal *Nawa Sagan Sakam*.

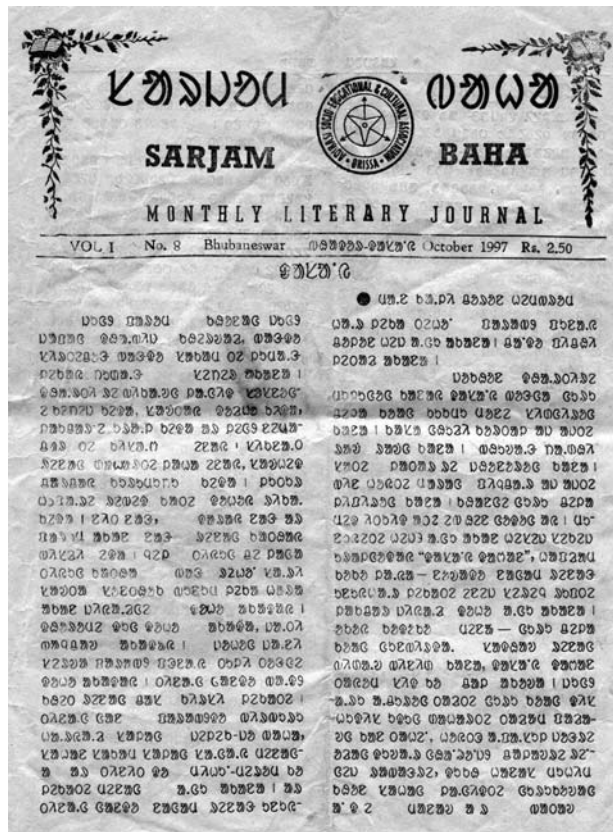


Figure 8. Sample from the literary journal *Sarjam Baha*.

Key Board Mapping for ଓଡ଼ ଗ୍ରନ୍ଥ

~ re '	! 1	@ 2	# 3	\$ 4	% 5	^ 6	& 7	* 8	(9) 0	- ph .	+ =	←
Tab	Q	W	E	R	T	Y	U	I	O	P	{	}	 _ \
Caps Lock	A	S	D	F	G	H	J	K	L	: mg ;	" ,	↵	
Shift	Z	X	C	V	B	mu N	M	< ,	> . ga	? /	Shift		
Ctrl	Alt	Wesanthals E-Group http://www.wesanthals.org										Alt	Ctrl

Note: ga = gaḥḷa / gēḥlē, mg = mu- gaḥḷa / gēḥlē, re = rela, ph = pharka

Figure 9. Ol Chiki keyboard layout.

TABLE XXX - Row 1C: OL CHIKI

	1C5	1C6	1C7
0	0	b	⓪
1	Ƶ	Ɓ	Ɖ
2	ƶ	Ƙ	Ʒ
3	Ʒ	Ɓ	Ɖ
4	Ɔ	ƶ	Ɓ
5	Ɔ	ƶ	⓪
6	Ɖ	Ƙ	Ɖ
7	ƶ	Ɖ	Ɖ
8	Ɖ	ƶ	·
9	Ɔ	ƶ	·
A	Ɖ	Ɖ	·
B	0	Ɖ	~
C	Ɔ	Ɖ	-
D	Ɖ	Ɖ	Ɖ
E	Ɖ	ƶ	Ɖ
F	Ɖ	Ɖ	Ɖ

G = 00
P = 00

TABLE XXX - Row 1C: OL CHIKI

hex	Name	hex	Name
50	OL CHIKI DIGIT ZERO		
51	OL CHIKI DIGIT ONE		
52	OL CHIKI DIGIT TWO		
53	OL CHIKI DIGIT THREE		
54	OL CHIKI DIGIT FOUR		
55	OL CHIKI DIGIT FIVE		
56	OL CHIKI DIGIT SIX		
57	OL CHIKI DIGIT SEVEN		
58	OL CHIKI DIGIT EIGHT		
59	OL CHIKI DIGIT NINE		
5A	OL CHIKI LETTER LA		
5B	OL CHIKI LETTER AT		
5C	OL CHIKI LETTER AG		
5D	OL CHIKI LETTER ANG		
5E	OL CHIKI LETTER AL		
5F	OL CHIKI LETTER LAA		
60	OL CHIKI LETTER AAK		
61	OL CHIKI LETTER AAJ		
62	OL CHIKI LETTER AAM		
63	OL CHIKI LETTER AAW		
64	OL CHIKI LETTER LI		
65	OL CHIKI LETTER IS		
66	OL CHIKI LETTER IH		
67	OL CHIKI LETTER INY		
68	OL CHIKI LETTER IR		
69	OL CHIKI LETTER LU		
6A	OL CHIKI LETTER UC		
6B	OL CHIKI LETTER UD		
6C	OL CHIKI LETTER UNN		
6D	OL CHIKI LETTER UY		
6E	OL CHIKI LETTER LE		
6F	OL CHIKI LETTER EP		
70	OL CHIKI LETTER EDD		
71	OL CHIKI LETTER EN		
72	OL CHIKI LETTER ERR		
73	OL CHIKI LETTER LO		
74	OL CHIKI LETTER OTT		
75	OL CHIKI LETTER OB		
76	OL CHIKI LETTER OV		
77	OL CHIKI LETTER OH		
78	OL CHIKI MU TTUDDAG		
79	OL CHIKI GAAHLAA TTUDDAAG		
7A	OL CHIKI MU-GAAHLAA TTUDDAAG		
7B	OL CHIKI RELAA		
7C	OL CHIKI PHAARKAA		
7D	OL CHIKI AHAD		
7E	OL CHIKI PUNCTUATION MUCAAD		
7F	OL CHIKI PUNCTUATION DOUBLE MUCAAD		

A. Administrative

1. Title

Final proposal to encode the Ol Chiki script in the UCS.

2. Requester's name

Michael Everson

3. Requester type (Member body/Liaison/Individual contribution)

Individual contribution.

4. Submission date

2005-09-05

5. Requester's reference (if applicable)

6. Choose one of the following:

6a. This is a complete proposal

Yes.

6b. More information will be provided later

No.

B. Technical – General

1. Choose one of the following:

1a. This proposal is for a new script (set of characters)

Yes.

Proposed name of script

Ol Chiki.

1b. The proposal is for addition of character(s) to an existing block

No.

1b. Name of the existing block

2. Number of characters in proposal

48

3. Proposed category (see section II, Character Categories)

Category A.

4a. Proposed Level of Implementation (1, 2 or 3) (see clause 14, ISO/IEC 10646-1: 2000)

Level 1.

4b. Is a rationale provided for the choice?

Yes.

4c. If YES, reference

Simple alphabetic script.

5a. Is a repertoire including character names provided?

Yes.

5b. If YES, are the names in accordance with the naming guidelines in Annex L of ISO/IEC 10646-1: 2000?

Yes.

5c. Are the character shapes attached in a legible form suitable for review?

Yes.

6a. Who will provide the appropriate computerized font (ordered preference: True Type, or PostScript format) for publishing the standard?

Michael Everson (Everttype). TrueType.

6b. If available now, identify source(s) for the font (include address, e-mail, ftp-site, etc.) and indicate the tools used:

Michael Everson (Everttype). Fontographer.

7a. Are references (to other character sets, dictionaries, descriptive texts etc.) provided?

Yes.

7b. Are published examples of use (such as samples from newspapers, magazines, or other sources) of proposed characters attached?

Yes.

8. 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.

9. 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.

See Unicode properties above.

C. Technical – Justification

1. Has this proposal for addition of character(s) been submitted before? If YES, explain.

Yes. See N1956 and N2505.

2a. 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.

2b. If YES, with whom?

Jeyakumar C. K. is a user himself, and has been in touch with Mr Kubendiran, editor of ଖୋର୍ଦ୍ଧା ଶିକ୍ଷାବିଧାନ *Bhāṣābhīmānī*.

2c. 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. Speakers of the Santali language, whose population is 5,800,000, with 25%–50% literacy, according to the SIL *Ethnologue*.

4a. The context of use for the proposed characters (type of use; common or rare)

Common. To write the Santali language. Latin, Devanagari, Bengali, and Oriya scripts have also been used to write Santali.

4b. Reference

5a. Are the proposed characters in current use by the user community?

Yes.

5b. If YES, where?

In primary and adult education (general use).

6a. After giving due considerations to the principles in Principles and Procedures document (a WG 2 standing document) must the proposed characters be entirely in the BMP?

Yes.

6b. If YES, is a rationale provided?

Yes.

6c. If YES, reference

Contemporary use and accordance with the Roadmap.

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

Yes.

8a. Can any of the proposed characters be considered a presentation form of an existing character or character sequence?

No.

8b. If YES, is a rationale for its inclusion provided?

8c. If YES, reference

9a. Can any of the proposed characters be encoded using a composed character sequence of either existing characters or other proposed characters?

No.

9b. If YES, is a rationale for its inclusion provided?

9c. If YES, reference

10a. Can any of the proposed character(s) be considered to be similar (in appearance or function) to an existing character?

No.

10b. If YES, is a rationale for its inclusion provided?

10c. If YES, reference

11a. Does the proposal include use of combining characters and/or use of composite sequences (see clauses 4.12 and 4.14 in ISO/IEC 10646-1: 2000)?

No.

11b. If YES, is a rationale for such use provided?

11c. If YES, reference

12a. Is a list of composite sequences and their corresponding glyph images (graphic symbols) provided?

No.

12b. If YES, reference

13a. Does the proposal contain characters with any special properties such as control function or similar semantics?

No.

13b. If YES, describe in detail (include attachment if necessary)

14a. Does the proposal contain any Ideographic compatibility character(s)?

No.

14b. If YES, is the equivalent corresponding unified ideographic character(s) identified?

14c. If YES, reference