Preliminary Proposal to Encode the Dogra Script in Unicode

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1   Introduction

This is a preliminary proposal to encode the Dogra script in Unicode. Dogra was briefly described in "Proposal to Encode the Takri Script in ISO/IEC 10646" (L2/09-424) as one of the many scripts classified as 'Takri'. It was suggested in L2/09-424 that Dogra be unified with the 'Takri' block being proposed, which was ultimately encoded at U+11680. The idea for unification was based upon the notion that various Takri-style scripts of Himachal Pradesh, Jammu, Kashmir, Panjab, and surrounding regions could be represented using the 'Takri' block until additional research on the individual scripts of the family could be conducted. As described in L2/09-424, the encoding for Takri is based upon the Chamba script, which was the first script of the Takri family to be adapted for purposes of printing. The second to be standardized and used for printing and official purposes was Dogra. A comparison between the Chamba and Dogra scripts is given in tables 1 and 2.

The Dogra script is historically associated with the Dogri language (ISO 639-3: doi), which is one of the twenty-two scheduled language of India. In 1916, George A. Grierson wrote in the *Linguistic Survey of India* that "Ḍōgrā has an alphabet of its own, which is allied to the Ṭakrī alphabet current in the Punjab Himalayas" (1916: 638). Although it was used mostly for informal communication and commercial activities, Dogra was eventually standardized in the 1860s. Grierson noted that "[s]ome thirty or forty years ago the then Mahārājā of Jammu and Kashmir caused to be invented a modified form of the current Ṭakrī so as to bring it more into line with Dēvanāgarī and Gurmukhī" and "[t]his improved Ḍōgrī is used for official documents, but it has not generally displaced the old Ṭakrī form of script" (*ibid*). This official form of Dogra is known as 'Name Dogra Akkhar' or the 'New Dogra Script'. It was the official script of the State of Jammu and Kashmir during the reign of Maharaja Ranbir Singh (r. 1857–1885), who is the ruler referred to by Grierson. The official script was used upon judicial and non-judicial stamp papers and postage stamps. It was also used for the printing of books, the first of which was a translation of the Sanskrit mathematical treatise *Līlavatī* by Bhāskarācārya. The work was commissioned by Ranbir Singh and printed in 1872 at Vidya Vilas Press, the first printing press in Jammu.

Dogra is no longer used actively and the Dogri language is now generally written in Devanagari. However, following the granting of scheduled status to Dogri, there has been renewed interest in the script. Dogra is also of interest to philatelists who collect postage stamps and related ephemera from Jammu and Kashmir (see Staal 1984; von der Lin).

2 Tentative encoding

2.1 Structure

The Dogra script is a Brahmi-based alphasyllabary that is written from left to right. It has a structure identical to Takri. The available sources show usage of conjuncts, but there are no formal conventions regarding representation of conjuncts.

2.2 Representative glyphs

The representative glyphs for Dogra characters are based primarily upon the form of the script used in print. The standardized form differs from written styles, but the two are to be unified within the proposed 'Dogra' block. The font has been designed by the proposal author.

2.3 Vowel letters

There are 7 independent vowel letters:

�	DOGRA LETTER A	ᕼ	DOGRA LETTER E
ᅰ	DOGRA LETTER AA	ᕽ	DOGRA LETTER AI
ᕾ	DOGRA LETTER I	ᖀ	DOGRA LETTER O
ᖁ	DOGRA LETTER U		

The script does not distinguish independent long forms of *i* and *u*, ie. *ī* and *ū*. These are represented using ᕾ DOGRA LETTER I and ᖁ DOGRA LETTER U. Also, the ᖀ DOGRA LETTER O is used for the diphthong *au*.

2.4 Vowel Signs

There are 10 dependent vowel signs:

○	DOGRA VOWEL SIGN AA	○	DOGRA VOWEL SIGN VOCALIC R
○	DOGRA VOWEL SIGN I	○	DOGRA VOWEL SIGN E
○	DOGRA VOWEL SIGN II	○	DOGRA VOWEL SIGN AI
○	DOGRA VOWEL SIGN U	○	DOGRA VOWEL SIGN O
○	DOGRA VOWEL SIGN UU	○	DOGRA VOWEL SIGN AU

The ○ DOGRA VOWEL SIGN VOCALIC R is used in standard Dogra. The ○ DOGRA VOWEL SIGN U and ○ DOGRA VOWEL SIGN UU have the alternate forms ○ and ○, respectively, which more commonly occur in written sources.

2.5   Consonants

There are 34 consonant letters:

ಕ	DOGRA LETTER KA	ᴛ	DOGRA LETTER DA
ꙮ	DOGRA LETTER KHA	ᴎ	DOGRA LETTER DHA
�託	DOGRA LETTER GA	ᴈ	DOGRA LETTER NA
ᴎ	DOGRA LETTER GHA	ᴎ	DOGRA LETTER PA
ᴄ̇	DOGRA LETTER NGA	ᴓ	DOGRA LETTER PHA
ᴛ	DOGRA LETTER CA	ᴇ	DOGRA LETTER BA
ᴈ	DOGRA LETTER CHA	ᴈ	DOGRA LETTER BHA
ᴈ	DOGRA LETTER JA	ᴈ	DOGRA LETTER MA
ᴛ	DOGRA LETTER JHA	ᴁ	DOGRA LETTER YA
ᴈ	DOGRA LETTER NYA	ᴈ	DOGRA LETTER RA
ᴄ	DOGRA LETTER TTA	ᴕ	DOGRA LETTER LA
ᴏ	DOGRA LETTER TTHA	ᴈ	DOGRA LETTER VA
ᴄᴋ	DOGRA LETTER DDA	ᴣ	DOGRA LETTER SHA
ᴊᴈ	DOGRA LETTER DDHA	ᴎ	DOGRA LETTER SSA
ᴗ̈	DOGRA LETTER NNA	ᴈ	DOGRA LETTER SA
ᴣ	DOGRA LETTER TA	ᴣ	DOGRA LETTER HA
ᴎ	DOGRA LETTER THA	ᴈ	DOGRA LETTER RRA

2.6   Nasalization sign

The sign ◌̇ DOGRA SIGN ANUSVARA is used for marking nasalization.

2.7   Nukta

The ◌̣ DOGRA SIGN NUKTA is used for representing sounds that are not native to Dogri and related languages.

2.8 Virama

The ◌ DOGRA SIGN VIRAMA is used for marking the absence of the inherent vowel of a consonant letter. It is also a control character used for producing conjuncts.

2.9 Consonant Conjuncts

Consonant clusters are represented in two ways: 1) with visible *halanta* on each bare consonant, and 2) as conjuncts. Conjuncts may be rendered using half-forms of the initial letter followed by the full form of the following letter, or as a ligature. Conjuncts are represented in encoded text by placing the control character ◌ DOGRA SIGN VIRAMA after each non-initial consonant in a cluster, ie. <(*C*, ◌ VIRAMA)*, *C*>.

2.10 Digits

Digits are commonly used in Dogra documents; however, they often resemble digits of Devanagari, Gurmukhi, and Takri. For the present, digits of the Takri block should be extended for usage with Dogra.

2.11 Number forms

Fraction signs and currency marks are commonly used in Dogra sources (see figure 5). These may be represented using the fraction and currency signs already encoded in the Common Indic Number Forms block (see Pandey 2007 (L2/07-354) for details).

3 Tentative character data

3.1 Character properties

The properties for Dogra in the Unicode Character Database format are:

```
xx00;DOGRA LETTER A;Lo;0;L;;;;;N;;;;;
xx01;DOGRA LETTER AA;Lo;0;L;;;;;N;;;;;
xx02;DOGRA LETTER I;Lo;0;L;;;;;N;;;;;
xx04;DOGRA LETTER U;Lo;0;L;;;;;N;;;;;
xx06;DOGRA LETTER E;Lo;0;L;;;;;N;;;;;
xx07;DOGRA LETTER AI;Lo;0;L;;;;;N;;;;;
xx08;DOGRA LETTER O;Lo;0;L;;;;;N;;;;;
xx0A;DOGRA LETTER KA;Lo;0;L;;;;;N;;;;;
xx0B;DOGRA LETTER KHA;Lo;0;L;;;;;N;;;;;
xx0C;DOGRA LETTER GA;Lo;0;L;;;;;N;;;;;
xx0D;DOGRA LETTER GHA;Lo;0;L;;;;;N;;;;;
xx0E;DOGRA LETTER NGA;Lo;0;L;;;;;N;;;;;
xx0F;DOGRA LETTER CA;Lo;0;L;;;;;N;;;;;
xx10;DOGRA LETTER CHA;Lo;0;L;;;;;N;;;;;
xx11;DOGRA LETTER JA;Lo;0;L;;;;;N;;;;;
xx12;DOGRA LETTER JHA;Lo;0;L;;;;;N;;;;;
xx13;DOGRA LETTER NYA;Lo;0;L;;;;;N;;;;;
xx14;DOGRA LETTER TTA;Lo;0;L;;;;;N;;;;;
xx15;DOGRA LETTER TTHA;Lo;0;L;;;;;N;;;;;
xx16;DOGRA LETTER DDA;Lo;0;L;;;;;N;;;;;
xx17;DOGRA LETTER DDHA;Lo;0;L;;;;;N;;;;;
xx18;DOGRA LETTER NNA;Lo;0;L;;;;;N;;;;;
xx19;DOGRA LETTER TA;Lo;0;L;;;;;N;;;;;
```

```
xx1A;DOGRA LETTER THA;Lo;0;L;;;;;N;;;;;
xx1B;DOGRA LETTER DA;Lo;0;L;;;;;N;;;;;
xx1C;DOGRA LETTER DHA;Lo;0;L;;;;;N;;;;;
xx1D;DOGRA LETTER NA;Lo;0;L;;;;;N;;;;;
xx1E;DOGRA LETTER PA;Lo;0;L;;;;;N;;;;;
xx1F;DOGRA LETTER PHA;Lo;0;L;;;;;N;;;;;
xx20;DOGRA LETTER BA;Lo;0;L;;;;;N;;;;;
xx21;DOGRA LETTER BHA;Lo;0;L;;;;;N;;;;;
xx22;DOGRA LETTER MA;Lo;0;L;;;;;N;;;;;
xx23;DOGRA LETTER YA;Lo;0;L;;;;;N;;;;;
xx24;DOGRA LETTER RA;Lo;0;L;;;;;N;;;;;
xx25;DOGRA LETTER LA;Lo;0;L;;;;;N;;;;;
xx26;DOGRA LETTER VA;Lo;0;L;;;;;N;;;;;
xx27;DOGRA LETTER SHA;Lo;0;L;;;;;N;;;;;
xx28;DOGRA LETTER SSA;Lo;0;L;;;;;N;;;;;
xx29;DOGRA LETTER SA;Lo;0;L;;;;;N;;;;;
xx2A;DOGRA LETTER HA;Lo;0;L;;;;;N;;;;;
xx2B;DOGRA LETTER RRA;Lo;0;L;;;;;N;;;;;
xx2C;DOGRA VOWEL SIGN AA;Mn;0;NSM;;;;;N;;;;;
xx2D;DOGRA VOWEL SIGN I;Mc;0;L;;;;;N;;;;;
xx2E;DOGRA VOWEL SIGN II;Mc;0;L;;;;;N;;;;;
xx2F;DOGRA VOWEL SIGN U;Mn;0;NSM;;;;;N;;;;;
xx30;DOGRA VOWEL SIGN UU;Mn;0;NSM;;;;;N;;;;;
xx31;DOGRA VOWEL SIGN VOCALIC R;Mn;0;NSM;;;;;N;;;;;
xx32;DOGRA VOWEL SIGN E;Mn;0;NSM;;;;;N;;;;;
xx33;DOGRA VOWEL SIGN AI;Mn;0;NSM;;;;;N;;;;;
xx34;DOGRA VOWEL SIGN O;Mn;0;NSM;;;;;N;;;;;
xx35;DOGRA VOWEL SIGN AU;Mn;0;NSM;;;;;N;;;;;
xx36;DOGRA SIGN ANUSVARA;Mn;0;NSM;;;;;N;;;;;
xx37;DOGRA SIGN VIRAMA;Mn;9;NSM;;;;;N;;;;;
xx38;DOGRA SIGN NUKTA;Mn;7;NSM;;;;;N;;;;;
```

3.2 Linebreaking

Linebreaking properties given in the data format of `LineBreak.txt`:

```
xx00..xx2B; AL     # DOGRA LETTER A .. DOGRA LETTER RRA
xx2C..xx38; CM     # DOGRA VOWEL SIGN AA .. DOGRA SIGN NUKTA
```

3.3 Syllabic categories

Syllabic categories given in the format of `IndicSyllabicCategory.txt`:

```
# Indic_Syllabic_Category=Bindu
xx36        ; Bindu                 # Mn        DOGRA SIGN ANUSVARA


# Indic_Syllabic_Category=Nukta
xx38        ; Nukta                 # Mn        DOGRA SIGN NUKTA


# Indic_Syllabic_Category=Virama
xx37        ; Virama                # Mn        DOGRA SIGN VIRAMA


# Indic_Syllabic_Category=Vowel_Independent
xx00..xx02  ; Vowel_Independent     # Lo    [3] DOGRA LETTER A .. DOGRA LETTER I
xx04        ; Vowel_Independent     # Lo        DOGRA LETTER U
xx06..xx08  ; Vowel_Independent     # Lo    [3] DOGRA LETTER E .. DOGRA LETTER O


# Indic_Syllabic_Category=Vowel_Dependent
```

```
xx2C..xx35  ; Vowel_Dependent     # Mn   [6] DOGRA VOWEL SIGN AA .. DOGRA VOWEL SIGN AU

# Indic_Syllabic_Category=Consonant
xx0A..xx2B  ; Consonant           # Lo  [34] DOGRA LETTER KA .. DOGRA LETTER RRA
```

3.4   Positional categories

Positional data for characters in the format of `IndicPositionalCategory.txt`:

```
# Indic_Positional_Category=Right
xx2E         ; Right # Mc         DOGRA VOWEL SIGN II

# Indic_Positional_Category=Left
xx2D         ; Left # Mc          DOGRA VOWEL SIGN I

# Indic_Positional_Category=Top
xx36         ; Top # Mn           DOGRA SIGN ANUSVARA
xx32..xx35   ; Top # Mn       [4] DOGRA VOWEL SIGN E..DOGRA VOWEL SIGN AU

# Indic_Positional_Category=Bottom
xx2F..xx31   ; Bottom # Mn    [3] DOGRA VOWEL SIGN U..DOGRA VOWEL SIGN VOCALIC R
xx37         ; Bottom # Mc        DOGRA SIGN VIRAMA
xx38         ; Bottom # Mn        DOGRA SIGN NUKTA
```

3.5   Script extensions

The following characters should be extended for usage with the Dogra script in `ScriptExtensions.txt`:

```
116C0..116C9 ;   # Nd     [10]  TAKRI DIGIT ZERO .. TAKRI DIGIT NINE
```

3.6   'Confusable' characters

Some Dogra characters that resemblance characters encoded in other script blocks are:

```
DOGRA LETTER O       ;  11684 TAKRI LETTER U
DOGRA LETTER TTHA     ;   1119C SHARADA LETTER TTHA
DOGRA LETTER TA      ;  11699 TAKRI LETTER TA
DOGRA LETTER PHA     ;  1169F TAKRI LETTER PHA
DOGRA LETTER BHA     ;  116A1 TAKRI LETTER BHA
DOGRA LETTER YA      ;  116A3 TAKRI LETTER YA
DOGRA VOWEL SIGN U   ;  0941 DEVANAGARI VOWEL SIGN U
DOGRA VOWEL SIGN UU  ;  0942 DEVANAGARI VOWEL SIGN UU
DOGRA VOWEL SIGN E   ;  116B2 TAKRI VOWEL SIGN E
DOGRA VOWEL SIGN AI  ;  116B3 TAKRI VOWEL SIGN AI
DOGRA VOWEL SIGN O   ;  116B4 TAKRI VOWEL SIGN O
DOGRA VOWEL SIGN AU  ;  116B5 TAKRI VOWEL SIGN AU
```

4   References

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5   Acknowledgments

	1180	1181	1182	1183	1184
0	ꠀ 11800	ꠐ 11810	ꠠ 11820	꠰ 11830	
1	ꠁ 11801	ꠑ 11811	ꠡ 11821	꠱ 11831	
2	ꠂ 11802	ꠒ 11812	ꠢ 11822	꠲ 11832	
3	11803	ꠓ 11813	ꠣ 11823	꠳ 11833	
4	ꠄ 11804	ꠔ 11814	ꠤ 11824	꠴ 11834	
5	11805	ꠕ 11815	ꠥ 11825	꠵ 11835	
6	꠆ 11806	ꠖ 11816	ꠦ 11826	꠶ 11836	
7	ꠇ 11807	ꠗ 11817	ꠧ 11827	꠷ 11837	
8	ꠈ 11808	ꠘ 11818	꠨ 11828	꠸ 11838	
9	11809	ꠙ 11819	꠩ 11829		
A	ꠊ 1180A	ꠚ 1181A	꠪ 1182A		
B	ꠋ 1180B	ꠛ 1181B	꠫ 1182B		
C	ꠌ 1180C	ꠜ 1181C	꠬ 1182C		
D	ꠍ 1180D	ꠝ 1181D	꠭ 1182D		
E	ꠎ 1180E	ꠞ 1181E	꠮ 1182E		
F	ꠏ 1180F	ꠟ 1181F	꠯ 1182F		

Independent vowels

11800	ꠀ	DOGRA LETTER A
11801	ꠁ	DOGRA LETTER AA
11802	ꠂ	DOGRA LETTER I
11803	▨	\<reserved\>
11804	ꠄ	DOGRA LETTER U
11805	▨	\<reserved\>
11806	꠆	DOGRA LETTER E
11807	ꠇ	DOGRA LETTER AI
11808	ꠈ	DOGRA LETTER O

Consonants

1180A	ꠊ	DOGRA LETTER KA
1180B	ꠋ	DOGRA LETTER KHA
1180C	ꠌ	DOGRA LETTER GA
1180D	ꠍ	DOGRA LETTER GHA
1180E	ꠎ	DOGRA LETTER NGA
1180F	ꠏ	DOGRA LETTER CA
11810	ꠐ	DOGRA LETTER CHA
11811	ꠑ	DOGRA LETTER JA
11812	ꠒ	DOGRA LETTER JHA
11813	ꠓ	DOGRA LETTER NYA
11814	ꠔ	DOGRA LETTER TTA
11815	ꠕ	DOGRA LETTER TTHA
11816	ꠖ	DOGRA LETTER DDA
11817	ꠗ	DOGRA LETTER DDHA
11818	ꠘ	DOGRA LETTER NNA
11819	ꠙ	DOGRA LETTER TA
1181A	ꠚ	DOGRA LETTER THA
1181B	ꠛ	DOGRA LETTER DA
1181C	ꠜ	DOGRA LETTER DHA
1181D	ꠝ	DOGRA LETTER NA
1181E	ꠞ	DOGRA LETTER PA
1181F	ꠟ	DOGRA LETTER PHA
11820	ꠠ	DOGRA LETTER BA
11821	ꠡ	DOGRA LETTER BHA
11822	ꠢ	DOGRA LETTER MA
11823	ꠣ	DOGRA LETTER YA
11824	ꠤ	DOGRA LETTER RA
11825	ꠥ	DOGRA LETTER LA
11826	ꠦ	DOGRA LETTER VA
11827	ꠧ	DOGRA LETTER SHA
11828	꠨	DOGRA LETTER SSA
11829	꠩	DOGRA LETTER SA
1182A	꠪	DOGRA LETTER HA
1182B	꠫	DOGRA LETTER RRA

Dependent vowel signs

1182C	◌꠬	DOGRA VOWEL SIGN AA
1182D	◌	DOGRA VOWEL SIGN I
1182E	◌	DOGRA VOWEL SIGN II
1182F	◌	DOGRA VOWEL SIGN U
11830	◌	DOGRA VOWEL SIGN UU
11831	◌	DOGRA VOWEL SIGN VOCALIC R
11832	◌	DOGRA VOWEL SIGN E
11833	◌	DOGRA VOWEL SIGN AI
11834	◌	DOGRA VOWEL SIGN O
11835	◌	DOGRA VOWEL SIGN AU

Various signs

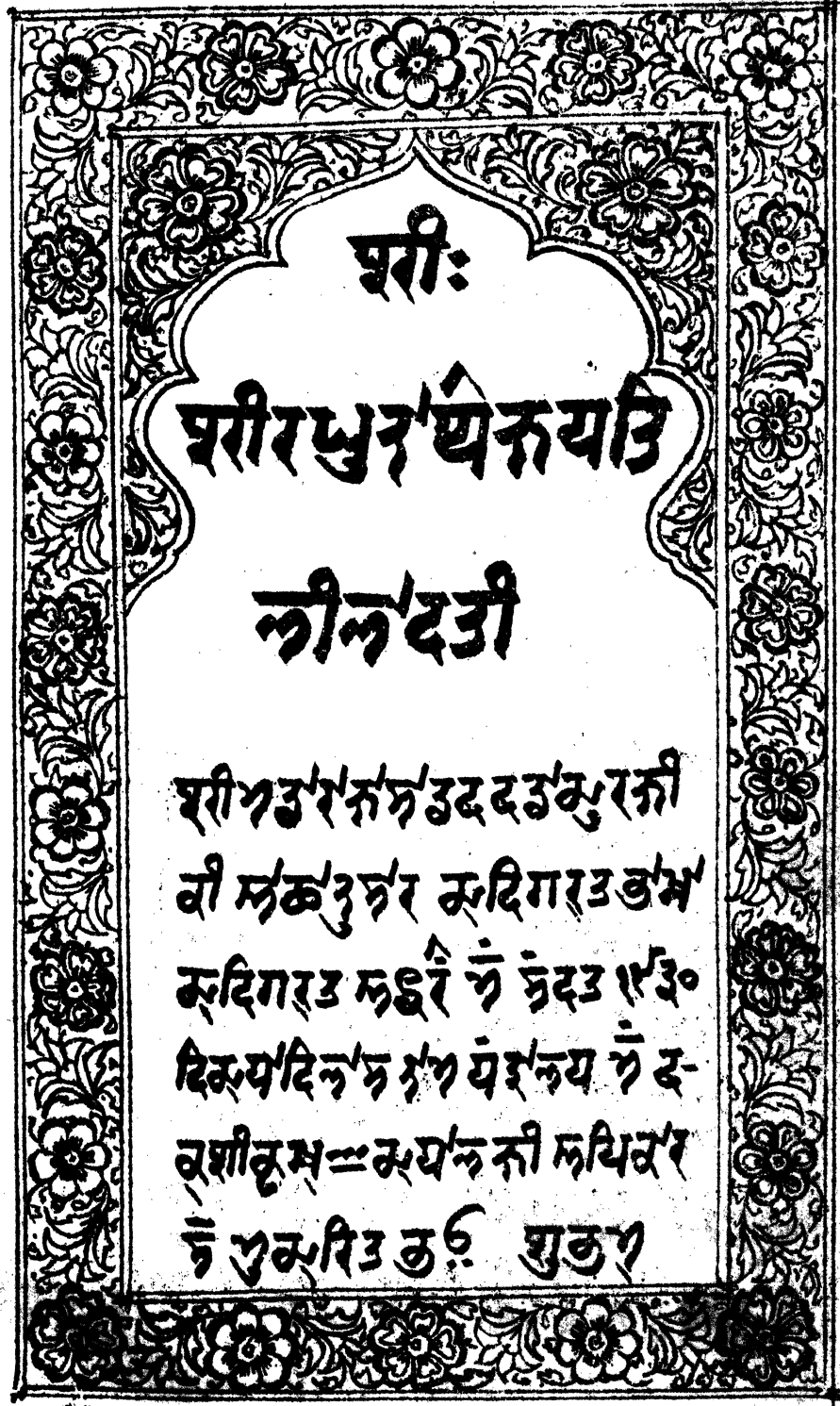|		
11836	◌	DOGRA SIGN ANUSVARA
11837	◌	DOGRA SIGN VIRAMA
11838	◌	DOGRA SIGN NUKTA

Figure 1: The cover page of a Dogri translation of the *Līlavatī* by Bhāskarācārya, a Sanskrit treastise on mathematics, printed in the standardized 'Name Dogra Akkhar' in 1872. Figure 2 contains another page from this book.

Figure 2: Another page from the *Līlavatī* (from Pathik 1980: 2).

PAÑJĀBĪ.

ḌōGRĀ DIALECT.   (JAMMU STATE.)

SPECIMEN I.

ḌōGRĀ CHARACTER.

Figure 3: Specimen of the Dogri language written in Dogra (from Grierson 1916: 760).

PAÑJĀBĪ.

ḌōGRĀ DIALECT.　　　　　　　　　　　　　　　　　　(JAMMU STATE.)

SPECIMEN II.

ḌŌGRĀ CHARACTER.

Figure 4: Another specimen of the Dogri language written in Dogra (from Grierson 1916: 772).

Figure 5: Usage of fractions for denoting currency in Dogra (from Staal 1984: 75).

<div align="center">A   B</div>

Figure 6: Two specimens of a trilingual stamp for expedited mail from Jammu State in Dogra, Persian, and Devanagari scripts. The Dogra reads 𑠲𑠲𑠥 𑠑𑠞𑠭 *kakal jarurī*. The Persian reads خط ضروری *k͟haṭ zarūrī*; the Devanagari reads *āvaśyaka patra* आवश्यक पत्र.

<div align="center">A   B</div>

<div align="center">C   D</div>

Figure 7: Four bilingual regular postage stamps from Jammu State with text in the Dogra and Persian scripts. Stamps A, B, and D are half 'anna' stamps and C is a one 'anna' stamp. In all stamps, the Dogra text at the top reads 𑠑𑠪6 'Jammu' *jamu* and 𑠲𑠝𑠭𑠞 'Kashmir' *kachamīr* (= *kaśmīr*; note the use of 𑠝 CHA instead of 𑠧 SHA). In A, B, and D, the first line of the center is Persian ۱۹۲۳ نم آنه *1923 [samvat] nim ānah* 'half *ānnā*'; the second line of the center is Dogra 𑠵𑠫 𑠵𑠞 *ada ana* 'half *ānnā*'. In C, the first line of the center is Persian يك آنه *yak ānah* 'one *ānnā*'; the second line of the center is Takri 𑚄𑚨 𑚏𑚤. In all stamps, the third line of the center is the date 1923 [*samvat*] written in Devanagari-like digits १९२३. The Persian at the bottom reads قلمر و سركار جمون و كشمير *qalamra o sarkār jammūn o kaśmīr* 'dominions of the ruler of Jammu and Kashmir.'

<div align="center">15</div>

Figure 8: The mast of a two rupee non-judicial stamp paper from Kashmir State with inscriptions in Dogra, Devanagari, and Urdu.

Figure 9: A stamp from Kashmir state with text in Dogra, Devanagari, and Urdu.

	Chamba	Dogra		Chamba	Dogra
A	𑠀	𑠀	VOWEL SIGN A	*no dependent form*	
AA	𑠁	𑠁	VOWEL SIGN AA	◌	◌
I	𑠂	𑠂	VOWEL SIGN I	◌	◌
II	𑠃	—	VOWEL SIGN II	◌	◌
U	𑠄	𑠄	VOWEL SIGN U	◌	◌
UU	𑠅	—	VOWEL SIGN UU	◌	◌
E	𑠆	𑠆	VOWEL SIGN E	◌	◌
AI	𑠇	𑠇	VOWEL SIGN AI	◌	◌
O	𑠈	𑠈	VOWEL SIGN O	◌	◌
AU	𑠉	—	VOWEL SIGN AU	◌	◌

Table 1: Comparison of Chamba and Dogra vowel letters and signs (differences highlighted).

	Chamba	Dogra		Chamba	Dogra
KA			THA		
KHA			DA		
GA			DHA		
GHA			NA		
NGA			PA		
CA			PHA		
CHA			BA		
JA			BHA		
JHA			MA		
NYA			YA		
TTA			RA		
TTHA			LA		
DDA			VA		
DDHA			SHA		
NNA			SA		
TA			HA		
			RRA		

Table 2: Comparison of Chamba and Dogra consonant letters (differences highlighted). Characters shown in parentheses are part of the proposed Takri script, but are not proposed for encoding as atomic characters as they can be produced using NUKTA.

The following are the Ḍōgrā characters as used in the specimens :—

Vowels.

INITIAL FORMS.

a,   *ā*,   *i* or *ī*,   *u* or *ū*,   or

e, ē or *ai*,   *ō* or *au*,   •   *ṁ*   or   ~

NON-INITIAL FORMS.

ka,   *kā*,   *ki* or *kī*,   or   *ku*,   *kū*,   *ke* or *kē*,

kai,   *kō*,   *kau*,   *kaṁ* or *kā̃*.

NOTE.—Great carelessness is allowed in writing the vowels and the nasal sign. They are often omitted altogether. Long and short vowels are frequently interchanged. Initial vowels are often written in the place of non-initial long ones. Thus —

for   *dā* ;   for   *tā*. The letter *e* or *ē* is frequently written for *i*, and *ō* for *u*.

Consonants.

ka,   *kha*,   *ga*,   *gha*,   *ṅa* ;

cha,   *chha*,   *ja*,   *jha*,   *ñ* ;

ṭa,   *ṭha*,   *ḍa*,   *ḍha*,   or   *ṇa* ;

ta,   *tha*,   *da*,   *dha*,   *na* ;

pa,   *pha*,   *ba*,   *bha*,   *ma* ;

ya,   *ra*,   *la*,   *va, wa* ;

sha,   *sa*,   *ha*,   *ṛa*.

NOTE.—That the same sign is employed for *ja* and *ya*, and for *ba* and *va* (or *ᵥa*), respectively. There is really only one sibilant,—the letter *sa*. When it is necessary to represent the sound of the Persian *sh*, the character for *chha* is employed.

Figure 10: Chart of the Dogra script (from Grierson 1916: 641).

In order to facilitate comparison, I next give the current written forms of the letters of the Gurmukhī, Kāṅgrā, and Ḍōgrā alphabets.

Gurmukhī.	Kāṅgrā.	Ḍōgrā.		Gurmukhī.	Kāṅgrā.	Ḍōgrā.	
			'āiṛā'				ḍa
			'iṛi'				ḍha
			'ūṛā'				ṇa
			ō				ta
			sa				tha
			ha				da
			ka				dha
			kha				na
			ga				pa
			gha				pha
			ṅa				ba
			cha				bha
			chha				ma
			ja				ya
			jha				ra
			ña				la
			ṭa				wa
			ṭha				ṛa

Figure 11: Comparison of the Gurmukhi, Kangra, and Dogra scripts (from Grierson 1916: 642).

	Nagari	Dogri		Nagari	Dogri		Nagari	Dogri
a	अ म	म	ka	क	ब	ta	त	ब
ā	आ म्रा	म्र॑	kha	ख	भ	tha	थ	घ
i		६	ga	ग	ग	da	ट	द
ī		६	gha	घ	भ	dha	ध	ध
u	उ	ऊ	nga	ङ॑	४.	na	न	६
ū	ऊ	झ						
e	ए पे	ण	ca	च	ख	pa	प	प
ai		ण॑	cha	छ	द	pha	फ	ट
o	आो	उँ	ja	ज	ऋ	ba	ब	द
au	ओ	उँ	jha	ज्ञ	ज	bha	भ	व
am (naslaized vowel)	अं	ऋं	ña	ञ	ग	ma	म	ग
ś a	श	श	ṭa	ट	ट	ya	य	य
ṣa	ष	म	ṭha	ठ	०्र	ra	र	र
sa	स	ग	ḍa	ड	ऊ	la	ळ	ळ
ha	ह	ड	ḍha	ढ	ऊ	va	व	द
			ṇa	ण	~			

Figure 12: Comparison of Dogra ('Dogri') and Devanagari vowel and consonant letters (from Staal 1984: 33).

	Nagari	Dogri		Nagari	Dogri
kā	क्रा	ब॑	gā	ग	ग॑
ki	कि	ष	gī	भि	ष्रि
kī	की	ष्रो	gi	भी	ष्रि
ku	कु	ड	gu	गु	गु
kū	कू	ऊ	gū	गू	गू
ke	के	ड़	ge	गे	प्ठ
kai	कै	ड़	gai	गै	प्ठ
ko	को	ॲ	go	गो	प्ॲ
kau	कौ	ॳ	gau	गौ	प्ॳ
kaṃ	कं	ब्॑	gaṃ	गं	ग्॑
k	क्	ब॒	g	ग्	ग॒

Figure 13: Comparison of Dogra ('Dogri') and Devanagari vowel signs (from Staal 1984: 34).

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Figure 14: Comparison of Dogra with Takri and various other scripts (from Leitner 1882: Set 2).

th		thathha										o
d		dadda										
th		thidda										
		nana										
t		tatta										
th		thuttha										
d		dadda										
d		dhadda										
N		nanna										

P		pappa										
ph		phuppha										
b		babba										
bh		bhabba										
m		manma										
y		yayya										
r		rara										
l		lalla										
w		wawa										
r		rara										

Figure 15: Comparison of Dogra with Takri and various other scripts (from Leitner 1882: Set 2).