Removing Indo-Aryan bias from the phonological description of Bodo

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1. Introduction:

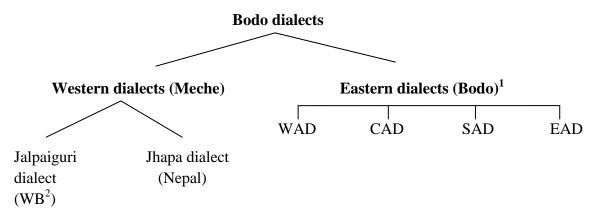
Bodo (also Boro, ISO 639-3: brx) is a Bodo-Garo (BG) language within Tibeto-Burman (TB) family. It is spoken mainly in Assam and in the adjoining states of Arunachal Pradesh, Nagaland, Meghalaya, and West Bengal. Its speakers are also found in the Jhapa district of Nepal and they are known as Mech (also Meche, Kiryu 2008). The 2011 census of India estimates 1.5 million Bodo speakers. It has received more attention from scholars than any other TB language in the region. The first reported work on Bodo was by Hodgson (1847) which carried forwarded by Endle (1884), Skrefsurd (1889), Anderson (1895), Grierson (1903), Bhatt (1968), Bhattacharya (1977), Kiryu (2008) and most recently by DeLancey, et al (in preparation). In addition, there are a good number of grammatical works done by local scholars on Bodo. The language has been included in the 8th schedule of the Constitution of India and thus it is recognized as one of the 22 official languages of India. It is one of the most vibrant communities in the region both culturally and linguistically.

Other languages spoken in the area are: Assamese, Bengali, Hindi, Nepali, Adivasiya. The vocabulary of Bodo has a substantial number of loan words from Assamese, Bengali and Hindi. A considerable percentage of Bodo women are monolingual whereas most men are proficient in Assamese, the language of wider communication. Though some work has been done in the phonology of Bodo (Sarmah (2004), Joseph and Burling (2001, 2006)), it is one of the least researched languages of the state.

Bodo has at least four dialects located in the north-west, south-west, north-central, and south of the state of Assam (Bhattacharya 1977). The Kokrajhar variety of the language spoken mostly in the districts of Kokrajhar, Bongaigaon, and Chirang is regarded as the standard variety. As far as the data and analysis of the present work is concerned, we have used this variety. The Bodo scholars use this variety in their writings, broadcasts, and academic discourses. All the dialects are mutually intelligible and there is no status difference among the speakers.

Based on works done by linguists like Bhattacharya (1977: 11-12), Kiryu (2008: 2-3) and Basumatary (2017: 10-11) on the Bodo-Garo languages, a schematization of the Bodo dialects is indicated in figure 1.

Figure 1: Bodo dialects as spoken in the districts of Assam, West Bengal and Nepal



Though the Bodos form the second largest linguistic community in Assam, they did not have a formally accepted script for their language until the 1970s. Of their own choice and will, people used the Assamese, Bengali, and Roman scripts to write the language. Meanwhile mother tongue education began in Bodo in the primary level under private initiatives from the early 1960s. The selection of an appropriate script became an urgent need at that time. At that time, the entire community was in favour of using the Roman script. The Bodo Sahitya Sabha (BSS), the apex literary body of the Bodos, had to launch a vigorous mass movement for several years during 1970s in support of adopting the Roman script. Several people lost their lives during the struggle. In the end, the then Government at the centre prevailed upon the Bodos to accept the Devanagari script instead of Roman. Since that time, Devanagari has become the officially recognized script of the Bodo people.

1.1 Influence of Assamese, Bengali and Hindi (ABH) on Bodo orthography

Assamese and Bengali, both Indo-Aryan (IA) languages have been dominant and therefore, the languages of wider communication for centuries in erstwhile Assam. Hindi has been comparatively recent to play this role but gained momentum in the recent years as a result of Hindi cinema, television and introduction of Hindi as a compulsory subject in schools. All these languages have similar number of vowels and consonants in the respective orthographies. While Assamese has 11 vowels and 37 consonant letters, Bengali has 11 vowels and 35 consonant letters. Similarly, Hindi has 13 vowels and 33 consonant letters in the orthography. The ways how Assamese, Bengali and Hindi alphabets are written have influenced Bodo greatly. The textbook writers have reflected Bodo as having 11 vowels and 37 consonants in children's materials not realizing the fact that it is not similar to any of the IA languages. This is clearly the

¹Here the Eastern Bodo dialects have been sub-grouped as roughly comprising: (i) WAD: Western Assam Dialect consisting of the present Kokrajhar, Bongaigoan, and Chirang districts; (ii) CAD: Central Assam Dialect consisting of the present Kamrup, Baksa, and Udalguri districts; (iii) SAD: Southern Assam Dialect consisting of the present Goalpara, Karbi Anglong, and Dima Hasao districts; (iv) EAD: Eastern Assam Dialect consisting of the present Sonitpur, Lakhimpur, and Dhemaji districts.

² West Bengal

case of copying Indo-Aryan pronunciation in the transcription of borrowed words, even those that have been nativized in their pronunciation.

The orthographic representation of vowels and consonants in ABH is shown in Table 1 and 2 respectively along with Bodo which indicates a strong bias of IA orthography.

Table 1: List of orthographic vowels in ABH and Bodo

Assamese	Bengali	Hindi	Bodo
অ	অ	अ	31
আ	আ	आ	आ
র্যুপ	र्गुर	इ	इ
ঈ	ঈ	ई	ई
উ	উ	3	3
উ	উ	<u>उ</u>	ক
ঋ	ঋ	ऋ	ऋ
এ	এ	ए	ए
ঐ	ঐ	ऐ	ऐ
3	3	ओ	ओ
3	જુ	औ	औ
-	-	अं	-
-	-	अ:	-

Table 2: List of orthographic consonants in ABH and Bodo

Assamese	Bengali	Hindi	Bodo
ক	ক	क	क
খ	খ	ख	ख
গ	গ	ग	ग
ঘ	ঘ	घ	घ
હ	ષ્ઠ	ङ	ङ
চ	চ	च	च
ছ	ছ	छ	छ
জ	জ	ज	ज
ঝ	ঝ	झ	झ
ঞ	ঞ	স	স

ট	ট	-	-
		2	ζ
ঠ	ঠ	ठ	ठ
ড	ড	ड	ड
ঢ	ঢ	ढ	ढ
ণ	୩	ण	ण
ত	<u>ত</u>	ਰ	त
থ	থ	থ	থ
দ	দ	द	द
ধ	ধ	ម	ध
ন	ন	न	न
প	প	ч	Ч
ফ	ফ	দ	দ
ব	ব	ब	ब
<u>©</u>	<u>•</u>	भ	भ
ম	ম	म	म
য	য	य	य
ৰ	ৰ	₹	₹
ল	ল	ਲ	ਲ
ৱ	ৱ	व	व
भ	×	श	श
ষ	ষ	ष	ष
স	স	स	स
হ	হ	ह	ह
ক্ষ	ক্ষ	-	क्ष
ড়	ড়	-	इ
ঢ়	ঢ়	-	ġ
য়	য়	-	त्

All these orthographic sounds in ABH might have been present diachronically, but synchronically the numbers do not match with the actual number of phonemic vowels and consonants in each of the languages. Bodo is quite distinct and unlike ABH it has fewer vowel and consonant inventories making it comparatively much simpler.

Table 3: Number of phonemic inventories against orthographic letters in ABH and in Bodo

	Assamese	Bengali	Hindi	Bodo
Orthographic	11	11	13	11
vowels				
Phonemic	8	7	6	6
vowels				
Orthographic	37	35	33	34
consonants				
Phonemic	21	29	26	16
consonants				

Table 3 shows that unlike ABH, Bodo has only 6 vowels and 16 contrastive consonants which make it clear that it is different from any of the IA languages.

The purpose of this paper is to show that Bodo differs greatly from either Assamese or Bengali or Hindi. Bodo still retains most of its Tibeto-Burman features. The elements of borrowing can be traced through systematic phonological description of Bodo which is attempted in the following sections.

2. Native Bodo Consonants:

The native consonant inventory of Bodo comprises of 16 consonants as shown in table 4.

Table 4: Native Bodo consonants

	Bila	bial	Alvec	lar	Palatal	V	elar	Glottal
Plosive	p^h	b	t ^h	d		\mathbf{k}^{h}	g	
Fricative			S	Z				h
Nasal		m	n				ŋ	
Flap			r					
Lateral			1					
Approximant		W			j			

There is a two way contrast in stops and fricatives: voiceless aspirated and voiced. With the exception of $/\eta$ w j/, all Bodo consonants can serve as initials. This is substantiated with the help of examples given in table 5.

Table 5: Orthographic representation of Bodo consonants

CONSONANT	TRANSCRIP	ORTHO	GLOSS
	TION	GRAPHY	
/p ^h /	p ^h á	फा	'question particle'

/b/	bá	बा	'to carry on back'
/t ^h /	t ^h á	था	'root potato, to stay'
/d/	dá	दा	'now, to weave'
/k ^h /	k ^h á	खा	'to pluck'
/g/	gá	गा	'to be detached or healed'
/s/	sá	सा	'to spin, above'
/z/	zá	जा	'to eat'
/m/	má	मा	'what'
/n/	ná	ना	'fish, to thrash as of paddy'
/r/	rá	रा	'to be matured, hardened'
/1/	lá	ला	'to take'
/h/	há	हा	'soil, be able to'
/ŋ/	haŋsw	हांसो	'duck'
/w/	wari	उवारि	'a Bodo surname'
/j/	mwija	मैया	'yesterday'

In syllable-initial position /p, t, k, b^h , d^h , g^h / occur in a small number of foreign (mainly Assamese) words. But most of the time there is a tendency to nativize them, for example, by replacing the initial consonant such as in /phap/ for /pap/ 'sin', by vowel insertion/reduction as in /dhurum/ for /dhormo/ 'religion', by vowel deletion as in /khomla/ for /komola/ 'orange' and by modification of vowels as in /buthur/ for /botor/ 'weather'.

Table 6: Change of forms in the borrowed words from Assamese

S1.	SOUND	ASSAMESE PRO- NUNCIATION	BODO	ORTHO- GRAPHY	GLOSS	PROCESS
a	/p/	pothar	p ^h wt ^h ar	फोथार	'field'	$p > p^h$
b	/t/	toka	t ^h ak ^h a	थाखा	'rupee'	$\begin{array}{c} t > t^h \\ k > k^h \\ o > a \end{array}$
С	/k/	kudal	kʰodal	खदाल	'orange'	$k > k^h$ $\sigma > \sigma$
d	/p ^h /	p ^h esa	phesa	फेसा	'owl'	$p^{h} = p^{h}$
e	/t ^h /	thijo	t ^h ija	थिया	'vertical'	$t^{h} = t^{h}$
f	/k ^h /	k ^h ərəm	k ^h urum	खोरोम	'wooden sandal'	$k^h = k^h$ o > w
g	/b ^h /	b ^h ut	buhut	बुहृत	'ghost'	$b^h > b$

h	/d ^h /	d ^h ekija	diŋkʰija	दिंखिया	'herb sp.'	$d^h > d$
						e > i
i	/gh/	g ^h orial	gwler	गोलेर	'crocodile'	$g^h > g$
						$\mathfrak{o} > \mathfrak{w}$
j	/x/	xəməi	somai	समाय	'time'	x > s
				•		$\mathfrak{I} > o/a$
k	/t/	botora	bat ^h ra	बाथ्रा	'news'	$\mathfrak{I} > \emptyset$

In (a, b, c) Assamese initial /p, t, k/ are aspirated in the borrowed form. However, in (d, e, f) the forms show preservation of aspirated stops. In (g, h, i) voiced aspirated stop changes to corresponding unaspirated stop and velar fricative changes to alveolar fricative in (j). In (k) the 2nd syllable is deleted to fit typical Bodo word length.

2.1 Codas

Bodo consonant final stops are essentially voiced unaspirated as shown in table 7.

'book' bizab hadwd 'country' d bahag 'share' g mezem 'fat' m p^holan 'hunter, good at shooting' n háη 'breath' η 'night' r hor $k^h odal$ 'spade' 1 goj 'betel nut' 'forget' W baw

Table 7: Final stops in Bodo

In some disyllabic words /t d r/ are in free variation as shown in example 1.

Example 1:

```
gilir ~ gilid ~ gilit 'heavy'
gidir ~ gidid ~ gidit 'big'
thalir ~ thalid ~ thalit 'banana'
bedor ~ bedod ~ bedot 'meat'
hadur ~ hadud ~ hadut 'country'
```

But, in other disyllabic words /t d r/ are not in free variation as shown in the three supporting counter examples.

Example 2:

```
hathor > * hathod/*hathot 'piece of hardened soil like pebbles' mohor > *mohod/*mohot 'look or appearance'
```

```
gosor > *gosod/*gosot 'leak as through roof or sand'
```

Mono-syllables ending in [r] do not undergo this process as shown in the following set of examples.

Example 3:

```
bar > *bad 'air'
thar > *thad 'true'
khar > *khad 'run'
```

Syllable final plosives /b, d, g/ seem to realize as /p, t, k/ respectively when followed by case markers such as genitive -ni, accusative $-k^hou$, locative -au and so on as shown below.

Example 4:

bizab	bizap-ni	'book-GEN'
haduud	haduut-au	'country-LOC'
mulug	muluk-ni	'universe-GEN'

Bodo nasals are pronounced at three places of articulation: bilabial, alveolar and velar, i.e. /m/, /n/, /n/ respectively. This is shown in table 8.

Table 8: Bodo nasals

	WORD	GLOSS	WORD	GLOSS	WORD	GLOSS
	INITIAL		MEDIAL		FINAL	
m	mək ^h ra	'monkey'	oma	'pig'	melem	'brain'
n	neolai	'mongoose'	ont ^h ai	'rock'	sen	'fish trap'
ŋ	-	-	haŋsw	'duck'	zoŋ	'spear'

Three separate claims may be made regarding nasals. First, /m/ is the most common; /n/ is second and /ŋ/ third. Second, /ŋ/ does not occur word initially. Third, /ŋ/ only occurs intervocalically if there is a morpheme break as shown in example 5.

Example 5:

```
t<sup>h</sup>aŋ-a 'go-NEG'
t<sup>h</sup>aŋ-ə 'go-HAB'
```

2.2 Geminates

Standard Bodo has consonant gemination which occurs word medially in monomorphemic words. Consonant gemination is, but idiosyncratic; the following words can be uttered without gemination yet they mean the same.

Example 6:

```
qukha qukkha 'bitter'
```

rwza	rwzza	'thick'
дшдш	дшддш	'clean'
gwba	gubba	'thin, light'

However, consonant gemination is essential in certain adverbs as shown in the following examples:

Example 7:

```
gudda guddi 'with all force and capacity as in quarrel' (*guda gudi) p^h \partial da 'instantly with face upwards such as when one slips and falls' (*p^h \partial da) g \partial g a 'be boastful' (*g \partial g a) t^h ollo 'be free/detach from something suddenly such as from hand' (*t^h olo)
```

2.3 Consonant clusters

Consonant clusters are not common in Bodo at least in word initial position. However, certain adverbs which are sound symbolic in meaning do involve cluster in initial position. They are common word medially (Example 9). We have come across only one instance of initial consonant cluster /sn/ so far in our corpus. Most consonant clusters involve /r, 1/ preceded by either an oral stop /ph, th, kh, b, d, g/, or the fricatives /s, z/ as shown in examples 8 and 9.

Example 8: Consonant clusters in words

sn	sn i	seven
$t^h l$	tʰin. tʰl aŋ	tamarind
$t^h r$	ba. t ʰra	word, speech
$k^h r$	mw. $\mathbf{k}^{\mathbf{h}}$ ra	monkey
$k^h l$	sai. k hlum	shade
$p^h l$	kʰam. pʰl ai	low stool
bl	em. bl ur	tadpole
sr	kʰan. sr i	earthworm
sl	go. sl a	shirt
br	kʰi. br o.ma	dung beetle
dr	ha. dr i	dust
gl	gu. gl a	boil
gr	go. gr a	shed for poultry
zl	mw. zl ai	an insect
zr	ga. zr i	bad

Example 9: Consonant clusters in adverbs

$p^h r$	p ^h ri p ^h ri	scantily, used for drizzling
$t^h r$	t ^h rwb	in a prompt manner, quickly
$k^h r$	$\mathbf{k}^{\mathbf{h}}\mathbf{r}\mathbf{i}\ \mathbf{k}^{\mathbf{h}}\mathbf{r}\mathbf{i}$	a lot of something one after another such as fruits
bl	bl aw	in a lightening manner as of a match stick when struck

dl	dl am	a lot (of anything)
dr	dr u	sound symbolic as of dragging something
gr	grwb	at the right moment, well-suited as of dress, etc.
St^h	sthin stha	disturbingly, a disturbing action often related to children
sr	sr aŋ	alight, clear as of view at dawn
sl	slim	smooth as of tabletop, floor, etc.
zr	zraw	sound symbolic as of broom, leaves, etc.
zl	zl aw	sound symbolic as of churning of stomach

Sound symbolic words allow combinations not seen elsewhere.

2.4 Assimilation of consonants

Assimilation of consonants occurs when two related words are joined together to achieve the desired meaning as shown below. This type of assimilation is more productive in pronominal possessive constructions than in other constructions in Bodo.

Word1 Word2 Derived Form Assimilated sounds apha 'father' numpha 'your father' $\eta > m$ following p^ha nun 'you' /a/ deleted nun 'you' abou 'grandfather' numbou 'your grand- $\eta > m$ following /b/ father' /a/ deleted amai 'uncle' numai 'your uncle' $\eta > m$ following /m/nun 'you' $/\eta$, a/ deleted n > m following /b/

humba 'then'

Table 9: Consonant assimilation

3 Native Bodo Vowels

huin 'say'

ba 'if'

Bodo has an inventory of six contrastive vowels as shown in table 10. This is also substantiated with the help of examples in 10.

e

a

	Front	Central	Bac	ck
Close	i		ш	u

Table 10: Native Bodo vowels

 \mathbf{o}

Example 10:

i	inzur	'side-wall of a house'
e	enzor	'mouse'
a	ak ^h aj	'hand'
O	oma	'pig'
u	uk ^h um	'roof'
ш	шŋkʰam	'rice'

Close-mid

Open

3.1 Diphthongs

Bodo has four glides (VG) and five VV sequences (diphthongs) as exemplified in 11.

Example 11:

```
VG
       khanaj 'hair'
aj
               'four'
       brwj
шj
               'become soft'
       ruj
uj
oj
       goj
               'betel nut'
VV
                'tree sp.'
ia
       zia
                'life'
iu
       ziu
eo
       geo
                'be open'
                'oil'
       t^hau
au
       khouwou 'cuckoo'
ou
```

The diphthongs /uj oj, iu, ia/ never occur word initially.

3.2 Voiceless /i and u/

In Bodo, /i, u/ are voiceless between two voiceless consonants as shown in examples 12a & b.

Example 12a: Voiceless /i/

```
phisa
                  'young, small, offspring'
p^h \dot{i} t^h u b
                  'cocoon'
thikhli
                 'kettle'
k^h i p^h i
                 'fart'
siphi
                 'pocket'
12b: Voiceless /u/
suphun
                 'fill'
k<sup>h</sup>usuŋ
                 'tortoise'
phuthu
                 'make someone sleep'
                 'to bathe someone'
thukhwi
```

3.3 Reduction of vowels

In certain native words, the vowels /i/ and /uu/ get reduced as shown in example 13.

Example 13:

```
sikhiri > sikhri 'butterfly'
suraŋ > sraŋ 'shining, alight'
```

```
sikhula > sikhla 'young girl'
gusuthi > gusthi 'lip'
gonguna > gongna 'a musical instrument'
```

Vowel reduction also takes place when two words are joined together. In such situations either the final vowel of the first word or the initial vowel of the following word is deleted as shown below.

Example 14:

ma + ese	mase	'so much'
za + ese	zese	'as much as'
ba + ese	bese	'how much'
makha + ese	mak ^h ase	'some'

3.4 Vowel harmony

Certain prefixes, namely, adjectival /gV-/, causatives / p^hV -, sV-, bV-/ are in harmony with the initial vowel of their roots as shown in table 11.

Prefix	Root	Resultant form	Meaning
gV-	si	gisi	'wet'
gV-	duŋ	guduŋ	'hot'
gV-	su	gusu	'cold'
gV-	rwŋ	gurun	'knowledgeable'
phV-	duŋ	pʰuduŋ	'make hot'
phV-	rwŋ	p ^h uruŋ	'teach'
sV-	gi	sigi	'scare'
sV-	go	sokho	'fell something'
bV-	dob	bodob	'pull to make bent'
bV-	gu	buk ^h u	'uproot'

Table 11: Vowel harmony of Bodo prefixes

4 Tones

Scholars disagree as to how many tones Bodo actually has. Bhattacharya (1977) came to conclusion that Bodo has three tones - high, mid and low. Joseph and Burling (2001) and Sarmah (2004) described Bodo as having two-tone system. Most native scholars would agree that Bodo has two tones – high and low as shown in table 12. We have marked the high tones only leaving the low tone counterparts as unmarked which are considered as default.

Table 12: Bodo tones

	H tone (á)		L tone (Ø)
zá	'eat'	za	'be, happen'
há	'be able to'	ha	'cut'

t ^h áŋ	'go'	t ^h aŋ	'be alive'
k ^h á	'pluck'	k ^h a	'tie'
kʰáo	'split'	k ^h ao	'steal'
hat ^h áj	'market'	hathaj	'tooth'

As a result of the influence of Indo-Aryan languages on Bodo some Bodo dialects have lost the tonal feature at least in the Sanzari dialect as spoken in some parts under Udalguri district. Tone is not marked in the orthography. One of the reasons for this may be that tone carries low functional load in Bodo. In other words, the number of lexical tones in Bodo is not too extensive; may be just a few hundreds. Marking of tone in the orthography is still under consideration among the Bodo scholars. The only work on Bodo where tone marking is found is Mochari (1985). Although meaning is recoverable from the context we feel it is necessary to mark tone in the orthography because it exists in the language.

5 Syllable structure

CV is the most basic syllable type in Bodo. There are more open syllables than closed syllables. Bodo includes onset consonants $/p^h$ t^h k^h b d g m n l r s z h/, but in codas only /b d m n η l r/ are allowed. The Bodo syllable structure is presented in table 13.

Syllable	Example	Meaning
V	e	'OK'
VV	ai	'mother'
VC	ór	'fire'
VCV	ok ^h a	'rain'
CV	ze	'net'
CVV	t ^h ẃi	'blood'
CVC	bar	'air'
CCV	sni	'seven'
CVVC	dain	'eight'
CCVC	sraŋ	'bright'
CCVV	srai	'neatly'

Table 13: Syllable structure in Bodo

6 Orthography

There are a number of orthography issues in Bodo and they are long due. For example, vowel /i/ has been written most inconsistently. It is often written as either /इ/ or /य/ in Devanagari. We have come across four different ways of writing the word *maithai* 'year' in our corpus as shown in example 15.

Example 15:

माडथाङ /maithai/

```
मायथाय /majtʰaj/
माइथाय /maitʰaj/
मायथाइ /majtʰai
```

Similarly, the use of diacritic / it for vowel / uu/ is seen to be often replaced by another diacritic / it for the reason that the former lack the symbol-sound correspondence. However, this problem exists with non-native speakers only, the native speakers seem already adapted to the symbol.

Another issue is about marking the tone. Some Bodo scholars have suggested three symbols/letters, namely, /'/, /य//3/ for the high tone and two symbols /\$\\$\/\$/ and /\$\alpha/\$ for low tone.

```
Example 16a: High tone (á)
```

```
बा'र /bár/ 'jump'
गाहाय /gaháj/ 'low'
दाउ /dáu/ 'bird'
b: Low tone (Ø)
गाहाइ /gahaj/ 'chief, main'
माव /mao/ 'do, work'
```

7 Conclusion

Bodo, essentially being a Tibeto-Burman language, has its own characteristic features unique to it. There has been intense contact between Bodo and other Indo-Aryan languages specially Assamese since time immemorial. It is a fact that there has been a lot of borrowing at different levels – phonological, morphological and syntactic from Assamese to Bodo and vice versa, yet the Bodo phonology is quite distinct. The Devanagari script has been imposed to write the language and although the script has been in use for long, it has failed to reflect the phonology of the language perfectly. The Bodo writers have merely copied the Indo-Aryan way of writing their alphabets. As a result, there are many redundant letters some of which are used only with borrowed words. Many words have been nativized and they are now written as any other native words. We suggest that the borrowed words which are not nativized may be written as in the source language.

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