Bengali

Vowels and Diphthongs (see Note 1)

অ	a	ঋ	r̥̄
আ	ā	ঌ	l̥̄
ই	i	এ	e
ঈ	ī	ঐ	ai
উ	u	ও	o
ঊ	ū	ঔ	au
ঋ	r̥		

Consonants (see Note 2)

Gutturals		Palatals		Cerebrals		Dentals	
ক	ka	চ	ca	ট	ṭa	ত	ta
খ	kha	ছ	cha	ঠ	ṭha	ৎ	t̲
গ	ga	জ	ja	ড	ḍa	থ	tha
ঘ	gha	ঝ	jha	ড়	ṛa	দ	da
ঙ	ṅa	ঞ	ña	ঢ	ḍha	ধ	dha
				ঢ়	ṛha	ন	na
				ণ	ṇa		

Labials		Semivowels		Sibilants		Aspirate	
প	pa	য	ya	শ	śa	হ	ha
ফ	pha	য়	ẏa	ষ	sha		
ব	ba (see Note 3)	র	ra	স	sa		
ভ	bha	ল	la				
ম	ma	ব	ba (see Note 3)				

Anusvāra		*Bisarga*		*Candrabindu (anunāsika)* (see Note 4)		*Abagraha* (see Note 5)	
ং	ṃ	ঃ	ḥ	ঁ	ṅ̆, m̆	ऽ	’(apostrophe)

Notes

1. Only the vowel forms that appear at the beginning of a syllable are listed; the forms used for vowels following a consonant can be found in grammars; no distinction between the two is made in transliteration.

2. The vowel *a* is implicit after all consonants and consonant clusters and is supplied in transliteration, with the following exceptions:
   a) when another vowel is indicated by its appropriate sign; and
   b) when the absence of any vowel is indicated by the subscript symbol (্) called *hasanta* or *birāma.*
3. ৰ is used both as a labial and as a semivowel. When it occurs as the second consonant of a consonant cluster, it is transliterated *va*. When ৰ is doubled, it is transliterated *bba*.
4. *Candrabindu* before guttural, palatal, cerebral, and dental occlusives is transliterated *ṅ̐*. Before labials, sibilants, semivowels, the aspirate, vowels, and in final position it is transliterated *m̐*.
5. When doubled, *abagraha* is transliterated by two apostrophes (’’).

Bengali alphabet

Bengali alphabet	
বাংলা লিপি	
Type	Abugida
Languages	Bengali
Time period	11th Century to the present[1]
Parent systems	Proto-Sinaitic • Phoenician • Aramaic • Brāhmī • Gupta • Siddham • Assamese/Bengali • Bengali alphabet
ISO 15924	Beng, 325
Direction	Left-to-right
Unicode alias	Bengali
Unicode range	U+0980–U+09FF [2]

Brāhmī
The Brahmic script and its descendants

The **Bengali alphabet** (Bengali: বাংলা হরফ ***Bangla horof*** or Bengali: বাংলা লিপি *Bangla lipi*) is the writing system for the Bengali language. The script with variations is shared by Maithili (also called Mithilakshar/Tirhutiya), Assamese and is the basis for the Meitei, Bishnupriya Manipuri, Kokborok, Garo and Mundari alphabets. All these languages are spoken in the eastern region of South Asia. Historically, the script has also been used to write the Sanskrit language in the same region. From a classificatory point of view, the Bengali script is an abugida, i.e. its vowel graphemes are mainly realized not as independent letters, but as diacritics attached to its consonant letters. It is written from left to right and lacks distinct letter cases. It is recognizable by a distinctive horizontal line running along the tops of the letters that links them together, a property it shares with two other popular Indian scripts: Devanagari (used for Hindi, Marathi and Nepali) and Gurumukhi (used for Punjabi). The Bengali script is, however, less blocky and presents a more sinuous shape.

Because of the large population of literate Bengali speakers, Bengali script is one of the more widely used writing systems in the world.

History

The Bengali script evolved from the Siddham, which belongs to the Brahmic family of scripts, along with the Devanagari and other written systems of the Indian subcontinent. In addition to differences in how the letters are pronounced in the different languages, there are some typographical differences between the version of the script used for Assamese and Bishnupriya Manipuri as well as Maithili languages, and that used for Bengali and other languages.

Illustration:

- The character ক্ষ (Assamese *khyô*, Bengali *khio*) is considered a separate letter in Assamese script (ক্ষ <khyô>) but considered a conjunct (orthographically ক্+ষ <kṣô>) in Bengali. In both languages, it functions as though it were orthographically খ্য <khy>.
- *rô* is represented as র in Bengali, ৰ in Assamese, and either of the two variants in Bishnupriya Manipuri and Maithili.
- Assamese script has an additional character sounding *wô* represented as ৱ not found in Bengali script.

The Bengali script was originally not associated with any particular language, but was often used in the eastern regions of Medieval India. It was standardized into the modern Bengali script by Ishwar Chandra under the reign of the British East India Company. The script was originally used to write Sanskrit. Epics of Hindu scripture, including the Mahabharata or Ramayana, were written Mithilakshar/Tirhuta script in this region. After the medieval period, the use of Sanskrit as the sole written language gave way to Pali, and eventually to the vernacular languages we know now as Maithili, Bengali, and Assamese.There is a rich legacy of Indian literature written in this script, which is still occasionally used to write Sanskrit today.

Standardization

Signature of Rabindranath Tagore (রবীন্দ্রনাথ ঠাকুর) in Bengali script

In the Bengali script, clusters of consonants are represented by different and sometimes quite irregular forms; thus, learning to read is complicated by the sheer size of the full set of letters and letter combinations, numbering about 350. While efforts at standardizing the alphabet for the Bengali language continue in such notable centres as the Bangla Academies (unaffiliated) at Dhaka (Bangladesh) and Kolkata (West Bengal, India), it is still not quite uniform as yet, as many people continue to use various archaic forms of letters, resulting in concurrent forms for the same sounds. Among the various regional variations within this script, only the Assamese and Bengali variations exist today in the formalized system.

It seems likely that the standardization of the alphabet will be greatly influenced by the need to typeset it on computers. The large alphabet can be represented, with a great deal of ingenuity, within the ASCII character set, omitting certain irregular conjuncts. Work has been underway since around 2001 to develop Unicode fonts, and it seems likely that it will split into two variants, traditional and modern.

In this and other articles on Wikipedia dealing with the Bengali language, a Romanization scheme used by linguists specializing in Bengali phonology is included along with IPA transcription.

A recent effort by the government of West Bengal focused on simplifying Bengali orthography in primary school texts.

Description of Bengali glyphs

The glyphs of the Bengali script can be divided into vowel diacritics, consonant and vowel letters (including consonant conjuncts), modifiers, digits, and punctuation marks.

Vowels

The consonant ক (*k*) along with the diacritic form of the vowels অ, আ, ই, ঈ, উ, ঊ, ঋ, এ, ঐ, ও and ঔ.

The Bengali script has a total of 11 vowel graphemes, each of which is called a স্বরবর্ণ *shôrobôrno* "vowel letter". These *shôrobôrno*s represent six of the seven main vowel sounds of Bengali, along with two vowel diphthongs. All of these are used in both Bengali and Assamese, the two main languages using the script. There is no standard character in the script for the Bengali main vowel sound /æ/, and vowel length differences thought to be represented by different vowel graphemes (e.g., *hrôshsho i* vs. *dirgho i*) do not hold true for the spoken language. Also, the grapheme called *ri* does not really represent a vowel phoneme, rather the sound /ri/.

When a vowel sound occurs at the beginning of a syllable or when it follows another vowel, it is written using a distinct letter. But when a vowel sound follows a consonant (or a consonant cluster), it is written with a diacritic which, depending on the vowel, can appear above, below, before or after the consonant. The diacritic cannot appear without a consonant. A diacritic form is named by adding a "-kar" to the end of the name of the corresponding vowel letter (see table below).

An exception to the above system is the vowel /ɔ/. This has no diacritic form, but is considered inherent in every consonant letter. To specifically denote the absence of this inherent vowel [ɔ] following a consonant, a diacritic called the *hôshonto* (্) may be written underneath the consonant.

Although there are only two diphthongs in the inventory of the script, the Bengali sound system has in fact many diphthongs.[3] Most of these diphthongs are represented by juxtaposing the graphemes of their forming vowels, as in কউ *keu* /keu/.

The table below shows the vowels present in the modern (i.e., since late nineteenth century) inventory of the Bengali alphabet, which has abandoned three historical vowels, *rri*, *li*, and *lli*, traditionally placed between *ri* and *e*.

Full form	Name of full form	IPA transcription	Diacritic form, used with the consonant [kɔ] (ক)	Name of diacritic form	Transliteration	IPA
অ	shôro ô (shôre ô) "vowel ô"	/ɔ/ and /o/[4]	ক (none)	(none)	kô and ko	/kɔ/ and /ko/
আ	shôro a (shôre a) "vowel a"	/a/	কা	akar	ka	/ka/
ই	hrôshsho i (hrôshsho i) "short i"	/i/	কি	hrôshsho ikar (roshshikar)	ki	/ki/
ঈ	dirgho i "long i"	/i/	কী	dirgho ikar (dirghikar)	kee	/ki/
উ	hrôshsho u (rôshsho u) "short u"	/u/	কু	hrôshsho ukar (roshshukar)	ku	/ku/

ঊ	dirgho u "long u"	/u/	কূ	dirgho ukar (dirghukar)	koo	/ku/
ঋ	ri	/ri/	কৃ	rikar/rifôla	kri	/kri/
এ	e	/e/ and /æ/	কে	ekar	kê and ke	/ke/ and /kæ/
ঐ	oi	/oj/	কৈ	oikar	koi	/koj/
ও	o	/o/	কো	okar	ko	/ko/
ঔ	ou	/ow/	কৌ	oukar	kou	/kow/

|+ **Bengali vowels (**স্বরবর্ণ ***shôrobôrno*****)**

Consonants

Consonant letters are called ব্যঞ্জনবর্ণ *bênjonbôrno* "consonant letter" in Bengali. The names of these letters are typically just the consonant sound plus the inherent vowel *ô*. Since the inherent vowel is assumed and not written, most letters' names look identical to the letter itself (e.g. the name of the letter ঘ is itself ঘ *ghô*). Some letters that have lost their distinctive pronunciation in Modern Bengali are called by a more elaborate name. For example, since the consonant phoneme /n/ can be written ন, ণ, or ঞ (depending on the spelling of the particular word), these letters are not simply called *nô*; instead, they are called দন্ত্য ন *donto nô* ("dental n"), মূর্ধন্য ণ *murdhonno nô* ("cerebral n"), and ঞীয়/ইঙ *niô*/*ingô*. Similarly, the phoneme /ʃ/ can be written শ *talobbo shô* ("palatal s"), ষ *murdhonno shô* ("cerebral s"), or স *donto shô* ("dental s"), depending on the word. Since the consonant ঙ /ŋ/ cannot occur at the beginning of a word in Bengali, its name is not ঙ *ngô* but উঙ *ungô* (pronounced by some as উম *umô* or উঁঅ *ũô*). Similarly, since semivowels ([j], [w], [e̯], [o̯]) cannot occur at the beginning of a Bengali word, the name for "semi-vowel e̯" য় is not অন্তঃস্থ য় *ôntostho e̯ô* but অন্তঃস্থ অ *ôntostho ô*.

In the earlier inventories of the Bengali alphabet, one can find a second *bô* (called *ôntostho bô*) following *lô*. This *ôntostho bô* originally represented a /v/ or /w/ sound, but later merged with the *borgio bô* in the Bengali language. The two *bô*'s were represented with identically but occurred in two different places in the inventory. In the orthography of Bangladesh, only *borgio bô* is retained. The *ôntostho bô* continues to be used in the Indian state of West Bengal.

The table below presents the Bengali consonant letters in their traditional order.

Letter	Name of consonant	Transliteration	IPA
ক	kô	k	/k/
খ	khô	kh	/kʰ/
গ	gô	g	/g/
ঘ	ghô	gh	/gʰ/
ঙ	ungô, umô	ṇ	/ŋ/
চ	chô	ch	/tʃ/
ছ	chhô	chh	/tʃʰ/
জ	borgio jô (burgijjô)	j	/dʒ/
ঝ	jhô	jh	/dʒʰ/
ঞ	ingô, niô	n	/n/

ট	ṭô	ṭ	/ʈ/
ঠ	ṭhô	ṭh	/ʈʰ/
ড	đô	đ	/ɖ/
ঢ	đhô	đh	/ɖʰ/
ণ	murdhonno nô (moddhennô)	n	/n/
ত	tô	t	/t̪/
থ	thô	th	/t̪ʰ/
দ	dô	d	/d̪/
ধ	dhô	dh	/d̪ʰ/
ন	donto nô (dontennô)	n	/n/
প	pô	p	/p/
ফ	phô	ph	/pʰ/
ব	bô (the so-called borgio bô)	b	/b/
ভ	bhô	bh	/bʰ/
ম	mô	m	/m/
য	ôntostho jô (ontostejô)	j	/dʒ/
র	(bôe bindu/shunno) rô	r	/ɾ/
ল	lô	l	/l/
শ	talobbo shô (taleboshshô)	sh and s	/ʃ/ / /s/
ষ	murdhonno shô (muddhennoshshô) (peṭ kaṭa shô)	sh	/ʃ/
স	donto shô (donteshshô)	sh and s	/ʃ/ / /s/
হ	hô	h	/h/
য়	ôntostho ô (ontosteô)	e and –	/e̯/ /-
ড়	đôe shunno/bindu ṛô	ṛ	/ɽ/
ঢ়	đhôe shunno/bindu ṛô	ṛh	/ɽ/

|+ **Bengali consonants** (ব্যঞ্জনবর্ণ ***bênjonbôrno***)

Consonant conjuncts

Up to four consecutive consonants not separated by vowels can be orthographically represented as a ligature called a "consonant conjunct" (Bengali: যুক্তাক্ষর *juktakkhor* or যুক্তবর্ণ *juktobôrno*). Typically, the first consonant in the conjunct is shown above and/or to the left of the following consonants. Many consonants appear in an abbreviated or compressed form when serving as part of a conjunct. Others simply take exceptional forms in conjuncts, bearing little or no resemblance to the base character.

The consonant ligature *ndrô* (ন্দ্র) : ন (*n*) in gray, দ (*d*) in blue and র (*r*) in red.

Often, consonant conjuncts are not actually pronounced as would be implied by the pronunciation of the individual components. For example, adding ল *lô* underneath শ *shô* in Bengali creates the conjunct শ্ল, which is not pronounced *shlô* but *slô* in Bengali. Many conjuncts represent Sanskrit sounds that were lost centuries before modern Bengali was ever spoken, as in জ্ঞ, which is a combination of জ *jô* and ঞ *niô*, but is not pronounced *jnô*. Instead, it is pronounced *ggõ* in Bengali. Thus, as conjuncts often represent (combinations of) sounds that cannot be easily understood from the components, the following descriptions are concerned only with the construction of the conjunct, and not the resulting pronunciation. Thus, a variant of the IAST romanization scheme is used instead of the phonemic romanization.

ক ক্ক ক্ট ক্ট্র ক্ত ক্ত্র ক্ব ক্ষ ক্ষ্য ক্র ক্ল
ক্ষ ক্ষ্ণ ক্ষ্ম ক্ষ্ম্য ক্ষ্য ক্ষ্ব
খ খ্য খ্র
গ গ্ধ গ্ধ্য গ্ধ্র গ্ন গ্ন্য গ্ব গ্ম গ্য গ্র গ্র্য গ্ল
ঘ ঘ্ন ঘ্য ঘ্র
ঙ ঙ্ক ঙ্ক্ত ঙ্ক্ষ ঙ্খ ঙ্গ ঙ্গ্য ঙ্ঘ ঙ্ঘ্য ঙ্ঘ্র ঙ্ম
চ চ্চ চ্ছ চ্ছ্ব চ্ছ্র চ্ঞ চ্ব চ্য
জ জ্জ জ্জ্ব জ্জ্র জ্ঞ জ্ব জ্য জ্র
ঞ ঞ্চ ঞ্ছ ঞ্জ ঞ্ঝ
ট ট্ট ট্ব ট্ম ট্য ট্র
ড ড্ড ড্ব ড্য ড্র ড়্গ
ঢ ঢ্য ঢ্র ঢ্র
ণ ণ্ট ণ্ঠ ণ্ঠ্য ণ্ড ণ্ড্য ণ্ড্র ণ্ঢ ণ্ণ ণ্ম ণ্য
ত ৎক ত্ত ত্ত্ব ত্ত্য ত্থ ত্ন ত্ব ত্ম ত্ম্য ত্য ত্র ত্র্য ত্ল ৎস
থ থ্ব থ্য থ্র
দ দ্গ দ্ঘ দ্দ দ্দ্ব দ্ধ দ্ব দ্ভ দ্ভ্র দ্ম দ্য দ্র দ্র্য
ধ ধ্ন ধ্ব ধ্ম ধ্য ধ্র
ন ন্ট ন্ট্র ন্ঠ ন্ড ন্ড্র ন্ত ন্ত্ব ন্ত্য ন্ত্র ন্ত্র্য ন্থ ন্থ্র ন্দ
ন্দ্য ন্দ্ব ন্দ্র ন্ধ ন্ধ্য ন্ধ্র ন্ন ন্ব ন্ম ন্য
প প্ট প্ত প্ন প্প প্য প্র প্র্য প্ল প্স
ফ ফ্র ফ্ল
ব ব্জ ব্দ ব্ধ ব্য ব্র ব্ল
ভ ভ্ব ভ্য ভ্র
ম ম্ন ম্প ম্প্র ম্ফ ম্ব ম্ভ ম্ভ্র ম্ম ম্য ম্র ম্ল
য য্য
র র্ক র্ক্য র্গ র্গ্য র্চ র্জ্য র্ণ র্ত্য র্থ র্ব্য র্ম্য র্শ র্শ্য র্ষ্য র্হ্য র্খ
র্গ র্ঘ র্চ র্ছ র্জ র্ঝ র্ট র্ড র্ণ র্ত র্ত্র র্থ র্দ র্দ্ব র্দ্র র্ধ র্ধ র্ধ্ব
র্ন র্প র্ফ র্ভ র্ম র্য র্ল র্শ র্শ্ব র্ষ র্স র্হ র্ঢ্য
ল ল্ক ল্ক্য ল্গ ল্ট ল্ড ল্প ল্ফ ল্ব ল্ভ ল্ম ল্য ল্ল
শ শ্চ শ্চ শ্ছ শ্ন শ্ব শ্ম শ্য শ্র শ্ল
ষ ষ্ক ষ্ক্র ষ্ট ষ্ট্য ষ্ট্র ষ্ঠ ষ্ঠ্য ষ্ণ ষ্প ষ্প্র ষ্ফ ষ্ব ষ্ম ষ্য
স স্ক স্ক্র স্খ স্ট স্ট্র স্ত স্ত্ব স্ত্য স্ত্র স্থ স্থ্য স্ন
স্প স্প্ল স্ফ স্ব স্ম স্য স্র স্ল
হ হ্ণ হ্ন হ্ব হ্ম হ্য হ্র হ্ল

List of all Bengali consonant conjuncts.

Fused forms

Some consonants fuse in such a way that one stroke of the first consonant also serves as a stroke of the next.

- The consonants can be placed on top of one another, sharing their vertical line: ক্ক kkô গ্ন gnô গ্ল glô ন্ন nnô প্ন pnô প্প ppô ল্ল llô etc.
- As the last member of a conjunct, র wô and ব bô can hang on the vertical line under the preceding consonants, taking the shape of ব bô (here referred to as বফলা *bôfôla*): গ্ব gwô/gbô ণ্ব ṇwô,ṇbô দ্ব dwô/dbô ল্ব lwô/lbo শ্ব śwô/śbô.
- The consonants can also be placed side-by-side, sharing their vertical line: দ্দ ddô ন্দ ndô ব্দ bdô ব্জ bjô প্ট pṭô শ্চ ścô শ্ছ śchô etc.

Approximated forms

Some consonants are simply written closer to one another to indicate that they are in a conjunct together.

- As the last member of a conjunct, গ gô can appear unaltered, with the preceding consonant simply written closer to it: দ্গ dgô.
- As the last member of a conjunct, র wô and ব bô can appear immediately to the right of the preceding consonant, taking the shape of ব bô (here referred to as বফলা *bôfôla*): ধ্ব dhwô/dhbô ব্ব bbô/bwô হ্ব hbô/hwô.

Compressed forms

Some consonants are compressed (and often simplified) when appearing as the first member of a conjunct.

- As the first member of a conjunct, the consonants ঙ ṅô চ cô ড ḍô ব bô and ৱ wô are often compressed and placed at the top-left of the following consonant, with little or no change to the basic shape: ঙ্ক ṅkô ঙ্খ ṅkhô ঙ্ঘ ṅghô ঙ্ম ṅmô চ্চ cchô চ্ছ cchhô চ্ঞ cñô ড্ড ḍḍô ব্ব bbô/bwô ৱ্ব wbô/wwo.
- As the first member of a conjunct, ত tô is compressed and placed above the following consonant, with little or no change to the basic shape: ত্ন tnô ত্ম tmô ত্ব twô/tbô.
- As the first member of a conjunct, ম mô is compressed and simplified to a curved shape. It is placed above or to the top-left of the following consonant: ম্ন mnô ম্প mpô ম্ফ mfô ম্ব mbô/mwô ম্ভ mbhô ম্ম mmô ম্ল mlô.
- As the first member of a conjunct, ষ ṣô is compressed and simplified to an oval shape with a diagonal stroke through it. It is placed to the top-left of the following consonants: ষ্ক ṣkô ষ্ট ṣṭô ষ্ঠ ṣṭhô ষ্প ṣpô ষ্ফ ṣfô ষ্ম ṣmô.
- As the first member of a conjunct, স sô is compressed and simplified to a ribbon shape. It is placed above or to the top-left of the following consonant: স্ক skô স্খ skhô স্ট stô স্ত stô স্থ sthô স্ন snô স্প spô স্ফ sfô স্ব swô/sbô স্ম smô স্ল slô.

Abbreviated forms

Some consonants are abbreviated when appearing in conjuncts, losing part of their basic shape.

- As the first member of a conjunct, জ jô can lose its final downstroke: জ্জ jjô জ্ঞ jñô জ্ব jwô/jbô.
- As the first member of a conjunct, ঞ ñô can lose its bottom half: ঞ্চ ñcô ঞ্ছ ñchô ঞ্জ ñjô ঞ্ঝ ñjhô.
- As the last member of a conjunct, ঞ ñô can lose its left half (the এ part): জ্ঞ jñô.
- As the first member of a conjunct, ণ ṇô and প pô can lose their downstroke: ণ্ঠ ṇṭhô ণ্ড ṇḍô প্ত ptô প্স psô.
- As the first member of a conjunct, ত tô and ভ bhô can lose their final upward tail: ত্ত ttô ত্থ tthô ত্র trô ভ্র bhrô.
- As the last member of a conjunct, থ thô can lose its final upstroke, taking the form of হ hô instead (this form is called খণ্ড-থ khôṇḍo thô or "broken thô"(হ)) : ন্থ nthô স্থ sthô. An exception is ম্থ mthô (see on the compressed forms part)
- As the last member of a conjunct, ম mô can lose its initial downstroke: ক্ম kmô গ্ম gmô ঙ্ম ṅmô ট্ম ṭmô ণ্ম ṇmô ত্ম tmô দ্ম dmô ন্ম nmô ম্ম mmô শ্ম śmô ষ্ম ṣmô স্ম smô.
- As the last member of a conjunct, স sô can lose its top half: ক্স ksô ন্স nsô.
- As the last member of a conjuct ট ṭô, ড ḍô and ঢ ḍhô can lose their matra: প্ট pṭô ণ্ড ṇḍô ণ্ট ṇṭô ণ্ঢ ṇḍhô
- As the last member of a conjuct ড ḍô can change its shape: ণ্ড ṇḍô

Variant forms

Some consonants have forms that are used regularly, but only within conjuncts.

- As the first member of a conjunct, ঙ ṅô can appear as a loop and curl: ঙ্ক ṅkô ঙ্গ ṅgô.
- As the last member of a conjunct, the curled top of ধ dhô is replaced by a straight downstroke to the right, taking the form of ঝ jhô instead: গ্ধ gdhô দ্ধ ddhô ন্ধ ndhô ব্ধ bdhô.
- As the first member of a conjunct, র rô appears as a diagonal stroke (called রফে *ref*) above the following member: র্ক rkô র্খ rkhô র্গ rgô র্ঘ rghô etc.
- As the last member of a conjunct, র rô appears as a wavy horizontal line (called রফলা *rôfôla*) under the previous member: খ্র khrô গ্র grô ঘ্র ghrô ব্র brô etc.
  - In some fonts, certain conjuncts with রফলা *rôfôla* appear using the compressed (and often simplified) form of the previous consonant: জ্র jrô ট্র ṭrô ঠ্র ṭhrô ড্র ḍrô ম্র mrô স্র srô.
  - In some fonts, certain conjuncts with রফলা *rôfôla* appear using the abbreviated form of the previous consonant: ক্র krô ত্র trô ভ্র bhrô

- As the last member of a conjunct, য yô appears as a wavy vertical line (called যফলা *jôfôla*) to the right of the previous member: ক্য kyô খ্য khyô গ্য gyô ঘ্য ghyô etc.
  - In some fonts, certain conjuncts with যফলা *jôfôla* appear using special fused forms: দ্য dyô ন্য nyô শ্য śyô ষ্য ṣyô স্য syô হ্য hyô.

Exceptions

- When followed by র rô, ক kô takes on the abbreviated form of ত tô with the addition of a curl to the right: ক্র krô.
- When preceded by the abbreviated form of ঞ ñô, চ cô takes the shape of ব bô: ঞ্চ ñcô
- When preceded by another ট ṭô, ট ṭô is reduced to a leftward curl: ট্ট ṭṭô.
- When preceded by ষ ṣô, ণ ṇô appears as two loops to the right: ষ্ণ ṣṇô.
- As the first member of a conjunct, or when word-final and followed by no vowel, ত tô can appear as ৎ (called খণ্ড-ত *khônḍo tô* or "broken *tô*"): ৎস tsô ৎপ tpô ৎক tkô etc.
- When preceded by হ hô, ন nô appears as a curl to the right: হ্ন hnô.
- Certain combinations simply must be memorized: ক্ষ kṣô হ্ম hmô.
- When followed by ত tô, ক kô takes on the shape of ত্ত ttô with the addition of a curl to the right: ক্ত ktô.

Exceptional consonant-vowel combinations

When serving as a vowel sign, উ u, ঊ ū, and ঋ ṛ take on many exceptional forms.

- উ u
  - When following গ gô or শ śô, it takes on a variant form resembling the final tail of ও o: গু gu শু śu.
  - When following a ত tô that is already part of a conjunct with প pô, ন nô or স sô, it is fused with the ত tô to resemble ও o: ন্তু ntu স্তু stu প্তু ptu.
  - When following র rô, and in many fonts also following the variant রফলা *rôfôla*, it appears as an upward curl to the right of the preceding consonant as opposed to a downward loop below: রু ru গ্রু gru ত্রু tru থ্রু thru দ্রু dru ধ্রু dhru ব্রু bru ভ্রু bhru শ্রু śru.
  - When following হ hô, it appears as an extra curl: হু hu.
- ঊ ū
  - When following র rô, and in many fonts also following the variant রফলা *rôfôla*, it appears as a downstroke to the right of the preceding consonant as opposed to a downward hook below: রূ rū গ্রূ grū থ্রূ thrū দ্রূ drū ধ্রূ dhrū ভ্রূ bhrū শ্রূ śrū.
- ঋ ṛ
  - When following হ hô, it takes the variant shape of ঊ ū: হৃ hṛ.

Conjuncts of three consonants also exist, and follow the same rules as above. Examples include স sô + ত tô +র rô = স্ত্র strô, ম mô + প pô + র rô = ম্প্র mprô, ঙ ŋô + ক kô + ষ ṣô = ঙ্ক্ষ ŋkṣô, জ jô + জ jô + ব wô = জ্জ্ব jjwô, ক kô + ষ ṣô + ম mô = ক্ষ্ম kṣmô. Theoretically, four-consonant conjuncts can also be created, as in র rô + স sô + ট ṭô + র rô = র্স্ট্র rsṭrô, but these are not found in real words.

Modifiers and others

Symbol with [kɔ] (ক)	Name	Function	Transliteration	IPA
ক্	hôshonto "final hôsh"	Suppresses the inherent vowel [ɔ]	k	/k/
ক□	khônđo tô "broken tô"	Final unaspirated dental [t̪] (ত)	kôt	/kɔt̪/
কং	ônushshôr	Final velar nasal	kông	/kɔŋ/
কঃ	bishôrgo	1. pronounced as syllable-final voiceless breath, as in উঃ 2. isn't pronounced, but geminates the following consonant, as in দুঃসময়. 3. isn't pronounced at all, as in দুঃস্থ	-	1. [uh] 2. [d̪uʃːomɔj] 3. [d̪ustʰo]
কঁ	chôndrobindu "moon-dot"	Vowel nasalization	kôñ	/kɔ̃/

|+ **Modifier and other graphemes in Bengali**

ঃ *-h* and ং *-ng* are also often used as abbreviation marks in Bengali, with ং *-ng* used when the next sound following the abbreviation would be a nasal sound, and ঃ *-h* otherwise. For example ডঃ *ḍôh* stands for ডক্টর *ḍôkṭor* "doctor" and নং *nông* stands for নম্বর *nômbor* "number". Some abbreviations have no marking at all, as in ঢাবি *ḍhabi* for ঢাকা বশ্বিবদ্যিালয়. *Ḍhaka Bishshobiddalôe* "Dhaka University". The full stop can also be used when writing out English letters as initials, such as ই.ইউ. *i iu* "E.U.".

The *jôphôla* is sometimes used as a diacritic to indicate non-Bengali vowels of various kinds in transliterated foreign words. For example, the schwa is indicated by a *jôphôla*, the French u and the German umlaut ü as উ্য, the German umlaut ö as ও্য or এ্য, etc.

The apostrophe, known in Bengali as ঊর্ধ্বকমা *urdhokôma* "upper comma", is sometimes used to distinguish between homographs, as in পাটা *paṭa* "plank" and পা'টা *paṭa* "the leg". Sometimes a hyphen is used for the same purpose (as in পা-টা, an alternative of পা'টা).

Digits and numerals

The Bengali script has ten digits (graphemes or symbols indicating the numbers from 0 to 9), which are variants of Indian numerals (known as Arabic numerals in the West). Bengali digits have no horizontal headstroke or "matra".

English digits	0	1	2	3	4	5	6	7	8	9
Bengali digits	০	১	২	৩	৪	৫	৬	৭	৮	৯
Bengali names of digits	shunno	êk	dui	tin	char	pãch	chhôe	shat	aṭ	nôe
	শূন্য	এক	দুই	তনি	চার	পাঁচ	ছয়.	সাত	আট	নয়.

|+ **Bengali digits**

Numbers larger than 9 are written in Bengali using a positional base 10 numeral system (the decimal system), just as in English. A period or dot is used to denote the decimal separator, which separates the integral and the fractional parts of a decimal number. When writing large numbers with many digits, commas are used as delimiters to group digits, indicating the thousand (হাজার *hajar*), the hundred thousand or lakh (লাখ *lakh* or লক্ষ *lokkho*), and the ten million or hundred lakh or crore (কোটি *koṭi* or ক্রোড়. *kroṛ*) units. In other words, going leftwards from the decimal separator, the first grouping consists of three digits, and the subsequent groupings always consist of 2 digits.

For example, the English number 17,557,345 will be written in traditional Bengali as ১,৭৫,৫৭,৩৪৫ (এক কোটি, পঁচাত্তর লাখ, সাতান্ন হাজার, তনি শ পঁয়তাল্লশি *êk koṭi põchattor lakh, shatanno hajar, tin sho põetallish*, "one crore, seventy-five lakhs, fifty-seven thousand, three hundred forty-five").

The *matra*

Whereas in western scripts (Latin, Cyrillic, etc.) the letter-forms stand on an invisible baseline, the Bengali letter-forms hang from a visible horizontal left-to-right headstroke called মাত্‌রা *matra* (not to be confused with its Hindi cognate *matra*, which denotes the dependent forms of Hindi vowels). The presence and absence of this matra can be important. For example, the letter ত [tɔ] and the numeral ৩ "3" are distinguishable only by the presence or absence of the *matra*, as is the case between the consonant cluster ত্‌র [trɔ] and the independent vowel এ [e]. The letter-forms also employ the concepts of letter-width and letter-height (the vertical space between the visible matra and an invisible baseline).

Punctuation marks

Bengali punctuation marks, apart from the downstroke daṛi (।), the Bengali equivalent of a full stop, have been adopted from western scripts and their usage is similar. Commas, semicolons, colons, quotation marks, etc. are the same as in English. The concept of using capital letters is absent in the Bengali script, hence proper names are unmarked.

Characteristics of the Bengali text

Direction

Bengali text is written and read horizontally, from left to right.

Size

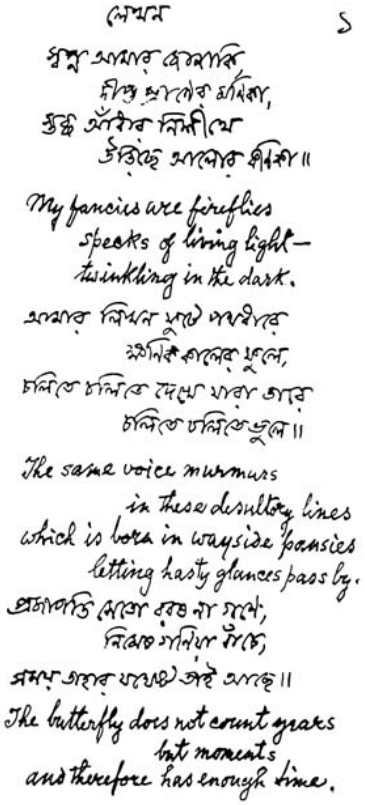
The consonant graphemes and the full form of vowel graphemes fit into an imaginary rectangle of uniform size (i.e. uniform width and height). The size of a consonant conjunct, regardless of its complexity, is deliberately maintained the same as that of a single consonant grapheme, so that diacritic vowel forms can be attached to it without any distortion.

Spacing

In a typical Bengali text, orthographic words, i.e., words as they are written, can be seen as being separated from each other by an even spacing. Graphemes within a word are also evenly spaced, but this spacing is much narrower than the spacing between words.

Punctuation marks

As discussed earlier, the Bengali punctuation marks are often the same as their English counterparts, both in form and function.



An example of handwritten Bengali script. Part of a poem written by Nobel Laureate Rabindranath Tagore in 1926 in Hungary.

Characteristics of the orthographic word

In every Bengali orthographic word, one can find different kinds of graphemes and their combinations, and they are as follows:

- Independent form of vowel graphemes, which can be found at the beginning of a word or after another vowel sound.

- Consonant graphemes (or consonant conjuncts) with no diacritic vowel form attached to them. An inherent vowel (either /ɔ/ or /o/, depending on context) is nevertheless assumed to be attached to them.
- Consonant graphemes (or consonant conjuncts) with a diacritic vowel form attached to them.
- Other modifier symbols indicating nasalization of vowels, suppression of the inherent vowel, etc.

The "matra"

The *matra* or the horizontal headstroke on each grapheme usually add up and often form a continuous single headstroke over the entire orthographic word, with different graphemes hanging down from it. This gives Bengali text a distinct look. Among other modern Indic scripts, Devanagari also has this characteristic, as does the Gurmukhi alphabet used to write Punjabi.

Inconsistencies

The following inconsistencies are inherent in the Bengali script and orthography. They often put additional burden on the person learning the script. The inconsistencies manifest themselves in various ways. Sometimes there are multiple different letters or symbols for the same sound (over-production). Sometimes a letter loses its original sound value. In other instances, the coverage of phonological information by the script is incomplete, inconsistent and/or ambiguous. Most of these inconsistencies can be attributed to the fact that the script was originally conceived to represent Sanskrit sounds.

Redundant graphemes for the vowel sounds [i] and [u]

The Bengali script has two symbols for the vowel sound [i] and two symbols for the vowel sound [u]. This redundancy stems from the time when this script was used to write Sanskrit, a language that had a short [i] and a long [iː], and a short [u] and a long [uː]. These letters are preserved in the Bengali script with their traditional names of *hrôshsho i/u* (lit. "short i/u") and *dirgho i/u* (lit. "long i/u") despite the fact that they are no longer pronounced differently in ordinary speech. These graphemes do serve an etymological function, however, in preserving the original Sanskrit spelling in *tôtshomo* Bengali words (i.e., words that were borrowed from Sanskrit).

The vowel grapheme ri

The grapheme called *ri* does not really represent a vowel phoneme in Bengali, rather the consonant-vowel combination /ri/. Nevertheless, it is included in the vowel section of the inventory of the Bengali script. This inconsistency is also a remnant from Sanskrit, where the grapheme represents a retroflex approximant, a sound considered a vowel in Sanskrit.

The vowel sound [æ]

Even though the near-open front unrounded vowel [æ] is one of the seven main vowel sounds in the standard Bengali language, no distinct vowel symbol has been allotted for it in the script, since there is no [æ] sound in Sanskrit, the primary written language when the script was conceived. As a result, this sound is orthographically realized by multiple means in modern Bengali orthography, usually using some combination of এ, অ, আ and the jôfôla (diacritic form of the consonant grapheme য *ôntostho jô*) as seen in the following examples:

- word-initially: এত [æt̪o] "so much", এ্যাকাডেমী [ækademi] "academy", অ্যামবিা [æmiba] "amoeba"
- word-medially and following a consonant: দখো [d̪ækha] "to see", ব্যস্ত [bæst̪o] "busy", ব্যাকরণ [bækɔron] "grammar".

ত and ৎ

In native or *tôdbhôbo* Bengali words, syllable-final ত *tô* is pronounced /t̪/, as in নাতনি /naṯni/ "grand daughter", করাত /kɔraṯ/ "saw", etc.

ৎ (called খণ্ড-ত *khônḍo tô* "broken *tô*") is always used syllable-finally and always pronounced as /t̪/. It is predominantly found in loan words from Sanskrit such as ভবিষ্যৎ /bʰobiʃːɔt̪/ "future", সত্যজিৎ /ʃot̪ːodʒit̪/ "Satyajit (a proper name)", etc. It is also found in some onomatopoeic words (such as থপাৎ /t̪ʰopaṯ/ "sound of something heavy that fell", মড়াৎ /mɔɽaṯ/ "sound of something breaking", etc.), as the first member of some consonant conjuncts (such as ৎস tsô, ৎপ tpô, ৎক tkô, etc.), and in some foreign loanwords (e.g. নাৎসি /naṯsi/ "Nazi", জুজুৎসু /ʤudʒuṯsu/ "Jujitsu", etc.) which contain the same conjuncts.

This is an over-production inconsistency, where the sound /t̪/ is realized by both ত and ৎ. This creates confusion among inexperienced writers of Bengali. There is no simple way of telling which symbol should be used. Usually, the contexts where ৎ is used need to be memorized, as these are less frequent.

শ, ষ and স

Three graphemes—শ *talobbo shô* "palatal s", ষ *murdhonno shô* "cerebral s", and স *donto shô* "dental s"—are used to represent the voiceless palato-alveolar fricative [ʃ], as seen in their word-final pronunciations in ফিসফিস [pʰiʃpʰiʃ] "whisper", বশি [biʃ] "twenty" and বিষ [biʃ] "poison". The grapheme স *donto shô* "dental s", however, does retain the voiceless alveolar fricative [s] sound when used as the first component in certain consonant conjuncts as in স্খলন [skʰɔlon] "fall", স্পন্দন [spɔndon] "beat", etc.

জ and য

There are two letters (জ and য) for the voiced postalveolar affricate [dʒ]. Compare জাল [dʒal] "net" and যাও [dʒao] "Go!".

ণ

What was once pronounced and written as a retroflex nasal ণ [ɳ] is now pronounced as an alveolar [n] (unless conjoined with another retroflex consonant such as ট, ঠ, ড and ঢ), although the spelling does not reflect this change.

Comparison

Oṛiyā											
Devanāgarī	अ	आ	इ	ई	उ	ऊ	ऋ	ए	ऐ	ओ	औ
Bengali	অ	আ	ই	ঈ	উ	ঊ	ঋ	এ	ঐ	ও	ঔ
Telugu	అ	ఆ	ఇ	ఈ	ఉ	ఊ	ఋ	ఎ	ఐ	ఒ	ఔ
Translit.	a	ā	i	ī	u	ū	ṛ	e	ai	o	au

Oṛiyā											
Devanāgarī											
Bengali											
Telugu											
Translit.											

Oṛiyā											
Devanāgarī											
Bengali											
Telugu											
Translit.											

Romanization

The romanization of Bengali is the representation of the Bengali language in the Latin script. While different standards for romanization have been proposed for Bengali, these have not been adopted with the degree of uniformity seen in languages such as Japanese or Sanskrit.[5] Most standardized Bengali romanizations are adapted from standards proposed for Indic languages, and these models are compared below.

History

The Portuguese missionaries stationed in Bengal in the 16th century were the first people to employ the Latin alphabet in writing Bengali books, the most famous of which are the *Crepar Xaxtrer Orth, Bhed* and the *Vocabolario em idioma Bengalla, e Portuguez dividido em duas partes*, both written by Manuel da Assumpção. But the Portuguese-based romanization did not take root. In the late 18th century Augustin Aussant used a romanization scheme based on the French alphabet. At the same time, Nathaniel Brassey Halhed used a romanization scheme based on English for his Bengali grammar book. After Halhed, the renowned English philologist and oriental scholar Sir William Jones devised a romanization scheme for Bengali and for Indian languages in general, and published it

in the *Asiatick Researches* journal in 1801.[6] This scheme came to be known as the "Jonesian System" of romanization, and served as a model for the next century and a half.

Transliteration vs transcription

The Romanization of a language written in a non-Roman script can be based on transliteration (orthographically accurate, i.e. the original spelling can be recovered) or transcription (phonetically accurate, i.e. the pronunciation can be reproduced). This distinction is important in Bengali as its orthography was adopted from Sanskrit, and ignores sound change processes of several millennia. To some degree, all writing systems differ from the way the language is pronounced, but this may be more extreme for languages like Bengali. For example, the three letters শ, ষ, and স had distinct pronunciations in Sanskrit, but over several centuries, the standard pronunciation of Bengali (usually modeled on the Nadia dialect), has lost these phonetic distinctions (all three are usually pronounced as IPA [ʃ]) while the spelling distinction nevertheless persists in orthography.

In written texts, it is easy to distinguish between homophones such as শাপ *shap* "curse" and সাপ *shap* "snake". Such a distinction could be particularly relevant in searching for the term in an encyclopedia, for example. However, the fact that the words sound identical means that they would be transcribed identically; thus, some important meaning distinctions cannot be rendered in a transcription model. Another issue with transcription systems is that cross-dialectal and cross-register differences are widespread, and thus the same word or lexeme may have many different transcriptions. Even simple words like মন "mind" may be pronounced "mon", "môn", or (in poetry) "mônô" (e.g. the Indian national anthem, Jana Gana Mana).

Often, different phonemes (meaningfully different sounds) are represented by the same symbol or grapheme. Thus, the vowel এ can represent both [e] (এল *elo* [elo] "came"), or [ɛ] (এক *êk* [ɛk] "one"). Occasionally, words written in the same way (homographs) may have different pronunciations for differing meanings: মত can mean "opinion" (pronounced *môt*), or "similar to" (*môto*). Thus, some important phonemic distinctions cannot be rendered in a transliteration model. In addition, when representing a Bengali word to allow speakers of other languages to pronounce it easily, it may be better to use a transcription, which does not include the silent letters and other idiosyncrasies (e.g. স্বাস্থ্য *shastho*, spelled <swāsthya>, or অজ্ঞান *ôggên*, spelled <ajñāna>) that make Bengali orthography so complicated.

Comparison of romanizations

Comparisons of standard romanization schemes for Bengali are given in the table below. Two standards are commonly used for transliteration of Indic languages including Bengali. Many standards (e.g. NLK / ISO), use diacritic marks and permit case markings for proper nouns. Newer forms (e.g. Harvard-Kyoto) are more suited for ASCII-derivative keyboards, and use upper- and lower-case letters contrastively and forgo normal standards for English capitalization.

- "NLK" stands for the diacritic-based letter-to-letter transliteration schemes, best represented by the National Library at Kolkata romanization or the ISO 15919, or IAST. This is the ISO standard, and it uses diacritic marks (e.g. ā) to reflect the additional characters and sounds of Bengali letters.
- ITRANS is an ASCII representation for Sanskrit; it is one-to-many, i.e. there may be more than one way of transliterating characters, which can make internet searching more complicated. ITRANS representations forgo capitalization norms of English so as to be able to represent the characters using a normal ASCII keyboard.
- "HK" stands for two other case-sensitive letter-to-letter transliteration schemes: Harvard-Kyoto and XIAST [7] scheme. These are similar to the ITRANS scheme, and use only one form for each character.
- XHK or Extended Harvard-Kyoto (XHK [8]) stands for the case-sensitive letter-to-letter Extended Harvard-Kyoto transliteration. This adds some specific characters for handling Bengali text to IAST.

- "Wiki" stands for a phonemic transcription-based romanization. It is a sound-preserving transcription based on what is perceived to be the standard pronunciation of the Bengali words, with no reference to how it is written in Bengali script. It uses diacritics often used by linguists specializing in Bengali (other than IPA), and is the transcription system used to represent Bengali sounds in Wikipedia articles.

Examples

The following table includes examples of Bengali words Romanized using the various systems mentioned above.

Example words

In orthography	Meaning	NLK	XHK [8]	ITRANS	HK	Wiki	IPA
মন	*mind*	mana	mana	mana	mana	mon	[mon]
সাপ	*snake*	sāpa	sApa	saapa	sApa	shap	[ʃap]
শাপ	*curse*	śāpa	zApa	shaapa	zApa	shap	[ʃap]
মত	*opinion*	mata	mata	mata	mata	môt	[mɔt̪]
মত	*like*	mata	mata	mata	mata	môto	[mɔt̪o]
তলে	*oil*	tēla	tela	tela	tela	tel	[t̪el]
গলে	*went*	gēla	gela	gela	gela	gêlo	[gɛlo]
জ্বর	*fever*	jvara	jvara	jvara	jvara	jôr	[dʒɔr]
স্বাস্থ্য	*health*	svāsthya	svAsthya	svaasthya	svAsthya	shastho	[ʃast̪^{h}o]
বাংলাদেশ	*Bangladesh*	bāṃlādēśa	bAMlAdeza	baa.mlaadesha	bAMlAdeza	Bangladesh	[baŋlad̪eʃ]
ব্যঞ্জনধ্বনি	*consonant*	byañjanadhvani	byaJjanadhvani	bya~njanadhvani	byaJjanadhvani	bênjondhoni	[bɛndʒond̪^{h}oni]
আত্মহত্যা	*suicide*	ātmahatyā	AtmahatyA	aatmahatyaa	AtmahatyA	attōhotta	[at̪ːōhot̪ːa]

Romanization reference

The IPA (International Phonetic Alphabet) transcription is provided in the rightmost column, representing the most common pronunciation of the glyph in Standard Colloquial Bengali, alongside the various romanizations described above.

Vowels

Symbol	NLK	XHK [8]	ITRANS	HK	Wiki	IPA
অ	a	a	a	a	ô/o	[ɔ]/[o]
আ	ā	ā	A~aa	A	a	[a]
ই	i	i	i	i	i	[i]
ঈ	ī	ī	I~ii	I	i	[i]
উ	u	u	u	u	u	[u]
ঊ	ū	ū	U~uu	U	u	[u]
ঋ	ṛ	ṛ	RRi~R^i	R	ri	[ri]
এ	ē	e	e	e	ê/e	[ɛ]/[e]
ঐ	ai	ai	ai	ai	oi	[oj]
ও	ō	o	o	o	o	[o]

ঔ	au	au	au	au	ou	[ow]

Consonants

Symbol	NLK	XHK [8]	ITRANS	HK	Wiki	IPA
ক	k	k	k	k	k	[k]
খ	kh	kh	kh	kh	kh	[kʰ]
গ	g	g	g	g	g	[ɡ]
ঘ	gh	gh	gh	gh	gh	[ɡʰ]
ঙ	ṅ	ṅ	~N	G	ng	[ŋ]
চ	c	c	ch	c	ch	[tʃ]
ছ	ch	ch	Ch	ch	chh	[tʃʰ]
জ	j	j	j	j	j	[dʒ]
ঝ	jh	jh	jh	jh	jh	[dʒʰ]
ঞ	ñ	ñ	~n	J	n	[n]
ট	ṭ	ṭ	T	T	ţ	[ʈ]
ঠ	ṭh	ṭh	Th	Th	ţh	[ʈʰ]
ড	ḍ	ḍ	D	D	đ	[ɖ]
ড়	ḍ	ḍ̲	.D	P	ṛ	[ɽ]
ঢ	ḍh	ḍh	Dh	Dh	đh	[ɖʰ]
ঢ়	ḍh	ḍ̲h	.Dh	Ph	ṛ	[ɽ]
ণ	ṇ	ṇ	N	N	n	[n]
ত	t	t	t	t	t	[t̪]
থ	th	th	th	th	th	[t̪ʰ]
দ	d	d	d	d	d	[d̪]
ধ	dh	dh	dh	dh	dh	[d̪ʰ]
ন	n	n	n	n	n	[n]
প	p	p	p	p	p	[p]
ফ	ph	ph	ph	ph	ph	[pʰ]
ব	b	b	b	b	b	[b]
ভ	bh	bh	bh	bh	bh	[bʰ]
ম	m	m	m	m	m	[m]
য	ẏ	y	y	y	j	[dʒ]
য়	y	ẏ	Y	Y	e/-	[e]/–
র	r	r	r	r	r	[r]
ল	l	l	l	l	l	[l]
শ	ś	ś	sh	z	sh/s	[ʃ]/[s]
ষ	ṣ	ṣ	Sh	S	sh	[ʃ]
স	s	s	s	s	sh/s	[ʃ]/[s]
হ	h	h	h	h	h	[ɦ]

Miscellaneous

Symbol	NLK	XHK [8]	ITRANS	HK	Wiki	IPA
ঃ	ḥ	ḥ	H	H	varies	varies
ং	ṃ	ṁ	.m	M	ng	[ŋ]
ঁ	ṃ	ṃ	.N	~	~	[~] (nasalization)
্য	y	y	y	y	varies	varies
্ব	v	v	v	v	varies	varies
ক্ষ	kṣ	kṣ	x	kS	kkh/kh	[k^{h}ː]/[k^{h}]
জ্ঞ	jñ	jñ	GY	jJ	gg/g	[gː]/[g]
শ্র	śr	śr	shr	zr	sr	[sr]

Unicode

Bengali script was added to the Unicode Standard in October, 1991 with the release of version 1.0.

The Unicode block for Bengali is U+0980 ... U+09FF:

Bengali[1] Unicode.org chart [2] (PDF)																
	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
U+098x		ঁ	ং	ঃ		অ	আ	ই	ঈ	উ	ঊ	ঋ	ঌ			এ
U+099x	ঐ			ও	ঔ	ক	খ	গ	ঘ	ঙ	চ	ছ	জ	ঝ	ঞ	ট
U+09Ax	ঠ	ড	ঢ	ণ	ত	থ	দ	ধ	ন		প	ফ	ব	ভ	ম	য
U+09Bx	র		ল				শ	ষ	স	হ			়	ঽ	া	ি
U+09Cx	ী	ু	ূ	ৃ	ৄ			ে	ৈ			ো	ৌ	্	◌	
U+09Dx								ৗ					ড়	ঢ়		য়
U+09Ex	ৠ	ৡ	ৢ	ৣ			০	১	২	৩	৪	৫	৬	৭	৮	৯
U+09Fx	ৰ	ৱ	৲	৳	৴	৵	৶	৷	৸	৹	৺	৻				

Notes

1.^ As of Unicode version 6.3

Bengali keyboard layouts

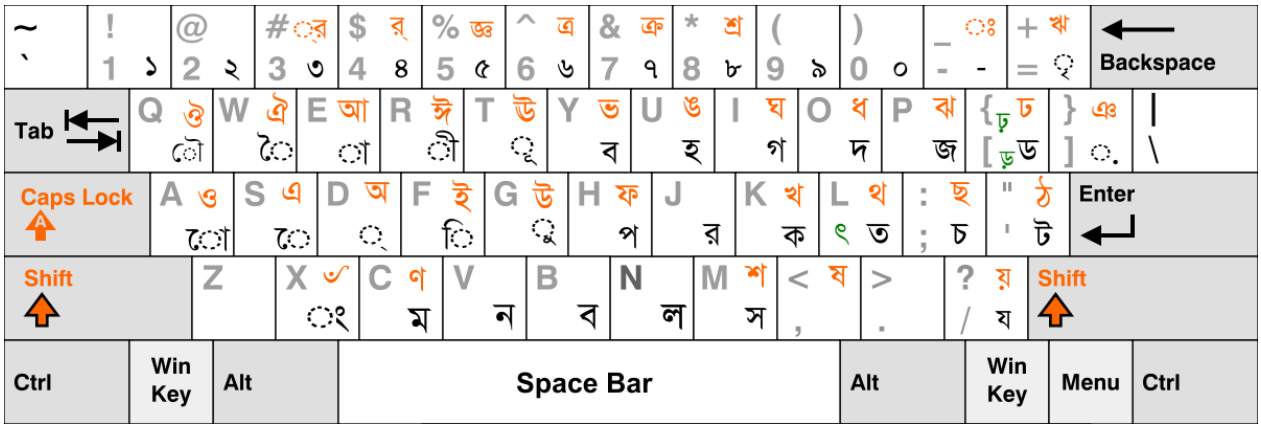
Avro Phonetic Keyboard

This keyboard is an integral part of an open source initiative, Avro Keyboard, by Omicron Lab

Bijoy keyboard layout

The Bijoy keyboard layout was commercialized by Mostafa Jabbar as part of the Bengali software package Bijoy Ekushe.

Inscript keyboard layout



The InScript keyboard layout was designed by the Indian government to standardize the inputting of Indic scripts.

Probhat keyboard layout

People used to typing Romanized forms of Bengali will find it easier to use a more phonetic layout such as the Probhat layout shown below, which is one of several Bengali input methods available.

Grapheme frequency

According to Bengali linguist Munier Chowdhury, the following 9 graphemes are the most frequent in Bengali texts:[9]

Grapheme	Percentage
আ	11.32
এ	8.96
র	7.01
অ	6.63
ব	4.44
ক	4.15
ল	4.14
ত	3.83
ম	2.78

Collating sequence

There is yet to be a uniform standard collating sequence (sorting order of graphemes to be used in dictionaries, indices, computer sorting programs, etc.) of Bengali graphemes. Experts in both India and Bangladesh are currently working towards a common solution for this problem.

Sample texts

Article 1 of the Universal Declaration of Human Rights

Bengali in Bengali alphabet

ধারা ১: সমস্ত মানুষ স্বাধীনভাবে সমান মর্যাদা এবং অধিকার নিয়ে জন্মগ্রহণ করে। তাঁদের বিবেক এবং বুদ্ধি আছে; সুতরাং সকলেরই একে অপরের প্রতি ভ্রাতৃত্বসুলভ মনোভাব নিয়ে আচরণ করা উচিত।

Bengali in Romanization

Dhara êk: Shômosto manush shadhinbhabe shôman môrjada ebong odhikar nie jônmogrohon kôre. Tãder bibek ebong buddhi achhe; shutorang shôkoleri êke ôporer proti bhrattrittoshulôbh monobhab nie achoron kôra uchit.

Bengali in IPA

ɖ̪ʱara æk ʃɔmoʂto manuʃ ʃaɖ̪ʱinbʱabe ʃɔman mɔrdʒaɖ̪a ebɔŋ oɖ̪ʱikar nie dʒɔnmoɡrohon kɔre. ʈ̪ãɖ̪er bibek ebɔŋ buɖ̪ʱːi atʃʱe; ʃuʈ̪oraŋ ʃɔkoleri æke ɔporer proʈi bʱraʈ̪ːriʈ̪ːoʃulɔbʱ monobʱab nie atʃoron kɔra utʃiʈ̪.

Gloss

Clause 1: All human free-manner-in equal dignity and right taken birth-take do. Their reason and intelligence exist; therefore everyone-indeed one another's towards brotherhood-ly attitude taken conduct do should.

Translation

Article 1: All human beings are born free and equal in dignity and rights. They are endowed with reason and conscience. Therefore, they should act towards one another in a spirit of brotherhood.

Amar Shonar Bangla

The following is a sample text of script, from the song *Amar Shonar Bangla* (আমার সোনার বাংলা) written by Rabindranath Tagore (রবীন্দ্রনাথ ঠাকুর *Robindronath Ṭhakur*). The song was later adopted as the National anthem of Bangladesh.

Bangla (Bengali) script	Romanization	Literal translation
মা, তোর মুখরে বাণী আমার কানে লাগে সুধার মতো- মা তোর বদন খানি মলিনি হলে আমি নিয়ন ও মায়, আমি নিয়ন জলে ভাসি সোনার বাংলা, আমি তোমায়, ভালবাসি	Ma, tor mukher bani Amar kane lage Sudhar môto- Ma tor bôdonkhani molin hole ami nôyon o may ami nôyonjôle bhashi shonar bangla, ami tomay bhalobashi!	Oh mother mine, words from your lips Are like nectar to my ears. Ah, what a thrill! If sadness, O mother mine, Casts a gloom on your face, My eyes are filled with tears! My Bengal of Gold, I love you.

Jana Gana Mana

The following is a sample text of script, from the song Jana Gana Mana (জন গণ মন *Jôno Gôno Mono*). The selection is a Bengali song, written in *Shadhubhasha* (সাধুভাষা) style. The song was later adopted as the national anthem of India. It was written by Rabindranath Tagore (রবীন্দ্রনাথ ঠাকুর *Robindronath Ṭhakur*) who is acknowledgedWikipedia:Manual of Style/Words to watch#Unsupported attributions as the single most important and defining figure of Bengali literature.

জনগণমন-অধিনায়ক জয় হে ভারতভাগ্যবিধাতা!
পঞ্জাব সিন্ধু গুজরাট মরাঠা দ্রাবিড় উৎকল বঙ্গ
বিন্ধ্য হিমাচল যমুনা গঙ্গা উচ্ছলজলধিতরঙ্গ
তব শুভ নামে জাগে, তব শুভ আশিস মাগে,
গাহে তব জয়গাথা।
জনগণমঙ্গলদায়ক জয় হে ভারতভাগ্যবিধাতা!
জয় হে, জয় হে, জয় হে, জয় জয় জয়, জয় হে ॥

In Romanization:

Jônogônomono-odhinaeoko jôeô he Bharotobhaggobidhata!
Pônjabo Shindhu Gujoraţo Môraţha Drabiṛo Utkôlo Bônggo,
Bindho Himachôlo Jomuna Gôngga Uchchhôlojôlodhitoronggo,
Tôbo shubho name jage, tôbo shubho ashish mage,
Gahe tôbo jôeogatha.
Jônogônomonggolodaeoko jôeô he Bharotobhaggobidhata!
Jôeo he, jôeo he, jôeo he, jôeo jôeo jôeo, jôeo he!

Footnotes and references

[1] Ancient Scripts (http://www.ancientscripts.com/bengali.html)

[2] http://www.unicode.org/charts/PDF/U0980.pdf

[3] Different Bengali linguists give different numbers of Bengali diphthongs in their works depending on methodology, e.g. 25 (Chatterji 1939: 40), 31 (Hai 1964), 45 (Ashraf and Ashraf 1966: 49), 28 (Kostic and Das 1972:6-7) and 17 (Sarkar 1987).

[4] The natural pronunciation of the grapheme অ, whether in its independent (visible) form or in its "inherent" (invisible) form in a consonant grapheme, is . But its pronunciation changes to in the following contexts:

- অ is in the first syllable and there is a ই or উ in the next syllable, as in অতি *oti* "much" , বলছি *bolcchi* "(I am) speaking"
- if the অ is the inherent vowel in a word-initial consonant cluster ending in *rôfôla* "rô ending" , as in প্রথম *prothom* "first"
- if the next consonant cluster contains a *jôfôla* "jô ending", as in অন্য *onno* "other" , জন্য *jonno* "for"

[5] In Japanese there exists some debate as to whether to accent certain distinctions, such as Tōhoku vs Tohoku. Sanskrit is well standardized, because the speaking community is relatively small, and sound change is not a large concern

[6] Jones 1801

[7] http://wiki.gaudiyakutir.com/XIAST

[8] http://wiki.gaudiyakutir.com/XHK

[9] See Chowdhury 1963

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- Sarkar, Pabitra (1987), "Bangla Dishôrodhoni (Bengali Diphthongs)", *Bhasha* (Calcutta) **4–5**: 10–12

External links

- Omniglot – Bengali Alphabet (http://www.omniglot.com/writing/bengali.htm)

digital encoding and rendering

- Free Unicode Compliant Bangla Typing Software (http://www.omicronlab.com/avro-keyboard.html)
- Ekushey Free Unicode Bangla Computing Solutions (http://www.ekushey.org)
- Free Bangla Unicode Fonts (http://www.nongnu.org/freebangfont/)
- Ankur – Supporting Bangla (Bengali) on GNU/Linux (http://www.bengalinux.org/)
- Open source Bangla Transliteration Library (http://sourceforge.net/projects/openbangsee/)

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