A contrastive analysis of English and Bangla phonemics

Dr. Binoy Barman[1]

1. Assistant Professor and Head, Department of English, Daffodil
   International University
   Email : binoy_barman@yahoo.com

Abstract

Contrastive phonemics is the field of study in which different phonemic systems are laid side by side to find out similarities and dissimilarities between the phonemes of the languages concerned. Every language has its own phonemic system, which holds unique as well as common features. A language shares some phonemes with other languages, but no two languages have the same phonemic inventory. This article makes a contrastive analysis of the phonemic systems of English and Bangla. The aspects of similarities as well as dissimilarities between the two have been explored in detail. It brings into focus the inventory of phonemes of the two languages along with relevant phonetic and phonological characteristics. The vowel and consonant phonemes of the two languages have been compared with sufficient examples, making it clear where and how they are identical and different.

1. Introduction

Phonemics is the scientific study of phonemes, the basic units of speech sound. Phonemes, as the smallest sound units in a language, are capable of conveying a distinct meaning. When two sounds can be used to differentiate words, they can be said to belong to different

phonemes. (Ladefoged 2001: 23) Phonemes are screened from minimal pair, in which two sequences of sounds are similar in all segments except one. A phoneme is characterised by certain distinctive features which make it a separate entity in a set of sounds available in a language. Phonemics discusses the properties of phonemes in relation to a language. So it is in close connection with phonetics and phonology, the former focusing on the pronunciation of sounds and the latter on the arrangement of sounds. According to Odden (2005: 2), phonetics deals with actual sounds while phonology with the cognitive aspects of sounds. Phonemes come to be the symbolic representation of sounds, interacting both with phonetics and phonology. Phonemics provides them with the foundational raw materials for disciplinary study. Fries (1967: 181) says, "Phonemics is a set of techniques by which to determine for a particular language which phonetic features form bundles of functioning contrasts to identify the word-patterns of that language."

Phonemic status of a sound is not the same across languages. One sound may be a phoneme in a language but may not be so in another (for example, it may be an allophone). The number of phonemes varies from one language to another (Richards et al 1985: 214). Phonemes are conventionally written in International Phonetic Alphabet (IPA). So the basic sounds in English and Bangla can both be expressed in IPA, which facilitates comparison between the two. English and Bangla have their distinct phonemic systems. They differ considerably in terms of phonemic inventory and their pronunciation. This paper makes a contrast between the phonemes of the two languages, with elaboration of differentiating factors. The investigation remains restricted to the phonemic features only, and does not touch on such phonetic features as stress and intonation. It presents a comprehensive picture of sounds present in contemporary English and Bangla, analysing the vowel and consonant sounds, with relevant articulatory properties.

2. Phonemic inventory

English has 36 phonemes while Bangla has 37. Of the 36 English phonemes, 12 are **vowels**[1] and 24 are consonants. On the other hand, of 37 Bangla phonemes, 7 are **vowels**[2] and 30 are consonants. The vowels and consonants of English and Bangla are presented in tables 1 and 2:

Table 1: English phonemes

Vowels	Consonants
ɪ i: ʊ u: ɒ ɔ: ʌ ɑ: ə ɜ: e æ	p b t d θ ð k g f v s z ʃ ʒ tʃ dʒ n m ŋ r l w j h

Table 2: Bangla phonemes

Vowels	Consonants
ɑ i e o u ɔ æ	p pʰ b bʰ t tʰ d dʰ ʈ ʈʰ ɖ ɖʰ c cʰ ɟ ɟʰ k kʰ g gʰ s ʃ m n ŋ l r h w j

English and Bangla have some common sounds. Among vowels, two are common in all respects: /e æ/. If the length of vowel is ignored, /ɑ i u ɔ/ will also be found similar. Among consonants, sixteen are common: /p b t d k g s ʃ n m ŋ r l w j h/. From this, one may deduce that there is considerable similarity between the two languages in the territory of phonemics. The English and Bangla phonemes are exemplified in the Tables 3, 4, 5 and 6.

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[1]   Here only pure vowels, also called monophthongs, have been considered, excluding diphthongs. With diphthongs and triphthongs, the number of vowels will be 25, as English has 8 diphthongs and 5 triphthongs.

[2]   Here nasalised vowels have not been considered. With them, the total number of vowels will rise to 14, as Bangla has 7 nasalised vowels. The diphthongs and triphthongs have also been counted separately. Bangla has 25 diphthongs and 17 triphthongs.

Table 3: English vowels

	Phoneme	Example in word
1.	/ɪ/	sh**i**p
2.	/i:/	sh**ee**p
3.	/ʊ/	f**u**ll
4.	/u:/	f**oo**l
5.	/ɒ/	c**o**t
6.	/ɔ:/	c**au**ght
7.	/ʌ/	c**u**t
8.	/ɑ:/	c**a**rt
9.	/ə/	b**u**t
10.	/ɜ:/	b**i**rd
11.	/e/	p**e**n
12.	/æ/	m**a**n

Table 4: English consonants

	Phoneme	Example in word		Phoneme	Example in word
1.	/p/	**p**it	13.	/b/	**b**it
2.	/t/	**t**in	14.	/d/	**d**in
3.	/k/	**c**ut	15.	/g/	**g**ut
4.	/tʃ/	**ch**eap	16.	/dʒ/	**j**eep
5.	/m/	**m**ap	17.	/n/	**n**ap
6.	/f/	**f**at	18.	/v/	**v**at
7.	/θ/	**th**in	19.	/ð/	**th**en
8.	/s/	**s**ap	20.	/z/	**z**ap
9.	/ʃ/	**sh**e	21.	/ʒ/	mea**s**ure
10.	/ŋ/	ba**ng**	22.	/h/	**h**am
11.	/r/	**r**un	23.	/l/	**l**eft
12.	/j/	**y**es	24.	/w/	**w**e

Table 5: Bangla vowels

	Phoneme	*Bangla word*	*Meaning*
1.	/ɑ/	k**a**n	ear
2.	/i/	m**i**l	similarity
3.	/e/	p**e**t	belly
4.	/o/	g**o**l	round
5.	/u/	b**oo**k	chest
6.	/ɔ/	b**o**k	stork
7.	/æ/	b**a**ng	frog

Table 6: Bangla consonants

	Phoneme	*Bangla word*	*Meaning*
1.	/p/	**p**ul	bridge
2.	/pʰ/	**ph**ul	flower
3.	/b/	**b**or	bridegroom
4.	/bʰ/	**bh**or	weight
5.	/t/	**t**ok	sour
6.	/tʰ/	**th**ok	cheat
7.	/d/	**d**al	pulse
8.	/dʰ/	**dh**al	shield/slope
9.	/ṭ/	**t**al	rhythm
10.	/ṭʰ/	**th**al	plate
11.	/ḍ/	**d**an	donation
12.	/ḍʰ/	**dh**an	paddy
13.	/c/	**ch**al	rice/conspiracy/ roof
14.	/cʰ/	**chh**al	tree bark
15.	/ɟ/	**j**al	net/fake
16.	/ɟʰ/	**jh**al	hot tasting
17.	/k/	**k**al	yesterday
18.	/kʰ/	**kh**al	canal
19.	/g/	**g**oon	quality
20.	/gʰ/	**gh**oon	termite
21.	/s/	**s**aph	clean
22.	/ʃ/	**sh**ap	snake
23.	/m/	**m**on	mind
24.	/n/	**n**am	name
25.	/ŋ/	ga**ng**	river
26.	/l/	**l**al	red
27.	/r/	**r**ong	colour
28.	/h/	**h**ool	sting
29.	/w/	**w**a	baby cry
30.	/j/	**y**a	joy shout

Clearly, Bangla has more consonantal variation than English, which has, however, more vowel variation. In one consideration, even Bangla vowel system is as varied as that of English. If we notice, English has five long vowels beside their short counterparts. There is no qualitative difference in the five long-short pairs of vowels; the difference is only in quantity. If we exclude the long vowels from the list, the number of pure vowels in English comes down to seven, which coincides with Bangla.

3. Vowel phonemes

The discussion of vowel phonemes has been divided into seven sections as pure vowels, vowel length, reduced vowels, nasalisation, diphthongs, reduced vowels in Bangla diphthongs and triphthongs.

3.1 Pure vowels

All vowel sounds in human languages are voiced (i.e. pronounced with the vibration of vocal cords). They are differentiated from one another with the position and activity of articulators, i.e. their frontness/backness and openness/closeness. A vowel may be front or back, and open or close, with the possibility of other intermediate situations. The repertoire of monophthongs in English and Bangla are shown in Tables 7 and 8.

Table 7: Pure Vowels of English

	Front		Central		Back	
	short	**long**	**short**	**long**	**short**	**long**
Close	ɪ	iː			ʊ	uː
Middle (Half-close/Half-open)	e		ə	ɜː		ɔː
Open	æ		ʌ	ɑː	ɒ	

Table 8: Pure Vowels of Bangla

	Front	Central	Back
Close	i		u
Middle (Half-close/Half-open)	e		o ɔ
Open	æ	ɑ	

Vowels can best be described with their placement in what is called 'cardinal vowel diagram'. A cardinal vowel diagram is drawn like a trapezium as seen Figure 1. The trapezium illustrates the shape of the tongue. The frontness/backness and openness/closeness of vowels are visually explicit with their relative positions. Vertically, the trapezium has four layers, based on the height of the tongue: close, half-close, half-open and open; and horizontally, it has three layers, based on the location of the tongue: front, central and back. The shape of lips is also deemed important in pronouncing vowels. Usually the front vowels are associated with the spreading of lips and the back vowels with the rounding of lips. On the eight lateral points

of the diagram are located eight vowels /i e ɛ a ɑ ɔ o u/, which are rather extreme instances of particular kinds. The position of vowels of any human language is measured against these cardinal vowels. The English and Bangla vowels are shown in Figure 2 and 3.

Figure 1: Cardinal vowel diagram (Following Roach 2000):
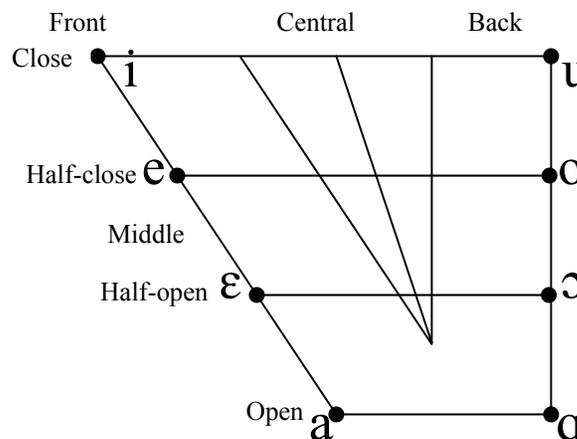

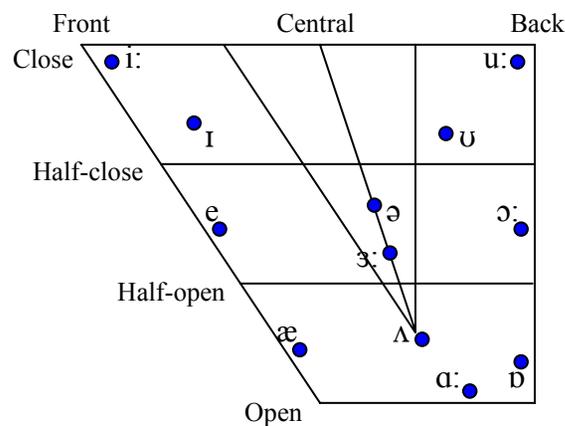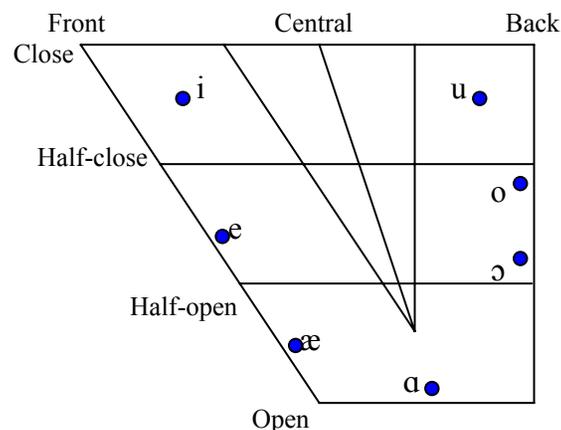
Figure 2: English vowels in diagram:

Figure 3: Bangla vowels in diagram

Looking at the diagrams, it should be clear that there is no difference in the position of front-mid vowel /e/ and front-open vowel /æ/. The position is also identical for the central-open vowel -- English /ɑ:/ and Bangla /ɑ/. The Bangla front-close vowel /i/ is located in the same top-left division of the trapezium like English ones, though it is a little front and closer than the short one and a little back and opener than the long one. Same is the case with the back close vowel /u/. In the back-mid division, English has /ɔ:/ and Bangla has /ɔ o/. (Islam 2001: 13; Chatterji 1988: 81) Unlike Bangla, English has two central-mid vowels: /ə ɜ:/ and one central-open vowel: /ʌ/.

3.2 Vowel length

The length of vowel is important for English since it is a distinctive feature in that language. In Bangla, vowel length carries less importance, as it is not a meaning-distinguishing factor in the language. Bangla does not distinguish between long and short vowels unlike English, but its orthography has the provision of short and long symbols. A sound is written with symbols meant to be short ('hrashya') or long ('dirgha'), but this is simply a **writing**

convention[3], residue of the full-blown old phonetic system. In English, 'ship' and 'sheep' differing in the vowel sound length, are two distinct words having different meanings. This kind of differentiation is absent from Bangla. A vowel may be pronounced short or long in a word but the two modes of pronunciation will mean the same thing in Bangla. There will be no change of meaning for vowel length. (Hai 1967: 16) In phonetic notation, the length in vowel is indicated by a colon sign ':', so 'ship' will be written as /ʃɪp/ and 'sheep' as /ʃi:p/. This kind of differentiation is normally absent from contemporary Bangla. Throughout this article we have followed the convention of writing the front-close vowel in Bangla as /i/, back-close vowel as /u/ and central open vowel as /ɑ/, as the language usually has no short-long differentiation.

However, Bangla seems to employ a combination of two vowels in some linguistic situations. In the first person present indefinite conjugation, verbs such as 'dewa'/'newa' (give/take) assume the shape of 'diyi'/'niyi'. They will rather be pronounced as /dii/ and /nii/. Same is the case with the verbs 'dhowa' (wash) and 'showa' (sleep); in the second person intimate imperative form, they will become 'dhoo' /d̪ʰoo/ and 'shoo' /ʃoo/ respectively. Here we find the same vowel in sequence. We may call this 'Vowel Doubling', which is a unique feature of Bangla[4]. (Chatterji 1988: 35) Vowel doubling may also be found in other words as 'meye' /mee/ (daughter), 'chaur' /cɑuur/ (publicised) and 'bahanno' (fifty two), which is pronounced as /bɑhɑnnɔ/ or /bɑɑnnɔ/ (fifty-two). These are equivalent to English long vowels, though perceived to be even a bit longer.

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[3]   Many linguists believe that Bangla can totally dispense with the 'hrashya' and 'dirgha' systems of writing. If the alphabet accepts one set of length marker obliterating the other, Bangla orthography will be more disciplined, close to practice. That is why many reformers want drastic change in this regard.

[4]   Some writers like Bhattacharja (2006) consider the appearance of the second vowel in such situation as an instance 'semi-vowel'.

Vowel length is not recognised as a distinctive feature in Bangla But in subtler consideration, meaning-differentiating vowel length is at issue in the pronunciation of some diphthongs and triphthongs in Bangla (which has been discussed in 3.6 and 3.7).

3.3 Reduced vowels

Vowels often tend to be reduced in English. Contrastively, in Bangla the length of a vowel is rarely found to be reduced. When a vowel is reduced it may turn into 'schwa', a mid-central neutral vowel, written in IPA like the inverted second vowel letter of English alphabet: /ə/. For example, the first syllable in the word 'about' will be weakened and pronounced with a schwa: /əbaʊt/. Vowels may be reduced in some contexts to such an extent that the following consonant in the syllable will absorb the vowel sound at all. This kind of consonant is called *syllabic consonant*. In English /l m n/ show this tendency. So 'table' will be pronounced as /teɪbl̩/, 'button' as /bʌtn̩/ and 'bottom' as /bɒtm̩/. When syllables are reduced this way, the consonant phonemes are written with a diacritic mark (a tiny vertical stroke) underneath. Schwa occurs in unstressed syllables in English, as:

roses /rəʊzɪz/ or /rəʊzəz/ (in plural form)

runner /rɑːnə/ or /rɑːnər/ (in agent form)

bottle /bɒtl̩/ or /bɒtəl/ (to break consonant cluster 'tl')

button /bʌtn̩/ or /bʌtən/ (to break consonant cluster 'tn')

rhythm /riːðm̩/ or /riːðəm/ (to break consonant cluster 'thm')

3.4 Nasalisation

In Bangla any vowel may be nasalised. Therefore all the seven pure vowels in Bangla have their nasalised counterparts. The seven nasal vowels are: /ɑ̃ ĩ ẽ õ ũ ɔ̃ æ̃/. Their examples in words are as follows (Table 9):

Table 9: Nasal Vowels of Bangla

	Nasal	*Example in word*	*Meaning*
1.	/ɑ̃/	ch**a**d /cɑ̃d̪/	moon
2.	/ĩ/	**i**dur /ĩd̪ur/	rat
3.	/ẽ/	p**e**cha /pẽcɑ/	owl
4.	/õ/	dh**o**wa /d̪ʰõɑ/	smoke
5.	/ũ/	**u**chu /ũcu/	high
6.	/ɔ̃/	p**o**cha /pɔ̃cɑ/	rotten
7.	/æ̃/	p**a**ch /pæ̃c/	complexity

There is, however, debate among the Bengali phoneticians on the status of nasal vowels in the language. Some argue that nasalisation is a distinctive feature in Bangla, so nasals are separate vowels just like other pure vowels. (Bhattacharja 2006: 131; Sen 2002: 183) Others argue that nasalisation is not a distinctive feature in Bangla, so nasals should be counted as allophonic variation of the pure vowels (Khan 2010: 222; Majumdar 1997: 118). Here we maintain the second position. Centuries back, nasalisation played an important role in pronunciation, but in contemporary Bangla its importance is on the wane, in fact, to such a point that any nasal vowel may be pronounced without nasalisation and without affecting the meaning of concerned word at all.

3.5 Diphthongs

Diphthongs are the combinations of two vowel sounds, one gliding towards the other. There are eight diphthongs in English and 25 in Bangla. The exact number of Bangla diphthongs is however still a matter of **debate**[5]. Of the English diphthongs, three are centring and six are closing. Centring diphthongs start from any corner of diagram and glide towards the centre, so they tend to end in schwa. The centring diphthongs in English are: /ɪə eə ʊə/. The closing

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5   Abul Kalam Manzur Morshed identified 29 diphthongs in Bangla. (Morshed 1997, p. 236)

diphthongs start glide from relatively open areas and end in back-close or front-close areas. The diphthongs ending in front-close areas are: /eɪ aɪ ɔɪ/ and the diphthongs ending in back-close areas are: /əʊ aʊ/. It is to be noted that the vowels in an English diphthong are of unequal length. The first vowel in the pair tends to be longer than the second one. But the vowels in Bangla diphthongs are usually of equal length, so that each individual member of the pair is pronounced with same audibility. The lists of English and Bangla diphthongs, along with examples in words, are presented in Table 9 and Table 10. Bangla diphthongs are more than double of English. So Bangla enjoys more variety in this respect.

Table 9: English diphthongs

	Glide	Diphthong	Word
1.	Towards central-mid	/ɪə/	dear
2.	Towards central-mid	/eə/	care
3.	Towards central-mid	/ʊə/	poor
4.	Towards front-close	/eɪ/	pain
5.	Towards front-close	/aɪ/	light
6.	Towards front-close	/ɔɪ/	coin
7.	Towards back-close	/əʊ/	low
8.	Towards back-close	/aʊ/	loud

Table 10: Bangla diphthongs

	Glide	Diphthong	Word	Meaning
1.	Towards central-open	/iɑ/	bia /biɑ/	marriage
2.	Towards central-open	/eɑ/	kheya /kʰeɑ/	boat
3.	Towards central-open	/uɑ/	bhua /bʰuɑ/	false
4.	Towards central-open	/oɑ/	doa /ḍoɑ/	blessing
5.	Towards back-open	/iɔ/	shior /ʃiɔr/	head
6.	Towards back-open	/uɔ/	shuor /ʃuɔr/	pig
7.	Towards front-close	/ei/	nei /nei/	missing
8.	Towards front-close	/ɑi/	bhai /bʰɑi/	brother
9.	Towards front-close	/ɔi/	moi /mɔi/	ladder
10.	Towards front-close	/oi/	oi /oi/	that
11.	Towards front-close	/ui/	dui /ḍui/	two
12.	Towards back-close	/ɔu/	bou /bɔu/	bride
13.	Towards back-close	/ɑu/	lau /lɑu/	pumpkin
14.	Towards back-close	/eu/	keu /keu/	someone
15.	Towards back-close	/iu/	shiuli /ʃiuli/	a kind of flower
16.	Towards back-middle	/io/	dio /ḍio/	give
17.	Towards back-middle	/æo/	nao /næo/	take (imperative)
18.	Towards back-middle	/ɑo/	dao /ḍɑo/	knife

19.	Towards back-middle	/ɔo/	kow /kɔo/	tell (imperative)
20.	Towards back-middle	/uo/	kuo /kuo/	well/pit
21.	Towards front-middle	/ie/	biye /bie/	marriage
22.	Towards front-middle	/ue/	shuye /ʃue/	sleeping

Bangla has three more diphthongs /ɑɪ ɔɪ æɪ/, which make use of a half vowel. With these the total number of diphthongs in Bangla will be 25. This has been discussed in the following section.

3.6 Half vowel in Bangla diphthongs

In diphthongs, Bangla makes a distinction between full and half vowels, similar to English short and long vowels. (Bhattacharyya 2000: 142; Chowdhury 2001: 47) Full vowels are of normal length and the half vowels only about half of it. Half vowel is in fact a reduced one well close to schwa. The only half vowel that is found in Bangla is front-close /ɪ/. The diphthongs in which the half vowel is used are: /ɑɪ ɔɪ æɪ/. We make a comparison between full and half close-front vowel in the Table 11. We have used the symbol /i/ for full length and /ɪ/ for half length.

Table-11: Full and half vowels in Bangla diphthongs

Full vowel /i/	*Half vowel* /ɪ/
/ɑi/ as in /gai/ 'I/we sing' or 'cow'	/ɑɪ/ as in /gɑɪ/ 'He/she sings or they sing' or 'in the body'
/ɔi/ as in /nɔi/ 'I/we are not'	/ɔɪ/ as in /nɔɪ/ 'He/she is not or they are not' or 'nine'
/eitɑ/ as in /eitɑ/ 'this one'	/æɪ/ as in /æɪsɑ/ 'this type'

The glide in the diphthongs involving the half vowel is rather like English, where the glide starts with full strength but weakens in the end, so that the first vowel is fully audible while the second one is feeble. In all three diphthongs, the glide is towards the front-close area.

3.7 Triphthongs

Triphthong is a combination of three vowel sounds where the first vowel glides to the second which again glides to the third. There are triphthongs both in English and Bangla. But their status as a single unit of sound is controversial. They are often analysed as separate units of vowels. In the English triphthongs, closing diphthongs, both front and back, tend to be combined with the central vowel. As there is half vowel in Bangla diphthong, it must also be found in triphthongs. English and Bangla triphthongs are presented in Table 12 and Table 13.

Table 12: English Triphthongs

	Glide	*Triphthong*	*Word*
1.	Towards front-close and central-mid	/eɪə/	player
2.	Towards front-close and central-mid	/aɪə/	fire
3.	Towards front-close and central-mid	/ɔɪə/	royal
4.	Towards back-close and central-mid	/əʊə/	mower
5.	Towards back-close and central-mid	/aʊə/	hour

Table 13: Bangla Triphthongs

	Glide	*Triphthong*	*Word*	*Meaning*
	Towards front-close and central-open	/ɑiɑ/	'maiya' /mɑiɑ/	girl
	Towards front-close and central-open	/eiɑ/	'heiya' /heiɑ/	that one (in southern dialect)
	Towards front-close and central-open	/ɔiɑ/	'loiya' /lɔiɑ/	taking
	Towards front-close and central-open	/uiɑ/	'shuiya' /ʃuiɑ/	reclining

Towards front-close and central-open	/ɑɪɑ/	'maya' /mɑɪɑ/	illusion
Towards front-close and central-open	/ɔɪɑ/	'daya' /d̥ɔɪɑ/	pity
Towards front-close and front-middle	/ɑɪe/	'payel' /pɑɪel/	anklet
Towards front-close and front-middle	/ɔɪe/	'khoyer' /kʰɔɪer/	catechu
Towards front-close and back-open	/ɔɪɒ/	'nayan' /nɔɪɒn/	eye
Towards front-close and back-open	/ɑɪɔ/	'naiyor' /nɑɪɒr/	newly married girl
Towards back-close and central-open	/ɑʊɑ/	'kauwa' /kɑʊɑ/	crow
Towards back-close and back-close	/eʊɑ/	'deuwa' /deʊɑ/	a kind of sour fruit
Towards back-close and central-open	/ɔʊɑ/	'bouwa' /bɔʊɑ/	perverted (dialect)
Towards back-middle and central-open	/ɔoɑ/	shower /ʃɔoɑ/	on a ride
Towards back-middle and central-open	/eoɑ/	dewa /d̥eoɑ/	to give
Towards back-middle and central-open	/æoɑ/	mawa /mæoɑ/	sweet fruit
Towards back-middle and central-open	/ɑoɑ/	hawa /hɑoɑ/	wind

What is noticeable is that Bangla triphthongs by far outnumber the English ones: English has five triphthongs while Bangla has 17. Of the Bangla triphthongs, /ɑɪɑ ɔɪɑ ɑɪe ɔɪe ɔɪɔ/ use half vowels, much reduced than the normal. If the half vowels are pronounced like the full, their meaning will be changed.

4. Consonants

There are 24 consonant phonemes in English while Bangla has 28. Consonants are classified according to the manner and place of articulation. The manner of articulation determines how the egressive pulmonic air passes through different tracts of mouth; and the place of articulation involves where a stricture is made to modulate the air. The places are lips, teeth, alveolar ridge, palate, velum and glottis. Tongue acts as the active articulator for pronouncing most of the sounds. (Ashby & Maidment 2005: 36) Front, middle and back of the tongue come close to any point of upper region of oral cavity to make a stricture. Depending of the stricture, a consonant is identified as plosive, fricative, affricate, nasal, lateral and approximant. The consonant phonemes of English and Bangla are shown in the Tables 14 and 15.

Table 14: Consonant Phonemes of English

	Bilabial	Labio-dental	Dental	Alveolar	Post-alveolar	Palatal	Velar	Glottal
Plosive	p b			t d			k g	
Fricative		f v	θ ð	s z		ʃ ʒ		h
Affricate					tʃ dʒ			
Nasal	m			n			ŋ	
Lateral				l				
Approximant				r		j	w	

Table 14: Consonant Phonemes of Bangla

	Bilabial	Dental	Alveolar	Post-alveolar	Palatal	Velar	Glottal
Plosive	p pʰ b bʰ	t̪ t̪ʰ d̪ d̪ʰ	t tʰ d dʰ	c cʰ ɟ ɟʰ	ʃ	k kʰ g gʰ	
Fricative			s				h
Nasal	m		n			ŋ	

Lateral			l				
Approximant			r	j	w		

4.1 Aspiration and Voicing

Voicing is counted as distinctive features both in English and Bangla. For most of the consonants, English pairs two -- with one voiced and the other voiceless. Besides voicing, aspiration plays an important role in Bangla. It is a distinctive feature in this language; that is, it differentiates meaning in words which have the same strings of sounds barring aspiration (Barman 2009: 192). The role of aspiration is less important in English as it is not a distinctive feature in the language. That is why when English group consonant sounds in pair, Bangla group them in four. In Bangla, the members of a four-strong group ('barga') are identified as voiceless unaspirated, voiced unaspirated, voiceless aspirated, voiced aspirated. (Haque 2003: 15; Shahidullah 2003: 30; Chaki 2001: 77)

4.2 Labials

Labial plosives are produced either with the touch of two lips or with the touch of lip and teeth. If produced with two lips, the plosives are called bilabials, and if produced with lip and teeth (usually with upper lip and lower teeth), they are called labiodentals. English has two bilabial plosives: /p b/ while Bangla has four: /p pʰ b bʰ/. (Ferguson & Chowdhury 1960: 96; Ali 2001: 42) /p/ is voiceless and /b/ is voiced; both of them are unaspirated. /pʰ/ and /bʰ/ are aspirated, the former at the same time being voiceless and the latter voiced.

English has two labiodental fricatives: /f v/. They are produced with the gentle passage of air through the stricture of upper lip and lower teeth. The first one is voiceless and second one is voiced. Bangla has

no labiodental plosive or fricative. (For a different opinion see Bhattacharja[6] 2006.)

4.3. Dentals

English has two dental consonants and these are fricatives: /θ ð/. On the other hand, Bangla has four dental consonants and these are plosives: / t̪ t̪ʰ d̪ d̪ʰ/. During the pronunciation of plosive dentals, there is complete closure with the articulators so that air is totally arrested for a little while. But during the pronunciation of dental fricatives, the closure is partial and air can lightly pass through the stricture.

4.4. Alveolars

English has two alveolar plosives: /t d/ while Bangla has four: /t tʰ d dʰ/. /t/ is voiceless and /d/ is voiced, both of them being unaspirated. /tʰ/ and /dʰ/ are aspirated, the former being voiceless and the latter voiced. It should be noticed that there is a slight difference in the pronunciation of English and Bangla alveolar plosives. During the pronunciation of /t tʰ d dʰ/ in Bangla, the tongue is curled back towards palate, for which they should be called *retroflex*. So they are sometimes written in a little different way to show the difference: /ʈ ʈʰ ɖ ɖʰ/. But the difference is almost imperceptible and may remain undetected in untrained ears. We can also ignore the difference for our present purpose.

English has a pair of alveolar fricatives: /s z/. The first one of the pair is voiceless and the other is voiced. Bangla has only the first one though in some dialectal and stylistic variations the second one may also be found. Contemporary Bangla shows an increasing tendency of the use of alveolar fricatives. In many cases palatal/post-alveolar consonants are transformed into alveolar sounds. For example, /gɑcʰ/ (tree) and /mɑcʰ/ (fish) are pronounced as /gɑs/ and/mɑs/; and /rɑɟɑ/

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[6] He claims that /f/ is the phoneme and /pʰ/ is its stylistic and/or free variation in Bangla.

(king) and /bʰɑɟɑ/ (fry) are pronounced as /rɑzɑ/ and /bʰɑzɑ/. They are pronounced with the front of the tongue making a stricture with the alveolar ridge, through which air passes with a hissing sound.

4.5. Post-alveolars

English has two post-alveolar consonants: /tʃ dʒ/. They are called affricates as they are pronounced with the tongue touching alveolar ridge and palate at the same time. Bangla has two similar sounds like /tʃ dʒ/, but they are pronounced as plosives rather than affricates. They are written as: /c ɟ/ as per the convention of IPA. They are often arguably thought to be pronounced like the English affricates: /tʃ dʒ/. There is hard controversy among the phoneticians whether the Bangla post-alveolars should be treated like English affricates. (Datta 1999: 47-48) It is argued that during the pronunciation of /c ɟ/, the middle of the tongue touches the post-alveolar region to form a complete closure, arresting the air flow and suddenly releasing the air with a plosion, which is a characteristic of plosive articulation. The argument seems to be convincing, so Bangla /c ɟ/ and English /tʃ dʒ/ might be different. Islam (1990: 1) and others consider them as plosive and I also follow their suit here. Bangla has also aspirated counterparts /cʰ ɟʰ/, while English has none of them.

4.6. Palatals

English has two palatal fricatives: /ʃ ʒ/. The first one is voiceless and the second one is voiced. They are pronounced with the front of the tongue making a stricture with hard palate, through which air passes with a hissing sound. Bangla has /ʃ/ but no /ʒ/. Its pronunciation is same as the English one. Sometimes /c ɟ/ are also considered as palatal by some Bangla phoneticians.

4.7. Velars

Velars are produced when the back of the tongue and velum forms a stricture, where air is first arrested and then released with sudden plosion. English has two velar plosives: /k g/ and Bangla has four:

/ k kʰ g gʰ/. /k/ is voiceless unaspirated, /g/ is voiced unaspirated and /kʰ gʰ/ are aspirated, the former being voiceless and latter voiced.

4.8. Nasals

Nasals are produced when air is prevented from flowing through the oral cavity so that it passes through the nose. Airflow may be obstructed at three places in mouth -- lips, alveolar ridge and velum, resulting in labial, alveolar and velar nasals respectively: /m n ŋ/. Both English and Bangla have all three of these nasal consonants.

4.9. Lateral

A lateral consonant is produced when tongue and any part of the roof of the mouth make a stricture and compels air to flow through the jaws. Both English and Bangla have a lateral consonant: /l/. There is no basic difference in its articulation in the two languages.

4.10. Approximants

Both English and Bangla have **three approximants**[7]: /r w j/. The /r/ is produced when the tip of the tongue comes close to alveolar ridge but allowing air to pass through the opening. When two lips with considerable rounding comes close to each other but allowing air to pass through the opening, /w/ is produced. When two lips with considerable spreading comes close to each other but allowing air to pass through the opening, /j/ is produced. The /w j/ have both vocalic and consonantal features. The two are rather pronounced like vowels /o i/ and usually appear like consonants at the onset of a syllable. That's why they are called semi-vowels. English /r/ has several contextual variants. Besides trill /r/, Bangla has also a flap /ɾ/ and a retroflex /ɽ/. (Chatterji 1988: 54; Datta 1999: 74) The last two are, however, often considered as only allophones.

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[7] Bhattacharja (2006) claims the number of approximants in Bangla to be four instead of three. He mainly identifies them in diphthongs. According to him, the four approximants are: /w, y, j, ɥ/, written in superscripts.

4.11. Glottal

Both English and Bangla have one glottal fricative: /h/. It is pronounced with the vocal folds wide open to let air pass uninterrupted through the glottis. English orthography shows its existence with 'h' letter, but its pronunciation is often missing, as in 'hour' and 'heir', which causes inconvenience for the non-native learners. Bangla has an orthographic symbol for this sound and its pronunciation is never missed unlike English. There is no difference in the pronunciation of /h/ in the two languages.

5. Conclusion

This article has made a contrast between the phonemes of two languages, being identified as phonemic systems, subsumed in the greater arena of comparative phonology, by way of the elaboration of differentiating factors. From this, we get a clear picture of sounds typically found in English and Bangla. It has been evident that English and Bangla, two languages belonging to Indo-European Family, have spectacular similarities as well as differences in their phonemic systems.

References

Ali, Zeenat Imtiaz. 2001. *Dhanibijnaner Bhumika*. Dhaka: Mowla Brothers.

Ashby, Michael & Maidment, John. 2005. *Introducing Phonetic Science*. Cambridge: Cambridge University Press.

Barman, Binoy. 2008. Distinctiveness of aspiration in Bangla. *Daffodil International University Journal of Business and Economics*, 3 (2): 191-203.

Bhattacharja, Shishir. 2006. On the Phonemic Inventory of Bengali. *Journal of the Institute of Modern Languages*, 2005-2006: 127-148.

Bhattacharyya, Pareschandra. 2000. *Bhasa Vidya Parichaya*. Kolkata: Joydurga Library.

Chaki, Jyotibhushan. 2001. *Bangla Bhashar Byakaran*. Kolkata: Ananda Publishers.

Chatterji, Suniti Kumar. 1988. *Bhasha-Prakash Bangala Vyabaran*. Kolkata: Rupa and Company.

Chowdhury, Pranab. 2001. *Dhanitattwao*. Dhaka: Jatiya Grontha Prokashan.

Datta, Sunil K. 1999. *Bengali Phonetics: A New Approach*. Kolkata: Firma KLM Private Limited.

Ferguson, Charles A, & Chowdhury, Munier. 1960. The Phonemes of Bengali. *Language*, 36: 22-59. Reproduced in *Bangla Dhwanimul*, 2010, Dhaka: Nabajuga Prokashani.

Fries, Charles, C. 1967. Phonetics and Phonemics. In John P. De Cecco (ed), *The Psychology of Language, Thought and Instruction*. New York: Holt, Rinehart and Winston, Inc.

Hai, Muhammad Abdul. 1967/2004. *Dhvani Vijnan O Bangla Dhvani-Tattwa*. Dhaka: Mullick Brothers.

Haque, Muhammad Enamul. 2003. *Bayakaron Monzuri*. Dhaka: Mowla Brothers.

Islam, Rafiqul. 1990. *An Introduction to Colloquial Bengali*. Dhaka: Bangla Academy.

Islam, Rafiqul. 2001. *Bangla Byakaran Samikhya*. Dhaka: Globe Library Private Limited.

Khan, Sameer ud Dowla. 2010. Bengali (Bangladeshi Standard). *Journal of the International Phonetic Association*, 40 (2): 221-225.

Ladefoged, Peter. 2001. *A Course in Phonetics*. Fourth edition. Singapore: Thomson Asia Pte Ltd.

Majumdar, Atindra. 1997. *Bhashatotto*. Kolkata: Naya Prakash.

Morshed, Abul Kalam Manzur. 1997. *Adhunik Bhasatatto*. Dhaka: Mowla Brothers.

Odden, David. 2005. *Introducing Phonology*. Cambridge: Cambridge University Press.

Richards, J., Plat, J. & Weber, H. 1985. *Longman Dictionary of Applied Linguistics*. Essex: Longman Group Limited.

Roach, Peter. 2000. *English Phonetics and Phonology: A self-contained comprehensive pronunciation course*. Third edition. Cambridge: Cambridge University Press.

Sen, Sukumar. 2002. *Bhashar Itibritto*. Kolkata: Ananda Publishers.

Shahidullah, Muhammad. 2003. *Bangala Bayakaron*. Dhaka: Mowla Brothers.