AN ANALYSIS OF CONTRASTS BETWEEN ENGLISH AND BENGALI VOWEL PHONEMES

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ABSTRACT

Both qualitative and quantitative aspects of the English vowel system mark it as distinct from many other vowel systems including that of the Bengali language. With respect to the English pure vowels or monophthongs, tongue height, tongue position and lip rounding are the qualitative features which make English distinctive. The quantitative aspect of the English vowels or vowel length is another feature which makes some Bengali vowels different from their English equivalents the fact being that vowel length in Bengali, though it theoretically exists, is not important in actual pronunciation of Bengali. English diphthongs, or the gliding vowels, on the other hand, have the unique feature that between the constituent vowels, the first vowel component is longer than the second. This paper examines these contrasts underpinned by the CAH (Contrastive Analysis Hypothesis) the proponents of which believe that through contrastive analysis of the L1 and the L2 being learnt, difficulties in the latter's acquisition can be predicted and materials should be based on the anticipated difficulties. The hypothesis also lends itself to the assumption that degrees of differences correspond to the varying levels of difficulty. This paper adds that contrastive analysis also enhances L2 awareness among learners, help them unlearn L1 habits and aids in the automation and creative use of all aspects of the L2 including phonology. The analysis of the sounds in question has made some interesting discoveries hitherto unknown and unobserved. First, it has been found that with reference to the parameters of vowel articulation, i.e. tongue height, tongue position, lip rounding and length (one or all working together), none of the English pure vowels have direct equivalents in the Bengali vowels inventory. English diphthongs have been found to be different from their Bengali counterparts too the fact being that in Bengali there are only two diphthongs though 17 to 31 diphthongs have been reportedly found. On closer examination, however, his paper has found that the ones claimed to be diphthongs are not diphthongs but just vowel combinations which do not share the characteristics of the English diphthongs that the constituent first vowel phoneme is longer than the second and the movement to the second sound does not have the nature of a glide. The only two diphthongs available in Bengali have similar characteristics; therefore, they are different from the English sounds of this category. Having discovered the differences between the vowel phonemes of the languages concerned, the paper offers some pedagogic suggestions that the English sounds (vowels and consonants) should be taught in integration with the other hierarchically related elements of English pronunciation and in tandem with the features of connected speech in the context of spoken discourse.

Keywords: Monophthongs, Diphthongs, Aspect of Quality, Aspect of Quantity, Vowel length

INTRODUCTION

Intelligible pronunciation is essential for effective oral communication in both L1 and L2 contexts. Most Bengali speakers of English suffer from pronunciation difficulty in English because English pronunciation comprising these hierarchically related elements of phonemes, stress, rhythm and intonation are by and large different from those in Bengali. The most observed problem has been the pronunciation of the English sounds, vowels and consonants alike. This paper analyses the contrasts between English and Bengali pure vowels and also the contrasts between the English and Bengali diphthongs or gliding vowels. It is noteworthy that an analysis of contrasts between English and Bengali consonants was performed earlier by the same author (Syed, 2017) which, unlike the current investigation, found some similarities between English and Bengali consonants. This investigation, to the contrary, has discovered that not a single Bengali vowel is an exact copy of the corresponding English vowel in terms of qualitative as well as quantitative properties. Arguably, as supported by the CAH (Contrastive Analysis Hypothesis), differences in linguistic forms between the learner's L1 and the L2 being learnt result in learning difficulties. It can therefore be claimed that for Bengali speakers of English, English vowels are more difficult to acquire than the English consonants.

The analysis of contrasts in this paper is between Standard English sounds as represented in the IPA (International Phonetic Alphabet) and the Standard Bengali phonemes used by the Bengali speakers living in Bangladesh and the Bengali speakers living in West Bengal, India. The two sound systems have been contrasted with reference to the two parameters of vowel distinctiveness, namely quality of articulation comprising tongue height, tongue position and lip rounding. Quantity, to the contrary, refers to the time needed for the articulation of particular vowels; in English phonology, pure vowels are distinctively either short or long whereas Bengali vowels are not divided along the line of length. The analysis has discovered that English vowels differ from the Bengali vowels in terms of the qualitative features, or the quantitative features or both.

The analysis of contrasts between the English and the Bengali vowels is underpinned by the Contrastive Analysis Hypothesis (CAH) which claims that the more different are the two languages (L1 and L2), the more difficult it will be to learn the latter because of the negative interference or transfer of the L1 in learning the L2. In the process of SLA (Second language acquisition), therefore, the awareness of the differences between a learner's previously acquired language (usually the L1) and the L2 being learnt, helps the learner notice TL (Target Language) features (in this case phonological features) which is a precondition for automation and creativity. It is also believed that understanding the differences helps both the teacher and the learner predict learning difficulty. These tenets of the CAH (Contrastive Analysis Hypothesis) have been the bases for the analysis carried out in this paper. However, the meaning and the salience of contrastive analysis is further clarified in the next section with reference to expert opinions before the actual analysis of contrasts between the two vowel systems is performed.

CONTRASTIVE ANALYSIS HYPOTHESIS

The salience of Contrastive Analysis Hypothesis or CAH was felt by Fries (1945, p. 9) who claimed that teaching materials which are based on the scientific analysis of contrasts between the mother tongue of the learner and the language he or she is attempting to learn are the most suitable materials. Richards and Sampson (1974) note that the study of similarities and differences between the L1 of the learners and the L2 which is being learned, helps both the instructor and the learner to predict errors and facilitates acquisition of the L2 in question. Lado (1952, p. 2) has a similar opinion that the degree of differences between two languages correlate with the degree of difficulty. Wilkins (1972: 197-198) subscribes to this view by holding that the bigger the difference, the more difficult it will be to acquire the TL (target language). He, like Fries (ibid), also claims that materials and teaching techniques should, therefore, vary according to the differences found.

Larsen-Freeman (1991: 53) has a similar view that similarities between the L1 (the first language of the learner) and the L2 (the second language being learnt) facilitate the acquisition of the latter whereas differences result in difficulties and formation of errors in learner language. Recently, Chan (2004: 56-74) subscribed to these views by claiming that most language deficiencies can be attributed to L1 and L2 differences which lead to difficulties. It follows that understanding the differences pays dividends in second language acquisition. Chan adds that learning difficulty in L2 is handled by his/her falling back on his/her previously learnt repertoire which is usually his or her first language. Most of the views on the study of differences, however, are concerned with the notion that understanding differences would help both the instructor and the learners predict difficulties in learning. This paper , however, believes that leaving the predictability factor aside, the benefit of a contrastive analysis would help learners notice the L2 features and help them become aware of them and help them become their habits before they are automated and ready for production which are necessary precondition to L2 acquisition besides receiving input and enough output in the TL. Some opponents of the CAH, however, are at odds with the habit formation theory which is the crux of CAH. The notion of habit formation cannot be cast away wholesale; instead, habit formation does have an important place in language learning, both L1 and L2, along with cognitive-code learning and the creative use of language. Habit formation through practice is emphasized by Littlewood (1984, p. 74)

> The cognitive aspect [of learning] involves the internalization of plans for creating appropriate behaviour. For language use, these plans derive mainly from the language system - they include grammatical rules, procedures for selecting vocabulary, and social conventions, governing speech. The behavioural aspect involves the automation of the plans so they can be converted into fluent performances in real time. This occurs mainly through practice in converting plans into performance.

Syed (2016: 66) looks at the matter in a similar vein:

> …. habit formation is one important aspect in language acquisition, meaning habits lead to internalization/consolidation of what has been learnt, which in turn, may result in the creative use of the language being learnt.

Therefore, the importance of contrastive analysis should not be underestimated but leaving the predictability factor aside, an analysis of contrasts *per se* is significant in so far as noticing and awareness building in L2 forms are concerned, so instead of writing it off, it should be part of second language methodology since it pays dividends in acquisition. Contrary to popular belief, form-focused teaching is conducive to SLA because it lets the learner notice L2 linguistic forms and lets them become aware of them. Awareness makes them focus on accuracy along with fluency which, without accuracy, is in effect communicative incompetence. An attempt to communicate needs to be intelligible; success in spoken communication depends on intelligibility as well which, for a large part, depends on intelligible pronunciation which can be taught through form-focused instruction contrastive analysis playing a significant role in it, the other techniques being metalinguistic explanation, demonstration and even the use of translation. Needless to say, all of these techniques may be used for pronunciation teaching

Areas of L1 negative interference because of its being different from the L2 is evident in all its aspects, namely phonology, morphology, syntax and semantics as observed by Lee (1999, pp. 13-59), so the study of differences may be carried out in all of these areas. Prator (1967), reported in Brown (1994, p. 197), put the L2 learning difficulties in these categories which apply to both grammatical and phonological differences: 1. No Transfer: 0 difference, no difficulty; 2. Coalescence: Two native language items coalesce into one target language item; 3. Underdifferentiation : An item in the native language is absent in the target language, so learners avoid that item.; 4. Reinterpretation: An L2 item is present in the native language but it is reinterpreted in the target language; 5. Overdifferentiation : A new L2 item with little similarity to the L1 must be learned; 6. Split: Is opposite to coalescence – One L1 item becomes two or more in the TL. Such categorization has been avoided in the article because more than being the predicator of difficulties, contrastive analysis is considered as a tool for form-focused teaching which enhances L2 language awareness as discussed above. The paper now analyses the differences between the English and Bengali vowels on the basis of the variables mentioned earlier and now presents them through individual figures before putting up an integrated vowel map followed by the analysis of the differences.

VOWEL QUALITY: TONGUE HEIGHT, TONGUE POSITION AND LIP ROUNDING

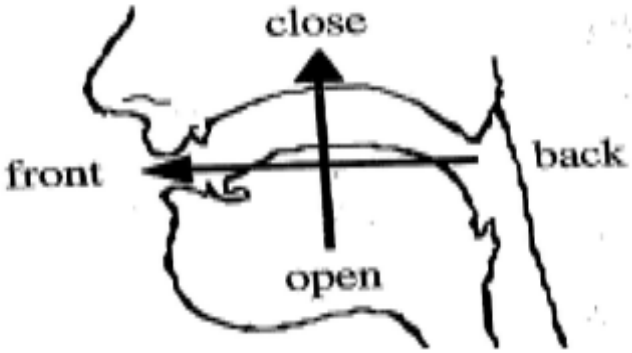
Figure 1: Tongue height or jaw/mouth opening

Jaws are extremely close **Jaws are extremely open**

Tongue height is the vertical dimension of vowels which involves the mouth opening. The tongue moves up and down being attached to the lower jaw. The height of the tongue varies according to the degree of mouth opening and in the process different vowel sounds are produced. Mouth- or jaw opening, therefore, is an important parameter of the articulation of vowels.

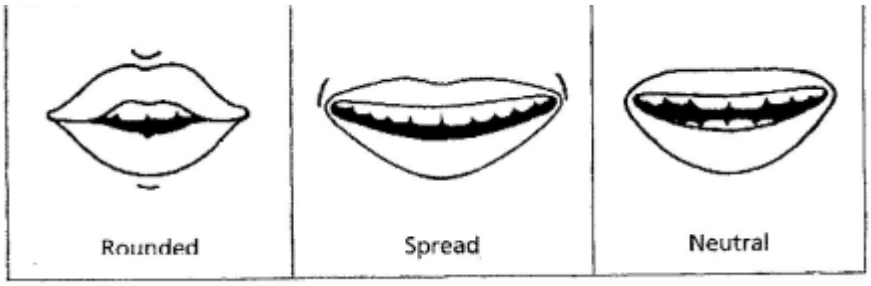
Whereas the vertical dimension denotes tongue height in relation to the oral cavity and designates vowels of the different types, the horizontal feature of distinctiveness, on the other hand, is characterized by the part of the tongue which is raised and used in the articulation of specific vowels varying from the front through the central to the back position which causes variations in articulation (see figure 2 below).

Figure 2: Tongue position (Front to back)



The third qualitative feature of vowel articulation is the lip position or rounding which is seen in the diagram below. Lips take these three general positions as: a) Neutral b) Spread and c) Rounded with intermediate gradations for the spread and rounded positions like slightly/strongly spread or moderately/strongly rounded. The tongue height and tongue position being the same for two English vowels, the difference in lip rounding may distinguish one vowel from another. In distinguishing English vowels from Bengali vowels, lip rounding, however, does not play a very significant role in their distinctions. The degree of lip rounding is important for drawing up contrasts only between one Bengali vowel, / অ (o) /, and one English vowel, Oʊ /. For the Bengali sound, lip rounding is moderate while for its English counterpart, lips are strongly rounded, and hence the qualitative contrast.

Figure 3: Lip position or lip rounding



VOWEL LENGTH

Apart from qualitative distinctiveness of English vowels, quantity or length also matters which is indicated by two vertical dots‘: ’. A point is worth making that the notion of length does not exist in case of Bengali vowels though the second Bengali vowel in each pair below is theoretically long but practically of the same length as the first one in each pair:

/ ই (i) / ; / ঈ (I) / and / উ (u) / ; / ঊ (U). Influenced by this feature of the Bengali vowels, Bengali speakers of English cannot tell the English long vowels apart from the short ones. All twelve English pure vowels are shown in the table below which is followed by a table of Bengali pure vowels followed by a vowel map where both the English and the Bengali vowels have been positioned with reference to their vertical and horizontal parameters.

ENGLISH AND BENGALI PURE VOWELS

The number of English pure vowels, constituting a single vowel phoneme, is twelve whereas in Bengali there are nine excluding two diphthongs. The twelve English pure vowels are:

Table 1: The English pure vowels

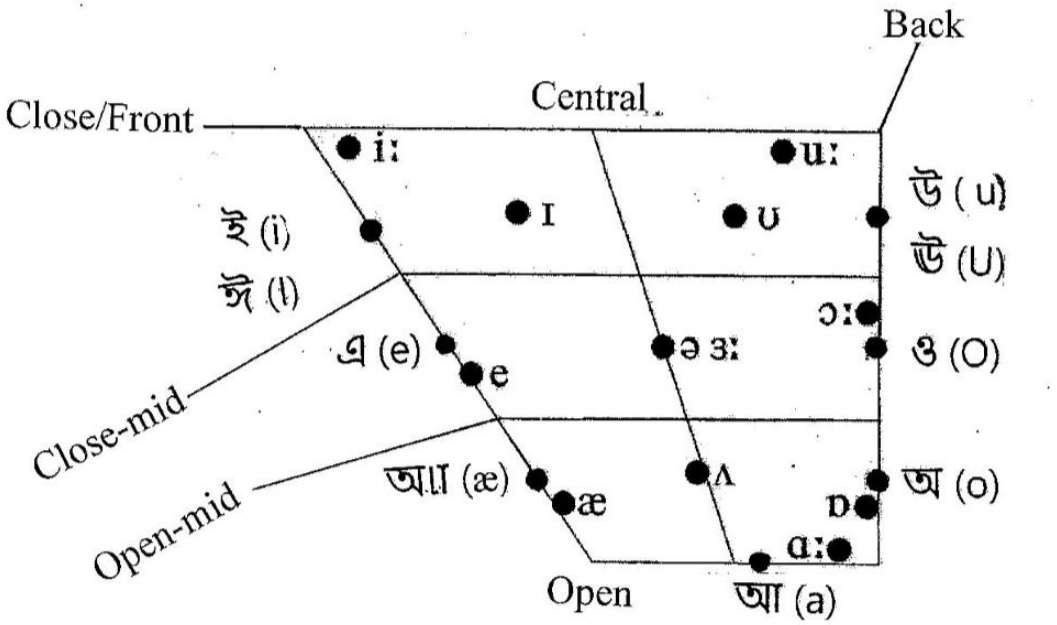
i:	ɪ	ʊ	u:
e	ə	ɜ:	ɔ:
æ	ʌ	ɑ:	ɒ

Table 2: The Bengali pure vowels

অ (o)	আ (a)	আ◌া	ই (i)	ঈ (I)
এ (e)	ও (O)	উ (u)	ঊ (U)	

Next, both the English and the Bengali pure vowels have been put into a single vowel map below according to their vertical and horizontal properties. Though their features are self-explanatory from the diagram itself, a detailed analysis of contrasts between the English and the Bengali monophthongs is made followed by an analysis of contrasts between the Bengali and English diphthongs or gliding vowels using a different vowel map the reason being that diphthongs are two-element vowels involving a gliding movement from one element to the other.

Figure 4: English and Bengali pure vowels map



Vertically speaking each vowel is either close, half-close (close-mid), half-open (open-mid) or open. Or more clearly, it indicates how open the mouth is; for example, for making Bengali / অা (æ) /, the mouth is less open than it is for English / æ /.The horizontal feature, on the other hand, indicates which part of the tongue is raised or used to make a particular sound.

ANALYSIS OF CONTRASTS BETWEEN THE ENGLISH AND THE BENGALI PURE VOWELS

Similar English and Bengali monophthongs are grouped together for the convenience of analysis.

1. /I/, /i:/ vs / ই (i) / or / ঈ (I)/: Both the English and the Bengali sounds are close and front vowels but the English vowel / i: / is closer than each of the Bengali sounds and it is longer, so it is different from both of these Bengali sounds. The second Bengali sound is theoretically long but in use it is of the same length as the first vowel. Unlike the Bengali sounds, / I /, is close to the central position, so it is also qualitatively different from both Bengali sounds. Lips are slightly spread for all of the vowels, so it is not a distinctive feature.

2. / e / vs /এ (e) /: Both sounds are front vowels between the close-mid and open-mid regions but / এ (e) / is more close than the English vowel, so it is qualitatively different from English / e /. Lengthwise, this Bengali vowel is shorter than its English counterpart. Practically, 'long' / ঈ (I)/ and 'long / ঊ (U), are not long (no other Bengali vowel is) and this is a significant problem; English long vowels are not pronounced long by Bengalis. As pointed out earlier, difference in vowel length is not available in Bengali which poses serious comprehension difficulty for a Bengali listening to English; conversely, when the person speaks, a native speaker or a speaker who speaks and understands standard English may not understand his speech because of not maintaining the right vowel length (long or short) in his speech. The lips are slightly rounded for both sounds, and hence this feature does not give rise to any contrast between them.

3. / æ / vs / অ◌া (æ) /: Though both sounds are horizontally the same (front vowels), their vertical characteristic or tongue is different; The mouth opening for the Bengali sound is less wide than it is for the English sound. The lip position is the same, slightly rounded for both sounds. The only reason for the contrast between these two sounds is the vertical opposition or difference in tongue height or mouth/jaw opening.

4. / ɔ: /, / ɒ / vs / অ (o) /, / ও (O) /: These are back vowels but vertically they are different. While the first English sound is near the close-mid position, / ও / is between the close-mid and open-mid position. Unlike / ɔ: /, the second English sound is in the open position but not fully open. Lips are strongly rounded for / ɔ: / but slightly rounded for both / ɒ / and / ও (O) /. The second Bengali sound / ও (O) / usually replaces / ওʊ / (a diphthong) in words like 'go', 'toe', and 'low' etc. /. Though both / অ/

and / ɒ / are open vowels, the Bengali vowel is slightly above the English vowel having a slight difference in pronunciation mouth-opening wise.

5. / u: /, /ʊ/ vs / ঊ (u) /, / ঊ (U) /: All four vowels in this group are back vowels meaning the back of the tongue is used in their pronunciation though the Bengali vowels are in the extreme back position. The Bengali vowels are different from / ʊ / only horizontally but both horizontally and vertically from / u: /. Besides, the first English sound is a long vowel whereas the Bengali sounds have similar length although theoretically the second Bengali sound is longer than the first. Because there is practically no length difference between these Bengali sounds, they interfere with the pronunciation of English / u: /; it is generally pronounced as / ʊ /, its shorter counterpart. In fact, because vowel length is not a distinctive feature in Bengali phonology, no English long vowels are pronounced as long vowels causing comprehension problems for listeners, e.g. 'leave' may be pronounced as 'live', 'too' as 'to', 'cart' as 'cut' and so on.

6./ ɜ: /, / ə /, / ɑ: /, ʌ / vs / আ (a) /ː The first two English sounds are central vowels (horizontally or tongue position wise) between the close-mid and open-mid positions (vertical dimension) with the only difference between them being that the first one is a long vowel whereas the second vowel is a short vowel. / ʌ / is central vowel too, but in the open-mid and open position. / ɑ: /, to the contrary, is totally open and back. The lone Bengali sound is an open vowel too but is closer to the central position. Lips are neutral for all of these vowels, so lip position does not play any role in their contrast. In summary, / আ / is shorter than / ɑ: /, and is not as back as / ɑ: /.Tongue height-wise it is unlike the first, second and the fourth English sounds which are central vowels but it this Bengali sound is away from the centre and fully open. Interestingly enough, all of the four English sounds are replaced by / আ (a) /, their distant cousin. The analyses of the differences between the English and the Bengali pure vowels are presented in a tabular form below:

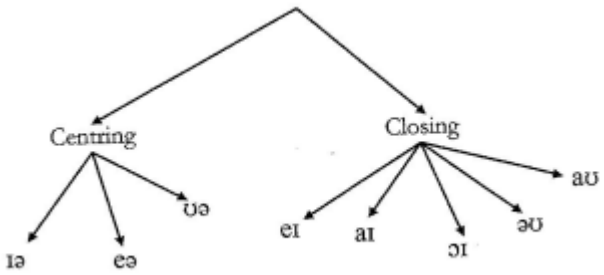
Figure 5: Summary of contrasts between English and Bengali pure vowels

English vowels	Bengali equivalents	Aspect/s of difference	Remarks
i: I	ঈ (i) ই	/i:/ is long, close and front but the Bengali sounds in the close and close-mid position though both are front vowels.	/i:/ The Bengali vowel is vertically different from both Bengali vowels. Though /ঈ/ is theoretically long, in use it is the same length as /ই/ which is longer than /I/.
e	এ (e)	Both /e/ and /এ/ are between the close-mid and open-mid position but /e/ is more open.	/এ/ is shorter than /e/. They are vertically different though horizontally same.
æ	অা(æ)	Though both sounds are open-front vowels, the English sound is more open	The vowels are different tongue height-wise.
ɒ	অ (o)	Both these sounds are back vowels but the English sound is more open than the Bengali sound	The difference in these vowel too are jaw-opening wise.
ɔ:	ও (O)	Both are back vowels but vertically the Bengali sound is at a lower position than the English sound. Lips are more strongly rounded for /Ɔ:/	The English diphthong /əʊ / is replaced with this pure vowel in Bengali by most Bengali speakers of English.
u: ʊ	ঊ (U) উ	Both /u:/ and /ʊ/ are back vowels but /ʊ/ is close to the central position. Both Bengali vowels are extreme l back vowels. Unlike /ʊ/ and both Bengali vowels which between the close and close-mid positon, /u:/ is a close vowel but not as far back as the Bengali vowels	/u:/, a long vowel, is both vertically and horizontally different from the Bengali vowels but /ʊ/ is only horizontally different from them. Though the first Bengali vowel is theoretically a long vowel, practically, it is the same length as the other vowel.

		which are at the extreme back position.	
ɑ: ɜ: ʌ ə	আ (a)	Both /ɑ:/ and /ɜ:/ are long vowels but the first one is a back vowel whereas the second one is a central vowel. Besides, /ɑ:/ is a fully open vowel but /ɜ:/ between the close-mid and open-mid position. Unlike /ɜ:/, the last two English vowels are central short vowels but /ə/ is between the close-mid and open-mid position. /আ/ is different from all four English vowels because it is fully open but unlike /ɑ:/ is closer to the central position but not as central as /ə/,/ ɜ/ or ʌ/.	Interestingly, /আ/ is wrongly used for all of the four English sounds. This shows mother tongue influence in SLA in case a TL form is not available in the L1 of the learner or is different from the L1 form.

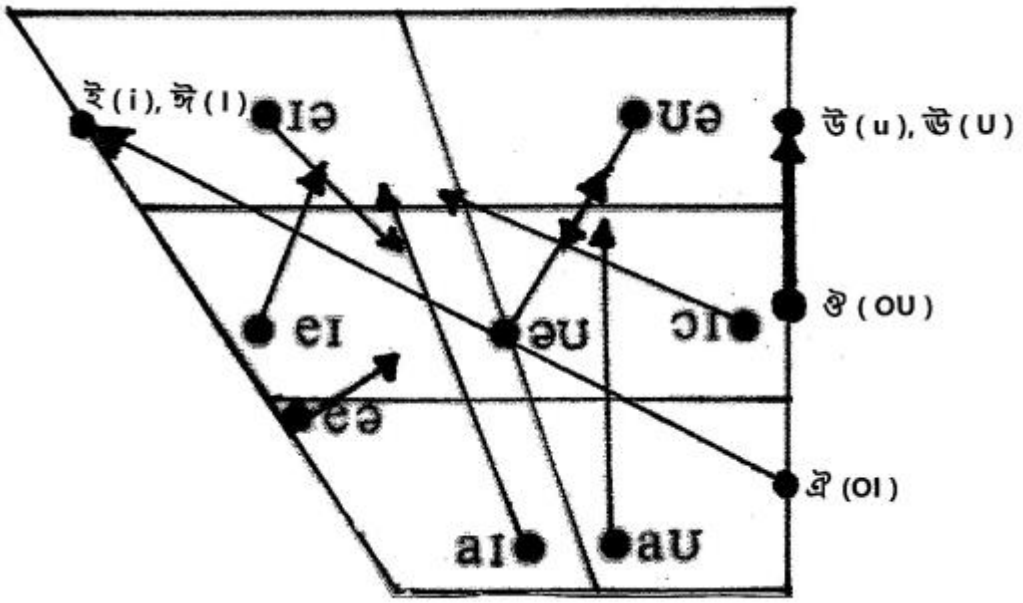
The analysis of the qualitative and quantitative differences between English and Bengali monophthongs confirms that none of the English vowels has an exact equivalent in the Bengali vowels inventory. The English diphthongs as well differ from the Bengali diphthongs though available in a very small number (two). Some experts, however, have found quite a large number of diphthongs in Bengali but their observations are challenged in this article for reasons discussed next. English Diphthongs are two-phoneme gliding **vowels and** are of two types – the closing type and the centring type; in the first type the movement from the first element occurs towards the closing position, / I / or / ʊ /, whereas in the second type the movement takes place towards the mid- or the centring position and hence the names. There are eight diphthongs in English but only two in Bengali if they at all qualify as diphthongs with reference to the properties of English diphthongs. The movement of the English Diphthongs to the second phoneme is approximate whereas that in the Bengali diphthongs it is absolute and complete as seen in the diphthongs map (figure 6). What it means is, the first phoneme of an English diphthong is longer than the second whereas both the elements of the Bengali diphthongs are of equal length and strength. This is the main difference between the English and the two Bengali diphthongs as represented on the map and a host of others not shown but claimed to be diphthongs by some. The eight English diphthongs are seen in figure 5 below (adapted from Roach, 1991, p. 20) and both the English and the Bengali diphthongs are put on the same map that follows.

Figure 5: English diphthongs



The three centring diphthongs glide towards the central vowel / ə / and out of the five closing diphthongs, two glide to the close/front vowel / I / and / and three move to the close/back vowel / ʊ /. In the integrated map below, the English diphthongs as well as the two Bengali diphthongs are placed in their respective positions which indicate the contrasts.

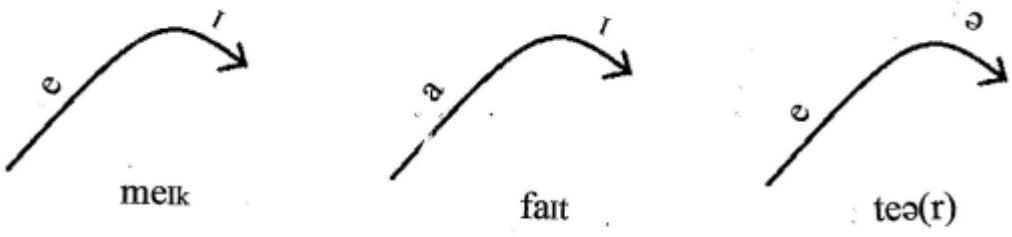
Figure 6: English and Bengali diphthongs



ENGLISH AND BENGALI DIPHTHONGS CONTRASTED

The Bengali vowel system has only two diphthong-like vowels as seen in the diphthongs map above. They are: /ঐ (OI) / and /ঔ (OU) /. The first one has some resemblance to English / ɔi / and the second one corresponds to English /əʊ/. Still the two Bengali diphthongs are different from their English equivalents in that the points of their origin are not like those of the corresponding English sounds. The origin of /ঔ/ is not the same as the origin of /əʊ/ which begins with a 'schwa' but / ও (O) / is a pure vowel unavailable in English and the origin of /ঐ / is / অ (o) / (see the integrated pure vowels map) which is distinct from / ɔi / or / ɒ /. The first Bengali sound has a complete end at /ই (i) / whereas the second sound completes its journey at / ঊ/ঊ / u / or / U/. In the English equivalents of these Bengali diphthongs, /ɔI / and əʊ/, the "journeys", to / I / and / ʊ / respectively are approximate, not complete as illustrated in figure 7 below.

Figure 7: English diphthongs have a longer first phoneme



This feature applies to all of the English diphthongs which marks them different from the two available in Bengali. To some authors, however, there are seventeen to thirty-one diphthongs in Bengali, a notion which is highly contested in this paper. Barman (2009, p. 30), for example, says there are 25, Sarker (1992) and Ali (2001) accepted 17, Hai (1964, p. 36) identified 31, and Morshed (1997, p. 236) found 29 diphthongs in Bengali. Arguably, they seem to be oblivious of the fact that with the exception of /ঐ/ and /ঔ/, the rest are just vowel combinations not sharing the qualities of the English diphthongs, so they are not to be considered as diphthongs. As mentioned earlier, because of the length factor of the second element of the English diphthongs as well the nature of the constituent vowels, they are different from the English diphthongs. The conclusion which can be drawn about the Bengali diphthongs (two only) from the above analysis is that like the Bengali pure vowels, the existing Bengali diphthongs too differ from their English counterparts based on the articulatory differences. And because of the differences, Bengali speaking English speakers and learners find it difficult to acquire and pronounce them. The diphthongs in the following two words are often mispronounced: *make* /meik/ as "mek" or *take /teik / as* "tek", etc.; alternatively, both vowels

in a diphthongs may be *overpronounced*, e.g. / meik / is heard pronounced as "m…e….i…k'', that is, the second vowel element / I / is made as long as / e /. This diphthong, for example, is under or over pronounced. In fact, almost all of the English diphthongs are mispronounced by Bengali speakers of English because of negative interference from Bengali.

Interestingly, triphthongs (a diphthong + /ə /), are also considered as single vowel units by some and claimed to be available in Bengali as they are in English. Barman (2009, p. 35) claims that English has five triphthongs whereas Bengali has seventeen. In this paper, triphthongs are left out of the discussion because each one is made up of a diphthong plus / ə / being the perennial third element: ei + ə = /eiə/ in 'player'; ai + ə = /aiə/ in 'fire'; ɔi + ə = /ɔiə/ in 'loyal'; aʊ + ə = /aʊə/ in 'power', etc. (adapted from Roach, 1991). Barman's (ibid) examples of Bengali triphthongs are 'maiya' /ɑiɑ/ (girl); ' loia' /ɔiɑ/ 'taking', and 'hawa' /ɑoɑ/ (wind), among others. What is worth noting is that almost all of Barman's examples of Bengali triphthongs, the last (third) vowel sound as transcribed is /ɑ/, not /ə/ a very short vowel in English, and here lies the difference; in Bengali triphthongs, all the constituent vowels, including those of the diphthongs, are equally long and emphasized. In English triphthongs, to the contrary, the /ə/ does not constitute part of the first syllable of the English words below but it is a syllable *per se* present in most weak syllables. In words like 'fire' ; 'layer'; 'tire'; 'lower'; 'shower' and suchlike, the first syllable containing a diphthong is stressed, leaving the / ə / out forming a syllable by itself. Actually, most English weak syllables contain the / ə /, the last vowel of an English triphthong but standing on its own as a separate syllable. The discussion, therefore, is restricted only to English pure vowels and diphthongs; for cogent reasons, therefore, English triphthongs are not considered for contrastive analysis with equivalent Bengali triphthongs; overall, they are left out of the investigation of vowel contrasts in this paper.

SUMMARY OF THE FINDINGS

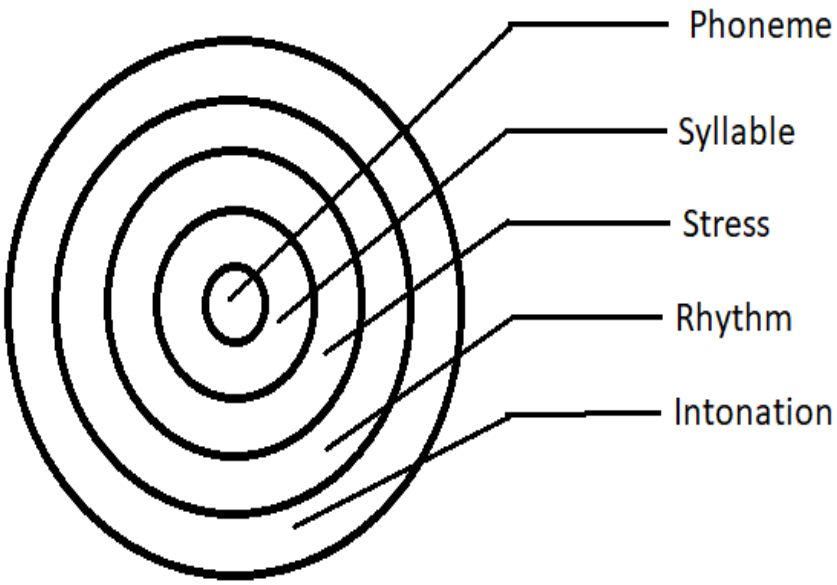
The contrastive analysis of English and Bengali vowels in this paper has uncovered some very interesting facts. First, no Bengali pure vowel or monophthong is exactly the same copy of a corresponding English pure vowel because of its being different either vertically (tongue height wise), or horizontally (tongue position-wise), or both and also lip position or lip rounding-wise. Apart from the difference in tongue height and tongue position difference, vowel length also matters non-observance of which may cause both comprehension and production difficulties. Both English long- and short vowels are pronounced by Bengali speaking learners in the same manner because there is no short-and-long vowel difference in the Bengali language. An L1 language habit, thus, is transferred to the acquisition of an L2 phonological feature. With respect to Bengali diphthongs, they are very limited in number (only two) and they not share the property of the English diphthongs; unlike the constituent vowels of the English diphthongs, both constituents of Bengali diphthongs are of equal lengths. them, both constituents Triphthongs, on the other hand, have been excluded from the analysis of contrasts because, unlike diphthongs, they are not single-unit (not to be confused single-phoneme) vowels. The truths revealed through this study may surprise earlier claims and research findings but the objective analysis of the differences between the two vowel inventories of English and Bengali surely has opened up a vista of truths hitherto unobserved, and unknown, but to be further established through empirical research. This analysis is important not only for its own sake, but has serious implications for teaching English pronunciation at large as discussed in the next section.

PEDAGOGICAL IMPLICATIONS OF THE FINDINGS OF THE ANALYSIS

This study is based on contrastive analysis of the English and the Bengali vowel phonemes. As mentioned earlier, contrastive analysis helps predict learning difficulty on which material preparation should be based as hypothesized but it is also an instrument of form-focused teaching which aids language awareness building which in turn helps language automation through noticing language forms. Though in pronunciation teaching, ear- and speech training is always the most effective technique, addressing pronunciation-related problems through comparing and contrasting, demonstrating and explaining, all being features of form-focused teaching, are also not unhelpful. Because L1 interference plays a significant role in L2 acquisition including that of phonology, a learner will definitely benefit from a comparative study of two languages to minimize L1 interference through noticing linguistic forms which is highly likely to increase language awareness which is a precondition for language acquisition.

While teaching pronunciation to non-native speakers of English, Bengali speaking learners being the case in point (who have already had Bengali pronunciation habits), should be made aware of the differences which might negatively interfere with the acquisition of the English sounds. So conscious unlearning of old habits may be brought about by a comparative study of two the phonological systems. To teach tongue height differences, it would be fun to focus on mouth- or jaw opening variations by demonstrating how different vowel sounds can be produced by simply moving the jaws up and down at different heights, i.e. varying the mouth openings. When both quantity and quality define vowel characteristics, the perception of quantity or length is to be prioritized over quality because it is easier to notice length difference than quality difference. Last but not least, sound segments are only part of the whole phonological system in which the elements are hierarchically bound together as shown in the figure below:

Figure 8: Hierarchical arrangement of phonological units



In addition to these hierarchically bound items of phonology, there are also the features of connected speech like contracted forms, weak forms, linking, assimilation and elision to take care of. Instead of teaching the English sounds separately, it would surely be more effective if the above components of pronunciation were taught in an integrated manner in tandem with the features of connected speech in the context of discourse.

CONCLUSION

This paper has performed a contrastive analysis of the Bengali and the English pure vowels and diphthongs (gliding vowels). The reasons why contrastive analysis has been adopted are that it helps the process of material writing and the prediction of errors which learners make in the acquisition of a second language. Contrastive Analysis is also underpinned by the notion that when the learner's L1 is similar to the L2 being learnt, acquisition becomes easy but when the languages are different then L2 acquisition suffers interference from the L1 or its forms are transferred to the target language. In addition to these traditional notions, it has also been pointed out in the paper that contrastive analysis is one effective instrument of form-focused instruction among others which can be used in tandem with the communicative approach to second language teaching because its raises the learner's awareness of L2 forms which helps their automation and creative use.

From the exanimation of the articulatory properties of English and Bengali pure vowels and diphthongs, it has been clearly found that not a single English vowel, be it a monophthong or a diphthong, has a direct or exact equivalent in the Bengali vowel system which is responsible for pronunciation difficulty Bengali speakers and learners of English encounter. A especial discovery has been made that, in contrast to popular perceptions and observations, the huge number of diphthongs (numbering 17-31), claimed to be present in Bengali are not diphthongs at the level of the English diphthongs because Bengali diphthongs do not share the special characteristics of the English diphthongs that the first phoneme (the origin) is longer than the second and the glide from the first phoneme to the second is not quite like the one of the English diphthongs. The only two Bengali diphthongs, which are listed in the Bengali alphabet and in its phonology (they are the same; no separate phonetic inventory or representation is either available or is necessary) also have no exact English equivalent for the same reason. The outcome of this analysis is significant in that the new truths which have been uncovered are likely to help both the teacher and the learner of English pronunciation to understand the true nature of the pronunciation of English vowels and pronounce them correctly by avoiding articulations which are characteristically not English but the result of interference from Bengali.

Prompted by the revelation of the differences between the two vowel systems under investigation, the pedagogic suggestion for form-focused teaching which makes people focus on linguistic forms in unison with an urge for fluency needed for successful and intelligible communication should pay off. The advice for teaching the vowels along with the other elements of English pronunciation i.e. syllables, stress, rhythm and intonation, and the features of connected speech, i.e. weak forms, linking, contractions, assimilation and elision in the context of spoken discourse is also important. The overall significance of the paper lies in the fact that it has uncovered the truths about the differences between English and Bengali vowels the awareness of which,

brought about by a contrastive study, is likely to help Bengali learners and speakers of English improve their English pronunciation habits at large by helping them to break away from their previously learnt (Bengali pronunciation) habits.

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