

Vowel Sound Symbols and Schools of Transcriptions

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Abstract: The recognition usually made between phonetics and phonology is that phonetics studies the physical or physiological aspects of speech, including its articulatory, aerodynamic, acoustic, auditory, and perceptual aspects, whereas phonology is concerned with accounting for variation in speech sounds in different but related languages and dialects, and within a given language in the environment of different morphemes, different positions within an utterance, word, or other speech sounds. A simple phonetic transcription is based on using the minimum number of different symbols, of the simplest possible and most familiar shapes. Whereas the allophonic transcription uses more than the minimum number of different symbols. In such transcription more than one symbol are used for one phoneme. A comparative transcription is the one in which all the symbols are not of the most simple and familiar shapes. It uses symbols some of which are more specific in their reference than these of a simple transcription. The problem of this research is that different symbols are used for the same sound representation in their way of transcription or the same symbols are used for the different sounds representations of different schools of transcriptions. This causes confusion for learners of English when their program uses different sources from different schools without mentioning these differences between these schools of transcriptions or when they use different dictionaries used different symbols of different school of transcriptions. It is hypothesized that confusion for learners of English because of the different or same symbols are used for the same phonetic representation in the phonetic transcription of different schools of transcriptions. The concern in this research is on program of these learners of English who learn phonetics and phonology text books of a certain school of transcription and their sources are taken from different schools of transcriptions or use different dictionaries used different symbols of different schools but nothing mentioned about these schools. Also, the concentration will be on the vowels not the consonants. The concentration will be on British and American schools of transcriptions. The aims of this research are to remove this confusion and build concrete program for teaching English for different levels of learners. Finding the similarities and differences between different schools of transcriptions in the use of the same and different phonetic symbols. Enable students to use different dictionaries (American or British) and understand their symbols easily. Developing the learners' pronunciation abilities concerning different accents of English (American and British English).

Keywords: Optimal Allocation, Doubling Sampling, Non-Linear Cost Function, Non-Response

1. Introduction

The subject will be on the use of vowel sounds and variety of symbols used by different schools of transcription (British and American Schools). The research will be on vowel sound symbols and their use by different schools. Also these symbols are used by writers of dictionaries for describing the sounds of dictionary words to differentiate their pronunciations.

1.1. Phonetics and Phonology

Roach [1] sees Phonetics and phonology as two ways of looking at the same thing. He says that phonetics is the study of sounds made by the human vocal apparatus, in particular of those sounds used in speech. Whereas phonology is the study of the selection that each language make from the vast range of possible speech sounds and of how each language organizes and uses the selection it makes. So, phonetics

describes and classifies the speech sounds while phonology studies how they are work together and how they are used. Or, phonetics is concerned with what speech sounds are, their nature, while phonology is concerned with what they do, their function. The distinction between phonetics and phonology is the familiar distinction between form and function which is to be found in many fields of study.

Phonetics and phonology are related, dependent fields for studying aspects of language. Phonetics is the study of sound in speech; phonology is the study (and use) of sound patterns to create meaning. Phonetics focuses on how speech is physically created and received, including study of the human vocal and auditory tracts, acoustics, and neurology. Phonology relies on phonetic information for its practice, but focuses on how patterns in both speech and non-verbal communication create meaning, and how such patterns are interpreted. Phonology includes comparative linguistic studies of how cognates, sounds, and meaning are transmitted among and between human communities and language. [1].

1.2. Phonemes and Allophones

In human language, a phoneme is the basic theoretical unit that can be used to distinguish words or morphemes. That is, changing a phoneme in a word produces either nonsense, or a different word with a different meaning. Phonemes in oral languages are not physical sounds, but mental abstractions of speech sounds. A phoneme is a family speech sounds (phones) that speakers of a language think of as being, and hear as, the same sound. A “perfect” alphabet is one that has one symbol for each phoneme. In sign language, a phoneme is a similarly basic theoretical unit of hand shape, motion, position, or facial expression. It was formerly called a *chereme* (or *cheireme*), but usage changed to phoneme when it was recognized that the mental abstractions involved are essentially the same as in oral languages. The phoneme can be defined as “the smallest meaningful psychological unit of sound.” The phoneme has mental, physiological, and physical substance: the brains process the sounds; the sounds are produced by the human speech organs; and the sounds are physical entities that can be recorded and measured [2].

Abercrombie [3] differentiates between phoneme and allophone by saying that, a phoneme is a group of segments which are different from the point of view of general phonetic taxonomy, but have the same function phonologically. The segments which a phoneme comprises, or which represent it are said to be members of that phoneme, or allophones of it. Each allophone is tied to a certain kind of environment: it never occurs apart from certain features in the environment. In any language, every discriminable allophone has an environment that goes with it, and that can be clearly identified and described, sometimes in very general terms, sometimes necessarily in fairly exact ones. From this example, it is obvious different allophones of a phoneme are tied to particular contexts. In this example *kit* and *cat*, for instance, the differing points of contact between tongue and roof of the mouth for the initial consonant – further forward in the former, further back in the latter –

result in the tongue having to travel the minimum distance in order to reach the posture required for the following vowel. There is an economizing of effort. One may refer to above phenomenon as an allophonic variant of a phoneme. The relationship between allophones and phonemes is one of realization: a phoneme is realized by its allophones. [3].

1.3. Phonetic Alphabet and Writing System

The International Phonetic Alphabet (IPA) is one of the most popular and well-known phonetic alphabets. It was originally created by primarily British language teachers, with later efforts from European phoneticians and linguists. It has changed from its earlier intention as a tool of foreign language pedagogy to a practical alphabet of linguists. It is currently becoming the most often seen alphabet in the field of phonetics. Another commonly encountered alphabet tradition is the Americanist phonetic alphabet, originally created for the transcription of Native American and European languages. There exist somewhat similar traditions used by linguists of Indic, Finno-Ugric, Caucasian, and Slavic languages. The difference between these alphabets and IPA is relatively small, although often the specially created characters of the IPA are often abandoned in favor of already existing characters with diacritics (e.g. many characters are borrowed from Eastern European orthographies) [2].

In a phonemic writing system, a given symbol represents a single phoneme and each phoneme represented by a single symbol. This may differ from a phonetic orthography, which only requires that the spelling be unambiguously determined by the pronunciation, and the pronunciation unambiguously indicated by the spelling. English spelling is the classic example of a non-phonemic, and indeed unphonetic, spelling system. However, the split between phonemic and non-phonemic orthographies is exaggerated. All languages are written with conventions that represent both meaning and pronunciation. At the other extreme, there are a few orthographies which are perfect phonemic representations of an artificial national standard, but since they make no effort to represent variation in the pronunciation within the language, they too are conventional. Other languages fall somewhere in between. Although English is often given as an example of an unphonetic orthography, its system is nowhere near to being as purely conventional system. English spelling conveys etymology information, but also vast amounts of phonetic information [2].

1.4. Description and Classification of Sounds

In describing sounds, there is an attempt to set down as many as possible of the features which are present in them; in reality, complete description is beyond our powers since it would mean mentioning an infinite number of features, e.g. in order to specify the exact dimensions of the vocal tract along the whole of its length. Whereas in classifying sounds, as in classifying items in any other group, is to mention those features by which they differ and leave it at that [4].

According to Crystal description is the general sense of

this term is found in linguistics, identifying one of the main aims of the subject – to give a comprehensive, systematic, objective and precise account of the patterns and use of a specific language or dialect, at a particular point in time. Whereas, he adds, classification is an application in linguistics and phonetics of the general use of this term, to refer to a set of entities sharing certain formal or semantic properties. Its most widespread use is in relation to the classification of morphemes into ‘form-classes’ and words into ‘word classes’. [5]

2. Transcription

It is a method of writing down speech sounds in a systematic and consistent way – also known as a ‘notion’ or ‘script’. Two main kinds of transcription are recognized: Phonetic and phonemic. Square brackets enclose phonetic transcription (notation / script); oblique lines enclose phonemic transcription (notion/ script). In the former, sounds are symbolized on the basis of their articulatory/ auditory identity, regardless of their function in a language. In latter, the only units to be symbolized are those which have a linguistic function i.e. the phonemes. A phonemic transcription looks simplest of all, as in this only the units which account for differences of meaning will be represented, e.g. /pin/, /pen/, /pæn/. In a phonetic transcription, on the other hand, the aim is not to judge the functional significance of sounds, in the context of some language, but to identify the sounds as such. A phonetic transcription of the English word *pen*, for example, might be [pʰɛn]: this indicates some quite subtle features of pronunciation, such as the aspiration following the plosive, and the slight nasalization of the vowels – features which are not phoneme in their own right. If necessary, such a transcription could be made more detailed still, to incorporate any other articulatory or auditory features found in the pronunciation [5].

For Roach transcription is, in present day usage, is the writing down of a spoken utterance using a suitable set of symbols? In its original meaning the word implied converting from one representation (e.g. written text) into another (e.g. phonetic symbols). Transcription exercises are long – established exercise for teaching phonetics. There are different types of transcription: the most functional division that can be made is between phonemic and phonetic transcription. In the case of the former, the only symbol that may be used are those which represent one of the phonemes of the language, and extra symbols are excluded. In a phonetic transcription the transcriber may use the full range of phonetic symbols if these are required; a narrow phonetic transcription is one which carries a lot of fine detail about the precise phonetic quality of sounds, while a broad phonetic transcription gives a more limited phonetic information. Many different types of phonemic transcription have been discussed: many of the issues are too complex to go into here, but the fundamental question is whether a phonemic transcription should only represent what can be heard, or

whether it should also include sounds that the native speaker feels belong to the words heard, even if those sounds are not physically present. Take the word ‘football’, which every native speaker of English can see is made from ‘foot’ and ‘ball’ in ordinary speech it is likely that no /t/ will be pronounced, though there will say that the word is still phonetically /fʊtbɔ:l/ [6].

2.1. Types of Phonetic Transcription

The traditional terms ‘broad’ and ‘narrow’ for types of phonetic transcription are said to be vague and ambiguous. And a more carefully defined set of terms is desirable for occasions when greater precision is needed in classifying transcriptions and describing their characteristics. It is possible to transcribe phonetically any utterance, in any language, in several different ways, all of them using the alphabet and conventions of the IPA. The difference between these various ways of transcribing may lie in the shape of the letters chosen to represent the sounds, or in the number of different letters employed in the transcription. There are, thus, several types of phonetic transcription, they can be classified on the basis of these two points of difference. The classification will apply to transcription of all languages. English phonetic books are written by BBC accent (RP) speakers or by people taught to speak BBC accent [4].

Abercrombie [7] suggests an alternative set of terms to replace the older traditional terms ‘broad’ and ‘narrow’. He proposes that the first distinction to be made is between systematic and non-systematic (or impressionistic) transcriptions. By systematic transcription it is meant “transcription made by drawing on a limited stock of symbols, assembled in the advanced for the particular purpose of representing the form of speech to be transcribed. This stock or system of symbols must be based on knowledge of the structure of the language”. Systematic transcriptions differ according to the number of different symbols used, and according to the shapes of the symbols used. There are four general types of systematic transcription:

- a-Simple Phonemic;
- b- (Simple) Allophonic;
- c- Comparative (Phonemic); and
- d- Comparative Allophonic.

A simple phonemic transcription is based on using the minimum number of different symbols of the simplest possible and most familiar shapes. It makes use of lesser number of symbols as well as familiarity of their shapes. On the other hand, the transcription that uses more than the minimum number of different symbols is called allophonic. The phoneme / ɛ / and / ɪ / to refer to ‘clear’ l and ‘dark’ l respectively [4].

A comparative transcription is the one in which all the symbols are not of the most simple and familiar shapes. It uses symbols some of which are more specific in their reference than those of a simple transcription. The most familiar, the most typographically satisfactory letter shapes of all, are the completely Romanic ones – those, that is to say, of the Roman alphabet as we know it today. The IPA

repertory of phonemic symbols includes all the traditional roman letters. It contains in addition a number of extra letters which have been obtained by modifying roman letters, by borrowing from other alphabets, or by outright invention. These extra letters, such as (ə ɔ ɒ ʊ ɪ ʒ ʊ ʌ β ɾ ɿ etc.), are less Romanic in shape, more 'exotic' than the traditional letters of the alphabet. Every systematic transcription really consists of two parts, the text and the conventions. Conventions may either identify the value of the symbols or be concerned with contextual modifications of these values. The various types of systematic transcription differ in the relative amount of information contained in the conventions as compared with the text [4].

Non – systematic (impressionistic) transcriptions are made on a general phonetic basis rather than on a structural one. They are made by drawing on a theoretically unlimited number of symbols, which are defined with reference to the total range of human speech sounds, and not with reference to the structure of a particular language. No conventions accompany them, for they are made on the same basis for every language. An impressionistic transcription is used either when the structure of the language is not known, or when it is convenient for some reasons to ignore the structure. The term broad can, then, stand for the type of transcription which is systematic, phonemic as well as simple; whereas the term 'narrow' can stand for impressionistic, allophonic and comparative transcription. However, in general, it is convenient to use 'broad' as an equivalent of 'simple phonemic', and 'narrow' for any kind of departure from this [4].

2.2. Unilateral and Multilateral Transcriptions

It is necessary to draw a distinction between the terms 'letter' and 'symbol'. Any written sign or sequence of signs or accented letter used for the representation of a single speech-sound may be called a 'symbol'. Digraphs such as the *tf* and *ai* used in ordinary transcription of English, are therefore single symbols, although they are each composed of two letters. A system of phonetic transcription which employs for a given language not only a minimum number of symbols, but also a minimum number of letters, may be termed a 'unilateral' system. Unilateral systems embody the principle that digraphs, if any are needed, are constructed if possible by putting together letters which are used independently to denote other sounds of the language. When a unilateral system is based on Roman letters, it need not necessarily be 'simple' system; it may contain exotic letters introduced to call attention to differences between one language and another. For instance, the 'simple transcription' of English would remain unilateral if all the *r*'s were replaced by ɾ [4].

System which employ more than the minimum number of letters needed to represent a given language effectively and unambiguously may be called 'multilateral'. A system is multilateral (1) if it comprises any special letters to denote particular allophones, (2) when a letter not otherwise employed is introduced into a digraph. Multilateral systems,

if basically Romanic, are generally 'complex', since there are seldom enough letters in the Roman alphabet to provide a multilateral transcription. It is, for instance, multilateral and complex (but not allophonic) to write the English diphthongs *ai* and *au* with a letter that distinguishes their beginnings from *a:*, as is done in EPD transcription. Unilateral transcription would require that *a:* should be written as *a:*, or that the diphthongs should be written *ai*, *au*. It would be multilateral and 'simple' (though not advisable on the other grounds) to represent *a:* by *q* while using the customary *ai* and *au* for these diphthongs. It is likewise multilateral (though convenient) to introduce the letter ʒ into transcriptions of Italian, as is done by those who transcribe the voiced affricate in *giorno* by dʒ [4].

3. Symbols of Vowel Sounds

3.1. Symbols of Vowel Sounds of British English

The publication in 1977 of A. C. Gimson's revision of the Daniel Jones *English Pronouncing Dictionary* (EPD14) was a watershed in respect of the representation of British pronunciation in dictionaries. Gimson's most marked departure from Jones's notation in the EPD of the previous sixty years lay in his use, as in his *Introduction to the Pronunciation of English* of 1962, of the IPA non-cardinal vowel symbols ɪ, ʊ, ɜ and the non-roman secondary cardinal ɒ in order to effect more explicit or, as he expressed it, "more realistic" (EPD14 p. xiii) representations of vocalic contrasts. The old EPD notation had already contained the non-cardinal items æ and ə as well as the non-roman cardinals ε, ɔ and ʌ. Gimson always candidly acknowledged that his action was directly contrary to what Jones himself advocated. [4]

In his EFL textbook *An Outline of English Phonetics* (1956) Jones described how at one time he had experimented with narrow transcriptions for EFL classes and been disappointed by the lack of any perceptible benefit from their use. Accordingly he had devised at the end of the twenties what he came to call his "simplified" transcription which made use of only two non-roman letters ʌ and ə. This became his declared preference for a set of symbols for EFL and general use. Though he encouraged others to use it he failed to convert to it either his EPD or any other work than *The Phoneme* (1950). It was used in various books and periodicals up to the 1970s [see Jones 1956:34], but after then mainly only in one or two minor dictionaries influenced by David Abercrombie. It had been the initially projected notation for the *Longman Dictionary of Contemporary English* (LDCE) [4].

3.2. The Move to IPA in Oxford Dictionaries

The great *Oxford English Dictionary* originally contained a highly complex pre-IPA notation (OED1: xxxiv) devised in 1882 by Murray. When that work appeared in a new 20-volume edition (OED2) in 1989, it embodied EPD14 notation, except for ε instead of e and ɛə in place of eə. These departures from EPD14, were deemed "necessary" on the

grounds of harmonizing their treatment with representations of French and German. The further comment that, while employing /i:/ and /u:/ eg at the third syllables of *delineate* and *perpetuate* rather than Gimson's /ɪ/ and /ʊ/, "The IPA [sic] transcriptions convey the misleading implication that such vowels have... greater duration" seemed to ignore the neat originally LDCE device of the dropping of the length mark to give /i/ and /u/ [4].

There was, however, that notable device just mentioned by which vowels like the final one of the word *happy* were represented by neither /i:/ nor /ɪ/ but by /i/ and many word-medial occurrences of the /u:/ phoneme were converted to representation with /u/. This innovation will be referred to as EPD14b. It was something that J. C. Wells judiciously embraced when he compiled his Longman Pronunciation Dictionary (LPD) of 1990. By that year the very widely used Concise Oxford Dictionary (COD) had turned over to IPA symbols, at that time in unchanged EPD14 (not in OED2 or EPD14b) [4].

The symbol set which Gimson finally decided upon for EPD14 had been originally devised by Jones in 1916 and appeared in a succession of slightly differing versions in *Le Maître Phonétique* from 1923 onwards. Gimson's EPD14 transcription included IPA length marks. These Gimson freely acknowledged to be redundant in terms of identifying phonemes within his rich vowel set. His preference for this strategy was based on the desire to preserve the traditional appearance and to facilitate maximum legibility. The EPD14 choice of symbols, having been adopted for LDCE by the influential publishing house of Longman, within a few years became almost universally employed in EFL and general use. At any rate, however one perceives its principles of vowel symbol choice, the general acceptance of EPD14 was very much a fortunate development because it is undoubtedly a benefit to all not to have to be making constant mental readjustments (however slight these may seem to be to the expert) as one encounters a succession of texts containing different phonemic notations [8].

This harmony in transcription between very large numbers of English dictionaries and textbooks from a variety of publishing houses, which was no doubt more complete than had ever been the case before 1977, was in the mid- 1990s disrupted by the introduction of notably altered representations of five of the twenty EPD14 vowel-phoneme symbols by one division of the Oxford University Press. Kretzschmar [10] revealed this move to have been decided upon at the advice of Clive Upton, the distinguished dialectologist now of the Leeds University School of English. This altered EPD14 transcription seems first to have appeared in 1993 in *The New Shorter Oxford English Dictionary* (NSOED) and then in 1996 in the *Concise Oxford Dictionary* (COD). The resulting set of symbols exhibits the following five major substitutions: (i) e replaced by ɛ (ii) æ replaced by a (iii) ɜ: replaced by ɔ: (iv) aɪ replaced by ʌɪ and (v) eə replaced by ɛ:.

It seems not to be a matter of dispute that the kind of British English pronunciation they are being used to

represent is the variety (or set of varieties) which is least attributable to any specific region of England. This has been identified in the past couple of generations chiefly by the 1926 Jonesian term "Received Pronunciation" (cf eg EPD15 p.v) for which various alternatives (admittedly none of which is ideal) have been proposed including my own suggestion, 'General British', first put forward in 1972 in the *Concise Pronouncing Dictionary* (CPD:xiv). This suggestion was alluded to in Gimson [9] thus: "'General British' (GB) has been used and may in time supersede the abbreviation RP". It will be used below. In the following sections, there shall be seeking to set forth the pros and cons of each of the Upton departures from EPD14.[9]

/ɛ/ versus /e/

The first departure from EPD14b, viz /ɛ/ for /e/, represents a perfectly acceptable relatively narrow transcription of the mainstream GB phoneme. Also it provides the benefit of instant recognisability as a phonetic symbol. As with /æ/, Gimson (1962/89) again diagrammatically represented /e/ with a closer value for it than Jones had assigned to it. Jones (1950), a book which was in the main a contribution to the dialectology of British English, showed /e/ in a relatively narrow transcription of 'one type of Received English' (i.e. no doubt his own) as clearly nearer to open-mid than to close-mid. His choice of symbol in that dialectological context was /ɛ/. In Jones (1932/64), the EFL textbook, and in the general-purpose EPD he used /e/. He was acting according to the just-mentioned principle he had advocated in Jones (1949 and 20) "When a vowel is situated in an area designated by a non-roman letter, it is recommended that the nearest appropriate roman letter be substituted for it." Again, very justifiably, the Cruttenden /Gimson (1994) diagram does not show /e/ as necessarily as close to CV [e] as Gimson had put it. Although I now regret that EPD14 did not originally incorporate /ɛ/, at this stage of things an alteration of EPD14 from /e/ to /ɛ/ is probably on balance better not adopted [9].

/a/ versus /æ/

The second departure from EPD14b can readily be understood to aim to reflect the notably lowered and retracted value that has become obvious over the last three or four decades for mainstream GB /æ/. Anything front and noticeably closer than [æ], i.e. less than halfway from Cardinal Vowel 3 to CV 4, is now generally perceived as tending to sound old-fashioned or regionally marked. Note the Cruttenden/Gimson (1994) re-siting of the /æ/ of Gimson's diagram. This change, which in fact turns it back to how Jones had shown it in EPD and elsewhere, seems very necessary and even perhaps somewhat too cautiously conservative. Gimson's (1962) comment that /æ/ was "only very little more open than half-open" is definitely dated and indeed didn't seem to apply to his own usual (at least later) pronunciation as witness the various recordings he made. Current mainstream /æ/, being neither fully front (cf. the Wells 1990: xv diagram and the Wells [11] reference to the lowering and centering of /æ/) nor fully open, may be positioned where many would presumably either prefer to show it with the 'a' symbol or at least to find that notation

equally feasible. It is perhaps worth recalling in any discussion of the suitability of [a] as a dictionary symbol what Jones (1949 and 38) referred to as his impression that "authors and printers still generally regard a and æ as variants of the same letter". The older (Jonesian) principle of IPA symbol choice would point to the selection of the cardinal symbol rather than the non-cardinal. However, such a procedure is, wisely, not enjoined upon IPA users in the new *Handbook*. There is also the benefit of the instant recognisability of æ as a phonetic symbol. Finally, there is the point well made in Wells (2001) that "A further argument in favor of retaining the symbol [æ] is that it preserves the parallelism with American and Australian English, in which the movement towards an opener quality has not taken place". In summary it seems that this alteration of EPD14b, in which æ is changed to a, is not worth adopting [12].

/ə:/ versus /ɜ:/

The third departure from EPD14b is the substitution of /ɜ:/ with /ə:/. This has the advantage of reducing the total number of unfamiliar symbols to be assimilated by the general user by an undeniably "exotic" item. However, ə itself is hardly less exotic. At any rate, ɜ is a distinctive and legible symbol and seems to be fairly easily recognized by most readers. A possible advantage that can be argued for having /ɜ:/ is that the contrast with /ə/ serves to symbolize the much narrower range of allophonic .

Had EPD14 incorporated /ə:/ from the start, as did some of its 1920s and later precursor variants to be seen in *Le Maître Phonétique*, then it would be doubtful that it was now worth changing from /ə:/ to /ɜ:/ . But, as things are, it doesn't now seem worthwhile changing what we have [8].

/Λɪ/ versus /aɪ/

The fourth departure from EPD14b, the substitution of /Λɪ/ for /aɪ/, is the hardest to discern any justification for. None of the British authorities have ever diagrammatically or otherwise represented GB /aɪ/ with a more retracted beginning than /a/, though such relationships are found in varieties of Cockney and regional dialects. Indeed Wells [10] has said explicitly "the starting-point of /aʊ/ is never fronter than the starting-point of /aɪ/". Gimson [9] differentiated the beginnings of /aɪ/ and /aʊ/ by representing the latter as /aʊ/. This was, and still would be, perfectly defensible. When Gimson published EPD14 he gave no reasons in it for his use of /aʊ/ rather than /aʊ/ but the choice was not made because he felt that any notable new development had become apparent. The overlapping indicators showed that he considered the majority of GB speakers to have much the same (more or less central and somewhat raised) beginning to both diphthongs. From the many discussions that on matters of transcription it was clear that the essential motive involved was his view that, in a work of reference for a wide audience, simplicity of presentation was a very desirable aim. One way of achieving that end was, he felt, to minimize the use of unfamiliar characters. Hence his long-pondered decision to depart in EPD14 from the Gimson (1962) /aʊ/ and /ɛə/ in favor of /aʊ/ and /eə/ [4].

One need not dismiss out of hand [Λɪ] as a possible way of

representing the diphthong /aɪ/. Indeed its beginning in mainstream GB can reasonably be said (Wells 2001) to be just within the approved range of applicability of the CV symbol [Λ]. But surely, if /Λɪ/ instead of /aɪ/, why ever not /Λʊ/ instead of /aʊ/? One could have far better understood the reverse choice of /aɪ/ and /Λʊ/. [Note added February 2012: One is inclined to wonder why, since Upton's preferences for a and ɛ appeared to stem from IPA purism, he was content to adopt a counter-IPA use of the symbol Λ when the more strictly IPA-conformist policy would surely have been to make use of ɐ instead of Λ and ɐɪ instead of Λɪ.] The notation [Λɪ] appeared in the Gimson text, and has been incorporated into the relevant Cruttenden /Gimson (1994) diagram, but only to represent a distinctively Scottish value (in such words as *side*). [12]

Similarly Wells uses [Λɪ] to represent Cockney and Australian values corresponding to GB /eɪ/. Wiik (1965) chose to use /Λɪ/ and /Λʊ/ for GB but on the basis of acoustic measurements using only five subjects of questionable typicality and in a non-lexicographical context. MacCarthy (1978) used both /Λɪ/ and /Λʊ/ but the oddness of this choice was plainly seen from its diagrams which represented the beginnings of both diphthongs as having almost fully front and fully open values. MacCarthy's motive for these representations was an ill-judged desire for the economy of avoiding employment of an extra symbol, viz /a/, in his notation, which would, unlike all his other diphthong symbolisations, introduce a letter not used for any of his simple-vowel items. [10]

The apparent Upton suggestion that /aɪ/ and /aʊ/ have now reversed their relative starting positions in mainstream usage is not supported by my observations and I know of no-one else of such an opinion.

The Wells judgement on this matter was: "Upton's notation implicitly identifies the first element of *price* with the vowel quality of *cut* – an identification that accords with the habits neither of RP nor of southeastern speech (Estuary English). His choice of [Λɪ] is really very unsuitable." [11]

In any case EPD14's /aɪ/ and /aʊ/ are additionally preferable as satisfying the two recommended criteria of being (i) instantly identifiable as phonetic symbols and (ii) economical with the use of exotic letters.

Thus the verdict on /Λɪ/ alongside /aʊ/ must be that it is a very regrettable departure from EPD14b that would be better abandoned in future.

/ɛ:/ versus /eə/

The fifth and final major departure from EPD14b, the substitution of /ɛ:/ for /eə/, is one with which one can have a great deal of sympathy. It can readily be granted that on the majority of the occasions on which this phoneme is heard from speakers of all but old-fashioned and/or socially conspicuous accents the value is certainly monophthongal. But the problem doesn't end there; and the comment in Kretzschmar, an article which purported to give an account of the Upton views on British vowel values, that any diphthongal pronunciation of this item is now marked as old-fashioned is far from the truth. The most usual basis for the

choice of symbol for a phoneme is no doubt its form at least influenced by any allophone-inducing context. Unfortunately this phoneme is one of the most difficult British English sounds to observe not so influenced, largely because it is of such low occurrence particularly in such contexts. However, the following comments may help to show some of the problems involved. [8]

Böhn (1966) investigated the various realizations of this phoneme. She gathered almost 1,500 tokens from a variety of GB speakers and situations (twenty hours of recordings of BBC news bulletins, unscripted interviews and dramatic performances) and examined the various phonetic forms the phoneme took. Her data showed only 15% of the tokens as diphthongal, which was not surprising but at least was valuable evidence that the Jones (1932/1964) view of the phoneme as consisting of a single member (ie having no allophonic variation) was even then far from applicable, if it was ever truly unquestionable. Her data suggested that a monophthongal allophone was almost the sole one employed when /r/ followed and in unstressed syllables. Also she found that it predominated in some other situations. However, the data showed a slight predominance of diphthongal allophones in pre-pause syllables. [13]

Jones's picture, though it did match that presented in the works of Ellis, Bell, Sweet and Murray, was in need of reconsideration. It seems most likely that the essential problem is one not of reflecting greatly changed usage but of interpretation of the facts. Over a century ago Soames [14] showed a long vowel [ɛ:] for words like *Mary* and *fairy* in transcriptions that would now be classified as allophonic. Note also the implications of the Jespersen [15] comment that the schwa position is held only for a short time especially when a real [r] follows. Such archive recordings as I have examined for the first half of the last century have not suggested to me a different state of affairs from today's. Jones himself seemed regularly to use either a quite narrow or barely (if at all) perceptible diphthong. He showed no recognition of monophthongal variants of /eə/ until his (1950) remark 'Occasionally one hears a monophthongal long ɛ:'. This was accompanied by examples of it in both closed and open monosyllables with no reference to any social restrictions on its circulation. Gimson (1962) perceived a long pure vowel [ɛ:]...especially in a non-final syllable as a newer usage ("advanced RP"). Wells [10] showed some hesitation about labelling [ɛ:] as perhaps a Near-RP northernism if in a stressed final syllable but by Wells had decided "What used to be a local-accent feature has become a part of the mainstream". [11]

The mainstream speaker a half century or more ago seems to me to have had much the same allophonic variations as today's mainstream speakers. However, there were no doubt more examples to be heard at that time of the surely always small minority who exhibited a conspicuously open value of its final schwa. This Jones (1932/64) remarked could be represented by the notation $\epsilon\Lambda$. The famous Wykehamist BBC announcer and commentator the late John Snagge (born 1904) for example even had [$\epsilon\Lambda$] internally before /r/ as in

Mary. The suspecting is that it is not the slightly diphthongal occurrences of /eə/ that some of the proponents of the representation /ɛ:/ have in mind as old-fashioned but that they unjustifiably associate the diphthongal representation with such archaic survivals. Windsor Lewis (1969) offered the following summary of the allophonic variation of mainstream GB /eə/ thus: a diphthong generally realized as a long simple vowel (a) before consonants (b) when unstressed (c) when stressed but in a structural word. I see no reason today to amend that judgment [4]

This is not to say that there aren't plenty of speakers who use a monophthong practically all the time. Peter Stevens was one as he indicated by his choice of the notation /ɛ:/ to transcribe his own speech in Stevens (1954). Various of the recent BBC Radio 4 GB newsreaders can be heard to exhibit [ɛ:] even on pre-pausal complex tones notably in saying the word *fair* in weather forecasts [16].

To sum up, in judging whether that should be welcomed is the alteration of EPD14 /eə/ to /ɛ:/ it seems that the essential criterion might as well be not whether the majority of mainstream speakers use [ɛ:] in isolate situations or not but "Do most people find that a slightly diphthongal /eə/ sounds unusual?" If not – and it is sure they don't – then it is surely best to leave EPD14 just as it is.

/i/ versus /ɪ/ and /u/ versus /ʊ/

Besides these five major departures from the EPD14b, there is the further matter that the process of recognition of /i/ to the parallel rhythmically weak /u/. The original Longman introduction of /i/ was very tentative indeed. The LDCE explanations in 1978 and in the major revision of 1987 gave the impression that the editors considered that the norm of their British model was to be equated with /ɪ/, and the American model was to be equated with /i/. They had adopted /i/ only as a space-saving device. This was not very convincing.

It was even observable that where words were given full different American and British versions, as e.g. at *worry*, though the economy of space requirement did not apply, /i/ was still used in LDCE. One suspected that the real reason was the understandable reluctance to get involved in discussion of the problematic question of the phonological assignment of the final vowel of *happy* on the part of the 1978 LDCE pronunciation editor Gordon Walsh [8].

Both Wells and Roach adopt the theoretical position that /i/ belongs neither to the /ɪ/ phoneme nor to the /i:/ (EPD15:xiv). One knows that some GB speakers positively identify their final *happy* vowel with their /ɪ/, and some speakers are unable to assign their version to either phoneme. But the strong suspicion is that a very great number of native English-speakers worldwide perceive /i/ as a phonologically (but essentially because rhythmically) distinct member of their /i:/ phoneme. Such speakers feel that *stelae* and *steely* are a variety of minimal pair: cf. Wells (1982) which mentioned *carrhae* and *carry* as well. *Bacchae* and *baccy* and *bases* (from basis) and *Basie's* are others, but such pairs are very rare. Likewise many perceive a phonological contrast between the final vowels of pairs like *pedigree* and *mimicry*, *Pharisee* and *fallacy* etc. Such a difference was mentioned

for General American usage in Pike (1945) between *refugee* and *effigy*. He didn't identify his /ɪ/ as ending either of them [17].

This interpretation can throw light on the recent increased inclination among GB speakers to make the final vowel of *happy* unstressed but rhythmically strong /ɪ/. Awareness of this is very probably what has led to the belated recognition of the long-present rhythmically weak final /i/.

It is notable that the dictionary compilers have been rather slow to recognize a corresponding distinction between word-final unstressed /u:/ and /u/. For example for probably a majority /ˈdʌblju/ i.e. *w* and /ˈdʌblju:/ i.e. *double u* are distinct. And *value* for very many, perhaps most, ends the same as *thank you*, i.e. with /u/ not /u:/. Wells (1990) showed

/u/ as a sub-variant form of *continue*, and Wells (2000) has sub-variant /u/ at *value* and *w*, though in few if any similar cases [12].

3.3. Symbols for American English Vowel Sounds

A typical dialect of American English has about 15 distinctive vowel sounds. Here their symbols are linked to Sun-style.au samples lifted from the ibiblio (sun site) archive. [18]

3.3.1. Vowels

Figure 1 displays and describes the different IPA vowels and diphthongs. Figure 2 shows and describes the vowel sound symbols of British school.

• Front Vowels						
	IPA	S u n	IPAascii	Rsynth	Sampa	Key Word
high low	i	IY	i	i	i	beet
	I	IH	I	I	I	bit
	eI	EY	eI	eI	e	bait
	ɛ	EH	E	e	E	bet
	æ	AE	&	&	{	at

Back Vowels

	IPA	S u n	IPAascii	Rsynth	Sampa	Key Word
high. low	uW	UY	u	u	u	boot
	ʊ	UH	U	U	U	book
	oW	OW	oU	oU	o	boat
	ɔ	AO	O	O	O	cause
	a/ɑ	AA	a/A	A	A	cot ¹

Central Vowels					
IPA	S u n	IPAascii	Rsynth	Sampa	KeyWord
ə	AX	@	@	@	about
ʌ	AH	V	V	V	but²

Diphthongs					
IPA	S u n	IPAascii	Rsynth	Sampa	KeyWord
aɪ	AY	aI	aI	aI	bite
ɔɪ	OY	OI	OI	OI	boy
aʊ	AW	AU	aU	aU	bough

Figure 1. American Vowel Sound Symbols Charts.

Vowel	Description	Example
[i]	forward vowel	as in <u>be</u> t
[I]	forward vowel	as in bi <u>t</u>
[e]	forward vowel	as in ch <u>ea</u> otic
[ei]	diphthong	as in bai <u>t</u>
[ɛ]	forward vowel	as in be <u>t</u>
[æ]	diphthong	as in ba <u>t</u>
[a]	forward vowel	as in <u>B</u> oston (as spoken by New Englanders)
[aɪ]	diphthong	as in b <u>y</u>
[aʊ]	diphthong	as in hou <u>se</u>
[u]	back vowel	as in boo <u>t</u>
[ju]	diphthong	as in abu <u>se</u>
[ʊ]	back vowel	as in boo <u>k</u>
[o]	back vowel	as in pi <u>llow</u>

[ou]	diphthong	as in bo <u>a</u> t
[ɔ]	back vowel	as in <u>a</u> we
[ɔɪ]	diphthong	as in bo <u>y</u>
[ɑ]	back vowel	as in fa <u>th</u> er
[ʌ]	central vowel, stressed	as in bu <u>d</u>
[ə]	central vowel, unstressed (schwa)	as in ap <u>pe</u> al
[ɜ]	central vowel with r, stressed	as in bu <u>rr</u>
[ə]	central vowel with r, unstressed (hooked schwa)	as in bu <u>tt</u> er
[ɜ]	central vowel, r-less	as in bi <u>r</u> d

Figure 2. British Vowel Sound Symbols.

3.3.2. American English Vowels

Vowels are generally classified in terms of articulation (i.e., the position and shape of major articulators, such as tongue, lips, velum, etc.) and/or their acoustic properties (usually by means of the so-called frequency formats f1 and f2). For most learning purposes, however, articulatory description seems most useful. Such description is based on the position of the tongue and the degree of lip rounding

which accompanies the production of vowels. For example, vowel sounds which are made by raising the back of the tongue higher than the front of the tongue are called back vowels, and vowels made by raising the front of the tongue higher than the back of the tongue are called front vowels. Most typically, back vowels will involve a greater degree of lip rounding than front vowels. Similarly, vowels which are articulated with the tongue raised closer to the roof of the mouth will be referred to as high vowels, and those made with the tongue further apart from the roof of the mouth are called low vowels. While making low vowels sounds, the mouth is usually open more open than in the case high vowels. The following chart illustrates this classification.

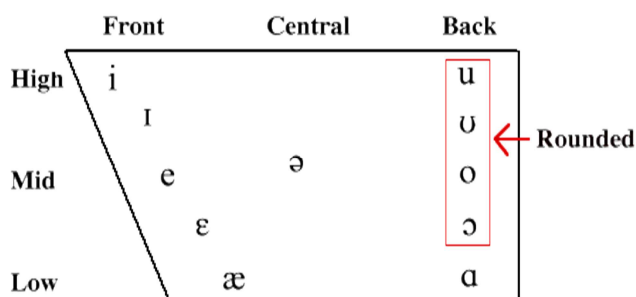


Figure 3. Pure vowel sound symbols.

It must be noted that both the position as well as the number of vowels may differ slightly from dialect to dialect. For most learners, those differences are perhaps negligible [18].

3.3.3. Examples of Words and Transcriptions

The chart uses so-called IPA phonetic symbols. Most learners may not be familiar with those symbols, nor will it be easy to display IPA notation in a web browser. For the sake of simplicity, plain text-based (ASCII) notation will be used in this guide. Table 2 illustrates the use of phonetic symbols with examples.

Table 1. Vowel Sounds Symbols used by the American Schools.

IPA	ASCII	Example	Transcription
ī	[iy]	Beet	b [iy] t
I	[i]	bit	b [i]
e	[ey]	bait	b [ey] t
ε	[e]	bet	b [e] t
æ	[ae]	bad	b [ae] d
ə	[uh]	bud	b [uh] d
u	[uw]	boot	b [uw]
U	[u]	book	b [u]

IPA	ASCII	Example	Transcription
ī	[iy]	Beet	b [iy] t
I	[i]	bit	b [i]
e	[ey]	bait	b [ey] t
ε	[e]	bet	b [e] t
æ	[ae]	bad	b [ae] d
ə	[uh]	bud	b [uh] d

IPA	ASCII	Example	Transcription
u	[uw]	boot	b [uw]
U	[u]	book	b [u]
O	[ow]	boat	b [ow] t
ɔ	[o]	bought	b [o] t
ɑ	[a]	pop	p [a] p

[iy]	beat, treat, seed, keep
[i]	bit, rid, tip, knit
[ey]	make, stake, break, bathe
[e]	met, kept, wreck, beg
[ae]	bat, hat, map, can
[a]	cop, mop, cob, Don
[o]	caught, taught, call, lawn
[ou]	robe, toad, rope, coke
[u]	book, look, took, good
[uw]	boot, stew, two, move
[uu]	cut, but, rub, shove

4. British English VS. American English Pronunciations

There are many differences in pronunciation between British and American English, but most of them are not very important. To mention and write about the most important differences for an English student, to help understand the other accent better (There will be the British phonetic symbols).

4.1. The Letter R

This is probably the most important difference. British people only pronounce the letter R when it is followed by a vowel. American people pronounce this letter always.

4.2. Final Schwa /ə/

A final Schwa is pronounced very weak in both BrE and AmE, but if it happens at the end of speech (if after the schwa we pause or stop), then in BrE it often opens and becomes a sound very similar to /ʌ/, but in AmE it doesn't change.

Teacher=AmE/ti:tʃər/ in BrE it sounds similar to BrE/ti:tʃʌ/ (but in the phonetic transcription we still use an /ə/ as in /ti:tʃə/)

4.3. The Vowel /ʌ/ (as in Sock)

In American English this vowel is more open than in BrE, so it sounds like the British vowel /ɑ:/ (as in "father" or "car") but short.

In British English this vowel sounds a little bit similar to the vowel /ɔ:/ (as in fork).

4.4. The Vowel /ʌ/ (as in Hut)

In American English this vowel is more closed than in BrE, so it sounds a bit like the British vowel /ɒ/. In British English this vowel sounds a bit similar to the American vowel /ɒ/.

4.5. Pronunciation of the Letter -U-

In British English, the letter U sometimes sounds /ʌ / (but, fun, must) and sometimes sounds / ju: / (tube, music, stupid).

American people also pronounce this letter with /ʌ / (but, fun, must), but for many of the words with / ju: /, they use the vowel /u:/

Stupid=BrE /stju:pid/ AmE /stu:pid/

But this only happens with some words and not everywhere in America. Other words are pronounced with / ju: / like in BrE (music, cute, you, etc), and others may be pronounced with / ju: / or with /u:/, depending on the area or the speaker.

4.6. The Vowel /ʌ/(as in Cat)

In BrE, this sound is something between /e/ and /ʌ /, in AmE this sound is usually longer and much more similar to /e/. In fact, in some parts of the USA, the main difference between /e/ and /æ/ is that the first one is short and the second one long, but the sound is almost the same. Also, in many parts this vowel is simply /e/, not a different sound.

4.7. Short and Long Vowels

In BrE all the vowels can be classified as short (/æ/, /e/, /ɒ/ etc.) or long (/u:/, /ɑ:/, /ɔ:/, etc.). In AmE they are all the same in length, or the difference is much smaller than in Britain. The difference is usually made with a contrast between tense and non-tense pronunciation rather than long and short [18].

One can plainly see that the British BBC English has more vowel sounds than North American English does! North American English does!

4.8. The Cardinal System for Mapping Vowels

Vowels are made, during voicing, by changing the shape of the vocal tract with the tongue, lip position, and openness of the mouth. The tongue can be close to the roof of the mouth (tongue is high) or flat against the bottom of the mouth (tongue is low) (say "ahh"), or somewhere in between. Also, the tongue can be forward, or pressed back into the mouth, or somewhere in between. So in the following chart "ahh" would be somewhere in the bottom right corner, as the tongue is low and towards the back. [19].

To get a feel for the tongue moving from front to back say cat, cut, cot, bed, bird, boat, bee, boo. (Tongue was low, medium, and then high). To get a feel for the tongue moving from high to low, say: heed, hid, head, had, boot, boat, bot. (Tongue was front, then back.) Since we are dealing with only vowels, another way to play with the sounds is to just hum them instead if bee, boo, hum ee-oo. To determine the difference between [e] and [ei] say bay, eight ([ei]) and bed, ten ([e]) but don't finish the word extend the first vowel indefinitely.

4.9. Cardinal Vowel System

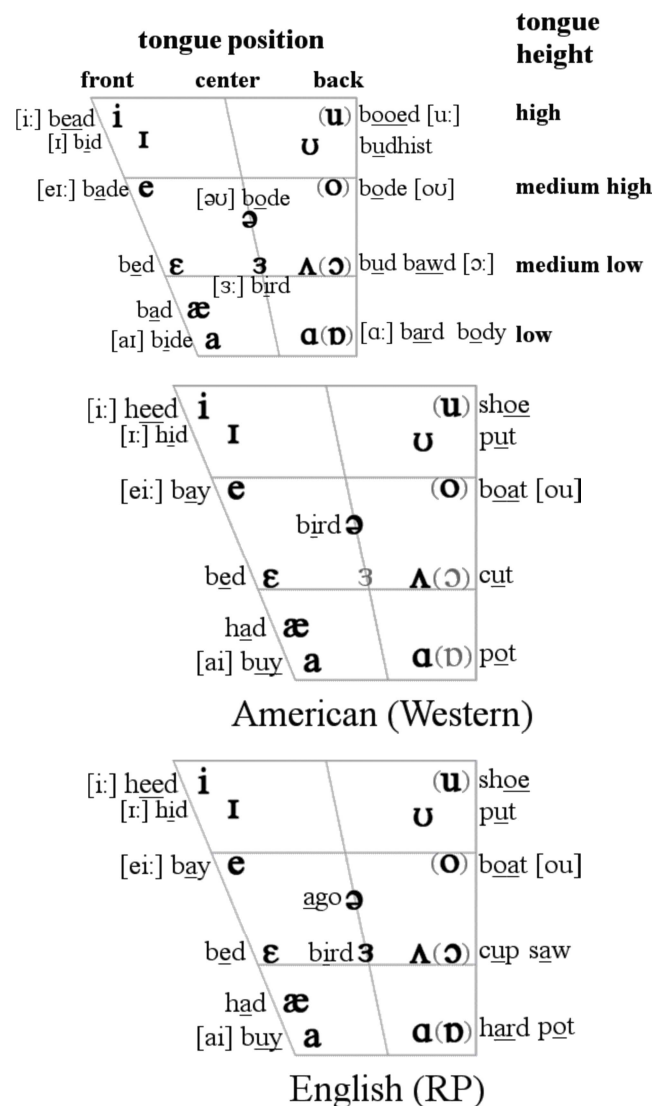


Figure 4. Vowel Sound Charts and Some Examples for different schools and Cardinal Vowels. [20]

5. American Western and British (RP) Vowel Systems

Table 2. Symbols of Vowel Sounds with Examples.

US	UK	US	UK	US	UK
[i]	[i:]			[u]	[u:]
bee	bee			boot	boot
heed	heed			shoe	shoe
very				tour	
[ɪ]				[ʊ]	
bid	bid			put	put
mirror	mirror			[ou]	
wanted				boat	
[ei]				[ʌ]	
bay	bay			cut	cut
eight	eight			hurry	hurry
Mary				[ɔ]	[ɔ:]
pair				port	port
[e]				boring	boring

US	UK	US	UK	US	UK
be <u>d</u> , te <u>n</u>	be <u>d</u> , te <u>n</u>			horri <u>d</u>	pa <u>w</u>
me <u>r</u> ry	me <u>r</u> ry	[ə]		hur <u>r</u> y	ta <u>k</u>
[e:]	[e:]	a <u>b</u> out	a <u>b</u> out		sa <u>w</u>
	pa <u>i</u> r	sofa	sofa	[ɔi]	
	M <u>a</u> ry	bu <u>t</u> ter	bu <u>t</u> ter	bo <u>y</u>	bo <u>y</u>
[æ]		bi <u>r</u> d		[ɑ]	[ɑ:]
ba <u>d</u>	ba <u>d</u>	fu <u>r</u> ry		ba <u>l</u> m	ba <u>l</u> m
ca <u>t</u>	ca <u>t</u>		[ɜ:]	ca <u>l</u> m	ca <u>l</u> m
kh <u>a</u> ki	ma <u>r</u> ry		bi <u>r</u> d	ba <u>r</u> d	ba <u>r</u> d
ba <u>n</u> ana	Da <u>t</u> sun		fu <u>r</u> ry	fa <u>t</u> her	fa <u>t</u> her
pa <u>t</u> h	Mi <u>l</u> an			po <u>t</u>	da <u>n</u> ce
da <u>n</u> ce				to <u>p</u>	ha <u>l</u> f
ha <u>l</u> f				bo <u>m</u> b	kh <u>a</u> ki
[ai]				lo <u>n</u> g	ha <u>r</u> d
ri <u>d</u> e	bu <u>y</u>			co <u>u</u> gh	ba <u>n</u> ana
ni <u>g</u> ht				Da <u>t</u> sun	
				Mi <u>l</u> an	
				pa <u>w</u>	
				ta <u>k</u>	
				[au]	
				bo <u>u</u> t	
				lo <u>u</u> d	
				to <u>w</u> er	
					[v]
					co <u>u</u> gh
					ho <u>d</u>

[20]

6. Conclusions

Phonetics and Phonology are two complementary fields represent one subject of study. There are many kinds of writing systems each one has its own characteristics. Transcription is the method of writing down speech sounds in a systematic and consistent way or writing down spoken utterance using suitable set of symbols. These symbols are used by different schools differ not just in their shapes but they represent their aimed sounds. Each school, whether American or British has its own symbols which are used by members of this school to represent the same set of speech sound symbols for the English speakers (Sound representations). It is clear that the British schools of transcriptions use symbols more than most of American schools of transcriptions.

The most important thing is to teach the students of English these different sound symbols which are used by different schools for there are same sound symbols for different representations or different sound symbols for different representations. This will cause confusion for students of English may learn mixed systems (American or British).

The programs for teaching these different sound symbols should include the some things about these different sound symbols and there uses.

Abbreviations

www = internet sources, BrE. = British English, AmE. = American English, RP = Received Pronunciation, EPD = English Pronunciation Dictionary, OED = Oxford English

Dictionary, LPD = Longman Pronunciation Dictionary, COD = Concise Oxford Dictionary, NSOED = New Shorter Oxford English Dictionary, CPO = Concise Pronouncing Dictionary, LDCE = Longman Dictionary of Contemporary English, GB = General British

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