

The system of the English phonemes

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The system of consonant phonemes. Problem of affricates

There are 24 phonemes: [p, b, t, d, k, g, f, v, θ, ð, s, z, ʃ, ʒ, h, tʃ, dʒ, m, n, ŋ, w, r, l, j].



Classification of english consonant phonemes

According to V.A.Vassilyev primary importance should be given to the type of obstruction and the manner of production of noise. On this ground he distinguishes two large classes of consonants:

- a) occlusive, in the production of which a complete obstruction is formed;
- b) constrictive, in the production of which an incomplete obstruction is formed.

The phonological relevance of this feature could be exemplified in the following oppositions:

[ti:] – [si:] – tea – sea (occlusive – constrictive)

[si:d] – [si:z] – seed – seas (occlusive – constrictive)

[pul] – [ful] – pull – full (occlusive – constrictive)

[bʊt] – [vʊt] – boat – vote (occlusive – constrictive)

Each of two classes is subdivided into noise consonants and sonorants. The division is based on the factor of prevailing either noise or tone component in the auditory characteristic of a sound. In their turn noise consonants are divided into plosive consonants (or stops) and affricates.

Another point of is that the first and basic principle of classification should be the degree noise. Such consideration leads to dividing English consonants into two general kinds:

A – noise consonants

B – sonorants

in production of sonorants the air passage between the two organs of speech is fairly wide, that is much wider than in the production of noise consonants. As a result, the auditory effect is tone, not noise – [r], [j], [w], for example. They are also characterized by sharply defined formant structure and the total energy of most of them is very high.

The phonological relevance of the degree of noise could be proved by the following oppositions:

[beik] – [meik] bake – make (noise consonant – sonorant)

[vi:l – [wi:l] veal – wheel (noise consonant – sonorant)

The place of articulation is determined by the active organ of speech against the point of articulation. According to this principle the English consonants are classed into:

- 1) labial,
- 2) lingual,
- 3) glottal.

The class of labial consonants is subdivided into: a) bilabial; b) labio-dental; and among the class of lingual consonants three subclasses are distinguished; they are: a) forelingual, b) mediolingual and c) backlingual.

pan – tan (bilabial – forelingual)

[wai] – [lai] why – lie (bilabial – forelingual)

[weil] – [jeil] weil – yale (bilabial – mediolingual)

[pik] – [kik] pick – kick (bilabial – backlingual)

[les] – [jes] less – yes (forelingual – mediolingual)

[dei] – [gei] day – gay (forelingual – backlingual)

[sai] – [hai] sigh – high (forelingual – glottal)

[fi:t] – [si:t] feet – seat (labio-dental – forelingual)

Another sound property is voiced –
voiceless characteristic which
depends on the work of the vocal
cords. [p, b], [t, d], [k, g], [s, z]. All
voiced consonants are weak (lenis)
and all voiceless consonants are
strong (fortis).

Thus it may be said that the oppositions [p – b], [t – d], [k – g], [f – v], [s – z], [ʃ – ʒ], [tʃ – dʒ] are primarily based on energy difference, that is on fortis – lenis articulation, which are their phonologically relevant features. It is for this reason that such characteristics as voiceless – voiced have given place to "fortis" – "lenis" terms. There is one more articulatory characteristic which is usually included into the set of principles on the basis of which the English consonants are classified, that is the position of the soft palate. According to this principle consonants can be *oral and nasal*. There are relatively few consonantal types in English which require the lowered position of the soft palate. They are the nasal occlusive sonorants [m], [n] and. They differ from oral plosives in that the soft palate is lowered allowing the escape of air into the nasal cavity.

There are some problems of phonological character in the English consonantal system; it is the **problem of affricates** – their phonological status and their number. The question is: what kind of facts a phonological theory has to explain.

The problem of affricates is a point of considerable controversy among phoneticians. According to Russian specialists in English phonetics, there are two affricates in English: [tʃ, dʒ]. D. Jones points out there are six of them: [tʃ, dʒ], [ts, dz], and [tr, dr]. A.C. Gimson increases their number adding two more affricates: [tʰ, t̚]. Russian phoneticians look at English affricates through the eyes of a phoneme theory, according to which a phoneme has three aspects: articulatory, acoustic and functional, the latter being the most significant one. As to British phoneticians, their primary concern is the articulatory-acoustic unity of these complexes.

Before looking at these complexes from a functional point of view it is necessary to define their articulatory indivisibility.

According to N.S. Trubetzkoy's point of view a sound complex may be considered monophonemic if: a) its elements belong to the same syllable; b) it is produced by one articulatory effort; c) its duration should not exceed normal duration of elements. Let's apply these criteria to the sound complexes.

1. Syllabic indivisibility

butcher [butʃ -ə]	lightship [lait-ʃip]
mattress [mætr-is]	footrest [fut-rest]
curtsey [kɜ:-tsi]	out-set [aut-set]
eighth [eitθ]	whitethorn [wait-θo:n]

In the words in the left column the sounds [tʃ], [tr], [ts], [tθ] belong to one syllable and cannot be divided into two elements by a syllable dividing line.

2. Articulatory indivisibility. Special instrumental analysis shows that all the sound complexes are homogeneous and produced by one articulatory effort.

3. Duration. With G.P. Torsuyev we could state that length of sounds depends on the position in the phonetic context, therefore it cannot serve a reliable basis in phonological analysis. He writes that the length of English [tʃ] in the words chair and match is different; [tʃ] in match is considerably longer than /t/ in mat and may be even longer than [ʃ] in mash. This does not prove, however, that [tʃ] is biphonemic.

By way of conclusion we could say that the two approaches have been adopted towards this phenomenon are as follows: the finding that there are eight affricates in English [tʃ], [dʒ], [tr], [dr], [ts], [dz], [tʰ], [dθ] is consistent with articulatory and acoustic point of view, because in this respect the entities are indivisible. This is the way the British phoneticians see the situation. On the other hand, Russian phoneticians are consistent in looking at the phenomenon from the morphological and the phonological point of view which allows them to define [tʃ], [dʒ] as monophonemic units and [tr], [dr], [ts], [dz], [tʰ], [dθ] as biphonemic complexes. However, this point of view reveals the possibility of ignoring the articulatory and acoustic indivisibility.

The system of vowel phonemes. Problems of diphthongs and vowel length

The following 20 vowel phonemes are distinguished in BBC English (RP):
[i:, a:, o:, u:, ʒ:, ɪ, e, æ, σ, ʊ, ɒ, ə; eɪ, aɪ, oɪ, aʊ, eʊ, ʊə, ɪə].

Principles of classification provide the basis for the establishment of the following distinctive oppositions:

1. Stability of articulation

1.1. monophthongs vs. diphthongs

bit - bait, kit - kite, John - join, debt - doubt

1.2. diphthongs vs. diphthongoids

bile - bee, boat - boot, raid - rude

2. Position of the tongue

2.1. horizontal movement of the tongue

a) front vs. central

cab – curb, bed – bird

b) back vs. central

pull – pearl, cart – curl, call – curl

2.2. vertical movement of the tongue

a) close (high) vs. mid-open (mid)

bid – bird, week – work

b) open (low) vs. mid-open (mid)

lark – lurk, call – curl, bard – bird

4. Position of the lips rounded vs. unrounded

don – darn, pot – part

The English diphthongs are, like the affricates, the object of a sharp phonological controversy, whose essence is the same as in the case of affricates are the English diphthongs biphonemic sound complexes or composite monophonemic entities?

Diphthongs are defined differently by different authors. One definition is based on the ability of a vowel to form a syllable. Since in a diphthong only one element serves as a syllabic nucleus, a diphthong is a single sound. Another definition of a diphthong as a single sound is based on the instability of the second element. The 3d group of scientists defines a diphthong from the accentual point of view: since only one element is accented and the other is unaccented, a diphthong is a single sound.

D. Jones defines diphthongs as unisyllabic gliding sounds in the articulation of which the organs of speech start from one position and then glide to another position.

N.S. Trubetzkoy states that a diphthong should be (a) unisyllabic, that is the parts of a diphthong cannot belong to two syllables; (b) monophonemic with gliding articulation; (c) its length should not exceed the length of a single phoneme.

In accordance with the principle of structural simplicity and economy American descriptivists liquidated the diphthongs in English as unit phonemes.

Applied to the English diphthongs, all these criteria support the view of their monophonemic status.

Problem of length. There are long vowel phonemes in English and short. However, the length of the vowels is not the only distinctive feature of minimal pairs like Pete – pit, beet – bit, etc. In other words the difference between i: i. u: – u is not only quantitative but also qualitative, which is conditioned by different positions of the bulk of the tongue. For example, in words bead– bid not only the length of the vowels is different but in the [i:] articulation the bulk of the tongue occupies more front and high position than in the articulation of [i].

Qualitative difference is the main relevant feature that serves to differentiate long and short vowel phonemes because quantitative characteristics of long vowels depend on the position they occupy in a word:

- (a) they are the longest in the terminal position: *bee, bar, her*;
- (b) they are shorter before voiced consonants: *bead, hard, cord*;
- (c) they are the shortest before voiceless consonants: *beet, cart*.