Unit 6: English Phonemes and Allophones

1 INTRODUCTION

The phonemics of the English language can be identified and described in the following four approaches, namely: minimal pairs, allophones, complementary distribution and free variation. In this unit the discussion relates to minimal pairs and allophones.

A phoneme is the smallest/indivisible and contrastive or significant unit of the sound of a language, which, when replaced with another sound, results in a change in meaning. Therefore, a phoneme can not be subdivided into a smaller unit. "Can" can be broken to /k/+/æ/+/n/ but can not further be broken into smaller units.

2 OBJECTIVES

Learners should, by the end of this unit, be able to:

- define and identify minimal pairs of vowel and consonants sounds;
- explain to you how to identify and describe a phoneme through its various other forms called allophones;

3.1 THE ENGLISH MINIMAL PAIRS

Let us consider the following pairs of words, which introduce the pairs of phonemes:
a. bag big
b. hard heed
c. pat fat
d. deal seal

In examples a – d, all the words are similar except for one phoneme in each set of pairs. In (a), the two words are similar in pronunciation except for the short vowels in the words: /æ/ and /ɪ/. In (b), the pair of words is similar but for the long vowels: /a:/ and /i:/; likewise c and d, but for the consonant sounds /p/ and /f/, and /d/ and /s/. Thus, a phonemic situation whereby a pair of words is contrasted by only a phoneme in the string of sounds is called a minimal pair. Gimson (1980: 49) describes this as pairs of words which are different in respect of only one sound segment. Therefore, in the examples a – d above, /æ/ and /ɪ/, /a:/ and /i:/, /p/ and /f/, and /d/ and /s/ respectively, are minimal pairs.

3.1.1 Mode of Minimal Pairs

Minimal pairs are environmentally contrastive because they are only different within the environment (words) that they occur. In "bag-big" for instance, /æ/ and /ɪ/ occur in the environment of b – g. Any other sound that can occur meaningfully within this environment belongs to the same set of minimal pairs of /æ/ and /ɪ/.

3.1.2 Examples of minimal pairs of vowels at medial position are: /ɛ / and /ʌ/

1. bed and bug. /bɛd bʌg/
2. when and one /wɛn wʌn/
3. den and done /dɛn dʌn/
4. bet and but /bɛt bʌt/

3.1.3 Examples of minimal pairs of consonants /p f/ at the initial (left) position

1. pat and fat /pæt fæt/
2. pit fit /pɪt fɪt/
3. peel and feel /pi:l fi:l/
4. please and fleece /pli:s fli:s/

3.2 ENGLISH ALLOPHONES

This section focuses on another environmentally mediated description of a phoneme.

3.2.1 Description of Allophones

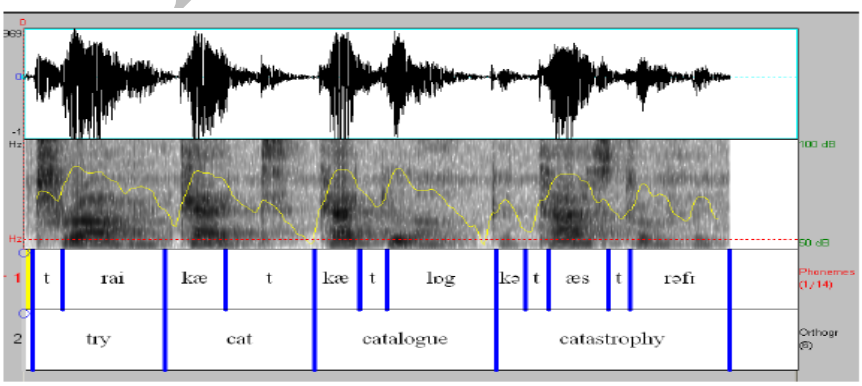
An allophone is a phoneme that shares similarities of pronunciation. More technically, allophones are phonemes, which share a variety of pronunciations determined by phonetic circumstances such as types of words, morphemes or positions. Ashby and Maidment (2005:189) define an allophone as a positional (initial, middle, final) variant of a phoneme due to the position it occupies in a word, which calls for a slight difference in pronunciation.

We can exemplify the above description with the phoneme, /t/ and some of its variants (allophones).
/th/ aspirated as in teach
/t/ unaspirated as in water
/t/ /tn/ nasalize as in tin
/tw/ labialised as in twice
/t-/ unreleased as in great

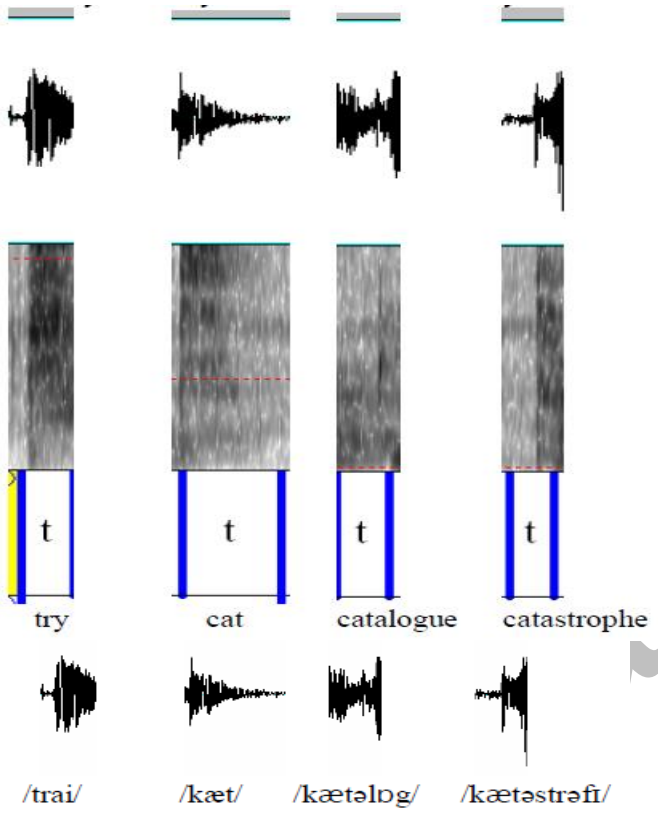
It is clear from the above example that the phoneme we realise as /t/ has, among its variant realisations: /th t tn tw and t-/. All these variants are called the allophones if /t/. Although they are allophones of the same phoneme, they do not replace each other without sounding awkward. This is why they are said to be mutually exclusive, that is, there distributions are not completely similar in phonetic environments.

3.2.2 Graphical Presentation of Allophones

There is a way we can prove the existence of allophones of the same phoneme so that we do not only "say" them but we can also "see" them. This is what we call acoustic evidence used to accompany our theoretical explanation. One way we can achieve this is to analyse the speech of a person with the aid of a linguistic programme-PRAAT.



Take the example of the voiceless plosive fricative of an English word /t/; and illustrate with these four words, namely, try, cat, catalogue and catastrophe. With PRAAT, we get the picture represented below. The waveforms that appear at the top of the Object, on the first four /t/, are dissimilar.



The outcome of this are these 2 PRAAT Objects which we see above, one showing the four words, the other isolating the occurrences of /t/ showing four allophones of /t/. At the top of the first window object is what is called the oscillogram, which shows some diagrams we call the waveforms that represent the sound energy of what is pronounced.

While below the object is the spectrogram of the four words, which, again indicates the acoustic sound energy of the words. The four words which were acoustically analysed were pronounced a Nigerian, whose pronunciation is not close to a native speaker's but which can be considered that of the Educated Nigerian English (ENE) and who has had the opportunities of trainings in phonetics and phonology, and teach English phonetics and phonology to University students for about two decades.

3.3 EXPLICATION OF GRAPHICAL PRESENTATION OF ALLOPHONES

The acoustics of /t/, like most plosives, involves (a) a silent period (b) the closure point (c) the burst period and (d) another silence. This is the ideal realisation of /t/, which is not often so in English speech making.

3.3.1 try /trai/

Because, it is at the initial position (begins the word), we are able to have a period of silence in preparation for the closure of the tip of the tongue and the alveolar.

3.3.2. Cat /kæt/

/t/ in this word is preceded by a vowel and does not compete with the position of articulation that we are able to have a period of silence for enough breadth to close the articulators.

3.3.3. Catalogue /kætəlɒg/

The /t/ in this word begins with a silence and has an opportunity to close. It is not able to burst at all but ends up in a lateral position of the succeeding consonant /l/ introducing to a concept called assimilation process.

3.3.4. Catastrophe /kætəstrəfɪ/

If you are able to pronounce cata correctly like /kæt/, which is similar to what a native speaker will probably say. The occurrence of an open vowel sound immediately after this /t/ has enabled us to now act only a full realisation of a long and almost aspirated /t/, therefore, represent this in this same manner as IPA, /th/.

In summary, you can clearly and unequivocally realise that the phoneme /t/ has grown about four variants, namely /tr/, /t/, /tl/ and /th/. All these phonemic variants of /t/ are called allophones.

4 EXERCISE

a. Define minimal pairs.
b. Write two examples of minimal pairs each of vowel and consonant sounds, different from those in this unit.
c. Explain what allophones are using English sounds.