UNIVERSITY OF BABYLON
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DEPARTMENT OF ENGLISH

INTRODUCTORY LECTURES TO THE ENGLISH

PHONETICS AND PHONOLOGY

A PAMPHLET PREPARED BY
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M. A. IN ENGLISH LANGUAGE AND LINGUISTICS

Note:

The following pages present guidelines to the subjects involved: details and thorough explanations are given during delivering the lectures and students are expected to cover them all. Besides, frequent reference to the textbook is inevitable.

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1. Introduction

It is a well-known fact that all languages were spoken much earlier than written. This is because languages were used as an immediate means of communication between individuals for a long time. Though nowadays people use several writing techniques to document their thoughts, feelings, and the like, they still use the spoken language much more often than the written in their daily communication. Consequently, it becomes clear why it is important to study in detail how a certain language is pronounced if someone wants to learn a second or a foreign language.

The study of the pronunciation of any language demands answers to the following questions:

1. How are sounds produced?
2. How are these sounds combined to produce speech?

To answer these two questions, we need to study two linguistic fields; namely, phonetics and phonology respectively.

2. Phonetics

Phonetics is the science that studies the features of the human speech sounds to explain their production, transmission, and perception. Thus, it deals with the speaker, the medium (air), and the listener respectively. Accordingly, phonetics has the following branches:

- **Articulatory phonetics**

Articulatory phonetics is the branch of phonetics which studies how speech sounds are produced (articulated) by the speech organs i.e. the tongue, lips, palate, etc. Thus, it is related to the speaker to show how speech sounds are made.

- **Acoustic phonetics**

Acoustic phonetics is the branch of phonetics which studies the physical characteristics of speech sounds as they are transmitted from the mouth of the speaker to the ear of the listener. So it is concerned with medium (usually the air) through which sounds travel.

- **Auditory phonetics**

Auditory phonetics is the branch of phonetics which studies how speech sounds are perceived by the listener from the moment they enter the ear passing through the auditory nerve until they arrive at the brain to be interpreted.

Notes

1. The one who is specialized in studying phonetics is called a "**phonetician"**.
2. The term **instrumental phonetics** is sometimes used to refer to the study of phonetics by using instruments such as devices for measuring the airflow, or analyzing waves … etc. **Instrumental phonetics is NOT a branch of phonetics.**
3. In phonetics, the methods of analysis are valid for all human speech sounds regardless of the language or speaker (i.e.) it is a general science that is not related to a particular language.

2. 1. Classification of speech sounds

Speech sounds are classified according to the way they are produced into two types: consonants and vowels. The distinction depends on whether or not the sound is produced with obstruction to airflow. If the sound is produced with obstruction to airflow (whether full or partial) it is considered as a consonant sound. Otherwise, if the sound is produced with no (or very little) obstruction to airflow it is considered as a vowel sound.

2. 1. 1. Classifying consonants

Consonant sounds are those sounds which are produced with a certain degree of obstruction to airflow; hence, they are mainly classified according to how and where the obstruction happens. Consequently, the following criteria are used to classify consonants:

(1) Manner of articulation

Manner of articulation is concerned with describing the changes (modifications) happening to the airflow when it goes out to produce a certain sound. In this criterion, consonants are classified according to the following categories:

1- Plosive: in this category, we have / p ; b ; t ; d ; k ; and ɡ / in which the airflow is fully obstructed then suddenly released causing a sound of plosion.

2- Fricative: are / f ; v ; θ ; ð ; s ; z ; ʃ ; ʒ ; and h / and they are produced while the airflow is partially obstructed by making a narrow opening in a certain point in the passage of airflow.

3- Affricate: this category includes / tʃ ; and dʒ / only and they are produced by first fully obstructing the airflow by raising the tip of the tongue against the alveolar ridge then releasing it gradually by making a narrow opening (i.e. it is a combination of a plosive and a fricative).

4- Nasal: are / m ; n ; and ŋ /. They are the consonants produced when the oral cavity (i.e. mouth) is blocked by lowering the soft palate so the airflow goes out through the nasal cavity (i.e. nose). The point of blocking depends on the place of articulation.

5- Lateral: is / l / and it is produced by raising the tip of the tongue against the alveolar ridge and lowering the sides of the tongue, thus the airflow passes from the sides of the tongue only (hence called "lateral").

6- Approximant: this category includes three sounds: / w and j / are also called semi-vowels because practically they have no obstruction to airflow and they are in quality very much like the vowels / u: and i: / respectively yet distributed like consonants (e.g. preceded by "a" not "an" like "a way" not "an way"). The third sound is / r / and it is produced when the tip of the tongue approaches the alveolar area but it does not touch any part of the roof of the mouth.

(2) Place of articulation

Place of articulation is concerned with describing the point of contact between the speech organs which are responsible for producing the speech sound (i. e.) it points out where the obstruction to airflow happens. Usually two speech organs are involved in producing the speech sound: the main one is called the **active articulator** (normally moveable) and the second **passive articulator** (immoveable). According to place of articulation, consonants are classified according to the following categories:

1- Bilabial: these consonants are produced by using the two lips. This category includes / p; b; m; and w /.

2- Labiodental: these are produced by the lower lip and the upper front teeth. This category includes / f and v /.

3- Dental: are / θ and ð / and they are produced by putting the tip of the tongue between the lower and the upper front teeth.

4- Alveolar: these consonants (which are / t ; d ; s ; z ; n ; and l /) are produced by raising the tip of the tongue against the alveolar ridge.

5- Palato-alveolar: this category includes / ʃ ; ʒ ; tʃ ; ʤ ; and r / which are produced by raising the blade of the tongue against the back of the alveolar ridge (post-alveolar).

6- Palatal: this category includes only one consonant / j / and it is produced by raising the blade of the tongue against the hard palate.

7- Velar: are / k ; g ; and ŋ / which are produced by raising the back of the tongue against the soft palate.

8- Glottal: is / h / and it is produced by letting the airflow freely pass through the space between the vocal cords which is called the glottis.

(3) Voicing

This criterion is concerned with describing the state of the vocal cords (vibrating or not) when the airflow passes through them. Consequently, two categories are found in this criterion: voiceless and voiced. If the vocal cords are drawn apart the airflow will pass freely through the glottis so there will be no vibration and the sound will be voiceless but if they are brought near each other so the airflow will be interrupted causing vibration in the glottis and the sound will be voiced:

1. Voiceless consonants are: / p ; t ; k ; f ; θ ; s ; ʃ ; tʃ ; and h /.
2. Voiced consonants are / b ; d ; g ; v ; ð ; z ; ʒ ; ʤ ; l ; r ; j ; m ; n ; and ŋ /.

In accordance with these criteria, consonants are classified as shown in the following table

The English Consonant Phonemes		*Place of articulation*							
		Bilabial	Labio-dental	Dental	Alveolar	Palato-alveolar	Palatal	Velar	Glottal
Manner of articulation	Plosive	p b			t d			k g	
	Fricative		f v	θ ð	s z	ʃ ʒ			h
	Affricate					ʧ ʤ			
	Nasal	m			n			ŋ	
	Lateral				l				
	Glides	w				r	j		

Note: When in pairs, consonants on the left are voiceless; on the right voiced.

2. 1. 2. Classifying vowels:

Vowels are classified according to the following criteria:

(1) Tongue height

In this criterion, vowels are classified according to the height of the tongue into the following categories:

1. Close: these vowels are produced by raising the tongue to be close to the roof of the mouth like /uː/.
2. Half-close: these vowels are produced by raising the tongue to be near the roof of the mouth like / ʊ /.
3. Half-open: these vowels are produced by raising the tongue above the bottom of the mouth like / ɜː /.
4. Open: these vowels are produced while the tongue rests at the bottom of the mouth like the vowel /ɑː/.

(2) Frontness and backness

In this criterion, vowels are classified according to the part of the tongue used into the following categories:

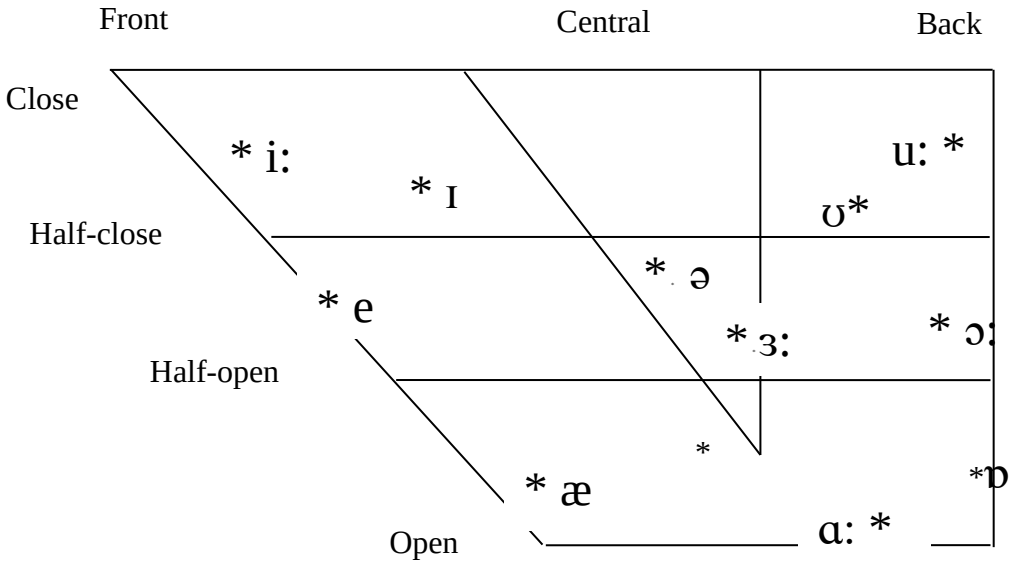
1. Front: these vowels are produced by using the front part of the tongue, e.g. / iː /.
2. Central: these vowels are produced by using the mid part of the tongue, e.g. / ɘ /.
3. Back: these vowels are produced by using the back part of the tongue, e.g. / ʊ /.

(3) Lip-rounding

In this criterion, vowels are classified according to the shape which the lips take when producing the vowel into the following categories:

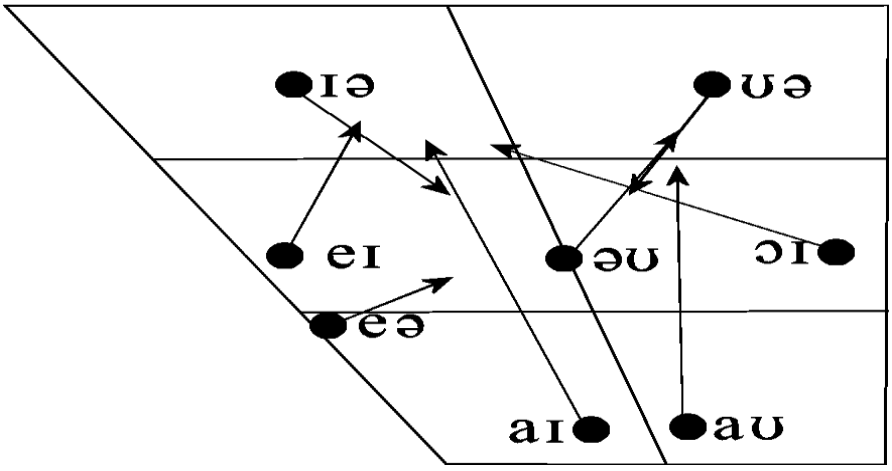
1. Rounded: these vowels are produced by bringing the corners of the lips towards each other and the lips are pushed forwards, e.g. / ʊ /.
2. Unrounded: these vowels are produced by moving the corners of the lips away from each other as in smiling, e.g. / i: /.
3. Neutral: with such vowels the lips are neither rounded nor spread, e.g. / ɜ: /.

The figures below illustrate how English pure vowels (Figure 1) and diphthongs (Figure 2) are classified according to the above-mentioned criteria:



The English Pure Vowels

Number	1	2	3	4	5	6	7	8	9	10	11	12
Symbol	i:	ɪ	e	æ	ɑ:	ɒ	ɔ :	ʊ	u:	ʌ	ɜ:	ə
Example	bean	bin	let	back	car	box	saw	good	soon	up	bird	about



The English Diphthongs

Number	13	14	15	16	17	18	19	20
Symbol	ei	ai	ɔi	aʊ	əʊ	ɪə	eə	ʊə
Example	way	buy	oil	cow	home	here	hair	tour

The English Triphthongs

Symbol	aiə	ɔiə	eiə	əʊə	aʊə
Example	fire	loyal	slayer	lower	power

3. Phonology

Phonology is the science that studies the sound system of a particular language. It is concerned with demonstrating the patterns of distinctive sounds found in a language i.e. it focuses on the range and function of sounds in a certain language. Phonology has the following two branches:

- **Segmental phonology**

Segmental phonology is the branch of phonology which is concerned with analyzing speech into discrete segments (phonemes) and how these segments are distributed and combined. Therefore, it specifies the

sound patterns of a particular language. For example, in English / spr--- / is a permissible sequence in initial position while /zbv---/ is an impermissible sequence.

❖ Suprasegmental phonology

Suprasegmental phonology is the branch of phonology that studies those features of speech which extend over more than one segment such as the phenomena of stress, assimilation, elision, intonation … etc.

Note: Phonetics and phonology are interrelated yet distinct disciplines: both are concerned with studying speech sounds but phonetics studies the **production** of speech sounds while phonology studies the **function** of speech sounds. Thus, phonetics is a general science (i.e. not restricted to a particular language) while phonology is a restricted science that studies the sound system of a particular language.

3. 1. The phoneme

The phoneme is the main and most important unit in the study of the speech sounds of any language. It is the ideal picture of the speech sound which has the following characteristics:

1. It is the ***smallest*** phonological unit which cannot be divided into smaller units. For example, /kæn/ is a syllable that is divided into three phonemes /k/, / æ /, and /n/ but these phonemes are indivisible.
2. It is ***abstract*** i.e. it is not heard because it is found only in the mind. This characteristic is the most important one because it distinguishes the phoneme from the speech sound which we hear when we listen to others.
3. It is ***meaningful*** in the sense that it has the ability to change the meaning. For example, in the word /kæn/, if we change /k/ by /f/ we will have /fæn/ which is a new word with a different meaning. /kæn/ and /fæn/ are said to be in contrast because the change in pronunciation results in change in meaning.

Thus, the phoneme can be briefly defined as the smallest, abstract, meaningful unit of speech. Now if the phoneme cannot be heard so what are these sounds which we hear in speech called?

3. 2. The allophone

Since the phoneme is abstract, it needs a realization to be heard. Therefore, when someone speaks (s)he actually produces sounds which are similar to their phonemes (which are found only in the mind) but they are not identical to them. Each realization of a phoneme is called "phone" (which is real, concrete, or physical). Because any phoneme has different realizations, so the realizations of a phoneme are called "allophones" ("allo" means "variant"). Consequently, *the allophone is the realization of the phoneme*. For instance, the phoneme /t/ has two realizations (allophones): aspirated and unaspirated and /b/ has voiced and devoiced realizations.

3. 3. Relationships between allophones

Because the phoneme has more than one realization, this means that in each time there will be a certain realization to use depending on the context. The allophones of a phoneme will have either of the following relationships between them:

(1) Complementary distribution is the relationship between allophones of a phoneme when we find a strict separation of places where a particular realization can occur. For example, in [t^hɑ:sk] (task) /t/ is aspirated because it is followed by a stressed vowel at the beginning of the syllable. While in [si:t] (seat)

/t/ is unaspirated because it occurs at the end of the syllable. Thus, aspirated and unaspirated /t/ are in complementary distribution because their choice is determined by rules.

(2) Free variation is the relationship between allophones of a phoneme when one can be FREELY substituted for the other (i.e.) there is no rule to determine which allophone to use. For instance, /bæd/ can be pronounced freely with a voiced or a devoiced /b/ since the difference of realization depends on the speaker, not the language.

4. Transcription of speech

The practice of describing speech by using special symbols (not letters) is called **transcription**, which is of two main types:

(1) Phonemic transcription in this type, speech is described by using the phonemes, so it shows the supposed articulation of speech, e.g. transcribing "can" as /kæn/ means that it should start with a voiceless, plosive, velar consonant followed by a front open unrounded vowel and ends with a voiced alveolar nasal consonant.

(2) Phonetic transcription in this type, speech is described by using allophones, and it is in turn of two types: (a) ***broad transcription*** which includes a little more information than the phonemic transcription, e.g. in [k^hæn] /k/ is aspirated; and (b) ***narrow transcription*** which includes a lot of information about the exact quality of the sounds, e.g. in [k^hæn] /k/ is aspirated and / æ / is nasalized because it is followed by a nasal consonant…etc.