Phonetics & Phonology

[الصوتيات والنظام الصوتي]

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First Lecture.
Phonetics and Phonology

Phonetics and Phonology

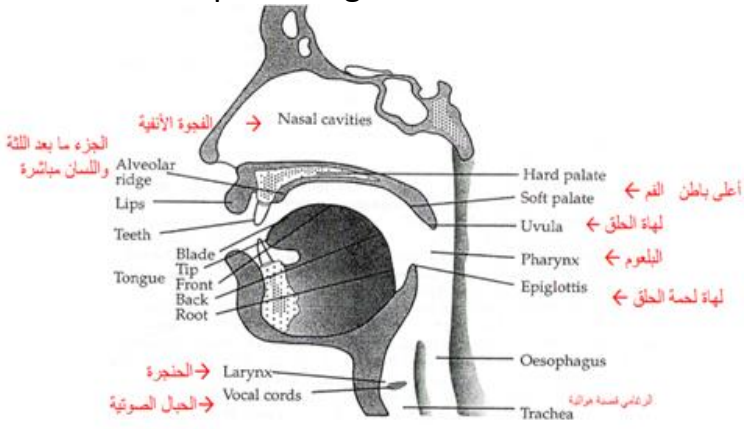
1. All the sounds we make when we speak are the result of muscles contracting. The muscles in the chest that we use for breathing produce the flow of air that is needed for almost all speech sounds; muscles in the **larynx** produce many different modifications in the flow of air from the chest to the mouth.

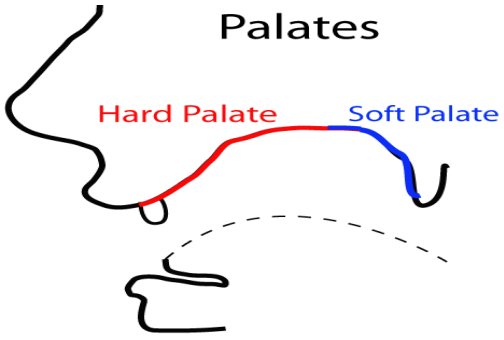
2. **After passing through the larynx,** the air goes through what we call the **vocal tract**, which ends at the **mouth and nostrils**. Here the air from the **lungs** escapes into the atmosphere.

3. We have a large and complex set of muscles that can produce changes in the shape of the vocal tract, and in order to learn how the sounds of speech are produced it is necessary to become familiar with the different parts of the vocal tract. These different parts are called **articulators**, and the study of them is called **articulatory phonetics**. **These parts are**:

4. i) **The pharynx** is a tube which begins just above the larynx. It is about **7cm long in women** and about **8 cm in men**, and at its top end it is divided into two**, one part** being the back of the mouth and the **other** being the beginning of the way through the **nasal cavity**.

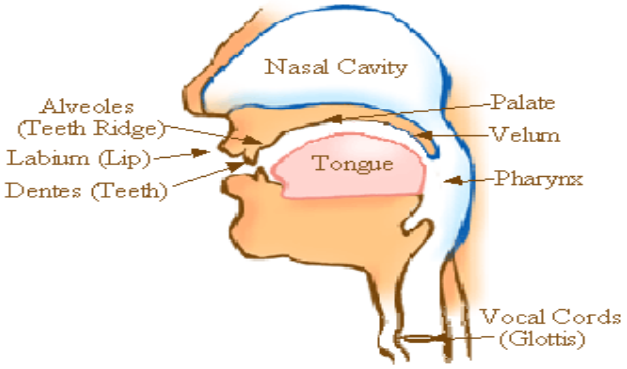
ii) **The velum or soft palate** is seen in any diagram in a position that allows air to pass through the nose and through the mouth. In speech it is raised so that air **cannot** escape through the nose.





iii) **The hard palate** is often called 'the roof of the mouth'. You can feel its smooth curved surface with your tongue.

iv) **The alveolar ridge** is between the top front teeth and the hard palate. You can feel its shape with your tongue. Sounds made with the tongue touching here (such as **t and d**) are called alveolar.



V) **The tongue** is, of course, a very important articulator and it can be moved into many different places and different shapes. It is usual to divide the tongue into different parts: **tip**, **blade**, **front**, **back** and **root**.

vi) **The teeth (upper and lower).** Sounds made with the tongue touching the front teeth are called dental.

vii) **The lips** are important in speech. They can be pressed together (when we produce the sounds **p, b**), brought into contact with the teeth (as in **f, v**), or rounded to produce the lip-shape for vowels like **u**: . Sounds in which the lips are contact with each other are called **bilabial**, while those with lip-to –teeth contact are called **labiodentals**.

We have also to remember that **the nose and the nasal cavity** are a very important part of our equipment for making sounds. But we **cannot describe the nose and the nasal cavity as articulators in the same sense as** (i) to (vii) above.

Second Lecture

1. The first point at which the flow of air can be modified, as it passes from the lungs, is **the larynx** (you can feel the front of this, the Adam's apple, protruding slightly at the front of your throat)„ in which are located the vocal folds or focal cords).

a. The vocal folds may lie open, in which case the airstream passes through them unimpeded. Sounds which are made when the focal folds are open are called **voiceless sounds**. Thus, /s/ is a voiceless sound.

b. The focal folds may be brought together so that they are closed, and no air may flow through them from the lungs. When the air comes from the lungs the build up of air pressure underneath this closure is sufficient to force that closure open. But the air pressure then drops and the muscular pressure causes the folds to close again. The sequence is then repeated very rapidly and the results in what is called vocal folds vibration this vibration is felt when you put your fingers to your larynx and produce a sound like /z/. Sounds which are produced with this **vocal folds vibration** are said to be **voiced sounds** whereas sounds produced **without such vibration** are said to be **voiceless**.

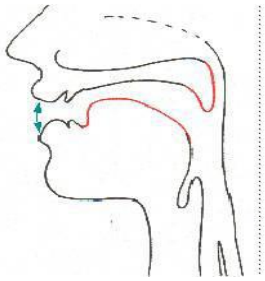
★ This distinction will constitute the first of the three descriptive parameters by means of which we will describe a given consonantal sound: we will say, for any given consonant, whether it is voiced or voiceless.

2. To transcribe speech sounds, phoneticians use International Phonetic Alphabet (IPA).

3. **Place of Articulation**

We will refer to the points at which the flow of air can be modified as places of articulation. We have just identified the vocal folds as a place of articulation; since the space between the vocal cords is referred to as the glottis, we will refer to sounds produced at this place of articulation as **glottal sounds**. There are many other places of articulation; we will identify a further seven.

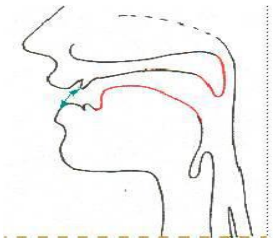
- **Bilabial sounds**. Sounds in which the airflow is modified by forming a constriction between the **lower lip and the upper lip** are referred to as bilabial sounds. An example is the first sound in pit and bite .



Bilabial

b, p, m

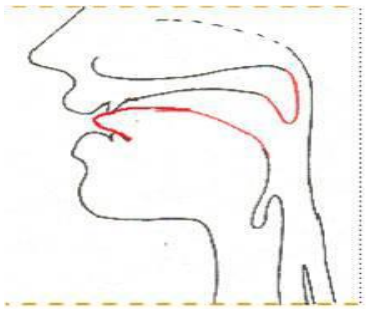
- **Labio-dental sounds**. Sounds in which there is a constriction between the **lower lip and upper teeth** are referred to as labio-dental sounds. An example is the first sound in fit and very.



Labio-dental

f, v

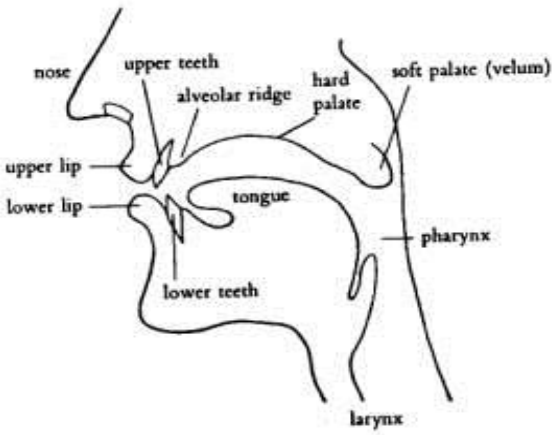
- **Dental sounds**. Sounds in which there is a constriction between **the lip of the tongue and the upper teeth** are referred to as dental sounds. An example is the first sound in thin.



dental

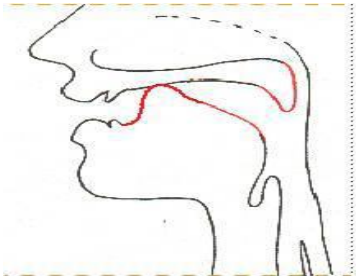
θ, ð

For the remaining places of articulation, let us distinguish between the tip, the blade of the tongue, the front of the tongue and the back of the tongue. Let us distinguish various points along the upper part of the mouth. We will identify four different areas. **The alveolar ridge** (the hard, bony ridge behind the teeth, **the hard palate** (the hard, bony part of the roof of the mouth, **the palate-alveolar (or post-alveolar)** region (the area in between the alveolar ridge and the hard palate), and the velum (the soft part at the back of the roof of the mouth, also known as the soft palate.



- Sounds in which there is a constriction between the **blade of the tongue and the palate-alveolar (or post-alveolar)** region are called **palate-alveolar sounds**. An example is the first sound in ship.

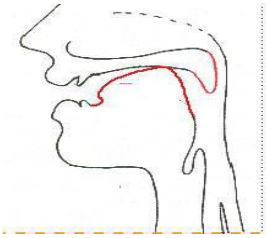
- Sounds in which there is a constriction between the **front of the tongue and the hard palate** are called **palatal sounds**. An example is the first sound in yes.



palatal

š, ž

- Sounds in which there is a constriction between the **back of the tongue and the velum** are called **velar sounds**. An example is the first sound in cool, go.



velar

g, k, ŋ

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