Lecture 1

Outline

1. What is language?
2. What is linguistics?
3. levels of linguistics
4. What is Phonetics?
5. What are objectives of studying phonetics?
6. Introductory concepts

Introduction to Language & Linguistics

What is Linguistics?

It is the scientific study of human natural language.

What is scientific?

When we say that a linguist aims to be scientific, we mean that he attempts to study language in much the same way as a scientist studies physics or chemistry, that is systematically, and as far as possible without prejudice.

Cont.

It means observing language use, forming hypotheses about it, testing these hypotheses and then refining them on the bases of the evidence collected.

What is Language?

- When we study human language, we are approaching what some might call the "human essence, "the distinctive qualities of mind that are, so far as we know, unique to man.

Noam Chomsky, Language and Mind

What is language?

A language is a set of signals by which we communicate. Human beings are not the only species to have an elaborate communication system. Even if human languages do not differ in essence from animal communication, they certainly differ in degree. Nothing in the animal kingdom can be compared to human language for flexibility, complexity, … etc.

Cont.

language is a systematic means of communicating ideas and feelings by the use of a set conventional symbols.

Levels of Linguistics

The study of the sound patterns of a language

Pragmatics

Semantics

Syntax

Morphology

Phonology

Phonetics

The study of speech sounds

Levels of Linguistics

1. Phonetics and phonemic transcription: introduces the physiology involved in the production of speech sounds as well as phonemic and phonetic transcription systems that are used to represent the sounds of English.

Levels of Linguistics

2. Phonology: surveys the organizational principles that determine the patterns of the speech sounds are subject to.

3. Morphology: is concerned with the properties of words and word-building rules.

4. Syntax: presents a study of the structure of sentences and phrases.

5. Semantics: surveys the properties of linguistic meaning.

6. Pragmatics: explores some of the issues involved in describing human communication and proposes certain communication strategies that people use when they talk to each other.

Introduction to Phonetics

Definition

Phonetics is concerned with the study of the description of speech sounds .

Objectives of studying Phonetics

There are different reasons for studying phonetics which means there are many kinds of phoneticians:

1. Some are interested in the different sounds that occur in languages.

Objectives of studying Phonetics

2. Some are concerned with pathological speech.

3. Others help people speak a particular form of English.

4. Others are concerned with getting computers to recognize speech.

Speech Production

- Our interest is in how speech sounds are made.
- Most of them are the result of movements of the tongue and the lips.
- Making movements audible involves pushing air out of the lungs while producing a noise in the throat or mouth.

Speech Production

- These basic noises are changed by the actions of the tongue and lips.

- Later, we will study how the tongue and lips make about twenty-five different movements to form the sounds of English.

Speech Production

- **Example:**

an x-ray movie of the phrase:

on top of his deck

- The actions of the tongue are among the fastest and more precise physical movements that people can make.

How do we produce sounds?

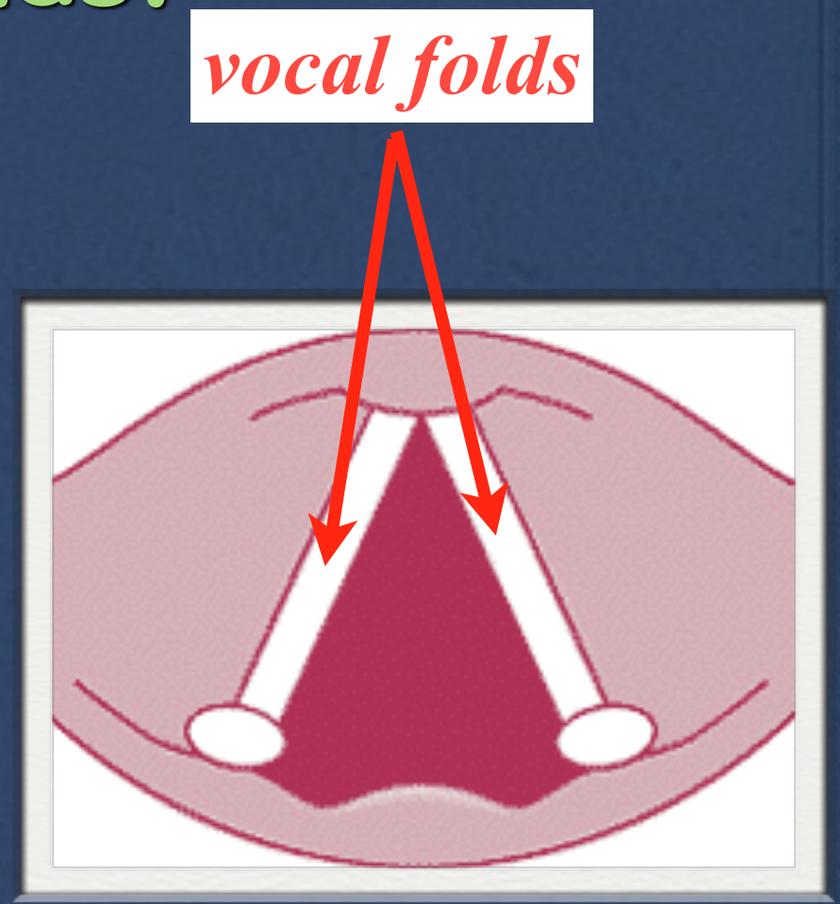
- Producing any sound requires energy.
- In all speech sounds, the basic source of power is the respiratory system pushing air out of the lungs.

How do we produce sounds?

- When we talk, air from the lungs goes up the windpipe (the trachea) and into the larynx, at which point it must pass between two small muscular folds called the vocal folds.

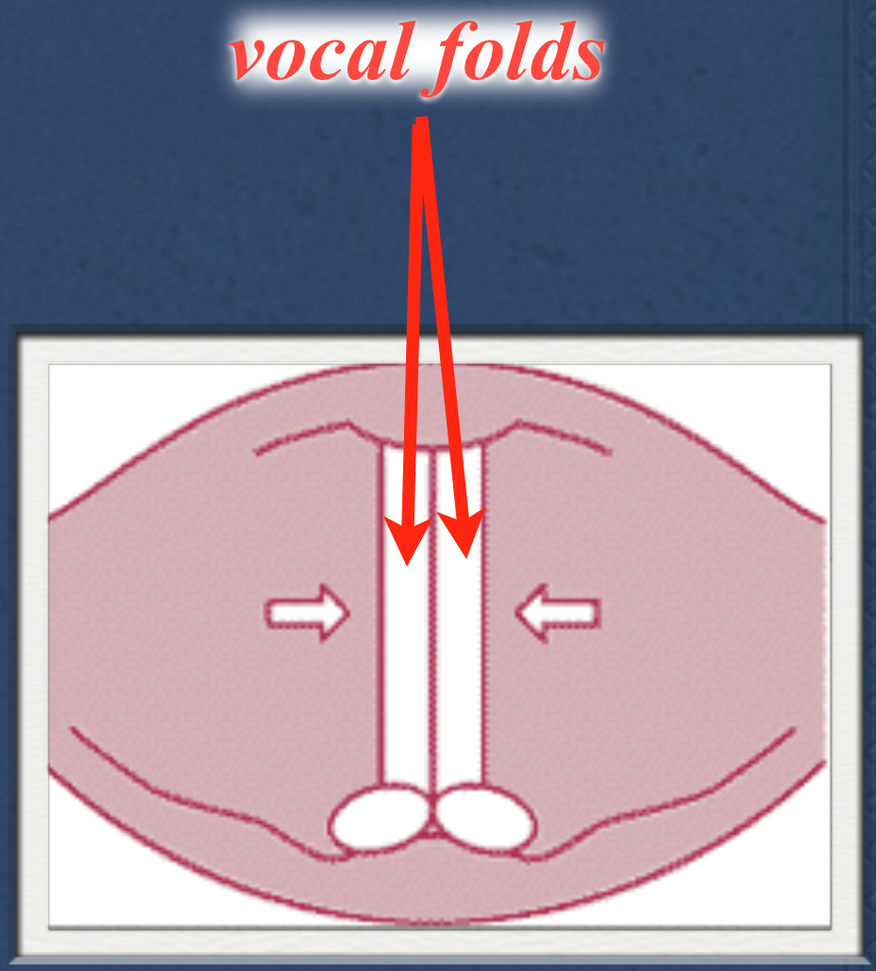
How do we produce sounds?

- If the vocal folds are apart, the air from the lung will have a relatively free passage into the pharynx and the mouth.



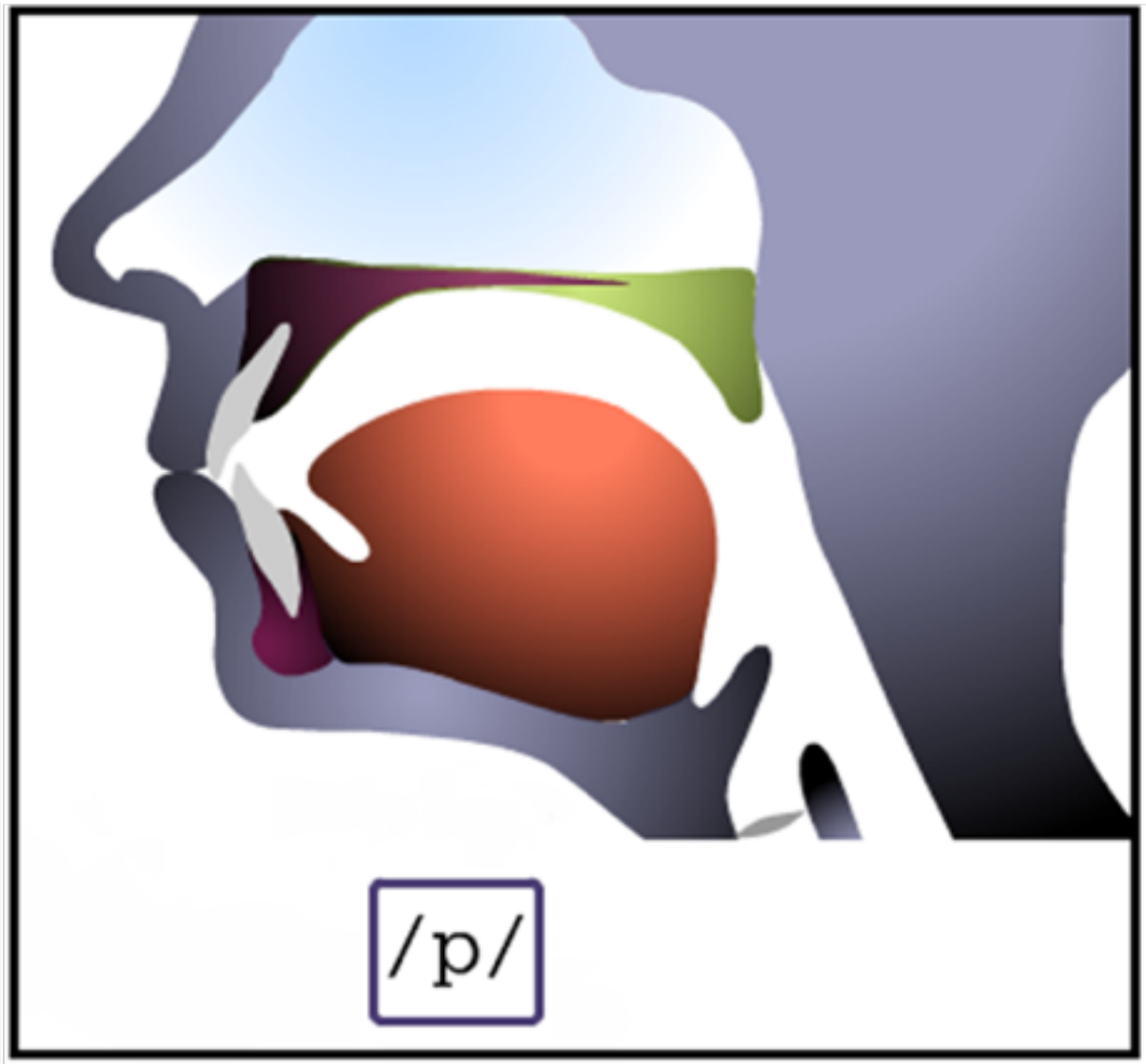
How do we produce sounds?

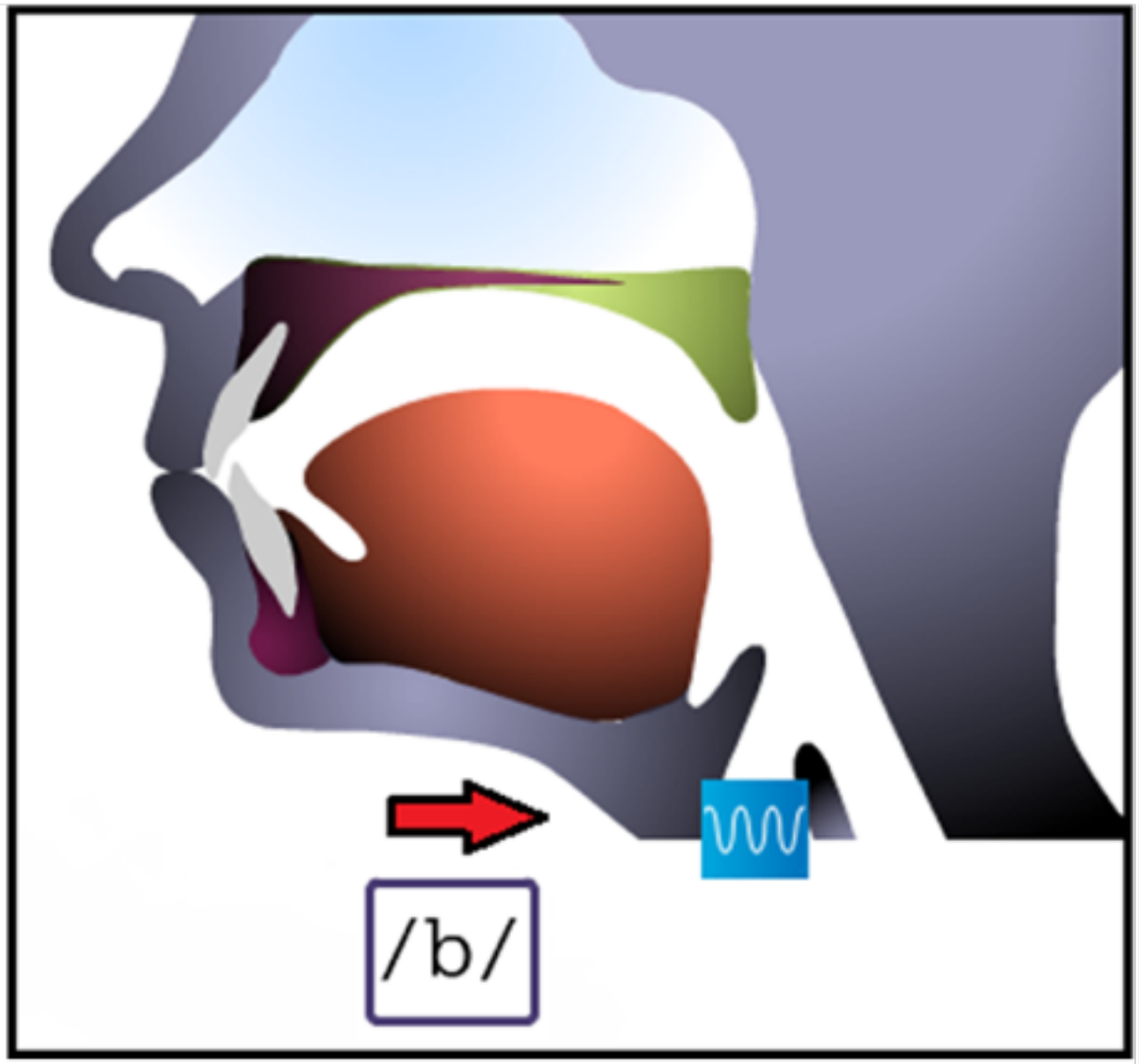
- But if the vocal folds are adjusted so that there is only a narrow passage between them, the airstream from the lungs will set them vibrating.



How do we produce sounds?

- Sounds produced when the vocal folds are vibrating are called *voiced*, as opposed to those in which the vocal folds are apart, which are said to be *voiceless*.





- See how the lips are pressed together
- Watch that the vocal cords vibrate for /b/

Speech Production

- **Example:**

1. the voiced [z] and voiceless [s]

[ssssszzzzzzzsssssssszzzzzz]

2. the voiced [v] and voiceless [f]

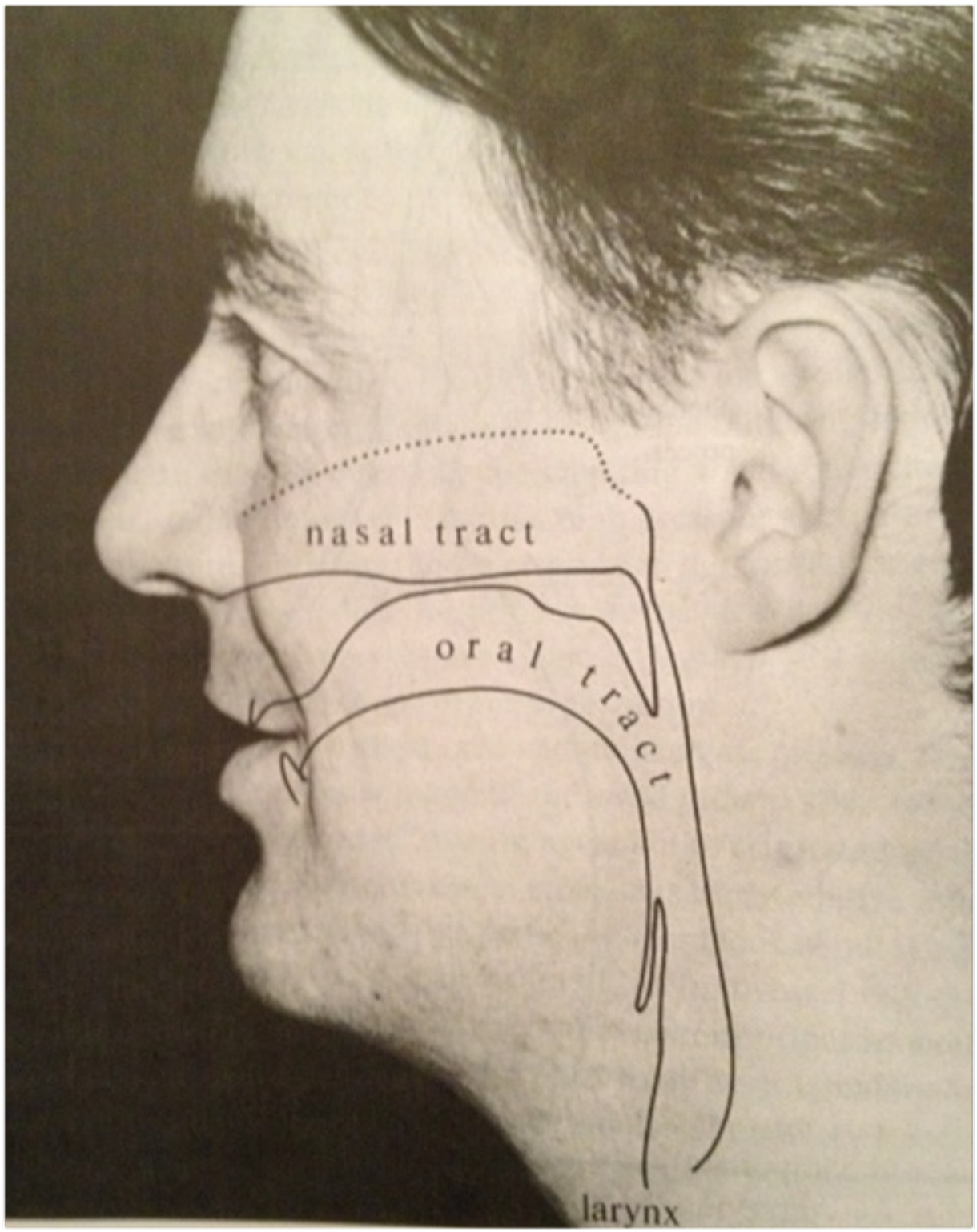
[fffffvvvvvfffffvvvvvvv]

How do we produce sounds?

- The difference between voiced and voiceless sounds is important in distinguishing sounds.
- Example: *f*at, *v*at / *th*ing, *th*y / *S*ue, *z*oo

How do we produce sounds?

- The air pressure above the larynx is known as the vocal tract.


nasal tract
oral tract
larynx

How do we produce sounds?

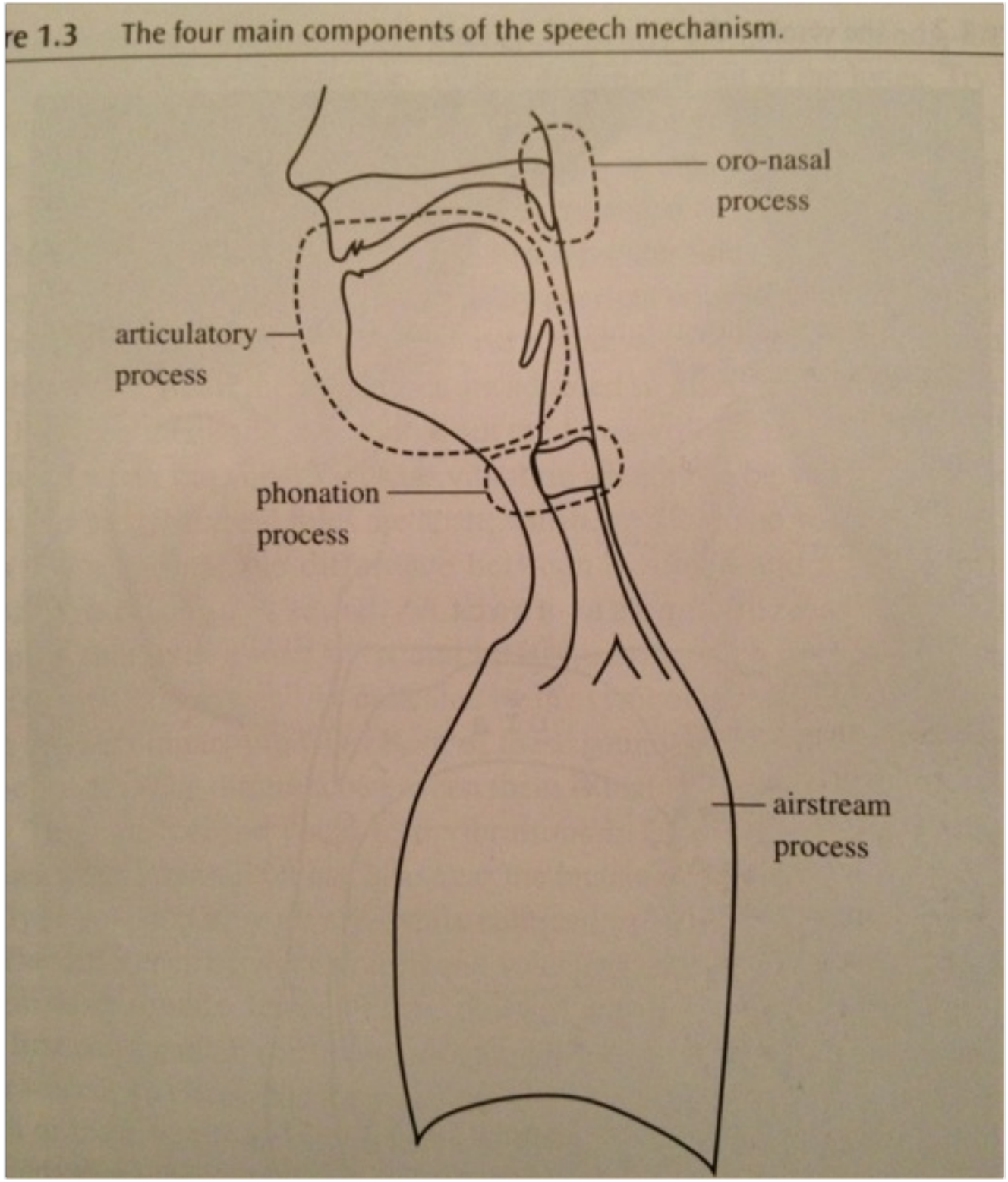
- The parts of the vocal tract that can be used to form sounds, such as the tongue and the lips, are called articulators.

Summary of the speech production mechanism

- There are four main components:

1. the airstream process
2. the phonation process
3. the oral-nasal process
4. the articulatory process

re 1.3 The four main components of the speech mechanism.



There are two areas in the study of sounds:

Phonetics

- **Acoustic**
- **Articulatory**

Acoustic Phonetics

So far, we have been describing speech sounds by stating *how they are made*, but it is also possible to describe them in terms of *what we can hear*.

Acoustic Phonetics

- The way in which we hear a sound depends on its acoustic structure. Linguists and speech pathologist need to understand how certain sounds become confused with one another.

Acoustic Phonetics

- Speech sounds, like other sounds, can differ from one another in three ways.
- They can be the same or different in

(1) pitch,

(2) loudness, and

(3) quality.

Acoustic Phonetics

- **Thus, two vowel sounds may have exactly the same pitch, and may have the same loudness, yet still may differ in the quality.**

Acoustic Phonetics

- Vibrations in air pressure in the form of sound waves move through the air somewhat like the ripples on a pond. When they reach the ear of a listener, they cause the eardrum to vibrate. A graph of a sound wave is very similar to a graph of of the movements of the eardrum.

Figure 1.4 The variations in air pressure that occur during Peter Ladefoged's pronunciation of the vowel in *father*.