

## Phonetics

Phonetics is that branch of linguistics, which (i) deals with how speech sounds are produced, classified and transcribed (ii) describes the physical properties of speech sounds (iii) deals with how speech sounds are heard and interpreted.

These three distinct functions of phonetics are studied in three of its branches known as articulatory phonetics, acoustic phonetics and auditory phonetics.

Articulatory phonetics deals with the physiological mechanisms of speech production. It tells us about the speech organs involved in the production of a speech sound and the manner in which these organs participate in the production of that speech sound. It tells us how best the vowels and consonants of a language can be classified in relation to how they are articulated. As it tells us about the physiology of how speech sounds are articulated, it has numerous points of contact with subjects like human anatomy and human physiology and as it is also concerned with how speech sounds can be transcribed, it has its points of contact with orthography as well.

Acoustic phonetics is concerned with the measurement and analysis of the physical properties of the sound waves we produce when we speak. With the help of electronic instruments, it describes the amplitude, the frequency, and the intensity of speech sounds. The machine used for measuring these acoustic properties of speech sounds is a speech spectrograph. Just as an electrocardiograph records in the form of a drawing, the electric changes that take place in the heart as it beats, a spectrograph gives us a visual display of the acoustic properties of speech sounds. These properties are understood in terms of the vertical and horizontal dimensions of the visual display and also in terms

of its relative darkness. The more intense a sound, the darker is the visual display of that sound. Vowels and vowel like sounds are displayed in the form of marks darker than those for the consonants.

Auditory phonetics deals with the physiological, particularly the neurological, aspects of how sounds are perceived and interpreted. It is not clearly known what exactly happens during the processing and interpretation of speech sounds by the brain. It is known, however, that the outer ear collects the sound stimuli and transmits them to the ear-drum. The ear drum selects those stimuli which are within the range of frequencies perceivable by human beings, amplifies them, and then transmits them to the brain for analysis and interpretation.

The branch of phonetics that deals with how all this happens is auditory phonetics. As auditory phonetics deals with perception of speech sounds by the auditory organs and interpretation of these sounds by the brain, it tends to shade off into disciplines like neurology and perceptual psychology at times.

The branch of phonetics that was the earliest to establish itself as a distinct branch of linguistic scholarship was articulatory phonetics. During the last few decades an enormous amount of research has been done in the field of acoustic phonetics also and these researches have considerably enriched our knowledge and understanding of the physical properties of sound waves produced by human speech.

Auditory phonetics is widely recognised as a distinct branch of phonetics, no doubt, but compared to the other two branches it is still at its early stage of development.