

XV. SPEECH ANALYSIS*

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RESEARCH OBJECTIVES

Various branches of science treat of the acoustical properties of speech. Physical acoustics views speech as special vibratory events propagating in a medium; psychophysics, as a particular class of auditory stimuli perceived by man; phonetics, as a sequence of discrete events in time (speech sounds, phones, phonemes, and so on) serving a communicative function.

Our interest in speech is that of the phonetician; hence the methodological demand that each utterance shall always be perceived as a sequence of individual "sounds" is fundamental to our research activity. Our aim is to find the cues in the speech wave that make it possible to transcribe utterances in terms of a small number of discrete symbols; that is, in terms of some kind of alphabet.

Most investigators have tacitly or overtly studied speech in terms of discrete events. This assumption, however, is not usually central in their work because other requirements, such as ease of instrumentation, the necessity for bandwidth economies in transmission, and so forth, take precedence. The importance of carrying through a complete investigation based on a consistent view of speech as a chain of discrete events can perhaps be appreciated if it is realized that the successful completion of such a research program would provide a firm physical foundation for the science of linguistics, shed light on a number of complex problems in the psychology of perception and, finally, fill in the gaps in the most promising models of the communication process that postulate the existence of a code unit smaller than the smallest meaningful entity.

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