

## THE REFLEX THEORY OF SPEECH PERCEPTION

Jia-lu Zhang, Institute of Physics, Academia Sinica

The role played by semantics and syntax in speech perception and the design of automatic speech recognition systems have attracted much attention. The important role of syllable formation rules is considered and it is pointed out that the syllable formation rules are just what Fletcher calls influence "X" (1953, 286), which appears from our establishment of the statistical relation between syllable and phoneme identification.

Subjects

The perceptual confusion among Chinese consonants was investigated under 18 different transmission conditions, and some comparative investigations were made between Chinese and English (Miller and Nicely, 1955) and Japanese (Nagai et al., 1956). It is shown that: 1. Manner of articulation has priority over place of articulation in speech perception, 2. the social characteristics, i.e. linguistic structure as a social convention, strongly influence speech perception, and the relative importance of each distinctive feature is different in different languages, 3. the syllable structure of Chinese helps in identifying the place of articulation and therefore the correct identification of syllables is increased.

Conclusion

Speech perception is a unitary process that is based on the physical characteristics combined with the social (= structural) characteristics of speech. In this process, all factors in the speech signal are utilized by listeners, the factors playing different roles under different listening conditions and at different stages of speech perception.

References

- Fletcher, H. (1953): Speech and hearing in communication, New York: Van Nostland.
- Miller, G.A. and D.E. Nicely (1955): "An analysis of perceptual confusions among some English consonants", JASA 27, 338-352.
- Nagai, K. et al. (1956): "Analysis of phonemes by articulation tests", Journal of the Acoustical Society of Japan 12, 148-154.