



Phonetics and measurements of voice quality

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Abstract

"Voice" is often used to refer to speech as a whole but historically, in work in Phonetics, there are long established precedents for defining voice with reference to activity at the level of the larynx. The measurement of voice is then made with special reference to those aspects of vocal tract excitation that are associated with the control and vibration of the vocal folds and associated laryngeal structures. This is also the theme of the present overview, and six related areas of voice measurement are discussed:

- direct vocal fold imaging gives a basic way of classifying salient characteristics of vocal fold vibration and of distinguishing between modes of voice production
- auditory criteria determine, and provide the basis for defining, the primary subjective dimensions of voice
- the most widespread methods of quantitative voice quality assessment are based on the use of sustained vowel sounds and auditory criteria make it possible to set up a practical reference frame for their measurement that is quite different from that used in ordinary speech transmission in communication engineering
- another set of pitch criteria are similarly needed for the adequate representation of voice in fluent speech and their application is discussed in the analysis of normal, pathological and synthetic voices
- the relation between closing and opening is an obvious feature of vocal fold imaging and the techniques used for measuring pitch related aspects of voice can also be applied to the analysis of closed phase ratio in normal and pathological voice.

The final discussion concerns the implications of these approaches for future developments in quantitative cross-language comparison and clinical diagnosis.

