FEATURESPHONOSCOPICEXAMINATION

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Abstract

Phonoscope expertise - kind forensic expertiseaimed at establishing the circumstances by examining voice and sounding speech, *of the sound medium, conditions, facilities, materials and trace recordings.*

Keywords*:Phonoscope,* auditory, dyslalia, stigmatism, rhotacism

Introduction

During the last years the importance of judicial phonoscopy in investigative and judicial practice has increased substantially. This is due to the fact that in many spheres of video and audio recorder used device.In this regard, phonogram records are increasingly featured in the criminal and civil cases as important sources of evidence.Especially often need phonoscopic examination arises in the process investigation of criminal cases, related to terrorism, extortion, corruption, threat to life and health of citizens (Belkin, 2001; Kaganov, 2005).

Subject phonoscopic examination constitute evidence, the circumstances of the case, established on the basis of special knowledge of experts in the field sounding speech, of the sound medium, conditions, facilities, materials and trace recordings.

Object of study is a system consisting of a source of information in the form of sound and material carrier information, on which recorded material.

Phonoscopic examination tasks are divided into diagnostic and identification.

To diagnostic tasks include: determination of recorded speech, reliability and sound recordings, primarily detection of mounting

investigated phonogram establish personality traits, tools and materials and sound recordings, etc.

To identification tasks include: identification means sound recordings, identification of sound sources, the identification of specific items available equipment used in the process of recording. The main task of identifying research phonograms of oral speech is personal identification.In this case, the examination shall decide is whether oral speech to speech compared phonorecords of the same person.

Personal identification by voice and of oral speech based on the following theoretical assumptions:

- Voice of the human should be individual. This is due to the specific shape and size of the oral and nasal cavity, throat and respiratory system.Therefore, the physical characteristics of sound - frequency, duration, intensity - each person strictly individual;

- Acoustic characteristics of the voice is relatively stable over time and remains the even when the individual morphological and pathological changes in the organs of speech;

- Human speech is characterized by features inherent only to him, and is determined by social and psychological factors. Formed in my youth (about 20 years) features of speech, intonation and general manner of speaking become habitual and do not change throughout life.

Methodology

The methodology of this research is phonoscopic auditory, linguistic and instrumental analysis of oral speech.During the auditory analysis for being compared speakers investigated and compared the properties of stable auditory his speech at the level talk spurt, installed in its manifestations in the speech signal anatomical and physiological features speaker speech production apparatus, individual features integrated articulation and speech skills, especially emotional and psychological state,psychological and socio-cultural characteristics of the speakers (Koval, 2000; Koval et al., 2011).

Auditory analysis is focused on the study talk spurt, which allows you to select those features, most of which belong to the so-called general identification features. These include the:

1) Features that characterize the overall aural impression:

- Auditory perception of voice (for example, loud / quiet, voiced / voiceless, soft / hard, nasally / not nasally, bright / dim and etc.);

- The general nature of timbre (forexample, male / female, weak / strong, velvet / metal, hoarse / ringing and etc.);

- General nature of diction.

2) Features characterizing the skills in the organization of the speech process: speech tempo, articulation, volume, melody.

3) Features that characterize the speaker individuality: speech breathing, emotional state, the presence of organic pathologies, style of pronunciation, accent, pause, speed of speech.

Results

The main direction of linguistic research is to establish the identity-speech differences being compared speakers based on their individual characteristics pronouncing speech units various level. We investigate the variability within the normal, as well as individual no normative features of speech production. Features of realization those or other linguistic elements and structures established expert auditory.

According linguistic affiliation sounding speech units are divided into several groups: phonetic, lexical and syntactic.

Analysis of phonetic features includes quality of articulation of vowels and consonants, and disturbances in the pronunciation of individual sounds (dyslalia, stigmatism, rhotacismetc).

Signs of lexical groups include richness vocabulary, correctness of word usage, availability of vocabulary limited sphere of use, availability conversational and colloquial of vocabulary, presence of negative functional vocabulary and dialects, professionalism and slang words.

Development of judicial phonoscopy made possible by the development of information technologies and the creation of tools of analysis of voice and speech, which application allows to objectify research and to achieve high reliability of their results (Koval et al., 2011).

During the instrumental analysis of speech signals is performed statistical study of melodic and spectral characteristics of speech. In basis of the statistical analysis of spectral formant for the segments of the speech signal at each phonogram tiny fragments stood out with a clearly recognizable formant structure of the spectrum. Next micro fragments for each type in the speech signal being compared phonogram is searched micro fragments with similar structure spectra. Integral average degree of proximity is mapped to each other for all micro fragments speech signal being compared phonograms was being compared measure of the closeness of speakers. If the measure proximity exceeds is not speakers found on database representative speech threshold, the speakers are considered from the point of view this method identical.

Complex linguistic and acoustic analysis of speech allows carry out identification of human even by phonogram of poor quality and short duration. Phonoscopic research is conducted using measuring and computing systems, including high-quality sound recording and reproducing apparatus connected to a computer, equipped with special input-output device acoustic

information and software package for processing speech signals and further investigations (Koval et al., 2011).

Except investigated phonograms, which are the main evidence in criminal and civil matters, for the comparative study presented samples of voice and speech of those persons in respect of which solves the problem criminological identification of the speaker.

Conclusion

The most important requirement to be met voice and speech samples is their comparability with the investigated object. Upon receipt of the samples requires mandatory technical comparability of the recording conditions: for example, if the phonogram investigated recorded via a telephone path or cellular connection, then the sample should be obtained in the same manner. If the original soundtrack recorded by the telephone channel, and it is necessary to create a comparative sample voices use the same telephone channel.However, unacceptable substitution of one channel by another phone, for example, the replacement of the city channel automatic telephone station channel internal automatic station, and vice versa.During recording should be possible to eliminate the background noise (the sound of music, speech of unauthorized persons, sound of the engine of a motor vehicle, etc.)(Krylov et al.,2001).

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