

Possibilities of Diagnostic Research on Speech of People State of Alcohol Intoxication

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Author aimed to highlight a number of issues arising before forensic expert while forensic research on phonograms containing oral speech of persons, regarding diagnosis of the unusual state of the speaker: in the state of alcohol intoxication and determination of the degree of influence of speaker's intoxication state on possibility of conducting identification researches of the announcer while examination of video and sound recording. For achieving the goal, methods of scientific knowledge were used: observation, comparison, abstraction, analysis, synthesis, modeling, etc. Speech disorders have been observed in persons who are in a state of alcohol intoxication. Analysis of alcohol intoxication stages was carried out and their influence on the process of forming a person's speech activity was determined. Patterns characteristic of the speech of people under influence of alcohol have been revealed. Variability specifics of voice formation and speech of a person under influence of alcohol were studied. Possibility of conducting identification researches based on physical parameters of oral speech, depending on degree of person intoxication was studied. Attention is focused on peculiarities of diagnosing speech of person who is in a state of mild, medium and severe degree of simple alcohol intoxication, and situational moments related to the speaker. As anatomical person speech apparatus creating individual picture of a speech signal characteristic of a certain person, as speech behavior, skills, individual experience, intelligence, etc., which influence creation of an individual image of speaker in

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an unusual state alcohol intoxication, are considered. Factors whose variability affects characteristics of a person's voice in various states of alcohol intoxication have been studied.

Keywords: video and audio analysis; diagnostic research; alcohol intoxication; speech; speech disorders.

Research Problem Formulation

Video and audio analysis develops according to the laws of criminalistics is based on its scientific concepts (in particular, theory of identification and theory of personality diagnosis) and achievements of natural and technical sciences (mathematics, physics, electronics, acoustics, theory of language formation, medicine, linguistics, etc.). The circle of circumstances that can be determined while forensic researches is constantly expanding.

Alcohol abuse is a complex and multifaceted problem, one of cornerstones of the modern world. Its medical, psychological, linguistic, social, economic and other components require an urgent solution both to preserve life and health of individuals and to improve society in general. The increase in alcohol consumption is caused by various factors, in particular, a person's prolonged stay in a stressful situation, for example, in martial law conditions, introduced as a result of Russian military aggression against Ukraine. Professionals in the field

of forensic audio analysis already at the beginning of this type forensic examination development found out that the speech of a specific person (in particular, written one) is special and individual, inherent only to him by certain characteristic specifics and determined by social and psychological factors. Peculiarities of speech, intonation, manners of speaking are formed at a young age and become habitual and almost do not undergo changes throughout a person's life.

Drunkenness significantly affects speech mechanisms that is manifested in bright signs that make possible to establish a similar state by voice and speech.

Analysis of Essential Researches and Publications

As Soviet as foreign professionals devoted many research papers to individual specifics of speech and speaker's voice: G. Fant ¹; J. L. Flanagan ²; Yu. F. Zharikov and S. P. Mokhniev ³; O. O. Lozhkevych and V. O. Snietkov with coauthors ⁴; H. L. Hranovskyi and E. K. Rebhun ⁵;

- 1 Fant G. Acoustic Theory of Speech Production: With Calculations based on X-Ray Studies of Russian Articulations. De Gruyter, 1971. Reprint 2012. 328 c.
- 2 Flanagan J. L. Speech analysis synthesis and perception. Berlin, Heidelberg : Springer-Verlag, 1965. 317 p.
- 3 Жариков Ю. Ф., Мохнев С. П. Идентификация дикторов по параметрам спектральных переходов речевых сигналов. *Автоматическое распознавание слуховых образов* : мат-лы все-союз. школы-семинары (АРСО-10; Тбилиси, 19–23.10.1978). Тбилиси, 1978. С. 34–36.
- 4 Ложкевич А. А., Снетков В. А., Чиванов В. А., Шаршунский В. Л. Основы экспертного криминалистического исследования магнитных фонограмм. Москва, 1977. 172 с.
- 5 Грановский Г. Л., Ребгун Э. К. О теоретических основах судебной фоноскопии. *Современные проблемы экспертизы и пути повышения эффективности деятельности судебно-экспертных учреждений в борьбе с преступностью* : тез. респ. науч. конф. Киев, 1983. С. 222–224.

H. B. Chikoidze⁶; Kh. Kholin⁷; A. Neustein and H. A. Patil⁸ et al.

Speech and voice of people in a state of alcohol intoxication were studied by Yu. V. Avdieieva⁹, A. Braun i H. J. Künzel¹⁰, O. M. Cooney with coauthors¹¹, R. K. Potapova and V. V. Potapov¹². Over time, interest in solving applied issues in this area only grows.

Article Purpose

Highlight certain issues that arise before forensic experts while video and audio analysis: diagnosing unusual speaker's state (in particular, alcoholic (or other) intoxication) and determining the degree of influence of this state of the speaker on possibility of conducting identification researches on announcer while video and audio analysis. Consider the factors affecting the state of alcohol intoxication on characteristics of a person's voice. Solving these issues requires a comprehensive study from several

sciences at once, including modern linguistics and acoustics.

Research methods

For achieving the goal, methods of scientific cognition were used: observation, comparison, abstraction, analysis, synthesis, modeling, etc.

Main Content Presentation

Since this article is devoted to research on speech of people who are in a state of alcohol intoxication; it is advisable to first briefly explain the physiology of the effect of alcohol on the human brain, dwell on possible reasons for the detection of speech disorders in people in this state. One of the main specifics of the negative effects of alcohol is its ability to cause as mental as physiological dependence that necessarily affects the brain functioning¹³.

Alcohol intoxication is “*symptom complex of mental, vegetative and neurological*

- 6 Чикоидзе Г. Б. Лингвистические аспекты проблемы распознавания личности / Языковые процессоры и распознавание речи : сб. ст. Тбилиси, 1985. С. 48–57.
- 7 Hollien H. The future of speaker identification: a model. *Proceedings of 13th International Congress of Phonetic Sciences*. Stockholm, Sweden, August 13–19, 1995 : in 4 vols. Stockholm, 1995. Vol. 3. Pp. 138–145.
- 8 Neustein A., Patil H. A. *Forensic Speaker Recognition: Law Enforcement and Counter-Terrorism*. New York : Springer Science + Business Media, LLC, 2012. 540 p. DOI: [10.1007/9781461402633](https://doi.org/10.1007/9781461402633) (date accessed: 20.08.2023).
- 9 Авдеева Ю. В. Экспериментальное исследование речи людей, находящихся в состоянии ситуативного алкогольного опьянения. *Мир науки, культуры, образования*. 2012. № 4 (35). С. 49–51. URL: <https://cyberleninka.ru/article/n/eksperimentalnoe-issledovanie-rechi-lyud-e-y-nahodyaschihsya-v-sostoyanii-situativnogo-alkogolnogo-opyaneniya/viewer> (date accessed: 12.09.2023)
- 10 Braun A., Künzel H. J. The Effect of Alcohol on Speech Prosody. *15th International Congress of Phonetic Sciences (ICPhS-15)*. Barcelona, Spain, August 3–9, 2003. Pp. 2645–2648. URL: https://www.internationalphoneticassociation.org/icphs-proceedings/ICPhS2003/papers/p15_2645.pdf (date accessed: 20.11.2022).
- 11 Cooney O. M., Mcguigan K., Murphy P. J., Conroy R. M. Acoustic analysis of the effects of alcohol on the human voice. *The Journal of the Acoustical Society of America*. May 1998. Vol. 103. Is. 5. P. 2895. DOI: [10.1121/1.421829](https://doi.org/10.1121/1.421829) (date accessed: 25.07.2023).
- 12 Потапова Р. К., Потапов В. В. *Язык, речь, личность*. Москва, 2006. 496 с.
- 13 Оруджев Н. Я., Иванчук Э. Г. Состояние когнитивных процессов у лиц, употребляющих психоактивные вещества. *Социальная и клиническая психиатрия*. 2001. Т. 11. № 1. С. 85.

disorders caused by the psychotropic effect of alcoholic beverages"¹⁴. Ethyl alcohol, acting mainly on the central nervous system, causes a certain nervous excitement. Professionals carefully analyzed modern scientific developments in biology and medicine describing effect of ethyl alcohol on human body, and stated that *"alcohol primarily affects those brain structures that are responsible for higher mental functions, which are traditionally associated with the left hemisphere and are formed later of the right hemisphere"*¹⁵. It is a well-known fact that the left hemisphere of the brain is traditionally associated with speech activity.

It is common knowledge that human speech communication takes place in two forms: oral and written ones. Both of these forms of speech are in a complex unity and occupy an important and approximately equal place in terms of importance. The speaker creates his speech immediately: he works on content and form at the same time. The writer has ability to improve what he has written, return to, change and correct it¹⁶.

Oral speech is a form of speech activity that includes understanding of sounding speech and implementation of speech utterances in sound form (speech)¹⁷. Historically, oral form of speech is primary, it arose much earlier than written speech, moreover, oral speech is characterized by rich intonation possibilities. Intonation is created by melody of speech, intensity

(loudness), duration, increase or decrease of tempo and timbre. In oral speech, the place of logical emphasis, degree of clarity of pronunciation and availability or lack of pauses play a leading role. Oral speech has such intonation variety that it can convey entire range of human experiences and moods, etc. Perception of oral speech during direct communication occurs simultaneously through auditory and visual channels¹⁸.

Each person's mental and speech skills are formed in the form of conformity / difference to certain norms of speech. Usually, a number of stable deviations from them are observed in language practice of each person which is result of influence of dialects, other languages, peculiarities (disorders) of the psyche and, in general, conditions in which the person developed these skills (upbringing, training, communication environment, etc.).

While personality formation, each person (under the influence of certain life situational conditions) acquires individual speech skills that are manifested in the fact that a person operates only with a specific set of specific norms, and not with their entire set. In his speech, a person (depending on specific situation) uses a complex of individual speech and intellectual skills of individual, relevant only to him, unique, individual, unrepeatable in each speech situation, which makes it possible to solve certain

14 Морозов Г. В. Алкоголизм (руководство для врачей). Москва, 1983. С. 30.

15 Оруджев Н. Я., Иванчук Э. Г. Указ. соч. С. 87.

16 Костомаров В. Г. Разговорная речь: определение и роль в преподавании. *Русский язык в национальной школе*. 1965. № 1. С. 12–15.

17 Філіппова Л. С., Філіппов В. А. Мова: класифікація мови, види та стилі мови. Усна та письмова мова / Російська мова та культура мови : навч. посіб. URL: <https://school4-kimovsk.ru/uk/login/rech-klassifikaciya-rechi-vidy-i-stili-rechi-ustnaya-i-pismennaya/> (date accessed: 12.09.2023).

18 Шепітько В. Ю., Коновалова В. О., Журавель В. А. та ін. Криміналістика : підручник / за ред В. Ю. Шепітька. 4-те вид., перероб. і доп. Харків, 2008. 464 с. URL: <https://law.sspu.edu.ua/files/documents/books/library/17/shepitko.pdf> (date accessed: 12.09.2023).

diagnostic tasks, as well as to identify the speaker¹⁹.

In childhood and early youth, taking into account the visual and situational type of thinking, every person develops an everyday speech style. Already in senior grades of the school and during further education, formation of a categorical thinking type, a journalistic and scientific style of speech, mastering norms of the language takes place. When a person's lifestyle is stable, after the stage of personality formation and education is completed, person's speech skills acquire a certain stability. The skills of using complex norms (for example, stylistic ones) are especially firmly established. Even in case of a change in some speech and mental norms in mature people, we observe outdated norms characteristic for period where these people completed the stage of learning and personality formation²⁰.

The basis of speech skills are such speech actions as pronunciation, intonation, lexical and grammatical operations, etc. Speech skill is a speech operation performed unconsciously, automatically, in accordance with speech norm, with a certain speed of the speech operation and stability.

In a state of emotional tension, various physiological changes occur in the human body that to some extent affect language formation process. For example, state of fear is characterized by body muscle tremors, dry mouth, a sharp acceleration of the pulse, drops in blood pressure, breathing disorders that is reflected in

a change in speech nature compared to the speaker's usual state. As a result of these changes in the body, some specifics of a person's voice and speech are modified: for example, tone of speech changes (voice becomes hoarse and muffled), pace of speech increases, the volume of the voice changes, etc.

Alcohol consumption directly affects the speech process, therefore by analyzing the voice and speech of people who are in a state of alcohol intoxication, it is possible to identify a set of signs by which it is possible to establish the fact that the announcer is in this state. Modern researches prove that the fact of availability or lack of signs of an unusual psychophysiological state (for example, caused by a state of intoxication) can be fairly reliably determined by the voice and pronunciation. According to the National Classifier of Ukraine: *Classifier of Diseases and Related Health Care Issues*²¹ (harmonized with the Australian modification of the International Statistical Classifier of Diseases and Related Health Care Problems of the Tenth Revision), states of intoxication are distinguished depending on the substance that causes intoxication (alcoholic, cannabinoid, cocaine, ones etc.).

Commonly known signs of alcohol intoxication are given in the Instructions on procedure for detecting signs of alcohol, drug or other intoxication or being under influence of drugs that reduce attention and reaction speed in drivers of vehicles, such as:

19 Шепітько В. Ю., Коновалова В. О., Журавель В. А. та ін. Зазнач. твір. URL: <https://law.sspu.edu.ua/files/documents/books/library/17/shepitko.pdf> (date accessed: 12.09.2023).

20 Костомаров В. Г. Зазнач. твір.

21 НК 025:2021. Національний класифікатор України. Класифікатор хвороб та споріднених проблем охорони здоров'я : затв. наказом Мінекономіки України від 04.08.2021 р. № 360-21. [Чинний від 01.07.2017]. 1670 с. URL: <https://www.dec.gov.ua/wp-content/uploads/2021/11/nacjonalnyj-klassifikator-nk-025.pdf> (date accessed: 12.09.2023).

- alcohol smell from the mouth;
- coordination violation of movements;
- speech disorder;
- evident tremor of fingers;
- sharp change in the facial skin color;
- behavior that does not correspond to the situation ²².

Signs of drug or other intoxication or being under influence of drugs that reduce attention and reaction velocity are:

- availability of one or more signs of alcohol intoxication (except for the smell of alcohol from the mouth);
- narrowed or very dilated pupils that do not react to light;
- slowness or, on the contrary, increased liveliness or mobility of gait, speech;
- facial redness or unnatural pallor ²³.

Let us move on to possibilities of diagnosing while of voice analysis of the fact of a person being in a state of intoxication.

For example, if a person in state of emotional tension can to some extent control elements of his motor behavior (facial expressions, gestures, etc.), then speech component is much more difficult to control, as well as provides opportunities for diagnosing a state of emotional tension by voice.

Alcohol intoxication ²⁴ is a type of intoxication resulting from the

psychoactive effect of ethanol. Alcohol intoxication causes changes in a person's psychological, physiological and behavioral functions. With a light degree of intoxication, behavioral manifestations cannot be present, instead, for example, ability to drive vehicles can decrease (due to distraction, slowing down of reactions). More severe stages of alcohol intoxication are most often accompanied by the loss of ability to realistically assess the situation and the role of one's own personality, disorders of speech, attention, memory and coordination of movements.

It is customary to distinguish three groups of alcohol intoxication: 1) simple, 2) altered forms of simple alcohol intoxication, 3) pathological intoxication. Consider effect on speech and voice of simple alcohol intoxication, since it is a common situational change that is not accompanied by serious damage to the brain and nervous system.

Influence of alcohol intoxication on a person's condition is usually analyzed in forensic medicine and psychiatry. Thus, ordinary (simple) alcohol intoxication is a condition that is the result of a one-time poisonous effect of alcohol primarily on the brain, a type of acute alcohol intoxication. Expressiveness degree of and form of mental, neurological and vegetative disorders in this case depends on the dose of alcohol taken, age, somatic condition, psychological characteristics of the person, his emotional state, the

22 Інструкція про порядок виявлення у водіїв транспортних засобів ознак алкогольного, наркотичного чи іншого сп'яніння або перебування під впливом лікарських препаратів, що знижують увагу та швидкість реакції : затв. наказом МВС України, МОЗ України від 09.11.2015 р. № 1452/735. URL: <https://zakon.rada.gov.ua/laws/show/z1413-15#Text> (date accessed: 12.09.2023).

23 Там само.

24 Музика А. А. Стан сп'яніння / Велика українська юридична енциклопедія : у 20 т. Т. 17 : Кримінальне право // редкол.: В. Я. Тацій (голова) та ін. Харків, 2017. С. 913–914.

strength of the drink and the form of its intake²⁵.

In medicine, simple alcohol intoxication is divided into three degrees (depending on the amount of alcohol consumed and its concentration in the blood): light, medium and severe. Degree of alcohol intoxication also depends on individual characteristics (height, weight, presence of diseases).

With a light degree of intoxication, a person can demonstrate increased talkativeness, loss of tact sense, excessive mobility. In this case, the person's behavior is more decisive, speech is bolder and faster, and the voice is louder than usual. When a person is slightly intoxicated, his speech does not always show signs of speech distortion. Influence of alcohol on speech activity is minimal here, characteristics of speech will have the least degree of influence of alcohol. Individual characteristics of the voice and speech are almost not affected by light degree of simple alcohol intoxication, in other words, the speech of a person who is in a light degree of simple alcohol intoxication is usually suitable for conducting an instrumental identification research.

In addition to sound recordings, analysis object is video recording. Analysis of video image makes possible to fully and objectively record the process of any investigative action; with the help of video recording, it is possible to capture sound and image at the same time; it does not require laboratory processing; allows to stop the image while viewing

and demonstration for a more thorough analysis of the object and its details, or to slow down the frame movement in order to study elements of movement of objects in more detail. It is quite clear that a visual examination of video recording content gives forensic expert greater opportunities to detect signs of alcohol intoxication. For example, with a high-quality video recording, it is possible to detect the first external signs of alcohol intoxication, such as: glare in the eyes, some redness of the face, increased movement activity or slowed reaction, etc. Most often, at a mild stage of simple alcohol intoxication, behavioral manifestations may be missing at all.

Average degree of simple intoxication is characterized by excessive excitement and/or inhibition of nervous activity (due to an increase in the negative effects of alcohol). An excessive sense of resentment appears, gait and other movements are sharply disturbed, speech becomes slow and indistinct. The mood is depressed, with a feeling of boredom, self-pity; "drunken tears" appear. The threshold of auditory perception increases, so speech becomes louder²⁶. Average degree of simple intoxication has a significant effect on speech mechanisms, in addition, signs that make possible to determine a similar state of the speaker by voice and speech are clearly visible.

The speech of a person who is in a moderate state of alcohol intoxication changes in relation to the sober state of the speaker: timbre and volume of the voice change (voice becomes hoarse and

25 Сонник Г. Т., Напреєнко О. К., Скрипніков А. М., Животовська Л. В., Напреєнко Н. Ю. Психіатрія і наркологія : підручник / за ред. О. К. Напреєнка. 3-тє вид., випр. Київ, 2017. 424 с.

26 Чуприна О. В. Судово-психіатрична оцінка алкоголізму, алкогольних психозів та наркоманій. Профілактика вживання психоактивних речовин : фонд. лекц. № 9 з навч. дисципл. «Судова медицина та психіатрія». Київ, 2014. 34 с.

muffled), speech pace decreases or on the contrary, increases, etc. As stated above, this degree of intoxication is caused by an increase in the negative effect of alcohol, therefore suitability of the speech of a person who is in an average degree of simple alcohol intoxication to conduct instrumental identification research on the announcer based on physical parameters of oral speech decreases in direct proportion with increase in the effect of alcohol on human nervous system. In the average degree of simple intoxication, a person can observe impaired pronunciation, slowness, or, on the contrary, increased liveliness of pronunciation; speech becomes slurred, “tongue gets confused”; person laughs or giggles a lot, is inappropriately happy about some events or circumstances, demonstrates his “talents” (for example, sings, jumps, etc.).

Thus, for example, depending on increase in the amount of alcohol consumed, a person’s speech can change in the following way:

- at first we observe a slight change in speech clarity, speed of reaction to the events taking place;
- after a while, noticeable inhibition of motor functions, coordination, balance, thinking, speech, etc.; some people become very noisy and aggressive, restless, irritable, etc.;
- later, significant retardation of motor functions, confusion of consciousness and speech, misunderstanding events taking place, etc. In such a state, a person usually vomits, and memory lapses occur. This state directly affects the content, clarity, and intelligibility of speech.

From the above, we can conclude that with an average degree of simple intoxication, speech of a person indicates changes in the main voice specifics (to a greater or lesser extent), which individualize this person:

- *voice pitch* (depends on the frequency of oscillations of the vocal cords, which in turn depend on the state of human tension. For example, a forced, sharp sound is formed due to excessive tension of the vocal cords. When tension subsides to low tones, the voice sounds hoarse, when on the contrary, on high ones, the voice becomes shrill);
- *voice power* (depends on the intensity of the air jet that a person exhales and the strength of closing of vocal cords. In case of inhibition of motor functions, the corresponding inhibition of speech production processes occurs);
- *articulation* (reflects the skills of coordinated movements of speech organs. Nature of articulation depends on clarity of articulation apparatus which violation affects clarity of pronouncing individual sounds);
- *speech rate* (speed of speech per unit of time. This specific reflects specifics of a person’s nervous activity, ratio of inhibition and excitation processes, their balance and mobility, rate of change of one nervous process to another);
- *speech pauses* (temporary sound stops that interrupt the speech flow. Filling forced pauses in speech with parasitic words or non-linguistic slurps, coughs,

etc. Nature of placement of pauses depends on the individual breathing mechanism. In case of breathing disorders, speech is characterized by frequent and short breaths that causes the placement of pauses is not justified by the content; smoothness of intonation is lost);

- *intonation* (rhythmic-melodic side of speech, which is a means of expressing syntactic meanings and emotional and expressive speech coloring. Melody, rhythm, intensity of speech change, associated with changes in the main tone, strength or weakness of the pronunciation of individual fragments of speech, etc.).

In addition to individual voice specifics, the following criteria of oral speech are also changing:

- *accuracy* (correspondence of the speaker's opinion for adequate content expression of statements);
- *clarity* (degree of understanding of speech by those to whom it is intended);
- *culture and cleanliness* (clogging of speech with non-literary elements, colloquialisms, incomplete and sometimes incomprehensible phrases, which number in speech increases significantly in a state of alcoholic intoxication; the speaker's poor vocabulary);
- *manner individuality* (directly related to logical sequence of presentation, understanding of the topic, completeness of argumentation, coherence, integrity, informativeness of the speech message).

Video analysis will allow forensic expert to determine visual external signs of alcohol intoxication, namely: unsteady gait, staggering, tremors of the fingers, detection of ataxia (coordination disorder embodied in clumsiness, impaired balance, incoordination of voluntary movements and actions, etc.); as already mentioned above, sometimes accompanied by nausea and vomiting. The state of moderate alcohol intoxication is characterized by sweeping gestures, difficulties in coordinating movements, pronounced hyperemia of the skin (redness). Such a state does not last long: it quickly turns into apathy, lethargy, inhibition, inconsistency and inhibition of thinking processes.

Depending on distortion degree of voice and speech characteristics, they can partially satisfy conditions of conducting instrumental identification researches (in other words, they are suitable for correction) or they can not satisfy due to availability of distortions that cannot be corrected. In the latter case, conducting forensic examination for the purpose of identifying the speaker becomes impossible.

For successful video and sound analysis with the aim of identifying the speaker, not only investigated (disputed) recording is essential, but voice recording sample (master copy) created for comparative research. Special attention should be paid to selecting voice and speech samples, since possibility of taking them into account and comparing the entire set of individual specifics of the speaker while forensic research, checking and comparing them depends on their quality²⁷.

In order to create a high-quality master copy, recording of the person

27 Брендель О. І. Деякі аспекти криміналістичного дослідження фонограм із метою ідентифікації мовця. *Науковий вісник Херсонського державного університету. Серія: Юридичні науки*. 2022. Вип. 2. С. 11–15. DOI: [10.32999/ksu2307-8049/2022-2-2](https://doi.org/10.32999/ksu2307-8049/2022-2-2) (date accessed: 12.09.2023).

being checked, it is desirable and necessary, in addition to using high-quality equipment, create an exemplary recording that is as close as possible to controversial recording both in terms of acoustic conditions and the emotional state of the speaker. Certainly, it is not necessary to prove a person during selection of speech samples to any degree of alcohol intoxication, but while recording reference speech of a certain person, it is necessary to adhere to generally known principles and rules of sample selection.

It is necessary to exclude parallel conversations, noises, external acoustic signals as much as possible and observe the following basic rules:

- selection of voice and speech samples cannot be treated formally;
- it is necessary to allow the person whose speech samples are selected to get used to situation, establish psychological contact with him;
- it is necessary to remember that main purpose of obtaining samples is to record the oral speech of the person from whom they are taken, so there is no need to interrupt him, speak at the same time as him ²⁸.

Various means of examination are mostly based on various approaches to the study of the nature of a person's voice and speech, reflect its various properties and are easily amenable to measurement and instrumental processing: different decision-making mechanisms require use of different methods.

With *severe* degree of simple alcohol intoxication, states of deep stupor usually occur, and sometimes sopor or coma, which can cause death. Marked neurological disorders: ataxia, muscle atony, dysarthria. Persons who are in a severe state of intoxication are unable to understand what is being said to them, answer inappropriately, their speech is slurred, their gaze wanders, their facial expressions are frozen ²⁹. Therefore, speech of a person who is in a severe state of simple alcohol intoxication (when the person observes most deviations from the neutral psychological state of the speaker) is not suitable for conducting an instrumental identification research according to the physical parameters of oral speech, because in this state it disappears / becomes unusable one of the main criteria for evaluating suitability of voice and speech for conducting instrumental identification researches is intelligibility.

Conclusions

We considered the possibility of determining certain characteristics of oral speech in order to establish an unusual state of the speaker: state of alcohol intoxication. Since narcotic or other intoxication has almost the same signs as alcoholic intoxication (except for the smell of alcohol from the mouth) and affects characteristics of a person's voice and speech, only medical professionals can categorically distinguish such unusual states during appropriate medical examination.

28 Її ж. Організаційні проблеми під час призначення судової експертизи відео-, звукозапису. *Науковий вісник Дніпропетровського державного університету внутрішніх справ*. 2020. Вип. 4 (108). С. 284—290. DOI: 10.31733/2078-3566-2020-4-284-290 (date accessed: 12.09.2023).

29 Чуприна О. В. Зазнач. твір.

It has been proven that announcer in a state of alcohol intoxication can be determined by his speech with a certain degree of accuracy and probability. However, it is worth remembering that forensic diagnosis of biological parameters of announcers is generally quite a difficult task that requires special training of forensic experts. The identified signs of the announcer's state of alcohol intoxication testify only to the relevant (potential) characteristics of the person being checked, therefore, as a research result, forensic expert usually gives conclusion in a probable form or is limited to remarks that each of the identified specifics of the announcer's (speaker) oral speech is characteristic for the corresponding group of simple alcohol intoxication.

Можливості діагностичних досліджень мовлення людей, які перебувають у стані алкогольного сп'яніння

Ольга Брендель

Авторка мала на меті висвітлити низку питань, які постають перед експертом під час криміналістичного дослідження фонограм, що містять усне мовлення осіб, щодо діагностування незвичного стану мовця — стану алкогольного сп'яніння та визначення ступеня впливу стану сп'яніння мовця на можливість проведення ідентифікаційних досліджень диктора в експертизі відео- і звукозапису. Для досягнення поставленої мети використано методи наукового пізнання: спостереження, порівняння, абстрагування, аналіз, синтез, моделювання та ін. Простежено мовленнєві порушення в осіб, які перебувають у стані алкогольного сп'яніння. Проведено аналіз стадій алкогольного сп'яніння та визначено їхній вплив на процес формування мовленнєвої діяль-

ності людини. Виявлено закономірності, характерні для мовлення людей, які перебувають під дією алкоголю. Досліджено специфічні особливості варіативності формування голосу й мовлення особи під впливом алкоголю. Вивчено можливості проведення ідентифікаційних досліджень за фізичними параметрами усного мовлення залежно від ступеня сп'яніння людини. Увагу акцентовано на особливостях діагностування мовлення особи, яка перебуває в стані легкого, середнього та тяжкого ступеня простого алкогольного сп'яніння, і ситуаційних моментах, пов'язаних із мовцем. Розглянуто як анатомічний мовленнєвий апарат людини, що створює індивідуальну картину мовленнєвого сигналу, характерну для певної людини, так і мовленнєву поведінку, уміння, індивідуальний досвід, інтелект тощо, які впливають на створення індивідуального образу мовця в незвичному стані алкогольного сп'яніння. Опрацьовано чинники, варіативність яких впливає на характеристики голосу особи в різних станах алкогольного сп'яніння.

Ключові слова: судово експертиза відео- та звукозапису; діагностичне дослідження; алкогольне сп'яніння; мовлення; мовленнєві порушення.

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