

# Forensic linguistics

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**Forenzička lingvistika**

Završni rad

Mentor: izv.prof.dr.sc. Tanja Gradečak Erdeljić

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Sveučilište J. J. Strossmayera u Osijeku

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## **Forenzička Lingvistika**

Završni rad

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Mentor: izv.prof.dr.sc. Tanja Gradečak Erdeljić

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BA programme in English Language and Literature

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## **Forensic Linguistics**

BA thesis

Supervisor: Tanja Gradečak Erdeljić, Associate Professor

Osijek, 2016

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BA thesis

Humanities, field of Philology, branch of English

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## Abstract

Forensic linguistics is a branch of applied linguistics that uses various linguistic methods in forensic context, usually in legal practice. The phrase was first used in 1960's by a linguist Jan Svartvik, who used its methods to study the statements in the case of a man falsely accused for murdering his wife and child. Since then, it has become quite common to use forensic linguistics in court of law. It is used in contract disputes, product liability, child sexual abuse interviews, perjury, adult sexual misconduct, money laundering, confessions, police interrogations, etc.

Forensic phonetics is a forensic discipline that deals with analyzing spoken language. It is also used in courtrooms, namely in speaker identification and signal analysis- analysis of already recorded speech. Speaker identification has been known to play a key role in many trials, but it can be unreliable when it is done by an ear witness rather than by an expert. In signal analysis it is also important to work with a recording of good quality.

Contrary to that, forensic stylistic does not face those problems since it focuses primarily on the written language. Forensic stylistics has found its widest usage when dealing with questioned authorship and when trying to detect plagiarized works.

Key words: forensic linguistics, forensic phonetics, speaker identification, signal analysis, forensic stylistics

## Sažetak

Forenzička lingvistika je grana primijenjene lingvistike koja koristi lingvističke metode u forenzičke svrhe, najčešće u one pravne. Naziv je 1960-ih prvi puta upotrijebio jezikoslovac Jan Svartvik koji se koristio metodama forenzičke lingvistike pri proučavanju izjava u slučaju čovjeka krivo optuženog za ubojstvo svoje žene i djeteta. Od tada se te metode često koriste na sudu u raspravama oko ugovora, slučajevima vezanim za: odgovornost pri upotrebi proizvoda, pranje novaca, priznanja i policijska ispitivanja.

Forenzička fonetika je forenzička disciplina koja se bavi analizom govora. Također se koristi u sudnicama pri identificiranju govornika i analizi audio signala. Identificiranje govornika je često bilo presudno u mnogim suđenjima, ali nije uvijek jednako pouzdano, ovisno radi li to svjedok sa mjesta zločina ili za to kvalificiran stručnjak. Kod analize audio signala jako je važno da snimka bude dobre kvalitete kako bi bila prihvatljiva na sudu.

Za razliku od njih, oni koji se bave forenzičkom stilistikom ne sreću se s takvim problemima, s obzirom na to da je forenzička lingvistika fokusirana na pisani jezik. Najčešće se koristi pri utvrđivanju autorstva i pronalaženju plagijata.

Ključne riječi: forenzička lingvistika, forenzička fonetika, identifikacija govornika, analiza audio signal, forenzička stilistika



## 1. Introduction

Forensic linguistics is the scientific study of language as applied to forensic context. Even though it is a new science, the areas of its application are quickly spreading. With every new advancement in the world of technology, new methods of forensic examination are being introduced which then can be used by forensic linguists to help solve different types of legal cases.

The purpose of this work is to familiarize the reader with the forensic linguistics and some areas of its usage. Firstly, through the brief overview of its history, the reader will learn how the forensic linguistics as a science came to be. Further on, in the next chapter, the paper focuses on the types of cases and crimes that are nowadays usually solved with the help of forensic linguistics. Next, two major areas of forensic linguistics are introduced. The first of the two is forensic phonetics. The usage of it is explained in the context of signal analysis, speaker identification by an ear witness and by an expert. The last chapter deals with forensic stylistics and issues regarding questioned authorship and plagiarism.

## 2. History

While forensic linguistics as a science is relatively new, some early, undefined form of it has been around for some time. Questioned authorship is an issue that has been around since the first written texts. Even in ancient Greece, playwrights often accused each other of stealing ideas. Then, in the eighteenth century there appeared some people who began questioning the authorship of various famous writings, including Shakespeare's works.<sup>1</sup>

In the nineteenth century, some attempts were made by British and American mathematicians and statisticians to develop methods of authorship attribution. Augustus de Morgan and Udney Yule were among them. Those methods focused on easily noticeable elements, such as average word and sentence length. However, they had very little to do with linguistics.<sup>2</sup>

The phrase *forensic linguistics* was coined by a linguistics professor Jan Svartvik. He first mentioned it in his famous analysis of the statements from the case of Timothy John Evans from 1953. He was accused of murdering his wife and child, found guilty and hanged at Pentonville Prison. Then later, in 1960's, a journalist Ludovic Kennedy thought he had found some discrepancies in the statements Evans allegedly gave to police. When Svartvik took over, he realized that the statements contained two different styles, and after further analysis confirmed that one was an educated written style while the other was a marked spoken style. Thus he concluded that Evans could not have dictated those statements.<sup>3</sup>

In general, police reports and interrogations have always been problematic. Even though some ground rules existed, such as that police officers shouldn't interrupt the suspects while they are dictating their statement and that at that stage, a suspect should only be asked some minor clarification, no further questioning was allowed.<sup>4</sup> However officers rarely abided by those rules. They would ask a series of questions, take down notes and then later write the statement in their own words, and not in the words of the suspect. But that was hardly the only issue regarding those rules.

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<sup>1</sup> Olsson, J. What is Forensic Linguistics? [www.thetext.co.uk/docs/what\\_is.doc](http://www.thetext.co.uk/docs/what_is.doc). p. 4

<sup>2</sup> Olsson, J. Work cited. p.4

<sup>3</sup> Olsson, J. Work cited. p.4

<sup>4</sup> Olsson, J. Work cited. p.5

Dictating statement in a coherent and articulate form is not only difficult, but it rarely happens. People usually either stutter or mumble, or speak too fast, and they often omit important details, which makes the task even more difficult for the person who is taking the notes. That is why many cases involved questioning the authenticity of the police statements.

In the United States early forensic work was also connected to the interrogation process. Those cases became known as Miranda cases. The provision of Miranda is simple: police officers are obliged to advise the arrestees that they need not speak unless they wish to, that they are entitled to have a lawyer present, and that anything they say can be used against them in court. However, many issues arose, as pointed out by the linguistics professor Roger Shuy: (i) a confession must be voluntary, (ii) questioning should not be coercive, (iii) arrestees must be asked whether they understand their rights, etc.

Another early application of Forensic linguistics in the United States was related to the status of trademarks as words or phrases in the language. A famous early case involved the brand name 'McDonald's' of the multi-national fast food chain. In this case the linguists were Genine Lentine and Roger Shuy. Quality Inns International announced their intention of opening a chain of economy hotels to be called 'McSleep'. 'McDonald's' claimed that the attachment of the 'Mc' prefix to many unprotected nouns, such as 'Fries' in 'McFries' 'Nuggets' in 'McNuggets', etc., barred Quality Inns from use of the 'Mc' prefix. 'McDonald's' also claimed that they had originated the process of attaching unprotected words to the 'Mc' prefix and had run advertising campaigns which illustrated this. In their evidence Lentine and Shuy showed that the 'Mc' prefix had had previous commercial applications, and that as 'McDonald's' had not objected to any of these they had no grounds for doing so in the present instance. Despite the overwhelming evidence, judgement was for the plaintiff's and Quality International Inns were unable to launch their chain of motels under the 'McSleep' banner.<sup>5</sup>

Application of Forensic linguistics in the legal process in Australia began in the 1980's when some linguists expressed their concern for the rights of the individuals, namely for the Aboriginal suspects. Thus Olssen mentions an important instance of this when he explains that the dialect spoken by many Aboriginal people, known colloquially as 'Aboriginal English', was wrongly

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<sup>5</sup> Olsson, J. What is Forensic Linguistics? Nebraska Wesleyan University, Lincoln, Nebraska. p. 6

thought by many white Australians to be a defective form of the English spoken by whites. It is in fact a dialect in its own right. He also explains that Aboriginal people understand and use language differently than white Australians and that is what usually causes confusion during police interrogations.<sup>6</sup>

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<sup>6</sup> Olsson, J. What is Forensic Linguistics? [www.thetext.co.uk/docs/what\\_is.doc](http://www.thetext.co.uk/docs/what_is.doc). p.7

### 3. Language of the Law

Language of the courtroom has always been very complex and layered. Therefore, it is a very interesting area for linguists to study more closely and it is an area in which forensic linguistics has found its greatest application. Linguists are called to testify in both civil and criminal cases. Civil cases in which linguists are consulted include: trademark disputes, contract disputes, product liability, discrimination, slander and libel, copyright infringement etc. But they play an even greater role in more serious, criminal cases, which include: child sexual abuse interviews, perjury, adult sexual misconduct, money laundering, confessions, police interrogations etc.

#### 3.1. The Language of Civil Cases

The documents like business contracts, warning labels, employment agreements and other, though rather short texts, are often the subjects of many legal proceedings. The concept of such legal writings is fairly simple: they record in writing what had previously been agreed on orally. That helped in reducing the opportunity for parties to commit perjury and offered more reliability than memory. So, how is it then that the documents based on such simple concept is causing so many lawsuits? Linguistic experts gave their opinion on how to make documents like that clearer and more precise and thus reduce the number of those lawsuits. Words and sentences can be shortened, active verbs can replace passives, technical terms and jargon can be avoided, Latin and foreign language words and expressions can be replaced, definitions can be added, sentences with more than one conditional clause can be eliminated, and expressions that cite exceptions to exceptions can be clarified and simplified.<sup>7</sup>

The linguists whose help has been requested in such cases do not try to see the document from the perspective of the reader in order to get the idea of how he might understand the text, nor do they try to get in the minds of the party that wrote the document so they could fathom the

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<sup>7</sup> Shuy, R.W. (2007) *Language in the American Courtroom*. Language and Linguistics Compass 1/1–2. Wiley-Blackwell. United Kingdom. p. 106.

meaning behind it. They analyze the text so they can determine the range of possible meanings and the range of possible understandings that the reader could have.

As Shuy further explains, linguistics also helps with the language of warning labels. Companies that issue those warnings usually don't state explicitly the dangers and side effects of using the products. Moreover, the warning labels are usually written in strictly medical or legal terminology so ordinary people can have trouble understanding them. Methods of discourse analysis, pragmatics, and semantics are used in these types of cases.<sup>8</sup>

### 3.2. The Language of Criminal Cases

Before the arrival of tape recording in 1960s proving certain crimes and catching perpetrators was difficult if no one witnessed them or if no one could testify against them. Luckily, the advancement of science changed that and recording and videotaping started to be used for the purpose of solving those once unsolvable crimes. On the other side, criminals quickly adjusted to this new 'game' and became even more cunning. Rather than using brutal force and physical violence, modern computers and internet made it easier for them to switch to crimes committed by using language, for instance: taking bribes, engaging in business fraud or deceptive trade practices, etc.

Additionally, early tape recordings and videotapes, though more reliable than witnesses, were still flawed. The quality of many recordings was bad which made their reliability questionable. Videotapes also faced a lot of problems back then: various issues with bad lighting, wrong positioning of the cameras that left dead angles and usually cut scenes to show only half of it, or only one of the speakers.

When linguists are called on in such cases, the first task always is to use their skills in phonetics and language variability to make sure that an accurate, jury-ready transcript of the conversations were made. After the accuracy of the text has been assured, linguists can determine such things as

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<sup>8</sup>Shuy, R.W. (2007) *Language in the American Courtroom*. Language and Linguistics Compass 1/1–2. Wiley-Blackwell. United Kingdom. p. 107.

whether an offer was actually made or accepted, whether a legitimate threat was uttered, and whether a promise was involved.<sup>9</sup>

When police interrogation began to be used in court, linguists were asked to analyze the alleged confessions of the subjects. Their task was to determine whether the suspect actually confessed to the crime and whether the interrogation process influenced in any way what the suspect said.

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<sup>9</sup> Shuy, R.W.(2007) *Language in the American Courtroom*. Language and Linguistics Compass 1/1–2 Wiley-Blackwell. United Kingdom. p. 108.

## 4. Forensic Phonetics

Forensic phonetics is a forensic discipline that deals with analyzing spoken language. Like forensic linguistics, it has a great usage in court of law. Its areas include: speaker identification, analyzing content of recordings, decoding voice messages and many other. The recent and rapid development of technology brought with itself modern and innovative methods which make it easier than ever for forensic experts to use and rely on forensic phonetics when solving crime cases. The forensic phonetics area itself consists of two major elements. One involves the analysis speech signals which have been transmitted and stored and the other is that of analyzing the communicative acts themselves. The first of these two domains addresses the enhancement of speech intelligibility, speech decoding and the authentication of recording. The second area involves issues such as recognition of speakers from their voices, identification of the health, emotional or psychological states of the talker and the analysis of speech for evidence of deception.<sup>10</sup>

### 4.1. Speaker Identification by an Ear Witness

Forensic phonetics has a major role in legal proceedings because various methods of auditory and acoustic phonetics are used in speaker identification. Whether it is done by an ear witness or an expert, speaker identification has often had a key role in revealing perpetrators, usually by determining their age or regional and social accent. One of the first such cases was Lindbergh baby kidnapping case from 1930s: Almost three years after the event, the famous aviation pioneer claimed he recognised the German accented, English speaking voice of the suspect as that of the abductor of his child. Misgivings about the validity of the identification by Lindbergh gave rise to the first systematic study of speaker identification by humans.<sup>11</sup>

However, speaker identification by an ear witness cannot always be considered reliable. There are many factors that must be taken into consideration when determining the credibility of an ear

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<sup>10</sup> Hollien, H. (2012) About Forensic Phonetics. Linguistic ISSN 0024-3922. Filozofska fakulteta univerze Edvarda Kardelja, Ljubljana, SLOVENIE. vol. 52. p.28.

<sup>11</sup> Broeders A.P.A. Forensic Speech and Audio Analysis Forensic Linguistics 1998-2001. Netherlands Forensic Science Institute.p. 3.



witness and his testimony. For instance, the time that has passed since the witness heard the voice can affect his memory of it. Secondly, the amount of speech the listener heard- merely few words or barely a whole sentence might not be enough to render the testimony credible. Also, if the voice lineup has to be set up, officers in charge must assure that the quality of the spoken sample is good and that the listener stays completely unbiased.

#### 4.2. Speaker Identification by an Expert

Unlike speaker identification by an ear witness, speaker identification by experts is far more reliable and more commonly practiced. These experts can be divided into three groups. The first group includes phoneticians. They use methods of both auditory and acoustic phonetics in their work. Such experts work in government forensic laboratories in Germany, Austria, Sweden, Spain and the Netherlands and in the United Kingdom, where they can also work in private practice.

The second group consists of those who use a set of semi-automatic measurements of particular acoustic speech parameters such as vowel formants, articulation rate and the like, sometimes combined with the results of a detailed, largely auditory phonetic analysis by a human expert. Examples of this type of approach are the methods used in Italy (RCIS), the Dialect system used in Russia (FSC) and Belarus and the SIVE system used in Lithuania.<sup>12</sup>

The third, most recent approach is both automatic and global. It is automatic in the sense that any subjective analysis or evaluation of the speech material is reduced to a minimum; it is global in the sense that it does not address specific acoustic speech parameters but treats the signal as a physical phenomenon. Most automatic speaker identification systems today use a form of Gaussian mixture modelling to characterise the speech of the known, target speaker (i.e., frequently the suspect in a forensic application) and that of the unknown speaker (i.e., the perpetrator).<sup>13</sup>

#### 4.3. Signal Analysis

“The analyses of electro-acoustical transmissions or stored speech signals are carried out for a number of purposes. “ (Hollien, 28) When recordings are used in legal practice, the good quality of it is often of key importance. Bad quality will make the tape analysis more challenging. Sometimes,

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<sup>12</sup> Broeders A.P.A. Forensic Speech and Audio Analysis Forensic Linguistics 1998-2001. Netherlands Forensic Science Institute. p.5

<sup>13</sup> Broeders A.P.A. Work cited. p.6.

the problem is in the speaker, he can be barely understood, overlapping with another speaker, or under the effect of drugs, alcohol or merely stress. At other times, the problem is in the background noise and distortion, poor equipment, poor skills of the ones who made the type or the acoustics in the environment where the tape was made. Presence of even one of these can cause the credibility of the recording to be at stake. Also, to be fully authentic and admissible in the court of law, the tape must not be modified. So the definition of authenticity follows:

“To be valid, a recording must include all of the events that occurred, and nothing can have been added, changed or deleted, during the recording period or subsequently. (Hollien 1977; 1990) It also must be stressed that, no matter how pristine its source (individual or agency), if the recording is to be properly authenticated, it must be analyzed thoroughly, impartially and ethically. (Aperman 1982; Hollien 1977) To do this, the Forensic Phonetician must apply knowledge about the intricacies of the speech act, technical information about the modern processing/storing of speech and appropriate electronic/computer analysis technologies. Moreover, since a number of different classes of equipment can be used for speech (included are analog, digital and video recorders – plus computers), evaluations must include physical examinations and signal assessment.”<sup>14</sup>

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<sup>14</sup> Hollien, H. (2012) About Forensic Phonetics. *Linguistica* ISSN 0024-3922. Filozofska fakulteta univerze Edvarda Kardelja, Ljubljana, SLOVENIE., vol. 52. p.31.

## 5. Forensic Stylistics

Linguistic stylistics can also have its forensic usage, but unlike phonetics, stylistics focuses mainly on the written language, and rarely spoken language only when dealing with transcripts of recorded speech or interviews. It is usually applied in the area of questioned authorship, but also when analyzing various documents, such as: wills, contracts, or insurance policies. Forensic stylistics extends the principles of psycholinguistics to criminal, civil, law enforcement, or other legal venues.

The field of psycholinguistics is concerned with the relationship between linguistics and the psychological processes. Psychologists study and attempt to quantify linguistic features associated with character styles and personality traits, such as impulsivity, rage, anxiety, mania, depression, paranoia, sadism, narcissism, etc. Forensic linguistic analysis is also used in cases involving assessment of threat. Specific word usage in spoken or written threats can give investigators a great deal of information concerning likelihood of action, suspect's motivation, personality characteristics, demographics, and degree of psychological stability.<sup>15</sup>

### 5.1. Questioned Authorship- plagiarism

Plagiarism- presenting someone else's work as yours isn't always violation of law, but it violates regulations of academic establishments and is implicated in copyrights. When handling the issue of questioned authorship, experts examine the writing style of all available and questioned writings. Results of this analysis may be:

- 1) Determination of resemblance of questioned writing to the already known writings
- 2) Elimination or identification of one or more suspect authors

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<sup>15</sup> Linguistics, Forensic Stylistics." World of Forensic Science. 2005. Encyclopedia.com. 9 Sep. 2016  
<<http://www.encyclopedia.com>>.

### 3) Inconclusive with respect to data that support neither elimination nor identification<sup>16</sup>

This approach is based on two well-known facts. Each writer has specific linguistic patterns which he combines in a unique way in his writings, and those patterns are usually recognizable enough to be noticed by linguistic analysis, which means that author identification is possible in most cases. This uniqueness and individuality in writing style comes from author's personal choice of many available alternatives in common linguistic forms. Author's choices become his style-markers and are what make his style unique. These style-markers may include: number and other symbols, abbreviations, punctuation, capitalization, word formation, syntax, frequent word and phrases... But how exactly are style-markers identified?

As McMenamin states:

“The single most important starting point for selecting style-markers is to work within a theoretical model of linguistics that views stylistic variation as inherent to the system of language itself, i.e., not a characteristic of language performance. This will assure the discovery of the patterned variation needed for authorship identification, as opposed to the accidental and less than systematic characteristics of performance.

The second analytical requirement is to recognize that unique markers are extremely rare, so authorship identification requires the identification of an aggregate of markers, each of which may be found in other writers, but all of which would unlikely be present together in any other writer. Therefore, the approach is to identify the whole range of variation in a given set of writings, and analyze it in any acceptable descriptive or quantitative way.”<sup>17</sup>

## 5.2. Example of Plagiarism

The most common type of plagiarism is theft of someone else's text and presenting it as your own without them knowing it. This type of plagiarism mostly happens among academics, usually students. These are the two examples of essay openings from Johnson (1997: 214), all items which student B 'shares' with student A are highlighted in bold:

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<sup>16</sup> McMenamin, G.R. (2002) *Forensic Linguistics: Advances in Forensic Stylistics*. Choi, D.Mistry, P.J.Morton, S.Yasuda, W.CRC Press. The United States, Boca Raton, Florida.p.176.

<sup>17</sup> McMenamin, G.R. (2002) *Forensic Linguistics: Advances in Forensic Stylistics*. Choi, D.Mistry, P.J.Morton, S.Yasuda, W.CRC Press. The United States, Boca Raton, Florida..p.185.

**A.** It is essential for all teachers to understand the history of Britain as a multi-racial, multi-cultural nation. Teachers, like anyone else, can be influenced by age old myths and beliefs. However, it is only by having an understanding of the past that we can begin to comprehend the present.<sup>18</sup>

**B.** In order for **teachers** to competently acknowledge the ethnic minority, **it is essential to understand the history of Britain as a multi-racial, multi-cultural nation.** Teachers are prone to believe popular **myths and beliefs; however, it is only by understanding** and appreciating **past theories that we can begin to anticipate the present.**<sup>19</sup>

Even these short extracts provide enough evidence of shared items to question the originality of at least one of the essays, or both, if a third text proves to be the common source. The case of essay C, however, is not as clear:

**C.** It is very important for us as educators to realise that **Britain as a nation** has become both **multi-racial** and **multi-cultural.** Clearly it is vital for **teachers** and associate teachers to ensure that **popular myths and** stereotypes held by the wider community do not **influence** their teaching. By examining British history this will assist our **understanding** and in that way be better equipped to deal with **the present** and the future.

This example still has some common elements with previous, however, the longest identical sequences consist of only three words. But, it can still be considered as plagiarism if the further text contains more such overlapping.<sup>20</sup>

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<sup>18</sup> Coulthard, M. (2004) Author Identification, Idiolect and Linguistic Uniqueness. Applied Linguistics 25, 4, 431-447.p.4.

<sup>19</sup> Coulthard, M. (2004) Author Identification, Idiolect and Linguistic Uniqueness. Applied Linguistics 25, 4, 431-447.p.4.

<sup>20</sup> Coulthard,M. work cited.p.4.

## 6. Conclusion

In conclusion, modern innovation in engineering and technology created fertile soil for the development of forensic sciences. Among them, forensic linguistics has expanded its application to new areas and has not stopped improving since the first time it was mentioned in the 1960's. The usage of linguistic methods in legal practice has now become common and very important, in both civil and crime cases. There are still quite a few issues that may arise in such instances, but still, without linguistics, many cases would remain unsolved. Forensic phonetics can nowadays successfully examine important recorded types and its methods are frequently used in speaker identification. Unlike phonetics, forensic stylistics focuses on the written language and is commonly used when identifying the author of a particular writing, or when trying to expose the people behind plagiarized works.

Forensic linguistics is one of those sciences that will keep changing and advancing with every technological innovation and its role in the court of law and other areas will only fully reliable and more important than ever.

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