UNRAVELLING IDENTITY: SOCIOLINGUISTICS AND FORENSIC LINGUISTICS

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Abstract: *The language choices that we, as individuals of a social group or members pertaining to a speech community, make are paramount to the way in which we are perceived by other members. This paper focuses on the manner in which an individual can be identified by others (a sociolinguist or a forensic linguist) through his/her speech patterns. The paper also provides an overview of the tools used in sociolinguistics for speech recognition or acoustic analysis and whether these tools can also be successfully used in forensic linguistics.*

Keywords: *forensic linguistics, sociolinguistics, identity, forensic phonetics, acoustic analysis, PRAAT, speaker*

Introduction

As a science, sociolinguistics studies the connection between language and society and the way in which language varies according to its users. Another aspect which sociolinguistics tries to explain is the social function of language. Analysing people's choice of their words in different social situations provides a wealth of information about how language works. The pillars of sociolinguistics are the *linguistic variable* and the *social variable*. These will prove to be of vital importance in giving a detailed description of an individual's idiolect. The term *idiolect* is or should be an important concept in forensic linguistics as the forensic linguist has to tackle the problem of who penned a particular text, starting from the hypothesis that each person writes and speaks in their own idiolect. This idiolect will manifest itself through unique and idiosyncratic choices in both speech and writing (Coulthard et al. 2017:15).

Given that forensic linguistics is a relatively new area of research, many concepts and tools can be borrowed from different branches of linguistics, especially sociolinguistics. In what follows, a detailed description of such elements will be given, focusing on how they are used by the forensic linguist.

Sociolinguistics and forensic linguistics

It is said that a picture is worth one thousand words, but which words? The way we speak or write defines us as individuals. Imagine the following situation: you hear a voice, someone talking, but you cannot see that person, that is, you cannot associate a person with the voice that you hear. There are several things that you can "guess": the gender of the person, the age, the region of the country he/she comes from, etc; you could even infer whether that person is a smoker or not. Sociolinguistics is concerned with all of these, and more. In recent years many software programs have been developed to help sociolinguists provide accurate descriptions of speech and information about speakers. Among the state-of-the-art software programs used in transcribing data, it is worth mentioning CLAN, ELAN, EXMARaLDA, PRAAT, Transcriber, Transana, VoiceMaker,[1] etc. We shall see how these tools can be used in forensic linguistics later on.

[1] For a more detailed discussion, see D'Arcy.

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In their Introduction to *The Routledge Handbook of Forensic Linguistics*, Coulthard and Johnson (7) draw a very important distinction between the description of the language of the law (both written and spoken) and the work carried out by the expert linguists (sociolinguist or forensic linguist) which focuses on written reports and the presentation of oral evidence in the court of law. However, it is also necessary to differentiate between the language of the law, which is used in legal documents and the court of law, and the language used by kidnappers, blackmailers, criminals in general. The latter does not contain legal terms or anything that has to do with the law. Instead it is sometimes quite plain and simple. This is the language that (forensic) linguists sometimes have to study and analyse in order to create the linguistic profile of that particular person. In this case sociolinguistics can be extremely helpful.

Coulthard et al. (14) note that "users and usage are shaped by the variables of gender, ethnicity, age, geographical location, education, profession and these variables combine and interact, rather than being discrete, but also actively perform and 'enregister' these linguistic facets in everyday life." To this list, Jessen further adds non-native accent, regional dialect of one's native language, and medical condition. In a nutshell, these social variables are encoded in the person's speech. Schilling and Marsters (195) write that a forensic investigation is strongly connected to identity, "What is the identity of the perpetrator and how can it be proven? Sometimes the only clue to a criminal's identity is his or her language." Identity is indeed a key component in shaping a person's identity. So, how can the forensic linguist unravel this identity and identify the perpetrator? Schilling and Marsters suggest that the forensic linguist or the consultants who are brought in to help with the case should start by creating a forensic speaker profile of the person of interest's (POI) regional background.

Hymes's SPEAKING acronym might be very useful to this purpose:

S (setting, scene)
P (participants)
E (ends, goals, outcomes)
A (act sequence)
K (key, tone, manner)
I (instrumentalities)
N (norms)
G (genre)

This acronym might help the investigator in creating a forensic speaker profile as it describes several parts of the speech situation which must be taken into consideration in a serious examination of the language used. More recently, Holmes (9) builds on the model proposed by Hymes to describe the four big *WHs* (who, where, what, why) which occur in a speech situation:

(i) The **participants**: *who* is speaking and *who* are they speaking to?
(ii) The **setting** or social context of the interaction: *where* are they speaking?
(iii) The **topic**: *what* is being talked about?
(iv) The **function**: *why* are they speaking?

Holmes (10) further adds four social dimensions of the context, connected to these components:

(a) A **social distance** scale concerned with participant relationships.
(b) A **status** scale concerned with participant relationships.
(c) A **formality** scale relating to the setting or type of interaction.
(d) Two **functional** scales relating to the purposes or topic of interaction.

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All these things should be taken into consideration when the forensic linguist has to design a speaker profile. Despite the fact that there are several tools which can be successfully used in uncovering identity through forensic speaker profiling, the forensic linguist must also take into account the possibility of *disguise* (Schilling, Marsters 206). In order to illustrate this point, I provide an example from cinematography. In 2017, Alex Pina created the Spanish television series *La Casa de Papel* (Money Heist). The series follows a group of eight people recruited by a man who calls himself The Professor. Their plan is to enter the Royal Mint of Spain, located in Madrid, print 2.4 billion euro and then disappear. The team manages to enter the Royal Mint and they start printing money. They also hold 67 hostages. Inspector Raquel Murillo of the National Police Corps is brought in and is in charge of the case. She tries to contact the robbers and talks to the leader. The Professor manages to disguise his voice using a computer program. By doing so, he conceals his true identity and nobody from the police force knows who he is. The interesting part is that the Professor starts dating inspector Raquel Murillo, and she has no idea that he is the mastermind of the heist. So, the inspector is actually in bed with the enemy and she has no clue about his real identity. Later on, the inspector starts suspecting that the man she is seeing might be the moral author of the heist. The things that throw suspicion on the Professor are his use of certain vocabulary items and certain grammatical constructions.

In order to reveal the person's true identity, the forensic linguist can look for patterns, choice of lexical items, or even use the formality scale mentioned above. Criminals also use accent imitation to confuse or mislead the police. Sjöström et al. (2009) investigated the use of dialect switch as a means of disguise. A native bidialectal speaker was the target speaker in a set of four voice line-up experiments, two of which involved a dialect switch. The speaker was a male Swede who spoke Scanian and a variety of Stockholm dialect on a daily basis. The investigators carried out an acoustic analysis of the speaker's dialect voices, which acknowledged that the two varieties of Swedish contained the typical characteristics of the two dialects. The analysis also revealed that he was consistent in his use of both of them. Two recordings of *The Princess and the Pea* were made by the bidialectal speaker. In the first recording he read the story in the Stockholm dialect and in the second he made use of the Scanian dialect. There was also a control group. Four more recordings were made: two by two male monodialectal speakers of the Stockholm dialect and the other two by two male monodialectal speakers of the Scanian dialect. Sjöström et al. concluded that dialect is of the utmost importance in the identification process. Listeners face a problem in identifying the target voice when a shift of dialect in the voice occurs. One valid explanation to account for the results is that when an individual has to make a judgement concerning a person's identity, "dialect as an attribute is strong and has a higher priority than other features" (Sjöström et al. 115). If a perpetrator were to use voice disguise as a method to misguide the police (the perpetrator could use one dialect when s/he committed the crime, in front of the witnesses and the other dialect when talking to the police or asking for a ransom), this could result in an incorrect identification by the witness or witnesses.

In cases of dialect disguise it is important for linguists to "be familiar with subtle linguistic conditioning on variable patterns, since people effecting dialects are unlikely to effect subtle patterns that lie below their conscious awareness" (Schilling, Marsters 208). For example, if an anonymous speaker is initially considered to be a speaker of British Standard English (using an RP accent), but quantitative analysis reveals that the speaker does not pronounce /r/ in all linguistic environments, including both postvocalic and post-consonantal contexts, then he/she is probably faking a British Standard English dialect (RP accent), since native speakers do not pronounce postvocalic /r/ but they do pronounce post-consonantal /r/. In other British English dialects, native speakers pronounce postvocalic /r/, so this poses quite a problem. Eriksson convincingly notes that the main reason for voice disguise is to hide the speaker's identity, and not convince people that he/she uses a particular dialect.

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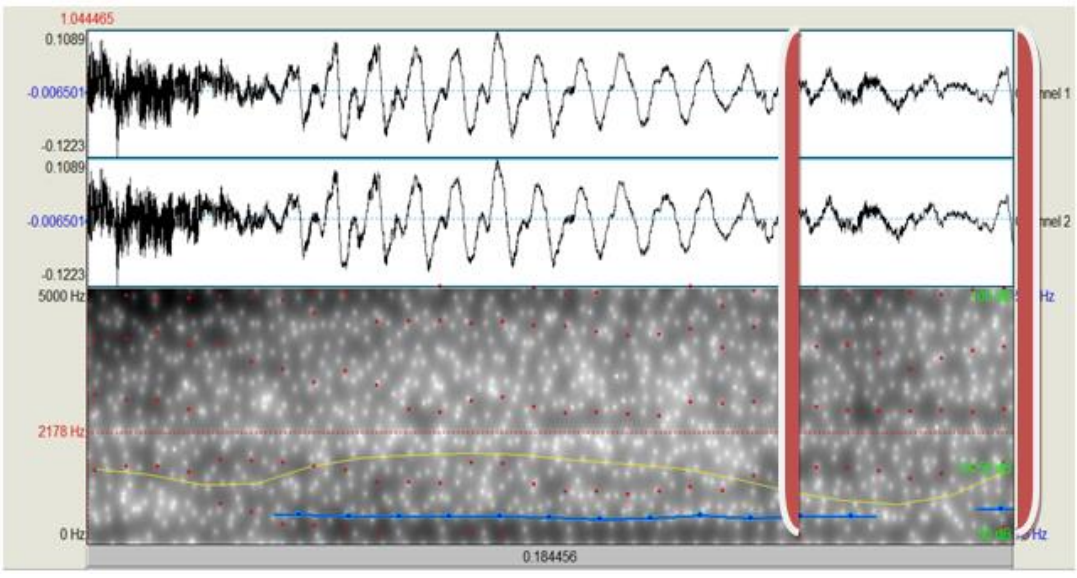
Identification through speech

When we receive a telephone call, we usually have no problems in recognizing our interlocutor's voice. However, in some cases, we might have problems in recognizing the person, despite the fact that his/her voice is known to us. So, even non-specialists are able to recognize a voice on the telephone, let alone a highly trained specialist.

In the United Kingdom, most of the work carried out by forensic speech analysts can be divided into two main types: *speaker profiling*[2] and *speaker comparison* (Watt 82). ***Profiling*** occurs when the suspect(s) has/have not been identified, for example when anonymous phone calls from kidnappers, robbers, etc are received. In this case, the purpose is to narrow down the list of possible suspects by carefully analysing linguistic features associated with different geographical regions or social groups, or by looking at the pronunciation. If the anonymous phone call comes from London, and if the suspect produces instances of h-dropping, the linguist might be led to believe that the person who made the telephone call may be a speaker of Cockney, an accent associated with Londoners living in the East End and the working class. H-dropping is a linguistic feature consistently found among Cockney speakers.

Speaker comparison, on the other hand, compares two or more speech samples with the aim of establishing whether the samples were uttered by the same person. Watt (82) further notes that the investigator's task is to identify similarities and differences between the voice of the person in the sample and that of an individual whose identity is known. Such a comparison could lead to revealing that person's identity and solving the case. This is, however, a painstaking undertaking which requires highly trained people.

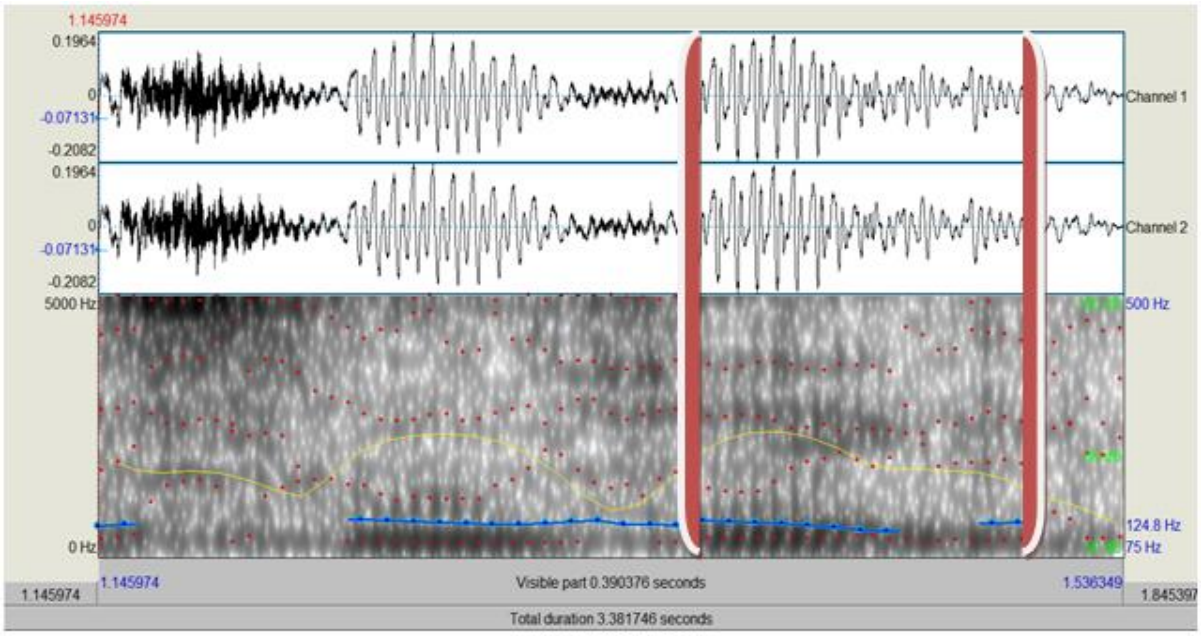
The linguist has to provide a detailed description of the person's speech and look for relevant linguistic information, e.g. nonstandard features of grammar, slang, dialect words, discourse markers, etc. Acoustic analysis can also be performed. A software program such as ***Praat*** (Boersma, Weenink) can measure features such as vowel formants and voice onset times of stop consonants. It can also show whether certain vowels or consonants are dropped. Consider the following example:



Spectrogram 1. Alveolar realisation [n] of (ing) in *something* (produced by a male speaker)

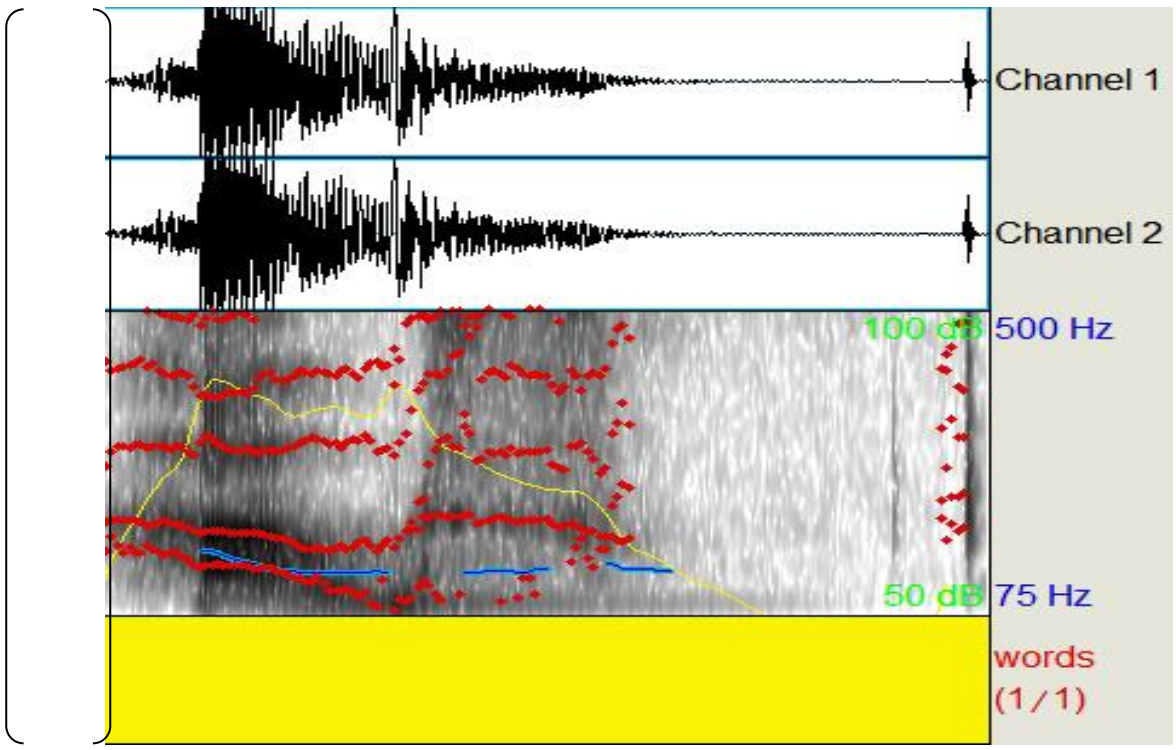
[2] For an interesting discussion, see Ellis on the Yorkshire Ripper.

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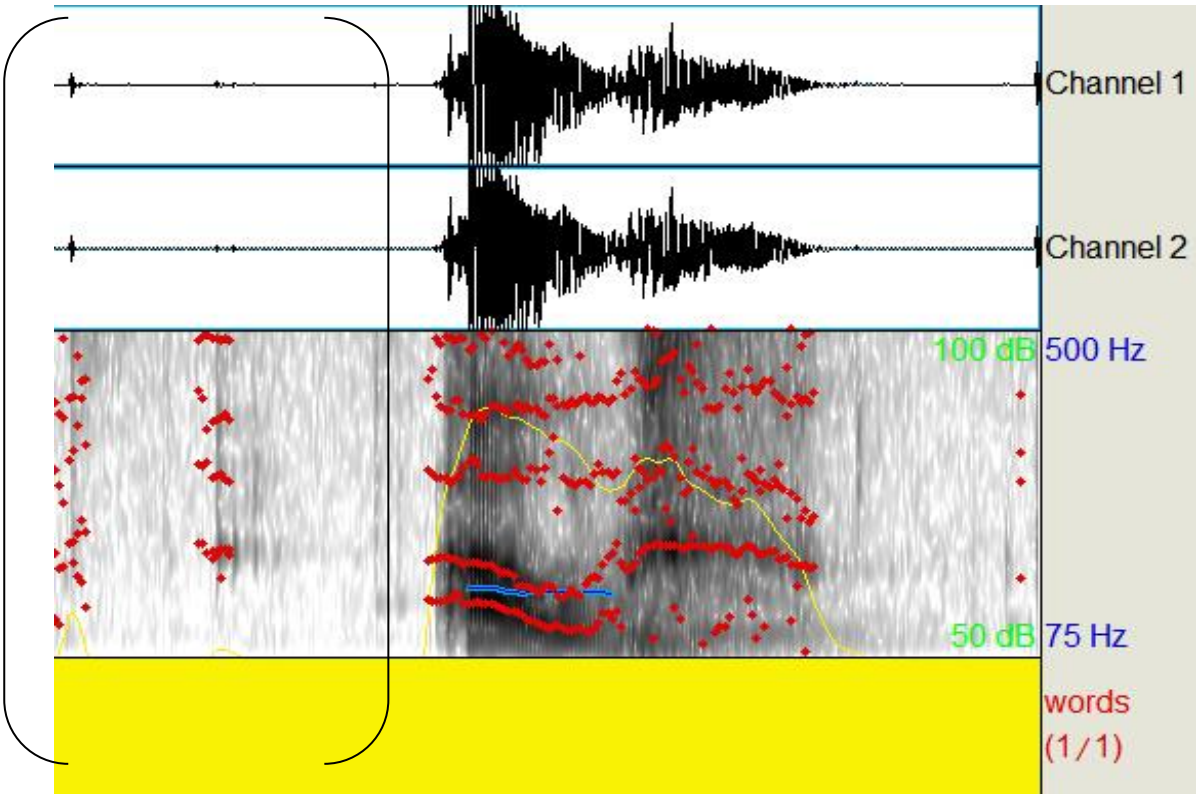
Spectrogram 2. Velar realisation [ŋ] of (ing) in *something* (produced by a male speaker)

Spectrograms 1 and 2 depict the realisation of the linguistic variable (ing) in *something* as either alveolar or velar nasal, in the speech of a male speaker. This is an example of intra-speaker variation, meaning that this person sometimes uses the velar nasal variant [ŋ] and sometimes the alveolar nasal variant [n]. The former is standard while the latter is nonstandard. These spectrograms show that the male speaker sometimes uses the standard pronunciation and sometimes prefers the nonstandard one, depending on the formality of the speech situation in which he finds himself.



Spectrogram 3. Realisation of the word 'house' as /haʊs/ (produced by a male speaker)

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Spectrogram 4. Realisation of the word 'house' as /'aʊs/ (produced by a male speaker)

Spectrograms 3 and 4 describe the pronunciation of the noun "house," as it is used by two different speakers. Spectrogram 3 shows that the speaker uses the standard pronunciation, /haʊs/, while spectrogram 4 highlights the fact that the speaker pronounces the noun "house" as /'aʊs/. Therefore, when sketching the speaker's profile the investigator includes the fact that the individual displays h-dropping, which places him in a certain geographical area as well as in a particular social group. This might seem irrelevant to a lay person, but to a specialist this provides an important step in outlining the linguistic profile of the perpetrator.

Forensic phonetics and the forensic phonetician

Olsson and Luchjenbroers discuss at length many aspects of forensic linguistics and they also succeed in providing an all-encompassing definition of forensic phonetics, which "deals with questions of speaker identification, resolution of disputed content of recordings, the process of setting up voice line-ups and ear line-ups and related topics" (Olsson, Luchjenbroers 11). The forensic phonetician works with recordings (audio or even video) and provides suggestions and opinions based on the analysis carried out. Rock (202) adds that "forensic phoneticians are, very generally, concerned with occasions when the sounds of language can become relevant to a criminal or civil investigation." According to French (1994) and Rock (2011), the forensic phoneticians' undertakings can be grouped into five categories:

(i) Speaker comparison (also known as speaker identification)

This states that the forensic phonetician investigates who might be speaking on a certain recording from a group of selected speakers.

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(ii) Determination of unclear or contested utterances

In this case the phonetician has to offer his/her perspective on what is said in an unclear recording. There may be background noise which might impede the investigator in drawing the correct conclusion or, quite the contrary it might provide an important clue (the horn of a train, the strike of a clock, etc.)

(iii) Authenticity examinations of audio recordings

This tackles the authenticity of a recording, be it audio or video. The forensic phonetician has to establish whether the audio or video recording has been tampered with or is original. A very good example is the situation of Lincoln Burrows from the American TV series *Prison Break* (2005–2017), created by Paul Scheuring. Lincoln Burrows is sentenced to death for the murder of the Vice-President's brother. The conviction is based on a video recording which captures the moment when Burrows allegedly kills the VP's brother. Later in the series it is revealed that the video recording was tampered with, that additional material was added, and that Burrows was actually framed. This shows the importance of such recordings and the fact that people who examine such audio or video recordings have to be very careful and meticulous.

(iv) Speaker profiling

Speaker profiling focuses on the analysis of a speech sample so that it can offer details about the sample and the speaker.

(v) Naïve speaker recognition or earwitness evidence

This category refers to untrained observers. "Earwitnesses" might overhear something which at first may seem unimportant or mundane, but which later can become an important piece of information or a vital clue to solving the problem (e.g. an overheard plot, cunningly disguised in innocuous code, or the perpetrators' plans, etc).

These categories are meant to help the forensic phonetician to offer a detailed and minute description of the speech under investigation and provide a successful speaker profile.

Conclusion

This paper has outlined the connections that exist between sociolinguistics and forensic linguistics and the tools that sociolinguistics and dialectology can lend to forensic linguistics. Thanks to Professor Jan Svartvik from Lund University in Sweden, who used the term "forensic linguistics" for the first time, this area of research has become a solid domain of inquiry and has helped to solve a significant number of cases. The different types of analyses carried out (e.g. acoustic analysis, quantitative or qualitative analysis) provide valuable insight into unravelling who penned/recorded a particular text/speech.

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