FORENSIC LINGUISTICS AS A NEW APPLIED FIELD OF CRIMINAL JUSTICE SYSTEM

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INTRODUCTION

Linguistics is the science that studies human language, language as a human activity. It deals with both the structure of language and the ways in which it functions in different settings. There are many fields of linguistics and one of the increasingly prominent areas of applied research is forensic linguistics (FL). This field has developed from a research-based understanding of language. In other words, forensic linguistics is the application of linguistics, to forensic problems. Civil or criminal cases sometimes include language evidence, such as a disputed email or text message, or the meaning of a word or phrase, or the modality of production of a document. Drawing on what we know about how human language works, linguists can provide expert witness evidence that can help the investigators or the triers of fact.

Forensic linguistics is a relatively new field compared to phonetics, syntax and other branches of linguistics, and constitutes the interface between linguistics and law. It is also an interdisciplinary field as it depends upon other fields like semantics, pragmatics, discourse analysis, critical discourse analysis, stylistics and phonology. This science is very important to those who work in courts, or study law in particular, and to ordinary people in general, who have to deal with a number of legal documents and processes on a regular basis like, for example: real estate, lease agreement, wills, contacts etc[1].

Forensic linguistics is one of the significant fields of Forensic science (or forensics) that is a critical and rapidly growing field in the world. Forensics refers to the use of a wide range of sciences to answer questions relevant to the criminal justice system. In recent years, the effects of forensics on the operation and efficiency of the criminal justice system has increased dramatically. Coming from that the word 'forensic' is defined in

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[1] Hassan J. Forensic Linguistics: A Study in Criminal Speech Acts. *Beni-Suef University International Journal of Humanities and Social Sciences*. 2020. № 2(1). P. 39.

Oxford English Dictionary as: an adjective pertaining to, connected with or used in courts of law, it can be concluded that forensic linguistics is an interface between language, crime and law[2].

Today, forensic linguistics has multiple branches and is used by many different experts for purposes such as criminal investigations, trials, examining the language used within law, and more. Forensic linguistics is a branch of applied linguistics that involves the application of linguistic knowledge and methods to legal and criminal issues[3]. As a discipline, forensic linguistics involves analyzing spoken and written language to look for evidence that can be used in a legal case. Prosecutors and lawyers can use forensic linguistics when compiling evidence to help them prove who is innocent and who is guilty based on idiosyncratic language use.

Forensic linguistics involves the application of scientific knowledge to language in the context of criminal and civil law. Forensic linguists have an interest in understanding the language of the written law, its complexity and its origin, as well as the use of language in forensic procedures They also study the judicial process from point of arrest, and through the interview, charge, trial and sentencing stages. For example, linguists are interested in the language of police interviews with witnesses and suspects, and in the language of lawyers and witnesses in cross-examination[4].

1. History and nowadays of forensic linguistics

Forensic linguistics, like almost all sciences, has not a specific moment at which it is possible to say it began. The rise of forensic linguistics as a recent, rapidly growing area of modern applied linguistics is deeply rooted in the close interdependence between language and law which has attracted the keen interest of philosophers, linguists and specialists for long, with a history extending over as far as 2400 years old, all the way down under Latin, Anglo-Saxon, Norman, French influences up to the twentieth century[5].

The birth of forensic linguistics as a branch of modern applied linguistics firmly grounded on close, evident interdependence and relationship between language and law has a relatively long controversial history surrounded by uncertainty among scholars and many others, since the eighteenth century, over authorship issues of famous texts, sacred books

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[2] Khoyi et al. Discourse of Law: Analysis of Cooperative Principles and Speech Acts in Iranian Law Courts. *Asian Journal of Education and e-Learning.* 2014. Vol. 02. P. 313.

[3] Forensic Linguistics. URL.: https://www.studysmarter.co.uk /forensic-linguistics/

[4] Art & Humanities Research Council. Forensic linguistics. 2009. URL: http://www.ahrc.ac.uk/What-We- Do/Forensiclinguistics.pdf.

[5] McMenamin G.R. Forensic linguistics: Advances in forensic stylistics. Florida, USA: CRS Press. 2002.

and Shakespeare's plays[6]. The advent of writing induced the production of written legal and religious codes and hence the field of language and law was born, igniting increased interest among scholars in various non-legal fields to use linguistic expertise in solving legal issues including, for example, speaker or writer identification and person's rationality among other factors[7].

The foundations of forensic linguistics can be traced back to the period of early significant work on language and the law, starting with compendium on function words in legal language by Bryant in 1930, followed by the work of Wetter on style of written appellate decisions in legal context in 1960[8]. The most important development in the language of the law was initiated by Melinkoff in "The Language of the Law" in 1963. In this book, the author began his influential clear, brief language campaign carried on by the author and others through the next three decades[9].

It is generally agreed that forensic linguistics as a term, has had no actual appearance until 1968 with the analysis of the Linguistics *Professor Jan Svartvik* of statements taken by police officers at Notting hill Police Station in 1953[10]. He was the first one to introduce the term 'forensic linguistic' in his book *"The Evans Statement: A Case for Forensic Linguistics"*. It was the first example of a forensic linguistic analysis in the UK, and Svartvik characterized himself in his report very firmly as a linguist. The early UK cases which brought linguistic analysis to the attention of the public were all concerned with demonstrating police falsification of evidence[11]. But Svartvik conducted a linguistic analysis of Evan's police statements, a man accused of murdering his wife and child, and he found many inconsistencies between the grammatical style and register of the statements and Evan's usual writing style[12]. Professor Svartvik is one of the famous linguists who worked a lot in the field of corpus linguistics, which is in turn, a systemic linguistic analysis of bulk and large bodies that are called corpus. This work helped him to work in a scientific way, and to deal with a bulky amount of material.

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[6] Olsson J. Forensic Linguistics. London: Continuum International Publishing Group, 2008. P. 4.

[7] Alduais A. et al. Forensic linguistics: A scientometric review. 2023. URL: https://www.tandfonline.com/doi/full/10.1080/23311983.2023.2214387

[8] McMenamin G.R. Forensic linguistics: Advances in forensic stylistics. Florida, USA: CRS Press. 2002.

[9] Alduais A. et al. Forensic linguistics: A scientometric review. 2023. URL: https://www.tandfonline.com/doi/full/10.1080/23311983.2023.2214387

[10] Hassan J. Forensic Linguistics: A Study in Criminal Speech Acts. Beni-Suef University International Journal of Humanities and Social Sciences. 2020. № 2(1). P. 41.

[11] Tayebi T., Coulthard M. New Trends in Forensic Linguistics. *Language and Law*. Linguagem e Direito, Vol. 9(1). 2022. P. 1.

[12] McMenamin G.R. Forensic linguistics: Advances in forensic stylistics. Florida, USA: CRS Press. 2002.

Initially, the growth of forensic linguistics was slow, involving just isolated articles where distinguished linguists analyzed legal criminal-related documents and commented on their likely authenticity. This period in the development of FL extending up to the late 1980s was characterized by diversity of disciplines, scarcity of research limited to articles or book chapters and a lack of institutionalized forensic linguistics, too early to regard it as an academic discipline or a methodology[13]. In the 1980s, Australian linguists discussed the application of linguistics and sociolinguistics to legal issues. The Federal Criminal Police Office, Germany, organizes a two-day conference in FL in 1988.

The early 1990s marks the maturity of forensic linguistics as a distinct multi and cross-interdisciplinary field in its development stage, all the way down to the third millennium, with a series of early gatherings and seminars, culminating in the establishment of *the International Association of Forensic Linguists* (IAFL), founded in 1993 by *Professor Malcolm Coulthard*, and the International Association for Forensic Phonetics (IAFPA), and the journal *"Forensic Linguistics: The International Journal of Speech, Language and the Law"* published by Routledge to serve as the official organ of both the IAFP and the IAFL playing a pivotal role in further developing, refining and testing methodologies, in disseminating the results of research and in making available experience from case studies[14].

Forensic linguistics, during the 1990s period, was enriched with bigger, up-to-date research proportions form a wide range of disciplines including linguistics, law, psychology, anthropology and sociology, under diverse topics like handwriting analysis, forensic phonetics, linguist expert role in court, covering work in US, UK, Australia, Europe, North America and Germany among other countries[15]. The period from the 1990s onward witnessed the production of more book-length studies with the word 'forensic' in their title, by many proponents of the field in key areas, such as forensic phonetics (Baldwin & French; Rose), forensic stylistics and author identification (McMenamin), forensic linguistics (Gibbons; Olsson), legal language (Solan & Tiersma), courtroom interaction (Archer; Matosia), language and power (Cotterill) and the linguist as expert in court (Shuy; Berk-Seligson), police, law enforcement and interrogation language (Shuy), psychological (Gudjonsson) and conversational analytic (Heydon)[16].

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[13] Coulthard M., Johnson A. An Introduction to Forensic Linguistics: *Language in Evidence.* 2007. Routledge.

[14] Alduais A. et al. Forensic linguistics: A scientometric review. 2023. URL: https://www.tandfonline.com/doi/full/10.1080/23311983.2023.2214387

[15] Coulthard M., Johnson A. An Introduction to Forensic Linguistics: *Language in Evidence.* 2007. Routledge.

[16] Alduais A. et al. Forensic linguistics: A scientometric review. 2023. URL: https://www.tandfonline.com/doi/full/10.1080/23311983.2023.2214387

Commonly, the FL discipline has reached its maturity as an academic field in the 1990s, due to a number of local and global conferences and seminars. The First British Seminar on Forensic Linguistics was held at the University of Birmingham in 1992 and was attended by delegates from Australia, Brazil, Ireland, Holland, Greece, Ukraine and Germany as well as the UK. The years following the founding of the IAFL, forensic linguistics internationality became visible on several academic conferences which took place in Bonn, Germany in 1993, Amsterdam in 1993, Australia in 1995 and the USA in 1997. The 4th IAFL Conference in 1999, unlike the previous ones, was larger and constituted a turning point in which the IAFL Web site was created, a pioneering effort, enabling potential participants around the world to remain informed about changes to the program[17]. Moreover, the first MA course in forensic linguistics was introduced at Cardiff University in 1999, and the Centre for Forensic Linguistics was established at Birmingham's Aston University to cope with the increasing demand for forensic linguistic skills in 2008[18].

The growth of forensic linguistics continued steadily towards the end of the twentieth century, with the provision of forensic linguistics courses and study modules taught at undergraduate and postgraduate programs at emerging universities in the USA, England, Wales, Australia, China, Hong Kong, Finland, Germany, Japan, and South Africa. From the year 2000 onwards, there has been a marked shift away from the Anglo-centric, common-law bias dominating the field of forensic linguistics in the previous decade[19]. This period in the development of forensic linguistics is characterized by bringing new challenges to the discipline owing to new speech and text technologies as opposed to traditional means, firmly asserting that forensic linguistics, as a new branch of applied linguistics, is at the center of two parallel increasing trends both aiming at: utilizing technology to assist in the analysis of text and scrutinizing digital data through the lens of traditional linguistic and discursive analytical methods of speech.

In response to the contemporary challenges, the International Association of Forensic Linguistics in 2021 was renamed in *the International Association of Forensic and Legal Linguistics* (IAFLL). As a professional organization consisting primarily of linguists working in fields related to the area of language and law, or forensic linguistics, it was established with the aim of bringing together those working on all dimensions of law and language (legal language, language in the legal

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[17] Blackwell S. History of Forensic Linguistics. *The Encyclopedia of Applied Linguistics.* 2012.

[18] McMenamin G.R. Forensic linguistics: Advances in forensic stylistics. Florida, USA: CRS Press. 2002.

[19] Blackwell S. History of Forensic Linguistics. *The Encyclopedia of Applied Linguistics.* 2012.

process, and language as evidence). Narrowly defined, this means linguistic evidence in court. Areas of expertise include authorship attribution, disputed confessions, trademark issues, legal language, and language in the legal process, including the experiences of vulnerable groups such as children, people with intellectual impairment, victims of sexual offences, non-native speakers, and indigenous communities. In addition to linguists, the association has members from other professions related to language and the law, particularly members of the legal profession[20]. In addition to linguists, others, particularly members of the legal profession, are welcome to apply for membership, as the official IAFLL site notes. Moreover, the IAFLL continues to conduct biennial international conferences, which have been held across Asia, Australia, Europe and North America, and regional conferences in the intervening years.

Currently, the purpose of the IAFLL is to improve the administration of the legal systems throughout the world by means of a better understanding of the interaction between language and the law. More specifically, the Association aims to promote:

– the use of linguistic evidence (phonological, morpho-syntactic, discourse-pragmatic) in the analysis of authorship and plagiarism, speaker identification and voice comparison, confessions, linguistic profiling, suicide notes, consumer product warnings;

– the use of language as evidence in civil cases (trademark, contract disputes, defamation, product liability, deceptive trade practices, copyright infringement);

– the alleviation of language-based inequality and disadvantage in the legal system;

– the interchange of ideas and information between the legal and linguistic communities;

– research into the practice, improvement, and ethics of expert testimony and the presentation of linguistic evidence, as well as legal interpreting and translation; better public understanding of the interaction between language and the law[21].

Nowadays the IAFLL tries hard to promote and develop research, practice and principles of expert testimony, provision of linguistic evidence and legal interpretation. The ultimate goal is to devise and to establish standards upon which forensic linguist experts can work[22].

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[20] International Association for Forensic and Legal Linguistics (IAFLL). URl: http://iafll.org.
[21] Ibid.
[22] Grant T., Perkins R. Encyclopedia of Forensic Sciences, Second Edition: Forensic Linguistics. 2012. P. 174.

Moreover, it should be added, that currently one key place that brings all the FL activities under one roof is *the Aston Institute for Forensic Linguistics* (AIFL), which was founded in 2019 and evolved from the former Aston Centre for Forensic Linguistics, which was founded in 2008. As a vibrant research institute with the mission of improving the delivery of justice through the analysis of language, AIFL is home to five research centres, each engaged in a wide range of research. The Centre for Forensic Text Analysis has as its main objective to uncover individual variations in language use with a view to enhancing forensic author identification. To achieve this aim, special attention is paid to the notions of idiolect and genre and their relevance to authorship analysis. The Centre for Language and Law conducts research on the intersection of language and the law, in particular the problems that are experienced in the digital age with a focus on inequalities and injustice. The Centre for Spoken Interaction in Legal Contexts focuses primarily on police interviews and courtroom interaction. The Centre for Forensic Data Science is involved in a wide range of projects aimed at improving the way in which forensic evidence in general is evaluated. In the linguistic areas the main concern is improving the computerised analysis of voice samples. Finally, the Forensic Linguistic Databank, provides researchers with varying degrees of access to such data as 'malicious communication data', 'investigative interview data' and 'forensic evidence validation data', which involve both spoken and written texts. Generally, the AIFL undertake the diverse range of practices and research activities[23].

Thus, as Tayebi and Coulthard have noted, although it is not easy to identify when forensic linguistic practices actually began or who was the first person to self-identify as a forensic linguist, it is undeniable that nowadays forensic linguistics has turned into a vibrant, sought-after and popular filed of inquiry[24]. So, forensic linguistics is a widely recognized as its own distinct field; it has spread around the world, broadening in scope and becoming recognized and utilized in a variety of jurisdictions and contexts. While FL broadly covers the intersection of language and the law, its research scope has changed significantly over the last two decades, so it now covers a breadth of topics by exploiting various linguistic tools.

2. The concept of forensic linguistics and application areas

As mentioned above, forensic linguistics is usually viewed as a branch of applied linguistics which relates to law and links to legal processes. In addition, FL involves an application of scientific linguistic knowledge to

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[23] Tayebi T., Coulthard M. New Trends in Forensic Linguistics. *Language and Law*. Linguagem e Direito, Vol. 9(1). 2022. P. 4.

[24] Ibid., P. 3.

civil and criminal cases. The International Association for Forensic and Legal Linguistics considers that forensic linguistics focuses on language and law, language in legal processes, language as evidence, and in research and teaching settings. [25] Tayebi and Coulthard stresses the rather obvious fact that due to the broad definition of the term 'forensic' and its disputed origin, forensic linguistics as a field of inquiry merges the three different academic disciplines of forensic science, law and linguistics[26].

According to Correa, forensic linguistics is seen as an academic sub-branch of applied linguistics, in theory, and a practical branch of forensic science, in application to legal contexts, FL by nature is a linguistically-oriented science concerned with intersections between language and legal field[27]. *Broadly defined*, better known as 'language and law', forensic linguistics is an application of linguistic theory and method to any point at which there is an interface between language and the law, namely: language analysis and study as applied to legal settings the study of courtroom discourse, legal interpretation and translation, the readability/comprehensibility of legal documents and jury instructions, police caution comprehensibility to suspects, linguistic minorities in the legal process, children in the legal process, and numerous other areas where language and law interact with each other.

The narrow definition of forensic linguistics implies the application of linguistic methods to the production of expert evidence, concerning for example disputed confessions, threats and attempts at extortion, taped conversations in which individuals allegedly offer bribes, suicide notes, and disputed authorship and alleged plagiarism. Having its origin in applied linguistics, forensic linguistics is particularly concerned with the professional and institutional interaction in legal contexts, where language texts are studied, analyzed and measured in spoken and written forms[28].

Persons who are involved in the legal process like lawyers, judges, police officers and members of jury get much benefit from having an awareness of linguistic knowledge, by Correa's opinion[29]. In dealing with FL, there are some important points that should be taken into consideration: firstly, language is a medium of communication between law enforcement

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[25] International Association for Forensic and Legal Linguistics (IAFLL). URl: http://iafll.org.

[26] Tayebi T., Coulthard M. New Trends in Forensic Linguistics. *Language and Law*. Linguagem e Direito, Vol. 9(1). 2022. P. 1.

[27] Correa M. Forensic Linguistics: An Overview of the Intersection and Interaction of Language and Law. *Linguistics Kalbu Studijos*. *Studies about languages*. 2013. № 23. URL: http://dx-doi-org/10.5755/joi.sal.o.23.5020.

[28] Alduais A. et al. Forensic linguistics: A scientometric review. 2023. URL: https://www.tandfonline.com/doi/full/10.1080/23311983.2023.2214387

[29] Correa M. Forensic Linguistics: An Overview of the Intersection and Interaction of Language and Law. *Linguistics Kalbu Studijos. Studies about languages.* 2013. № 23. URL: http://dx-doi-org/10.5755/joi.sal.o.23.5020. P. 1.

authorities, on one side, and suspects and witnesses, on the other. Secondly, it is the medium of interpretation, intelligibility and construction of laws. Thirdly, it is through language that language crimes, linguistic evidence and legal argumentation can be done.

The researchers emphasize the importance of FL as the centrality of the use of language in general and the law in particular. And here we should remember that legal language is a distinctive genre of language, as it influences the form, content and interpretation of a legal message. Forensic linguists are much concerned with the language used by the police in interviews with suspects and witnesses. They are also concerned with the language of lawyers and witnesses in legal proceedings in trials, investigations and sentences[30].

According to Coulthard et al., there are also distinguished two definitions of forensic linguistiss: narrow and broad. The broad one includes three spheres: the written law language, spoken interaction in legal proceedings and language as evidence. In other words, the authors has distinguished the application of forensic linguistics to three main areas, namely written legal texts, spoken legal practices (interactions) and provision of evidence for both civil and criminal investigations and courtroom proceedings[31]. The narrow definition confines FL to language as evidence. This means that forensic linguists work as expert witness.

As Li X. states, forensic linguists have an ethical and professional responsibility, as they provide an objective analysis to legal community with reliable information in order to prevent unfair conviction or acquittal of criminals[32]. So, forensic linguist is a cover term for the language scientist serving as a legal expert. The FL has two tasks, i.e., to find clues and offer opinions. Clues mean linguistic evidence either to the court or jury. The linguist's clues help in forming the formal opinion that is based upon theoretical knowledge and expert's experience.

Forensic linguistics is truly inter- and cross-disciplinary in composition, overlapping with several disciplines such as communication, criminology, law, linguistics, sociology, and translation studies[33]. The scope of forensic linguistics is difficult to define as it covers aspects of language from the level of phonetics to discourse analysis in the stages of investigation, trial and interpretation. However, the areas covered under forensic linguistics,

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[30] Hassan J. Forensic Linguistics: A Study in Criminal Speech Acts. Beni-Suef University International Journal of Humanities and Social Sciences. 2020. № 2(1). P. 42.

[31] Coulthard M., Grant T., Kredens. Encyclopedia of Forensic Sciences: Law Forensic Linguistics. 2010. The SAGE Handbook. P. 529.

[32] Li X. The Study on Forensic Linguistic Analysis of Applied Linguistics Based on Data Analysis. 2011. CSEE. Springer-Verlag Berlin Heidel-berg.

[33] Coulthard M., Johnson A. An Introduction to Forensic Linguistics: *Language in Evidence.* 2007. Routledge.

are listed, not exhaustively, as follows: Handwriting and signature identification; Phonetics and phonology both auditory and acoustic; Semantics (interpretation of expressed meaning); Discourse and pragmatics (interpretation of inferred meaning; Stylistics and questioned authorship; Semiotics; Stylometry and statistical methods; Document examination and plagiarism detection; Linguistic dialectology; Corpus linguistics and forensic software; Language of courtroom; Language and law; Interpretation and translation.[34].

According to MacLeod & Wright, *the three key elements* of forensic linguistics as a distinct discipline comprise the following : 1) the (written) language of the law; 2) the language of (spoken) legal processes; and 3) language analysis as evidence or as an investigative tool, serving as the interface between language and law where legal remedies are sought[35]. Within the area of investigative language and evidence provision, forensic linguists perform various tasks in the scope of comparative authorship analysis, sociolinguistic profiling, interactional meaning, determining meaning, and trademark disputes and copyright infringement[36]. Forensic linguists' core business is to examine documents of anonymous or disguised origin, such as bomb threats, ransom or suicide notes, or other messages associated with crime to determine their authentic authorship or decide if the documents have been altered or tampered with in any way, including new emerging technological forms of texts such as phone SMS messages, tweets and forum. While forensic linguists can only give professional opinion on authorship authenticity of documents or recordings under question and not on the psychology or social setting of suspects without police help, utilizing forensic linguistic awareness among lawyers and police officers contributes to a better delivery of justice, emphasizing that forensic linguistics is a collaborative work of interrelated fields in investigative settings[37].

As it was noted, forensic linguistics draws upon many different fields of applied linguistics such as discourse analysis, critical discourse analysis, stylistics, phonetics, phonology, graphology, sociology and sociolinguistics.

Speaking about the use of linguistic evidence in legal proceedings, Ariani et al. highlight the following areas of FL application that have different degrees of reliability within the field. Thus, linguists have provided evidence in such cases:

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[34] Alduais A. et al. Forensic linguistics: A scientometric review. 2023. URL: https://www.tandfonline.com/doi/full/10.1080/23311983.2023.2214387

[35] MacLeod N., Wright D. Forensic linguistics. *The Routledge Handbook of English Language and Digital Humanities.* 2020. Taylor & Fransic, 1st ed., P. 360-377.

[36] Perkins R. C. The application of forensic linguistics in cybercrime investigations. *Policing: A Journal of Policy and Practice*. 2021. № 15 (1). pp. 68-78.

[37] Ibid.

1. *Author identification*. The identification of whether a given individual said or wrote something relies on analysis of their idiolect, or particular patterns of language use (vocabulary, collocations, pronunciation, spelling, grammar).

2. *Forensic stylistics*. This discipline subjects written or spoken materials (or both) to scientific analysis for determination and measurement of content, meaning, speaker identification, or determination of authorship, in identifying plagiarism.

3. *Discourse analysis*. Discourse analysis deals with analyzing written, oral, or sign language use, or any significant semiotic event.

4. *Linguistic dialectology*. This refers to the study of dialects in a methodological manner based on anthropological information. It is becoming more important to conduct systematic studies of dialects, especially within the English language.

5. *Forensic phonetics*. The forensic phonetician deals with the production of accurate transcriptions of what was being said. Transcriptions can reveal information about a speaker's social and regional background. Forensic phonetics can determine similarities between the speakers of two or more separate recordings.

6. *Forensic transcription*. The two main types of transcriptions are written documents and video and audio records. Accurate, reliable text transcription is important because the text is the data which becomes the available evidence.

7. *Variation*. Intra-author variations are the ways in which one author's texts differ from each other. Inter-author variations are the ways in which different authors' writing varies. Two texts by one author do not necessarily vary less than texts by two different authors[38].

The following areas related to forensic linguistics are distinguished and described by MacMenamin[39].

1. *Document examination*. The overlap that exists between linguistics and document examination provides useful double coverage of stylistic makers in punctuation, spelling, abbreviation, and dorms of dates. The examination of questioned documents relies on scientific study of the physical evidence of a document.

2. *Software forensic*. Another interesting and recent development in forensic authorship identification is the application of stylistic analysis to computer programing. Computer science professor suspicious of plagiarism are using software program to identify suspiciously similar string of code in programing assignment

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[38] Ariani M.G., Sajedi, F. & Sajedi, M. Forensic linguistics: A brief overview of the key elements. *Procedia-Social and Behavioral Sciences*. 2014. № 158. P. 224.

[39] McMenamin G.R. Forensic linguistics: Advances in forensic stylistics. Florida, USA: CRS Press. 2002.

3. *Semiotics*. It is the study of meaning-making. This includes the study of signs and sign processes, indication, designation, likeness, analogy, metaphor, symbolism, signification, and communication.

4. *Plagiarism detection*. The widespread use of computers and the advent of the Internet have made it easier to plagiarize the work of others. Plagiarism can be found in virtually any field, including scientific papers, art designs, and source code. Detection of plagiarism can be either manual or software-assisted.

5. *Linguists and lawyers interaction*. In this section an attempt was made to show some of the issues linguists deal with when interacting with the legal system. It is now seen as imperative among linguists that both they and legal professionals work towards a better understanding of each other's perspective. If linguists claim that lawyers are ignorant of linguistics, then it is up to linguists to ensure that this situation does not continue. Lawyers can equally claim that linguists are ignorant of the law and it is certainly up to linguists to ensure that this gap in their knowledge is addressed as a matter of some priority. It will also be important for linguists, in this age of international courts, to understand the discourse practices of international law, and to familiarize themselves with the customs and mores of other countries' legal systems. It is likely in the future that increasing numbers of those seeking to enter the field of forensic linguistics will have additional qualifications in areas such as the law and to gain greater understanding of scientific techniques, methods and presentation.

3. Methods, tools and techniques of forensic linguistics

Typically speaking, forensic linguistics covers three main areas of study, and respectively connected language techniques and methods. They are the following.

1) Language used in Law. One of the smaller fields of study in forensic linguistics is the language used in the written laws themselves. Written laws can often be lengthy, complex, and old (for example, there are some laws still in place in the UK that were written in 1267); because of this, laws can often be filled with lexical ambiguities, when a piece of language can be interpreted in more than one way. Forensic linguists or lawyers may look for ambiguities within laws to help prove their cases. It is widely known within the field of law that these lexical ambiguities exist, and rules, such as the rule of lenity, have been put in place to help mitigate their impact. The rule of lenity states that any lexical ambiguities must be interpreted in the way that is most favorable to the defendant (the accused).

2) Language used in the Judicial System. This branch of forensic linguistics is concerned with the language used by the people who work within the law, such as police officers, lawyers, barristers, attorneys, judges,

government leaders, etc. Sometimes people can use language in certain ways to elicit answers they want or to 'trick' and confuse others. Forensic linguists aim to reveal these language uses and bring transparency to the legal process.

Some language techniques forensic linguists may be interested in include:

– *leading questions* – suggestive questions leading the interviewee to give a predetermined answer.

– *speech accommodation* – is a theory that suggests people change their speech to be more relatable to the person they're talking to. Professionals working within the law, such as the police, change their speech to closer resemble others in order to build trust.

– *use of closed or open-ended questions*. If the lawyer wanted the witness to accidentally say something they're not supposed to, they might ask lots of open-ended questions to get them to talk a lot. However, if the lawyer doesn't want the witness to accidentally say something, they might ask lots of closed-ended questions (for example, questions that can be responded with using a *yes* or *no*) to ensure they talk as little as possible.

– *use of jargon and terminology* – Sometimes, professionals working within the law use specific jargon and terminology to deliberately confuse others.

3) Linguistic Evidence. When linguistics forensics is used to analyze evidence, the grammar, syntax, register, tone, register, and dialectical or idiolectal elements of language are compared to the usual language patterns of the accused/witness/victim. The types of forensic texts that may be analyzed by a forensics linguist include: witness statements; confessions; ransom or threat letters; phone calls; suicide notes; death row statements *s*ocial media posts and text messages[40].

There are also distinguished the different methods used within forensic linguistics by Giles et al:

– *Comparative Linguistics* is the process of comparing one text to another and looking for similarities or differences in linguistic style. This could include things such as: vocabulary choice, use of certain idioms or phrases, spelling, use of slang, use of capitalization, citation and referencing style (applicable for academic texts), consistent mistakes, e.g., spelling mistakes or incorrect use of commas, etc., date format. All of these lexical items, and more, can combine to form a person's idiolect. Comparative linguistics involves looking for evidence of a person's idiolect.

– *Linguistic Dialectology*, that involves studying language to look for dialectal clues, i.e., where the writer might be from or where they now live. Dialect is a variety of a language that differs from the "standard" form in

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[40] Forensic Linguistics. URL: https://www.studysmarter.co.uk /forensic-linguistics/

terms of vocabulary, pronunciation, and sometimes grammar. Dialects are often influenced and categorized based on geographical location. As an example, a person's accent or use of regional-specific vocabulary could provide insights into where they are.

– *Discourse Analysis* is a broad term that can be applied in multiple ways across multiple disciplines. In linguistic forensics, discourse analysis can range from noting and analyzing discourse markers like false starts, stutters, back channeling, and fillers (e.g., *umm, uhh, wait…*), to looking for wider hidden meanings within texts.

– *Author Profiling* is the process of examining all the lexical items mentioned above and building a criminal profile from the evidence. Criminal profiling is an investigative strategy that involves taking all the collected evidence and making inferences (guesses) about who the criminal might be[41].

While discussing the many recent trends and techniques of forensic linguistics, it should be said that research conducted under the auspices of FL can be broadly treated as belonging to two interrelated strands. The first strand encompasses hands-on and action-oriented, research-informed 'practices' which typically involve, amongst other things, the linguist acting as a practitioner by providing the court of law with expert advice/evidence or by training people involved in the legal process. The second strand is about the research that is undertaken not just for the purpose of informing the court of law, but rather with the aim of shedding further light on the various intersections between language and the law. The research strand has traditionally been viewed as comprising three main areas: a) the (written) language of the law, b) the (spoken) language of legal processes and c) authorship analysis and investigative linguistics[42].

According to Grant T., Tayebi T. *a fourth new area of innovative research* is now emerging as a result of the rapidly growing use of modern communication technologies and the Internet. [43] This strand includes research into different forms of computer-assisted crime such as fraud and deception, cyber harassment/bullying and other forms of criminal behaviour that take place on the dark web, such as child sexual abuse, terrorism, human trafficking and self-harm websites. What brings research in the latter strand together is the fact that diverse linguistic tools and methods are applied in some form of forensic/legal context, with the aim of either directly or indirectly improving the delivery of justice.

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[41] Giles H. et al. Accommodation and institutional talk: Communicative dimensions of police – civilian interactions. *Language, discourse and psychology*. 2007.

[42] Tayebi T., Coulthard M. New Trends in Forensic Linguistics. *Language and Law*. Linguagem e Direito, Vol. 9(1). 2022. P. 1.

[43] Grant T., Tayebi T. Forensic linguistics. *The Routledge Handbook of Applied Linguistics*. 2024. London & New York: Routledge.

Research in this area is motivated by various factors, chief of which are:

a) previous court cases to learn more about the linguist's role as an expert witness and the ways in which this could be improved,

b) the use of language at different stages of the judicial process to draw attention to the linguistic and institutional factors and limitations which may hinder the delivery of justice,

c) questions about the viability and potential of various linguistic tools and methods to address bigger forensically-related issues and

d) the investigation of potential online and offline criminal linguistic-type activities, with a view to describing the issue at hand[44].

The research landscape of forensic linguistics is changing as researchers are increasingly making use of insights from neighbouring fields and different areas of linguistics to conduct research which challenges preconceived notions about the use of language and its perception in the above contexts. Increasing numbers of studies are benefitting from inter/multidisciplinary approaches; computational techniques; and experimental designs.

Furthermore, methodological frameworks and analytical tools have evolved in line with the requirements of these new topics. One particular trend is the use of established techniques of corpus linguistics, which has come a long way since it was first used by Coulthard in 1994. [45] Today, with the advancements made in corpus techniques and improved data collection and storage, corpus linguistics is being increasingly applied to the analysis of statutory interpretation, native language influence detection and authorship analysis. So, corpus methods are increasingly being used to complement qualitative (critical) discourse and pragmatic analysis in the study of legal language, courtroom language and various forms of online aggressive and criminal behaviours[46].

Additionally, the use of larger data collections that can be subjected to a new level of scrutiny and inquiry – something which may not have been possible previously due to the lack of established databanks – is finding its way into the analysis of forensic linguistics. While accessing relevant forensic linguistic data has always been notoriously difficult for researchers, with the emergence of new databanks, more research can now be conducted using previously used and validated corpora to answer some of the more current challenging issues relating to forensic linguistics.

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[44] Tayebi T., Coulthard M. New Trends in Forensic Linguistics. *Language and Law*. Linguagem e Direito, Vol. 9(1). 2022. P. 2.

[45] Coulthard M. On the use of corpora in the analysis of forensic texts. International. *Journal of Speech, Language and the Law*. 1994. № 1(1). P. 27–43.

[46] Tayebi T., Coulthard M. New Trends in Forensic Linguistics. *Language and Law*. Linguagem e Direito, Vol. 9(1). 2022. P. 3.

Importantly speaking, fast growing technological developments during last decades have contributed to the emergence of technological media in the forensic-linguistic process in the best interest of both investigators and forensic linguists in collecting data and working accurately on language evidence phonetic or textual forms, opening new directions for research contributions in digital computing and using large corpora for relevant data and relevant population[47]. In seeking clues for authorship in language evidence, the forensic phonetics methods are fairly sophisticated, incorporating technological equipment to give accurate outcomes in terms of speaker voice identification, comparing anonymous messages with the known features of various language varieties[48]. Voiceprint analysis is one such method used widely in legal cases including blackmail, kidnapping, confessions, telephone bomb threats, conspiracy, where the unique acoustic features of voice for every single human are detected using sensitive equipment, showing the base features of the original voice even under disguise.

It can be inferred that the intersections between forensic linguistics and other areas of applied linguistics (mainly sociolinguistics, pragmatics, and discourse analysis) in the interrelated areas: linguistic evidence, language and the law, and language during legal procedures and courtroom discourse has shown the immense contribution of applied linguistics in the codification of law, delivery of justice and maintenance of the rights of linguistically vulnerable populations[49].

Forensic linguistics, which encompasses audio and digital forensics, has made significant contributions to various institutions, including digital humanities, as well as relevant parties such as prosecutors and law enforcement agencies. Its purpose is to analyze and determine the validity of language-based evidence, such as speech, in legal contexts. Potential of linguistic understanding coupled with collaboration across the areas where language and law intersect enhance the importance and utility of FL in delivering justice and linguistic facilitation training for investigators[50].

However, all such modern unprecedented technical developments in the field of forensic linguistics are accompanied with several limitations that should not be ignored. One of the limitations is that linguistic evidence alone is not sufficient to convict or exonerate a person. In addition, it should

[47] MacLeod N., Wright D. Forensic linguistics. *The Routledge Handbook of English Language and Digital Humanities.* 2020. Taylor & Fransic, 1st ed., P. 360-377.

[48] Jordan S.N. Forensic linguistics: the linguistic analyst and expert witness of language evidence in criminal trials. Master thesis. 2002. California, Biola University.

[49] Correa M. Forensic Linguistics: An Overview of the Intersection and Interaction of Language and Law. *Linguistics Kalbu Studijos*. 2013. № 23. Studies about languages. URL: http://dx-doi-org/10.5755/joi.sal.o.23.5020.

[50] Perkins R. C. The application of forensic linguistics in cybercrime investigations. *Policing: A Journal of Policy and Practice*. 2021. № 15 (1). pp. 68-78.

be noted that linguistic analysis facilitated by technology is not always entirely reliable and can be subject to interpretation. Moreover, the inability to conduct experiments in the courtroom can make it challenging to demonstrate what actually occurs in such settings.

CONCLUSIONS

Based on the results of analyzing the scientific research on forensic linguistics foundation and current development, it may be concluded the followings. Seen as an academic sub-branch of applied linguistics, in theory, and a practical branch of forensic science, in application to legal contexts, forensic linguistics by nature is a linguistically-oriented science concerned with intersections between language and legal field. As this science is becoming increasingly important in relation to the law, forensic linguistics is one area where research is leading to advances used to solve crimes. While FL broadly covers the intersection of language and the law, its research scope has changed significantly over the last two decades, so it now covers a breadth of topics by exploiting various linguistic tools. Forensic linguistics has essential contributions to the legal field, so as a promising branch it should be regarded and taught to university students and those who work in legal proceedings.

We also may say that lawyers and linguists should work more closely with each other in the interests of justice and that not only should linguists improve their understanding of law issues but also the lawyers should benefit from the hindsight experiences of linguists as consultants and expert witness. The future of forensic linguistics will be promising if linguists work on law issues, and also on acquiring qualifications, skills and knowledge in other related disciplines in order to better prepare them for working in and with courts.

SUMMARY

The article is devoted to the problem of forensic linguistics (FL) that is relatively new field in comparison with law or linguistics, and has made important contributions to the criminal justice system. Forensic linguistics is seen as an academic sub-branch of applied linguistics, in theory, and a practical branch of forensic science, in application to legal contexts, by nature it is a linguistically-oriented science concerned with intersections between language and legal field. The different researchers' approaches to the FL concept are analyzed, and there are distinguished two definitions of forensic linguistics, narrow and broad. The authors emphasize that forensic linguistics is truly inter- and cross-disciplinary in composition, overlapping with several disciplines such as communication, criminology, law, linguistics, sociology, and translation studies. Tripartite categories of forensic linguistics are

described in the article, namely: study of written legal texts (language), spoken interaction and investigations. The foundations, history of development and nowadays of forensic linguistics are revealed.

The application areas related to forensic linguistics are described: document examination, software forensic, semiotics. plagiarism detection, etc. The different methods and techniques used within forensic linguistics are distinguished, such as comparative linguistics, linguistic dialectology, discourse analysis, author profiling and others. It is focused on the importance of the new area of innovative research into different forms of computer-assisted crime due to growing use of modern communication technologies and the Internet. The article suggests in conclusion that lawyers and linguists should work more closely with each other and lawyers in the interests of justice.

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