RESEARCH ARTICLE

Interdisciplinary Convergence of the Sciences in Forensic Linguistics: Theoretical Foundations, Methodological Interfaces, and Judicial Implications

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Abstract

Contemporary linguistic research has increasingly gravitated towards an interdisciplinary methodological paradigm that transcends traditional disciplinary boundaries, seeking to capture the complexity of language as a multifaceted human phenomenon. This paradigm reflects a broader epistemological shift associated with the information revolution and the processes of globalization, which have introduced new communicative forms, legal challenges, and socio-technological realities. Within this context, language is no longer examined solely as an abstract structural system but as an integrated phenomenon shaped by psychological processes, social interaction, biological and neurophysiological mechanisms, logical and symbolic reasoning, and institutional practices. This interdisciplinary orientation has expanded the scope of linguistic inquiry beyond its conventional domains to include engagement with the legal and judicial sciences, particularly in criminal investigation, judicial proceedings, and legal interpretation. The emergence of forensic linguistics represents a concrete manifestation of this convergence, where linguistic analysis is employed as an evidentiary and interpretive tool within legal contexts. Through the analysis of written and spoken discourse, forensic linguistics contributes to authorship attribution, the interpretation of legal texts, the evaluation of witness testimony, and the examination of coercion, intent, and communicative ambiguity in judicial settings. The present study seeks to elucidate the necessity of scientific integration between linguistics and the judicial sciences by examining the theoretical foundations, methodological interfaces, and practical outcomes of their interdisciplinary interaction. It further clarifies the epistemological limits and analytical possibilities of this convergence, highlighting both its contributions and its constraints. Adopting a descriptive-analytical approach supported by tools drawn from discourse analysis, pragmatics, sociolinguistics, and legal theory, the paper argues that interdisciplinary collaboration in forensic linguistics enhances the reliability of legal judgments, promotes procedural fairness, and deepens the understanding of criminal cases within contemporary judicial systems.

1405 – www.imcra.az.org, | Issue 11, Vol. 8, 2025

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The Conceptual Framework of the Interdisciplinarity of Sciences

Our era is characterised by openness and convergence in the sciences after a long period in which specialisation dominated scientific, humanistic, and social research. No longer do we speak of isolated and narrowly defined disciplines; instead, each field has become connected to a network of surrounding knowledge and sciences, whether in the construction of concepts or in the formation of the discipline's subject matter itself, in recognition of the epistemic value that may be realised through the openness of a field and its interaction with related sciences.

Bayniyya (interdisciplinarity) derives from the linguistic root *bayn*, "which may function as a noun or an adverb, and it applies only to two or more things, or to what takes their place." *Al-bayn* in Arabic usage has two senses: separation and connection, making it one of the contranyms. The linguistic root *bayn* also denotes the meanings of disclosure, clarity, and distance. This is the sense recorded by Ibn Fāris (d. 392 AH) in *Maqāyīs al-lugha*: "*al-bayn*: the letters bā', yā', and nūn constitute a single root, indicating the distance and uncovering of a thing; thus *al-bayn* is separation, and *bāna al-shay'a* and *abāna* are used when something becomes clear and revealed. (Ahmad, 1958)"

Hence, the principal meanings found in classical and modern Arabic dictionaries are as follows: connection, clarity, appearance, disclosure, knowledge, distance, separation, dissociation, and rupture.

What appears from the foregoing is that Arabic lexicons did not explicitly mention the term *bayniyya* (interdisciplinarity) under the root *bayn*. It is likely that the *yā'* here is the *yā'* of attribution (*baynī*) and that the *tā'* was added to mark the feminine form of the word.

This term is defined by William H. Newell and Julie Thompson Klein as "a study grounded in two or more fields of knowledge, undertaken to answer questions or solve problems that a single knowledge system cannot resolve". That is, a process of interaction and knowledge exchange among different disciplines may lead to the integration of intersecting fields into a new discipline. The unification of competencies and specialised knowledge may occur at various levels of interaction: it may involve the transfer or borrowing of concepts or methods from one field to another; it may signify hybridisation or intersection among disciplines; or it may extend to the creation of new research fields through the combination of two specialisations (Al-Sharif, 2019).

Interdisciplinary studies are also methods that contribute to the exchange of research expertise and the utilisation of diverse intellectual backgrounds and research methodologies among scholars, integrating them into a comprehensive conceptual and methodological framework. This, in turn, broadens the scope of studying phenomena and problems, enabling better understanding and ultimately leading to precise results and the formulation of practical, applicable solutions.

The French philosopher Edgar Morin draws attention to a noteworthy phenomenon in the development of science, particularly modern science: the migration of concepts, terms, problems, and methods from one discipline or scientific domain to another, which contributes to the enrichment of receiving disciplines and to the formation of hybrid fields that soon become independent and establish their own systems.

It is also necessary to distinguish between *multidisciplinary* studies and *interdisciplinary* studies. The former refers to studies that draw on two systems (A) and (B) to solve a problem without integration. In contrast, the latter refers to studies that draw on two systems (A) and (B) to solve a problem by integrating them to achieve a deeper understanding of a unified field of knowledge.

1406 – www.imcra.az.org, | Issue 11, Vol. 8, 2025
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Oahiba Ouahib; Hamza Dahmani

The most significant feature of interdisciplinary research is the intersection, integration, and cooperation among different sciences; the linking of their diverse bodies of knowledge; and the utilisation of the strengths of each art or field, its theories, principles, knowledge, methods, tools, and results and their application in other domains. For this reason, delineating strict boundaries between the sciences has become exceedingly difficult; indeed, a single discipline may manifest in multiple forms as a result of the different specialisations that intersect with it. This tendency has intensified in our era of information revolution and globalisation, which have imposed upon linguists new variables that necessitate attention to the unity of knowledge, integration, and the dismantling of barriers between fields.

Aspects of the Intersection between Linguistics and the Judiciary

Language occupies great importance in all spheres of life: it is the tool of communication among individuals and groups, the means through which ideas are conveyed, and the medium by which the inner states of the human psyche are expressed. It is connected to the psychology of its speakers, the brain that produces it, the society that regulates it, and the organisational and legislative frameworks that govern it. Language has thus imposed its presence in every field of knowledge, including the judicial domain, where it derives its significance from its function as the medium in which regulations, statutes, and laws are formulated. All pleadings likewise unfold within a linguistic framework, revealing the effectiveness of language in this sensitive domain, which demands precision, scrutiny, inquiry, and examination. An interdisciplinary branch combining linguistics and the judiciary, known as forensic linguistics, emerged from this need. What, then, is this interdisciplinary field? What are its epistemic intersections? What are its applications?

Definition of Forensic Linguistics

Forensic linguistics is a modern field that forms part of contemporary linguistics. It aims to analyse texts via scientific methods and to employ the results to assist the courts and legal practitioners in obtaining evidence that contributes to resolving cases in which such evidence constitutes a component of the proof.

Why "Judicial" and Not "Criminal"?

The term *judicial* is broader and more comprehensive than *criminal*: it encompasses all parties involved in a given case, including the defendant, witnesses, lawyers, and judges. The term *criminal*, by contrast, is more restricted in meaning; it does not encompass one of the most important aims of this science, namely, the achievement of justice through the identification and use of linguistic evidence in a case (Gibbons, 2003).

Among the precise definitions is that offered by Koposov: "It is the science concerned with the study of written and oral texts related to crimes, legal disputes, or matters pertaining to litigation procedures, or that concern the language of the law and its degree of clarity, as well as how it may be improved and made accessible to the understanding of both ordinary persons and specialists alike

Among its terms are forensic linguistics, legal linguistics, criminal linguistics, language and law, and judicial linguistics. It refers to the application of linguistic knowledge, methods, and perspectives to the investigation of crimes, trials, and judicial procedures, that is, the study, analysis, and measurement of linguistic data associated with the commission of a crime, to identify the suspect or perpetrator.

There are three principal areas in which linguists working with the police and the courts apply their expertise:

- understanding the language of written law;
- understanding the use of language in forensic and judicial processes;
- providing linguistic evidence.

The emergence of this term dates back to 1968, through the work of the linguistics professor Jan Svartvik, who applied it in the case of the accused John Evans, who had been sentenced to death for allegedly murdering his wife and child.

1407 – www.imcra.az.org, | Issue 11, Vol. 8, 2025
Interdisciplinary Convergence of the Sciences in Forensic Linguistics: Theoretical Foundations, Methodological Interfaces, and Judicial Implications
Oahiba Ouahib; Hamza Dahmani

Fifteen years later, Svartvik reanalysed the defendant's statements and observed stylistic discrepancies between his first and subsequent statements. After analysing the predicative structures, verbs, relative clauses, and connectors, the frequent use of the covert subject indicated that Evans was not the killer. The investigation revealed that the real murderer was Joe Christie, the neighbor of Evans, following Christie's confession. This incident represented the beginning of forensic linguistics (Johnstone, 2018).

This specialisation was then employed during the 1980s to solve numerous criminal mysteries and thus became of considerable importance in the domain of investigation and crime detection. The foundational elements of this science were established, specialised academic centres were created, and a laboratory dedicated to linguistic data analysis was founded under the Federal Bureau of Investigation. The International Association of Forensic Linguists subsequently emerged in the United States, along with the International Association for Forensic Phonetics in Britain, and research and studies proliferated in journals concerned with language and law.

Applications of Forensic Linguistics

This field of knowledge has several applications, which may be indicated in the following points:

– The language of legal texts: the study of legal texts from a linguistic perspective, including the types of texts, the logical and linguistic progression in judicial rulings, and the analysis of the words employed along with their lexical, grammatical, and contextual meanings. This analysis also involves reviewing various documents, including constitutions, religious rulings, laws issued by governmental bodies, and related materials.

– Establishing speaker identity: This area employs theories and applications of forensic phonetics to identify individuals through their voices. The use of advanced electronic devices for voice recording and surveillance, which are designed to identify a speaker precisely, has become widely recognised (Searle, 1969).

Here, it is possible to refer to an important linguistic branch: automatic speech processing through the spectrographic analysis of speech sounds. This method enables not only the detection of differences among various sounds but also the identification of changes in features that the ordinary ear cannot perceive during the production of a single phonetic unit.

Specialists also rely on voice analysis to examine conversations in the investigation of false emergency calls.

– The analysis of witness statements: witness testimonies may be analysed to verify their credibility.

– Linguistic dialectology: drawing on anthropological and geographical information to determine the social environment and geographical region to which an offender belongs.

– Examining the statements of individuals sentenced to death and suicide notes: In such cases, what is known as the linguistic fingerprint may be employed in investigations. Attention must be given to questions such as the following:

- How was the text written?
- Is there more than one author?
- Are there parts of the text that differ from one another?

Notably, the linguistic fingerprint is a set of features that render a speaker or writer unique; that is, each person distinctly uses language. In other words, individuals possess particular words that they master and habitually employ in their verbal behaviour, style, and manner of speaking, forming their own dialect and linguistic repertoire.

1408 – www.imcra.az.org, | Issue 11, Vol. 8, 2025
Interdisciplinary Convergence of the Sciences in Forensic Linguistics: Theoretical Foundations, Methodological Interfaces, and Judicial Implications
Oahiba Ouahib; Hamza Dahmani

In this context, Raymond Drommel, one of the leading figures in forensic linguistics, states, "In many cases, a sample of linguistic evidence is sufficient to open a case against a suspect, such as a personal dialect or the suspect's use of particular words, phrases, or a specific syntactic structure that recurs uniquely in his speech. (Olsson, 2008)"

Pennebaker maintains that the use of new techniques involving samples of linguistic behaviour in field research will make it possible to reconstruct an individual's linguistic fingerprint in his or her daily interactions and to link it with a set of personal traits, spatial variables, and physical characteristics (Souad, 2022).

Despite the strength of this concept and its appeal to legal and security professionals and various agencies worldwide, there is little concrete evidence to support it. Notably, identifying individual linguistic distinctiveness has become more difficult in the age of industrial societies and the vast standardisation of education (Fairclough, 2015).

– **Emergency calls:** extracting linguistic information indicating particular situations, such as threats. Such information includes rises and falls in pitch, tone, intonation, and vocal range, which may suggest the involvement of a third party in the call.

– **Child language:** examining how children respond to adults' questions, the meaning of their answers, and the degree of their credibility as witnesses.

– **Reading and interpreting handwritten documents.**

In general, the importance of forensic linguistics is manifested in its practical applications and operational procedures, as well as in its presence across all three stages of legal proceedings: the information-gathering and investigative stage, the trial stage, and the appeals stage.

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1409 – www.imcra.az.org, | Issue 11, Vol. 8, 2025
Interdisciplinary Convergence of the Sciences in Forensic Linguistics: Theoretical Foundations, Methodological Interfaces, and Judicial Implications
Oahiba Ouahib; Hamza Dahmani

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1410 – www.imcra.az.org, | Issue 11, Vol. 8, 2025
Interdisciplinary Convergence of the Sciences in Forensic Linguistics: Theoretical Foundations, Methodological Interfaces, and Judicial Implications
Oahiba Ouahib; Hamza Dahmani