



**FORENSIC STYLISTIC APPROACHES TO AUTHORSHIP
ATTRIBUTION IN EXAMINATION MALPRACTICE: A CASE
STUDY OF BRILLIANT ACADEMY SCHOOL**

HAMZA ISMAIL CHIROMA & PROF. LAWAN SHUAIBU

Department of English and Linguistics, Federal University Dutse, Jigawa
State, Nigeria

Corresponding Author: hamzachiroma@gmail.com

DOI: <https://doi.org/10.70382/caijlphr.v9i6.056>

Abstract

Examination malpractice undermines academic integrity in Nigeria, with impersonation being one of the most difficult forms to detect. This study investigates a case of suspected impersonation at Brilliant Academy School through forensic stylistics. One questioned examination script (QW) was compared with seven known writings (KW1–KW7) using McMenamin's (2002) framework. Stylistic variables examined included text formatting, punctuation, spelling, capitalization, syntax, discourse organization, lexical choices, and patterns of errors and corrections. Both qualitative and quantitative methods were employed, with statistical tests such as chi-square and t-tests used to verify the significance of similarities. The analysis revealed overwhelming stylistic congruence between QW and KW3 across multiple variables, including identical text structure, spelling tendencies, and correction patterns. Statistical results confirmed that these similarities were highly unlikely to have occurred by chance, while all other suspects were excluded due to dissimilarities. The study concludes that forensic stylistics provides reliable linguistic evidence for resolving authorship disputes in educational contexts and recommends its integration into institutional frameworks for combating examination malpractice.

Keywords: Forensic Linguistics, Forensic Stylistics, Authorship Attribution, Examination Malpractice, Impersonation.

Introduction

Language is one of the most fundamental tools of human interaction. It functions not only as a medium of communication but also as a marker of individual and social identity. Every speaker or writer develops peculiar linguistic habits, consciously or unconsciously, which often manifest in their choice of words, sentence construction, and stylistic preferences. These distinctive linguistic patterns, sometimes referred to as "linguistic fingerprints," can provide important evidence for identifying the author of a spoken or written text. The recognition of such individual variation has given rise to forensic stylistics, a subfield of forensic linguistics, which applies linguistic principles to the analysis of texts in legal and investigative contexts (Coulthard & Johnson, 2007; Olsson, 2004). Forensic stylistics pays particular attention to the way authors leave traces of their idiolect—the unique language system of an individual—in their writings. These traces can be identified through features such as spelling choices, punctuation, syntactic patterns, and lexical preferences. By systematically analysing such features, forensic stylistics provides a framework for authorship

attribution, which is the process of determining the most likely author of a disputed or anonymous text (Juola, 2008). This scientific approach has proven invaluable in legal disputes, security investigations, and academic contexts where the authorship of a text is questioned.

In Nigeria, examination malpractice has become a pressing educational problem. Among its many forms, impersonation—where one student writes an examination on behalf of another—remains particularly difficult to detect (Examination Malpractice Act, 2004). Conventional measures often fail to resolve such cases, especially when suspects deny involvement. Forensic stylistics offers a scientific approach that allows investigators to determine authorship based on linguistic evidence.

This paper investigates a case of impersonation during an English Language examination at Brilliant Academy School. Fourteen scripts were submitted by a class of thirteen students, indicating that one student's script was fraudulently produced. The study applies forensic stylistic methods to determine the true author of the questioned script, highlighting the significance of linguistic analysis as a reliable method of uncovering academic fraud.

The significance of this study lies in its contribution to forensic linguistics and educational integrity. Theoretically, it demonstrates that authorship attribution can be applied beyond criminal investigations to the educational domain, thereby extending the scope of forensic stylistics. Practically, it shows how linguistic evidence can serve as an objective and reliable tool for resolving cases of impersonation in examinations, offering schools and examination bodies concrete methods for tackling malpractice. At the policy level, the study underscores the need for institutions to incorporate forensic linguistic expertise into their disciplinary and investigative procedures, ensuring that justice is based not merely on suspicion but on scientific evidence. Beyond academic contexts, the study emphasizes the broader value of linguistic analysis in promoting fairness, accountability, and justice in society.

Forensic Linguistics and Forensic Stylistics

Forensic linguistics is the application of linguistic knowledge, methods, and insights to legal and investigative contexts (Coulthard & Johnson, 2007). It covers a wide range of activities including authorship attribution, discourse analysis of courtroom interactions, analysis of police interviews, and interpretation of legal texts. According to Olsson (2004), forensic linguistics provides a scientific basis for solving problems where language is central to legal disputes.

Within this broader field, forensic stylistics focuses specifically on the analysis of written style in order to resolve authorship questions (McMenamin, 2002). It assumes that writers have distinctive and relatively stable linguistic habits that can be identified and measured. Features such as spelling errors, punctuation practices, syntactic constructions, discourse organization, and lexical choices provide stylistic markers that can distinguish one writer from another (Black et al., 1990). Forensic stylistics, therefore, provides tools for examining disputed texts ranging from threatening letters and suicide notes to examination scripts, thereby serving both legal and educational purposes.

Authorship Attribution

Authorship attribution is one of the most extensively studied aspects of forensic linguistics. It involves the systematic comparison of a disputed text with samples from potential authors in order to determine the most likely writer (Grant, 2010). The principle underpinning this practice is that every writer develops an idiolect—a unique set of linguistic habits—which, although influenced by

education, region, and social background, remains relatively consistent across their writings (Coulthard, 2004).

Several methods have been developed for authorship attribution. Traditional qualitative approaches rely on close reading of stylistic features such as vocabulary use, orthography, and syntactic structure (Olsson, 2004). In contrast, quantitative methods employ statistical and computational tools to measure frequencies of linguistic features such as word length, sentence length, and function word use (Burrows, 1992; Juola, 2008). Recent advancements also include machine learning techniques, which combine stylistic features with computational algorithms to achieve higher accuracy in authorship analysis. Together, these approaches highlight the robustness of forensic stylistics in resolving authorship disputes.

Examination Malpractice and Impersonation

Examination malpractice has been described as a major impediment to educational development in Nigeria (Adeyemi, 2010). It encompasses a wide range of dishonest practices including cheating, collusion, leakage of question papers, and impersonation. Impersonation—where one individual sits for an examination on behalf of another—remains particularly problematic because it obscures authorship and undermines the credibility of examination results.

Traditional methods of detecting impersonation rely on administrative procedures such as checking identity cards and monitoring seating arrangements (Okebukola, 2013). However, these methods are often inadequate, especially when candidates deny involvement or when evidence is circumstantial. Forensic stylistics provides a more scientific approach, as it enables investigators to compare the linguistic features of examination scripts and determine whether they were produced by the same or different writers. By doing so, it offers an objective method of resolving disputes in educational assessment.

Empirical Studies

Several scholars have applied forensic stylistics and authorship attribution techniques to real-life cases, demonstrating its relevance across various domains:

Adegbite (2009) conducted a forensic linguistic analysis of courtroom communication in Nigeria. His study showed how lawyers and judges use language strategically to establish authority and control, but it also demonstrated how stylistic variation can reveal identity and authorship in legal disputes. This study underlines the importance of stylistics in both spoken and written forensic contexts.

Olaniyi (2013) examined anonymous threat letters in a Nigerian context, applying stylistic markers such as spelling errors, vocabulary patterns, and sentence structure. The study successfully identified the author of a disputed letter by comparing it with known writing samples, confirming that forensic stylistics can provide credible linguistic evidence even in sensitive criminal cases.

Aremu (2019) investigated the use of forensic stylistics in addressing examination malpractice in Nigerian secondary schools. He demonstrated that stylistic profiling of examination scripts could detect impersonation and plagiarism. His findings provide strong support for the application of forensic stylistics in academic contexts, bridging the gap between linguistics and education.

Maulida et al. (2023) conducted a study in Indonesia on authorship attribution using computational stylistics. By analysing lexical and syntactic features with machine learning algorithms, they achieved

a high accuracy rate in attributing authorship of student essays. Their study highlights the value of combining traditional stylistic analysis with computational tools for more reliable authorship identification.

Grant (2010) applied quantitative authorship attribution techniques to forensic casework in the United Kingdom. Using stylometric methods, including frequency counts of function words, he demonstrated that forensic stylistics could withstand legal scrutiny when supported by statistical evidence. His study provides a methodological framework that supports the reliability and admissibility of linguistic evidence in court.

More recently, Usman (2023) examined forensic linguistics in multilingual-oriented legal discourse in Nigeria. His study highlighted how linguistic variation across multiple languages complicates authorship attribution but also emphasized the potential of forensic stylistics to navigate such complexities. This is particularly relevant in multilingual societies such as Nigeria, where examination scripts may reflect diverse linguistic influences.

Bauersfeld et al. (2023) explored authorship attribution in academic contexts by applying deep learning models to double-blind review manuscripts. Their study demonstrated that transformer-based algorithms could successfully uncover hidden authorship patterns with high accuracy. This suggests that computational advances can complement traditional forensic stylistics and may be adapted for detecting impersonation in examinations.

Similarly, Pinga et al. (2024) investigated examination malpractice in Nigerian secondary schools, focusing on the challenges, effects, and strategies for addressing the problem. Although not specifically grounded in forensic linguistics, their study underscores the prevalence of impersonation and other dishonest practices, providing a strong justification for the present study's application of forensic stylistics as a scientific method of detection.

These empirical studies collectively demonstrate that forensic stylistics is both theoretically sound and practically effective. They also highlight the lack of research applying these methods to the Nigerian educational context, thus justifying the present study.

Theoretical Framework

This study adopts McMenamin's (2002) model of forensic stylistics as its theoretical foundation. McMenamin identifies a wide range of style markers, including text format, punctuation, spelling, syntax, discourse features, and the use of high-frequency words, which can be systematically analysed to determine authorship. His model emphasizes the combination of qualitative analysis (close reading of stylistic habits) with quantitative analysis (statistical measurement of frequency and distribution). The framework is particularly suitable for this study because it allows for the integration of linguistic description with statistical evidence, thereby ensuring that conclusions about authorship are based on both interpretive and empirical grounds. By applying McMenamin's model to the examination scripts in Brilliant Academy School, this study demonstrates the adaptability of forensic stylistics to cases of academic fraud.

Methodology

This study adopted a case study design within a mixed-methods framework, combining both qualitative and quantitative approaches to address the problem of authorship attribution. The data consisted of eight English Language examination scripts produced by Senior Secondary School

students of Brilliant Academy during a formal letter writing exercise. Among these, one script was identified as a questioned writing (QW), while seven were known writings (KW1–KW7). The presence of an extra script in a class of thirteen students suggested impersonation, which formed the basis of the investigation. Purposive sampling was employed to focus on this particular class, since it contained the suspected case of malpractice.

The analysis involved both qualitative and quantitative procedures. The qualitative aspect focused on identifying stylistic markers such as punctuation patterns, capitalization, spelling variations, syntactic constructions, discourse organization, and the use of high-frequency words. These features were carefully examined across the questioned and known scripts in order to identify distinctive linguistic habits that could indicate authorship. The quantitative aspect, on the other hand, involved the measurement of frequencies of these features, followed by the application of statistical tests such as chi-square, t-test, and joint probability measures to determine the significance of observed similarities and differences.

The integration of qualitative and quantitative methods ensured that the findings were both insightful and empirically verifiable. While the qualitative analysis provided depth in describing the stylistic features, the quantitative analysis offered objectivity and statistical reliability. This approach was guided by McMenamin's (2002) forensic stylistic framework, which emphasizes the systematic examination of multiple linguistic features supported by statistical evidence. The framework ensured that the analysis of the examination scripts was rigorous, structured, and consistent with established forensic linguistic practices.

Data Analysis

The analysis focused on comparing the questioned writing (QW) with the known writings (KW1–KW7) across a range of stylistic variables. These variables included text format, abbreviations, punctuation, spelling and word formation, capitalization, sentence and clause structure, parts of speech, discourse organization, errors and corrections, and high-frequency words and phrases. Both qualitative description and quantitative statistical testing were applied to determine stylistic similarity or dissimilarity.

The results show that QW and KW3 exhibited remarkable congruence across virtually all variables. In terms of text format, both writings showed complete similarity across all forty-four structural features examined, yielding a 100% match. This extended to the use of numbers and symbols, where identical usage patterns were observed. Similarly, both QW and KW3 consistently avoided abbreviations, preferring full word forms—a choice not uniformly observed among the other writers.

Punctuation patterns further reinforced this close stylistic alignment. Statistical tests revealed no significant differences between QW and KW3, with p-values greater than 0.05, suggesting that the observed similarities were not the result of chance. Capitalization habits also showed complete alignment, with all ten features under consideration matching perfectly. The comparison of spelling and word formation patterns revealed identical tendencies in both writings, including the omission of articles, inconsistent subject–verb agreement, and similar morphological errors.

Sentence and clause structures further strengthened the evidence. Statistical tests showed no significant differences between QW and KW3, with p-values greater than 0.6, suggesting that their syntactic preferences were highly similar. The use of parts of speech showed the same trend, with

frequency distributions statistically identical ($p > 0.5$). On the discourse level, both writings demonstrated logical progression of ideas, effective cohesion through repeated lexical items, and the use of persuasive appeals such as emotional language and moral appeals.

Errors and corrections provided particularly strong evidence of shared authorship. Both QW and KW3 contained identical anomalies, including similar patterns of misspellings and the manner in which corrections were made in the scripts. These correction patterns matched with 100% similarity. Finally, the analysis of high-frequency words and phrases revealed that QW and KW3 shared nearly identical lexical preferences, with no statistically significant differences ($p > 0.8$). Together, these findings establish a robust case for attributing the questioned writing to KW3.

Findings

The findings of this study confirm that Writer KW3 authored the questioned script. This conclusion is supported by overwhelming linguistic evidence across multiple stylistic variables. First, QW and KW3 displayed identical structural organization, formatting choices, and use of abbreviations, establishing a strong baseline similarity. Second, their punctuation habits, capitalization styles, and spelling patterns aligned consistently, showing no meaningful divergence in statistical comparisons. Third, the syntactic level revealed a further layer of correspondence, with QW and KW3 exhibiting parallel preferences in sentence construction, clause combinations, and distribution of parts of speech. Their discourse organization also followed a similar trajectory, characterized by logical sequencing, cohesion, and the use of persuasive techniques. Fourth, lexical analysis confirmed significant overlap in the use of high-frequency words and phrases, further reducing the possibility of coincidence.

Finally, both QW and KW3 shared unusual errors and correction patterns, which served as highly individualized stylistic fingerprints. These anomalies, coupled with the consistent similarities across other variables, provided decisive evidence that KW3 authored the questioned script.

In contrast, all other suspects (KW1, KW2, KW4–KW7) were excluded because their scripts showed significant stylistic dissimilarities when compared with QW. Their text formatting, punctuation choices, syntactic structures, and lexical preferences diverged markedly from those of the questioned writing, making them improbable authors.

Overall, the findings demonstrate that forensic stylistic analysis, when supported by statistical testing, can provide conclusive evidence in cases of suspected impersonation. This strengthens the reliability of forensic linguistics as a tool for addressing examination malpractice.

Conclusion

This study set out to investigate a case of examination impersonation through the lens of forensic stylistics, with the aim of determining the true author of a questioned script. By applying McMenamin's (2002) forensic stylistic framework, the analysis systematically compared the questioned writing (QW) with known writings (KW1–KW7) across a broad range of stylistic variables, including text format, punctuation, spelling, capitalization, sentence and clause structure, discourse organization, lexical choices, and error patterns. Both qualitative and quantitative approaches were adopted, ensuring that the findings were grounded in descriptive detail and supported by statistical evidence.

The results of the analysis demonstrated a striking degree of similarity between QW and the writings of KW3. Their stylistic alignment was evident at multiple levels: identical text structure, consistent

use of full forms instead of abbreviations, parallel punctuation and capitalization patterns, overlapping spelling errors, and shared tendencies in sentence and clause construction. In addition, discourse organization and lexical choices displayed near-perfect correspondence, while the anomalies and correction patterns unique to QW and KW3 further reinforced the conclusion of common authorship. Statistical tests confirmed that these similarities were highly unlikely to have occurred by chance, thereby providing reliable evidence that KW3 was the author of the questioned script. All other suspects were eliminated due to their clear stylistic dissimilarities with QW.

The significance of these findings goes beyond resolving a single case of impersonation. The study demonstrates that forensic stylistic analysis is a reliable and scientific tool for authorship attribution in educational contexts. Traditionally, authorship disputes in examinations are resolved through circumstantial evidence or administrative procedures, which often lack objectivity. By contrast, this study shows that linguistic evidence can provide a fair, transparent, and scientifically defensible means of establishing authorship. In doing so, it highlights the broader relevance of forensic linguistics in safeguarding academic integrity and ensuring that justice is served in cases of malpractice.

At the theoretical level, the study contributes to the growing body of work that extends forensic stylistics beyond its usual application in criminal investigations and legal disputes, into the realm of education. Practically, it provides examiners, school authorities, and educational policymakers with a tested methodology for investigating impersonation and other forms of examination fraud. At the policy level, it underscores the importance of incorporating forensic linguistic expertise into institutional frameworks for monitoring and adjudicating academic dishonesty.

In conclusion, this research not only identified KW3 as the true author of the questioned script but also illustrated the effectiveness of combining qualitative stylistic analysis with quantitative statistical testing in forensic authorship attribution. It reaffirms that every writer leaves behind linguistic fingerprints, and that when properly examined, these fingerprints can decisively resolve disputes of authorship. By bridging theory, practice, and policy, the study establishes forensic stylistics as a vital tool for enhancing fairness, accountability, and credibility in educational assessment.

Recommendations

Based on these conclusions, several recommendations are made:

- First, examination bodies and school authorities should integrate forensic stylistic methods into their investigative procedures for handling suspected cases of impersonation. This will provide objective evidence and reduce reliance on speculation or circumstantial proof.
- Second, training workshops should be organized for teachers, examiners, and administrators to familiarize them with the basics of forensic linguistics and its practical applications.
- Third, policymakers should establish formal collaborations between educational institutions and forensic linguists, ensuring that expertise is readily available when disputes arise.
- Finally, further research should explore the use of computational stylistics and machine learning in authorship attribution, as these methods can complement traditional analyses and improve efficiency in large-scale examinations.

References

Adegbite, W. (2009). *Forensic linguistics and courtroom communication in Nigeria*. Spectrum Books.

- Adeyemi, T. O. (2010). *Examination malpractice in Nigerian schools: An empirical study*. Journal of Education and Practice, 1(1), 22–29.
- Aremu, A. (2019). *Forensic linguistic methods in addressing examination malpractice in Nigerian secondary schools*. Journal of English Language Teaching and Applied Linguistics, 1(2), 45–60.
- Bauersfeld, S., Romero, D., Muglikar, R., & Scaramuzza, D. (2023). *Cracking double-blind review: Authorship attribution with deep learning*. Proceedings of the 61st Annual Meeting of the Association for Computational Linguistics (ACL), 1–15. <https://doi.org/10.48550/arXiv.2306.14812>
- Black, A., Southerland, S., & Moenssens, A. (1990). *Forensic stylistics*. Elsevier.
- Burrows, J. (1992). *Not unless you ask nicely: The interpretive nexus*. Literary and Linguistic Computing, 7(2), 91–109. <https://doi.org/10.1093/lc/7.2.91>
- Coulthard, M. (2004). *Author identification, idiolect, and linguistic uniqueness*. Applied Linguistics, 25(4), 431–447. <https://doi.org/10.1093/applin/25.4.431>
- Coulthard, M., & Johnson, A. (2007). *An introduction to forensic linguistics: Language in evidence*. Routledge.
- Examination Malpractices Act. (2004). Law of Nigeria. Policy and Legal Advocacy Centre. <https://www.placng.org/lawsofnigeria/view2.php?sn=138>
- Grant, T. (2010). *Quantifying evidence in forensic authorship analysis*. International Journal of Speech, Language and the Law, 17(1), 1–25. <https://doi.org/10.1558/ijsl.v17i1.17>
- Juola, P. (2008). *Authorship attribution*. Foundations and Trends in Information Retrieval, 1(3), 233–334. <https://doi.org/10.1561/1500000005>
- Maulida, N., Nur, A., & Abdullah, H. (2023). *Computational stylistics for authorship attribution in student essays*. Indonesian Journal of Applied Linguistics, 13(1), 55–68. <https://doi.org/10.17509/ijal.v13i1.51543>
- McMenamin, G. R. (2002). *Forensic linguistics: Advances in forensic stylistics*. CRC Press.
- Olaniyi, O. (2013). *A forensic stylistic analysis of anonymous threat letters in Nigeria*. Journal of Language and Communication Studies, 4(2), 112–125.
- Olsson, J. (2004). *Forensic linguistics: An introduction to language, crime and the law*. Continuum.
- Okebukola, P. (2013). *Tackling examination malpractice in Nigeria*. Heinemann Educational Books.
- Pinga, D. P., Jor, A., & Olatunde, F. (2024). *Addressing examination malpractice in Nigerian secondary schools: Challenges, effects and strategic solutions*. Journal of Educational Review, 16(2), 45–60. Retrieved from <https://www.ajol.info/index.php/jer/article/view/292895>
- Usman, J. (2023). *Forensic linguistics and language issues in multilingual-oriented legal discourse*. International Journal of Multilingualism and Social Practices, 5(1), 33–47. Retrieved from <https://revue.univ-oran2.dz/Revue/IJMLSP/index.php/IJMLSP/article/view/21>