

REVIEW ARTICLE

## Linguistic Analysis of Texts in Philological Research: The Use of Salesforce Einstein Artificial Intelligence

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### ABSTRACT

Artificial intelligence is beginning to spread to all fields of science, and philology, linguistics and literature are no exception. This intersection of technology and the humanities opens a new era of linguistic and literary analysis. The relevance lies in the fact that artificial intelligence offers innovative ways of understanding and interpreting texts. Linguistic analysis of texts is an important part of philological research, as it helps to uncover the meaning, style, and other elements of language use in texts. This study aims to explore the innovative technology of Salesforce Einstein Artificial Intelligence, which can be used for linguistic text analysis in philological research. Research methods include literature review, correlation analysis, social analysis, impact analysis, syntactic analysis, and factor analysis. The results of the work showed that the system deeply learns the language and learns to recognize and analyze various language features and emotions. The paper examines the technical and ethical aspects of Salesforce Einstein AI. A cross-sectional study allowed us to describe the technological capabilities of the system and to debate the problem of replacing the author with artificial intelligence from an ethical perspective. The authors conclude that linguistic text processing in philology has revolutionized the way authors interact with technology and has become a valuable tool in text analysis. Salesforce Einstein AI has opened up a whole new world of opportunities for the field of philology.

**Keywords:** Artificial intelligence; Text processing; Tokenization; Emotion analysis; Ethical issue; Natural language

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# 1. Introduction

## 1.1 Introduce the problem

Today, Salesforce Einstein Artificial Intelligence (AI) is considered a revolutionary discovery. According to Parmar (2023), Salesforce Einstein AI algorithms have the ability to quickly analyse large amounts of text. This tool can be used to identify patterns, themes, and trends in a text, and assist philologists in identifying linguistic patterns in ancient texts, which helps decipher spoken languages. Salesforce Einstein AI can also be used to analyse the structure and style of literary works. In particular, the system can determine sentence length, word choice, and punctuation to get information about the author's writing style. This innovative solution can revolutionise philology, ushering in a new information age (Parmar, 2023).

It is also worth noting that Salesforce Einstein AI's ability to process and analyse large amounts of data makes it a useful tool for comparative literature. According to Van Heerden and Bas (2021), this system is able to analyse and compare different texts, authors, and literary periods, finding similarities and differences that may be invisible to analysts. This opens up new possibilities for interpreting and understanding literary works (Van Heerden and Bas, 2021).

In particular, Salesforce Einstein AI can be used to preserve and digitise ancient texts. The system's high-resolution processing technologies and algorithms can be used to reconstruct and digitise manuscripts that have encrypted coding (Kaliuta, 2024). This not only preserves valuable texts for future generations, but also makes them more accessible to researchers around the world (Kaliuta, 2023). Salesforce Einstein AI opens up new perspectives for philological research with its capabilities.

While Salesforce Einstein Artificial Intelligence (AI) offers groundbreaking capabilities in text analysis, it also has limitations when it comes to processing nuanced human language features. Despite its revolutionary potential, there are

challenges that must be addressed to fully harness its benefits in philological research. According to Tripto et al. (2023), while the system excels at analyzing large amounts of text and identifying patterns, themes, and trends, it may struggle to interpret the subtle nuances and cultural references embedded within language as idiomatic expressions, sarcasm, and metaphors may be misinterpreted by the AI, leading to inaccurate or incomplete analyses.

Indeed, Salesforce Einstein AI may encounter difficulties in deciphering complex linguistic structures and literary techniques. However, it can identify basic elements such as sentence length, word choice, and punctuation, it may lack the sophistication to recognize more intricate literary devices employed by authors. Chakraborty et al. (2023) state that this limitation can hinder the AI's ability to provide insightful analyses of literary works, particularly those characterized by rich and layered language. Another challenge is the potential for bias in AI algorithms. Despite efforts to reduce bias, AI systems like Salesforce Einstein AI may still exhibit biases inherited from the data used to train them. This can lead to skewed or inaccurate results, particularly in analyses involving sensitive topics or underrepresented populations (Shukla, 2022). Additionally, the lack of transparency in AI decision-making processes may make it difficult to identify and mitigate biases effectively.

To address these limitations, the presented research focused on developing AI technologies that are more adept at understanding context, cultural nuances, and literary devices in language. This involved the literature analysis concerning advanced natural language processing techniques, machine learning algorithms, and linguistic models integrated into AI systems.

Salesforce Einstein AI holds immense promise for philological research. Its ability to quickly analyze large amounts of text, identify patterns, and compare literary works offers unprecedented opportunities for scholars to gain insights into language, literature, and culture. With continued research and development, AI technologies like Salesforce

Einstein AI have the potential to revolutionize the field of philology, ushering in a new era of discovery and understanding.

### **1.2 Explore importance of the problem**

The integration of Salesforce Einstein AI into philology poses certain challenges and ethical issues. One of the primary concerns is the potential loss of human sentiment in literature analysis. While the model can identify patterns and trends, it lacks the ability to comprehend and appreciate the subtleties of language and literature in the same way as a human. It cannot capture the emotional depth of a poem or the cultural significance of a novel. Moreover, when using Salesforce Einstein AI in philology, it is important to consider ethical aspects such as data privacy and intellectual property rights.

Although there are certain challenges, it is evident that Salesforce Einstein AI has the potential to revolutionize the field of philology. The AI model provides novel methods of analyzing and interpreting texts, which opens up new avenues for research and comprehension. Therefore, as authors move towards a new era of linguistic and literary analysis, it is crucial to maintain a balance between utilizing the power of Salesforce Einstein AI and preserving the human touch that is fundamental in the study of language and literature.

### **1.3 State hypotheses and their correspondence to research design**

The use of artificial intelligence in linguistic text analysis for philological research involves a collaborative relationship between the reader, the tool, and the text. Traditional approaches to the interpretation of texts are seen as a methodological tool for dynamic text analysis. The hypothesis of the study suggests that the interdependence between humans and AI is important in the context of rapid technological development. There is a need to develop new systems that consider the dynamic nature of technology, such as Salesforce Einstein AI, to create a synergy that can lead to the development

of a new electronic philology.

## **2. Literature review**

The models of linguistic text analysis in philological research using artificial intelligence proposed by researchers always directly focus on the dimension of “textuality” or the content of the text (Wei, 2022). As Aliyeva (2023) emphasizes, the integration of advanced computational tools, including artificial intelligence, in philological research offers significant potential to enhance text linguistic analysis.

Linguists emphasize that control functions are internal to an AI system, but they are not exclusively grammatical in nature (Gervais, 2021). For artificial intelligence, these control functions are primarily semantic and cognitive in nature. Authors are talking about related cognitive semantic schemas based on the representation of knowledge about a subject area. These schemas are used to understand information, engage in logical thinking, and analyze a text to determine its meaning, build an internal model of what the text describes, and extract important information (Heflin, 2020). According to Jones (2022), semantic-cognitive schemas can use elements such as concepts, categories, interdependencies, synonyms, antonyms, associations, and other lexical and semantic relations. They allow modeling historical, cultural, social, emotional, and other aspects of a text that influence its meaning and contribute to its understanding and interpretation. In this context, Bajohr (2020) adds that the use of artificial intelligence in linguistic research allows for the automation of text processing, increasing the speed and accuracy of analysis. In addition, it provides new ways of interacting with texts, such as searching, categorising, replacing, and generating texts, analyzing styles, and authorship, identifying psycholinguistic features, and much more. However, representatives of classical philology do not actively debate the issue of using artificial intelligence in text analysis. According to Barron (2023), the use of artificial intelligence in philological research has certain limitations that need to be addressed.

One such limitation is the difficulty in interpreting and evaluating texts that have a subjective nature. Additionally, the use of AI requires a large amount of input data and model training. However, AI systems such as Salesforce Einstein AI, which focus on textuality and use semantic and cognitive schemes to determine the meaning of a text, have great potential in philological research. Further development and improvement is needed to solve complex problems related to interpretation, evaluation of texts and human ethics. The outputs generated by these systems will be meaningful answers or interpretations.

### **3. Materials and methods**

In this paper, authors focus on the description of Salesforce Einstein AI based on a literature review. The review helped us to summarize information about this new artificial intelligence system that has not yet been disclosed in the scientific world. The methods chosen for this study over others were primarily selected based on their suitability for achieving the research objectives and addressing the research questions. The criteria for selecting data aimed to increase the reproducibility of the study and ensure the validity of the findings. It also showcases the pros and cons of Salesforce Einstein AI. The research for this paper was conducted between April-December 2023 and January 2024 using the Scopus and Google Scholar databases. These databases were used to search for primary articles that answered a predefined research question. We derived several keywords from the question such as artificial intelligence, text processing, tokenization, emotion analysis, ethical issues, and natural language. By highlighting the advantages and limitations of Salesforce Einstein AI, we demonstrate the controversial and complex nature of the ethical issues surrounding the use of artificial intelligence.

#### **3.1 Identify subsections**

To analyse the use of Salesforce Einstein AI in text analysis, additional methods are proposed: correlation, social, specific impact, syntax, and

factor analysis. A literature review was conducted to provide a comprehensive overview of Salesforce Einstein AI, as it allowed to summarize existing knowledge about the AI system and identify information not yet disclosed in the scientific world. Scopus and Google Scholar databases were selected for the literature search due to their extensive coverage of academic publications. Keywords derived from the research question helped narrow down the search to relevant articles, ensuring that the retrieved literature addressed the predefined research question.

#### **3.2 Participant (subject) characteristics**

The correlation analysis aims to determine if there is a connection between using Salesforce Einstein AI and better text analysis outcomes. To evaluate this relationship, we have compared the results of the AI software with those obtained through traditional manual analysis, as documented in relevant literature.

The impact of AI on public opinion about classical philology was analysed through social analysis by examining the publications, comments, and opinions of experts in the literature analysis section. Additional methods such as correlation analysis, social analysis, specific impact analysis, syntax analysis, and factor analysis were proposed to analyze the use of Salesforce Einstein AI in text analysis. These methods were chosen to provide a multifaceted evaluation of the AI system's effectiveness and impact in philological research.

#### **3.3 Sampling procedures**

A comprehensive analysis was carried out to provide an overview of the scientific viewpoint on the impact of AI on the analysis of literary texts. The analysis specifically examined the impact of Salesforce Einstein AI on various areas such as emotional coloring analysis, text classification, named entity recognition, and machine translation. To obtain more detailed information on this subject, a case study was conducted.

These sampling procedures were designed to provide a comprehensive analysis of the scientific viewpoint on the impact of AI on literary text analysis. The analysis focused on specific areas such as emotional coloring analysis, text classification, named entity recognition, and machine translation, with a case study conducted to obtain more detailed information on the subject.

### **Sample size, power, and precision**

By conducting a syntactic analysis, we were able to evaluate the capabilities of Salesforce Einstein AI in comprehending and interpreting the sentence structure of a given text. This analysis was carried out on scientific articles, using textual data from various literary projects, and compared to the outcomes of manual analysis.

The analysis selected was carried out to assess the ability of Salesforce Einstein AI in understanding and interpreting sentence structures. The analysis utilized textual data from various literary projects and compared the outcomes with manual analysis, ensuring the validity and reliability of the results.

### **Measures and covariates**

In addition, factor analysis allowed us to study the influence of various factors on the results of using Salesforce Einstein AI in the field of philology. Factor analysis was employed to study the influence of various factors on the results of using Salesforce Einstein AI in philology. This method helped identify underlying factors that may impact the effectiveness of the AI system in text analysis.

### **Research design**

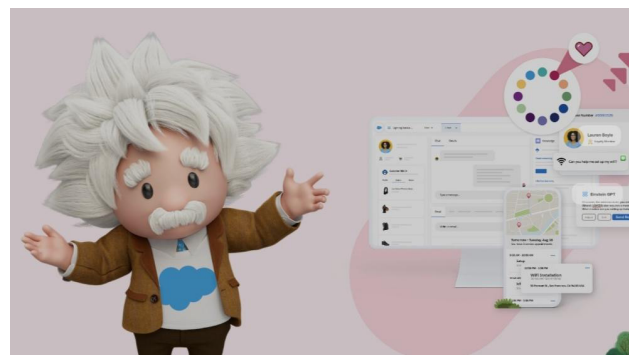
These methods helped us understand the effectiveness of Salesforce Einstein AI in linguistic text analysis in philological research and develop strategies for optimal implementation of this technology.

Overall, these methods were chosen to understand the effectiveness of Salesforce Einstein AI in linguistic text analysis and develop strategies for its optimal implementation in philological research. By employing a combination of quantitative and

qualitative analyses, the study aimed to provide a comprehensive evaluation of the AI system's capabilities and limitations.

## **4. Results**

Although classical philologists claim that artificial intelligence cannot capture human emotionality, Salesforce Einstein AI has found its application in various areas, including emotion analysis, text classification, named entity recognition, and machine translation (**Figure. 1**):



**Figure 1.** Visualisation of Salesforce Einstein AI language program.

Source: (Salesforce announces Einstein GPT, the world's first generative AI for CRM, 2023)

Emotion analysis can identify the sentiment behind a text- whether it is positive, negative, or neutral. This ability is particularly crucial for literary texts. However, implementing Salesforce Einstein AI in significant literary projects requires careful consideration and attention to detail. Here is an algorithm for maximizing the effectiveness of Salesforce Einstein AI implementation. (**Table 1**):

Source: author's own development.

The significance of natural language processing in AI-assisted text mining cannot be emphasized enough. It enables you to extract meaningful insights from vast quantities of unstructured text data, ranging from sentiment analysis to text classification and beyond. By comprehending the applications, examples, tips, and case studies, linguists can leverage the full potential of AI for their benefit.

**Table 1.** Salesforce Einstein AI algorithm for linguistic test analysis.

Algorithm	Action	Result
Data pre-processing	Cleaning and preprocessing text data are essential to eliminate noise, irrelevant information, and inconsistencies	Tokenisation, stemming, and removal of the stop word
Choosing the right tools	Improving the accuracy and efficiency of algorithms	Available frameworks provide an understanding of the strengths and weaknesses of the chosen tool
Continuously updating and improving the model	Adapting to changing trends and language nuances	Maintaining the accuracy and relevance of the analysis

Natural language processing is a feature of Salesforce Einstein AI that centers on the communication between artificial intelligence and human language. It allows the system to understand, interpret, and respond to human language in a meaningful and accurate way (Shrivastava, 2017). In natural language processing, one of the primary tasks is known as tokenisation. It involves breaking the text into smaller units called tokens. These tokens can be words, phrases, or even single characters. Tokenisation is important because it forms the basis for the following tasks for Salesforce Einstein AI. Once the text is tokenised, the next step is to assign a part-of-speech tag to each token. Part-of-speech tagging involves classifying words into categories such as nouns, verbs, adjectives, adverbs, and so on. This information is crucial for understanding the grammatical structure of a sentence and extracting its meaning (**Figure 2**):

Industry	Use Cases
E-commerce	Product recommendations, order tracking
Healthcare	Appointment scheduling, symptom analysis
Finance	Balance inquiries, transaction history
Travel	Flight bookings, travel information

**B. Language Translation and Multilingual Communication**

NLP has revolutionized language translation, breaking down barriers for global communication. Machine translation models such as neural machine translation have vastly improved translation accuracy. These models learn from large bilingual datasets and use attention mechanisms to align words between languages.

**C. Social Media Analysis and Opinion Mining**

Opinions and sentiments shared on social media platforms hold valuable insights for businesses and researchers. NLP-powered sentiment analysis tools classify user-generated content as positive, negative, or neutral. By analyzing sentiments, companies gauge customer feedback and tailor marketing strategies. The code snippet below showcases sentiment analysis using Python's NLTK library.

**Figure 2.** Natural language processing: transforming how machines understand human language.

Source: Chowdhary and Chowdhary (2020).

This is followed by named entity recognition, the process of identifying and classifying named entities in a text. The most powerful capability of Salesforce Einstein AI is emotion analysis, also known as opinion analysis, which involves determining the mood or opinion expressed in a piece of text. The system can determine whether the sentiment is positive, negative, or neutral (Gervais, 2021).

Harnessing the power of natural language processing, Salesforce Einstein AI has the capability to comprehend and scrutinize human speech. Tokenisation, part-of-speech tagging, named entity recognition, and emotion analysis are some of the main techniques that are essential for philology.

**4.1 Recruitment**

Salesforce Einstein AI improves the capabilities of natural language processing systems. Using large amounts of data and powerful algorithms, it understands, analyses, and generates human speech with extreme accuracy.

One of the main tasks of Salesforce Einstein AI for linguistic text analysis in linguistic research is to decipher the meaning of words and phrases in different contexts. The system captures complex patterns and dependencies in text data and understands linguistic nuances and context (Shrivastava, 2017). Emotion analysis is also a valuable application for linguistic analysis, which aims to determine the sentiment expressed in a piece of text. Salesforce Einstein AI automates the process of identifying positive, negative, or neutral sentiment in large amounts of text data. These algorithms can be trained on labelled datasets in which human annotators assign sentiment labels to text samples (Harris et al., 2020).

Salesforce Einstein AI translation has recently

introduced new features that allow it to automatically translate text from one language to another. Unlike traditional rule-based approaches that often struggle with complex sentence structures and idiomatic expressions, Salesforce Einstein AI overcomes these limitations by translating based on large parallel corpora where the same text is available in both source and target languages. Furthermore, Salesforce Einstein AI also generates a test, showcasing impressive text creation capabilities and human-like performance. The system can answer questions, write essays, and even generate code snippets (Harris et al., 2020). However, according to Chun and Elkins, (2022), care should be taken when generating texts, as the system may accidentally create biased or inappropriate content. In summary, Salesforce Einstein AI understands, analyses, and creates human language with remarkable accuracy.

#### 4.2 Statistics and data analysis

Implementing Salesforce Einstein AI in large literary projects is essential to transform raw textual data into a format suitable for analysis. By understanding and applying these techniques, philologists can improve the performance of various tasks such as emotion analysis, text classification, and information extraction (Shrivastava, 2017). According to Glikson and Woolley (2020), there is a different perspective on the capability of artificial intelligence. They argue that AI may not fully comprehend human emotions as it is based on

intricate processes that involve not just psychological but also physical aspects. For example, emotions are expressed not only in text, but also in voice, facial expressions, and gestures (Assunção et al., 2022). The authors suggest that artificial intelligence is not yet capable of fully understanding and replicating certain aspects of human emotion. Similarly, Pelau, Dabija and Ene (2021) argue that AI’s analysis of the emotional tone of text may be incomplete or inaccurate. While it can identify the overall mood of the text, it may misinterpret the nuances and tone of the conversation.

In large-scale literary projects, it is important that the conveyance of emotions is accurate and reflects the author’s intent. Not all the nuances and shades of emotions can be reliably conveyed by artificial intelligence. It is also important to consider the author’s own thinking and style, which are still difficult for artificial intelligence to analyse (Zhao, Li and Xu, 2022).

Thus, implementing Salesforce Einstein AI in large-scale literary projects requires attention to detail and a thorough analysis of its capabilities and limitations.

#### 4.3 Ancillary analyses

Continuing the debate about emotion analysis, which involves determining the mood or thoughts expressed in a piece of text, Salesforce Einstein AI still has certain problems that can affect the accuracy and reliability of the analysis (**Table 2**).

**Table 2.** Challenges for Salesforce Einstein AI in analysing emotions.

Problem	Description
<b>Contextual understanding</b>	Sentiment analysis faces a significant challenge in comprehending the context in which a text is written. The meanings and emotions that words convey can vary based on the context in which they are used. To tackle this issue, the system analyzes the surrounding words or phrases to determine the sentiment accurately.
<b>Sarcasm and irony</b>	It can be challenging to analyze emotions when people use sarcasm or irony in their language. These language devices often involve expressing the opposite of what is explicitly stated. To address this issue, our system features advanced techniques that can detect sarcasm and irony, such as tone analysis and speaker intent.
<b>Subjectivity and ambiguity</b>	Analysing emotions becomes difficult when it comes to subjective or ambiguous language. People express their opinions using a variety of language expressions and idioms that may not express clear feelings. The system overcomes these challenges by using a large and diverse data set to accurately capture the nuances of subjective language.
<b>Domain-specific mindset</b>	The system has a unique vocabulary and expression of feelings. This increases the accuracy of text analysis.
<b>Data offset and labelling</b>	Data bias is a major issue in emotion analysis. The training data used for this analysis often contains inherent biases that reflect the emotions of the people who annotate the data or the sources from which the data is collected. Such biases can lead to distorted text analysis results. To tackle this problem, the system carefully organizes and labels the training data, ensuring diversity and avoiding any biased annotations.

Source: author’s own development.

Detecting emotions through text analysis is a difficult task due to various factors including the context, sarcasm, subjectivity, sentiment related to the subject matter, and bias in the data. However, Salesforce Einstein's advanced AI system tackles these issues and ensures accurate and efficient emotion analysis, enabling linguists to extract valuable insights from textual data.

#### **4.4 Participant flow**

Named entity recognition is a fundamental task of Salesforce Einstein AI. It involves identifying and classifying named entities in text. Named entities are usually eponyms. By extracting these entities, Salesforce Einstein AI allows you to gain valuable insights and extract meaningful information from unstructured text data (Yu, 2019). This involves breaking down a particular text into individual words or tokens and then sorting them into predefined categories such as a person, organisation, place, date, etc.

However, according to Crane (2019), Salesforce Einstein AI's named entity recognition has some drawbacks. One potential drawback is the risk of misidentifying categories or confusing terms. For example, the system can mistakenly confuse terms. These errors can result in misinterpretations of the text and incorrect conclusions. Furthermore, the system's ability to recognize named entities may be restricted when the text includes uncommon or unfamiliar terms that it cannot accurately identify.

#### **4.5 Intervention or manipulation of fidelity**

Salesforce Einstein AI efficiently extracts contextual information from text, using predefined patterns, conditional random fields, and recurrent neural networks to recognize named objects.

#### **4.6 Baseline data**

In philological research, analyzing linguistic texts can be challenging due to the unstructured nature of the text. However, Salesforce Einstein AI can help

extract structured information from unstructured text. This system can identify and classify named objects in texts and even perform emotion analysis. By using Salesforce Einstein AI for linguistic analysis, researchers can gain valuable insights and improve information extraction, as well as potentially recover lost texts.

## **5. Discussion**

In summary, Salesforce Einstein AI is a powerful system that is suitable for text analysis and can uncover hidden themes or meanings in a collection of texts. By analysing patterns and connections in the data, Salesforce Einstein AI can offer valuable insights into large volumes of unstructured text (Fenves, 2019). In the field of philology, Salesforce Einstein AI can be used to analyse large texts (Suter, 2019). By automatically classifying texts, Salesforce Einstein AI can quickly identify trends, nuances, and track the overall sentiment of a piece of writing and can uncover valuable insights from large volumes of unstructured text (Davenport, 2018). One of the most exciting capabilities of Salesforce Einstein AI is advanced sentiment analysis, which involves extracting and interpreting emotions, opinions, and attitudes from textual data (Sengupta, et al., 2018). While current sentiment analysis models have made significant progress, they often struggle to understand complex feelings, sarcasm, and context. However, Salesforce Einstein AI is paving the way for more accurate and nuanced emotion analysis. Salesforce Einstein AI has the potential to revolutionise the field of philology. The system can understand the meaning of a word or phrase based on the surrounding context, which enables more accurate language processing and comprehension (Brinkman and Grudin, 2023). This contextual understanding opens up new possibilities for text analysis in philology. While Salesforce Einstein AI offers impressive capabilities for text analysis and can uncover hidden themes or meanings in large collections of texts, it also has limitations when processing nuanced human language features. The system utilizes pattern recognition and data analysis



to provide valuable insights into unstructured text, which is particularly beneficial in the field of philology for analyzing large bodies of texts. Salesforce Einstein AI excels in automatically classifying texts, identifying trends, nuances, and overall sentiment, thus offering valuable insights from vast amounts of unstructured text. Its advanced sentiment analysis capabilities, including extracting emotions, opinions, and attitudes, have the potential to revolutionize the field of philology.

However, despite the amazing capabilities of Salesforce Einstein AI, opponents of artificial intelligence for philological text analysis believe that this method depersonalises and mechanises the processes of understanding and interpreting texts. They argue that the system interferes with the unique nature of the human mind (Jalilbayli, 2022). According to Maraieva (2022), the philological analysis of a text requires a successful combination of understanding the semantics, structure, and stylistic means expressed in the language. This task requires an in-depth understanding of context, cultural traditions, and nuances, which can be difficult to transfer to a computer algorithm. In addition, subjectivity should be taken into account. Texts should be considered not only in terms of grammatical rules but also in a wide range of cultural and historical contexts. The necessary determination of the author's intentions, mood, tone, etc. may be caused by subjective factors that are difficult to incorporate into a computer algorithm. Despite these capabilities, critics argue that artificial intelligence for philological text analysis depersonalizes and mechanizes the process of understanding and interpreting texts. They contend that the system may interfere with the unique nature of human thought. According to some scholars, successful philological analysis requires a deep understanding of semantics, structure, and stylistic elements expressed in language. This understanding encompasses context, cultural traditions, and nuances that may be challenging to convey to a computer algorithm.

In a related study, the authors insist on considering the creative aspect (Durmishi and Durmishi, 2022).

Philological analysis usually involves creativity and an original approach to understanding a text. It is difficult to transfer this to an algorithm that is based on defined rules and algorithms. In addition, artificial intelligence can be prone to errors, especially when unfamiliar with specific language features, dialects, or expressions. This can lead to inaccuracies and misunderstanding of the text (Nikolenko, 2022). On the ethical side, the use of artificial intelligence in philological analysis may raise ethical issues, particularly in terms of copyright, privacy, and data storage.

Given these arguments, opponents of artificial intelligence have expressed concerns about its use in philological text analysis (Pak et al., 2023). However, the use of artificial intelligence can also create new opportunities and advantages, such as the speed of information processing and the detection of certain patterns in the text (Kampen et al., 2022). Indeed, subjectivity plays a crucial role in text analysis, as texts are not merely governed by grammatical rules but also by a myriad of cultural and historical contexts. Determining the author's intentions, mood, tone, and other subjective factors may be difficult to incorporate into a computer algorithm. Thus, while AI offers promising advancements in text analysis, it must be supplemented by human interpretation to fully capture the richness and complexity of language and literature (Biró, Cuesta-Vargas and Szilágyi, 2023).

Regarding the topic being studied, it is important to acknowledge some limitations of the research. One of the limitations is related to the use of Salesforce Einstein AI for linguistic text analysis in philological research. This technology is new and unexplored in the scientific world, which may impact the accuracy of the results. Another limitation is that there is not enough quantitative and qualitative data available for this study to provide precise analysis outcomes.

To address these limitations, future research on the use of Salesforce Einstein AI in linguistic research could focus on improving AI technologies, to reduce the impact of biases on text analysis.

Researchers may also look for ways to correct inappropriate results generated by biases and develop techniques to avoid these problems.

Moreover, researchers may introduce methods for providing explanations to Salesforce Einstein AI systems (Basha et al., 2023). This would allow researchers to gain a more detailed understanding of how Salesforce Einstein AI came to its conclusions and what features of the model led to certain results. Such an approach could help identify and correct possible errors and shortcomings of the system.

Given the enormous potential of Salesforce Einstein AI in philological research, future studies may also consider the broader issue of the ethical use of Salesforce Einstein AI. All of these areas of future research could compensate for the limitations of Salesforce Einstein AI, and provide more accurate and reliable text analysis in philological research.

To address the limitations of Salesforce Einstein AI in processing nuanced human language features, future research in linguistic analysis could focus on several key areas. One avenue of exploration involves improving AI technologies to mitigate the impact of biases on text analysis. By identifying and reducing biases within AI algorithms, researchers can enhance the accuracy and fairness of text analysis results. Additionally, researchers may develop techniques to correct inappropriate outcomes generated by biases, thereby improving the reliability of AI-driven analyses.

Another promising approach is to introduce methods for providing explanations to Salesforce Einstein AI systems. By implementing mechanisms that elucidate the decision-making process of the AI, researchers can gain insights into how conclusions are reached, and which features of the model contribute to specific results. This transparency can facilitate the identification and rectification of potential errors or shortcomings in the system, leading to more reliable outcomes.

Furthermore, researchers may explore the ethical implications of using Salesforce Einstein AI in philological research. Consideration of ethical concerns such as privacy, data security,

and algorithmic accountability is crucial to ensure responsible and equitable use of AI technologies. By addressing ethical considerations, researchers can promote trust and confidence in AI-driven text analysis methods.

Overall, future studies that focus on improving AI technologies, enhancing transparency in decision-making processes, and addressing ethical concerns have the potential to compensate for the limitations of Salesforce Einstein AI. By advancing these areas of research, scholars can facilitate more accurate and reliable text analysis in philological research, ultimately enhancing our understanding of language and literature.

## **6. Conclusion**

Artificial intelligence is widely used in various fields of science, including philology, linguistics, and literature. With the help of AI-powered linguistic text analysis, researchers can now explore new opportunities for understanding and interpreting texts. One such tool is Salesforce Einstein AI, which is a powerful system designed for text analysis in philological research. However, this system has some limitations, and its use has raised concerns about the interference of AI with the unique nature of the human mind, subjectivity, and ethical issues.

Despite these concerns, AI-powered natural language processing systems like Salesforce Einstein AI have great potential for use in linguistic text analysis. The system can extract valuable information from large amounts of text data, perform complex tasks such as emotion analysis and named entity recognition, and ensure high accuracy of results. Philologists can use this technology to improve their work and achieve their goals.

However, to address the concerns raised by followers of classical philology, future research should focus on improving AI technologies, reducing the impact of biases, providing explanations of the system, and addressing ethical issues related to AI's use in philological research. Developing additional tools for using artificial intelligence in text analysis can help improve the quality and accuracy of the

conclusions drawn from this analysis.

The use of artificial intelligence in linguistic text analysis opens up new possibilities for understanding and interpreting texts and creates the basis for the emergence of a new, electronic philology. Consistent use of AI in philological research can lead to an increase in the efficiency and speed of information processing, which can accelerate scientific progress in the field. To prevent possible negative consequences, authors have identified ethical principles for using Salesforce Einstein AI in philological research.

In conclusion, the understanding and application of artificial intelligence in philology can contribute to the development of new research methods and progress in the field.

The potential applications of AI-powered linguistic text analysis, such as Salesforce Einstein AI, extend beyond philology to various other areas of the humanities. Here are some directions for future research and potential applications:

Researchers can explore the use of AI in analyzing language structures, dialects, and language evolution. AI-powered systems can help identify linguistic patterns and changes over time, contributing to our understanding of language diversity and development. AI can also assist literary scholars in analyzing literary texts, identifying themes, motifs, and literary devices. By applying natural language processing techniques, researchers can uncover hidden meanings, authorial intent, and stylistic nuances in literature.

AI-powered text analysis can aid cultural researchers in examining cultural artifacts, beliefs, and practices. By analyzing textual data from various cultural sources, researchers can gain insights into cultural norms, values, and identities.

It can assist historians and archaeologists in analyzing historical texts and artifacts. By extracting information from historical documents and inscriptions, AI-powered systems can help reconstruct historical events, timelines, and societal structures.

Future research should prioritize addressing

ethical concerns related to AI's use in the humanities. This includes ensuring transparency, fairness, and accountability in AI algorithms and decision-making processes. Ethical guidelines and principles should be established to govern the responsible use of AI in research and scholarly endeavors.

The integration of AI in linguistic text analysis holds promise for advancing research and scholarship across various disciplines in the humanities. By harnessing the power of AI, researchers can gain deeper insights into language, literature, culture, and history, ultimately enriching our understanding of the human experience. However, it is imperative to proceed with caution and adhere to ethical principles to mitigate potential risks and ensure the responsible use of AI in the humanities.

## **Author contributions**

Conceptualization, Iryna Strashko and Inesa Melnyk; methodology, Valentyna Kozak; investigation, Nataliia Torchynska; resources, Valentyna Kozak; data curation, Valentyna Kozak; writing—original draft preparation, Nataliia Torchynska; writing—review and editing, Inesa Melnyk; visualization, Olena Dyiak; supervision, Iryna Strashko; project administration, Inesa Melnyk.

## **Conflict of Interest**

The authors declare no conflict of interest.

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