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LINGUISTIC FEATURES OF ARTIFICIAL INTELLIGENCE TERMINOLOGY IN MODERN ENGLISH

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Abstract. The rapid development of artificial intelligence (AI) has significantly influenced the vocabulary of modern English, contributing to the emergence of new terminological units, semantic transformations, and innovative word-formation patterns. Artificial intelligence terminology represents a dynamic lexical system that reflects technological progress and the increasing interaction between language, science, and digital communication. This study examines the linguistic features of AI-related terminology in modern English, focusing on its morphological structure, lexical-semantic characteristics, word-formation mechanisms, and functional usage. The research employs descriptive, structural-semantic, componential, and contextual analysis to investigate selected AI-related terminological units. Particular attention is paid to compound terms, abbreviations, neologisms, metaphorical expressions, and semantic shifts. The analysis demonstrates that English AI terminology is characterized by a high degree of productivity, interdisciplinary interaction, semantic flexibility, and continuous lexical expansion. The findings contribute to a better understanding of contemporary English terminological development and provide insights into the relationship between technological innovation and linguistic change.

Keywords: artificial intelligence, terminology, modern English, linguistic features, neologisms, word formation, semantic change, compound terms, lexical semantics, technological discourse.

INTRODUCTION

The development of artificial intelligence has become one of the most influential technological phenomena of the twenty-first century. Its integration into education, healthcare, economics, communication, engineering, and scientific research has generated significant changes not only in technological practices but also in contemporary language development. As artificial intelligence continues to expand into different areas of human activity, the English language increasingly incorporates specialized vocabulary associated with intelligent systems, computational processes, machine learning, and automated communication.

English plays a particularly important role in the international dissemination of artificial intelligence terminology. A considerable proportion of scientific publications, technical documentation, software interfaces, and professional discussions concerning AI are produced in English. Consequently, English has become a major source of terminological innovation in this field.

Terminology is an essential component of scientific communication because it enables specialists to identify, describe, and exchange knowledge about specific concepts. According to

Cabré (1999), terminology is closely connected with specialized knowledge and communication. In this respect, artificial intelligence terminology can be regarded as a developing linguistic subsystem that reflects the conceptual structure and technological characteristics of the AI domain.

The linguistic characteristics of AI terminology are particularly interesting because this vocabulary combines traditional linguistic mechanisms with newly emerging forms of technical expression. Terms such as machine learning, neural network, deep learning, natural language processing, and generative artificial intelligence demonstrate the productive use of compounding and multiword lexical structures. Meanwhile, abbreviations such as AI, NLP, GPT, and LLM illustrate the tendency toward lexical economy in professional communication.

Another significant characteristic of AI terminology is the semantic transformation of ordinary English words into specialized technical terms. Words such as learning, training, attention, memory, hallucination, and prompt have acquired specialized meanings within artificial intelligence discourse. Their development illustrates the interaction between general vocabulary and specialized terminology.

Recent research has also emphasized the importance of corpus-based approaches to the investigation of artificial intelligence terminology. Mikelionienė and Motiejūnienė (2021) demonstrate that AI terminology is multidisciplinary and that contextual analysis is essential for identifying the meanings and functions of specialized lexical units. Furthermore, recent linguistic research highlights the role of metaphorical expressions and anthropomorphic language in shaping public and professional understandings of artificial intelligence (Inie et al., 2026).

Despite the growing interest in artificial intelligence, its terminology requires continued investigation from morphological, semantic, lexical, and functional perspectives. Understanding these features is important for linguistic research, specialized translation, terminology standardization, and professional communication.

Research aim. The primary aim of this study is to identify and analyze the major linguistic features of artificial intelligence terminology in modern English.

Research objectives:

1. To examine the structural and morphological characteristics of AI-related terminology.
2. To identify the main word-formation mechanisms used in the development of AI terms.
3. To analyze semantic changes and metaphorical expressions in AI vocabulary.
4. To investigate the role of abbreviations and neologisms in specialized communication.
5. To determine the functional characteristics of AI terminology in contemporary English discourse.

MATERIALS AND METHODS

The research is based on a qualitative descriptive approach combined with structural, semantic, and contextual linguistic analysis. The primary material consists of selected English-language artificial intelligence terms commonly used in academic publications, technical documentation, and professional technological discourse.

The selection of terminological units follows a purposive sampling approach. The illustrative dataset includes 30 representative terms associated with the principal conceptual areas of artificial

intelligence, including machine learning, neural networks, natural language processing, generative systems, and computational models.

The selected terms were examined according to their morphological structure, semantic composition, word-formation mechanisms, and contextual functions.

The following research methods were employed:

1. Descriptive method. This method was used to identify and describe the general linguistic characteristics of artificial intelligence terminology.

2. Structural analysis. This approach examined the internal composition of AI terms, including simple lexical units, compound words, multiword expressions, and abbreviations.

3. Semantic analysis. This method investigated the meanings of specialized terms and identified semantic extension, narrowing, metaphorical transfer, and terminological specialization.

4. Componential analysis. This approach was applied to examine the semantic components of selected terminological expressions and identify relationships between their constituent elements.

5. Contextual analysis. This method examined how AI-related terms function in specialized communication and how their meanings are influenced by professional and technological contexts.

The methodological framework was informed by established principles of terminology research, particularly the relationship between concepts, definitions, and designations described in ISO 704:2022. The importance of contextual and corpus-based approaches was also considered in accordance with previous research on artificial intelligence terminology (Mikelionienė & Motiejūnienė, 2021).

The study is qualitative and exploratory in nature. Its illustrative sample is intended to demonstrate recurring linguistic patterns rather than establish statistical frequencies for the entire English AI vocabulary.

RESULTS AND DISCUSSION

Structural and Morphological Features of Artificial Intelligence Terminology

One of the most significant characteristics of artificial intelligence terminology is its structural diversity. AI-related vocabulary includes simple words, compound formations, complex terminological expressions, and abbreviations.

Simple lexical units are represented by terms such as algorithm, model, dataset, token, and prompt. These expressions generally denote fundamental concepts, processes, or components of artificial intelligence systems.

Compound terms represent another important category. Examples include:

- Machine learning
- Deep learning
- Neural network
- Data mining
- Speech recognition
- Knowledge representation
- Computer vision
- Natural language processing

These expressions demonstrate the productivity of compounding in the formation of specialized English vocabulary.

The majority of the selected multiword terms consist of two or more lexical elements that collectively express a specialized concept. Their meanings are not always fully predictable from their individual components, which makes contextual interpretation particularly important.

For instance, the expression machine learning does not simply refer to a machine performing an ordinary learning activity. It describes a computational process through which systems identify patterns and improve their performance using data.

Similarly, neural network refers to a computational model inspired by certain organizational principles of biological neural systems.

The structural diversity of AI terminology demonstrates that English uses both existing lexical resources and newly developed combinations to express increasingly complex technological concepts.

Word-Formation Mechanisms in AI Terminology

The analysis identifies several productive word-formation mechanisms that contribute to the expansion of artificial intelligence vocabulary.

Compounding

Compounding is one of the most productive mechanisms in the formation of AI terminology. It involves combining two or more lexical elements to create a new specialized expression.

Examples include:

Term	Components	Meaning
Machine learning	Machine + learning	Computational learning from data
Deep learning	Deep + learning	Learning through multilayer neural networks
Neural network	Neural + network	A computational network inspired by biological neurons
Data mining	Data + mining	Extracting useful patterns from data
Chatbot	Chat + bot	An automated conversational system

Compounding enables the creation of concise expressions that communicate complex technical concepts.

Abbreviation and Acronym Formation

Abbreviations are particularly common in scientific and technological communication because they reduce the length of frequently used expressions.

Examples include:

Abbreviation| Full form| Linguistic function

AI| Artificial Intelligence| General field designation

NLP| Natural Language Processing| Specialized technical designation

GPT| Generative Pre-trained Transformer| Model architecture designation

LLM| Large Language Model| Computational model designation

ML| Machine Learning| Research field designation

AGI| Artificial General Intelligence| Conceptual designation

These abbreviations contribute to linguistic economy and facilitate communication among specialists.

However, they may create difficulties for non-specialists and language learners because understanding them often requires prior knowledge of the relevant technological concepts.

Affixation and Derivation

Affixation also contributes to the formation of AI-related vocabulary. Existing English morphological patterns are used to create words associated with computational processes and technological functions.

Examples include:

- Tokenization – the process of dividing text into tokens.
- Embedding – representing information in a numerical vector space.
- Fine-tuning – adapting a pretrained model to a particular task.
- Personalization – adapting system outputs to individual users.
- Automation – the use of technology to perform processes with reduced human intervention.

These examples demonstrate how established morphological resources are applied to emerging technological concepts.

Blending and Clipping

Some AI-related expressions are formed through blending or shortening.

For example, chatbot combines elements associated with conversation and automated software functionality. The term bot is also a shortened form associated with robot.

Such formations demonstrate the tendency of modern English to develop compact lexical units suitable for rapid technological communication.

Lexical-Semantic Characteristics of AI Terminology

The semantic organization of artificial intelligence terminology represents another important aspect of its linguistic structure.

A notable feature is terminological specialization, whereby general English words acquire specific meanings within the AI domain.

For example:

№	General English word	Specialized AI meaning
1	Learning	Computational acquisition of patterns from data
2	Training	The process of adjusting model parameters using data
3	Attention	A mechanism for assigning different weights to information
4	Memory	A mechanism for storing or retrieving information
5	Prompt	An input or instruction provided to an AI system
6	Hallucination	An AI-generated output containing fabricated or

		unsupported information

These examples illustrate semantic specialization and the development of domain-specific meanings.

In some cases, the specialized meaning differs considerably from the ordinary meaning of the original word. Consequently, the interpretation of AI terminology depends heavily on the communicative context.

Another important phenomenon is semantic extension. Existing words acquire additional meanings as technological concepts develop.

For example, the word prompt traditionally refers to a stimulus or reminder. In generative AI discourse, it has developed a specialized meaning referring to an instruction or input supplied to a model.

Similarly, training is used in artificial intelligence to describe a computational procedure rather than the conventional process of human education or physical preparation.

These transformations demonstrate the flexibility of English vocabulary and its ability to accommodate new scientific concepts.

Metaphorization and Anthropomorphic Expressions

Metaphorization is an important mechanism in the development and interpretation of AI terminology.

A considerable number of AI-related expressions are based on conceptual similarities between technological processes and human or biological activities.

Examples include:

- Neural network
- Machine learning
- Deep learning
- Artificial intelligence
- Computer vision
- AI hallucination

The expression neural network is based on an analogy between computational structures and biological neural systems. Although artificial neural networks are mathematical and computational models, the terminology reflects an association with the organization of the human nervous system.

Similarly, machine learning employs the concept of learning, which is traditionally associated with human and animal cognitive development.

The expression computer vision transfers the concept of biological vision to the technological ability of computer systems to process and interpret visual information.

The term hallucination is particularly interesting because it transfers a concept associated with human perception into the domain of AI-generated information. In contemporary AI discourse, it describes outputs that appear plausible but contain inaccurate or unsupported information.

Such expressions make complex technological concepts more accessible. Nevertheless, anthropomorphic terminology may also create misleading impressions about the actual capabilities of artificial intelligence systems.

Recent research by Inie, Zukerman, and Bender (2026) emphasizes the importance of examining anthropomorphic language critically, particularly when human-like expressions may obscure the actual technical characteristics of AI systems.

Therefore, metaphorical terminology should be interpreted within its specialized conceptual context rather than through its literal meaning alone.

Neologisms and the Dynamic Development of AI Vocabulary

The rapid development of artificial intelligence has contributed to the continuous emergence of neologisms in modern English.

Neologisms are newly created lexical units or existing expressions that acquire new meanings in response to technological, scientific, and social changes.

Examples of contemporary AI-related vocabulary include:

- Generative AI
- Prompt engineering
- Large language model
- Retrieval-augmented generation
- AI alignment
- Synthetic data
- Multimodal AI
- Fine-tuning

These expressions reflect the development of new technologies and the emergence of specialized research areas.

For instance, prompt engineering refers to the practice of designing and refining instructions to obtain more appropriate outputs from generative AI systems.

Similarly, retrieval-augmented generation describes an approach that combines information retrieval with generative model capabilities.

The emergence of these terms demonstrates that terminology development is closely connected with technological innovation.

However, not all newly emerging expressions immediately become standardized. Some terms may have competing forms, overlapping definitions, or different interpretations across professional communities.

ISO 704:2022 provides important principles for terminology work by emphasizing the relationships between concepts, definitions, and designations. These principles are particularly relevant to the standardization of rapidly developing AI vocabulary.

Functional Characteristics of AI Terminology in Modern English

Artificial intelligence terminology performs several important functions in contemporary English communication.

Nominative function. AI terms provide names for technological objects, processes, methods, and concepts. For example, neural network identifies a particular type of computational model.

Cognitive function. Specialized vocabulary contributes to the organization and transmission of scientific knowledge. Terms such as machine learning and deep learning help distinguish different approaches within artificial intelligence.

Communicative function. AI terminology facilitates professional communication among researchers, engineers, developers, educators, and other specialists.

Informative function. Technical terms convey specific information about technological processes and system capabilities.

Educational function. AI terminology is increasingly incorporated into academic curricula, professional training, and English for Specific Purposes (ESP) courses.

The functional diversity of AI terminology demonstrates that it is not merely a collection of technical expressions but an important linguistic resource for scientific and professional communication.

The findings suggest that the development of AI terminology is characterized by the interaction of traditional word-formation mechanisms and innovative semantic processes.

In particular, compounding and abbreviation facilitate the formation of concise technical expressions, while semantic specialization and metaphorization enable existing vocabulary to represent newly developed technological concepts.

The findings are consistent with previous corpus-based research demonstrating the multidisciplinary and context-dependent nature of artificial intelligence terminology (Mikelionienė & Motiejūnienė, 2021).

CONCLUSION

The study examined the linguistic features of artificial intelligence terminology in modern English, focusing on its structural, morphological, lexical-semantic, and functional characteristics.

The analysis demonstrates that AI terminology represents a dynamic and continuously developing component of contemporary English vocabulary. Its expansion is closely connected with technological innovation, scientific progress, and the increasing use of artificial intelligence across different professional and academic domains.

Several important conclusions can be drawn from the research.

First, artificial intelligence terminology is characterized by considerable structural diversity. Simple lexical units, compound expressions, derived forms, and abbreviations collectively contribute to the formation of its specialized vocabulary.

Second, compounding and abbreviation represent particularly productive mechanisms of terminological formation. Expressions such as machine learning, neural network, deep learning, and abbreviations such as AI, NLP, and LLM demonstrate the tendency toward concise and conceptually informative linguistic structures.

Third, semantic specialization and metaphorization play an important role in the development of AI vocabulary. General English words such as learning, training, attention, and memory acquire specialized meanings within technological discourse. At the same time, metaphorical expressions

such as neural network and computer vision demonstrate the transfer of concepts from biological and human domains into computational terminology.

Fourth, the continuous emergence of neologisms reflects the dynamic relationship between technological development and linguistic change. New expressions such as prompt engineering, generative AI, and retrieval-augmented generation illustrate the expansion of English terminology in response to emerging technological practices.

Finally, the study highlights the importance of contextual interpretation and terminological standardization. As AI-related vocabulary continues to develop, consistent definitions and accurate usage become increasingly important for scientific communication, translation, and professional education.

Further research may investigate the frequency, distribution, and semantic development of AI terminology through larger specialized English-language corpora. Comparative studies involving English and other languages may also contribute to a deeper understanding of terminological adaptation and standardization in the international digital environment.

Overall, artificial intelligence terminology provides valuable evidence of how technological innovation influences the structure, meaning, and functional development of modern English.

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