уваги, тактики надання точних дефініцій та наведення прикладів, тактики ініціювання комунікації.

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THE SIGNIFICANCE OF LINGUISTICS IN THE DEVELOPMENT OF ARTIFICIAL INTELLIGENCE

ЗНАЧЕННЯ ЛІНГВІСТИКИ У РОЗВИТКУ ШТУЧНОГО ІНТЕЛЕКТУ

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Introduction. The possibilities of practical application of linguistics in computerised systems had been rather limited until the situation shifted with the development of large language models (LLM), manifesting a revolutionary change in the sector. This technology serves to process existing

language samples and on their basis generate new ones. Although the analysed and produced language data exists as ones and zeroes, the encoded information comprises words represented by the mentioned binary code. Everything that exists or could be thought of can be described in most contemporary languages; and what can be described, could also be encoded, processed, and altered by these computerised systems. For computers to understand people, or even produce language examples, they need to incorporate grammar, semantics, and stylistics, with all possible rhetorical devices, such as metaphors, synecdoche, similes, and many more. Linguists use their expertise to train artificial intelligence (AI) to recognise and recreate language samples similar to the ones created by real people.

The aim of this study is to investigate the significance of linguistics in the functioning and development of artificial intelligence (AI).

Methods and materials of the research. The crux of this research is the practical application analysis of linguistic sciences in the processing and recreation of speech samples by artificial intelligence. The methodology of this research combines the use of analysis, synthesis, comparison, classification, and systematization.

I. The importance of context

Successful recognition of the contextual structure of every sentence is key to their proper analysis and reproduction by artificial intelligence. The role of the lexemes with multiple meanings or homonyms in a given sentence might only be deduced from the context. For example, the word *field* in its primary meaning might be synonymous with *meadow, pasture,* and *acre* [5]. Scores of other semantic values, in the role of a noun or any other part of speech, would include definitions such as *area, sphere, discipline,* and *department,* or even *to deal with, practical,* and *competitors* [5]. For the LLMs to recognise the appropriate meaning of every word, they need access to immense language data banks and to operate according to the algorithms elaborated by the linguists and encoded by the IT specialists.

The situation with the phraseological units, such as idioms and other set expressions is quite similar, and depending on the motivation phrases might be interpreted in distinct ways. Practically non-motivated phraseological units require prior knowledge about their meaning and cannot be understood based on the collective semantic values of their parts. Partially motivated set phrases include some words used directly and others in their indirect meaning [2, p. 190–191]. For instance, the idiom *sour grapes* is completely non-motivated since the correct sense of the phrase cannot be deciphered from the individual meanings of its constituent parts [6]. The proper definition of the phrase is *to dismiss something that one cannot have by reducing its value or significance.* Its use in a sentence would be, *"She said*

that she did not need that powerful laptop for the kind of work she does. I think it was just sour grapes. In reality, she could not afford it."

The phrase *sour grapes* might be used in its literal meaning, which most often can be found in viticulture or gastronomy to signify the grapes that are not ripe or the bunches with high acidity. For artificial intelligence to analyse the word pair *sour grapes* correctly, the same is true about the human mind, the context is of the essence [6].

II. Shared knowledge and connotations

Examining what a lexical unit signifies, without even realising it, people tend to check for all possible connotations it might convey and operate based on the previously acquired experience. In his book, James Paul Gee suggests, *"However, context is, in a sense, infinite. We can always learn more about the context in which an utterance was made, i.e. the physical environment, the previous utterances and interaction of the people involved, their shared knowledge, including shared cultural knowledge"* [3, p. 31]. For the AI to function properly, it should always establish its output according to as much examined data as possible; luckily LLMs have sufficient processing capacity and extensive data banks. However, shared knowledge might extend as far as the colour of the eyes of someone's cat and cannot be expected to be universal even for people of the same culture or sub-culture.

III. Speech acts

The difference between the literal meaning of the words constituting a phrase (locution) and the speaker's intention (illocution) might be impossible to decipher fully even for the people who are in constant contact with the speaker. The locutionary and illocutionary acts are performed simultaneously. Austin in his *How to do things with Words* suggests, *"To perform a locutionary act is in general, we may say, also and eo ipso to perform an illocutionary act, as I propose to call it"* [1, p. 98]. Intonation or setting can alter the utterance's gist.

The effect of the expression on the hearer is the object of expansive research that incorporates cognitive science and is commonly referred to as perlocution. John L. Austin states, "*Saying something will often, or even normally, produce certain consequential effects upon the feelings, thoughts, or actions of the audience, or of the speaker, or of other persons: and it may be done with the design, intention, or purpose of producing them;"* [1, p. 101].

The AI's goal in deducing the meaning should not be perfect performance in every instance, but rather standing up to the challenges; people are subconsciously aware of potential interpretation flaws and tend to adjust comprehension errors and correct their speech mistakes [4, p. 723–725].

Conclusions. As information technologies (IT) progressed, it became clear that the processing of existing data was not the limit, the next step would be information reassembling in a manner that would resemble the creation of brand-new language instances. This principle is not foreign to the human brain and forms a brief description of how people's creativity functions, which proves that the imitation of the processing patterns of human intelligence by AI could be considered a success in IT and linguistics. Languages are complex systems with rules that can be bent depending on the situation, or more precisely, on the context. The semantic values of the words in a sentence highly depend on the context of the utterance and LLMs can deduce their true meaning only by implementing numerous linguistic nuances in the algorithms of AI.

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