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THE LINGUISTIC PROBLEMS OF ARTIFICIAL INTELLIGENCE

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Abstract: The article examines the linguistic problems of artificial intelligence, which are currently being studied as a priority research object in all countries of the world, and the border areas of artificial intelligence related to linguistics, which are developing rapidly. The author believes that computational linguistics, corpus linguistics, statistical lexicography, text linguistics, cognitive linguistics, neurolinguistics, machine translation, natural text processing systems and other areas of linguistics related to information and communication technologies should be studied in the context of the approach to the problems of artificial intelligence. Various problems in the field of linguistics from a new point of view within the framework of artificial intelligence tasks will create the opportunity to obtain more effective and optimal results. There are also interesting views of the author on the nature of artificial intelligence. As is known, experts have formed the opinion that

artificial intelligence imitates human thinking and intelligence, tries to think in the same way and draw conclusions. According to the author, in fact, artificial intelligence does not imitate human thinking, on the contrary, a human researcher poses a question so that it could be "perceived" by artificial intelligence, "it could be executed by it", adapts his thinking abilities and way of thinking to artificial intelligence, "goes down to the level", operates with purely formal categories and concepts. A human researcher builds such an artificial model of thinking that he can use it to conduct formal linguistic analysis at all language levels, process texts using formal principles, transform computer voice (speech) into text, and text into voice (speech), except for one language, perform automatic machine (computer) translation into this language. This feature is increasingly manifested in the process of development of linguistic technologies. The author comes to the conclusion that artificial intelligence does not imitate human thinking, on the contrary, a person tries to perform certain operations at the level of artificial intelligence, adapts his way of thinking to artificial intelligence, using formal concepts and categories specific to artificial intelligence. .

Key words: Artificial intelligence, thinking ability, linguistic problems, human researcher, computational linguistics, entropy, text linguistics, machine automation.

Introduction

This scientific article also contains information about the existence of the idea that artificial intelligence at later stages of development will become an uncontrollable tool and will pose a threat to humanity. It is quite possible that in the future, artificial intelligence systems can be improved using special self-training programs based on the accumulated knowledge base and experience, achieving more serious, different and unexpected results. Thus, as an independent, autonomous system, artificial intelligence can become the executor of complex processes that human intelligence is unable to perform. Based on this aspect, many experts note the risk that artificial intelligence can pose a threat to humanity (1,87-92).

Professor Masud Makhmudov's views on entropy are also interesting. Observations show that at the initial stages of the research process, more new facts are collected, new concepts and terms are used. Despite the deepening and expansion of research at later stages, the discovery and acquisition of new facts gradually decreases (3,124-129).

As is known, sentences that make up any text use different numbers of letters, and their informative potentials and capabilities are different. Frequently occurring letters with a high processing frequency are few, while less frequently occurring letters with a low processing frequency are more information carriers. Consequently, the amount of information carried by letters is inversely proportional to the frequency of their processing. The same applies to statistical dictionaries. No matter how much we subsequently increase the sample size by adding new texts, there are no serious changes or minor differences in the vocabulary of frequency dictionaries.

This event is often objectively characterized as unpredictability, uncertainty, obscurity, disorganization of perception in the cognitive process. This phenomenon, called entropy, is considered the most complex and difficult to explain concept in science and at the same time the most relevant and comprehensive scientific explanation observed in real life. Entropy has a very wide scope of application, it manifests itself in natural phenomena and human relationships. In information theory, text linguistics and statistical lexicography, the features of entropy manifestation should be taken into account in artificial intelligence systems (9, Entopy.ru.wiki-pedia.org/wiki/fuzzy_ logic/entropia).

Another interesting approach is related to the linguistic interpretation of the incompleteness theorem of Gedel, an outstanding scientist in the field of mathematical logic. Based on these provisions, Masud Makhmudov comes to the conclusion that it is impossible to conduct a complete phonetic, morphological and syntactic analysis, limiting ourselves to the level of phonetics, morphology or syntax. Because it is impossible to fully explore and understand any system with its elements (4,61-63). There comes a stage when it is necessary to resort to other levels. The linguistic interpretation of Gedel's incompleteness theorem allows us to penetrate deeper into the process of analysis and synthesis of linguistic units, to explore the mathematical-logical-philosophical roots of the

formal analysis system. According to the author, it is very important to take this factor into account in artificial intelligence systems.

Methodology and scope of research

The author shows that the differentiation and integration of sciences, which is a dialectical process, is an event similar to the "compression and opening of a spring", "the swelling and retreat of the sea". Once upon a time there was a science of philosophy, all sciences originate from there, and all fields of science are a product of the differentiation of the treasury of knowledge called philosophy, just as summer can be compressed to a certain limit, the differentiation of sciences is not eternal, after a certain time the reverse process of integration must occur. The science of artificial intelligence is also a continuation of this dialectical process, sciences, differentiated and divided into micro-branches, tend to integrate, concentrate around a single scientific concept, a single scientific direction.

This is the essence of the integration of linguistics into the problems of artificial intelligence, and they are a natural result of the dialectical cognitive process, such as differentiation and integration of these sciences can be characterized by The author considers it important to evaluate the research work carried out in the field of linguistics within the framework of artificial intelligence problems. This also means approaching these studies from a new point of view. A new, different approach will create an opportunity to expand the work in the direction of conducting useful and effective scientific research for society (6,203-210).

According to the concept of knowledge of Aristotle, the founder of classical logic, if a person speaks, what he says can be either true or false. Aristotle did not recognize intermediate degrees between truth and falsehood. According to classical logic, if we take truth as 1 and falsehood as 0, then it is considered that all realities and falsehoods (unrealities) of the world consist of the values 1 and 0. In fuzzy logic or fuzzy logic, founded by Lotfi Zadeh, the attitude to this issue is completely different. In fuzzy logic, true and false do not consist of 1 and 0, it occurs in the interval of 0 and 1. Lotfi Zadeh's fuzzy logic believes that there are intermediate degrees and stages between the categories of true and false, and they must be taken into account in the cognitive process.

Discussion

Linguistic problems of artificial intelligence are one of the pressing issues of the modern era. From this point of view, the opinions of scientists who say that everything is graded in a certain interval are interesting, that is, there is nothing in the world that is absolutely white and absolutely black. There are thousands of nuances between these two concepts (10, az.wikipedia.org/wiki/ fuzzy logic). Ignoring them complicates the cognitive process and leads to incorrect results. Lotfi Zadeh's fuzzy logic theory focuses on three concepts:

– the concept of a fuzzy set;
– the concept of fuzzy relation;
– the concept of a linguistic variable(5, 28-44).

To understand fuzzy logic, to accept it as a scientific hypothesis, it is necessary to partially abandon the traditional way of thinking. The world is not a closed system consisting of "0" and "1", the existence and reality of the world [0; 1] is easier to understand in the range and many phenomena find an accurate and realistic explanation, such an approach is not able to explain the real picture and existence of the world. On the scale of "love" and "hate" there are many shades of feelings and concepts that arise from love and gradually, step by step approach hate or move away from hate and approach love. This is the true tone, color, feeling and concepts of the real world, the real picture of the world around us, an objective explanation.

The world can be understood and explained only by accepting this reality, getting rid of the traditional way of thinking that we have taken as a basis until now, and partially abandoning: For example: "When does evening begin and when does it end?" "What time is considered evening" - "Can the period from 16:30 to 23:30 be considered evening?" "When does morning begin and when does it end - is the period from 04:00 to 12:30 considered morning?" At what degrees do the boundaries of heat (as well as cold) begin and when do they close? Such a vague numerical expression causes confusion and misinterpretations.

Since natural language cannot express this spectrum of meanings in words, it also has problems in this regard. In this sense, there is a need for a new

methodology and a new approach so that natural language itself can express such realities. Based on this, Lotfi Zadeh showed that it is necessary to move from calculation with numbers to expression with words - linguistic expression. The main contribution of fuzzy logic is the creation of a methodology for calculating with words. The transition from numerical calculations to calculations with words - from manipulations with sizes - manipulations with sensory images would be the beginning of a new stage in fuzzy logic

It is often said that artificial intelligence imitates human thinking and intelligence, thinking in the same way, and here we see a paradoxical situation. In our opinion, in fact, from artificial intelligence we often hear that artificial intelligence imitates human thinking and intelligence, tries to think in the same way and draw conclusions. Here we see a paradoxical situation. In fact, artificial intelligence does not imitate human thinking.

Sometimes, on the contrary, a person sets a task so that artificial intelligence can "perceive" it, "it can perform it", adjusts its thinking abilities, way of thinking to artificial intelligence, descends to its level, operates with purely formal categories and concepts, constructs an artificial model, on the basis of which, with the help of formal principles, it is possible to perform certain linguistic or non-linguistic operations on a computer. That is, a linguist must be able to conduct formal linguistic analysis at all language levels within the framework and context of artificial intelligence, text processing with formal principles must be possible, a computer must be able to transform voice (speech) into text, text into voice (speech), automatic machine (computer) translation from one language to another must be implemented. This feature is increasingly manifested in the process of development of linguistic technologies (7,185-210).

In the process of natural text processing, a person descends to the level of thinking and perception and implementation of artificial intelligence and seeks solutions based on purely formal criteria. He develops a system of formal signs so that artificial intelligence can process natural text on their basis and build linguistic analysis systems based on formal principles. At the same time, artificial intelligence does not imitate human thinking, but, on the contrary, tries to perform certain operations at the level of human artificial intelligence. A person adapts his way of thinking to artificial intelligence, using formal concepts and categories characteristic of artificial intelligence.

It is often said that artificial intelligence imitates human thinking and intelligence, tries to think in the same way and draw conclusions. Here we see a paradoxical situation. In our opinion, artificial intelligence does not imitate human thinking. Sometimes, on the contrary, a person makes a problem "perceived" by artificial intelligence, "implementable by it", adapts his thinking abilities, way of thinking to artificial intelligence, descends to its level, operates with purely formal categories and concepts(8, ru.wikipedia.org/wiki/artificial_ intellect). Man builds such an artificial model of thinking that computers can perform certain linguistic or non-linguistic operations with formal principles. That is, a linguist can conduct formal linguistic analysis at all language levels within the context of artificial intelligence.

Language is regulated by grammar and grammatical rules. It should be taken into account that grammar was created at later stages of language development as a product of human thinking. Grammar was created by people in order to better master the language, understand it, get to it the essence of the language and explain linguistic phenomena to native speakers and native speakers of other foreign languages. That is, language, communication - this is the first thing(2,167).

Grammar is a secondary thought. Language does not obey grammatical rules. Grammatical laws serve to explain the nature of language, the possibilities of development and use, and its peculiarities. "You cannot speak or write like that because it is contrary to grammar" is wrong. A particular form of speech or writing may correspond not to grammar, but to grammatical norms. Grammar does not create language, it explains it. Grammar should be gradually improved and directed toward understanding, analyzing, and explaining the inexplicable language.

Conclusion and results

Another approach is the proposed principles regarding the organization of formal analysis systems within the framework of artificial intelligence tasks:

-The first and most important principle is that a complete formal expression of the language is possible at all levels, and on the basis of this formal expression texts can be used on computers in a variety of ways, it can be processed for purposes (analysis, synthesis, translation into another language, summary, etc.).

- The second important principle is related to the creation of models that serve to reveal the essence of linguistic phenomena and patterns based on the formal expression of language and formal principles. Modeling in linguistics is not a new phenomenon. Linguistic models based on the principles of engineering linguistics mentioned in the study have the property of imitating and generating real linguistic phenomena and patterns that they serve. In the process of constructing such a linguistic model, a certain assumption is first made about some linguistic object and, based on this assumption, an analogue of this object is created. In these models, the linguistic object itself is reconstructed based on its analogue. The scientific and theoretical significance of the model is measured by the degree of closeness of the linguistic object and its reconstructed copy based on the analogue. If the object reconstructed according to the model coincides with the real linguistic object, if there is a great deal of closeness between them, then the properties of this model to clarify this or that linguistic phenomenon are highly valued. If the reconstructed linguistic object is far from reality, the assumption underlying the linguistic model is also not considered correct.

- The third principle is connected with the inclusion of linguistics in the category of exact sciences. At all levels of language there is a strict regularity, completeness, systemicity and accuracy.In our opinion, the inaccuracies and different interpretations observed in language research are not the result of the language system, but the result of approaching language from different points of view.

-Finally, the fourth important principle is connected with the incompleteness theorem, which opened a new stage in the development of the science of mathematical logic. This theorem can be successfully applied not only to the theory of algorithms, but also to the study and consideration of interactions and connections between individual layers of the language system.

As is known, the units that make up individual levels of the language system interact with each other and are formed in connection with this. If the formation of phonemes as a language unit ends with morphemes, if a complete explanation of morphemes is revealed in words, then, similarly, in a sentence the full and complete meaning of words is known (either lexical or grammatical). It is no coincidence that in explanatory dictionaries, in order to fully reveal the meaning of words, to give all the shades of meaning, they are given in sentences - syntactic connections and contexts. In order to fully "understand" a sentence , it is in the text you need to take. The information capacity and communicative function of previous and subsequent sentences in the text have their influence on the sentence. Linguistic interpretation of Gedel's theorem allows us to come to the conclusion that it is impossible to carry out a complete phonetic, morphological and syntactic analysis, remaining closed only at the level of phonetics, morphology or syntax.

The information capacity and communicative function of the preceding and following sentences in the text influence the sentence. The linguistic interpretation of Gedel's theorem allows us to conclude that it is impossible to conduct a complete phonetic, morphological and syntactic analysis, remaining closed only at the level of phonetics, morphology or syntax. Because it is impossible to fully explore and understand the system with its elements inside. There comes a stage when it is necessary to resort to other levels. To fully explain phonemes, it is necessary to turn to morphology, and to "understand" morphemes, it is necessary to turn to syntax (or vice versa). The linguistic interpretation of Gedel's incompleteness theorem allows us to penetrate deeper into the process of analysis and synthesis of linguistic units, to explore the mathematical-logical-philosophical roots of the formal analysis system. These four stated principles are taken as a basis in the process of creating a formal analysis system within the framework of artificial intelligence tasks.

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