

The Possibility of Scientific Philosophy to Develop the Foundations Theories of Natural and Artificial Intelligence

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ABSTRACT

We still don't understand the true nature of the results obtained as in the field of natural (EI) intelligence, also in the field artificial intelligence (AI). That's why we don't understand Why Computers equipped with the appropriate programs turned out to have intellectual abilities. However, the capabilities of such computers are very widely used to translate from one language to another, as well as to solve many other tasks. On the other hand, for the same reasons often in print appear unfounded thoughts about that, that in the future, robots may pose a threat to the future of humanity. IN This work takes as a basis the possibilities of the fundamental ideas of Descartes' scientific philosophy, received at the beginning the results that make up the content of the theory of natural intelligence (EI). Then, taking as a basis the possibilities of new results to reveal the essence AI theories.

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§1. Ideas Leibniz's work in the field of logic, which later led to the results inherent in the theory of artificial intelligence, as well as how these ideas were criticized by philosophers

As is known from the works of Leibniz /1/ I have thoughts of the following content:

"...what is the basis of machine counting (and not only machine, but also human) It is more reasonable to use a binary number system, which uses only two symbols: 0 and 1..." (1)

"... All existing concepts must be reduced to symbols that "briefly express and, as it were, display the deepest nature of a thing," which amazingly reduces the work "Thinking." Symbols, in turn, must be reduced to numbers. And various mathematical operations can be performed on numbers, purely mechanically, using calculating machines. Thus, calculations can replace reasoning and philosophical discussions." (2)

These Leibniz's thoughts in the field of logic were further subjected to criticism by philosophers such as Kant and Hegel. Hegel believed that Leibniz's ideas about the "language of thought" were not a step forward, but rather a return to the era of scholasticism. For Leibniz's use of the calculus of combinations, he wrote, did not differ from Lully's art in any other way than being more methodical from an arithmetical point of view, "in general, not inferior to it in meaninglessness.

On the other hand, the following is also well known. Central Leibniz's thought is the idea of the possibility of reducing any reasoning to calculations. However, among The prevailing belief among "philosophical" logicians, as well as psychologists and philosophers of the late 19th century, was that reducing reasoning

to the simplest operations, computational ones, was a dry, boring, and fruitless exercise. These scientists considered the algebra of logic and any calculation in general to be a "dead formalism," thinking according to a scheme, requiring the development of some kind of "substantive logic" that describes "thinking in concepts" and encompasses conceivable objects in all the diversity of their properties and connections.

The next step in implementing Leibniz's program was done, when computers had already been created in the 20th century. That is, after they were The ideas that became known as the Turing test were formed. The idea was put forward that it was possible to create robots that would have strong intelligence. That is, they would have the ability to think like humans. At this stage, it was believed that the mind was biologically analogous to the software that animated machines. In this case, understanding human thought processes became simply a matter of examining the program within the billions of interconnected neurons of the human brain. On the other hand, the following are well known. At this stage, philosophers such as Dreyfus /2/ and Searle /3/ criticized these ideas. Dreyfus argued that:

" It is impossible to achieve efficiency comparable to that of a human from an artificial intelligence program." (3)

As the author of the book /4/ points out, Searle simply pointed out that:

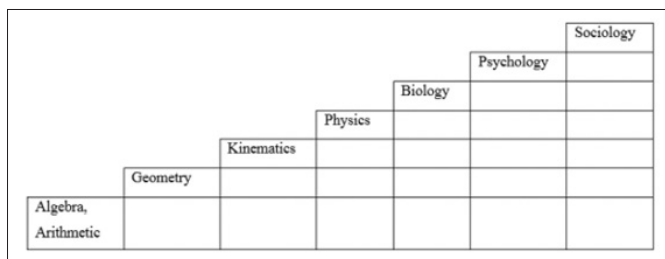
"A computer is just a very fast symbol-crunching machine using a set of syntactic rules. What it lacks is the ability of a biological mind to interpret semantics. The biological roots of semantic comprehension the meaning remains a mystery." (4)

According to Searle :

"Mental activity is entirely determined by biological processes in the brain and is realized in it, and a thinking machine must copy, not model".

§2. About how the new ones were received results that are fundamental for theories of natural intelligence

As it was stated in the published works /3-5/ It was possible to obtain such results after the possibilities of the fundamental ideas of Descartes' scientific philosophy were taken as a basis. That is, How did you manage to realize that There are ideas of scientific philosophy that can be taken into account using diagram 1:



On Based on the analysis of ideas taken into account using scheme 1, it was possible realize the following. That the following facts were taken into account when constructing this diagram. From the very beginning, the results of those performing the roles

fundamentals of the theory of thinking (5)

accepted

- 1) Algebraic equations,
- 2) Arithmetic equations. (6)

Then I realized that further the main goal is the need to solve the problem:

Geometry, Kinematics, Physics, ... (7)

And so, that further it is possible to arrive at results inherent to:

- 1) Algebraic geometry,
- 2) Arithmetic geometry, (8)

- 1) Algebraic kinematics,
- 2) Arithmetic kinematics, (9)

- 1) Algebraic physics,
- 2) Arithmetic physics. (10)

Of course, further, in order to take advantage of the possibility of such results obtained when solving differential equations obtained for:

- 1st Geometric point (11)
- 1st Kinematic point (12)
- 1st Physical particle (13)

There is a need to interpret them philosophical nature. In other words, it becomes necessary to clarify the role of subject and object in understanding the nature of these results. As previously indicated in published works /5-7/ It turns out that this goal can be achieved with the following proposals. It turns out that when we take advantage of the opportunity (6.1) we carry out calculations on

Abstract quantities taking into account their nature. (14)

In the same case, when we take advantage of the opportunity (6.2) we perform calculations on a finite number

abstract sets, taking into account their number and nature. (15)

On the other hand, when we take advantage of the opportunity (8.1), (9.1), (10.1) we carry out calculations on

Geometric Quantities
Kinematic Quantities (16)
Physical Quantities

Taking into account their nature. In the same case, when we take advantage of the opportunity (8.2), (9.2), (10.2) we carry out calculations on:

Geometric points whose number tends to infinity (17)
Kinematic points, the number of which tends to infinity (18)
Physical particles whose numbers are finite (19)

Of course, there is reason to believe that all of these results were obtained with such precision that they can be considered as constituting the content of the theory of EI. For in obtaining them, the roles of not only the subject (number) but also the roles of the objects under study were taken into account. For example, such as a finite number of abstract objects, and also as geometric and kinematic points, as well as such as physical particles. Generally speaking about such results as fundamental, I mean the results that were obtained in the following sequence.

1) As is known, at first the results obtained were those inherent to basics

Theories of the structure of substances (20)

Physical chemistry (21)

Moreover, when obtaining results for (20), we consider the case when the objects of study are simpler molecules. When receiving the same results inherent to (21) the case is considered when the objects of the study are those that can be described on the basis of the possibility of expression

$$K = \frac{n_{AB}}{n_A \cdot n_B} \quad (22) \quad \theta = \frac{bn_A}{1 + bn_A} \quad (23)$$

which are known as the law of mass action and Langmuir's law of adsorption . Here n_A, n_B - concentration of the molecule, K — equilibrium constants, b — adsorption constant.

Moreover, it is assumed that the roles (5) perform the results inherent to

Probability Theory (24)

Then, the result could be generalized to cases where the objects of study are more complex formations. For example, such as molecules of high-molecular compounds and colloidal particles. Thus, opportunities have arisen to obtain results for the development of the main results inherent to

Theoretical Biology (25)

Theoretical Psychology (26)

That is teachings for which the objects of the study are
 Biologically active substances (27)
 Psychological active substances (28)

Of course, it is such results for which it is possible to obtain an expression

$$W = K_{M^0/M^0} \cdot K_{M^0/M^0} \cdot K_{M^0/M^0} \cdot n_{M^0} n^{\oplus} \cdot n_{M^0} n^{\oplus}, \quad (29)$$

$$W = K_{M^0/M^0} \cdot K_{M^0/2^{\oplus}} \cdot K_{M^0/2^{\oplus}} \cdot n_{M^0} n^{2^{\oplus}} n_{M^0} n^{2^{\oplus}}, \quad (30)$$

Based on a joint consideration of (22) and (23), as well as their generalization. These new results can be taken as fundamental when describing the problem for theoretical biology and theoretical psychology. These same results can also be taken as foundational results for the theory of natural intelligence (NI). On the other hand, all this means the following: That the nature of the brain can be understood as a formation that appeared as a consequence of the interaction of many high-molecular complex compounds. That is, many nerve cells, as well as many (27) and (28).

Thus, based on the analysis of all of the above, the following conclusion can be drawn.

It turns out that the main results that make up the content of the theory of EI can be obtained on the basis of the possibility of the main results that were obtained as fundamental for (20) and (21). Thus, on this a new path where the fundamental principle is based on the ideas of scientific philosophy The main results inherent to the EI theory can be obtained quite correctly. It appears the ability to correctly take into account not only the number of particles used (concentrations) but also their nature. On the other hand, this means the following. It is possible to take into account not only the concentrations of concepts that we use in thinking, but also their meaning. Analysis of the obtained results makes it possible to understand the following. When obtaining new results, it was possible to obtain the validity of those thoughts contained in lines (3), (4), (5), which were previously expressed by philosophers Dreyfus and John Searle. As well as those ideas that were expressed in the 19th century by the main representatives of the movement known as psychologism.

§3. Possibilities of new ideas for revealing the essence of the theory of artificial intelligence

There is everything There is reason to believe that there should be a profound analogy between the results inherent to the EI theory and

the results inherent to the AI theory. As is known, the main results inherent to the EI theory managed to get on the way where the results of those performing roles (4) were accepted as results (5). And also the results inherent to probability theory. Moreover, when carrying out calculations The results inherent to probability theory must be used in their entirety, encompassing probabilities from 0 to 1. On the other hand, the following is also known: For AI, where the role of the brain is performed by computing machines, the machine operates based on the capabilities of programs written for them by human programmers. Therefore, there is reason to assume that in this case the role (4) is played by the results

Theories of reliability (31)

That is, results that are special cases of the results of probability theory, when one has to use only the numbers 0 and 1.

Thus, by comparing the ideas and results developed in the field of EI theory and AI theory, we can understand the following reason: why humans, who are carriers of EI, possess far greater capabilities than artificial intelligence robots, who are carriers of AI. Therefore, based on this fact, we can draw the following conclusion: no threats are ever expected from artificial intelligences whose programs are created by humans themselves. Artificial intelligence can only ever become an assistant to people.

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