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GENERAL ISSUES OF ARTIFICIAL GENERAL INTELLIGENCE

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Abstract. The project of artificial general intelligence (AGI), which implements a wide range of cognitive phenomena, can be conveniently studied on the basis of a study of the complex Turing test. This test is aimed at solving the main question of the philosophy of artificial intelligence "Can a computer do everything?", where the universal quantifier runs through private Turing tests that answer the following questions: can a computer understand, live, create, be aware, love, be friends, etc.? Issues arising during the development of an AGI project can be conveniently studied by explicating the seven functions of a complex test: communicative, interrogative, organizational, definitive, critical and constructive and constitutive functions.

Keywords: artificial general intelligence, complex Turing test, formal definition of AI

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Introduction. Main ideas of the project of artificial general intelligence

The phrase "artificial general intelligence" (AGI) can hardly be used as a term in national and departmental standards to implement relevant regulations. In recent years, this concept is often used in projects that have been given the proper name "GPT Chat" and associated with products of OpenAI, DeepMind, Anthropic and similar computer firms. However, AGI still belongs to the realm of science fiction to refer to technical systems capable of performing any cognitive task of an animal, human, or society. It is postulated that *general AI* systems are capable of realizing cognitive functions that belong not only to the sphere of *other consciousness,* but also to *other* and *alien consciousness*. That is, these functions are difficult to imagine. However, as suggested by AGI proponents, they can be imagined albeit in an intricate mathematical format. It is in this mathematical sense that attempts to rationally understand *general AI are* being made at the remarkable annual international AGI conferences (see the conference website [13] and the proceedings of the first 2008 conference [11]).

In this paper we will not search for a mathematical "Grail Cup" of *general* AI. This is the concern of the participants of AGI conferences: to find such a mathematical formula and implement a corresponding computer program that can work in a wide variety of cognitive fields. Our task is less ambitious: proceeding from a common position, relying on philosophical-methodological, holistic, conceptual, and semantic forms of analysis, to study the most general issues of *general AI*.

The first in a number of such questions is the definition of the concept. Under *artificial general intelligence* we will understand philosophical-methodological, scientific-theoretical and engineering-technological research focused on the construction and application of computer replications (imitations), representations (models) and reproductions (reproductions) of cognitive phenomena of a wide range of life, mental, personal and social manifestations.

General questions about the ways of development of this project are solved at the level of philosophy and methodology of artificial intelligence [5]. Earlier in [14] it was proposed to use the so-called "general functionalist approach" for conceptual organization of the *general AI* project. General functionalism continues the two main ideas of machine functionalism of H. Putnam. Putnam. The first idea is related to the functional homeomorphism of natural and artificial systems: the causal relations of brain and psyche are similar to the relations of a computing device to the logic of its functioning. The second idea - of multiple realization - asserts the invariance of cognitive function to the substrate of realization: the realization of the same function can be realized by the biological brain of a human being or by a computer system of artificial intelligence or by the tina of a Martian (as the brain of an agent possessing a *different* and *alien consciousness*).

Continuing classical machine functionalism, however, in our general version of functionalism we do not drive the human psyche into the determinants of the programmed logic of the universal human computing machine. This clearly anti-humanistic position was expressed by H. Putnam in the early, optimistic period of his work. Later, however, he made a radical skeptical turn: cognitive physics is as impossible as O. Comte's social physics [14]. In our opinion, such a turn should be softened. Indeed, the main thing in machine functionalism is the use of the idea of an indeterministic Turing machine (1936) as a technical means of realizing cognitive function. But H. Putnam used it incorrectly (in 1960): he did not take into account the fact that the Turing test (1950) does not identify the program with the way of its realization, but merely *evaluates* from the position of an observer (judge, another person) the *possibility of* invariance of functions, realizing them by means of a program of quasi-algorithmic format. The general functionalism of AI is test functionalism, based on the idea of testing rather than on the idea of identification.

The general functionalism of AI "stands on three whales": the collecting, defining and observational functionalisms. *Collective functionalism* provides collection, identification, coordination, formalization, systematization, unification and codification of all kinds of functionalist theories. At the most general level, it fulfills the tasks of philosophical analysis (or, more precisely, analytic philosophy): unraveling the "tangle" of contradictions as a conflict of diversity of theoretical interpretations. In the specific conditions of "gathering" the standard bibliographic task of systematizing functionalist theories, empirical studies and their methodological conceptualizations is solved.

Definitional functionalism identifies the so-called "main" functionalist characteristics, relations, regularities, and causal connections. They are called main because the components of determinative functions are responsible for *essential, causally determined* realization, which ensures the achievement of goals under the condition of invariance of cognitive phenomena with respect to the structure and substrate of their realizer. For example, the main one is the relation of multiple realization of the phenomenon "normal physiological functioning of the human heart", in which the heart works normally even in conditions of the corresponding pathology, because an artificial valve is responsible for pumping blood.

Observational functionalism evaluates from the position of an abstract or concrete observer (researcher, interrogator) various status of technological implementations and, in the course of conceptual generalization, identifies categorical parameters of the general AI project. Generalization implies categorization of the characteristics of general functionalism at the following levels, traditional for philosophical analysis: ontological, epistemological, logical, linguistic, axiological, aesthetic, ethical and praxeological. That is why, due to philosophical generalizations, this project is called "general AI", and not because of the fact that mathematical manipulations allow us to apply the same software modules with the accuracy to the meaning of parameters, say, in the tasks of pattern recognition and in the tasks of formation of the movement trajectory of a walking robot.

Composition of the overall AI project

Under such philosophical categorization, it is reasonable to divide the general AI project into five constituent parts - subprojects. Each modern subproject of AI research, as a rule, has transnational significance and is funded by a special class of cognitive phenomena (functions), the computer realization of which these projects implement. These are the following projects: artificial life, artificial consciousness (brain), artificial personality, artificial society.

The project of *artificial life* is focused on computer realization of vital phenomena and answers the questions: can a computer "*live*"? At least, about the plausibility of simulation by a hardware-software system of the phenomenon of origin, development, functioning and dying by an artificial system taking into account genetic mechanisms.

The tasks of computer realization of mental (psychical) phenomena form a project that sounds twofold, although it means the same thing: can a computer be conscious? Naturalistic trends call this project as "*artificial brain*", metaphysical orientations designate this project by the phrase "*artificial consciousness*".

The project "*artificial personality*" simulating personological phenomena (personality, individuality, freedom, self, meaning, creativity) was the first project in the field of AI. The fact is that the main work for the philosophy of artificial intelligence is A. M. Turing's 1950 article. "Computing Machines and Intelligence" - demonstrated the capabilities of a universal digital computer and a trainable neural network (a child machine) to play the game of simulating various aspects of interpersonal communication.

The "*artificial society*" project programs social phenomena: can a computer be a society? This application of computer tools is necessary to model social behavior, more precisely, to study and reproduce the phenomena of intersubjective reality - friendship, love, hate, etc.

Finally, most recently, since October 2019, when Facebook Corporation was renamed Meta Corporation, the "*artificial world*" project has openly declared itself. "Can a computer do *everything*?" - is the main question of the new project. The concept of computability is involved in all the broadest, highest, and deepest, in all the lowest and shallowest manifestations of computer simulation of the world. The basic question of the Metaverse and the basic question of the Turing Comprehensive Test coincide.

Basis of generalization of subprojects of general AI

It should be noted, however, that the subprojects outlined above, despite the diversity of cognitive phenomena, are based on the artificial intelligence project. At first, it is necessary to intellectually formalize the phenomenon that stands for "life", "consciousness", "personality", etc., and only after such pre-project work is it possible to identify functional replications, representations and reproductions of a cognitive phenomenon with the phenomenon itself. For example, the basis of "artificial consciousness" is the project of "artificial intelligence" in terms of programming representations of consciousness. There is no "artificial consciousness" as such in this subproject. There is only terminological confusion.

To avoid nominative difficulties, in [2] it was proposed to choose not the concept of "intelligence" (together with its correlates "data", "knowledge" and "meanings") and not "pain", the concept of which is usually used by philosophers of "of *mind*" to demonstrate their own theoretical positions. The phenomenon of *need* turns out to be more productive. It provides a broad coverage of cognitive functions in the project of general AI, as it often serves as an external design of internal processes of thinking, understanding, realizing, loving, etc. The most important thing is that the concept of need is fixed. Most importantly, the concept of need captures the causal relationship between the "ought" and the "being", what is *ought* and what is. Based on the functionalist modeling of need, the so-called "*artificial need*" emerges. It is this concept that, as it is proved in [2], is a candidate for the role of the main definition and conceptual basis for the integration of subprojects of general AI.

In this paper, we will not emphasize the methodology of the main cognitive phenomenon of the general AI project. It is possible that this phenomenon should be chosen not as "need" but as "creativity" (as it was suggested in [7]) and, after this choice, it would be advisable to work out subprojects in the style of Bergsonian evolutionary epistemology. It may well be that a class of cognitive phenomena needs to be considered in a generic AI project. Each of the phenomena is capable of playing the role of an integrator of subprojects of the general AI and depends on the specific preferences of the judge (observer) of the complex Turing test.

Formal definition of artificial general intelligence

It is reasonable to consider the complex Turing test as a real, true, correct Turing test. In fact, often used in today's scientific and near-scientific discussions, the notion of "Turing test" is not something concrete, empirically embodied. Turing Test (TT) is a collective notion for research of artificial intelligence system on the possibility of software and hardware realization of a wide variety of cognitive functions. The comprehensive TT consists of hundreds of versions of the original Turing "intelligence simulation game" (1950) and numerous versions of those versions. Today, three quarters of a century after the birth of the idea of the Turingian game of simulated intelligence, these private Turing tests reveal the rather complex cognitive phenomenology of the computer world of contemporary culture. Can a computer think, understand, create, be conscious, self-aware, love, be a person, etc.? In short, can a computer do *everything*? The quantifier of universality runs through the whole set of Turing tests, assessing the possibilities and prospects of hardware-software imitation of this very vast and multidimensional spectrum of cognitive phenomena. It is precisely such *universal* coverage that allows us to assert that a computer system realizing a comprehensive TT embodies the concept of *artificial general intelligence.*

The idea of a complex Turing test has been developed by the author for two decades. It is detailed, for example, in [5, 1]. In a recent paper [6], it was proved that the complex Turing test is a formal definition of AI, similarly to the fact that a Turing machine is a formal definition of the notion of "algorithm". Indeed, the notion of a complex Turing test contributes to a compact and succinct formal definition of AI: *artificial intelligence is a quasi-algorithmic realization of a complex Turing test.* Perhaps the significance of the idea of a complex test is most emphasized by the distinction between logically sufficient and logically necessary conditions for AI development. Logically sufficient AI conditions are those that favor the development of AI. They include a hard-to-register set of directions, events, projects, etc. of activities widely presented in [4]. Logically sufficient conditions of AI development are many. They include essentially all those studies in AI methodology that at least do not harm AI development, but contribute to theoretical knowledge, engineering projects and attempts to link theory and practice in the field of AI.

The logically necessary conditions for development are much less. These are those conditions, in the absence of which AI development itself is impossible. The Turing test is such a necessary condition. The point is that the work on creation and development of AI systems should be preceded by the developer's conviction that a computer (machine) can think, or will someday be able to think, or will never be able to think. The word "think", as we noted above, represents and funds many other cognitive phenomena - understanding, consciousness, creativity, love... And what concerns these phenomena is within the competence of the Turing test. To avoid confusion with the notions of "AI" / "general AI" it is proposed to specify: not "Turing test", but "complex Turing test". Taking into account this clarification, it turns out that the *complex test sets the necessary conditions for the development of general AI, as it* raises fundamental questions about the computer realization of a diverse range of cognitive phenomena.

If it is found impossible to implement this or that private Turing test, i.e. if there is no positive decision on the conceptual realization of the chosen version of the private Turing test, it is fundamentally inexpedient to proceed to the development of a specific AI subproject embodying this private Turing test. And this is extremely important for the digital economy as a whole. If, for example, we prove the invalidity of the concept "cognitome", it will significantly reduce the expenditure of resources on the dead-end branch of AI development in the part of the subproject "artificial brain".

Proceeding from the importance of studying logically necessary conditions of AI, the existing complexity of the organization of the complex TT (a hundred of Turing tests!) and the hypercomplexity of the study of questions of meta-level order relative to the level of the study of sufficient conditions of AI, the relevance and importance of studying general questions about the development and implementation of the project of general AI on the basis of conceptual foundations provided by the complex Turing test is beyond doubt.

Common functions of the complex Turing test in a generic AI project

The literature identifies at least a hundred major versions of the Turing test. We abstracted a number of versions earlier, generalized them in [5, 1] and proposed to study twenty-one versions as the most representative selection of so-called perfect private Turing tests. The ideas of perfect Turing tests are surjectively covered by A. Turing's concepts stated in the seminal work for artificial intelligence [15]. Let me remind you that in the original Turing test, although many words are used about the imitation of "mind", in fact the game of imitation of gender is revealed, performed by both a human and a computer as a digital "double" of a human.

For the purposes of our paper, this is not essential; nevertheless, the observation reveals a difficulty of formulation: what does true AI, as formulated in the Turing test (1950) outside of the various AI accidents as weak, strong, narrow, global, trusted, and finally general AI, actually do? It turns out that in the early days of AI, the subject area of "intelligence" lay in more general domains than "dialogical type intelligence". This again emphasizes the variability of the basic concept for general AI: need, creativity, gender. What other possible representations are possible?

It is convenient to organize the study of general issues of general AI by studying the functions of test functionalism common to Turing's private tests [1]. These functions *of generalization* (integration) of private tests include communicative, interrogative, definitive, critical, constructive, organizing, and constitutive functions. In this paper, these functions are interpreted in the format of questions that need to be solved in order to realize a comprehensive Turing test and thus to reveal the basic ideas of test functionalism of general AI. This is what will make it possible to explore the general issues of general AI.

1. The communicative issue of generic AI provides a preliminary interdisciplinary coordination of specialists who are involved in the creation of an AI project. The Turing test introduces metaphors, simple categories and distinct images that are understandable to physicists and lyricists, philosophers and programmers, linguists and lawyers, economists and chemists, and many others. To organize interdisciplinary interaction, it is reasonable to use the so-called 3D language of cognitive terms [3]. There are two interpretations of such 3D-language: naive and mature. The naive interpretation emphasizes the unity of three semantics of a cognitive term in accordance with the motives inspired by the so-called "philosophy of consciousness": mental, physical, and computational. The naive interpretation is elaborated by D. Chalmers in solving the psychophysical problem from the position of the so-called "naturalistic dualism", but with a very significant limitation - he ignored the computational context, which, in our opinion, distinguishes the third semantic metric. A more mature form of 2-dimensionalism by D. Chalmers [12] defines a two-dimensional semantics based on the Kantian notions of a priori (first dimension) and a posteriori (second dimension). The first dimension as a rule covers the phenomena of consciousness, subjective reality. The second dimension is the naturalistic phenomena of objective reality. But again D. Chalmers, even in his stricter interpretation of two-dimensionality, ignored the immersion of the researcher in the context of electronic culture, in the computational context. Again, the world's leading metaphysician lacks the concept of computability. We propose to orient ourselves to the realities of artificial intelligence and to functionalism as a native AI methodology [15]. That is, we have one dimension as *cognition*. These are a priori concepts, phenomena of consciousness. The second dimension is considered as *realization, i.e.* posterior concepts, phenomena that can be touched, felt, seen, heard, photographed - this is approximately how V.I. Lenin expressed it, characterizing the materialistic interpretation of reality. The third dimension is actually what constitutes the notion of "dimensions". Phenomena of the third dimension are represented as *computerizations* - computational algorithms, as well as the whole complex of program, information, technical, linguistic and other means of information technologies. Three-dimensional semantics expressing the semantic trinity of cognitive, technical and algorithmic is presented as a constructive basis for the language of communication, as metaphors, images, categories of general AI are strung on a sufficiently distinct conceptual framework.

2. interrogative question of general AI characterizes the Turing questions asked by the Turing judge (interrogator, observer) to the x-system about its y-capability from the position of the judge's own possession of z-competence. That is, this paper studies "the question of questions", or, more precisely, "the question of Turing questions". The importance of proper Turing questioning for an AI system has a long history, starting with A. Turing's 1950 paper. A little later it manifested itself in the study of questioning of AI news systems. In my opinion, these systems are quite indicative from the position of studying the interrogative function of Turing's complex test. The point is that AI tools started to be introduced into the work of news agencies a long time ago, about forty years ago. The importance and difficulty of organizing the right questions for news expert systems was perfectly revealed by D. Dennett in his work "The Age of Intelligent Machines. Can Machines Think?" (1994), which he describes on the basis of his experience with the CYRUS news system. This program simulated the "knowledge" of Cyrus Vance, a secretary in the administration of U.S. President James Carter (1976 - 1980). The computer system "knows" a lot and is able to trace a very broad and deep digital footprint of the original. However, when D. Dennett asks the trivial question, "Can Cyrus tie his shoelaces," the system "freezes." The point is, as he went on to explain, that expert systems are "Potemkin villages": they have an attractive interface, but nothing inside beyond "the skeletal bases of words".

Modern news systems, of course, have more interesting program-information bases. But it would be interesting to ask such a system by analogy with the mentioned news system: Does Dmitry Peskov know how to tie his shoelaces? I have not been able to find an answer to this question in any modern web search engine.

Today, a kind of industry is developing to correctly ask questions to AI systems. Recently, a turing test was conducted at the University of California (San Diego, USA). The authors of the work used the Turing methodology and organized 1400 games in which 650 participants had short conversations with a human or a chat-GPT. The participants' task was to identify whether they were chatting with a computer or a human. It turned out that 40 percent of the participants were mistaken in thinking that they were communicating with a human [9].

3. The definite question of general AI provides such a computer definition of a cognitive phenomenon that does not cause cognitive dissonance. For example, not so long ago, not more than seven years ago, "artificial intelligence" as a concept - an oxymoron was quite rightly rejected by most humanitarian specialists, in particular, philosophers: only homo sapiens (!) can have intelligence. Today, especially with the adoption of Decree No. 490 [12], things are different. For example, not so long ago, in October 2023, A.A. Huseynov, the director of the Institute of Physics of the Russian Academy of Sciences and the world's leading expert on ethics, stated that today man is forced to establish relations with artificial intelligence [10]. It is quite legitimate to ask with what kind of artificial intelligence systems I should get in touch with and establish all kinds of relations. Are these relationships of an intimate nature? If so, to what extent? Apparently, an eminent ethicist is unable to appreciate the "ethics of artificial intelligence" with little understanding of the actual subject of artificial intelligence. AI ethics lies in a different dimension than "ethics" with all its various applied variations. In turn, AI ethics is based on the concept of general AI, which is more superhuman than human. Here the question is legitimate: Is it possible to teach artificial general intelligence ethics?

Unfortunately, you can't teach ethics to an artificial intelligence. It is possible to teach something similar to moral behavior. But it cannot be taught to constitute the rules of this moral regulation. This impossibility is simply explained, among other things, in a purely formal-logical way. The fact is that the machine works exclusively with volumes of concepts, extensionalistically. Man works with the content of concepts, with meanings, intensional. To the human being, intensional, to the computer, extensional. This is the fundamental difference between a human and an AI system. Extensional work does not include working with ideal objects, or rather, excludes them. Ethics is a theoretical science, it works with ideal entities, with intensifiers, and they are all the worldview concepts without exception: meaning, death, immortality, social ideal, freedom, conscience, faith, justice, truth, and many others. Ethics can be taught by artificial intelligence.

Nevertheless, very recently, the intensional has been forcibly mixed with the extensional in the field of AI ethics. At the international forum "Ethics of Artificial Intelligence: The Beginning of Trust" [9], a number of major organizations signed the "Code of Artificial Intelligence" specifically designed for AI ethics [9] a number of major organizations signed the "Code of Artificial Intelligence", specifically designed to regulate the moral and ethical side of the use of AI technology. The document was signed by the Russian Government and 20 Russian companies, including Yandex, Sber, VK, Skolkovo, Rostelecom, MTS and others. The code is expected to become part of the federal project "Artificial Intelligence" and the Information Society Development

Strategy for 2017-2030. However! In the discussion and adoption of this document, there is no organization that specializes in the problems of ethics. Why are there no philosophical structures, in particular the Institute of Philosophy of the Russian Academy of Sciences. Why is not involved NSMII RAS, which for more than 15 years has been specializing in the problems of ethics in the context of artificial intelligence research? What does the artist F. Bondarchuk, who was one of the main signatories of the Code, have to do with AI ethics? [10]. Let's imagine that the author of this article starts starring in TV series. It is quite objective belief that the author's game will look normal against the background of the game of actors of the majority of Russian serials. But it is unlikely that it will meet the aesthetic requirements. The same kind of requirements, say, cognitive adequacy, should be imposed on the signatories of the code of ethics in the field of AI. Few people understand ethics, very few people understand AI, and finally, hardly anyone understands AI ethics. Ethics should be handled by ethicists. And substituting philosophers for actors, ignoring ethics, and substituting ethics for other regulators of behavior is a direct road to digital slavery for all of us. The signatories of this so-called "Code of Ethics" will also find themselves in this slavery. It is unlikely that the "raider" seizure of ethics will be of any benefit to the state.

4. The design issue of general AI reveals the principles of a computer capable of realizing a wide range of cognitive phenomena. Because of the integrality of the OII project, the concept of computability should encompass both the principles of symbolism and connectionism. Symbolism/connectionism is a computational analog of the natural-scientific dualism of substance/field, discreteness/continuity, stability/rest, and others. Unfortunately, no theoretical analogs for combining symbolic and connectionist paradigms of computability similar to the formulas of the corpuscular-wave dualism have been proposed today. This is not a bid for the future in the field of computational mathematics. It is here, on the path of integration of connectionism/symbolism, that the mystery of discovering the "programmer's Grail" of general AI lies. In our view, this overlap is due to theoretical and algorithmic research on combining the Korsakov machine and the Turing machine in a unified format [5]. The Korsakov machine lacks the idea of automata transitions, which is inherent in the specifics of the Turing machine. The Turing machine has an extremely primitive way of representing linguistic constructs. Therefore, the dualism must be resolved by understanding that the Korsakoff machine is for connectives and the Turing machine is for instructions. Together, these machines can solve incredibly many computational problems of general AI.

5. The critical question of general AI reflects the essence of the controversy about the possibility or impossibility of computer realization of a cognitive phenomenon or a class of cognitive phenomena.

The original test (A. Turing, 1950) reflects positive assumptions about the possibility of computer simulation of dialogical intelligence. A.Turing proposed a polemical standard (of nine propositional and oppositional statements, which are relevant today and are presented in numerous questions about AI.

The common sense test (J. McCarthy, 1984, D. Dennett, 1984) shows the limitations of modern expert-type systems for computer simulation of the phenomenon of "common sense". Common sense is not programmatically realizable. There are different approaches to the interpretation of "common sense". For D. Dennett, it is an attempt to present information of banal, silly content. For J. McCarthy, on the contrary, it is an attempt to present information bordering on intuitive knowledge of a highly professional specialist.

The Chinese Nation (N. Block, 1978) examines the controversy over the validity of the computerized version of sociological realism. For natural communications, the problem is insoluble in the question: what is primary - the individual or society? For electronic communications we believe that there was a transformation of the sociological problem of the early 20th century "M. Weber / E. Durkheim", who defended the views of sociological nominalism / sociological realism, respectively. In the digital economy, the question is: somewhat realistic functionalist-computer generalization of subjective mental phenomena of the individual to social systems. Functionalism is usually defeated: swarm and global consciousness is a myth, hence noosphere is impossible. However, the opposite arguments are quite convincing: the cognitions of the society-machine are real, but we, humans, are unable to assess their reality. This requires "expanded consciousness".

China Room (J. Searle,1980) assesses the role of computing in the phenomenon of "comprehension". Comprehension and computation are quite different aspects of human activity. The use of computers alienates understanding. Therefore, a computer cannot understand. But it can often very successfully imitate the ability to understand.

The zombie test (R. Kirk, 1974, D. Chalmers, 1995) includes a wide variety of highly epathetic mental experiments with imaginary beings who do not possess cognitive competencies, but very successfully imitate the possession of these competencies. For the artificial personality project, this test is the most fundamental one and manifests itself in the following contradiction. According to D. Dennett: all of us humans are zombies, i.e. incomplete personalities, since, in particular, we do not possess the completeness of perception and the ability to realize our own thoughts. However, in the conditions of global AI we are capable of becoming full-fledged individuals. According to J. Searle, everything looks exactly the opposite: all of us, humans, used to be full-fledged individuals (in the golden age?), but in the conditions of global AI we are turning into zombies.

The paranoid test (C. Colby,1980) reveals that all traditional computer systems are at most capable of doing is to simulate paranoid behavior, that is, behavior limited to the programmer's ideas as the source of the obsession embodied in the algorithm of the computer program.

The subcognitive test (R. French,1990) shows that to fully approximate human cognitive behavior, a computer (robot, avatar) must live as a human.

The gender test (Yu. Genova, 1994) assesses gender differences. The main thing in the Turing test is not whether a machine can think, but how a man differs from a woman and vice versa.

The inverted test (S. Watt,1996) proposes a "reverse" test. That is, the judge must be judged and if the observer awards mentality to the player, then it is human, since a computer cannot imagine. That is, this test proposes to study a Turing machine testing the Turing test.

The emotional test (A.Kolmogorov, 1953; A.Sloman,2000) evaluates the phenomenon of "love" as the main reference point of emotional machines. From the functionalist position, an agent's love for a machine is possible if he does not realize that he is communicating with a machine. Various nuances are possible.

The creativity test (S. Bringsdjord et al., 2000, V.I. Samokhvalova, 2010, Pozharev, 2015) is the main test for studying the principles of machine creativity. The principles of creativity assessment include theoretical developments in the research of the problem "creativity and machine" since the middle of the 19th century. These principles include the following: Lovelace's argument (1843): a machine cannot create, only a human programmer can truly create; Turing's counterargument (1950): a machine can create because computers have ways of surprising unforeseen program execution; Lovelace's test (2000): a machine cannot create because it operates under conditions of axiomatic predetermination; Lovelace's test 2.0 (2014): a machine cannot create, but in the conditions of deep machine learning a special evaluator is needed to trace the artificiality of as if natural forms; Lovelace test 3.0 (T. Pozharev from 2015 to the present day): the evaluator must possess the phenomenology of the meaning perception of the artifact, be able to work with the meaning of the work.

These and other private tests (see [9] for details) allow us to evaluate quite clearly the possibilities of realizing the critical function of the complex Turing test. There are many grounds for criticizing the possibility of realizing the Turing test. For example, with respect to the complex test itself, there arise questions of meta-level character: how to algorithmically represent the criticism of criticism. In general, what is it? Obviously, this kind of absurd, or rather Gödelian, question is typical for a general AI system.

6. Organizational issue of general AI develops and supports activities that form a comprehensive TT as a holistic system of planning, preparation and implementation of testing, as well as evaluation of the results of its application and dissemination of experience. Among organizational issues, perhaps the dispute about the main competences of specialists who conduct testing plays a defining role. These competencies are determined by the authority of specialists in the field of IT tools - software, information, technical, linguistic, logical, mathematical, organizational, legal, etc. tools.

The problem of singling out the principal in a generic AI project is an important managerial task. The chief expert should combine legality / legitimacy. Otherwise, the cognitive system will not be able to "live". The choice of the chief in IT is a special problem, has no solution, and is situationally variable. For example, many prominent

IT specialists believe that the basis of any computer information system is linguistic means. That is, the leading organizational forces in IT are not programmers and datascientists, nor logicians and mathematicians, nor technicians and lawyers, but philologists, more precisely, linguists. One can partially agree with this. And not due to the fact that linguists are responsible for formalization of natural language, for unified forms of documents as a basis for human-machine interaction, for recommendations with standards (I remind, for example, about the key role in the Internet project of the recommendations of the WWW consortium). Linguists have a higher task, the task of systemic content. They are responsible for the formation of the Unified Information Classification and Coding System (UICCS). Indeed, if there is no UCCS, there is no computer system as a whole. UCCS provides identification, formalization, systematization, differentiation, integration, operationalization and functionalization of all information elements of the computer system to be taken into account. If identification of the *necessity of* these elements is entrusted to a linguist, then the linguist in the field of AI will play the role of an analytical philosopher, unraveling the tangles of terminological contradictions and thus creating a clear and precise picture of the natural-art world.

The principal in a generic AI project is the one who is able to build a generic AI project from the position of primacy of his own specialization. A linguist should consider that he is the main person in the general AI project. The programmer - that all activities should be performed around the programmer. The information specialist is responsible for storage and processing of formalized information. Economist should calculate possible ways of effective realization of the project. Logicians and mathematicians are responsible for universality and concreteness of algorithms and programs. An engineer is responsible for the operation of machinery. A lawyer should be responsible for the protection of intellectual property. The author of this article expresses his conviction that the main responsible person in the project of general AI should be a philosopher - a methodologist of technology.

7. The constitutive question to general AI positions the attitude of the judge (observer) to the cognitive aspects of computer reality. The complex Turing test contributes to the construction of the phenomenology of the computer world, providing the postnonclassical positioning of man as a subject of electronic culture. Recall that the classical use of the AI system is considered by analogy with the study of an object of nature. Non-classical positioning implies immersing the human observer (H) in the context of multiple methods: what is the method is the subject. The AI system functions in different environments constituted by different ideologies, i.e. political, economic, social, etc. ideas, myths, meanings. The postnonclassical paradigm states that both the human being and the AI system manifest themselves in the unity of the natural-art system as a self-organizing system directly immersed in the meanings of society and culture).

- The classical paradigm:

H ↔ [AI system = object]

- Non-classical paradigm

H ↔ ↔ [Method ↔ [AI system - environment]].

- Postnon-classical paradigm

[H ↔ ↔ [Method ↔ [AI system - society]].

And most importantly, within the framework of such postnonclassical positioning, the unique role of the human being in the modern computer world is manifested. The functionalism of any kind of AI - general, strong, weak, global, trusted, etc. - is not capable of computerized reproduction of integrity, selfhood, otiosity, meaning, creativity, and many others. - is not capable of computerized reproduction of the integrity, selfhood, ovality, meaning, creativity, and many other things that constitute the essence of homo sapiens, due to the definition of the concept of function (function as self-determining recursion, function as representation, and function as role). There is simply no other methodological basis for AI, by virtue of the definition of AI. Therefore, the most general question of general AI - about the unique role of man - is solved in the following way: in the conditional confrontation between man and the system of artificial general intelligence, man is always the main one. The threats and risks of artificial intelligence are nothing more than metaphors, or rather, nothing more than function values as images of reality. There is no such thing in reality. What is real is the human being who alienatedly produces these threats and risks through AI.

Conclusion.

The general questions of general AI, posed in the context of the study of integral functions of the Turing complex test, pose logically necessary questions, without the answer to which it is impossible to launch the project of *artificial general intelligence.* The proposed questions of the general AI project form the basis for discussions on the possibilities, risks and prospects of the general AI project in terms of its subprojects: artificial life, artificial brain/consciousness, artificial personality/zombie, artificial society, artificial world. Each subproject of the general AI has to meet the requirement of conceptual formulation of those cognitive functions that are subject to hardware-software realization. Constructive formulation of these conceptual means seems to be very effective, as it allows to save on the development, implementation and maintenance of computer means invariant with respect to the diversity of components of these projects. Or to save on closing those general AI projects, which, as a more scrupulous analysis of the conceptual questions posed in this article shows, are useless or meaningless at all.

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