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PHILOSOPHY OF MIND

Textbook for general educational discipline "Philosophy and Methodology of Science"

For students, listeners mastering the content of the educational program of higher education of the II stage

For all specialties full-time and part-time forms of education

E-learning material

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The teaching aid on the philosophy and methodology of science supplements the lecture material with topical issues of the philosophy of consciousness. The section "Philosophy and Values of Modern Civilization" reveals questions from the field of metaphysics of consciousness, philosophy of consciousness and social philosophy of consciousness. The section "Philosophical and methodological analysis of science" describes the applied aspects of the philosophy of mind in the subject field of cognitive sciences. The section "Philosophy of Natural Science and Technology" sets out the natural science aspects of consciousness and technological features of behavioral economics in digital ecosystems. The section "Philosophy, Science, Man at the Beginning of the III Millennium" analyzes the prospects for solving the difficult problem of consciousness.

INTRODUCTION

The philosophy of mind has become an important part of the philosophy and methodology of science due to the transition of engineering to the paradigm of Industry 4.0. This paradigm assumes the intensive development of the industrial Internet and its convergence with digital ecosystems that maintain constant contact with participants in the social network. As a result of an integrated approach, industrial production is integrated with digital logistics and marketplaces. The resources of the behavioral economy are also taken into account.

In the design direction, the philosophy of mind became part of the theory of artificial intelligence. Systems engineers strive to bring the capabilities of artificial intelligence as close as possible to the potential of human natural intelligence. To this end, specialists need to solve a difficult problem of consciousness. A complex of cognitive sciences is involved in the research. Analytical philosophy is actively represented in this complex.

For engineers and economists, issues related to the normative function of public consciousness are also relevant. They belong to the fields of law, ethics, design and science. Issues of deviant behavior and conflict management are topical. Consciousness accompanies engineering activities in design bureaus and design organizations. Of its components, thinking, intuition, psychology features (character, temperament) play an important role. These components manifest themselves through communication and professional relationships in the form of language practices. The semantics of these linguistic practices is formed by the text. The ability to work with text is relevant in science and production, given the growing role of advertising and branding.

1 Philosophy and values of modern civilization

1.1 Metaphysics of Mind

During the period of classical philosophy, there was no natural scientific basis for understanding the phenomenon of mind. Therefore, consciousness was not associated with any specific organ in the human body. Moreover, as not the material beginning of being, mind in the modifications of the digital ensemble (Pythagoras), the absolute idea (Plato), the prime mover (Aristotle), God (medieval theology) constructed objective and subjective reality. A special role was assigned to the rational components of consciousness associated with orderliness, regularity, and teleology.

Ideal being in the understanding of Pythagoras, Plato and Aristotle does not have a temporary status. Material (physical) being does not have such a status. According to Plato, the physical world is a copy of general ideas (forms). The empirical sensible world is not as perfect as the immaterial realm of ideal forms that makes it possible. Aristotle institutionalized the rational component of mind with the concept of thinking and for its study created such a branch of philosophy as logic. He described the structures of human thinking in direct connection with the structures of language. He attributed the normative component of people's consciousness to the subject of ethics.

Theology answered the eschatological question about the beginning and dynamics of being. God is at the origin of being. The premise was Aristotle's idea of the prime mover. God realized the plan of creation and co-evolution of the ideal and the material in the forms of the soul and body on the example of man. Each of the people has these principles. The body is perishable and transient in time. The soul is not in the determination of the life cycle. It is eternal. While the soul is in the human body, there is a mutual connection between them. It is expressed in a normative component. The behavior of the body forms the risks of the subsequent biography of the individual soul. These risks are formed by the sins of the body. The soul ascertains the negative facts of the behavior of

the human body and hopes for the secret of confession and repentance. This circumstance expresses the semantics of subjective consciousness and its ontology, historically based on a dialogue with the personalized components of animate nature.

People are carriers of subjective consciousness, which contains normative components emanating from the peculiarities of conducting a dialogue with an animated external environment (magic, witchcraft, shamanism, polytheism). Monotheism has optimized the number of participants in the dialogue. Apart from man, all anthropologized forms of nature were derived from it. The Dionysian culture gave way to the Apollo culture (F. Nietzsche). In this culture, the dominant of the human dialogue with external natural forces was replaced by the dominant of the dynamic balance of the inner world of the individual, subjected to pressure from external social factors of the communicative environment. Being in a religious monotheistic environment has acquired special significance. Individual consciousness was personified due to the direct responsibility of man for his own soul.

Since it is difficult for the individual consciousness to independently comply with the normative prescriptions, Buddhism, Confucianism, Christianity and Islam have made the normative component part of their teachings. The recognition of the ontological status of individual consciousness was an important achievement of theological teachings. In this ontological content, the normative and everyday components of individual consciousness did not coincide. This was explained by the internal contradiction of individual consciousness, based on two causalities. Causality is formed by the body, which is more in opposition to normative prescriptions. Anothe causation is created by the soul, which is concerned about the fate of the individual and the conformity of his lifestyle to the normative ethical prescriptions.

With the recognition of the ontological status of individual consciousness, the tasks of metaphysics have become more complex. This problem was faced

by modern European philosophy, which cultivated not only theology, but also science.

R. Descartes was one of the first philosophers to formulate the problem of the ontology of human consciousness. The motive was epistemological. The philosopher wanted to solve a problem in the field of methodology. This task is connected with the dispute between rationalism and empiricism about the most effective scientific methodology, corresponding to the criteria of clarity, accuracy, consistency and evidence.

R. Descartes began his research with the phenomenon of individual consciousness. He discovered the ontological status of this existence through the ability of the individual to self-awareness of his topology. The result of this topological identification was the statement "I think." Then R. Descartes began to correlate this thinking reality with the body.

The body does not identify itself according to R. Descartes. The individual exists for himself only as long as he talks about himself. The existence of existence is not identical with the knowledge of one's own essence. Then R. Descartes turns to the definition of Aristotle, according to which man is a rational animal. He once again subjects to critical understanding the main characteristics of the individual's being. He only discovers thinking that identifies the individual. He concludes that the individual exists as long as he thinks.

The situation with the body is more complicated. R. Descartes failed to find a direct connection between consciousness and body in a person. He was forced to stop at the position of dualism.

Empiricism expanded the subject of consciousness to an epistemological analysis of its sensory components. I. Kant, after being carried away by scientistic subjects and disappointed in it, turned to the ontology of human subjectivity. In human consciousness, he wanted to see the integrity and functional connectivity of ordering categorical thinking (reason) with the sensory components of data (phenomena). The external ontology of the content of things is not accessi-

ble to human consciousness. Sense data is the reaction of an individual's experience to contact with them.

Phenomena are identified and ordered due to the a priori categorical structures of space and time. In the future, the mind connects another twelve a priori categories to the analysis of the data. This allows the individual not only to recognize information, but also to integrate it into the structure of individual experience. Unlike reason, which has support in experience, reason confuses itself with the phenomenon of antinomies.

Hegel disagrees with this thesis. He returns in the analysis of consciousness to its two ontological modifications. One is based on objective idealism and represents the dialectics of the process of becoming from non-being, and the formation of its semantics through the categorical structures of Aristotelian logic. Natural reality is formulated as the otherness of the spirit.

The ontology of human subjectivity is reconstructed by Hegel through the study of logical forms of thinking and the created activity of these forms of semantics of culture. The Young Hegelians - K. Marx and F. Engels, following the anthropological materialism of L. Feuerbach, actualized the social themes of consciousness. Within the framework of the main question of philosophy formulated by them, the function derived from matter is assigned to consciousness.

The applied component of the social project of the reorganization of society prompted IK. Marx and F. Engels are not limited to the thesis of the primacy of matter and the secondary nature of consciousness.

They projected this thesis onto the natural scientific aspects of the study of nature, epistemology (problems of the reliability of knowledge, the mutual complementarity of rationalism and empiricism), analysis of the institutions of social consciousness and the ideological modifications of capitalism associated with them. In the identification and socialization of the individual as a person, Marxism assigns a special role to communication consciousness and social space. Outside this space, consciousness cannot form. The individual will not become

human. The human body of a child in the process of evolution in a wolf pack acquired the psyche of a mammal.

Marxism criticized objective idealism and left the right to exist only for the ontology of subjectivity in the form of culture and the scientific and technological heritage of mankind. This is the semantics of ideal being, constructed by the creativity of many generations of mankind. But these values, norms and traditions, according to Marxism, require ideological filtering.

The general atmosphere of the conflict associated with the imperialist ambitions of Prussia, Austria-Hungary and the Entente (World War I), as well as the era of social revolutions in Europe, actualized the phenomenon of psychological consciousness. F. Brentano plays an important role in this turn. As a result, a tendency was formed to criticize philosophical and scientific rationalism. The positivists limited themselves to criticism of the philosophical metaphysics of consciousness. The modification of empiricism initiated by them focused on epistemological analysis of sensory data, language and communicative features of consciousness associated with consciousness.

Some philosophers focused on the irrational components of consciousness. The philosophical reflections of A. Schopenhauer and F. Nietzsche became popular. Within the framework of the philosophy of life, A. Bergson's intuitionism was realized. N. Lossky became a supporter of intuitionism in Russian philosophy. Z. Freud and K.G. Jung actualized the subject matter of such a component of consciousness as the unconscious.

In neurophysiology, thanks to the research of I.M. Sechenov, the beginning of the experimental study of the human brain was laid. The aim was to study human mental activity. She came to be regarded as reflexive. Another researcher, I.P. Pavlov experimentally studied the reflex features of the psyche of animals and humans. He proved that they are based on instinct that fulfills the normative function of regulating the life cycle and the heritability of reflexes.

E. Husserl began the era of a return to the ontology of subjective consciousness through the criticism of psychologism. He set the goal of phenomenological reduction of the content of consciousness to the foundations of its objectivity. Among the ontological foundations was intentionality. M. Heidegger brought the themes of being and ontology into the style of metaphysical discourse. When he realized that he could become the next representative of speculative philosophy, he turned to the phenomenon of consciousness. He followed the methodology of philosophical hermeneutics. In it, consciousness is associated with the temporal features of the history of mankind and the practice of understanding these features. M. Heidegger became a supporter of such a modification of thinking as meaningful meditation. The instrumental thinking of technological determinism was criticized.

The connection between consciousness and being was restored by M. Heidegger in the ontology of language. The topic of the language has become key not only in relation to scientific methodology, but also to the structures of communicative everyday consciousness and common sense.

The philosophy of postmodernism has identified the psychological neurophysiological ontological aspects of the individual's consciousness associated with social modifications of schizoanalysis, ambivalence, paranoia, deconstruction, phallocentrism. Changes in the social ontology of normative consciousness followed. The transformation of such basic institutions of society as marriage and family began. Vital functions began to be replaced in the public and individual consciousness by the functions of liberal rights and freedoms. Transhumanism has increased the emphasis on human withdrawal from the biological body, due to its many shortcomings. They are manifested in the form of risks of diseases, including serious diseases of the brain, a short life cycle and the body's characteristic tendency to get rid of normative consciousness through drugs, alcoholism, and sexual permissiveness. Consciousness wants to preserve the con-

tent of a person by separating it from the body and subjectivity associated with the body. The posthuman project has been updated.

1.2 Ontology of mind

The epistemological emphasis in the consideration of consciousness created the basis for the criticism of consciousness (thinking) in the 18th century. Representatives of the Scottish school of common sense philosophy have responded to this trend. They proposed to study public and individual consciousness in the diverse functions of its everyday life. This meant the return of the subject matter of consciousness to the subject field of ontology.

The founder of the Scottish school of common sense is T. Reid. The school aimed to restore the connection between religion, science and philosophy on the basis of common sense. This task was motivated by the fact that common sense is based on axiomatic judgments a priori inserted by God into human consciousness. These judgments do not depend on reason and cannot be the object of its criticism.

A. Shaftesbury viewed common sense as an individual's understanding of the common good and as a commitment to the community. He also singled out a common sense sensual component in the forms of humanism, virtue and courtesy. Virtue is based on a moral and metaphysical foundation. A. Bergson adhered to a similar position in relation to common sense. In his opinion, common sense is implemented at the social level. He manages the relationship of people. It allows you to adapt to new situations of communication.

The positions of common sense are supported by representatives of philosophical hermeneutics. They consider common sense to be one of the leading principles of human life (H.G. Gadamer). Hermeneutics proceeds from the naturalness of consciousness in the form of common sense. It was common sense that held back religious fanaticism. This was noted at the time by Montaigne and

Descartes. In their opinion, common sense is opposed to ignorance and superstition. But he cannot compete with the strict criteria of scientific activity.

Cherbury brought common sense out of epistemological space into ontological space and actualized the concept of natural reason. It became the basis for the Scottish school of common sense. Payne considered common sense arguments to be central to the consideration of a people's right to independence.

Another ontological modification of consciousness was addressed by E.I. Ilyenkov. He has actualized the category of the ideal. The development of the concept of the ideal E.I. Ilyenkov was facilitated by his discussion with a supporter of the theory of functionalism D.I. Dubrovsky. E.I. Ilyenkov defends the thesis about the ontological component of consciousness, which he designates as ideal. This component differs from the constantly changing mental states of the individual.

The ontology of consciousness is formed by semantics that does not depend on individual psychophysiology. Its content includes mathematical and logical categories, moral imperatives, norm of legal awareness. This semantics of consciousness does not depend on the body of the individual. It is actualized by Plato and is interpreted as a law, with the requirements of which the behavior of the individual must be commensurate.

These are the norms of the culture in which the individual is. He socializes on their basis. They become the law for him. For the individual, they mean the reality with which he must correlate his life activity.

According to E.I. Ilyenkov, Plato formulated the theme of the ontology of consciousness. This topic has no connection with the problem of the structure of the human body, in particular, the structure of the brain. The adherents of classical empiricism have deprived the ideal of its ontological status. The idea has become a designation for the mental states of the individual. It began to exist only in the imagination of the individual, only in the form of the mental state of the individual.

Kant, Fichte, Schelling and Hegel did not agree with this understanding of the ideal. They returned to the phenomenon of the ideal, understood as a law that remains invariant in the diverse changes in mental states not only of the individual, but also of spiritual formations, eras and peoples.

The semantics of consciousness in cultural products cannot be interpreted as cerebral neurodynamic processes. The ideal is fixed in the historically established forms of culture. It is accumulated by forms of social consciousness. This is the world as it is presented in the historically formed and historically changing social consciousness of people, in the historically established forms of its expression, in particular in the language, in its vocabulary, in its grammatical and syntactic schemes for linking words. But not only in language, but also in all other forms of expression of socially significant ideas, in all other forms of representation, dispensing with a verbal text.

Any phenomenon of consciousness is ideal in one respect, and material in another. If the word "consciousness" is understood as neurophysiological processes, then consciousness turns out to be a material process. And if we understand consciousness by neurophysiological processes, then these processes belong to the field of the ideal. For Karl Marx, the ideal is material, transplanted into the human head and transformed in it.

The category of "ideal" includes only those forms of reflection that distinguish a person and are not characteristic of an animal, even one with a highly developed higher nervous activity and psyche. Philosophy considered only these specific forms of reflection of the surrounding world by the human brain under the name of ideal forms of mental activity. For the sake of delimiting them from all other forms, she retained the term.

According to E.I. Ilyenkov, it is absurd to talk about the ideal where there is no person with his brain. But this does not mean that the ideal is located in the thickness of the human cerebral cortex, although it does not exist without the brain. It is not the brain that thinks, but with the help of the brain an individual

who is in the system of social relations, always mediated by material things created by man. The brain is the material physiological organ of the work of thinking, spiritual work. The product of this work is the ideal, not material changes inside the human brain. Therefore and only because the scheme of the purposeful activity of a person with the things of the external world can be presented and considered as a special object, absolutely independent of the structure of the brain and its specific states. This is the subject of a special activity (spiritual labor, thinking) aimed at changing the image of a thing, and not the thing itself, in this image objectively presented. This distinguishes ideal activities from material activities.

Since historically established stereotypes of social consciousness with a spontaneous force are imposed as an external force on the individual consciousness and actively form this personal consciousness in their own image and likeness, they do not become material forms, forms of social life. They remain forms of social consciousness, ideal forms.

The ideal that exists outside the consciousness of individuals is objective, from their consciousness and will, independent of reality, invisible, intangible, not perceptible sensibly, and therefore seems to them only thinkable. As part of the individual consciousness, schemes and forms imposed on it from the outside are not innate transcendental psychological schemes. They are assimilated in the process of upbringing and education. This circumstance implies not only the ontological status of consciousness, but also its status as a social space. In this space, public consciousness performs a normative function.

Representatives of behavioral economics turned to the ontology of consciousness in the applied aspect. This appeal is related to tasks in the field of marketing. It is important for sales professionals to know the peculiarities of not idealized, but the natural consciousness of buyers. The result of the research was the ontological model of consciousness. Its origins were formed by A. Smith. In his works, a systematic picture of a person's consciousness of a market economy

is given. In this picture there is an egoist, a market actor and a manufacturer working for the market. The individual has a personal interest. It manifests itself mutually on the part of all individuals. The personal interest pursued by the individual is also the interest of society. As a result, the satisfaction of the needs of each individual person contributes to the growth of social welfare and social production. The individual has rationality, although not complete. Rationality does not exceed ordinary human capabilities.

A. Smith's behavioral model of a person is similar to the model of a real person who makes many economic decisions every day.

At the beginning of the 21st century, the problem of finding a new model of man in the economy arose. During this period, the problems of choice in conditions of uncertainty, motivation, and taking into account human disabilities are actively investigated. Restriction means informational and intellectual abilities of a person. This stage in the development of the human model in economics is characterized by the fact that the analysis began to include the knowledge and experience of such special areas of economics as behavioral and experimental economics. Contributions were made by economists D. Ariely, G. Simon, W. Smith and psychologists J. Lowenstein, D. Kahneman, P. Slovik, A. Tversky, W. Edwards. In the XX century G. Simon proposed the idea of bounded rationality in the form of questions: "Indeed, do people really behave so rationally?" "Can a person's cognitive abilities be so well developed that all the prerequisites of the neoclassical model are fulfilled?" "Can psychological, ethical factors, the surrounding situation, even, banal and laziness of a person not influence the decision-making process?" The answer to the questions was negative.

This was the moment when the concept of "behavioral economics" was born. After that, the research phase began. Papers on behavioral economics were recognized by the Nobel Committee. Psychologist Daniel Kahneman (Princeton University, USA) and economist Vernon Smith (Jerusalem University, Israel) became laureates in 2002. Their research showed that people do not act as intel-

ligently and rationally as described in classical economic theories. Psychological behavioral errors of individuals have a significant impact on their economic decisions.

1.3 Normative public mind: legal consciousness

The social space of consciousness is represented by a number of institutions, among which legal awareness plays an important role. This institution of social consciousness was formed in the early stages of human history. It stems from the institution of prohibitions (taboos). The psychological impact of this institution was so significant that it did not imply any punitive measures. The second reason was the lack of individual consciousness. This consciousness was formed at the stage of agricultural civilizations of antiquity.

Private property, the slave trade gave rise to the legal registration of the rights and obligations of the individual. This right extended only to free citizens. According to the formed rational legal consciousness, the practices of lawmaking and law enforcement were formed.

During the period of domination of monotheistic religions in society, legal consciousness became theological. It appealed to God and the norms contained in the Bible and the Koran. During the Renaissance, European society returned to natural law, the source of which is the legal consciousness of the people. In this historical era, the formation of national states and national law began. It is based on secular principles of thinking. This is a rational culture. As a result, in modern times, the concepts of freedom and social contract were actively discussed. They were seen as fundamental categories of civil society.

Since the legal conscience of European peoples was strongly influenced by economic reality and class traditions, it found itself in an atmosphere of social inequality, a competitive social environment. The identification of the institution of law with the state and class ideology called into question its normative role in the status of an institution reflecting the interests of all social groups of civil society. As a result, revolutions have become a frequent occurrence in Europe. In

these difficult conditions, the place of legal consciousness was often taken by nihilism and rejection of legal values that guarantee privacy.

The nihilism of social revolutions merged with illegal consciousness. This same consciousness manifested itself in the colonial era and during the First and Second World Wars, when the place of legal consciousness was taken by ideological modifications of racism, chauvinism, nationalism, the theory of exacerbation of the class struggle under socialism.

The Nuremberg trials and the condemnation of the personality cult in the USSR allowed European states to return to the dominance of legal consciousness in the social space. Modifications of national legal consciousness with its characteristic traditions and mentality dominate.

International law guarantees the rights of the individual, regardless of his location. But this declaration of rights collides with the concrete state of the legal consciousness of the European peoples. This can be seen in the example of the attitude of these peoples towards migration processes, in particular, towards refugees. The priority of national state law is usually explained by the negative attitude of the local population towards representatives of ethnic and religious groups in Asia and Africa. There would be no migration from the regions of Asia and Africa if the European states and the United States did not interfere in the political processes of the states of the world and did not ignore the peculiarities of their legal consciousness.

From the point of view of standard rational ideas about the legal consciousness of an individual, models of a tolerant legal personality and a deviant personality are cultivated. A tolerant legal person knows the rules of law; rights and obligations guaranteed by national and international law. This person condemns criminal activity and supports the activities of legal structures to suppress it. A person with signs of deviant behavior is subject to legal assessment if she has signs of sanity. In other cases, she is subject to treatment in special neuropsychiatric institutions. From the point of view of rational signs of unlawful be-

havior, an individual is subject to specific legal norms formulated in the criminal code. By unlawful behavior, the individual forms a dossier on himself, which defines him as one of the persons subject to priority consideration when committing criminal offenses. Terrorism belongs to this category of crimes.

The legal consciousness of an individual includes informational, psychological and cognitive components. The legal consciousness of a nation reflects its legal traditions, as well as the level of development of legal science, which is manifested in the activities of the legal institutions of the court, jury, legal profession, prosecutor's office, and investigation.

Along with the scientific forms of legal consciousness, the components of the everyday worldview of citizens function. A special role is played by the professional legal awareness of employees of legal services, notary offices, public and private investigations, police and security structures.

The legal consciousness of citizens is formed in the specific historical conditions of the functioning of civil and state law with the practices of lawmaking and law enforcement characteristic of this law. Citizens participate in lawmaking to a lesser extent, since this activity falls within the competence of professional lawyers. Citizens are also less involved in law enforcement, since it is the responsibility of professional structures to pass sentences and carry them out.

It is important to take into account the fact that crimes can have a significant public response. Therefore, they become the object of attention of civil society, which is focused on the criteria of a well-deserved order. The highest forms of punishment are based on the historical characteristics of social consciousness, where, along with the rational component of the philosophy of law, the arguments of ordinary legal consciousness with its attitude to the murder of a person or a group of people continue to play an important role.

Legal awareness is focused not so much on punishment as on guarantees of personal safety, protection of property. On this basis, the criminal acts of individuals of deviant behavior are assessed.

1.4 Normative public mind: morality and ethics

Morality reflects the natural historical component of the way of life of peoples on the planet. Morals are formed locally on the basis of a specific community of people and cultural space. Therefore, the mores of peoples can be assessed based on the criteria of their own morality. But from the point of view of intercultural dialogue, the moral traditions of countries and peoples should be respected.

Morality is cultivated by everyday consciousness. Respect for elders, hospitality, family and marriage values play a role in it. Morality and way of life are passed on from older to younger generations.

Morality, in contrast to morality, claims to a universal normative status. It is formulated in the form of categorical structures, which fix the normative components of etiquette at the level of communication and business relations. One of the first categorical structures of morality was systematized by Aristotle. He is the founder of ethics - a branch of philosophy that studies the features of moral consciousness in its rational part.

In the middle Ages, ethics, like philosophy, became part of theology. In modern times, secular themes returned to ethics. She had a rational philosophical basis. This was the merit of B. Spinoza. Representatives of British philosophy (J. Butler, R. Cadworth, J. Locke, A. Smith, D. Hume) paid much attention to ethical topics. Their thinking was based on empiricism and utilitarianism. I. Kant formulated a categorical imperative. He hoped that it would become the universal law of morality. Representatives of Marxism formulated the thesis about the universal and class content of morality. Among the universal human moral values were the categories of humanism, duty, conscience, honor, moral responsibility and moral choice.

The class aspects of morality were presented by Marxism as class interests and the associated way of life of the bourgeoisie. Protestant work ethics and

pragmatism belonged to the bourgeois philosophy of morality. The subject of consideration was also the amoralism of bourgeois society.

Representatives of analytical philosophy, when verifying moral value judgments, faced the problem of their verifiability. This problem casts doubt on the scientific status of ethics. J. Moore dealt with this problem. The result was the book "Principles of Ethics" (1903).

Despite this problem, ethics began to demonstrate its usefulness through its applied applications in management, marketing, and scientific activity.

At the conceptual level of the analysis of moral consciousness, the cognitive, behavioral and emotional components are highlighted. The cognitive component is a rational component in the moral consciousness, integrated with the mentality of the individual or social community. The behavioral component in the structure of moral consciousness also reflects the rational component integrated with the mentality of the individual or social community.

The emotional component accompanies the rational components of moral consciousness, but does not play a major role. No sooner had ethical intellectualism been constituted than it found itself in a social situation of the growth of amoralism. Z. Freud and H. Ortega y Gasset identified the bearer of this amoralism. It is the crowd. K.G. Jung considered the destruction of the collective unconscious to be one of the reasons for the growing influence of amoralism. Among the causes of ammoralism, K. Marx singled out commodity and money fetishism. The reason was also the destruction of the aristocratic culture, which assumed the values of education, etiquette.

The bourgeois who replaced the aristocrats transformed the urban European environment. This tendency of immoralism was reflected in the works of G. Flaubert. The biographies of Byron and Baudelaire were a reflection of the strengthening of immoral tendencies due to the bourgeois lifestyle and the eve of the First World War. These tendencies worried F. Dostoevsky and S. Frank.

The formation of the moral consciousness of the individual has become the subject of research in social psychology. The socialization of the child began to be viewed as a process of assimilation of moral social norms, standards, methods and patterns of behavior (L.S.Vygotsky, P.Ya. Galperin, A.N. Leontyev). The assimilation of social norms accepted in society is carried out by the child through dialogue with parents and elders, as well as through experience. The individual modification of moral consciousness is an integral formation. It regulates the behavior of the individual on the basis of accepted and assimilated moral norms based on values. It is actualized in the capacity for moral reflection. It promotes free and responsible choice of action.

J. Piaget and L. Kohlberg attached particular importance to moral judgment and moral thinking as criteria for the development of moral consciousness. In their opinion, moral consciousness consists of prohibitions, which determine what is good and what is bad. The moral development of the child is associated with a change in attitude towards these concepts. J. Piaget identified two stages in this process: the morality of coercion and the morality of cooperation. The moral of compulsion reflects the child's self-centeredness. This is manifested in his inability to look at the situation from the perspective of another person, to assess his motives of behavior and desires. The child's judgments are highly dependent on the influence of adults therefore prohibitions heard from adults are contained in his moral sphere. At the stage of morality of cooperation, the child himself is able to take the place of another person, thereby changing his attitude towards prohibitions. At this stage, the child understands that the prohibitions are relative, and adheres to them not because of the requirement of an authority figure, but because he himself considers them necessary.

In order for the transition from one stage to another to occur, three important conditions are necessary. These include increasing the level of intellectual development; release from submission to an authority figure; communication with peers.

L. Kolberg identified three main levels of development of moral self-awareness: preconventional, conventional and postconventional. They have two stages. At the preconventional level, an important role is played by the stage of heteronomous morality, where the observance of norms is subordinated to the authority of an authority figure because of the desire to avoid punishment. At the stage of instrumental individualism and equal exchange, justice is seen as a system of mutually beneficial exchange of goods. The conventional level is characterized by the understanding that a number of specific rules must be followed in order to preserve the integrity of society. At this stage, an orientation towards a social law occurs, the rule of which must be fully implemented, with the exception of some extraordinary cases when they come into conflict with other social norms. The postconventional level is the highest level of development of moral self-awareness. At this level, the individual is guided by impersonal moral norms. The individual chooses for himself the only system of moral norms and rules, and then follows it.

The cognitive approach proposes to consider the development of moral consciousness according to four criteria: 1) qualitatively different stages of thinking; 2) an invariant order, the rate of development of which is influenced by the cultural factor, but cannot change the sequence of stages; 3) the integral structure of the stage; 4) hierarchical structure, where the higher stages are more differentiated than the lower ones.

In K. Gilligan's empathic approach, the main principle is orientation to the feelings of other people and their needs. The concept focuses on the development of altruism, which is defined as voluntary, purposeful behavior in favor of another person, not motivated by reward or punishment.

The external manifestation of moral consciousness is an act. This manifestation became the subject of research by M.M. Bakhtin, as well as E. Turiel. The highest status is assigned to moral norms. They are based on concern for others and the principle of justice. The moral development of an individual goes

through the stages of developing personal norms, assimilating conventional and moral norms.

Moral behavior presupposes moral sensitivity; moral motivation; moral thinking and moral judgment; moral character. This foundation influences an adequate perception of the moral dilemma. The decision making will vary depending on the specific situation. In dealing with moral dilemmas, the individual uses different moral principles.

An important characteristic of moral consciousness is communicative action. This is the opinion of J. Habermas. The individual is in the space of communicative rationality, representing the social forms of human life. Individuals are tuned in to mutual understanding, the moral indicator of which is communicative action.

The individual in one person is the initiator of the action for which he is responsible and at the same time the product of the traditions of the given culture and social groups, as a result of socialization. J. Habermas limits the sphere of moral consciousness to normative judgments. These judgments prevent conflict and promote social harmony. An element of unconditionality is built into the communicative action aimed at achieving understanding.

Moral problems should be solved in a rational way based on the use of a special theory of argumentation. Only those moral norms that are supported by all participants in practical discourse can claim significance. This is possible because the consequences and side effects expected from the observance of the norm in the interests of each individual can be acceptable to all.

The legitimization of the moral norm is carried out through the free and rational consent of the participants in the discourse. The right of an individual to respond with consent or disagreement presupposes the equal responsibility of each individual. Against the background of the original ethical concepts of moral consciousness, morality performs its regulatory normative functions. It is localized by mentality, the influence of traditions, in particular, religion.

1.5 Normative Public Mind: Aesthetics and Design

Aesthetic consciousness against the background of legal consciousness and moral consciousness does not imply hard or soft sanctions. This is creative normativity. It is based on the original concepts of taste, style, form, perspective and composition. Aesthetic consciousness is actualized through aesthetic sense, aesthetic needs, aesthetic relationships, aesthetic perception, aesthetic taste, aesthetic imagination and aesthetic judgment.

The aesthetic sense is studied by the psychology of art and the psychology of creativity. These studies are based on the concept of catharsis developed in ancient aesthetics. Catharsis creates moral relief and purification. Aesthetic emotions affect the physiology of the human body.

Aesthetic needs are shaped by the standards of beauty, beauty and sublime. These needs are promoted by anthropocentrism and humanism, as well as the value criterion of the significance of works of fine and decorative-applied art, architecture, urban space, natural landscape. These needs began to be shaped by environmental values. Feeling serves to concretize the need. It is the mechanism by which the need declares itself.

Aesthetic relationships between individuals are shaped by etiquette, fashion, shared values, and cultural events. On this basis, aesthetic perception is formed. Aesthetic taste reflects the individual's ability to evaluate aesthetic phenomena through the beautiful and the ugly, the beautiful and the base, the tragic and the comic. Aesthetic norms are set by the peculiarities of the worldview of architects, sculptors, artists, and the stylistics of culture.

Religion and philosophy have a normative effect on creativity. This can be seen in the example of classicism of the 17th-18th centuries. The aesthetics of classicism guided poets, artists, composers to create works of art distinguished by clarity, consistency, strict balance and harmony. Antique artistic culture was endowed with the status of a sample. Reason and antiquity have become synonymous. The rationalistic nature of classicism aesthetics manifested itself in an

abstract typification of images, a strict regulation of genres and forms. It also manifested itself in an abstract interpretation of the ancient artistic heritage, in the appeal of art to reason, and not to feelings, in an effort to subordinate the creative process to unchanging rules and canons.

The rationalism of R. Descartes became the ideological basis. A noble idea was required of the artist. The plot of the picture was supposed to have an edifying value. Allegories, in which conventionally taken ways of life expressed general ideas, were highly valued. The historical genre was considered the highest genre. It included ancient mythology, stories from the Bible. Portrait, landscape and scenes of real life were considered a small genre. The most insignificant genre was still life. A work of art was created according to a plan, with a specific task and purpose. The rules and norms of classicism were outlined in the treatise "Poetic Art" by N. Boileau. The model for him was "Epistle to the Piso" by Horace. The term "aesthetics" to the theme of art was actualized by A.G. Baumgarten. I. Kant dedicated a separate work to the aesthetic ability of judgment.

Classicism have ideal concrete and available for implementation. He has already been embodied in ancient art. Therefore, he should be imitated in order to get closer to the ideal. For romanticism, the ideal has no counterpart. It is something eternal, infinite, absolute, beautiful, perfect, mysterious and incomprehensible. Reality is transitory, limited and concrete. This played a role in the formation of the principle of romantic historicism. Bridging the gap between ideal and reality is possible in art. This determines his special role in romanticism. A universalism is being developed that allows one to combine the ordinary, the concrete with abstract ideals. The thesis is formulated that nature should be ideal, and the ideal should be natural. The primacy of the ideal creates the phenomenon of ideal beauty. Therefore, art is aimed not at depicting reality, but in seeking the ideal truth.

Typing is used through exclusive and absolute. It reflected the understanding of man as a small universe, a microcosm. She expressed special attention of

romantics to individuality, to the human soul as a synergy of conflicting thoughts, passions and desires. This was a consequence of the development of the principle of romantic psychologism. In the soul of the individual, the poles of the angel and the beast are mated. This is the basis of the diversity in the depiction of people. Doll standards are rejected. It is based on a lively, bizarre, inconsistent, colorful world. The technique of opposing the poet to the crowd, the hero of the rabble, the individual to the society, which does not understand and persecutes him, is used. The thesis is cultivated that reality is relative and transient. Since the new form of reality is perceived as a new attempt to realize the absolute ideal, the thesis becomes the key: what is new is beautiful. Since reality is low and conservative, what is beautiful is that which is not true. It's fantastic. Everything is a fairy tale.

Fantasy is affirmed not only in the object, but also in the structure of the work. Romantics develop fantastic genres. They destroy the classicist principle of the purity of genres, mixing the tragic and the comic, the sublime and the ordinary, the real and the fabulous on the basis of contrast. Bridging the gap between ideal and reality can be done with the help of art. You can use romantic irony. In the 1830s, romanticism was replaced by critical realism in European art. This is an artistic method of reflecting the concrete historical originality of reality, the social determinism of the individual and the nature of her relationship with society. The aim was an artistic analysis of the class structure, social essence and socio-political contradictions of capitalist society.

A special place was given to the disclosure of the social determinism of the depicted events and characters. A distinctive feature was the appeal of art to depicting people's everyday life, devoid of any mystery, mystery, religious or mythological motivation.

Only a work that reflects the essence of the depicted socio-historical phenomenon can be considered realistic. The characters of the work must reproduce the typical, collective features of a particular social stratum or class. Conditions

should be a reflection of the patterns of the socio-economic and political life of the era. This is the art of reproducing reality by recreating the sensory forms in which the idea exists in reality.

In the 19th century, the European aristocracy turned to a neoclassical aesthetic that reflected their imperial thinking. The bourgeoisie also wanted to be constituted in romantic forms of aesthetic representations. She demonstrated a connection with folk culture and her own special material status. Her order was satisfied with the aesthetics of Art Nouveau. She figured under the names: Arnuveau (France, Belgium, England and USA), Liberty (Italy), Secession (Austria) and Art Nouveau (Germany).

The aesthetics of Art Nouveau cultivated fragility, grace pretentiousness of forms, elusive transitions, unexpected rhythms and increased decorativeness. She established the superiority of drawing (line) over picturesqueness (stain). She developed the ideas of symbolism. Modernity was accompanied by national-romantic hobbies, interest in medieval and folk art. The artists wanted to revive the spirit of stylistic unity of the artistic environment inherent in medieval folk art.

In architecture, symmetry and the regular norms of urban planning were abandoned. Buildings and their structural elements received decorative and symbolic-figurative interpretation. The architecture was supported by all elements of interior decoration (wallpaper, furniture, stucco, panels and fixtures of lamps), the flow of spatial forms into one another. The complexity of the space was used with the help of asymmetrically located window openings, decorative panels, stained glass windows and mirrors. Also new materials and principles were used. These include frame structures, reinforced concrete, forged metal, and raw stone. The richest possibilities of shaping were discovered, presented by new construction equipment. They have been used to create highly individualized buildings.

Modern is integrated with arts and crafts. The main means of expression of the Art Nouveau style has become ornament, which is dominated by refined and graceful interweaving of plant motifs. The traditions of stylized floral patterns of the Aegean art, the linear structure of Japanese engraving, elements of ornaments of Gothic art, Baroque, Rococo, Empire style were combined. The influence was exerted by W. Morris and the Pre-Raphaelites, who created workshops in England for the manufacture of decorative and applied products.

Art Nouveau created the style of book and printed graphics. New forms of fonts, page design, illustrations and posters were created (O. Beardsley). Decorative and ornamental backgrounds were combined with really sculpted faces and figures of the foreground (G. Klimt). There was an interest in the symbolism of line and color. Artists loved to address the themes of grief, death, mysticism, eroticism, sleep, the world of secrets. Art Nouveau architecture is distinguished by the rejection of straight lines and angles. The emphasis was on natural lines, the use of new technologies (metal, glass). Modern is distinguished by the desire to create aesthetically beautiful and functional furniture. Much attention was paid not only to the exterior of the buildings, but also to the interior, which was carefully designed. All structural elements of the stairs, doors, pillars, balconies were artistically processed.

Henri Van de Velde created Art Nouveau furniture. Simplicity and functionality were taken as a basis. He contrasted the stylized floral ornament of the floral direction with a dynamic linear ornament. He considered it to be consistent with new techniques in architecture and the art industry. He used curved lines in the decor. The flowing lines were appropriate. The back of the chair corresponded to the shapes of the human body, the elasticly curved legs felt strength. The two qualities of logic and power shaped buildings, furniture, glass and metal products, ceramics, textiles, book bindings, posters, and ornaments. Architecture began to include not only buildings for various purposes, but also interiors and furnishings for them, ranging from furniture to lighting fixtures and

tableware inclusive. The teaspoon sample was created with the same care as the design of an apartment building. In 1907, with the participation of Van de Velde, the Werkbund was organized. This society brought together artists, artisans and industrialists. The aim was to ennoble handicrafts through cooperation between art and industry, craft with trade.

Group of four represented the original direction of Art Nouveau. It included C.R. Macintosh, his friend Herbert McNair and Margaret and Frances MacDonald. The group has created a "Glasgow style" in graphics, arts and crafts, furniture and interior design. Ch.R. Macintosh was involved in architecture. He strove to design a complete ensemble of the building - from its exterior to furniture and small details of the interior decoration. He applied the principle of total design. The house, furniture, and interior decoration are designed as a single harmonious system. Interiors Ch.R. Macs are distinguished by their simplicity and asceticism. The simplicity of his work is exquisite. Things are geometric and functional, have slender proportions and are not burdened with unnecessary decor. His decisions were based on a geometrically straight carpentry design with a predominance of vertical lines.

The artists' critical attitude to reality is transformed into a search for beauty and harmony. The awareness that beauty was created by the artist's talent and artistic fantasy manifested itself not only in the attraction to fairy-tale, allegorical or mythological subjects, but also in the very structure of the artistic form, which translated the images of external reality into the field of folklore representations, memories of the past or unforeseen anticipations of the future.

In the architecture of Russia, the theoretician and practitioner of modernity was F.O. Shekhtel. In the space of his work there were private mansions, tenement houses, buildings of trading companies, railway stations. In the planning of the building, he used the principle of free asymmetry. Each of the mansion's facades is designed in its own way. The building presents a combination of plastically, sculpturally interpreted volumes that form a compliant composition. The

free development of volumes in space demonstrates the principle of assimilating an architectural structure to an organic form. The use of colored stained-glass windows in the glazing of windows has become characteristic. The building is surrounded by a wide mosaic frieze with stylized images of irises, which unites facades of different composition.

The theater became part of the modern. It unites music, painting, actor, while modern seeks to integrate architecture, painting and applied art. The production of "Masquerade" by Lermontov in the design of Golovin embodied the main idea of modernity. It was based on the following theses: peace is a theater, peace is a masquerade. Mikhail Vrubel expressed Art Nouveau as a painter and decorator.

The idyll of bourgeois modernity was overshadowed by the First World War and technical progress. This was especially evident in France, Italy and Russia, where socialist movements spread. Their critical orientation, combined with the philosophy of F. Nietzsche, the irrationalism of Z. Freud and A. Bergson, created a transitional era of modernism in intellectual aestheticism. Its semantics were formed by expressionism, cubism, futurism, constructivism and imagism. And also is surrealism, abstract art and pop art.

They were united by an anti-realistic creative method. As a result of the search for new visual means in the art of modernism, cubism, futurism and abstractionism arose, which were united by the rejection of the principle of reflecting reality. He used the thesis art for art.

The Cubists believed that objects, including humans, could be represented by graphics of geometric shapes. A. Schopenhauer borrowed the idea of the impersonal character of art and the depersonalization of the artist. In A. Bergson they found philosophical arguments in favor of the elite, esoteric, irrational nature of art, in defense of the artist's special mission. K. Malevich tried to comprehend and realize this mission. The result of his search was Suprematism.

The influence of F. Nietzsche's philosophy was experienced by representatives of futurism. The basis was formed by nihilism, criticism of traditional culture, Christian morality, history, what is the cause and expression of decadence. Futurists believed that a work of art should not reflect reality. The object of art should not be the objective world, but the movement introduced by the artist into matter through the synthesis of time, place, form, color and tone.

Psychoanalysis, existentialism and hermeneutics began to be taken into account. As a result, expressionism was actualized. The methods of aggravated expression of conflicts and emotional impact on the viewer, developed by expressionists, created a unique phenomenon. They carried out rational comprehension of irrational phenomena on the basis of E. Husserl's phenomenology. His doctrine of intentionality was used by abstract art. Kandinsky became a prominent representative. The purpose of creativity was the intellectual self-expression of the artist.

Surrealism postulated the thesis that it would transform society without resorting to a social revolution. The social struggle was contrasted with a surreal revolution of minds. It was supposed to make a revolutionary change in human ideas and perceptions. It is necessary to abandon reason and traditional logic, from the usual perception of things, from the absurd distinction between the beautiful and the ugly, the true and the false, from all traditions, to destroy all the usual ideas about the norms of human relationships, about the foundations of building society.

Following A. Bergson, the surrealists argued that there is a direct, more immediate vision of reality. Due to the fact that the artist does not think about how to utilize his perception, he perceives more things. As a result, a senseless, illogical combination of phenomena, objects, details was practiced in the works. They accepted the Freudian thesis about the absence of a clear line between mental norm and pathology. The result was the recognition of insanity as the most promising state for artistic creation, since a person is freed from the control

of the mind. Plunging into the depths of the unconscious, the surrealists began to create illogical works with scenes of cruelty and violence. Contemplation of pictures of cruelty should give vent to repressed instincts, contributing to the purification of the soul.

In the early 1950s, the art of the absurd was born in French theater. The world of the absurd is not an adequate reflection of the real world with its objective laws. But this world of art is not entirely fantastic, not entirely fictional. In detail, he copies reality in a naturalistic way. But the details unite arbitrarily, outside organic laws, forming a really visible nightmare world of chaos, a world of absurdity on the stage. The thesis was postulated that reality is given only in the form of phenomena that cause certain subjective reactions of the individual through surprise, laughter, indignation. The replacement of the concept of the objectivity of art with the concept of its materiality was embodied in pop art, op-art, self-destructive art, body art, dynamic direction, cybernetic art.

Intellectual postmodernism has replaced intellectual modernism. He carried out the deconstruction of the architecture of culture. He proposed the principles of eclecticism, pluralism, text and schizoanalysis.

In parallel with intellectual aestheticism, everyday aesthetic consciousness continues to evolve. Its basis is in arts and crafts, folk costume and architecture, folklore. Tourism has created a unique opportunity to revive interest in folk aesthetics and common sense aesthetic consciousness.

1.6 Normative public mind: religion

Religion is associated with a special normative modification of mind. This modification historically arose as the need for people to conduct a dialogue with external natural forces. For this purpose, the practice of conducting a dialogue was updated. They assumed a special role for those who conducted direct dialogue with the spirits. This is how the institutions of shamans, sorcerers, priests, and magicians appeared. The practice of spiritual dialogue involved sacrifice.

Spiritual dialogue was also conducted with the souls of animals that people hunted. The personification of natural forces led to the actualization of polytheism. This spiritual phenomenon was characteristic of the ancient Greeks, Romans, Celts, Germans and Slavs.

In India and China, at the level of philosophical reflection, the concept of religion was developed as a special gift of the individual for spiritual self-improvement through the practices of samsara, karma, nirvana, moksha, yoga, ethics. The discovery of the spiritual path and adherence to it (Buddha) gave a special status to the individual.

In the Mediterranean, the population developed a normative need for the institution of the supersensible beginning of life. This beginning in ancient philosophy was called the prime mover (Aristotle). The concept of God has become a more capacious and accessible concept. As a result, monotheism was formed in the modifications of Christianity and Islam. Belief in God has become a key feature of religious monotheistic consciousness.

In the structure of religious consciousness, in addition to faith, sensual forms, symbolism, allegoricality, dialogicity and emotional saturation play. Religious consciousness functions as the mass consciousness of religious people in everyday life and as theology, creed, and religious philosophy. In this space there are individuals with a defining religious orientation, with a subordinate religious orientation and hesitant with an unstable religious orientation. An integrative feature of religious consciousness is religious faith. This is a special state of the psyche of an individual, a group of believing subjects, expressed in conviction, trust and hope. The subject of faith believes that it does not require proof and verification at all.

In each religious system, teachings about religious faith and its content are formed and developed. Feelings tend to prevail. The cognitive component is formed by representations, images, concepts, doctrinal statements, dogmas of the corresponding religion ideas of a doctrinal complex.

The ideal of the most real essence, although it is only a representation, is first realized. It turns into an object. Then he is hypostatized and personified. Religious faith allows for the objective existence of supersensible phenomena and the possibility of communication with these phenomena. She postulates the truth of dogmas and miraculous events. Its value is manifested in the life of fathers, teachers, saints, prophets, charismatics, bodhisattvas, arhats, church hierarchs, and clergymen.

According to G.V.F. Hegel's consciousness of God and confidence in his being are directly expressed in faith, in which knowledge of God is a feeling. It becomes the foundation in which the being of God is given. The forms in which God exists are represented by contemplation, representation, thinking. The idea is in a constant fluctuation between immediate sensory content and genuine thought. Certainty is of a sensual nature, it is taken from sensuality, although sensuality has been elevated to thinking through abstraction. But in the representation there is always a moment of sensual being. The normative content of religious consciousness is expressed in parables, teachings, architecture and icon painting.

A specific modification of religious consciousness has its own set of symbols that are not such outside of this system. Common are those that represent the respective religion. The consciousness of an individual has a picture of a hierarchical system of symbols. It is formed by: the main symbol of a given religion, a symbol of direction, confession, a regional-religious-ethnic symbol, a symbol of a religious community, symbols of a character, events, transformations, etc. The most common are the main symbols of a particular religion.

In Buddhism, this is the image of the Buddha sitting in the "lotus position" and the Wheel of Teaching with eight spokes, meaning the Noble Eightfold Path leading to liberation from suffering. The symbol of Christianity, the Cross, means the martyrdom of the Son of God Jesus Christ, who gives atonement for the sins of the human race, victory over death, salvation. In Islam, the main

symbol, the Crescent, testifies to the firmness of faith (iman), strict observance of rituals (ibadah), and the strength and strength of the community (ummah).

Allegoricality is inherent in religious consciousness. Allegory is an allegory, a conditional form of a statement, a conditional expression of abstract concepts in visual images that mean something other than literal meaning. Allegory acts as a set of related images combined into a plot. She is didactic and instructive. With its help, through some image or their combination, the content of moral concepts developed in a given religious system is allegorically transmitted. On an ordinary level, allegory unfolds spontaneously. In doctrinal concepts, special methods of allegorical interpretation have been developed. For example, in Christian theology, allegorical presentation is characteristic of exegesis, which carries out the interpretation of biblical texts. Along with the literal meaning of the text, a system of other meanings is assumed.

Religious feelings are an important component of an individual's consciousness. They express the emotional attitude of believers to sacralized actions. Having arisen, religious feelings become an object of gravitation towards their experience, religious and emotional saturation. It is fear, love, admiration, awe, joy, hope.

At the level of religious thinking, theology and philosophy, which has passed into the space of the paradigm of supersensible reality, play an important role. Aristotle, dividing speculative philosophy into mathematics, physics and theology, regarded it as a doctrine of the divine. According to Aristotle, theology was the first philosophy to investigate independently existing and immovable, which are the source and purpose of being. The basic foundation of theology is formed by dogmatism. It formulates the initial ideas of theology about God. Within the limits of theology, philosophical thinking is subordinated to heteronomous foundations. Reason is assigned an interpretive role. At the patristic level, it consists in clarifying the word of God.

This discourse was developed in Alexandria. A synthesis of Jewish and Christian traditions with ancient philosophy took place here. Alexandria had a significant Jewish community, a rich intellectual tradition of translating works into Greek. Since Christianity relied on the authority of the texts, the result was the Bible, as well as the understanding that theology and philosophy should be linked. Christianity was positioned as the religion of an educated society.

Aristotle's philosophy was most consistent with this thesis. Its adoption was preceded by preparatory work related to the synthesis of theological and philosophical discourses. This synthesis took place within the Roman Empire. In its western part, Latin prevailed. Changes in the understanding of the content of theological discourse were introduced by A.M. Boethius. He substantiated the idea that knowledge of the free sciences contributes to the understanding of Scripture. The first group of free sciences included grammar, rhetoric, dialectics (trivium). The second group of free sciences includes arithmetic, geometry, astronomy, music (quadrivium). They had more to do with the sciences of nature.

In the eastern part of the Roman Empire, theological discourse was developed in Greek. The works of D. Areopogit played an exceptional role. They were presented in 532 at the Constantinople Church Council. They consider the concepts of God, faith, Christ, Trinity, One, predetermination, heavenly hierarchy, church hierarchy, divine name, knowledge of God, emotion. I. Damaskin in the works "Holy Parallels", "On the nature of man", "Three words against the denying icons", "Source of knowledge" substantiated the aesthetic theory of visual perception of the Christian cult. Painting, artistic images exist to reflect the essential side of theological premises.

Text resources were viewed in a broad context of deep meanings that were to be found through the Bible. For this reason, an important role was assigned to the interpretation of Bible texts in the genres of allegory, parable, prayer, and teaching. Such forms made it possible to expand the textual space of the Bible. K. Smolyatich coped with this task most vividly. He was born in Eastern Bela-

rus. He lived at the turn of the XI-XII centuries. He served as Metropolitan of Kiev. Several of his works have survived. They focus on the text of the Bible. Special emphasis is placed on discovering the deep content hidden in it, which is not directly readable. The mystical-theological emphasis is associated with the consideration of the principle of predestination and its role in solving the problem of sinfulness and salvation.

Ethical topics are being investigated. It focuses on condemning the abuse of material interests. Wealth should not dominate as the goal of life. In this case, wealth should not be confused with fame. The believer has a right to it. This reasoning was aimed at the educated part of society, which needed to understand the relationship between modesty and social activity.

K. Smolyatich considers it possible during Christian reflection to turn to ancient wisdom, since there you can find content acceptable to Christianity. This rationale was facilitated by the principle of divine predestination. It followed that everything that exists in the world is expedient, including ancient wisdom.

K. Smolyatich developed the concept of biblical studies, according to which priority when working with the texts of Scripture should be given to the figurative-symbolic method. This method allows the use of biblical stories in order to reveal the hidden meanings in them. The text should not only be able to read, but also be used to enrich your own spiritual world. In such conditions, the mind gets the opportunity for intellectual work. Ethical aspects of human life are associated with faith, love, patience, mercy. A person should not sacrifice his body. Asceticism should be combined with the physical existence of the individual in the social space.

In his reflections, K. Smolyatich refers to the works of Aristotle and Plato. Aristotle is preferred. The key concept of the Epistle to Presbyter Thomas is “God”, since everything in the world is supported by divine power. God sees everything, wisely leads people, guides them and gives the guarantee of salva-

tion. The believer, as K. Smolyatich shows, can recognize the being of the highest depth of Scripture through metaphorical comparisons and stories.

Mental ability plays a large role in building faith. They need to be developed by recognizing the world created by God. Through the results of divine creative deeds, God himself is cognized. Feelings have to do with faith. Their task is not cognitive. Thanks to the mind that cognizes the world around us, the essence of man takes possession of the toponymy of being on Earth.

The essence of life is hidden in this toponymy. It is visible to the righteous believers and they adhere to it. It is visible to some, but they are unable to adhere to it. The problem lies in their ability not only to be God's presence, but to enjoy their God-given freedom. Christ gave people the opportunity to choose Grace through understanding the path of life on Earth. Theological discourse is brought into the space of anthropological themes. The believer knows what he needs faith for.

Simultaneously with the activities of K. Smolyatich, the activities of K. Turovsky (1130-1193) took place. He was born in Turov, which was the center of the principality. It had a developed economy, education, extensive infrastructure of monasteries. The city had an intense relationship with Byzantium. Cyril was born into a wealthy family. But he gave preference to spiritual activities. He held high spiritual positions. His numerous works have survived to our time. The Bible is their source. The works are written in the genres of legends, parables, messages, prayers, canons. The works have been well preserved due to the fact that they were included in their publications by well-known publishers. At the end of the 19th century, Bishop Turovsky published a complete collection of works by K. Turovsky. In the works of the thinker, the concepts of God, Trinity, Christ, Holy Scripture, and faith dominate.

K. Turovsky wrote works in the genre of a person who engaged in a dialogue with opponents. Based on the views of I. Zlatoust, V. Velikiy, K. Turovsky gave preference to the mystical components of theology in understanding

God. He believes that God is not knowable in terms of rational understanding. He is cognizable only through the world around him created by him. He watching the spring awakening of nature means watching the world created by God. The same power of divine design can be demonstrated by the creator of the text. It should be dominated by the power of the word.

The symbolic interpretation of the Bible in the form of a parable makes it possible to reveal the content of faith, body, soul, spirit, knowledge, man. Essence arises as soon as the layman attains an understanding of the difference between good and evil. He begins to understand the difference between a situation of sin not based on knowledge and a sinful act.

K. Turovsky gives believers advice on what books to read in order to strengthen their inner spiritual world. He uses the dialectic of material and spiritual, bodily and conscious. The body is given to a person as a test. If he does not cope with this test, then he falls into the trap of pleasure. Prayers can help in this test, which create an atmosphere of dialogue with God. Proverbs give believers a picture of the world's smoke, which includes the life of the individual. They are instructive in nature. Thus, "The Parable of the Human Soul and Body" shows that all the elements of the Universe have synergy as planned by God. Without it, separately, they demonstrate situations of problematic behavior of people with elements of great sin in the form of theft and murder.

The imperfection of human behavior does not mean that there is no hope for believers to attain divine grace. Explanatory work plays an important role.

K. Turovsky's sermons are the subject of the Easter cycle of Sundays and holidays. Each of them has an educational goal. In his opinion, one should not confuse everyday and real Christianity, which comes from patristics. At the same time, one must be tolerant of authentic Christianity. It synthesizes the folk tradition and the intellectual tradition of the ancient Greeks. Educated people have a responsibility to educate those around them. The main thing is not to fall

into the trap of pride. Those who fall into this trap are deprived of their intellectual abilities by God.

K. Turovsky assigned an important role to priests, their education, so that they correspond to an educated society, because even rulers, according to him, strive for knowledge. Education presupposes possession of a word, an accessible writing, a clear mind. The main thing is to get rid of the coarseness of the language, the vagueness of the mind. Dialogue with people is facilitated by modesty and repentance, spiritual work and good deeds arising from a spiritual way of life. The main thing is to convince believers to give up sinful acts and indecent behavior in the form of drunkenness, overeating, adultery, envy, slander, usury. A righteous lifestyle requires restraint, mercy, respect for people, and fasting. The content of sin includes slander, insults, condemnation, anger, quarrels, fights, jealousy, enmity, evil designs, binges, theft, robbery, robbery, murder, sorcery, adultery. The alternative to evil is represented by good morals, caring for orphans.

Scholasticism was embodied in Belarus in the activities of E. Polotskaya. She was born in 1101 in Polotsk. He came from a princely family. At the age of twelve she took monastic vows. There were many handwritten works in Greek in the monasteries of Polotsk. E. Polotskaya used them as the basis of educational activities. In the texts she wrote, concepts such as God, Scripture, Christ, faith, love and education prevail. In her practical activities, one can feel the great influence of Aristotelianism. She wrote teachings, prayers, and made translations. The aim of this activity was Christian humanism. She wanted believers to have a good heart, to avoid envy, evil passions, so that their goal was good.

Christian humanism was possible only on the basis of education. For this purpose, E. Polotskaya founded female and male monasteries. They created handwritten books. In church schools, children studied Greek. The subjects were rhetoric, medicine, history and poetics. E. Polotskaya contributed to the flourishing of the Polotsk architectural school. With her participation, John built a tem-

ple, which began to be named in her honor. With her organizational participation, L. Bogsha made a cross, which has become a national relic of Belarus.

She longed to get to the Holy Places. For this, at the end of her life, she went to the Middle East, to Jerusalem. E. Polotskaya became the first woman canonized by the Orthodox Church. This event took place in 1547.

The dominance of religious consciousness in the middle Ages in the Middle East and Europe led to the transition into the discourse of this consciousness of almost all semantics and social themes of culture. This was reflected in theology itself. So, on the territory of Belarus, within the framework of Christianity, not only Orthodox, Catholics, but also various Protestant communities began to coexist. One of these communities was created by the supporters of M. Luther. Since 1544 the university in Königsberg began to function. One of the first preachers of Lutheranism in the Grand Duchy of Lithuania was S. Rafalovich. The church was called Augsburg. Her residence was in Riga.

The factors of state authority contributed to the spread and growth of the influence of Protestant communities in the territory of the Grand Duchy of Lithuania. This circumstance played a role in the spread of Calvinism on the territory of Belarus. J. Calvin was in active correspondence with the head of the Grand Duchy of Lithuania, Sigismund II Augustus. He dedicated to him an interpretation of Paul's letter to the Jews. M. Luther also dedicated his translation of the Bible to the head of state. The final accents in the choice of the head of state of the Grand Duchy of Lithuania were influenced by N. Radziwill Cherny, who corresponded with J. Calvin. As a result, with his financial support, Calvinist communities became widespread. Prayer houses were built educational institutions and printing houses were opened. Representatives of intellectual culture were involved in the activities of the communities.

Among these representatives was S. Budny. At the invitation of N. Radziwill Cherny, he organized a printing house in Nesvizh, where he began to publish Bible texts in Belarusian and Polish. Sapieha, Kishki, Chodkevichi,

Tyshkevichi became supporters of Calvinism. Communities of Calvinists were formed in Brest, Zaslavl, Kletsk, Nesvizh and Orsha. Schools were opened in Vilna, Ivye, Kletsk, Nesvizh, Slutsk, Lyubcha and Losk. In addition to theology, they taught history, mathematics, rhetoric, and ancient poetry.

In 1557, a Synod of representatives of the Evangelical Church of the Grand Duchy of Lithuania was created. S. Zatsius was elected the head. In 1565, the GDL Calvinists received equal rights with Catholics and Orthodox. In 1573, the right to choose a religion was legislated. The corresponding article was spelled out in the Statute of the Grand Duchy of Lithuania in 1588.

The Calvinists' initiatives in the field of state law of the GDL created for them not only guarantees of equal rights, but also went beyond the boundaries of the interests of their community. On the territory of Belarus, other Protestant communities began to use the legally enshrined right of tolerance. Polemic discussions arose between representatives of these communities. In the course of these discussions, some of the members of the communities evolved towards views that transcended the boundaries of the identities of these communities. The controversy was conducted peacefully. It did not lead, as in France, to confrontation between religious communities.

L. Sapega took advantage of the right to choose a religion. Throughout his life he was Orthodox, Calvinist and Catholic. S. Budny underwent an original intellectual evolution within the framework of the right to choose a religion. While studying at the University of Basel, he became acquainted with the teachings of J. Calvin and became his supporter. On the territory of Belarus, he enjoyed the support of N. Radziwill Cherny. He gave him the opportunity to engage in publishing in Nesvizh. The Catechism was published here.

Since the spiritual evolution of S. Budny continued, he found himself under the influence of the antitrinitarians, the teachings of F. Sotsyn. He was forced to leave Nesvizh and moved to Losk, where there was a printing house and a training center. The work "On the Most Important Theses of the Christian Faith"

written by S. Budny created his written controversy with Peter from Gonends, J. Wisniewski, I. Zanchius, S. Farnovsky, M. Chekhovets, P. Skarga, G. Bulinger, J. Simmler.

S. Budny actively used the European intellectual space for the purpose of correspondence with representatives of the Protestant communities of Europe. Contacts were facilitated by his education, received at the universities of Krakow and Basel. G. Bulinger and J. Simmler represented the Protestant community of Zurich, created by the efforts of W. Zwingli. J. Simmler criticized S. Budny for allowing free interpretation of the Bible. Since 1532, Geneva became the center of the Protestant movement in Switzerland thanks to the efforts of G. Farel. J. Calvin settled here. In 1549, the Zurich Agreement was reached between the Protestant communities of Zurich and Geneva.

On its basis, educational institutions were opened the educational services of one of them were used by S. Budny. The level of his education is evidenced by references in his publications to Aristotle, Plato, Demosthenes, Cicero, Virgil, Horace, Titus Livy and Pliny the Elder, Through the British merchant, S. Budnyy handed over a letter to J. Fox in 1574. It is kept in the library of the University of Oxford. Library archives became the basis for research by British scientists G. Picardo, E. Henderson, J. Townley. It was they who established the obvious presence in the history of printing in England of natives of Eastern Europe. They also carried out a systematic analysis of the publications of Y. Litvin, F. Skorina and S. Budny.

The Telogical controversy, initiated by S. Budny, continued within the Grand Duchy of Lithuania for several decades. Its members have become well-known controversial authors. They were joined by S. Ostrovsky and M. Smigletsky. Within the framework of the polemic, S. Budny wrote the work "Refutation of Chekhovets". Jakub from Kalinovka, Peter from Gonendza, J. Nemaevsky, Pavel from Vizna reacted to his work. In 1581, at the Protestant Synod in Losk, the verbal discussion took several hours.

The discussion was continued in 1582 in Lyubcha. It took several days. The discussions revealed the talent of many participants for the practical implementation of the ideas expressed about the role of religion in society. Among them was A. Volovich. From Orthodoxy, he switched to Protestantism. He served as chancellor of the Grand Duchy of Lithuania. He participated in the development of the Statute of the Grand Duchy of Lithuania in 1566. The books by S. Budny and A. Bulinger were published with his money.

Calvinism was identified by him as the distinctive religion of the ON. Therefore, he led a decisive polemic with the supporters of the Union of Lublin, which assumed the close integration of the Grand Duchy of Lithuania with Catholic Poland. A similar position was adhered to by J. Abramovich, who held high government positions in the Grand Duchy of Lithuania. Under the influence of his wife, who belonged to the Orthodox Church, he maintained tolerance and religious tolerance. He had diversified interests in the field of science and literature. One of his works is called "Reflections of Licvin on the purchase of cheap grain and its sale at a higher price" (1595). He motivated J. Radvan to write the poem "Radziviliada".

Y. Glebovich, who headed the city authorities of Minsk, contributed to the development of the city and Protestant communities. On his initiative, the Trinity and the Castle suburb were built. A large Calvinist community was formed. A temple was built. A temple was also built for the Calvinists in Zaslavl. A printing house was opened, where books by D. Lenchitsky and S. Budny were published. J. Glebovich contributed to the adoption of the Statute of the Grand Duchy of Lithuania in 1588.

Another intellectual Y.L. Namyslovsky played an important role in the formation of the Arian schools in Ivye, Novogrudok. He supported the activities of S. Budny. He became famous for his polemics with M. Smigletskiy, a prominent representative of the second scholasticism within the Grand Duchy of Lithuania. The discussion took place in 1594. As a result of the discussion, Y. Na-

myslovsky published the books "Anatomy and Harmony of a Christian Man", "A Textbook for Mastering the Teachings of Aristotle."

They were published in 1596. The theologian from the Netherlands F. Junius reacted to these works. S. Zatsius adopted Calvinism and became one of the participants in discussions with S. Budny. In the printing house of N. Radziwill Cherny in Brest, he published Bible texts. After the adoption of Calvinism in 1553, the Italian theologian J. Blandrata took part in discussions with S. Budny. He received his university education in Bologna.

A. Volan demonstrated a high level of polemics with opponents. He was a supporter of Calvinism. He was the secretary of the kings Sigismund Augustus, S. Batory, S. Vasa. His works are devoted to issues of state law. In matters of religion, he led a polemic with the supporter of the second scholasticism P. Skarga. M. Kavechinsky was educated at the University of Wittenberg.

Together with S. Budny, L. Kshishkovsky opened a printing house in Nesvizh. Was a participant in the publication in the Belarusian language "Catechism". The Protestants of Belarus were in tolerant relations with the Orthodox. There were no conflicts between Protestant communities and Orthodox brotherhoods. Tolerance was promoted by mixed religious marriages.

Relations were more complicated between the Protestants and the Vatican, which did not want to put up with the growing influence of Calvinism in Belarus. The Vatican also adhered to a rather tough position in relation to the Orthodox brotherhoods. When the Vatican's patience was exhausted, he began to implement the Counter-Reformation strategy, which consisted in creating conditions for the transition of the upper strata of Belarusian society to Catholicism.

It was supposed to subordinate the Orthodox brotherhoods on the territory of Belarus and Ukraine to the Vatican, which was done in 1595 following the conclusion of the church union. But there were Orthodox brotherhoods that did not accept the model of the Greek Catholic Church. They began to focus on the Moscow Orthodox Patriarchate, which was viewed by the authorities of the

Kingdom of Poland and the Grand Duchy of Lithuania as an instrument of influence of the Moscow state on the Orthodox population for political purposes. Under these conditions, it was difficult for representatives of the intellectual part of the bravoslav brotherhoods to avoid suspicions of espionage and undermining the state security of the confederation of the Kingdom of Poland and the Grand Duchy of Lithuania. A. Filippovich found himself in a similar situation of suspicion. S. Polotsky left Belarus and continued his intellectual activity in the Moscow state.

As the Counter-Reformation intensified, representatives of intellectual thought who adhered to Calvinism left Belarus. After the transition of influential families of Belarus to the Catholic faith, printing houses ceased to be accessible to these people. They headed to the Netherlands. Among them were K. Semyanovich and I. Kopievich. In the Netherlands, K. Semyanovich became the author of a work entitled “The Great Art of Artillery”.

He adhered to the concept of Aristotle and empiricism. When interpreting the results of experimental research, he referred to the works of Aristotle, Plato, Seneca, Euclid, Archimedes and Apolloch of Pergamon. He used sources on medicine, natural history, agriculture, chemistry, technology, history. I. Kopievich opened a printing house in Amsterdam, where, at the request of Peter I, he translated into Russian and published books on maritime affairs and natural sciences.

The Counter-Reformation in Belarus was not accompanied by religious wars. It was transformed into a phenomenon of the second scholasticism. Catholic orders, including the Jesuits, adhered to a strategy of creating authority in civil society not by violence, but by creating an educational and cultural environment that would compete with the Calvinist communities and Orthodox brotherhoods on the territory of Belarus. The infrastructure of this environment included collegiums, school theaters, which shaped the specifics of the Baroque era on the territory of Belarus.

The intellectual tradition of the second scholasticism was formed in Spain and Portugal at the universities of Coimbra, Salamanca. The Gregorian University (Collegium of Rome) played an important role. This tradition includes Catholic philosophical teachings associated with the first scholasticism, Aristotelianism, Thomism and incorporating elements of the systems of late scholasticism and Renaissance humanistic teachings in their structure.

The second scholasticism became the theory of the internal reform of Catholicism and the rationale for the Counter-Reformation movement. She gave answers to religious, social, moral and legal, metaphysical questions posed by the New Time. The second scholasticism remained relevant in the 16th – 17th centuries. The beginning of the second scholasticism in Western Europe is associated with the intellectual activity of the founder of the Salamanca school, the Dominican Francisco de Vitoria (30s of the 16th century).

The end of the era of the second scholasticism is associated in Western Europe with the death in 1617 of the Jesuit philosopher Francisco Suarez. On the territory of Belarus, Lithuania, Poland, the second scholasticism retained its position in the education system until the beginning of the 19th century.

The counter-reformation movement pursued the goal of strengthening the position of the Vatican in Europe not only by intimidating believers through the institution of the Inquisition, but also at the expense of the intellectual resources of education. These tasks were formulated at the Council of Trent (1545-1563). The intellectual part of the problems was solved by the philosophers of Spain and Portugal. Their research was completed in the works of F. Suarez.

These works influenced the further development of Catholic theology and philosophy had a significant impact on the Protestant scholasticism of the 16th-17th centuries.

F. Suarez systematized the problems of Aristotelian philosophy in new historical conditions, gave impetus to the development of metaphysical problems in the structure of the emerging philosophy of the New Age, established the divi-

sion of philosophy into subject parts, which became traditional for European philosophers, up to I. Kant.

Philosophical rationalism is imbued with the theology of F. Suarez. He implemented a program of philosophical and theological synthesis of a system of knowledge, the basis of which is metaphysics. The focus of F. Suarez is on the real being. Most important for him is a systematic study of the main metaphysical concepts and questions. He analyzes and compares the opinions of Aristotle contained in different books, chapters and fragments, analyzes the judgments of medieval authors expresses his own thoughts.

He writes A Detailed Index to Aristotle's Metaphysics. Thus, he creates a mechanism of continuity within the framework of the Aristotelian intellectual tradition. In the education system of the second scholasticism, this tradition will be represented by the subject area of logic thanks to the efforts of M. Smigletsky. This philosopher and theologian is born in Ukraine. From 1581 he was in Rome, where he joined the Jesuit order. He studied philosophy and theology under the guidance of F. Suarez and R. Bellarmino. Since he was born within the Grand Duchy of Lithuania, he returned to its borders and began to teach at the Jesuit Academy of Vilna. Then his theological activity took place in Poland.

Based on the lectures he gave in Vilno, he wrote a two-volume treatise "Logic". The subject of his consideration was Aristotle's "Logic". The book was famous; became a popular textbook of logic in Western Europe. In England, the book was used until the middle of the 19th century. The Logic was reprinted three times at Oxford in 1634, 1638 and 1658.

Jesuits and other Catholic orders, in contrast to the system of educational institutions that existed on the territory of Belarus, created their own collegium education system. They had a tough discipline and, at the same time, a high level of study of subjects. In addition to theology, mathematics, ancient literature, logic, rhetoric, Latin and Greek languages, ethics were studied. The structure of the collegiums included libraries and school theaters. 14 school theaters func-

tioned on the territory of Belarus. The scripts for the performances were written by teachers of the Jesuit colleges.

The teachers were trained by the Jesuit Academy of Vilna. It included theology and law faculties. In the Jesuit colleges on the territory of Belarus, people from European countries taught – V. Bergof, A. Mishtalt and J. Preushof. Among local teachers A. Alizarovsky, L. Zalussky, M. Karsky, A. Koyalovich, S. Lauksmin, N. Lenchitsky, M. Sarbevsky and V. Tylkovsky became famous.

Colleges functioned in almost all cities of Belarus – in Polotsk (since 1581), Nesvizh (since 1584), Brest, Orsha, Grodno and Pinsk. There were 20 Jesuit collegiums in total. PR collegiums were opened in Shchuchin, Voronovo, Zelva, Mogilev, Drogichin and Polotsk. Due to the transition of the main part of the upper classes of Belarus to the spoken and written Polish language, teaching was conducted not only in Latin, but also in Polish. Book printing was carried out in these languages. Polotsk played an important role in the activities of the Jesuits. This was due to its geographic location.

In 1773 the Pope dissolved the Jesuit order. But after the annexation of the territory of Belarus to the Russian Empire in 1775, the order received the opportunity to operate within Belarus. Catherine II strove to use the Jesuit order in political interests. She gave them the right to educational activities. Polotsk became the center of this activity. Alexander II adhered to a similar position in relation to the Jesuits. He hoped for their support in the war with Napaleon.

On January 12, 1812, he signed a decree granting the Polotsk Jesuit Collegium the status of an academy with the rights of a university. All Jesuit educational institutions were subordinate to the academy. The faculty of languages was opened at a higher educational institution (Russian; French; German; Latin; Greek; Hebrew languages were studied).

Faculty of Liberal Arts studied poetry, rhetoric, moral philosophy, logic and metaphysics, general, private and experimental physics, chemistry, pure and applied mathematics, civil and military architecture, natural law, private law and

Roman civil law, natural history and general history were taught. Faculty of Theology and Other Sciences taught dogmatic theology, moral theology, Holy Scripture, canonical law, Holy history. The faculties elected deans for a specific time by an academic educational meeting. Elections to academic positions were made by majority vote at the full meeting of the Academy and submitted for approval to the general, and through him to the minister of education.

The academy had its own notary who issued certificates for degrees. The opening of the Academy took place in June 1812. Dogmatic theology was taught by professors M. Lesnevsky and F. Dzerozhinsky. M. Lesnevsky, Doctor of Theology and Church Law, Dean of the Faculty of Philosophy, proceeded from the work of the Jesuit Sardagn "A Treatise on God and His Christ."

F. Dzerozhinsky, professor of theology, also proceeded from the work of Sardagna. Church law was read by the Dean of the Faculty of Languages and Literature, Professor of Theology and Church Law, D. Richardot. Moral theology was taught by the dean of the theological faculty A. Rusnati. The Holy Letter was taught by M. Molinari, Professor of Holy Writing, Church History and the Hebrew Language. The subject of study was the Bible. He also lectured on church history and hierarchical geography.

In the first year, logic, dialectics and metaphysics were studied; ethics, statistics and political economy; geometry and solidometry; zoology. Subject sections of philosophy were taught by professor of logic, dialectics, metaphysics and mathematics K. Chlasko. He relied on the works of philosophers of antiquity, the middle Ages and modern times. Ethics was taught by Professor S. Ragoza. He was also a professor of political economy, statistics and zoology. He promoted the views of Cicero. Classes on geometry and solidometry were conducted by K. Hlasko. Zoology was taught by Professor S. Ragoza. He adhered to K. Linney's classification of the animal world.

In the second year, general and special physics, chemistry, experimental physics, plane and spherical trigonometry, mineralogy were studied. Lectures on

physics were delivered by professor of higher mathematics S. Petrovich. Lectures on chemistry were delivered by professor of chemistry and mineralogy Y. Tsitovich.

The main discipline in the third year of the Academy was applied mathematics. It was taught by professor of mathematics J. Kondrau. He also read astronomy. Professor J. Pearling gave classes on civil and military architecture. He used K. Linney's classification.

In the fourth year, they studied church eloquence, general, private Russian legislation, and general history. The course of versification was taught by professor of eloquence I. Ivitsky. As examples he cited the works of Phaedrus, Catullus, Tibullius, Propertius, Ovid, Horace, Plautus' comedy The Prisoners, some tragedies of Sophocles and Euripides, Homer's Iliad and Odyssey, Virgil's Aeneid, Cicero's collection of oratorical speeches.

Lectures on civil law and diplomacy were delivered by Professor K. Petrovsky. He focused on Roman law and the law of the Russian Empire. General history was taught by Professor D. Richardot, Doctor of Theology and Church Law, Dean of the Faculty of Languages.

Hebrew literature was taught by Professor M. Molinari. The Bible and the fables of Rabbi Barahiash Nikdan were used. Classes in Arabic and Syriac languages and literatures were taught by Bonaventure Villaume. He taught classes according to the method developed by Sylvester de Satsa. Professor P. Gavrilovich taught students the Greek language and literature. Students translated individual works of Xenophon, Demosthenes, Herodotus, Homer. Professor I. Iwicki lectured on Latin and Polish literature.

Professor I. Zaleskiy lectured on Russian literature. Professor D. Richardot taught French literature. He introduced students to the fables of La Fontaine and Gresset, the pastorals of Malherb, the dramatic works of Corneille ("Cinna" and "Polyeuct"), Racine, Moliere ("The Miser" and "The Imaginary Sick"). Profes-

sor J. Pearling taught the students German language and literature. He used the works of Rabener, Gellert, Kleist, Hagedorn and Lessing.

A. Lustig, L.Ya. Rozaven, J. Yurdan, M. Lesnevsky, K. Petrovsky, M. Molinari, F. Dzerozhinsky, S. Petrovich, K. Balandret, S. Ragoza, J. Pearling and I. Zalesky. They formed scientific schools. The research results of these schools were published in the Polotsk Monthly. The scientific journal was founded by professor V. Buchinsky, the editor-in-chief of the journal was professor of physics Y. Tsitovich. The journal included six departments: literature and liberal sciences, moral philosophy, physics and mathematics, history, criticism and literary news. The journal has been published since 1818.

Three volumes were published (four issues made up one volume). In 1819 the magazine was not published. In 1820 two issues were published. The Polotsk Academy trained doctors and masters.

The educational process of the Polotsk Academy was provided by the Main Library, the library of Polish publications, the student library, the library of the Academy office, the library of the store, the library of the printing house, the library of the music school, the library of the church. The Main and Polish Libraries were intended only for professors. The Main Library housed books in European and Oriental languages.

For many years of activity, the Jesuit collegiums have created a need among the upper classes of Belarus for a wide cultural activity associated with the creation of private libraries and theaters. From these libraries, books were transferred to educational institutions. Thus, a member of the "Society of Jesus" Y. Sadovsky donated his personal library to the Polotsk Collegium. G. Lenkevich handed over the collection of books on architecture to the ownership of the college.

The libraries contained the works of Aristotle, F. Aquinas, theological and philosophical works of the leaders of the order. The Novogrudok Jesuits possessed the "Catechism", which belonged to the pen of R. Bellarmini. Slutsk Jes-

uits owned several works of Martin Luther. Among them were the New Testament and the Psalter. The library catalog contains the biographies of Ignatius Loyola, Francis Xavier, Francis Borgia, Balthasar Alvar, Adalbert Menzinsky and Aloysius Gonzaga. There was a book by Thomas Kempinsky "On the Imitation of Christ" known in Western Europe since 1418. In the libraries of the Jesuit order there were works by Cicero, Ovid, Virgil, Aesop, Horace, Seneca, Livy, Tacitus and Demosthenes.

In 1822, the library of the Polotsk Academy was taken over by the higher school of public relations, which the Russian government invited to Polotsk from Vitebsk, instructing them to educate local youth. It was abolished in 1830.

After the closure of the Polotsk Academy in 1820, a significant part of the order's members ended up in Tarnopol. One of them was the Swiss J. Kondrau. In Polotsk, he taught mathematics, mechanics, physics and botany using the museum's exhibits. The fate of M. Ryllo is indicative.

This native of Belarus, after the closure of the Polotsk Academy, went to the Vatican, from where he was sent on a spiritual mission to the Middle East. He accompanied spiritual affairs with scientific research. He was one of the first to describe the ruins of Babylon. He opened an educational institution in Beirut. He spent many years in Sudan.

In the second half of the 19th century, the phenomena of Russian religious philosophy and Russian cosmism were formed in the Russian Empire. The conceptual part of Russian religious philosophy was substantiated by Vladimir Soloviev. S. Bulgakov, N. Berdyaev, N. Lossky, P. Florensky and S. Frank played an important role in the development of this philosophy. The theological basis of Russian cosmism was substantiated by N. Fedorov.

In the twentieth century, Christian theology developed in modifications of neo-Thomism, personalism and evolutionism.

In religious narratives, parables, phenomena and events are recreated in the same way as literary narration and art do through artistic images. Natural sci-

ence, logical, historical, psychological, anthropological knowledge developed in religious systems.

Religious consciousness exists, functions and is reproduced through the language of religion. It is a sign system, the elements of which have religious meanings and meanings. Language appears in religion in sound or written form. Its units are words (names), compound names, phraseological units, sentences. The combination of words (names) with religious meanings and meanings forms a religious vocabulary. These words (names), as well as compound names sentences, can be divided into two groups: 1) naming objects, persons, actions, events with attributed properties or components; 2) naming hypostatized beings, areas of being, attributed properties and connections.

Words have an objective orientation, indicate the corresponding things, persons, beings, properties, events, name them, and also refer to concepts and ideas about them, thereby implicitly supposing the existence of what is called. Linguistic expressions of religious consciousness are characterized by a certain syntagmatics, which is a set of syntactic intonational and semantic units.

In such units, words, phrases, sentences and phonation, alliteration using techniques of sound expressiveness are combined into a certain semantic integrity. In the language of religion, saturated with analogies, words are often used in a figurative sense, texts are replete with metaphors, allegories, archaisms and historicisms are widely used. This language is characterized by emotional and evaluative tension, a peculiar intonational style, constant and multiple repetitions of the same linguistic units.

Thanks to language, religious consciousness turns out to be practical, effective it becomes group and social, and thus existing for the individual. With the help of language, religious beliefs, norms, etc. transmitted from individual to individual, from group to group from generation to generation. Historically, along with the evolution of religions, their language has become more complex.

The dialogic nature of religious consciousness is associated with faith and language. Belief in the objective existence of hypostatized beings includes belief in communication with them, and such communication presupposes dialogue. In everyday existence, religious content, forms, representations are pushed aside to the periphery of consciousness and can even pass into an inactual state. Activation of religious communication, staying in the sacred space of the temple, involvement in a cult bring religious content to the forefront of consciousness.

1.7 Normative Public Mind: Values

Value problems are studied by such a branch of philosophy as axiology. Representatives of the Baden school of neo-Kantianism (W. Windelband, G. Rickert) were the first to identify the value issue. Special merits are associated with the activities of R.G. Lotze, who focused the reader's attention on the concept of "significance" in his works. Thus, the difference in significance and usefulness was noted.

The mechanism of revaluation of values also aroused interest among philosophers. It was about the fact that in culture there is some stable unchanging set of values that has certain content. At some historical moment, the content ceases to satisfy society and then the old values are filled with new content. The whole question is only about what technologies for revaluation of values should be. Marxism saw them in the form of a social revolution. He was focused on the significance of the future life. Other philosophical trends have revealed a close connection between value issues and historical time (past activities of people on the planet).

The applied philosophical sections focused on the study of the peculiarities of the functioning of moral, aesthetic, legal, economic values and priorities.

Revealing the significance of objects, ideas and natural objects (their value meanings) is associated with special assessment procedures. For the implementation of these procedures, a situation of values is necessary. In many ways, it is

determined by the readiness of the subject not only to interact with the outside world, but also to the state of assessment.

A value relation is an interaction between an individual and the outside world, focused on value issues, creating conditions for assessment.

Evaluation is the process of obtaining and processing information based on comparing it with certain criteria of significance. Such criteria are fixed either in the form of categories or norms. Thus, the aesthetic assessment is based on the categories of the beautiful and the ugly, the sublime and the base, the tragic and the comic. In the technical field, for the successful implementation of the assessment (examination), a regulatory framework of standards and requirements is being developed, the adherence to which ensures the objectivity of the assessment procedures. It is important that regulatory requirements are consistent with objective value meanings.

They go through a series of stages of awareness in the public consciousness, since what is discovered by one individual consciousness does not automatically pass into other individual consciousness. Understanding takes a certain amount of time and is expressed in the forms of value perception, value representation and value orientation.

Value perception reflects the readiness of the subject to understand the significance of certain objects and ideas. They record the subject's ability to form evaluative images based on direct interaction with the object. The duration of the contact plays an important role, but not decisive, since the subject only after contact will begin to form a technique for a deeper and more thorough assessment of the object. Psychologically, the individual is unsure of the correctness of the assessment and is not ready to take responsibility for it.

A value representation reflects the subject's ability to evaluate an object not only with direct contact, but also without it, based on normative attitudes and abstract-figurative constructions, engineering experience.

But even in this case, the subject is not yet ready for the factor of responsibility for the objectivity of the assessment. He is ready only for recommendations of a nature. He understands the essence of the process and its significance, but does not personally identify it.

Value orientations reflect a high degree of identification of the subject with the object of assessment, which manifests itself in clearly defined priorities of activity and perception. Supported by practice, they acquire the form of convictions in the correctness of the results of the assessment.

In the processes of professional activity, value orientations can be transformed into a certain value scale, or normative prescriptions. As a scale, they are included in the assessment structure and perform the functions of a standard in the expert assessment of the results of professional activity. The main thing is that their content should be as close as possible to objective value meanings. The values of reliability, safety, health and ecology have become relevant.

Value concepts and value orientations reflect the individual characteristics of the subject's perception of the significance of certain components of reality. Their content varies and in the aggregate may include, with a high degree of objectivity, preferences in terms of priorities. Then the mechanisms of value prescription come into force. They reflect the aspects of necessity, conditionality, normativity, obligation, objectivity.

The structural value prescription includes the mechanisms of conceptual and ideological substantiation of the priorities of engineering activity and their normative and methodological implementation. Taken together, these mechanisms form a technical and technological program of activity, but do not exhaust its content. It also includes a social order, interests and goals.

The form of manifestation of a value sense is influenced not only by a person, but also by that reality, the significance of which this sense reflects. For example, for an archaic manufacturer, the value attitude to external nature was built not only in the form of evaluation, but also in taboo (prohibitions).

Ignorance of nature immediately rendered the normative regulation a taboo character. It lack of thinking was compensated for by a charismatic dialogue with nature. Nature was seen as a strong partner capable of retaliation. Therefore, more stringent prescriptions were imposed on a person. The misdeed meant death for him.

A man of a technogenic civilization no longer perceives external nature as a strong partner and not charismatically, since he knows that his thinking can explain almost all problems. He relies more on the procedure for interpreting (interpreting) existing meanings. In engineering, interpretation includes statistical, conceptual, conceptual, ergonomic and ethical interpretations that determine the social significance of an invention and the prospects for its practical use.

Values are divided into global, regional, national and ethnocultural. Global values perform the function of uniting humanity in solving urgent problems. These include the values of humanism and ecology. The values of humanism reflect the important role of man in the historical process, his uniqueness as a rational being, individual originality and creative originality. They are concretized by the philosophy of non-violence, the concept of human rights, the theory of emancipation, the concepts of pluralism and democracy, the aesthetic-naturalistic idea of the perfection and beauty of the human body and spirit.

The values of ecology reflect the importance for humanity of the geographic environment that has developed on Earth under the influence of living organisms as the most favorable with the necessary mechanisms for purifying water resources, generating oxygen, and disposing of waste. This unique biotechnological complex seems to be specially created for the beginning of its journey in the historical time of mankind. However, he also has the ultimate opportunities for self-regulation and preservation of a favorable environment for a person.

Ultimately, the geographic environment can acquire completely new characteristics under the influence of human activity. And the whole question is whether they will be significant for humanity.

Regional values of public consciousness are specialized by the block of economic and political interests of the population of a particular territory, striving to unite efforts in creating a more favorable living environment. Such significant priorities are demonstrated by the peoples of North America, Latin America, Western (European Union) and Eastern (CIS) Europe.

National values derive from the respectful attitude of the population towards the history and traditions of a country. They can be multi-ethnic and mono-ethnic. Most technogenic nations are characterized by a mixture of ethnic groups and tribes. Within the framework of this process, national values are revealed, and ethnic ones are fading into the background.

Ethnocultural values are associated with the cultivation of local traditions and way of life by individual groups of the population. Engineers face similar values in underdeveloped countries, or backward national regions.

In the aspect of historical time, values appear in the form of traditions. Three main meanings are associated with this concept: 1) the act of transfer of ownership of property (legal traditions); 2) oral method of consolidation and transmission from generation to generation of some information (folklore) and way of life (folk traditions); 3) confessional (religious) tradition; 4) technical and technological traditions of engineering activities, for example, Protestant work ethics.

Traditions perform the functions of social stabilization and continuity in the processes of society's life; creating the necessary conditions and prerequisites for the effective implementation of innovations. As stereotypes of behavior and activity characteristic of specific communities, traditions are not only assimilated and broadcast, but also act as socio-cultural formations of structures of consciousness, designated as mental ones.

The values of behavior and communication, fixed at the level of mental structures of consciousness, are the most stable and viable from the point of view of continuity. They create many problems for individuals in the process of

cultural assimilation. From the point of view of the essence of a person and the activity form of its manifestation, values are divided into cognitive, social, normative, spiritual, emotional, vital (life), hedonistic (enjoyment of life), creative, utilitarian, communicative (love, friendship, communication), professional (careers, etc.), Dionysian (values of natural life), Heraclitean (power, recognition, power), Promethean (fight against evil), Apollonian (scientific, artistic, technical creativity), Socratic (self-knowledge, self-development), narcisist (isolation, loneliness), ideological (production and cultivation of ideas).

Taken together, all these values are designated as the values of consciousness. They form a complex inner world of a person, are the source of his contradictions and give him the necessary dynamics.

In a narrower context of activity, values are divided into goal values, instrumental values and object values. The values of the goal actualize the aspect of the significance of the activity and presuppose the justification of the latter and its propaganda as something self-sufficient and important.

Instrumental values point to the important problem of choosing the means to achieve the goal and the importance of technological culture. Technology is often more important than the goal itself. A similar example took place in the automotive industry, when the technology of conveyor production actually provided the conditions for the existence of an entire industry.

Object values reflect the significance of creativity and labor of a person who has materialized in cultural objects. The entire engineering infrastructure of culture is of object value. The significance of its elements is determined by the functions they perform. Gradually, some of the object values are transferred to the category of museum exhibits and cultural monuments protected by the state and UNESCO.

The practical aspect of values is revealed in the form of sets of norms. Each field of activity has its own regulatory framework, which is a product of the human mind and summarizes the most important aspects of practical activity.

These normative prescriptions are incorporated into the content of the technology as a definite and sequential set of operations and actions.

The serial product of activity is also subject to regulatory control for compliance with its requirements for quality, safety, operational reliability and durability. The regulatory framework for engineering activities is being adjusted in accordance with the latest trends in scientific and technological progress, technical design, and ecology.

1.8 The psychophysical problem of mind

In classical philosophy, the psychophysical problem was formulated by R. Descartes. He believed that being exists in material and spiritual modifications. The main attribute of matter is extension. The main attribute of spiritual being is thinking. Man is the unity of an extended body and a thinking spirit. This position is designated as psychophysical dualism. In modern philosophy, the psychophysical problem is defined as the question of the relationship between mental states and physical states of the brain. In addition to dualism, the position of monism was formed.

The idealistic variety of monism asserts that material reality is generated by the activity of certain ideal forms. It is shared by representatives of theology. Materialistic monism claims that consciousness is an element of material reality. There is a human brain, and consciousness is its product. In modern philosophy, there are several variants of materialistic monism.

Supporters of dualism proceed from the fact that the mental and physical have incompatible properties. Mental events have a certain subjective quality (qualia), while physical events do not. An individual can feel a certain pain, see a certain familiar shade. But such things cannot be reduced to a physical counterpart. Classical substantial dualism asserts that consciousness and matter exist independently of each other. Interactionism was held by Karl Popper and John Eccles. According to this position, mental states interact causally with physical

states. The theory of psychophysical parallelism asserts that mind and body, which have different ontological statuses, do not have a causal influence on each other. They develop in parallel. Their interaction is only presented to us.

This theory was defended by Leibniz. He argued that there is harmony given by God between the mental and physical states of being. Malebranche's occasionalism suggested that the relationship between physical and mental events is not causal. The causes in each case are linked to their effects through direct divine intervention.

The concept of property dualism states that when matter is organized the way the human body is organized, mental properties arise in it. This is the position of emergent materialism. Emergent properties have an independent ontological status and cannot be reduced or explained in terms of the physical basis from which they arise. A similar theory is being developed by David Chalmers.

Another position boils down to the fact that there is a primary substance that is neither physical nor mental. The mental and physical are properties of a neutral substance. A similar point of view was formulated by Benedict Spinoza. In the 20th century, it was developed by Bertrand Russell.

Epiphenomenalism, representing naturalistic monism, proceeds from the thesis that mental phenomena cannot be a source of causal influence. Physical events can influence other physical events as well as mental events, but mental events cannot causally influence anything, since they are inert byproducts (epiphenomena) of physical reality.

Behaviorism followed the thesis to abandon the idea of inner mental life and ontologically independent consciousness. He focused on describing the observed behavior. On the criterion of verifiability, unverifiable sentences about inner mental life were considered meaningless. Mental sentences are one way of describing behavior as well as dispositions to behavior. They are formulated by outside observers in order to explain and predict the behavior of other agents.

The physicalism of J. Smart and J. Place argued that a certain mental state is literally identical to a certain state of the brain. Almost immediately, the theory of identity came across H. Putnam's argument about multiple realizatio. For example, pain can be experienced not only by humans, but also by amphibians. At the same time, it is extremely unlikely that organisms that experience pain are able to be in an identical physical state of the human brain. Therefore, pain cannot be identical to a certain state of the brain, and the theory of identity does not find empirical confirmation.

Eliminative materialism of R. Rorty, W. Sellars, W. Quine, P. Feyerabend was transformed into the categorical statements of Paul and Patricia Churchland that only those objects exist that are recognized by valid scientific theories.

Based on a terminology close to technological determinism, functionalism claims that to have a mental state means to be in a certain functional state. The functional state is fixed due to the totality of causal relations.

Therefore, if the system is in a certain functional state, this means that it is determined by a combination of causes at the input of the system and consequences at the output of the system. As a consequence, the functional state of consciousness is determined by sensory data and the resulting behavior. The same functional states can be realized on fundamentally different physical systems. The position of functionalism is represented by D. Dennett, D.I. Dubrovsky, D. Lewis and H. Putnam.

Anomalous monism was developed by D. Davidson in the 70s of the XX century. The theory assumes that although there is only one material reality and only one kind of events in the human brain. However, there are many ways to describe and interpret physical facts. One of the interpretations is a mentalist vocabulary describing human behavior in psychological terms. It is wrong to ask how mental and biological states relate to each other.

You just need to admit that people can be described in different ways within the mental (psychological) and biological vocabularies. Pseudo-problems

arise when we try to describe one vocabulary in terms of another, or when a mental vocabulary is used in the wrong context. Something similar happens, for example, when someone tries to look for mental states in the human brain.

Although the problem of the relationship between body and mind is formulated correctly, we are fundamentally unable to give a satisfactory answer to it (K. McGinn). According to T. Nagel is not concerned with the limited biological nature of man, but with the fact that consciousness cannot be investigated by standard scientific methods. Proving this point of view, Nagel suggested asking the question of what it means to be a bat: what is the subjective experience of a creature navigating in space using radar like? Science cannot answer this question, and in the same way it is not able to understand the nature of human consciousness. Nagel's article "What does it mean to be a bat?" became the subject of controversy in philosophy.

Scientific naturalism faces a fundamental problem. Consciousness has certain properties that cannot be explained in physical terms. Naturalism must explain how these properties are possible. This task is called the naturalization of consciousness. There are two problems on the way to solving the problem. This is intentionality and qualia. Intentionality reflects the focus of mental states on some object. The presence of such a property in mental states means that they have some content and semantic referents. Physical reality cannot be true or false, it just is. Only electrochemical processes exist in the human brain.

Qualia reflect a qualitative subjective experience. Mental states are subjective. They are experienced differently by different people. How can this difference be explained in terms of natural sciences? Because humans have bodies, they are part of physical and biological reality. In this status, they are the subject of the study of natural sciences, primarily biology.

The object of study of neurobiology as a branch of biology is physical processes, which are considered as the basis of mental activity and behavior. Biolo-

gy claims that changes in the mental states of the subject are impossible without changes in the states of his brain. This topic is dealt with by sections of biology.

Sensory neurophysiology studies the relationship between the process of perception and stimulation. Cognitive neuroscience studies the correlations between mental and neural processes. Neurophysiology describes the dependence of mental abilities on the anatomical parts of the brain. Evolutionary biology studies the genesis of the human nervous system. Finds out how much it is the basis of consciousness. She also describes the ontogenetic and phylogenetic development of mental phenomena, starting from the most primitive stages. One of the goals is the most complete description of neural processes that would correlate with mental functions.

Research in the field of artificial intelligence can significantly bring a solution to a psychophysical problem. The relationship between consciousness and the human brain can be described in terms of the relationship between software and hardware.

The psychophysical problem of human consciousness includes issues of death and immortality, as well as free will. It follows from natural scientific determinism that mental states, in particular, will, are physical states organized in accordance with the laws of nature. As a result, human behavior is completely determined by the laws of physics. It follows from this conclusion that a person cannot be free. But there is another interpretation of D. Hume and D. Dennett. It states that action is free if the agent could have acted differently if he had made a different decision. As a result, a person can be free even if the thesis of determinism is true.

I. Kant believed that the thesis of the compatibility of determinism and freedom is false, since people are free in a somewhat stronger sense. Marxism linked the phenomenon of freedom with the actions of the individual based on the realized necessity of determinism.

1.9 Evolutionary theory of mind

Marxism proceeds from the thesis that consciousness has evolved from such a property of matter as reflection. Reflection takes place in any interaction process. This is the ability of material objects to reproduce in the changes of their properties, states, structure the features of the objects affecting them. The nature of these changes is determined by the characteristics of both objects. Reflection at the level of objects of inanimate and living nature, of which man is a part, is qualitatively different.

Reflection in inanimate nature is manifested through changes in mechanical, physical, chemical properties. These processes are studied by chemistry and physics. In optics, the main features of the interaction of objects through various forms of radiation and its reflection have been investigated. This made it possible to supplement the research with design solutions in the field of creating optical systems. The human body also has an optical system in the form of vision. This system is integrated with physical optics. Electromagnetic phenomena are an important reflection mechanism. The human body is in the space of these phenomena and reacts to them through the nervous system.

Reflection in living nature is active. Organisms not only receive information about the external world, but also adapt to its influences. Irritability as a form of reflection appeared in plants and animals. Plants react to electromagnetic fields. On this basis, sensitivity has developed, reflecting the ability to feel. The emergence and development of this ability in animals is associated with the development of the nervous system.

This system is integrated with the functions of touch, sight, hearing, smell, taste. Sensation allows animals to capture individual properties and characteristics of objects through smell, color and temperature. Neurophysiological reflection allows an animal to form behavior according to a certain pattern, taking into account the characteristics of the environment and its own needs.

The emergence and development of mental reflection is associated with the evolution of the central nervous system and the brain as its department, with the help of which reflection is carried out. On the basis of sensations in higher animals, such forms of mental reflection as perception and representation were formed. Perception expresses the result of the integral impact of various objects on the animal's sense organs. This is not a reflection of individual properties of an object and characteristics, but, in the unity of its properties. Higher animals are capable of forming ideas about objects on the basis of memory. The formation of the psyche of animals was subordinated to adaptation to environmental conditions in the course of natural selection.

In animals, memory mechanisms were transformed into instinctive behavior. It is provided by the system of unconditioned reflexes. This is an adaptive activity. Higher animals have developed conditioned reflex activity. This is the body's reaction not only to vital stimuli, but also to biologically neutral stimuli.

The social environment surrounds a person in his social life. This is a specific manifestation, the originality of social relations at a certain stage of their development. The social environment depends on the type of socio-economic formations, on class and nationality, on the intraclass differences of certain strata, on everyday and professional differences.

The socio-economic formation in its historical, demographic, geographic and national concreteness forms a social environment that engenders a particular way of life and way of thinking and behavior.

Animals also create a collective social environment where the boundaries of their identity are formed. But a person in a biosocial environment gave priority to social components. He tuned his mind to this priority. As a result, he came out of the harsh action of instincts. He began to give priority to social programs of culture. He needed a special mechanism of succession, since specific human abilities and properties, such as speech, consciousness, labor activity, are not transmitted to people in the order of biological heredity, but are formed in them

during their lifetime, in the process of assimilating the culture created by previous generations.

If children from a very early age develop outside of society, then they remain at the level of development of animals, they do not form speech, consciousness, thinking, upright walking. No personal experience of a child can lead to the fact that he will independently form logical thinking, independently form systems of concepts. Children begin their life in the world of objects and phenomena created by previous generations. By participating in labor and various forms of social activity, they develop in themselves those specific human abilities that have already been formed in humanity.

As a result, an important role is played by the child's communication with people, during which he learns adequate activity, assimilates human culture. Cars, books, material culture are incapable of revealing meaning to children. In the body of an individual, personality traits must be formed. These include emotionality, activity, self-regulation and motivation. The core of the psychological make-up is formed by temperament and character.

1.10 Deviant behavior

The formation of the psyche of animals was subordinated to adaptation to environmental conditions in the course of natural selection. In humans, the psyche is formed under the influence of the social environment, in which the normative component plays an important role. The social environment has transformed the relevance of adaptation to environmental conditions.

For representatives of wildlife, the main motivation for adaptation is the threat of death (natural selection) and a tough competitive environment. In social space, the source of an individual's survival can be not only the normative environment of society. This can be a shadow social environment, represented by the shadow economy associated with crime, conflict behavior (terrorism). As a result, these characteristics fall under deviant behavior.

This is the commission of acts that contradict the norms of social behavior in the community. The main types of deviant behavior include crime, alcoholism, drug addiction, suicide and prostitution. According to E. Durkheim, the likelihood of behavioral deviations increases significantly with the weakening of normative control taking place at the level of society. People whose socialization took place in conditions of encouraging or ignoring social norms are prone to deviant behavior. It is human nature to deviate from the action of social norms. The reason for this deviation lies in the peculiarities of its relationship and interaction with the social environment and itself.

Deviant behavior plays a dual role in society: on the one hand, it poses a threat to the stability of society, on the other hand, it maintains this stability. When there are numerous cases of social deviations in society, people lose their sense of normative behavior. There is a disorganization of culture and destruction of the social order. On the other hand, deviant behavior is one way of adapting culture to social change. There is no modern society that would remain static for a long time. Even communities completely isolated from world civilizations must change their patterns of behavior from time to time due to changes in the environment.

New cultural norms are rarely created through discussion and further acceptance by all members of social groups. New social norms are born and develop as a result of the everyday behavior of individuals, in the collision of constantly emerging social circumstances. The behavior of a small number of individuals deviating from the old, customary norms may be the beginning of the creation of new normative models. Gradually, overcoming traditions, deviant behavior, containing new viable norms, increasingly penetrates into the consciousness of people. As members of social groups assimilate behavior containing new norms, it ceases to be deviant.

Criminal behavior, sexual deviations, alcoholism and drug addiction cannot lead to the emergence of new cultural norms useful for society. The overwhelm-

ing majority of social deviations play a destructive role in the development of society. And only a few small deviations can be considered useful.

1.11 Semantics of Mind: Common Sense Arguments

George Edward Moore proceeds from the principle of a strict distinction between the act of consciousness and the object. He considers the argument about the identity of perception and perceived to be erroneous. The object in this case appears to be only the content of consciousness. The property of an object is mixed with the perception of this property. We are not closed within the framework of our own consciousness, isolated from the outside world and other people. But people tend to believe that sensory objects that are not observed at a given time would be observed if they were in a position that allowed them to be observed. An instinctive belief in the existence of objects outside of perception cannot be rejected.

The truth of proposals about the existence of physical objects, other people is implicitly embedded in the general way of their thinking, in their inherent confidence that they know it. Even the denial of such positions already implicitly implies the existence of someone who denies them. A person does not know how he knows many simple and indisputable truths. He just clearly knows them. And this knowledge cannot be shaken. Common sense resists the denial of the obvious and even the language itself. To solve the problems that worried him, the philosopher attached importance to the analysis of sensations and other forms of sensory experience.

J. Moore formulated the question of the relationship between sensory data and physical objects, since the analysis of sensations provides the key to distinguishing between sensory experience and reality. With the help of such an analysis, tracing and comparing the variations of sensations, he was able to reveal the discrepancy between sensation and felt. One and the same object, depending on the accompanying circumstances, is perceived as cold and as warm. The

same color is perceived differently by the eye than under a microscope. An object as a whole can be perceived as one-color, even if its elements are multicolored. With these distinctions, the object indirectly asserts itself.

Not confining himself to the analysis of the sensibly given, J. Moore also developed procedures for clarifying the linguistic sign presentations of sensory images, attaching more and more importance to the semantic analysis of language. The essence of the analysis is to clarify concepts and statements. He indicated some conditions for correct analysis. This is the requirement for the identity of the analyzed and the analyzing concepts. He clearly distinguished between the philosophical statement of the truths of common sense and the philosophical analysis of these truths, the process of proving philosophical statements and the analysis of premises, conclusions of this proof. In other words, the value of philosophy itself was not questioned, and its most important business was the desire to describe the universe as a whole.

B. Russell was a supporter of the position of common sense. He characterized his positions as scientific common sense. The world in the usual sense is the world of people and things. Beyond the horizon of this world, there is the world of the large Universe. Events of this big world exist in the form of colored spots of a certain shade and shape, tangible properties, sounds of a certain pitch and duration. Each element is called single. Common sense does not oppose science and everyday knowledge, knowledge and beliefs. The difference between them is not fundamental and is determined by the degree of likelihood.

Proceeding from the position of logicism, B. Russell argued that no concept and axiom should be taken on faith. He admitted that logic and mathematics have a common syntax. Both the simplest laws of logic and complex theorems of mathematics are deduced from a small set of elementary ideas. A special role in his program of logicism was assigned to the solution of complex logical problems, primarily the elimination of paradoxes.

The subject, developed by him, the theory of descriptions, became designating expressions that provide information content of messages and the connection of language with reality. He was interested in the characteristic difficulties of their use, generated by the tendency of people for each grammatically correct designating expression to see an object corresponding to it.

The analysis of language revealed new logical puzzles and the accompanying philosophical difficulties characteristic of abstract levels of reasoning. This manifested itself in the paradoxes of the foundations of mathematics. Common sense told B. Russell the answer. As a basis for the analysis of denoting phrases, he took the idea that the meaning of a denoting expression can be learned either by direct acquaintance with the corresponding designated object, or by means of its description. Acquaintance presupposes a direct indication of the named object, its visual, sensory presentation. Description is considered as a verbal characteristic of the subject according to its characteristics.

B. Russell proposed to strictly distinguish between names and descriptions as two different types of relationship of signs to an object. The description can be specific or indefinite. It became important to distinguish between proper names and specific descriptions. A definite description does not directly indicate the corresponding subject, since it takes a feature in abstraction from its carrier. In the theory of descriptions, the interpretation of sentences including in designating phrases has been proposed.

Difficulties in understanding denoting phrases are generated by incorrect analysis of the sentences in which they are included. The role in adequate analysis is played by the understanding of the statement as a whole as a variable, the meaning of which depends on the expressions included in it.

B. Russell identified logic with syntax, with the rules of meaningful arrangement of words. Any symbol that went beyond the simple naming of a single object was interpreted as not corresponding to anything in reality. B. Russell proposed to clearly distinguish between classes of concepts according to the de-

gree of their generality. A clear separation of logical types and the establishment of linguistic prohibitions on their mixing was aimed at eliminating paradoxes. It follows from the theory that when logical types are mixed, sentences arise that are devoid of meaning, which cannot be characterized either as true or as false. Errors lead to logical dead ends. This conclusion influenced the development of analytical philosophy.

The task of logical analysis involves clarification, clarification of the meaning of words and sentences that make up knowledge. This is achieved by translating, reformulating less clear statements into clearer statements. Clarification of language is a means of clearer information about objects, since it clarifies the meaning, the objective content of statements.

Under the influence of B. Russell, L. Wittgenstein wrote his main work - "The Logical-Philosophical Treatise". His idea was focused on the interpretation of language terms as names of objects, analysis of elementary statements as logical pictures of configurations of objects and complex statements as logical combinations of elementary sentences with which facts are correlated. As a result, the totality of true statements was thought of as a picture of the world.

The basis is formed by elementary (atomic) statements. Complex (molecular) statements are made of them by means of conjunction, disjunction, implication, negation. They are interpreted as truth functions of simple statements. Their truth or falsity is determined by the truth values of the elementary sentences included in them, regardless of their content.

This makes possible a logical process of calculating propositions according to formal rules. From the analysis it follows that being consists of facts, not things. Facts are complex (composite) and simple (indivisible). Elementary facts are composed of objects in their relationship and configuration. Objects are simple and permanent. This is what remains unchanged in different groups. They are identified by L. Wittgenstein as the substance of being.

Events, unlike facts, are mobile and changeable. Logic atoms tell about events. Complex situations and facts correspond to logical combinations of elementary statements. Being is formed from facts in the form of a picture of reality. This emphasizes the semantics of consciousness. Consideration of elementary statements as logical facts of the simplest type of events became fundamental. The totality of meaningful statements makes up informative stories about facts and events, covering the entire content of knowledge.

Logic sentences provide a formal analytical apparatus of knowledge. They do not inform about anything, do not narrate and thus turn out to be meaningless. But this does not mean nonsense, for logical sentences, although they do not contain factual information, constitute the formal apparatus of knowledge.

A language is a modification of a logical construction, out of touch with the context of its use. Inaccurate ways of expressing thoughts in natural language are interpreted as imperfect manifestations of the internal logical form of language. L. Wittgenstein thought that logical analysis could lead to a special state of complete accuracy of language.

Having spent a lot of intellectual efforts on the implementation of the idea of a perfect logical language, L. Wittgenstein turned to natural language and speech activity of people.

Now he does not regard language as a separate reflection of it and opposed to being. He considers language as verbal communication associated with the specific goals of people in specific circumstances, in various forms of social practice. The necessary conditions for communication are the understanding of the language and its use.

The emphasis on language use underlines its functional diversity. It is necessary to fundamentally overcome the idea that language functions in the same way and serves the same purpose to convey thoughts about things, facts and events. The language is characterized by variations in meanings, multifunctionality of expressions, richest sense-forming and expressive expressive possibili-

ties. The rejection of a single, fundamental logical form of language followed. The thesis is taken as the basis that each type of activity obeys its own logic. The habitual actions of language in the form of orders, questions, and stories are part of natural history. Language is interpreted as a living phenomenon that exists only in action, in the practice of communication. The meaning of the sign is interpreted as a way of using it.

The basic structures of the language are considered to be related to each other mobile functional systems of the language, its practice. L. Wittgenstein called them language games. The basis is the analogy between the behavior of people in games of cards, chess and in real actions, in which language is integrated. Games presuppose a set of rules developed in advance. The concepts of the game and the rules are closely related, but not rigidly. A game subject to overly rigid rules is not a game. Games are impossible without unexpected twists, variations, and creativity.

Language games are understood as models of the language and the method of analyzing it in action. Their purpose is to provide a key to understanding more mature and often unrecognizably modified forms of speech practice.

2 Section II. Philosophical and methodological analysis of science

2.1 Epistemology of mind

The cognitive approach to the study of mind consists in the fact that, based on the consideration of cognitive operations, to identify existing connections or indicate the absence of these connections within the boundaries of consciousness, understood as a biological system. The close connection between the physical state of the human body and mental processes is not limited to observations of the manifestations of the activity of consciousness. The methodological invariants of the study of the physical and mental are presented in the form of a conceptual hypothesis based on the use of the reduction method.

Epistemology recognizes the fact that there is a close connection and a certain relationship between specific states of consciousness and the corresponding state of the entire cognitive system of a person. Each mental phenomenon has its own physiological dimension. This idea was illustrated by the phenomena of redness, perspiration, changes in heart rate, breathing, associated with experiences and strong emotions. Without belief in the presence of correlations between mental and physical processes, it is impossible to carry out searches in neurobiology and neurophysiology.

Accurate data have been obtained on the physical effects of strong emotions, on the localization of brain areas associated with certain cognitive abilities, with cognitive types of thinking, on the connection between the functioning of the brain and some glands, for example, the thyroid gland.

Consciousness is the result of the development of the individual. It helps to improve orientation in relation to the environment and increase self-regulation. Higher mental processes contribute to the specifics of the organization of consciousness. The result of the development of higher mental functions is the formation of the individual's self-awareness. The boundaries of the constancy of the internal images of consciousness, the properties of memory and attention are directed by the internal needs of a person under any variable external influences. These qualities of mental processes constitute a necessary condition for the development of self-awareness.

Consciousness is an emergent informational property of the cognitive system that cannot be reduced to the brain's neutron networks, although it depends on it. With this approach to consciousness, the border between biology and human physiology and his psyche and thinking is not insurmountable. The psyche and thinking are emergent phenomena related to the informational levels of the functioning of the cognitive system.

The mental state of the human brain is an emergent quality arising from the physical, but not reducible to it. The idea of emergentism is central to John

Searle's Reinventing Consciousness. The concept of co-evolution prompts to pay attention to the interaction of consciousness and the environment. This concept allows us to talk about the coordinated development of various levels of a complex system and their interaction with the developing external environment. Fundamental coordination of the development of levels and the external environment is necessary for the completeness of the description.

The co-evolutionary aspect of describing a complex system leads to the introduction and description of new factors that affect the specific organization of the boundaries of the system. This creates the need to consider external factors that can both preserve the boundaries of biological systems and change them, which leads to a change in the relationship with the phenotype. It is possible to consider developing systems and their interaction with the external environment using the concept of interactionism.

Interactionism in the theory of developing systems means the consideration of separate things or categories, such as innate and acquired, body and mind, biology and culture, capable of influencing each other. But they exist as such separately from each other. The concept of interactionism, developed by S. Oyama, suggests considering the components in the dynamics of constructive processes. What is important is the distinction between the boundary of an object and the broader boundaries of the causal complex for which and in which the object was created. Genes and cells do not contain the plan of an organism, which arises from a causal complex that includes genes, cells, the organism itself and its environment, and the environment is not a niche that evolves along with its ecological environment. Interactionist consideration of the interaction of consciousness and the environment cannot be limited only to its biological aspects.

According to D. Dennett, the search for a clue to the mystery of consciousness by neurophysiologists who are looking for the main neuron in the brain responsible for consciousness, and physicists who are looking for consciousness in the phenomena of quantum mechanics are methodological delusions. In his

opinion, individual consciousness is not only a product of natural selection, but also the result of cultural re-engineering.

Mind seems mysterious to someone who has no idea about all its constituent parts and how they were created. Each part has a long history of design. The cognitive aspect of consciousness involves the study of how thoughts think of themselves in a linguistic, cultural, social environment. The individual cognizes and at the same time is aware of what he cognizes. His associative thinking assimilates cultural and social stereotypes, making them recognizable and adequate. Recognition of the names of objects, signs and symbols of the surrounding reality is possible due to the ability of individual consciousness to a holistic perception of the world.

Individual elements of the social environment are perceived by a person in their entirety only through social contacts and communication. Mental processes are different facets of consciousness. It unites mental processes and cannot exist without any of them. Mental processes contribute to the specifics of the organization of consciousness. Symbolic interactivity occupies a special place in the structure of consciousness. It implies a certain form of perception, interaction with the environment.

Between the individual and the environment there is a system of meanings that it ascribes to the elements of the environment. The relationship between the elements of interactivity is not completely determined by culture. It leaves the communication participants with the opportunity to carry out coordination in the process of dialogue. Agreements are the starting point for creating new meanings as a result of communication.

The interpretation carried out in the act of communication separates the subject from the communicative symbol. He mediates between the participants in the dialogue, not belonging to the perception of any of them.

The symbol used in the interactive process represents the form of mutual perception of the participants in the dialogue. It becomes preliminarily interpret-

ed, and the content of the transmitted meaning becomes the subject of further interpretation. Interactivity is understood as a social action that occurs between individuals, in which they are objects of action for themselves. In order for one participant in the dialogue to see the other participant in the dialogue as an object, he gives it meaning. He understands the other participant in the dialogue. The consequence is a system of instructions to oneself in the course of interactions aimed at its subsequent development.

Consequently, interactive activity is not a reaction to a stimulus, but a construction of meaning. The object of activity, endowed with meaning, is subject to construction. The resulting meaning is modified in the course of later assessments under the influence of the contexts of interaction. Interactive activity proceeds gradually as the dialogue situation unfolds. At each stage of mutual agreement, the acting participant in the dialogue assesses the meaning of the situation. Because of this, symbolic interaction takes on an intentional orientation.

Each of the participants in the dialogue strives for their goals, acting due to their own understanding of the intentions of the other side, as well as due to objective conditions that are independent of the participants in the dialogue.

The inner nature of the objects of the environment, to which the consciousness is directed, does not contain a semantic aspect; this dimension expresses the property of the action of the individual involved in the process of social communication. Signs correspond to the environment. Their final meaning and the results they cause in the actions of the participants in communication are considered identical.

The sign is always addressed to someone. It must be understood by the recipient. The meaning of a sign cannot be variable or arbitrary in the process of transmission by individuals. The meaning of a sign is formed as a result of mutual social actions of people, transforming into a social phenomenon. The structure of symbolic interaction allows us to consider the processes occurring in the

interaction through the construction of mutually meaningful space by the subjects, in which it is understood as a text.

The construction of meaning requires the participants in the dialogue to immerse themselves in the perception of the event, considered as the meaning formed by the created text. Finding understanding is possible through reaching agreement between the participants in the dialogue on the perception of understanding. The temporal dimension of dialogue initiates selectivity in relation to the polysemy of symbolic means of expressing the context.

Each context is included in the interaction as an element of meaning to which the dialogue is directed. Textualization of the context in the act of communication transfers understanding from interaction to the space of discourse. In it, the subjects take into account the speech and non-verbal behavior of the partner, the concept of oneself. Elements of the process of understanding are present in the interaction as a sequential change of meanings, making up the meaning of integrity. Giving meaning to the phenomena created by means of consciousness mediates a person's relationship to the world of objects around him.

The constructive meaning of oneself and the concept of oneself play a special role in the process of such mediation. Following J. Dewey, J. G. Mead, constructed an analytical framework in which social action is viewed as primary in relation to consciousness. Social action becomes a necessary condition for both conscious action and individual self-awareness. Interactionism substantiates this thesis by referring to the process of primary socialization.

In the process of socialization, the objects of public space are introduced into the sphere of individual perception. This process occurs through the mediation of significant meanings, which symbolically mean the next objects, pointing to them and establishing their mutual connections. The established relationship between the inner I, self-awareness of oneself and the indicated objects take place in an emotionally rich environment. Combined with childhood proto-

realism, this leads to a long-term orientation towards understanding meanings and obtaining definitions from later interactive communicators.

The phase of the primary socialization of the individual ends with the selection among the meanings of the environment of such a concept of himself that would be assessed by the individual as relatively independent of external influences. An individual who has a concept of himself is ready to give himself instructions regarding the course of interaction. This is the ability to read the meaning of actions, as well as the ability to adapt their own actions to them. The ability to give oneself direction is self-perceived as a process.

Interpretive interactionism does not reduce the process of receiving instructions to oneself either to the pressure of the environment, or to the realization of long-term mental dispositions. It always remains the result of the peculiar way in which the individual transforms the perceived content into interpretation. He within himself constitutes a separate subject of his own observation and research. This idea of reflexivity as a property of human consciousness forms the basis for formulating the position on the possibility of perceiving one's own meaning similarly to the meanings of other objects.

With the creative ability to understand oneself and other people, the individual is able to create the phenomenon of interactive meaning. In the processes of accepting a social role, it is possible to measure the reciprocity of understanding, which determines the interaction. The individual is interpreted as a meaning connected in the process of dialogue agreements to the project of interactive relations. The construction of itself preserves subjective reality only when the next texts developed in the current interactions build together with it the images of their own meaning.

An obstacle to transformations within the concept of oneself is preunderstanding. It indicates a preference for the subjectivity of the feeling of the intersubjectivity of understanding. It indicates procedures that limit the range of possible transformations. The creation of an interactive text becomes a perma-

nent self-interpretation that uses the gap between the semantic fields of semantic communicative concepts and the awareness of their emergence from borderline discourse. This property of dialogue interpretation makes it possible to reconcile the meaning contained in the concept of oneself with the meaning of the jointly created text.

2.2 The epistemology of intuition

In cognitive activity, until the end of the 19th century, the dominant role was assigned to such a component of human consciousness as thinking. But besides thinking, intuition can perform cognitive functions. Its status was strengthened by a general revision in the second half of the 19th century of the intellectual essence of man. This revision was initiated by irrationalism. A. Schopenhauer assigned the priority role in human consciousness to will. His follower F. Nietzsche adhered to the same position. F. Brentano and, impressed by his lectures, Z. Freud systematically revised the phenomenon of consciousness.

A. Bergson opted for intuition. In his opinion, in the course of the evolutionary process, humans have developed the ability to facilitate successful adaptation to the environment. Intuition is based on instinct. This allows a person to comprehend things important for his life without learning. Intuition allows a person to live and understand other people. She has a creative personality. Through intuition, the subjects of knowledge are transferred into objects. Intellectual cognition serves the everyday life of people. Intuitive cognition is disinterested. It comprehends reality by itself.

Intellectual cognition through perception reflects reality in the format of possible action on it. Intuitive cognition reveals reality, regardless of possible practical actions. This is evidenced by art, the creators of which see themselves and make others see what naturally people do not notice. Science and philosophy live by intuitions.

Reality eludes people because people try to comprehend it only by intellectual means. The concept of creative evolution is designed to eliminate one-sided approaches to cognitive activity. N. Lossky adheres to a similar position.

N. Lossky was born in the Vitebsk province. He studied at the Vitebsk classical gymnasium. He was expelled in 1887 for promoting atheism and socialist doctrine. He left for Switzerland, where he attended lectures at the Faculty of Philosophy of the University of Bern in 1888-1889. After returning to Russia, he studied at St. Petersburg University. He was left at the university to prepare for a professorship in the Department of Philosophy. In 1895-1899. was a teacher at the women's school of the Prince of Oldenburg. From 1898 he taught at the gymnasium M.N. Stoyunina.

In 1903 he received a master's degree in philosophy for his dissertation "Basic teachings of psychology from the point of view of voluntarism"; he was awarded a Ph.D. degree in 1907 for his dissertation "The Justification of Intuitivism." The philosophical system developed by him is integral. Under the influence of the Russian religious philosophy of Vladimir Solovyov and the aesthetics of Art Nouveau, the native of Belarus Nikolai Maksimovich Minsky turned out to be. He was first known in 1879 as the author of the dramatic poem "The Last Confession" published in an underground newspaper, which inspired I. Repin to create the painting "Refusal of Confession before Execution." Became one of the first preachers of the new mystical art. He became one of the first ideological declarations of Russian symbolism.

Speaking about the crisis of modern culture caused by the loss of the sense of meaningfulness of existence, N. Minsky developed a new philosophy of meonism. It brings together rational and irrational, mystical experience. His religious and philosophical poems "The Light of Truth" (1892) and "City of Death" (1894) continued with artistic means the ideas stated in the theoretical composition. They were perceived by contemporaries, in particular by V. Bryusov, as a new word in decadent art. In the creative space of this art,

searches were going on, which were expressed in the actualization of the phenomenon of intellectual intuition. This was the merit of K. Malevich. The new worldview was designated by him as Suprematism. In 1915 K. Malevich wrote a brochure “From Cubism to Suprematism".

The term "suprematism" comes from the Latin word "supremus", meaning the superlative degree of something. For K. Malevich, the term "Suprematism" meant the primacy of color over all other elements of painting. The color has become dominant. He freed himself from the connection with natural forms.

For two years the Belarusian city of Vitebsk, where K. Malevich lived, was the cultural capital of Suprematism. Houses, shops, canteens, coffee houses and libraries in the city were painted, decorated with Suprematist panels. The signs were designed in the Suprematist style.

Suprematist trams were running around the city. These were traveling exhibitions of Suprematist paintings, as well as a Suprematist propaganda steamer. At the demonstrations, residents of the city carried Suprematist banners. Everyday life was decorated with fabrics and dishes in the style of Suprematism. At the level of theory, the result was the work "The World as Non-Objective".

The philosophical sources of the Suprematist substantiation of the pointless world were Buddhism, Taoism, "The World as Will and Representation" by A. Schopenhauer, the intuitionism of A. Bergson and B. Croce, the phenomenology of E. Husserl and M. Heidegger.

Objectlessness is the absence of objects in the mind of the artist who has comprehended being. In non-objectiveness, the creative process is a pure action in which the universal excitement of the world is concentrated, excitement without a goal, in which there is no objective concept of time and space. The main principles of the creative process are in movement and rest. There is only Nothing. Malevich adopts this idea from the philosophy of Jacob Boehme.

K. Malevich expressed in the language of painting the feeling of infinity, space beyond zero. White Suprematism became the form. At the 1920 exhibi-

tion, Malevich exhibited blank canvases that follow black, color and white Suprematism. This is the real zero of the form, the real way out of painting as such. In a white, empty, purified and liberated space, nothing interfered with the movement of a ray of light in front of the eyes, therefore white Suprematism experiences the boundaries of the field of vision, the possibilities of perception of the eye, the reflection and refraction of light by the eye as a pure sensation.

K. Malevich invented space aeronautics to move in space. He opened the supra-straight. It is an added element of the dynamic order in Suprematism. He discovered vacuum as a medium in which there is a weightless aerodynamic Suprematism (airplanes, architectons and planites). Experiments with architectons and planites mean the transition from artistic suprematist white infinity to the construction of a white universe in space. The abstraction of flight and structure in space is realized. The spatial system is given in a vacuum. As a result, there is no gravity in the paintings. The viewer sees only the motion vector.

The non-objective world is created from simple geometric shapes and simple arithmetic operations of addition, subtraction, multiplication and division. In Vitebsk, simultaneously with K. Malevich, M. Bakhtin carried out intellectual creative activity. His interest was attracted by verbal creativity. According to M. Bakhtin, humanitarian thought is always aimed at working with other people's thoughts, dealing with the text in its various presentations.

Behind each text is a language system consisting of the languages of many social groups. The researcher works with the text, intending to create his own assessment text. As a result, a dialogue arises between the author and the reader. The author assumes the presence of a reciprocal understanding. This expectation is due to the dialogical nature of the text.

Working with text involves a linguistic method, which is part of a comprehensive aesthetic analysis. The word is studied in linguistics based on general aesthetic theory, epistemology and other philosophical disciplines.

The emotional and volitional intensity of the literary form testifies to the value value of art. The artistic value activity of the author is aimed at transforming the material in order to convey a certain content. The content of a work of art shows how individuation, concretization of the reality of cognition and ethical deed find unification in the form of an aesthetic object. The work captures reality in aesthetic intuition. A special role belongs to the literary genre of the novel. This is a multi-style, contradictory, discordant phenomenon. It is represented by heterogeneous stylistic unities. sometimes lying in different linguistic plans and subject to different stylistic patterns.

Diverse stylistic unity is combined in the novel into a coherent artistic system. They are subject to the highest stylistic unity of the whole. It cannot be identified with any of the entities subordinate to it.

The language of the novel is represented by a system of languages. The precondition for novel prose is the internal stratification of the language, social inconsistency and individual discord in it. The dialogical orientation of the word among other people's words creates new and significant artistic possibilities of the word, its prosaic artistry.

M. Bakhtin compared the novel and poetic word. It follows from it that the world of poetry is illuminated by a single and indisputable word. All conflicts, doubts and experiences do not pass into the final result of creative activity. They remain at the stage of working with the material. The language of poetic genres, approaching the stylistic limit, becomes authoritarian and conservative, closing itself off from non-literary social dialects. The indisputable basis for poetry is the direct intention of poetry.

The novel preserves the inconsistency and contributes to its deepening. The author plays on contradictions and multilingualism, building his own style. At the same time, he maintains the unity of his creative personality and the unity of style. M. Bakhtin identified two stylistic lines of the European novel. One is represented by a sophistic novel. Its features are monolingualism and monostyle.

Divergence becomes its dialogizing background, thanks to which it is value-correlated with the language and the world of the novel. The chivalrous prose novel possesses similar features. The pastoral and baroque novels also belong to the stylistic line of the sophistic novel.

The novels of the second line introduce social differences into the composition of the work. The novel is subject to transformation within the framework of the processes of canonization and reaccentuation. Provincial dialect or professional jargon can be legitimized by literature. It is not always clear whether the author considers a particular language to be literary or whether he places a moment of contradiction in it. There is a change in the level of some roles.

A character who once occupied a secondary role can become the first person of a novel, unnoticed by the reader. This happens as a result of the change of eras and the dialogizing background. M. Bakhtin's theoretical conclusions were based on the analysis of F. Dostoevsky's works. The structure of the dialogue is implemented in the writer's novels. In the speeches of the heroes, there is a deep and unfinished conflict with someone else's word. The writer's novels are internally incomplete dialogues between characters. They provide a long-term perspective for creative evolution.

2.3 Cognitive epistemology

L. Vygotsky stood at the origins of cognitive epistemology. He was born in the Belarusian city of Orsha. His main creative ideas were formulated by him in the Belarusian city of Gomel, where he carried out pedagogical activity, combining it with reflexological research.

The results of his research L.S. Vygotsky presented at the Second All-Russian Congress on Psychoneurology. They emphasize the features of the study of the human psyche. As a basis, the aspect of the mood of students in graduating classes was taken. It was an application for research in the field of

developmental psychology, as well as for the problems of studying the identity crisis caused by the cultural factors of personality socialization.

This position was close to A.R. Luria. He invited L.S. Vygotsky to Moscow. In 1924 he became an employee of the Moscow Institute of Psychology.

At the level of the systems approach, L.S. Vygotsky formulated the thesis about human behavior according to the criterion of reaction based on speech (verbal communication, dialogue). This approach takes into account language and art as forms of culture. To strengthen the theoretical research resources of L.S. Vygotsky studied the work of representatives of behaviorism, gestalt psychology, psychoanalysis. Strengthening the cultural dominant in the analysis of mental processes was expressed in the concept of a sign.

As a result, the communication model was transformed into an understanding communication paradigm. In the process of this communication, a special role in the dialogue is assigned to the sign. The sign stimulates dialogue and forms the basis of feedback in the form of verbal communication.

In the process of operating with a sign system, the primary mental processes of memory, attention, thinking are transformed into sociocultural processes. The theory was accompanied by defectological and pedological research. S.V. Vygotsky wrote unique works on the developmental psychology of personality development in the space of cultural forms. Empirical applied research has contributed to the expansion of the conceptual interpretation of the paradigm of understanding communication. The scientist began to consider the sign in connection with meaning and dialogue, training and education.

The results of fundamental generalizations were presented in the work "Thinking and Speech". Education and upbringing (socialization) L.S. Vygotsky associated it with the strategy of long-term development of thinking and the psyche of the individual. Therefore, teaching methods should be focused not only on the present and past of culture, but also on the factors of anticipatory reflection of reality, knowledge, creating the prospect of creativity, self-realization

and self-identification of a person in specific research and design niches of the future. The subject of study was the evolution of the meanings of signs in the cultural context of modernization. The area of actual personality development came into contact with the potential of its future formation in the context of a specific cultural order.

The versatility of L.S. Vygotsky's closeness to the theme of the Silver Age culture determined his scientific research in the field of creative psychology and the arts. In this area, the main components of the psychology of understanding are implemented, associated with experience, emotions, innovation. L.S. Vygotsky strove to study the features of the teacher's understanding didactic communication with different age groups of the population. He attached a special role to childhood, within the boundaries of which a person assigns the main array of cultural values that form his resource, creative resources. Hence follows a fundamental conclusion about the most important role of the education system in the socialization of the individual.

The didactic function of understanding lies in the dialogical attitude. The goal is to clear the space for dialogue and realize the possibility of freedom of speech, experience, and self-expression. With this approach, it is not the statistical volume of information that is important, but the formation of the skills of appropriating cultural resources in the aspect of individual experience, epistemology of development. Fostering a culture of experience is a condition for the ability to overcome critical life situations.

L. Vygotsky analyzed a number of philosophical and psychological concepts, showing the inexpediency of reducing the higher forms of human behavior to the lower elements of his behavior. Human speech thinking is localized, in his opinion, in the form of structural units of brain activity. The material of child psychology, defectology and psychiatry led him to the conclusion that human consciousness is a dynamic semantic system in the unity of affective, volitional and intellectual processes.

The research resulted in the cultural-historical theory of consciousness. In the light of the paradigm of sciences related to the theory of artificial intelligence, L. Vygotsky's thesis about consciousness as higher psychophysiological processes, phenomena, functions, systems of functions, and forms of behavior is relevant. For L. Vygotsky, the distinction between psychological and mental phenomena was of fundamental importance.

L. Vygotsky did not use the term "higher mental functions" to describe the phenomena that his psychological theory described and studied. The hypothesis put forward by L. Vygotsky provided a new solution to the problem of the relationship between lower (elementary) and higher psychological functions. The difference between them lies in the level of randomness. Natural psychological processes are not amenable to human regulation. People can consciously control higher psychological functions. Regulation has an indirect character of higher psychological functions. Between the influencing stimulus and the human response (both behavioral and mental), an additional connection arises through the mediating link stimulus-means, through the sign.

L. Vygotsky pointed out the different genesis of the development of thinking and speech in phylogenesis. In his opinion, the relationship between them is not constant. In phylogeny, the pre-verbal phase of intelligence is found, as well as the pre-intellectual phase of the development of speech itself. In the process of genetic development, thinking and speech intersect. After that, a person's thinking becomes verbal, and his speech becomes intellectual. Inner speech develops through the accumulation of long-term functional and structural changes. It branches off from the external speech of the child along with the differentiation of the social and egocentric functions of speech. The speech functions learned by the child become the main functions of his thinking.

L. Vygotsky examined in detail the problem of the relationship between the role of socialization and learning in the development of the higher psychological functions of a child. He formulated the principle that the preservation and timely

maturation of brain structures is a necessary but insufficient condition for the development of higher psychological functions. The source for this development is the changing social environment. To describe it, L. Vygotsky introduced the term social situation of development. It is defined as a unique relationship, specific for a given age, between the child and the social reality surrounding him.

According to L. Vygotsky, it creates special forms of behavior and modifies the activity of the psychological function. The concept of a child's cultural development is explained by him as a process that corresponds to individual development. In the development of the child, biological and cultural-historical types of socialization are repeated. These two types of development are in dialectical unity. In this context, the zone of proximal development plays an important role. This is an area of maturing processes that a child at a given level of development cannot cope with on his ow. He is able to solve them with the help of an adult. L. Vygotsky's students were A.N. Leontiev, A.R. Luria, A.V. Zaporozhets, L.I. Bozovic, P. Ya. Galperin, D.B. Elkonin, P.I. Zinchenko and L.V. Zankov.

In Europe and the United States, the scientist's work acquired fundamental importance. An additional factor in the popularity of L. Vygotsky's works was the critical rethinking of his texts in different editions. Translations of his works into other languages became the subject of criticism.

On the basis of the paradigm of cognitive sciences, L. Vygotsky's works received a new direction of application associated with the development of the theory of artificial intelligence. In Belarus has V.V. Martynov. The subject of his research was the connection between technical phenomena integrated into the cultural space and their effective use in the processes of activity. One of these technical devices that caught his attention was the computer. The scientist noticed that the presence of this technical device in the cultural space did not lead to its multifunctional integration into the processes of activity. And he was right, since the problem of creating effective intelligent systems in the field of

cybernetics, engineering, social communication remains to this day. These systems can make real a constructive dialogue between a person and a computer program in the mode of productive activity.

Integrated human-machine systems are especially relevant in the field of management, where there are risks in the decision-making process due to a lack of information. It is important for a person to deal with computer programs that have integrated functions of self-control and self-development on the basis of semantic resources provided to them by a person. In fact, we are talking about the phenomenon of integrated responsibility of a designer, designer, programmer for the possible technogenic consequences of operating technical devices with an autonomous control status, providing services for the transportation of passengers, providing information, and diagnosing diseases. Intelligent systems assume functioning in a feedback mode based on constant contact with information and decision-making algorithms that form a spectrum of sustainable activities of technical infrastructure and communications.

The scientist decided to convey to the machine a semantic basis sufficient for representing knowledge and for constructing it in the light of contexts formulated by the user. Linguistic diversity, in his opinion, contains a common semantic basis, which is clearly visible in the Indo-European group of languages. One and the same verb with small national pronunciation peculiarities denotes the same action.

A common semiotic basis opened the way to solving the problem of artificial intelligence. V.V. Martynov had to turn to the methodology of transdisciplinary research and determine the required minimum of scientific directions that contributed to the implementation of his idea. He studied cybernetics, systems theory, semiotics, logic, mathematics. Within the framework of the methodology, his interests focused on methods of building a knowledge system and its presentation, functioning in a feedback mode. This knowledge acquired an in-

strumental status. Based on the works of V.V. Martynov, one can trace the sequence of stages that led to the implementation of his plan.

The work began at the intersection of cybernetics, semiotics and linguistics. The task was to construct an analogue of a semantic language in the theory of artificial intelligence. This language was endowed with two functions. It was about the language of knowledge representation and about the language of production of new knowledge.

To implement the second function, it was necessary to formulate the axioms of knowledge transformation. The main method for constructing cognitive systems was deduction and its axiomatic modification. The emphasis was on deductive semiotics and topological linguistics. Information was endowed with a semiotic basis in the form of a universal semiotic code that allowed the machine to generate new knowledge and conduct a dialogue with the user. At the same time, stable decision-making structures (algorithms) were formed in the system of the universal semantic code.

The efficiency of the algorithms was ensured by the decision-making logic in the system of the universal semantic code. Logical analysis included a semantic classification of nominative units. Every effort has been made to improve the efficiency of the computer program. Only the function of an intelligent system could give the maximum return.

The task was to develop a knowledge representation system capable of forming new concepts, building hypotheses about the causes and consequences of various situations. As a result, the scientist created a universal theory of the calculus of meaning. The theory prescribes to classify the verbs "shares" in order to convey change, evolution. A three-member structure is taken as a basis - a subject, an action, an object. The decision-making logic in the system of the universal semantic code is consonant with the generative grammar developed by N. Chomsky.

As the technological component of artificial intelligence was implemented, a situation of hybrid reality was discovered, in the space of which a man and a machine interact. The study of the subjective (cultural and historical) aspects of the functioning of unconscious thinking and the provision of decision-making under conditions of uncertainty in behavioral practices determined by cognitive distortions has become relevant. The cultural-historical theory of L. Vygotsky is again in demand.

The focus is on the problems of cultural and historical constructivism. It is characteristic of neuroarcheology, L. Malafuris's theory of material involvement, E. Clarke's expanded knowledge and predictive coding, and the theory of culture as cognition rooted in D. Oiserman's environment.

Based on the concepts of "metaplasticity" and "material sign" L. Malafuris analyzes the co-evolution of the psyche and the material environment in the history of mankind. E. Clarke proceeds from the fact that the human cognitive system at all stages of the formation of mankind is open to the material world.

D. Oizerman gives an original explanation of the dichotomy of individualist (Western) and collectivist (Eastern) cultures, widely discussed in modern cultural neuroscience. It is integration between current cognitive research and cultural activity psychology. The physical conditioning of cognition, its environmental rootedness, emotional and motivational regulation along with the processing of "emotional information", the distributed ("dialogical") nature of cognition, its evolutionary roots and social and cultural determination are taken into account. Supporters of L. Vygotsky insist that the explanation should be based on the direct interaction of the subject with the sociocultural environment, which is an integral part of the cognitive system.

These ideas have evolved into modern cognitive design. D. Norman, combining representationist and anti-representationist positions, relies on the concept of opportunity from the ecological optics of J.J. Gibson. In the development

of methods for recording brain activity, there is a shift in scientists' interest in the brain substrate of the bodily, social and cultural conditioning of cognition.

L. Malafuris refers to the works of L. Vygotsky when considering neuroarcheology. He owns a new formulation of the problem of mediation, based on the interpretation of the brain as a bio-artifact that creates culture and is shaped by it. The psychological mechanisms of the behavior of a historical person were embodied in material culture. Hence M. Cole's thesis that cultural anthropology should come to the fore in cognitive research.

Representatives of cultural neuroscience are based on the idea of co-evolution of genes and culture. It is stated in the theory of double inheritance by P. Richerson and R. Boyd.

The theory of material involvement uses the conceptual apparatus of J. Gibson's enactivism. This implies a sign structure primary in relation to the speech apparatus. This is a cognitive projection of the subject into the external world, with the direct participation of which he solves cognitive and communicative tasks. Material signification has a formative effect on the brain.

Enactivism as a philosophical and psychological direction is fed by radical constructivism and the theory of autopoiesis by U. Maturana and F. Varela. They put a sign of identity between knowledge and action. Any motional act in relation to a material object performs a predictive function for the subsequent act in relation to this object.

D. Oizerman calls his approach the theory of culture as cognition rooted in the environment. In this theory, culture appears as a tool for solving universal human problems, a certain mindset, or mentality, and as a set of specific cultural practices characteristic of a particular society at a particular moment in time and in a particular place.

Experimental data show that both individualistic and collectivist features of cognition are potentially available to a representative of any culture and can be brought to life with the help of special pre-adjustment procedures. But in differ-

ent cultures, the evolutionary tasks of preserving the group and the individual are solved in different ways. Any situation and any environment form certain expectations (predictions) about how events should develop further. If they develop differently, cultural difficulties experienced by a person lead to the formation of stable attitudes in behavior.

Culture itself selects appropriate forms of behavior and cognition, using the metacognitive mechanism of regulation based on feedback, which allows in the future to choose movement along the path of least resistance. The leading role in individual sociocultural development is played by metacognitive experience regarding how certain attitudes and behaviors are more easily and effectively implemented in culture. Initially, a representative of any culture has a complete, redundant set of cognitive features.

E. Clark develops the constructivist principle of predictive coding. This principle allows us to get closer to explaining the inextricable connection between perception and action. R. Millikan's research is devoted to the study of the objective foundations of cognition, the conditions of true knowledge and the problem of representation. Considering these issues.

It includes the study of intentionality and the problem of referring various sign systems to the evolutionary (historical) and practical context of their functioning. As a condition for the reliability of knowledge (intentionality, representation), their practical functionality is considered, which makes it possible to solve the problems facing a living organism or the scientific community. The property of truth or falsity belongs not to the cognitive or linguistic representation in question, but to the effectiveness or compliance with the functions that they perform.

Language as a cultural phenomenon, as a non-cognitive competence, is subject not so much to formal rules as to the convenience and efficiency of communication and coordination of actions. Stability in a language is not achieved through universal grammar, but through social conventions. As a re-

sult, the established elements of the language acquire new meanings or functions in different contexts. The distinction between semantics and pragmatics, semantic and pragmatic meanings of utterances, is fluid and not amenable to a clear definition or set of linguistic rules.

Knowledge, including the most fundamental concepts of social reality that form common sense, occurs and is maintained through social interactions. In social interaction, people proceed from the premise of the similarity of perceptions of reality and common sense. Their general ideas and understanding of the reality of everyday life are reproduced and consolidated. Human typologies and value systems, social formations are perceived by people as an objective reality.

One of the tasks is to study the processes by which a person forms, institutionalizes, comprehends and integrates social phenomena into tradition and social values. In this context, one should distinguish between social constructionism and social constructivism.

Constructionism explores the dynamics of a phenomenon in relation to a social context. Social constructivism studies the personal processes of making sense of knowledge and experience in a social context.

2.4 Analytical epistemology of mind

The analytic epistemology of consciousness has its origins in the work of Franz Brentano. His students were - the founder of the phenomenological movement Edmund Husserl, the theory of objects and the Graz school of psychology Alexius von Meinong, the Lvov-Warsaw logical school Kazimiesz Twardowski. Among the listeners of F. Brentano were Z. Freud, K. Stumpf, A. Marty, H. Eerenfels, A. Hefler and G. Schell. The influence of F. Brentano's ideas was recognized by M. Heidegger.

F. Brentano introduced the concept of intentionality into philosophy. The description of the experience of consciousness using the concept of intentionality led to the emergence of a completely new problematic situation in the field of

philosophical studies of consciousness. It becomes one of the central concepts of philosophy. F. Brentano developed the idea of psychology as an independent, purely descriptive scientific discipline. F. Brentano distinguishes three types of mental activities: representations, judgments, emotions. Each has characteristic features and modes of interaction. F. Brentano presented consciousness in the form of a hierarchical structure, in which he distinguished the primary and the secondary, conditioned by them, mental activities built on top of them. This method of analysis allows for a clearer understanding of the ways of interaction between activities of different classes.

F. Brentano proceeds from the model of the four phases of the development of philosophy and art. The main features of upward development are the predominance of purely theoretical problems in philosophical research, as well as the use of natural research methods in philosophy. The progressive development of philosophy in antiquity is personified by Aristotle, in the middle Ages by Thomas Aquinas, in modern times by F. Bacon and R. Descartes. The philosophy of German idealism represents the fourth, final phase of modern European philosophy and the third, highest stage of its decadence. Its essence lies in the fact that, in an effort to overcome the skepticism characteristic of the previous stage of development, the possibility of achieving true knowledge is substantiated by means of an appeal to unnatural, irrational ways of knowing.

F. Brentano believed that after the phase of the highest decline begins a new era in the development of philosophy. He saw himself standing at the beginning of a new era in the development of philosophy. The main challenge facing her was to bridge the gap between speculative and scientific knowledge. He identified scientific knowledge with empirical knowledge. Philosophy must become a rigorous science. To do this, she, in solving the problems facing her, must rely on experience, on empirical observations, and also use the methods of natural sciences.

F. Brentano considered the emergence of positivism as a revival of scientific philosophy. In his opinion, Auguste Comte gave a powerful impetus to the development of scientific philosophy. At the same time, he rejected Comte's opposition of theology and metaphysics to positive research. Unlike O. Comte, who argued that the task of philosophy is to generalize and systematize the data of particular natural sciences, F. Brentano believed that philosophy has its own, original problematics, irreducible to the problems of other scientific disciplines. Scientific philosophy does not abandon the traditional problems of theology and metaphysics, but only has to solve them on a new scientific basis.

The creation of a new philosophy was presented by F. Brentano as a synthesis, on a scientific basis, of the philosophical systems of the past that belonged to the ascending stages of the development of philosophy in different eras. First of all, he tried to reconstruct the philosophy of Aristotle. F. Brentano's appeal to Aristotle is not accidental. His teacher A. Trendelenburg tried, relying on Aristotle, to take an anti-idealistic, anti-speculative position in ontology and epistemology.

F. Brentano does not identify consciousness with the entire aggregate of directly apertured content. Only mental acts and states are consciousness. Based on the distinction between physical and mental phenomena, he was the first to single out consciousness as an object of research with an original structure that cannot be reduced to the structure of perceived content.

Consciousness appears in F. Brentano as a special ontological reality, and mental phenomena as mental elements forming in their totality a spiritual thing. Substantialization of consciousness leads, at a certain stage, to the subordination of psychological research to the goals of categorical analysis.

F. Brentano declares the correlative nature of psychological research. It consists in the fact that the description of acts of consciousness is associated with the elucidation of the nature of their immediate objects. The idea of a correlative study is limited to the establishment of the ontological and epistemolog-

ical status of the immediate data of consciousness. According to F. Brentano, a change in mental attitude does not entail a change in the content of external perception. And a change in the content of external perception can proceed without a change in the methods of focusing on the object.

Two methods of classification of mental phenomena are established: according to the method of direction and according to the object. The difference between individual, visual and general, beloved representations affects only the content of acts of consciousness and does not provide for modification in the way of relating to it. Internal perception not only occurs together with external, but also determines the way in which primary objects are given.

The model of consciousness proposed by F. Brentano was dictated by the desire to present it as a sphere of human experience accessible to the already established, natural scientific research methods. Analyzing description becomes the main way of cognizing mental life. Consciousness is viewed as a complexly organized whole with an atomic structure. It is not connected by chance, but according to the universal laws of the interaction of mental elements of various types. The classification of mental phenomena was aimed at identifying the simplest invariants of such elements and, on the basis of an exhaustive description of their possible combinations in the act of consciousness, to establish the comprehensive laws of mental life.

F. Brentano tried to create a simple model of mereological description of the life of consciousness. It was a universal model, on the basis of which the whole variety of mental life was described. But the pursuit of universalism led to schematism in describing the experience of consciousness. F. Brentano explains complex mental phenomena by introducing additional mental relations of three types. As a result, he was unable to avoid a significant complication of mental life. The act of consciousness turns out to be composed of a multitude of difficult-to-distinguish simplest mental relationships.

The activity of consciousness takes the form of a mechanistic, combinatorial activity with primary objects (modes of representations). The description of the relationship between the phenomena of different classes is reduced to the establishment of subordination between them within the boundaries of the act of consciousness. As a result, their relationship is reduced to the phenomenon of one single act, demonstrating the characteristic features of subordination.

F. Brentano distinguishes the ontological status of the immediate data of consciousness. Primary objects are intentional, that is, unreal, secondary objects are real. As a result, the content immanent to consciousness was not considered by him as its real, integral part. The connection between things transcendental to consciousness and the immanent, directly perceived content in it was thought of as a cause-and-effect relationship. Things, being the causes of sensations, remain as such inaccessible to knowledge their existence is allowed only hypothetically. They are not part of the experience.

Psychic phenomena are directed not at transcendental things, but at immanent and unreal objects. It only seems to people that they are dealing with real entities thanks to instinctive faith, which is an integral part of sensory perception. The specificity of psychological research lies in the fact that the direct data of consciousness are taken in it, regardless of their external causes.

As a result, the epistemological problem of the connection between transcendental things and the content immanent in consciousness is taken out of the framework of psychology. F. Brentano identifies the object to which the idea is directed and the content perceived in it. It remains unclear what is the object of the direction of vague ideas. How is the correlation established between the thing and the content presented in the mind? These contradictions gave impetus to the research of K. Tvardovsky, E. Husserl and A. Marty.

F. Brentano expanded the concept of a possible object of consciousness as much as possible and introduced the problem of fictitious objects into modern philosophy. Along with sensuality, he admits such a source of knowledge as in-

ternal perception. He believes that the individual can have non-material content as an object. At the same time, it significantly limits the ability to represent. Only pictorial representations can be considered representations. Noetic representations are realized only in an improper way, on the basis of symbolic representations of fantasy. Their necessary condition is the representations of the material visual correlate that exemplify them.

Contemporary discussions about the nature of intentionality are an integral part of discussions about the ontology and epistemology of consciousness. They are fueled by the question of the fundamental nature of mental states. Among these states are perception, recollection. And also, conviction, desire, hope, knowledge, intention, feeling and experience.

Intentionality is the basic structure of belief, hope, judgment, intention, love and hate. They show intentionality. Every mental phenomenon is characterized by the inner existence of an object, and what we can call, although not quite accurately, reference to content, focus on the object, or immanent objectivity. Every mental phenomenon contains something as an object, although this happens in a different way for every mental phenomenon. In a representation something is presented, in a judgment something is affirmed or denied, in love it is loved, in hatred it is hated, in desire it is desired.

Intentional inner existence is a characteristic feature of purely mental phenomena. No physical phenomenon expresses anything like this. Mental phenomena intentionally contain an object. The essential property of intentionality to be directed towards something does not depend on whether there is any real physical goal, independent of the intentional act itself. Mental states are directed towards objects other than the mental states themselves. Object to which due to intentionality, consciousness is directed, are characterized by an intentional inner existence. Only mental states have intentionality.

A characteristic feature of any mental activity is the reference to something as an object. The only thing that is needed for the implementation of mental ref-

erence is its subject. The goal of the so-called relationship does not have to exist in reality. It has been standard practice for analytic philosophy to examine the intentional structure of human thoughts by examining the logical structure of the language used to express them or ascribe them to others.

Identity statements can be both true and informative at the same time. The constituent parts of propositions are meanings, not separate objects. Identity statements are true because these terms share the same reference. They are informative because terms have different meanings or express a common reference in two different ways.

B. Russell adheres to the epistemological theory that we cannot use in thoughts or speech a truly "logical" proper name, referring to an object, unless we are directly familiar with this object. We cannot have truly private thoughts about such an object. Within the framework of the orthodox paradigm in the philosophy of mind and language, there was a rejection of the consequences of the ideas of Frege and especially Russell about intentionality.

The so-called "theory of direct reference" has contributed to the rehabilitation of the idea that concrete objects mean more for the identification of private thoughts of people than is allowed by the teachings of Frege / Russell. According to Frege's distinction between meaning and reference, for the identification of a thought about a specific object, it is not the specific object about which this thought is important, but the abstract meaning through which it is thought.

According to Russell, most thoughts that at first glance appear to be thoughts about specific objects are in fact not private thoughts, but general quantified propositions. The impetus for the development of the theory of direct reference was some consequences from the semantics of modal logic for the intentionality of private thoughts and beliefs.

S. Kripke noted an important difference between the behavior of proper names and the behavior of a coreferent definite description, expressing the random or non-essential property of its referent, in a modal context. The aim of di-

rect reference theory is to highlight the gap between the intentionality of private thoughts and the intentionality of general thoughts. Concrete objects are not integral elements of the content of general thoughts, but are the content of the first objects.

The theory of direct reference formed the basis of three directions of thought that developed within the framework of the modern philosophy of consciousness and language. The ideas of the theory of direct reference were carried over by Kripke and Putnam from thinking about concrete objects to thinking about natural species. This transference plays a key role in the externalist interpretation of intentional mental states.

The concept of object-dependent meaning is introduced. The metaphysical and epistemic foundations of private thoughts and private propositions gave rise to a discussion of the contradiction between the two generals under descriptivism and singularism. According to descriptivism, one can think about objects only by thinking about the properties that they embody. According to Singularism, not all thoughts about objects are mediated by their properties.

F. Brentano gave an outline of a paradigm based on the adoption of a view, according to which intentional objects can be non-existent or abstract objects.

The intentional object theorist recognizes the unlimited applicability of the rule of existential generalization as for intentional ones. So it is for non-intentional relations, regardless of whether the objects in intentional relations are concrete objects that exist in space and time, or not. The subject of the dispute between the theorist of intentional objects and his critic is whether a variable, bounded by the standard existential quantifier for first-order logic, should designate not only specific objects existing in space and time, but also other objects?

This problem does not depend on the opposition between objective and symbolic interpretations of the existential quantifier, since the dispute about the recognition of intentional objects unfolds within the framework of the objective interpretation of the quantifier. A theory that allows for the possibility of true

thoughts about non-existent objects, based on the opposition of pleonastic (or representation-dependent) and non-pleonastic (natural or substantial) properties, was developed by Crane.

R. Cheese was the first to think about the formulation of working criteria that would distinguish the intentional (or used intentionally) sentences of a particular language from those that are not intentional. The idea is to explore not intentionality itself, but the sentences that express it.

If the gaze is intentional, then not all messages about intentionality are intentional. The fact that not all messages about intentionality are intensional poses a problem for linguistic views, according to which intensionality is the criterion of intentionality. The second problem is that intentionality is also a characteristic feature of sentences about phenomena that are not related to intentionality. Sentences in which there is a shade of modality (for example, necessity), sentences about the laws of nature or causality. They show intensity.

The sentences of natural languages have meaning and, since they have meaning, they can (like states of consciousness) directed towards objects other than themselves, and some of these objects should not exist in space and time. However, natural language sentences are non-mental objects. Natural language sentences by themselves have no intrinsic meaning. Pronounced sentences also do not have inherent content.

Natural language sentences might not make any difference if it was not attributed to them by people who use them to express their thoughts and communicate with each other. If there is a language of thought, consisting of mental symbols with syntactic and semantic properties, then perhaps the semantic properties of mental symbols are the original carriers of the original intentionality.

By denying the reality of beliefs and desires, eliminative materialists are challenged by the existence of physical objects, the existence of which depends on the intentions, beliefs and desires of their creators, that is, with artifacts of human culture. An intentional term is not capable of describing or explaining

any real phenomenon. However, in the absence of detailed knowledge of the physical laws governing the behavior of a physical system, the intentional term is useful for predicting the behavior of a system.

Among philosophers attracted by physicalist ontology, few agree with the direct, eliminative denial of the reality of beliefs and desires. Many of them have difficulty answering the question that arises before the supporters of the instrumentalist position.

A significant number of physicalist philosophers strive to reconcile the existence of intentionality with physicalist ontology. You can stick to physicalism and intentional realism at the same time. Since intentional states relate to and describe objects that are different from themselves, then in order for a state to have intentionality, it must have semantic properties. Intentional realists, who are also physicalists, see the problem with naturalism in that semantics continually proves to be difficult to integrate into the natural order. Since, from the point of view of a physicalist ontology, intentionality or semantic properties cannot be fundamental characteristics of being, the task is to show how a physical system can manifest intentional states. If physicalism is true, then some physical objects are also mental.

One way to find convergence between physicalism and intentional realism is to assert that intentionality can and is actually manifested by non-mental objects. In analytic philosophy, several assumptions have been made regarding how to implement the program of naturalization of intentionality. Strategy is associated with the assumption that intentional relations, the elements of which are specific objects, should have an advantage over intentional relations, the elements of which are not. One of the options is the proposal of F. Dretske, according to which a device that transmits information, to some extent, manifests intentionality. This concept develops the concept of natural meaning introduced by P. Grice. The ability to distort the truth is a characteristic feature of both the initial intentionality of beliefs and the derivative intentionality of statements.

R. Millikan uses two assumptions. According to the first, intentional representation (as opposed to a natural sign) consists of a three-dimensional relationship that connects two mechanisms: the one that creates the representation and the one that perceives it, and both are jointly working devices, the actions of which both benefit. The second assumption is that biological functions are manifestations of the attitude of intentional inner existence. If we consider that there is any biological purpose or purpose, then they may not be achieved or fulfilled. The possession of the function of intentionality is essential.

It is impossible to have a function without being the result of a historical selection process. Selection involves design processes. These processes are the main source of intentionality.

The selection process can be intentional or non-intentional. Artifacts (including words and other symbols of natural languages) acquire functions through intentional processes. While psychological mechanisms (eg, belief-forming mechanisms) derive characteristic functions from non-intentional selection processes, specific states of belief have secondary characteristic functions. The paradigmatic non-intentional process is the process of natural selection, by which Charles Darwin explained the phylogenetic evolution of biological species: natural selection sorts out those organisms that survive.

But there is no intentional actor responsible for this sorting. It remains only to show how the intentionality of consciousnesses arises from the intentionality of biological objects. The normativity of mental states is to some extent already manifested in biological functions. These problems are actively discussed within the framework of the philosophy of mind.

Perceptions, beliefs, desires, intentions, and other propositional attitudes are mental states characterized by intentionality. They relate to objects and situations or reflect them in a specific psychological form. They demonstrate the inherent ambiguity of the mental intentionality. Duality consists in the direction of intention from consciousness to environment and from environment to con-

sciousness. The problem of why one should look for the criterion of the mental has become relevant thanks to the remarks of N. Chomsky. According to them, methodological naturalism requires that the terms "consciousness" and "mental" be used interchangeably with physical terms.

People are able to sense the world around them in different ways, through several different sensory modalities (sight, hearing, touch, smell). They are also aware of the existence of parts of their own bodies: for example, when they are in pain. Awareness is often referred to as a qualia problem because states with prominent phenomenal features (such as pain, visual perception, or olfactory data) are states that are introspectively perceived as states that are highly subjective. The general problem of awareness is to explain what it means to be a concrete being with a phenomenal experience.

For this purpose, the distinctions between the consciousness of the being and the consciousness of the state, as well as between the transitive and intransitive consciousness, are highlighted. A creature will be intransitively aware if it is alive and responds normally to stimuli. It ceases to be intransitively aware when it is dreamlessly asleep, knocked out, drugged, or in a coma. A creature can be called transitively conscious if it is aware of objects, properties, and relationships in its environment. A being can be both intransitively and transitively conscious of something, but the mental state can only be intransitively conscious. An important facet of the problem of consciousness is the question of how exactly to draw the line between conscious and unconscious mental states.

An important aspect is the distinction between access minds or D-mind and phenomenal mind (F-mind). A state is D-mind if it is available for free use in the process of thinking and direct rational control over action and speech. What makes the state D-mind is that its content is available to various cognitive systems, in particular, attention and memory. A subject can report seeing something if a visual stimulus triggers a reaction and information about it has entered working memory.

What makes the mental state of a person D-mind is that this state is available to the person. A person may have conscious access to one of their D-mind mental states due to the presence of some other mental state, for example, a thought or belief.

The possession of states characterized by intentionality is a condition under which any mental state will be D-conscious. It follows that if the problem of awareness is to be clearly distinguished from the problem of intentionality, then the key question will be how the mental state can be F-conscious. If we start from the natural assumption that beliefs are paradigmatic mental states, then from the idea that phenomenal awareness is the true criterion of the mental, it follows that we can talk about what it is like to be in a state of possession of a propositional attitude. Phenomenal awareness is derived from intentionality.

Clarke and Chalmers have proposed two additional arguments in support of the expanded consciousness thesis: the cognitive optimization argument and the functional equivalence argument. The premise of the cognitive optimization argument reflects the role of tools, such as pen and paper, in facilitating and facilitating a subject's successful performance on multiple cognitive tasks.

Non-mental tools are an integral part of the corresponding cognitive processes. The argument of cognitive optimization applies not only to artifacts, but also to parts of the human body used as tools. The question arose to what extent the idea of bodily cognition may or may not be considered as a special case of the extended consciousness thesis, according to which the consciousness of the subject should not be identified only with his brain.

The underlying intuition underlying the expanded consciousness thesis is that storing information on some external medium can facilitate the task performed by internal cognitive processes.

The problem with mental causation is how consciousness can have a causal effect on the physical world. How can a subject's states of consciousness cause his body to move? F. Dretske's strategy is based on the distinction between bodi-

ly movement and behavior. In his opinion, the intentionality of the subject's beliefs and desires is the result of the ontogenetic non-intentional process of selective learning. Mental states characterized by intentionality are adaptive in that they provide useful information about the subject's environment. If they are correct, then the subject's perceptions, beliefs, and desires may have been involved by evolution or learning as the causes of body movements by virtue of their intentionality. The exercise of bodily movement depends on the connections between sensory and motor neurons.

The subject's behavior should not be equated with body movements. It means a process during which some of the body movements of a subject are caused by one of his internal states. When the internal state has intentionality, the behavior of the subject is intentional. Within the framework of the component representation of behavior, the intentionality of the mental state of the subject has no relation to the reasons for a particular movement of the body at a particular moment in time. It has to do with why certain kinds of movement are regularly triggered by certain kinds of intentional states.

2.5 Thinking, mind and language

The term thinking reflects the logical, rational part of consciousness. This is an abstract logical function of consciousness. Mind includes thinking, but is not limited to it. Thinking emphasizes the dynamic, procedural nature of the thinking process. Mind characterizes the content-static aspect of mental activity, the content of the human mental sphere. Mind is formed as a result of cognition (reflection) by the subject of the surrounding reality. The content of consciousness archives the knowledge obtained as a result of the cognitive activity (cognition) of the subject.

The concept of "linguistic mind" is used by linguists, psychologists, culturologists and ethnographers. Linguistic consciousness is the object of psycholinguistics. Mind in ontogeny and phylogeny is formed with the participation of

language, the signs of which are used for generalization in the process of the formation of concepts in consciousness. But consciousness does not need a language to function. Language provides an opportunity for the exchange of information in society. It makes the content of consciousness available for observation. But the fact of the externalization of mind with language for the purposes of communication cannot testify to the presence of some special linguistic consciousness. Cognitive mind is outwardly externalized, which does not acquire any special linguistic status.

In linguistics and psycholinguistics, the mental mechanisms of speech are terminologized, which provide a person's speech activity, the totality of a person's knowledge about his language. These mechanisms and knowledge represent the linguistic consciousness of a person. Linguistics studies the rules of language use, norms, the ordering of language in the mind. This contributes to the development of research in the field of communication, mental mechanisms of language and associative-verbal networks.

Psycholinguistics studies the phenomena of the mechanisms of generation, understanding of speech and storage of language in consciousness, mental mechanisms that ensure the process of human speech activity. This is the knowledge used by communicants in the production and perception of speech messages. The description is carried out within the framework of traditional phonetics and phonology, lexicology and lexicography, grammar.

The results of descriptions are phonetics, dictionaries and grammars, which represent the result of generalizing the meanings and uses of linguistic forms and structures. They describe typical uses, defining them as normative for a language at a given stage of its development. The description is necessary for fixing and disseminating language norms, for teaching a language, for comparing languages, compiling dictionaries and textbooks.

Psycholinguistics is focused on the linguistic consciousness of a person. She studies language as a mental phenomenon. There is also a level of neurolin-

guistic description. This is a study of linguistic consciousness at the level of neurophysiological processes in the brain, a study of the speech zones of the brain, disorders and pathology in the functioning of speech mechanisms. The fixation of electrical vibrations of individual parts of the brain is carried out. This level of research is beyond the competence of linguists. The results of neurolinguistic research are used for theoretical modeling of linguistic consciousness.

Linguistic mind is formed in an individual in the process of mastering speech. It improves all life, as it replenishes its knowledge of the rules and norms of the language, new words, meanings, as communication skills improve and as new languages are mastered. If a person speaks foreign languages, then information about these languages belongs to his linguistic consciousness. Human speech activity is a component of his communicative activity.

Communicative mind contains a body of knowledge and mechanisms of communication and behavior. These are communicative attitudes of consciousness, a set of mental communicative categories, as well as a set of norms and rules of communication accepted in society.

2.6 Behavioral Economics

Taking these features into account makes it possible to improve the explanatory ability of economic theory by introducing additional assumptions about the behavior of agents, which more accurately describe the behavior of a person in a situation. The founder of behavioral economics is Daniel Kahneman, winner of the 2002 Nobel Prize for the inclusion of psychological research data in economics. D. Kahneman showed that the actions of people do not correspond to the predictions of economic theory. Fundamental was the article "Theory of Prospects: Analysis of Decision Making in Risk", co-authored with A. Tversky. Experiments have shown that often people are not able to rationally assess the benefits and losses from their decisions. People tend to react differently to situations depending on whether they gain or lose.

People familiar with mathematics tend to be mistaken when assessing the probabilities of certain events, taking into account generally accepted stereotypes and delusions, as well as their own feelings. People often make decisions based on creative, unconscious thinking, which is not always logically correct. Decision-making errors in the market lead to various market anomalies, including incorrect pricing, inefficient allocation of resources.

Neuroeconomics studies the reactions of various parts of the human brain to the environment and its changes, including in economic contexts.

Neuroscience studies the behavior and reactions of animals most similar to humans. Also studies the evolution of living things and their behavior. System analysis simulates life situations, during which the participants need to make a particular decision. The main object of neurobiology is the nervous system, the brain that controls it, and the peripheral part of the nervous system.

This part consists of peripheral nerves, as well as the autonomic and diffuse (somatic) nervous systems. The nervous system as a bodily organ operates within the entire human body. Individual functions of the nervous system are carried out by its subsystems, organized in accordance with their purpose. The principle of signal transmission (excitation / braking) and the structural hierarchical principle work.

The cellular approach examines the neuron, dendrite, axon, synapse and signal. A neuron in a working state is a charged capacitor. Positive sodium ions are concentrated on the outer layer of the cell membrane. A negative charge arises on the inner layer. If the neuron starts to work, then sodium tubules open. Ions penetrate into the neuron and the charges are neutralized. The depolarization signal runs along the axon to the synapse and further along the chain of connections. Neurons do not divide or renew. The subject of research is the processes of neuronal correlates of consciousness.

Research suggests that people use awareness only because they don't adapt. The more something is used automatically, the less it is realized. Conscious is

only that content, which is determined by the object of the action, is associated with the motivation and purpose of the action.

The ability to be aware is not a function of one part of the brain. This is the joint activity of individual brain systems, each of which contributes to the work of the entire functional system as a whole. Human mental activity has a three-level structure, including consciousness, subconsciousness and superconsciousness. Consciousness includes what can be conveyed by speech. The subconscious mind protects consciousness from excessive work (examples of stereotypes of behavior) and mental overload. The main elements of a person's consciousness are his sensations, feelings and ideas.

The reticular formation of the brainstem is isolated, which controls the levels of wakefulness. Also, the secondary zones of the posterior (afferent) areas of the cerebral cortex are distinguished, which provide storage and registration of incoming sensory information. We take into account the medial zones of the frontal lobes, which are involved in the formation of impulses and programs of action, as well as play a major role in the conscious regulation of purposeful behavior, as well as claustrum.

So far, scientists cannot explain how neurons convert streams of disparate information from the organs of perception into the semantics of consciousness.

The characteristics of phenomenal consciousness include: quality, intentionality, subjectivity, privacy lack of spatial extension, inexpressibility, simplicity and inner nature. Qualitativeness refers to the way in which the individual experiences his inner subjective experience. These are sensory characteristics: colors, tastes, and emotions. The privacy of conscious experience means that the individual does not see how he is seen. Mental images have no physical parameters. Consciousness of a mentally healthy person, as a rule, has integrity.

Within this property, internal conflicts of values or interests are possible. In some types of mental illness, the integrity of consciousness is impaired (schizo-

phrenia). Consciousness has the ability to self-observation and self-esteem, and can also imagine how other people evaluate it.

Based on the cognitive system, goals are set and decisions are made about how to act in a given situation, trying to avoid cognitive dissonance. The cognitive system is based on the interaction of thinking, consciousness, memory and language; the bearer of such a system is the human brain. Electroencephalography is used to study the psychophysiological mechanisms of wakefulness and sleep. From the surface of the scalp, you can record the evoked brain potentials that arise in response to various sensory stimuli (light, sound and other stimulation). There are non-invasive brain scanning technologies.

Introspection is used as a method of studying consciousness in the form of systematic self-observation for scientific purposes. Descriptive methods based on observing their own behavior and self-reports of the subjects about their experiences are used to study various states of consciousness. Linguistic methods are also used, since the direct representation of consciousness is language in its speech form. The analysis of changes in the characteristics of speech (vocabulary, semiotics and grammar of the language) under certain mental states, changes in physiological processes in the central nervous system is widely used in psycholinguistics and neurolinguistics.

At present, quantitative methods have been developed for measuring changes in speech in persons in normal and altered states of consciousness. It has been established that a regular network of neurons exists in the brain, which resembles the excitation structure of neurons in the cortex. Methods of computer modeling of the brain are used, in particular, hardware, model modeling. The images obtained by electron microscopes demonstrate a high similarity between the device of electronic microcircuits and the structures of the human brain. Neural networks are created not only software, but also hardware.

When testing hypotheses, different states by levels and regions of the brain are achieved by taking various medications that change the release levels of im-

portant transmitters (special substances, for example, acetylcholine, glutamate, etc.). Under conditions of anesthesia, the informational integration of the brain is completely disrupted.

The optic nerve from the retina contains only 12 output channels, through each of which only a small amount of information about objects in the visual field passes through. This is not a high-resolution image, but just a collection of outlines and guidelines for objects that fall into the scene. In our minds, we imagine the world around us based on the memories stored in the neocortex, which slowly interprets a series of images flowing through parallel channels. Some cells send only the outlines of objects (contrast), other extended areas of the same color, the third group of cells perceives and transmits only the background behind the object.

The human brain receives from 12 channels only contours in space and time. If you increase the detail, i.e. the amount of information, then the cerebral cortex cannot cope with its processing. Approaches based on understanding the ability of the human hearing aid to focus on one specific sound source have been used in the implementation of microphones in cellular telephones.

Hundreds of megabits per second, including inputs from nerve cells in the skin, muscles, internal organs, and other areas, travel to the upper part of the spinal cord. These are tactile information, temperature, acidity levels, the movement of food through the digestive tract, and information about many other organs. The information is processed by the middle trunk of the spinal cord. The neurons in the first layer create a body map that reflects its current state. The information is then passed on to a part of the brain called the thalamus.

Sensory tactile, visual, sound information passes through the thalamus. It goes to specialized parts of the cerebral cortex. The thalamus maintains continuous contact with the neocortex. Its recognition modules send preliminary data to the thalamus and receive responses in the form of excitatory and inhibitory sig-

nals from the 6th level of each module. There are hundreds of millions of modules in the new bark.

Directed thinking without thalamic signals does not work. A key role for the thalamus is to focus attention on stored, structured lists of the cortex that cause the individual to think in a certain direction or follow a certain course of action. Working memory is capable of simultaneously holding two questions in each hemisphere of the human brain. It is not completely clear whether the thalamus controls the neocortex or vice versa, but both parts are needed for the body to function.

The hippocampus is distributed in both hemispheres, and looks like a horseshoe located in the medial temporal regions of the brain. Its function is related to the memorization of new events. His own memory is not hierarchical. The novelty of events is determined by the new crust. She decides that information about them needs to be presented to the hippocampus. For example, the new cortex fails to recognize a certain set of features (new aircraft) or a famous portrait, a familiar situation has acquired new characteristics.

The hippocampus remembers such situations by referring to the neocortex. These memories are recorded in the neocortex as low-order images.

The capacity of the hippocampus is limited, so the memories it stores are short-lived. Bilateral damage to the hippocampus excludes the memorization of new events, but previously memorized events are retained. An artificial hippocampus has been developed. It was implanted in animals and experiments were carried out with them.

It turned out that neural implants are able to identify the coding process in real time and manipulate it, restoring and even improving cognitive mnemonic processes. The creation of neural implants is relevant for people who are in the stage of development of Alzheimer's disease, since in this disease the human hippocampus is damaged in the first place. It still contains half of all the neurons in the brain. But its mass is about 10% of the mass of the entire brain. The cere-

bellum is characterized by the repetition of structures that are formed by a combination of several neurons repeated billions of times. Its structure, like a new bark, is uniform. The cerebellum coordinates movement and regulates muscle contraction. Removal or damage to the cerebellum does not lead to paralysis, but it disrupts muscle coordination. The thread cannot be threaded through the needle. It has been established that Purkinje cells in the cerebellum control the sequence of movements, and each cell is sensitive to a specific sequence.

Within the framework of the Vernon Mountcastle hypothesis, the mechanism of the cerebral cortex is practically the same for all people. But the action of the neural assemblies of the cortex creates a unique consciousness in each person, different from all other individual consciousnesses.

Sensory stimuli are sent to peripheral nerve endings. Their copies are transferred to the cerebral cortex. He uses them to create dynamic and constantly updated neural maps of the external environment and orientation in it, as well as ongoing events. At the level of sensations, the images that arise are practically the same for all people. They are identified by verbal description or by the same hardware-recorded reactions.

Each image is associated with genetic information and with the accumulated individual experience, which makes the individual unique and unique. On the basis of this integral experience, the individual constructs at the highest level of his perceptual experience a personal view in the form of self-awareness. This is a dynamic system of the individual's ideas about himself, his awareness of his physical, intellectual and other qualities, self-esteem of qualities, as well as subjective perception of external factors affecting a given personality.

V.M. Bekhterev singled out the consciousness of his body in the structure of self-consciousness; surrounding space; time; your personality; your consciousness; its existence.

The individual may be faced with situations of clear and unclear consciousness. Thus, stupor reflects numbness. When leaving this state, the individ-

ual does not answer the questions meaningfully enough. The stupor reflects the dullness. The patient reacts to those around him, but the reaction is inadequate. The patient cannot coherently explain what happened to him or is happening. Impairment of the function of consciousness may depend on various pathological processes in the central nervous system, including those associated with a disorder of cerebral circulation. Impairments of consciousness, including coma, occur with significant shifts in the homeostasis system, resulting in severe damage to internal organs. There are many mind-altering substances.

2.7 Normative mind in science

Science as a social institution was formed up to the XX century. The full cycle of activities within its boundaries began to be designated as R&D. This full cycle included research and design activities. Research activity in its theoretical part is based on logical criteria of clarity, accuracy, evidence, consistency, validity and verifiability of statements. The laboratory experimental part of scientific activity involves compliance with safety standards, as well as restrictions on the use of people as objects of experimentation. The science of Nazi Germany and militaristic Japan during the Second World War demonstrated an inhuman essence through the use of prisoners of war and civilians in laboratory biological research. These studies have received a legal assessment.

A separate topic was the use of scientific developments for military purposes. This problem was actualized by R. Oppenheimer when he called on the US authorities to abandon the development of nuclear weapons. He came to this decision after having visited a nuclear test site.

From the analysis of the features of R&D, it follows that scientific activity is determined by logical, moral, legal norms. Their observance by scientists is strongly influenced by the factor of social order. Scientists participate in research that is part of military programs. They also depend on commercial order-

ing criteria. This social context has a significant impact on research and development activities.

R. Merton views science as the production of reliable knowledge. Scientists are motivated by norms, values and professional vocations. Among the values is disinterestedness. Truth is one of the key values. It involves skepticism and critical analysis.

The value of a scientific contribution does not depend on the nationality, class, or personal qualities of the scientist. Universalism is understood as the independence of the results of scientific activity from the personal characteristics of the scientist making a contribution to science. Restricting advancement in science on the basis of something other than a lack of scientific competence is a direct harm to the development of knowledge.

Universalism manifests itself in the proclamation of equal rights to study science and a scientific career for people of any nationality and any social status. It determines the international character of science.

If the first imperative is an orientational norm, then the second has a directive character. This imperative directs the scientist to publish research results.

Norms are expressed in the form of permissions, prohibitions, prescriptions, preferences. These imperatives, transmitted by instruction and example and reinforced by sanctions, constitute a historically established "ethos of science" that is a model of professional behavior.

The effectiveness of ethical norms is based on the assumption of the complete rationality of the scientist's behavior. Information technology has facilitated the communication of scientists. Work in specialized research organizations that reproduce the structures of industrial production required scientists to combine their duties, since the system of values and norms characteristic of science was also superimposed on the system of values and norms specific to the production organization. Conflict between two systems of normative attitudes, one -

obtained in the process of professional training of a scientist, and the other - operating in the organization where he works.

A scientist works effectively as long as and insofar as he maintains an orientation towards purely scientific values and norms. Over time, scientists adapt to new conditions and prove to be very productive in organizations as well. The new network of norms is similar to the professional ethics of an engineer and focuses more on issues relevant to the application of specialized knowledge than on the value of knowledge itself.

The ethos of science and the ethical standards of the scientific community are not the same thing. Ethical standards corresponding to science of different periods do not remain constant. Scientists quickly adapted to the new conditions of big science and the corresponding rules of behavior, moreover, they learned to use them in the interests of their professional activities. The new generations, who immediately entered big science, took the organizational environment for granted.

T. Kuhn put forward a new concept of the sociality of science and another, much broader concept of norms: first, they regulate not only the social, but also the meaningful behavior of scientists; secondly, the norms are not constant, but subject to change, each paradigm has its own, different. In different paradigms with different norms, knowledge turned out to be different, and its acceptability depends on the community of specialists who are guided by the conventional standards and patterns institutionalized in this community.

At the end of the twentieth century, noticeable changes occurred in the functioning of science in developed countries, due to two factors: the transition of the scientific community to fundamentally new information and communication technologies and a dramatic reduction in state funding for science associated with the end of the Cold War. These changes were not as radical as during the transition to big science, but they were significant enough. The reduction in funding was especially pronounced in Russia, where this global trend was super-

imposed on the consequences of a fundamental socio-economic transformation of all major spheres of society. The commercialization of science is inevitably a consequence of the decrease in state participation in the financing of scientific research. The forced transition of this social institution to self-sufficiency contributes to a sharp decline in the normative standards of scientific activity, since the value attitudes of modern society are opposite to the norms of the classical ethos that preserves the essential qualities of science.

The principles of scientific ethics are not always followed. Among the practices of unscrupulous behavior, plagiarism and falsification of scientific research data stand out.

Ideals and norms are realized in the following forms: 1) explanations and descriptions, 2) evidence and validity of knowledge, 3) construction and organization of knowledge. They form the scheme of the method of research activity, which ensures the development of objects of a certain type. On the basis of cognitive ideals and norms, specific for each science specific methods of empirical and theoretical research of its objects are formed. The ideals and norms of science develop historically. In their content, three interrelated levels of meanings can be distinguished, expressing: 1) general characteristics of scientific rationality, 2) their modification in various historical types of science, 3) their concretization in relation to the specifics of objects of a particular scientific discipline.

The first level is represented by features that distinguish science from other forms of knowledge. The second level of the content of the ideals and norms of research is represented by historically changeable attitudes that characterize the type of scientific rationality, the style of thinking that dominates in science at a certain historical stage of its development. At the third level, the settings of the second level are concretized in relation to the specifics of the subject area of each science.

The ideals and norms of science are twofold determined. On the one hand, they are determined by the nature of the objects under study, on the other, by the

worldview structures that dominate the culture of a particular historical epoch. The first is most clearly manifested at the level of the disciplinary component of the content of ideals and norms of knowledge, the second - at the level that expresses the historical type of scientific rationality.

By defining the general scheme of the method of activity, ideals and norms regulate the construction of various types of theories, the implementation of observations and the formation of empirical facts. The researcher may not be aware of all the normative structures used in the search, many of which he takes for granted. He most often assimilates them, focusing on samples of already conducted research and their results.

The processes of building and functioning of scientific knowledge demonstrate the ideals and norms according to which this knowledge was created. In their system, a kind of reference forms appear, on which the researcher is guided. The historical variability of ideals and norms, the need to develop new regulations for research gives rise to the need for their comprehension and rational explication. The result of such reflection is the methodological principles of science, in the system of which the ideals and norms of research are described.

3 Philosophy of Natural Science and Technology

3.1 Mind and artificial intelligence

The initial theoretical basis for the formalization of thought processes was created by the formal logic of Aristotle. Since then, the task of creating artificial intelligence has invariably occupied scientists. Suffice it to recall that the first logical machine was created by R. Llull (XIII century). Leibniz dreamed of a time when people, over time, instead of arguing, would calculate.

With the emergence of cybernetics, the task of creating artificial intelligence has become more urgent. In philosophy and science, various programs of research on "artificial intelligence" arose, when such sciences as cybernetics, zoopsychology, psychology gave a strong impetus to the scientific study of in-

telligence: the creation of computers capable of performing functions traditionally attributed to the field of human intellectual activity; an attempt to simulate human intelligence based on the brain substrate (neurocomputers); creation of artificial self-learning devices that can evolve.

In the twentieth century, research in the field of artificial intelligence went through three stages. The twentieth century created the conditions for the formation of research programs for artificial intelligence, the formation of a range of tasks related to this area (games, theorem proving, pattern recognition, machine translation, robotics), the creation of methods and tools for solving these problems. The twentieth century meant the acquisition by artificial intelligence of the status of a scientific and technical discipline with the holding of international conferences, the publication of journals, the reading of relevant courses at universities, the creation of new intellectual programs (fuzzy logic, genetic algorithms, models for representing values).

The third stage of the 80-90s. The twentieth century is associated with the practical use of the achievements of artificial intelligence in finance, economics, management computer and household appliances. Study and modeling of rational structures in connection with emotions, beliefs, feelings, practical methods of processing figurative information. In 1950, Alan Turing wrote an article on artificial intelligence. He proposes defining thinking subjects through a game called the "imitation game," now commonly known as the Turing test.

Testing consists in having the program conduct a conversation (via printed messages) with the interrogator for five minutes. The interrogator then has to guess if he is talking to a program or to a person; the program passes the test if it cheats 30% of the time. Turing suggested that by 2000, a computer with 109 memory units could be programmed well enough to pass the test.

In the modern sense, the concept of artificial intelligence was introduced by John McCarthy. According to him, science and technology are integrated into artificial intelligence to create intelligent machines, especially intelligent com-

puter programs. This is related to the closely related task of using computers to understand human intelligence. But artificial intelligence should not be limited to methods that are biologically observable.

Intelligence is understood as the computational part of the ability to achieve goals. Computer programs have sufficient speed and memory, but their capabilities match the intelligent mechanisms that developers understand to invest in programs. Artificial intelligence machines are classified based on their similarity to the human mind, as well as their ability to think and even feel.

Jet machines were the first representatives of artificial intelligence. They have limited options. They emulate the ability of the human mind to respond to different types of stimuli. These machines lack memory based functionality. This means that such machines cannot use previously acquired experience to justify their current actions. They don't have the ability to learn.

These machines can only be used to automatically respond to a limited set or combination of inputs. They cannot rely on memory to improve their performance based on the same experience. Machines with limited memory can learn to make decisions based on historical data. Almost all applications fall into this category of artificial intelligence.

Artificial intelligence with a mental state model takes into account the needs, emotions, beliefs and thought processes of people. To truly understand human needs, artificial intelligence machines will have to perceive humans as individuals whose intelligence can be shaped by a variety of factors. Programmers have just started to engage in self-conscious artificial intelligence. Through models, they try to describe the perceptual and motor skills that serve as precursors to a more complex theory of the possibilities of the mind.

This decomposition serves as inspiration and guidance for building robotic systems that can engage in complex social interactions; they provide the necessary separation of ambiguous abilities into a set of observable, verifiable predictions about behavior. It cannot be said with certainty that following these models

will create a robot with human capabilities. The projection of high-level perceptual abilities onto observable sensory and motor capabilities provides an assessment mechanism for measuring progress made.

Winfield is inspired by the idea of putting a simulation inside a robot. This differentiates its approach from machine learning, in which an artificial intelligence system can use an artificial neural network that can train to perform desired actions in a way that meets the expectations of its users.

An increasingly common form is deep learning, which involves building a large neural network that can automatically learn to interpret information and choose appropriate responses.

The simulation-based approach relies on a preprogrammed internal model. Winfield describes a system that simulates a mental model as using the dynamics of consequences. A robot equipped with a system can answer "what if" questions about possible actions. If he simulates a left turn, he might, for example, find himself hitting a nearby wall.

To make this prediction possible, robots are preprogrammed with a basic understanding of physics to understand what happens when objects collide. Winfield describes his robots as having little common sense. At the moment, robots can only use mental model simulation in relatively simple situations. The use of language provides a criterion for the existence of intentionality.

In the discourse of artificial intelligence, the intentionality of a system is viewed as a technical property of a computer program resulting from the underlying algorithms and knowledge engineering. Operational opacity makes it easier for users to move into an intentional position. When the operation by which the system infers its behavior remains inaccessible through external observation, users tend to attribute beliefs and desires to the system in order to have a reasonable understanding of this behavior.

The intentional system behaves autonomously in certain aspects. There is a fundamental difference between a fully privileged program and a program with

some level of autonomy. The first passively obeys the user's commands. The second initiates interaction with the user and takes action on its own.

The behavior of the intentional system must be understandable to humans. If a system cannot be predictable, based on human beliefs and desires, it simply becomes incomprehensible. Human recognizability does not exclude systems that mimic animal behavior, as in the case of the Tamagotchi, since most of them can be understood using human terms.

The author's intent influences the perception of the system by the users, in addition to its design. Antonio Chella and Salvatore Galio presented the robot's cognitive architecture, organized in three computational domains. The subconceptual domain deals with the processing of data from sensors. The information is not yet organized in terms of conceptual structures and categories. From an artificial point of view, this area includes all processes. Presentation and processing are based on logic-oriented formalism.

The conceptual area is intermediate between the subconceptual and linguistic areas. Data is organized into conceptual structures that are independent of linguistic description. Conceptual and linguistic areas are at the core of robots with qualia functions. Data is organized into conceptual structures that are independent of any linguistic description.

The robot, based on three-dimensional information stored in the conceptual area, and from the data coming from sensors and processed in the subconceptual area, is able to construct a 2D viewer-dependent reconstruction of the scene that he perceives. This 2D model corresponds to what the robot sees at any given time. Its construction is an active process controlled by both the external flow of information and the internal model of the environment.

The conceptual area is based on the theory of conceptual spaces. Concept spaces provide a principled way of correlating a high level of linguistic formalism with a low level of unstructured data representation. Conceptual space is a

metric space, the dimensions of which are generated as outputs of computational processes occurring in the sub-conceptual area.

Different cognitive tasks can involve different conceptual spaces, and different conceptual spaces can be characterized by different dimensions. Examples of possible measurements in relation to the tasks of object perception are: color components, shape parameters, spatial coordinates, motion parameters, and so on. In general, measurements are strictly related to the measurements taken by the sensors. In any case, the measurements are independent of any particular language description.

The representation of situations and actions in the linguistic area is based on a logic-oriented formalism. Linguistic space acts as a long-term memory. It represents a semantic web of symbols and their relationships associated with the perception and actions of the robot. Linguistic space also carries out inferences of a symbolic nature. In the area of the robot's actions, the terminological component contains a description of the corresponding concepts. The linguistic area is based on a knowledge base with formal notation.

The area of alignment allows you to compare the picture of reality perceived by the sensor (camera) and the visual representation of the conceptual space. Architecture can be used as the basis for robotic perception. This is the conceptual area, where the perceived scene is presented in terms of the elements of conceptual space, describing the form and movement of the perceived entities, and the linguistic area, where the scene is presented in terms of linguistic entities, generalizing the dynamics of the element in the conceptual space.

Roman Yampolsky offers a version of the Turing test, but with an emphasis not on behavior or knowledge, but on experience, feelings and internal states. The study describes an empirical test for the presence of certain subjective experiences. The test is probabilistic, but successive different test variants can be used to obtain any desired level of confidence. If an agent participating in a test does not perform well on a particular test variant, this does not mean that he

does not have qualia, but passing the test should increase the confidence that he has experience, in proportion to the chance of guessing the correct answer for that particular test variant. Since qualia are specific to hardware agents (human, species, machine), it is easier to design a human compatibility test.

But, in principle, you can test for any type of qualia, even those that a person does not experience himself. Obviously, having qualia does not mean being able to experience all of them. The proposed test is a binary detector test. For some qualia, specific test variants can be developed to extract specific qualia, such as subjective perception of color, depth, size.

Machine functionalism faces several challenges one of the challenges concerns the productivity of thought. A normal person can have a potentially infinite number of propositions. Machine functionalism identifies mental states with machine states of a probabilistic automaton. Since there are only a finite set of machine states, machine states are not enough to relate them to the possible mental states of a normal person.

Of course, a real person will have only a limited number of propositions. However, Blok and Fodor argue that this limitation reflects the limits of life expectancy and memory, and not some psychological law that limits the class of propositions acceptable to a person. A probabilistic automaton is endowed with unlimited time and memory, but even so it has only a countable number of machine states. Apparently, in this way, machine functionalism incorrectly limits the possibilities of human cognition.

Another problem with the functionalism of machines is related to the systematic nature of thinking. The ability to accept one proposition correlates with the ability to ponder other propositions. Machine functionalism identifies mental states with unstructured machine states, in which there are no necessary systematic connections with others. For this reason, machine functionalism does not explain consistency. In response to this objection, machine-type functionalists may deny that they are obligated to explain the system. However, the objection

suggests that machine functionalism neglects essential features of the human mentality. A more efficient theory would explain these features.

According to some authors, Gödel's Incompleteness Theorems show that a person's mathematical abilities are superior to those of any Turing machine. Some human intelligence exceeds that of a Turing machine, but Gödel's incompleteness theorems give no reason to expect such an outcome. The most important aspects of human cognition elude computer modeling, especially classical computer modeling.

Mental activity unfolds in time. The mind quickly performs complex tasks, such as assessing perception. Critics worry that the computational approach fails to adequately account for the temporal aspects of thinking.

Computerists argue that an abstract computational model can be augmented with temporal aspects. For example, a Turing machine model assumes discrete computational steps, without describing how these steps relate to physical time. Computerists conclude that a suitably augmented version can adequately convey how consciousness works over time.

Proponents of embodied consciousness propose to move to a new picture of consciousness, which emphasizes the continuous connections between mind, body and environment. Computational models can take into account how the mind, body, and environment interact continuously. Computational models can include sensory inputs and motor outputs.

Integrated information theories share the fundamental idea that consciousness is driven by the connection of large amounts of data. It is one thing to process several disparate chunks of information, but when information connects into vast brain networks, then, by assumption, subjective consciousness arises.

Information is integrated in the human brain on a huge scale. Vast information networks play a role in many brain functions. Slime theory focuses on intuition. Most people have an intuition about consciousness as a whole. This appeal to hidden prejudices has given integrated information theory a huge

spread. And yet it doesn't explain anything. There are laws that limit formal computation. One of the most fundamental limitations is the halting problem discovered by Alan Turing. The problem with halting is that there is no program that can generally determine whether an arbitrary program is halted or not. Then, by definition, the human mind is not calculable.

Thinking requires grammar. This means that the mind discovers patterns in the world that repeat themselves, although not necessarily exactly. These can be visual images in the appearance of objects, for example, points in a line or the position of the eyes on a face, or they can be words in speech or simple actions. Regardless of what kind of observation or thought carries a pattern, there is an expectation that it will repeat itself.

The neural network does not find new patterns. It works like a black box. People recognize almost the same primary (their) and secondary emotions, and artificial intelligence should also be able to do this.

Deep neural networks have reached a level of performance in solving various problems of pattern recognition, in particular, when solving problems of visual classification. Given that neural networks are now capable of classifying objects in images with near-human performance levels, questions arise about what differences remain between computer and human vision.

Research has shown that changing an image in a way that is invisible to humans can cause the neural network to call the image something completely different. The most difficult problem for the consciousness of a robot reflects the task of creating an opportunity for the robot to have real subjective experiences.

3.2 Brain synergetics

The deterministic paradigm can be wrong in nonlinear systems where there is instability. The fundamental property of biological, mental and social systems is precisely their being in an unstable, critical state. Numerous psychological

theories and teachings lack the concept of instability, and the concepts of balance and stability are synonymous.

With the emergence of the theory of deterministic chaos in the mid-1980s, some psychologists had the hope that it would be enough to apply the corresponding mathematical apparatus to the numerous teachings and theories about consciousness, thinking, perception, memory available in psychology, and the fundamental theory of higher mental functions will be formed.

Research in the field of synergetics of higher nervous activity makes it possible to formulate the characteristics of the human brain. The human brain functions near a critical state. The sensitivity of the brain to the slightest changes, both external stimuli and internal mental processes, indicates that the brain, as a complex system, functions near the bifurcation state. Consciousness as a mechanism of the integrative function of the brain is associated with the phenomenology of critical phenomena.

J. Hopfield's pattern recognition model used in synergetics has the property of multistability. This model is consistent with the critical state principle, near which the brain functions. An important feature of pattern recognition by a neural network is the ability to restore an image from reduced, incomplete or distorted data. A neural network is capable of reconstructing an image stored in memory using incomplete data.

A conditioned reflex, the ability to predict future events, can also be described as the process of restoring an image from its fragment. The magnetic fields generated in the interneuronal tissues of the brain represent deterministic chaotic processes with a small number of degrees of freedom, which indicates a high degree of self-organization of the corresponding processes. The theory of self-organization made it possible to formulate a number of fundamental principles in the work of the brain.

The fundamental role of the phenomenon of multistability of perception of ambiguous images in the activity of the brain has been clarified. Memory and

pattern recognition functions are considered to be distributed among interconnected neurons. Brain synergetics is based on the idea of parallel information processing.

3.3 Brain neurophysiology

A nerve cell (neuron) has a complex structure and consists of a body (soma) and processes (axon and several dendrites). The axon denotes the transmitting process. Through it, the impulse goes from the cell body to another neuron. Dendrites denote host processes. They collect impulses from other neurons and transmit them to the body of the neuron. Dendrites make up almost 90% of the nervous tissue. Dendrites, like neurons, generate an impulse.

Dendrites work much harder compared to neural bodies. They generate more impulses. The dendrite is directly involved in the initial generation of the impulse. The neuron generates an impulse on the "is-no" principle, which is similar to the digital encoding of information. Dendrite works on an analog basis. The signal in it can vary within a certain range.

The natural science aspects of consciousness in the context of evolutionary theory are included in the subject of zoopsychology, psychophysiology, neurophysiology, neuropsychology, psychopharmacology, neurolinguistics, neurocybernetics and psychiatry. Important results in the study of the psyche of animals have been obtained by zoopsychology and zoosemiotics. They stated the complexity of the psyche of animals. They described the features of the subjective reality inherent in higher animals.

The boundaries of the analogy between the subjective reality of animals and humans have not been sufficiently explored. The analogies are more numerous than previously thought. The evolutionary connection between them is not so straightforward, since animals have inherent methods of mental reflection and self-regulation that humans do not have.

Physiological studies of sensory processes have revealed the code nature of sensations and a number of mechanisms for the transformation of the energy of external stimulation into a fact of consciousness. The existence of two qualitatively different types of subjective reality is recognized. Subjective reality can have different structural organization and different semantics. So, man has abstract thinking, but animals do not.

The concept of subjective reality is not identical with the concept of mental activity. This concept includes behavioral acts and a number of information processes. Works on the genetics of mental differences are important. They show that the unique integrity of the subjective reality of each person, its uniqueness is due not only to social, but also genetic factors.

Research on the functional asymmetry of the brain is of interest for understanding the structural and dynamic features of subjective reality. The data of stereotaxic semiology, based on the experience of diagnostics and treatment of patients by introducing microelectrodes into the brain, are relevant to the development of these problems.

Natural science approaches to the study of consciousness as a special property of highly organized matter are in the overwhelming majority of cases of a narrowly analytical nature. They make the subject of study any one fragment, one manifestation, one common feature of consciousness. Some interpersonal invariant is highlighted. Deciphers of the brain codes of mental activity were obtained. It follows from them that the characteristics of consciousness as a subjective reality represent the functional properties of brain activity.

In physiology, it is customary to distinguish between higher and lower nervous activity. These concepts were introduced by I.P. Pavlov. The lower nervous activity is directed to the internal environment of the body. This is a set of neurophysiological processes that ensure the implementation of unconditioned reflexes and instincts. This is an activity that ensures the regulation of the

activity of internal organs and their interconnection, due to which the body functions as a whole.

Higher nervous activity is directed towards the external environment. This is a set of neurophysiological processes that provide conscious and subconscious processing of information, assimilation of information, adaptive behavior to the environment and learning in ontogenesis of all types of activity, including purposeful behavior in society. This is the activity of the cerebral cortex and the subcortical structures adjacent to it, which ensure the relationship of the organism with the environment. The conditioned reflex is an important element of this activity. This is the analytic-sitetical activity of the cortex and the nearest subcortical formations, which manifests itself in the ability to isolate its individual elements from the environment and combine them in combination.

I.P. Pavlov owes science to research on the physiology of the brain. The discovery of the conditioned reflex was decisive. This is the main and characteristic type of activity of the brain. This is the basis on which higher nervous activity is built.

An unconditioned reflex is an innate and relatively constant species-specific, stereotypical, genetically fixed reaction of the body, reflexively arising in response to a specific effect of an irritant, to the effect of a biologically significant (pain, food) stimulus adequate for a given type of activity. Vital biological needs are associated with these reflexes. They are carried out within a stable reflex pathway. They form the basis of the mechanism for balancing the effects of the external environment on the body. They arise on direct sensory signs of an adequate stimulus for them. They can be caused by a limited number of environmental stimuli.

An unconditioned reflex is an innate response of the body to irritation with the obligatory participation of the central nervous system. The cerebral cortex is not directly involved, but exercises its highest control over these reflexes.

Unconditioned reflexes are the physiological basis of human species memory and lower nervous activity, as a set of neurophysiological processes that ensure the implementation of unconditioned reflexes and instincts. Approximate unconditioned reflexes, proceeding with the direct participation of the cerebral cortex, are the physiological mechanisms of human cognitive activity and involuntary attention.

Vital unconditioned reflexes provide individual and species preservation of the organism. These include food, drinking, sleep regulation, defensive and orientational reflex (reflex of "biological caution"), reflex of economy of strength. Role (zoosocial) unconditioned reflexes can be realized only through interaction with other individuals of their own species. These reflexes underlie sexual, parental, and territorial behavior, the phenomenon of emotional resonance ("empathy") and the formation of a group hierarchy.

Unconditioned self-development reflexes are focused on the development of new spatio-temporal environments, turned to the future. These include exploratory behavior, the unconditioned reflex of resistance (freedom), imitative (imitative) and play.

Conditioned reflexes reflect individually acquired reactions of the body to a previously indifferent stimulus. They are formed during the life of the individual and are associated with the accumulation of life experience. They are individual for each person. They can fade away if they are not reinforced. The extinguished conditioned reflexes do not disappear completely. They are capable of recovery.

Conditioned reflexes represent one of the forms of the organism's adaptive reactions to changing environmental conditions. All types of conditioned reflex activity are of a signaling and preventive nature. Each reflex has its own specific receptive field and specific stimuli. Reflexes can be formed from any receptive field to a wide variety of stimuli. They react to the action of a present stimulus, which cannot be avoided. They adapt the body to the action of a stimulus that has yet to be experienced. They signal the impending action of the stimulus.

The main mechanism for the formation of a conditioned reflex is the establishment of a temporary connection between the conditioned and unconditioned stimulus. It is the connection between the centers of the brain responsible for the unconditioned stimulus and the centers associated with the conditioned stimulus. This is the establishment of the impulse activity of neurons, which is formed between these centers. Conditioned reflexes are formed when two foci of excitation appear in the cerebral cortex: one in response to a conditioned stimulus, and the other in response to an unconditioned stimulus. When the action of these stimuli is combined, a temporary connection is established between the emerging centers of excitation, which becomes more and more durable from experience to experience.

The physiological architecture of a behavioral act is built from stages successively replacing each other. At the stage of afferent synthesis, the brain produces an extensive synthesis of all those signals from the external environment that enter the brain through numerous sensory channels. As a result of the synthesis of these afferent excitations, conditions are created for the implementation of a certain purposeful behavior. The behavior will depend on what processes develop during the stage of afferent synthesis. The content of afferent synthesis is determined by the influence of motivational arousal, memory, situational afferentation, and triggering afferentation.

Motivational arousal appears when a need arises. The specificity of motivational arousal is determined by the characteristics, the type of need evoking it. Motivational arousal plays a special role in the formation of afferent synthesis. The information correlates with the dominant motivational arousal, which selects the desired response. External stimuli with their different functional meaning in relation to a given, specific organism also contribute to afferent synthesis.

On the basis of the interaction of motivational, situational arousal and memory mechanisms, readiness for certain behavior is formed. But in order for it to transform into purposeful behavior, it is necessary to influence the trigger-

ing stimuli. Completion of the afferent stimulus stage is accompanied by a transition to the decision-making stage, which determines the type and direction of behavior. The decision-making stage is realized through the formation of the apparatus of the acceptor of the results of the action. This apparatus is programmed to search for the appropriate stimuli in the external environment.

At the stage of efferent synthesis, somatic and autonomic stimuli are integrated into a holistic behavioral act. Efferent excitation reaches the actuators, and the action is carried out. If the results of actions correspond to the properties of the acceptor of the action, then the behavioral act ends with the satisfaction of the need. If not, then the process is repeated again.

The most important stage that determines the development of behavior is the allocation of the goal, which is represented by the apparatus of the acceptor of the results of action, which contains two types of images, regul behavior goals themselves and ways to achieve them. In the structure of a behavioral act, the formation of an acceptor of the results of an action is mediated by the content of emotional experiences. Leading emotions highlight the purpose of the behavior and initiate the behavior. Situational emotions induce the subject to act either in the same direction, or to change behavior, his tactics and ways of achieving the goal.

The core of the functional system is the adaptive effect, which determines the composition, restructuring of efferent excitations. According to the theory of functional systems, the central system-forming factor of each functional system is the result of its activity, which determines the normal conditions for the course of metabolic processes for the organism as a whole.

The sufficiency or insufficiency of the result determines the behavior of the system. If it is sufficient, the organism proceeds to the formation of another functional system with another useful result, representing the next stage in the universal continuum of results. If the result is insufficient, activating mechanisms are stimulated. There is an active selection of new components. A change

in the degrees of freedom of the acting synaptic organizations is created and a completely sufficient adaptive result is found.

The functional system is a central-peripheral formation, thus becoming a specific apparatus of self-regulation. It maintains its unity on the basis of cyclical circulation from the periphery to the centers and from the centers to the periphery. The existence of any functional system is associated with obtaining a clearly defined adaptive effect. The final effect determines one or another distribution of excitations and activities in the functional system as a whole.

An absolute sign of a functional system is the presence of receptor apparatuses that assess the results of its action. These receptor apparatuses in some cases may be congenital, in others they may be extensive afferent formations of the central nervous system that perceive afferent signaling from the periphery about the results of an action. The afferent apparatus develops until the very results of the action are obtained. Each result of the action of a functional system forms a stream of back afferentations representing the parameters of the results obtained.

The functional system includes specific receptor devices that perceive the effects of environmental factors; conductive devices that deliver peripheral information to the central nervous system; central interneuronal (synaptic) relationships, which determine the most critical area of integration of a full-fledged act; a set of peripheral working apparatus with their nerve endings (organ synapses), allowing to obtain the working effect of the system; a set of afferent apparatuses, which together provide an inverse afferentation about the degree of success of a given vital adaptive action.

The absence or total dysfunction of any of these links leads, according to P.K. Anokhin, to a disruption in the activity of vital functional systems and makes the continued existence of the organism impossible.

The specific mechanism of interaction of the components of any functional system is their release from excess degrees of freedom that are not necessary to obtain a given specific result, and, conversely, the preservation of all those de-

grees of freedom that contribute to obtaining the result. In turn, the result, through its characteristic parameters and thanks to the system of inverse afferentation, has the ability to reorganize the system, creating such a form of interaction between its components, which is most favorable for obtaining the programmed result.

The essence of the systems approach is that an element or component of functioning should not be understood as an independent and independent entity. It should be understood as an element whose remaining degrees of freedom are subordinate to the general plan for the functioning of the system, directed by obtaining a useful result. The result is a critical component of the system, creating an orderly interaction between all of its other components. The simple interaction of components is not the factor that brings them together in a system.

The ordering factor is the result of the system. The dissatisfaction of the system with the result stimulates its activity in the search and selection of new components on the basis of a change in the degrees of freedom of the acting synaptic organizations and the achievement of a sufficient adaptive result.

One of the main qualities of a biological self-organizing system is that the system, in the process of achieving the final result, continuously and actively searches the degrees of freedom of many components, often even in microintervals of time, in order to include those of them that bring the body closer to obtaining a specific programmed result. The receipt by the system of a specific result based on the degree of assistance of its components determines the orderliness in the interaction of many components of the system.

Any component can be involved and enter the system only if it does its share of assistance in obtaining the programmed result.

The functional system seeks to obtain the programmed result. For the sake of obtaining this result, it can go to the greatest perturbations in the interactions of its components. Since an organism lives in an environment of continuous obtaining of a result, in a continuum of results, then after reaching a certain phase

result, its organization begins in relation to the subsequent result (P.K. Anokhin). In a functional system, the result is its organic factor, which has a decisive influence both on the course of its formation and on all its subsequent reorganizations. The result selects all degrees of freedom of the system components adequate for a given moment and focuses their impact. If the activity of the system ends with a useful result, then the interaction of the components of the system will always proceed according to the type of their interaction aimed at obtaining the result.

The interaction of the components of the system is achieved by the fact that each of them, under the influence of afferent synthesis or reverse afferentation, is freed from excess degrees of freedom and is combined with other components only on the basis of those degrees of freedom that together contribute to obtaining a reliable final result.

The theory of functional systems includes the adaptive result of the functioning of the system as its organic part. A functional system, built on the basis of the result of its activity due to the presence of a completely defined operational working architectonics with a specific mechanism and specific properties, avoids intermediate uncertainties.

Before the adaptive reaction takes place, the process of perception of signals takes place. The signal contains a quantity that reflects the state of the physical system. The body is not interested in the impacts themselves, but in what they signal, not in assessing their physical parameters, but in those ratios that are transmitted with their help. Sensual display is based on the relationship between symbolic and figurative moments in it. Unlike the image, the sign has no figurative resemblance to the original.

If the image reproduces the structure of the original with a certain degree of adequacy, then the signs of such a structure do not reproduce. But they reproduce in the subject the images of the originals that arose as a result of the previous acts of reflection. The main task of the higher forms of reflection, improving

in the course of evolution, is to extract information for themselves and at the same time abstract from the material carrier of this information.

In the reflecting system of the brain, as a result of interaction with the reflected object, an ordering corresponding to the source of reflection is extracted, and its material carrier is functionally excluded. This side of the reflection expresses its active, creative nature. At each moment of time, not all information is extracted, but only that which is necessary for the reflecting system, because in the process of reflection, the latter changes, undergoes transformations within itself. These changes, corresponding to the semantics of the perceived object, are functionally distinguished and used by the reflecting system as a factor of self-management to preserve its qualitative definiteness. Therefore, the construction of an image is determined not by substantial, but by functional parameters based on the extraction of information as an integral property of the reflected object.

The signal nature of the reflection is that the body extracts information in accordance with both a hereditarily fixed program and with the currently dominant needs. In the selectivity of reflection, the expedient nature of the reactions of the organism, its actions, and its behavior is manifested. With prolonged repeated exposure to an environmental factor, a certain trace remains in the body. The trace processes of long-term memory play an important role in the system of adaptive reactions of the body.

The sequence of influences of external events, which was observed earlier, can be reproduced with sufficient completeness in memory when only the signal signs of the initial links of this sequence are perceived. The display of one of these events, compared with the past displays of others, takes on the character of displaying not single objects, but a whole class of objects. Taking into account the participation of past life experience in any acts of reflection and in the formation of goals, plans, programs, the brain made the anticipatory character an obligatory property of reflective activity.

Adequacy is achieved in time not instantly, but gradually; The final assessment of the adequacy is made when correlating a new image with its nervous model, created earlier on the basis of a complex of influences and long-term memory. The achievements of modern evolutionary physiology indicate that the highest animals and man with his ability to abstract thinking possess the greatest accuracy and completeness of reflection.

The transformation of information in the sensory system depends not only on its properties and functional state, but practically on all influences perceived by the brain and imprinted in memory. They leave their mark on the nature of the sensory system, change its selectivity, tuning, and mobility due to the participation of feedbacks and intersensory integration systems. The topology of an object is encoded in the brain in the form of a certain neural model isomorphic to external influences.

The nervous model is the physiological basis of the forming subjective images. But they don't boil down to neural patterns. There is both a fundamental difference and a certain correspondence between the subjective image and the nervous model. The image does not exist in the brain objectively in the form of some reduced material copy of an external object. At the same time, the cerebral neurodynamic system exists as an objective reality.

But it cannot be named in an image, since it does not have an objective character. It is the code of the external displayable object. In the nervous model, which is not associated with a material carrier of information, an act of abstraction from a specific object is performed. The subjective image does not reproduce the quality of nervous processes, the state of receptors or neurons in the brain, but the features of the reflected phenomena.

A subjective image arises on the basis of neural models when decoding information and correlating it with a really existing material object. The decoding stage is a rather complex and far from obvious operation in a dynamic cognitive structure. In the content of the image, the object own qualitative definiteness

does not fade away, as is the case in the nervous model, but is unmasked. The subjective image of an object is not unchanging, static. It only exists in abstraction. In actual perception, the dynamics inherent in the image is immediately revealed. One of the unsolved problems remains to explain how the transformation of material neurodynamic processes into a subjective image occurs.

Through the complex reflex activity of the body, the subjective nature of the reflection is manifested. The unity of the analytic-synthetic activity of the brain lies in the fact that the body, with the help of sensory systems, distinguishes between the acting external and internal stimuli and, on the basis of this analysis, forms an idea of them. The physiological basis of synthesis is the concentration of excitation, negative induction and dominant.

Synthetic activity is the physiological basis of the first stage of the formation of conditioned reflexes, their generalization. In humans, an example of generalization can be the initial stage of the formation of new concepts. The first information about the studied subject or phenomenon is always generalized and very superficial. Only gradually does a relatively accurate and complete knowledge of the subject arise from it. The physiological mechanism of generalization of the conditioned reflex consists in the formation of temporary connections of the reinforcing reflex with conditioned signals close to the main one.

Generalization has an important biological significance, since it leads to the generalization of actions created by similar conditioned signals. Generalization is useful because it makes it possible to assess the general significance of the newly formed conditioned reflex. The physiological basis of the analysis is the irradiation of excitation and differential inhibition.

Analytical activity is the physiological basis of the stage of specialization of conditioned reflexes. The stage of specialization is characterized by the emergence of a conditioned reflex to only one basic signal with the loss of the signal value of all other similar conditioned signals. The physiological mechanism of specialization consists in the extinction of all side conditioned connections.

Analytical-synthetic (integrative) activity of the nervous system is the physiological basis of perception and thinking. The connection of the organism with the environment is the more perfect, the more developed is the property of the nervous system to isolate signals from the external environment that act on the organism. And also to synthesize, to combine those of them that coincide with his activities. Information coming from the internal environment of the body is also analyzed and synthesized.

Each analyzer system carries out three levels of analysis and synthesis of stimuli. In the receptors, the simplest form of signaling from the external and internal environment of the body is realized they are encoded into nerve impulses and sent to the overlying sections. In the subcortical structures, a more complex form of isolation and unification of stimuli of various kinds of unconditioned reflexes and signals of conditioned reflexes take place.

They continue in the thalamus, hypothalamus, reticular formation, and other subcortical structures. At the level of the midbrain, the novelty of stimuli is assessed (analysis) and a number of adaptive reactions arise: turning the head towards sound, listening. In the cerebral cortex, the highest form of analysis and synthesis of signals coming from all analyzers is realized, as a result of which systems of temporary connections are created, images, concepts, and semantic distinction of words are formed.

Analysis and synthesis are carried out according to a specific program of nervous mechanisms. The systemic nature of the brain expresses its ability for higher synthesis. The physiological mechanism of this ability is provided by: a) the interaction of complex reflexes according to the laws of irradiation and induction; b) preservation of traces of signals that create continuity between the individual components of the system; c) the consolidation of the emerging connections in the form of new conditioned reflexes to complexes.

Consistency creates the integrity of perception. Analysis and synthesis in a person is difficult due to the presence of his verbal thinking. The main compo-

nent is speech motor analysis and synthesis. Any kind of analysis of stimuli occurs with the active participation of the orienting reflex. The lowest analysis and synthesis is inherent in the first signaling system.

Higher analysis and synthesis is carried out by the joint activity of the first and second signal systems with the obligatory human awareness of the objective relationships of reality. Any process of analysis and synthesis necessarily includes the results of action as an integral part. Mental phenomena are generated by brain analysis and synthesis.

A dynamic stereotype is viewed as a relatively stable and long-term system of temporary connections that is formed in the cerebral cortex in response to the implementation of the same types of activity at the same time, in the same sequence from day to day. It is a series of automatic actions or a series of conditioned reflexes brought to an automatic state. It can exist for a long time without any reinforcement.

The physiological basis for the formation of the initial stage of a dynamic stereotype is conditioned reflexes for a while. The difficulty lies in the fact that before developing a new attitude towards reality (a new life stereotype), it is required to destroy the old attitude towards it. Therefore, some people find it rather difficult to restructure any element of a life stereotype, not to mention the restructuring of ideas and beliefs. In the implementation of complex stereotypes, such a state of readiness for activity, which is formed by the mechanism of temporary connection, is of great importance.

A functional system exists as a dynamic set of various organs and systems, which is formed in order to achieve an adaptive (useful) result for the body. There are two types of functional systems: Functional systems of the first type ensure the constancy of certain constants of the internal environment due to the system of self-regulation, the links of which do not go beyond the limits of the organism itself. An example is a functional system for maintaining the constancy of biological constants: blood pressure, body temperature, osmotic pressure.

Functional systems of the second type use an external link of self-regulation. They provide an adaptive effect due to going outside the body through communication with the environment, through behavior change. They underlie various behaviors and types of behavior. The physiological architecture of a behavioral act is built on the basis of successive stages of afferent synthesis; decision making; an acceptor of the results of an action; efferent synthesis; formation of action and assessment of the achieved result.

According to the storage time of information, a distinction is made between: direct imprint of sensory information (sensory memory), short-term and long-term memory. Biological memory reflects the ability of an individual to perceive the impact and to fix, preserve and reproduce the changes in the functional state and structure caused by these influences. Genetic memory is the memory of a biological species, which is carried by nucleic acids, that is, DNA and RNA, which are able to ensure the stability of information storage.

This is the form of memory in which the hereditary memory of the cell is localized. Immunological memory is associated with genetic memory and consists in the ability of the immune system, after the first meeting with genetically foreign bodies (antigens), to recognize them when they meet again.

Neurological memory arises in the process of evolution in connection with the differentiation of the nervous system. It is complexly organized. This memory consists in changes in the nervous system that persist for some time and affect the course of future reflex reactions. The complex of such structural and functional changes, including capturing not only a certain external situation, but also the subjective attitude of the organism to it, is called an engram.

The engram turns out to be redundant, since all acquired experience is used and the engram relies on factors that are already absent in the present tense, thanks to which the engram serves as the basis for the activity of the organism and realistic forecasting of future situations by it.

Memory is organized in time and space. The formation and reproduction of engrams is possible when they are temporarily curtailed on the basis of the existence of the brain's own time; as a result, an internal chronotype is created, that is, an internal spatio-temporal image of the external world. Depending on the mechanisms, the duration of information storage, different types of memory are distinguished.

The sensory memory of a person does not depend on his will and cannot be subjected to conscious control. This type of memory depends on the functional state of the body and has individual characteristics. The time for saving the image of the external world is not the same for different senses.

Visual images are preserved for the longest time. The direct fingerprint of the sensor information is not reproducible. A type of sensory memory is eidetic memory. This is a type of memory in which the period of preservation of the visual image is tens of minutes.

Short-term memory is formed on the basis of a direct fingerprint of sensory information. Provides retention of a limited part of incoming signals from the external environment allows you to reproduce some part of the presented material and thereby use a certain amount of information for some time. Long-term memory ensures the storage of information for an unlimited time. In the system of long-term memory, the volume of which is practically unlimited, a huge amount of information is stored without distorting it. The information can be easily reproduced if necessary.

During the transition to long-term memory, the engram is consolidated (hardened) and short-term and long-term memory ar integral links of one process. The reverberation theory was based on the existence of closed neural circuits in the structures of the brain. The axons of nerve cells are in contact not only with the dendrites of other cells, but can also return back to the body of their own cells. Thanks to this structure of nerve contacts, it becomes possible to

circulate a nerve impulse along reverberating (gradually fading out) circles of excitation of varying complexity.

As a result, the discharge arising in the cell returns to it either immediately or through an intermediate chain of neurons and maintains excitation in it. These persistent circles of reverberant excitation do not go beyond a certain set of nerve cells and are considered as a physiological substrate for the preservation of engrams. In the reverberation circle of excitement, there is a transition to long-term memory.

Memory includes four closely related processes: memorization, storage, recognition, reproduction. Throughout a person's life, his memory becomes a repository of information. Not everything that is perceived, experienced or done by a person is retained in memory a significant part of the perceived information is forgotten over time. Forgetting is manifested in the impossibility of knowing, remembering something, or in the form of erroneous recognition, recollection.

Forgetting can be caused by various factors associated both with the material itself, its perception, and with the negative influences of other stimuli acting immediately after memorization (the phenomenon of retroactive inhibition, memory suppression). The forgetting process largely depends on the biological meaning of the perceived information, the type and nature of memory.

The biological significance of iconic memory lies in providing the analyzer structures of the brain with the ability to isolate individual signs and properties of the sensory signal, and to recognize the image. Iconic memory stores not only the information necessary for a clear understanding of sensory signals arriving within fractions of a second, but also contains an incomparably larger amount of information than can be used and is actually used at the subsequent stages of perception, fixation and reproduction of signals.

With a sufficient strength of the acting stimulus, iconic memory goes into the category of short-term memory. It is a working memory that provides the execution of current behavioral and mental operations. Short-term memory is

based on repeated multiple circulatio of impulse discharges along circular closed circuits of nerve cells.

The substrate that stores the incoming information is a neural trap, formed from a chain of neurons, which ensures long-term circulation of excitation along the circular connections. If impulses, similar to the one that formed the reverberation chain, re-enter the same neuron, then the traces of these processes become fixed in memory. The absence of repeated impulses or the arrival of an inhibitory impulse to one of the neurons of the reverberation chain leads to the termination of reverberation, forgetting.

The involvement of the structures of the hippocampus and the limbic system of the brain in short-term memory is associated with the implementation by these neural formations of the function of discriminating the novelty of signals and reading incoming afferent information at the input of the waking brain. The realization of the phenomenon of short-term memory practically does not require and is not really associated with significant chemical and structural changes in neurons and synapses, since the corresponding changes in the synthesis of informational RNAs require more time.

The electrotonic theory of memory is based on the fact that short-term memory can be explained by specific phenomena that develop during the passage of nerve impulses through synapses and the development of electrotonic potentials in them, which are recorded for several minutes and even hours and are able to facilitate the passage of impulses through strictly defined synapses.

Long-term memory is based on the circulation of impulses or changes in the electrophysiological characteristics of individual neurons. Under various influences on the body (hypoxia, anesthesia, cooling, sleep), ring reverberation connections can be destroyed and the excitability of neurons can decrease.

At the same time, a huge amount of information is stored in long-term memory unchanged. The biochemical theory develops the idea of the activation of enzymatic processes during the formation of mediators or the restructuring of

the membrane of neurons. When neuronal processes are activated, they intensify protein metabolism. Inhibition of protein synthesis leads to impairment or termination of the consolidation of traces in long-term memory. In the mechanisms of long-term memory, the rearrangement of the structures of DNA and RNA molecules in the neurons of the brain plays a paramount role.

The process of fixing information in a nerve cell is reflected in protein synthesis, into the molecule of which the corresponding trace imprint of changes in the RNA molecule is introduced. The protein molecule becomes sensitive to those specific changes that have occurred in the RNA, thereby it recognizes the afferent signal that is encoded in this impulse pattern. As a result, the mediator is released in the corresponding synapse, leading to the transfer of information from one nerve cell to another in the system of neurons responsible for fixing, storing and reproducing information.

The glial theory is based on changes in glial cells that surround neurons and can synthesize special substances that facilitate synaptic transmission or increase the excitability of the corresponding neurons.

At the stage of formation and strengthening of the conditioned reflex in the glial cells adjacent to the nerve cell, the synthesis of myelin is enhanced, and thereby facilitates the conduction of nerve impulses through them, as a result of which the efficiency of synaptic transmission of excitation increases. In turn, the stimulation of the formation of myelin occurs as a result of depolarization of the membrane of the oligodendrocyte (glial cell) under the influence of the incoming nerve impulse.

Long-term memory is based on conjugated changes in the neuroglial complex of the central nervous formations. The ability to selectively turn off short-term memory without impairing long-term and selective effects on long-term memory in the absence of any impairment to short-term memory is usually considered as evidence of the different nature of the underlying neurophysiological mechanisms. Indirect evidence of the presence of certain differences in the

mechanisms of short-term and long-term memory ar the features of memory disorders with damage to brain structures. So, with some focal lesions of the brain (lesions of the temporal zones of the cortex, structures of the hippocampus), when it is shaken, memory disorders occur, expressed in the loss of the ability to remember current events or events of the recent past (that occurred shortly before the impact that caused this pathology) while preserving memory for the previous ones, events that happened long ago.

Cognitive rational learning is based on the formation of the functional structure of the environment, on the extraction of the laws of connections between its individual components. Cognitive learning includes: learning through observation, mental activity, and mental activity.

Speech greatly increased the ability of the human brain to reflect reality. She provided the highest forms of analysis and synthesis. Signaling about a particular subject, the word sets it apart from the group of others. This is the analytical function of the word. The word as an irritant has a generalizing meaning for a person. This is a manifestation of its synthetic function. The physiological mechanism of acquired complex forms of generalization is embedded in a person in the properties of a word as a signal of signals.

The word in this capacity is formed due to his participation and the formation of a large number of temporary connections. The degree of generalization cannot be regarded as a constant, stable category, because it changes, and, which is especially important, depending on the conditions for the formation of temporary connections among students in the process of their learning.

Physiologically, generalization and abstraction are based on two principles: a) the formation of consistency in the cerebral cortex; b) gradual reduction of the signal image. Proceeding from these ideas about the essence of the mechanism of the generalization process, it turns out that the idea of the foundations of the formation of new concepts is understandable. The transformation of words into integrators of various levels should be seen as the development of thinking of

broader concepts. Such changes lead to the construction of more and more complex systematicity and to a broader development of the scope of integration.

The extinction of the conditional connections included in this system narrows the scope of integration and complicates the formation of new concepts. The formation of concepts in the physiological sense has a reflex nature. It is based on the formation of temporary connections to a conditioned speech signal.

The word, as a physiologically active factor, influences by its direct content. The action of a word is determined by its semantic meaning. Speech associated with the verbal designation of objects can manifest itself in three forms: acoustic, optical, and kinesthetic. The acoustic form of speech is presented in the form of sound signals, the perception of which occurs as a result of splitting the speech stream into sections. This fragmentation provides the perception of phonemes. Integration of individual elements into the speech stream takes place.

The acoustic form of speech is the basis for the implementation of the communicative function of speech. The optical form of speech provides the analysis and integration of speech (letter) stimuli and implements the symbolic function of speech.

When the visual parts of the cerebral cortex are damaged, not only the ability to distinguish between letters and the symbolic function is disturbed. The kinesthetic form of speech is manifested in the work of the muscular apparatus, articulating organs, with the help of which the sound expression of speech is realized. Muscle tension of the organs of articulation, even in the absence of sound speech expression, is high. Physiologically, this is manifested in the work of the speech organs in the process of thinking.

The physiological basis of speech is the second signaling system. Its conditioned stimuli are words in their sound (oral speech) or visual form (written speech). Sounds and outlines of words become conditioned speech stimuli in the process of re-combining them with the first-signal stimuli that cause perception

and sensation of objects and their properties. They acquire a semantic meaning become signals of immediate stimuli with which they were combined.

The formed temporary neural connections are strengthened by constant verbal reinforcements, become strong and acquire a bilateral character. The sight of an object immediately triggers a reaction to its name. The audible or visible word causes the representation of the object designated by this word. Systems providing speech are divided into peripheral and central systems. The central systems include certain structures of the brain. Peripheral systems include the vocal apparatus and hearing organs.

Speech analyzers are updated in both hemispheres. The system consists of three sections. Broca's motor center is located in the lower part of the frontal gyri. This is the motor center of the muscles of the tongue. When the motor center of speech is affected, motor aphasia develops. In this case, the person understands speech, but cannot speak.

Wernicke's sensory center is located in the temporal zone in the posterior parts of the superior temporal gyrus. It is associated with the perception of oral speech. It provides recognition and storage of oral speech, both your own and someone else's. The individual does not perceive spoken language pronunciation suffers, since the perception of his own speech is impaired. An individual can speak, express his thoughts orally, but does not understand someone else's speech. Although hearing persists, the individual does not recognize the words.

The center of perception of written speech is located in the visual cortex of the brain. On the border of the temporal, parietal and occipital lobes there is a center for reading written speech, which provides recognition and storage of images of written speech. Defeats of this center lead to the impossibility of reading and writing.

The functional asymmetry of the hemispheres is the most important psychophysiological property of the human brain. Allocate mental, sensory and motor interhemispheric asymmetries of the brain. The verbal information channel is

controlled by the left hemisphere, and the non-verbal voice and intonation signal is controlled by the right hemisphere. Abstract thinking and consciousness are functions of the left hemisphere. When developing a conditioned reflex in the initial phase, the right hemisphere dominates. At the stage of strengthening the conditioned reflex, the left hemisphere dominates.

The right hemisphere realizes goals, processes information. The left hemisphere determines goals, processes information. In the emotional sphere, the right hemisphere determines negative emotions, controls the manifestation of strong emotions. The left hemisphere produces positive emotions. It controls the expression of weak emotions.

In the sensory sphere, the role of the right and left hemispheres is manifested in visual perception. The right hemisphere perceives the visual image in all its details at once. It more easily solves the problem of distinguishing objects and recognizing visual images of objects that are difficult to describe in words. It creates the prerequisites for concrete-sensory thinking. The left hemisphere evaluates the visual image analytically. The attribute (shape and size) is analyzed separately. Familiar objects are recognized and problems of similarity of objects are solved. Visual images are devoid of specific details and have a high degree of abstraction. The prerequisites for logical thinking are created.

Each type of functional asymmetry is subdivided into many partial asymmetries. Thus, the motor functions of the movement of the limbs, eyes, and facial muscles can be carried out with the dominant participation of both the right and left parts of the body. An individual may have different combinations of dominance.

Higher mental functions are also lateralized. This is expressed in the peculiarities of receiving, processing and storing information, the choice of behavior strategies. Left-brain individuals are rational, consistent, logical. Right-brain individuals are distinguished by inconsistent decision-making assess the situation without detailed analysis. The combination of different types of asymmetry in-

herent in an individual reflects his individual asymmetry profile. The lateral asymmetry profile is inherited.

3.4 Regulatory components of engineering

An engineer is an individual who, upon completion of his education, has received the qualification of an engineer and carries out engineering activities. An engineer must have competence in his professional activities, be reasonable, respectable, tidy, objective, fair and responsible for the work done and strict observance of laws, by his actions prevent environmental pollution and ensure the well-being of professional activities and behavior of engineers in order to increase the prestige of the engineering profession. These principles define the professional ethics of the engineer, contributing to the improvement of the quality of the work done.

An engineer as a professional is obliged to continuously improve his qualifications through the timely study of new technologies and means of achieving the required result in professional activity using modern technologies. The duties of an engineer include the application of the studied technologies, knowledge and skills to increase productivity, safety of the field of activity entrusted to him, as well as to preserve the life and health of people during work.

The engineer is obliged to use his knowledge only in the field in which he is competent. He should consult and discuss the results of his work with colleagues to exchange experience and gain new knowledge. He is obliged to honestly, accurately, concisely, provide information in the form of reports on the work done and on the problems encountered and ways to solve them.

Also, he is respectful of all people around him. Must disclose information that can lead to conflicts of interest in order to prevent deterioration in the quality of work and preserve the life and health of people. The engineer is responsible for the improper performance of his professional duties, resulting in harm to life or health of people. An engineer can criticize and must acknowledge criti-

cism of his work, express honest and constructive criticism of the work of other colleagues, and has respect for their work. Realizing the importance of professional responsibility, the engineer informs about the results of his work, about the risk factors that may adversely affect the health and safety of people in the present or in the future. In the process of carrying out his professional activities, he must strive to minimize the impact of his actions on the environment.

An engineer can collaborate with other professional communities in teams to solve complex problems within his area of competence. He is obliged to work in accordance with the current legislation, as well as with the established regulatory and legal acts, documents, state standards.

An engineer by his behavior supports and defends the reputation, position and dignity of the profession: He uses knowledge and skills to improve public welfare. It guarantees the continuous development of its professional competence and develops the prestige of its profession. Maintains the reputation of an engineer in professional communities.

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The engineer uses knowledge only in the area in which he is competent. Improves professional knowledge throughout the career, supports colleagues and trainees in their professional development. He does not abuse his position. He strives to minimize the results of his activities on the environment.

4 Section IV. Philosophy, Science, Man at the Beginning of the III Millennium

4.1 The hard problem of mind

This problem continues to form the main theme of the analytic epistemology of mind. It assumes answers to the questions why people have phenomenal experiences, how sensations acquire characteristics such as color and taste, and also why certain states of consciousness appear in the subject. This is the problem of explaining how the physical system is capable of generating subjective experience. It is concretized by the questions: why does the brain generate consciousness, and how does it generate consciousness?

Easy problems are those that are solved in consciousness research using standard scientific methods. These methods make it possible to explain from the perspective of a third person what consciousness does, how it changes over time,

and what is its structure. A difficult problem arises when posing the question "why does mind exist?" The answer to this question requires going beyond the application of generally known scientific methods.

The term "hard problem" was introduced in 1995 by D. Chalmers. A difficult problem is the most important subject of theoretical and empirical research in psychology, neuroscience, and quantum physics. There are different approaches to this difficult problem. There are options for denying its existence, the impossibility of its solution. There is a variant of the development of theories of consciousness aimed at solving it

Some organisms are subjects of experience. But the question of how these systems are subjects of experience remains unclear. A difficult problem arises from the fact that consciousness from the point of view of the first person does not lend itself to standard functional explanations, which are quite successfully used in psychology in the study of various types of mental activity.

Thus, learning, the ability to reason, memory can be explained in terms of performing the correct functional role. Learning fulfills the correct functional role if, as a result, behavior changes in accordance with changes in the external environment. Therefore, you can clearly define what learning is, and identify the connection between learning and processes in the brain. The difficult problem stands out in that even after cognitive and behavioral functions have been explained, the question remains open. Why is the flow of functions accompanied by subjective experience?

Reductive explanations can be applied to all other natural phenomena, but not to consciousness. This impossibility is due to the fact that consciousness cannot be analyzed using functional explanations. Even if you thoroughly study the brain processes and laws of physics and create on this basis all the necessary physical conditions for the emergence of consciousness, then there is no certainty that it will appear.

The most influential deflationist theories that deny the existence of the difficult problem of consciousness in philosophy of mind are analytical functionalism, eliminative materialism, and philosophical behaviorism. There are those who solve it. The search for a solution to the difficult problem of consciousness is being pursued by both supporters of nonreductive physicalism and supporters of antiphysicalism. From the inflationist point of view, consciousness can be scientifically empirically reduced to neurophysiological or cognitive processes in the brain, but it cannot be reduced to them metaphysically.

In solving the difficult problem of consciousness on the basis of pragmatic pluralism, H. Putnam rejects both physicalism and dualism. In his opinion, the impossibility of solving the difficult problem of mind on the basis of these approaches lies in their adherence to the idea of a single and absolute ontology. Pragmatic pluralism rejects this idea and instead proposes the idea of many different but fundamentally equal conceptual systems. This approach, unlike physicalism, does not consider a physical explanation of the existence of phenomenal consciousness possible, but at the same time, unlike dualism, it does not consider the irreducibility of phenomenal consciousness to be a mystery. Pragmatic pluralism proposes to explain consciousness in terms of a wide variety of conceptual systems, including particle physics, biology, and psychology.

S. Horst believes that the difficult problem of mind seems to be a unique problem of psychology due to the fact that it is based on outdated ideas about the problem of reduction, characteristic of the philosophy of science.

REFERENCES

1. Baker, L.R. (2000). Persons and Bodies: A Constitution View. Cambridge, UK: Cambridge University Press.

2. Bakhtin, M. M. (1981). The Dialogic Imagination: Four Essays by M. M. Translated by Caryl Emerson & Michael Holquist, University of Texas Press.

3. Bodrova, Elena, Carrie Germeroth, and Deborah J. Leong. (2013). Play and Self-Regulation: Lessons from Vygotsky. // American Journal of Play 6.1.

4. Cole, M. (2003). Culture and cognitive science. Outlines. // Critical Social Studies, 5(3), 3–15.

5. Chiari, G., &Nuzzo, M. L. (1996). Psychological constructivisms: A metatheoretical differentiation // Journal of Constructivist Psychology – № 9, - P. 163–184

6. Clark, A. (2013). Whatever next? Predictive brains, situated agents, and the future of cognitive science. Behavioral and Brain Sciences, 36(3), 181–204.

7. Daniels, Harry, ed. (1996). An Introduction to Vygotsky. London: Routledge.

8. Dennett, D., Bennett, M, Hacker, P., Searle, J. (2007). Neuroscience and Philosophy: Brain, Mind, and Language.Columbia University Press.

9. Duff, D. (2002). Intertextuality versus Genre Theory: Bakhtin, Kristeva and the Question of Genre // Paragraph Vol. 25, No. 1, pp. 54-73.

10. Eco, Umberto (1994). The Role of the Reader: Explorations in the Semiotics of Texts. Bloomington: Indiana UP.

11. Falikman, M. (2014). Cognition and its master: New challenges to cognitive science. In: A. Yasnitsky, M. Ferrari, R. van der Veer (Eds.), Cambridge Handbook of Cultural-Historical Psychology. Cambridge: Cambridge University Press. pp. 474–487.

12. Fittipaldi, E. (2012). Everyday Legal Ontology. A Linguistic and Psychological Investigation within the Framework of Leon Petrażycki's Theory of Law. Milano, LED.

13. Fodor, J.A. (1990). A Theory of Content and Other Essays, MIT Press.

14. Fodor, J.A. (1998). Concepts: Where Cognitive Science Went Wrong, The 1996 John Locke Lectures, Oxford University Press.

15. Fodor, J.A. (2003). Hume Variations.Oxford University Press.

16. Fodor, J.A. (2008). LOT 2: The Language of Thought Revisited, Oxford University Press.

17. Fodor, J.A., Pylyshyn, Z. W. (2014). Minds without meanings: an essay on the contents of concepts. MIT Press.

18. Fodor, J.A. (1987). Psychosemantics: The Problem of Meaning in the Philosophy of Mind, MIT Press.

19. Fodor, J.A. (1979). Representations: Philosophical Essays on the Foundations of Cognitive Science, Harvard Press (UK) and MIT Press (US).

20. Fodor, J.A. (1994). The Elm and the Expert: Mentalese and Its Semantics, The 1993 Jean Nicod Lectures, MIT Press.

21. Fodor, J.A. (1975). The Language of Thought, Harvard University Press.

22. Fodor, J.A. (2000). The Mind Doesn't Work That Way: The Scope and Limits of Computational Psychology, MIT Press.

23. Fodor, J.A. (1983). The Modularity of Mind: An Essay on Faculty Psychology, MIT Press.

24. Frank, J. (1982). Epiphenomenal Qualia // The Philosophical Quarterly, 32 (127), pp. 127–136.

25. Nele Bemong, Pieter Borghart, Michel De Dobbeleer, KristoffelDemoen, Koen De Temmerman& Bart Keunen (eds.) (2010). Bakhtin's Theory of the Literary Chronotope: Reflections, Applications, Perspectives - Gent, Academia Press, v + 213 pp.

26. Hintikka, J. (1975). Impossible Possible Worlds Vindicated, in: Game-Theoretical Semantics // Journal of Philosophical Logic. Vol. 4. P. 475-484.

27. Hung, David, and MaishRamlalNichani. (2002). Bringing Communities of Practice into Schools: Implications for Instructional Technologies from Vygotskian Perspectives. // International Journal of Instructional Media 29.2.

28. Jaramillo, James A. (1996). Vygotsky's Sociocultural Theory and Contributions to the Development of Constructivist Curricula. // Education 117.1.

29. John Searle (1995). The Construction of Social Reality.– New York: Free Press. 256p.

30. Kinmont, D (1893). Vitalism and creativity: Bergson, Driesch, Maritain and the visual arts (1900-1914). Common denominators in arts and science. – Aberdeen. 285p.

31. Kitayama, S., Huff S. (2015). Cultural neuroscience: Connecting culture, brain, and genes. Emerging Trends in the Social and Behavioral Sciences. New York, NY: John Wiley, 2. pp.1–16

32. Kripke, Saul (1959). A completeness theorem in modal logic // Journal of Symbolic Logic. № 24. P. 3-14.

33. Lewis, D. (1973). Counterfactuals. Harvard University Press, Cambridge, Mass.

34. Loiko, A.I. (2020). Electronic Texbuok for the educational Discipline « Philosophy» of the compulsory Module «Philosophy». Minsk: BNTU. 228p.

35. Loiko, A.I. (2018). Eurasian: geopolitical risks and dialogue platforms. – Saarbrucken: LAP.

36. Loiko, A.I. (2021). Philosophy of information. Minsk: BNTU. 324p.

37. Loiko, A.I. (2019). Industry 4.0 and uncertainties in social dynamics / Глобальные риски цифровой эпохи и образы будущего: Материалы IV Международной научной конференции. Гуманитарные Губкинские чтения. – М.: Издательский центр РГУ нефти и газа (НИУ) имени И.М. Губкина, 2019. Ч.3. pp. 101-104.

38. Loiko, A.I. (2020) Interdisciplinary structure analysis systems in the field of artificial intelligence technologies / Системный анализ и прикладная информатика № 1 pp. 40-44

39. Loiko A.I. (2020) Interdisciplinary projections of the social and cultural theory of L. Vygotski / A.I. Loiko // Современные тенденции кросс-культурных коммуникаций. – Краснодар: Изд. КубГТУ. pp. 318-324.

40. Loiko, A.I. (2021) New Format of Dialogue Platforms based on Translateral Thinking / Вестник Удмуртского университета. Социология. Политология. Международныеотношения – Т.5. – Выпуск 3 – pp.374-380.

41. Loiko, A.I. (2012).Philosophy and science methodology. – Minsk: BNTU.

42. Loyko, A.I. Information technologies in the paradigm of cognitive sciences / VII Международная научно-техническая интернет-конференция "Информационные технологии в образовании, науке и производстве", 16-17 ноября 2019 года, Минск, Беларусь [Электронный ресурс] / Белорусский национальный технический университет; сост. Е. В. Кондратёнок. – Минск: БНТУ, 2019.

43. Luria, A.R. (1976) Cognitive development: Its cultural and social foundations. Cambridge, MA: Harvard Univ. Press.

44. Mace, W.M., James, J. (1977). Gibson's strategy for perceiving: Ask not what's inside your head, but what your head's inside of. In: R.E. Shaw, J. Bransford (Eds.), Perceiving, acting, and knowing. Hillsdale, NJ: Erlbaum.

45. Malafouris, L. (2013). How things shape the mind: A theory of material engagement. Cambridge, MA: MIT Press.

46. Maturana, H., Varela F. (1987). The tree of knowledge. A new look at the biological basis of human understanding. Boston: Shambhala /New Science Library.

47. Metzinger, T. (2003). Being No One: The Self-Model Theory of Subjectivity. Cambridge, MA: MIT Press.

48. Millikan, R. G. (1986) Language, Thought, and Other Biological Categories: New Foundations for Realism. Cambridge, MA: MIT Press

49. Millikan, R. G. (2009) Biosemantics. In B. McLaughlin (ed.) The Oxford Handbook in the Philosophy of Mind. Oxford: Oxford University Press.

50. Millikan, R. G. (2005) Language: A Biological Model. Oxford: Clarendon Press, pp. 25-53

51. Millikan, R. G. (2008) A Difference of Some Consequence between Conventions and Rules, pp.87-100.

52. Nagel, T. (1974). What is it like to be a bat? // The Philosophical Review, 1974, 83 (4), pp. 435–450.

53. Nowaes, C.D. (2020). The Dialogical Roots of Deduction: Historical, Cognitive and Philosophical Perspectives on Reasoning. Cambridge University Press.

54. Oyserman, D. (2014). Culture as Situated Cognition. Emerging Trends in the Social and Behavioral Sciences. In: R. Scott, S. Kosslyn (Eds.), Emerging Trends in the Social and Behavioral Sciences. New York, NY: John Wiley. pp. 1–20.

55. Oyserman, D., Lee S.W.S. (2008). A situated cognition perspective on culture: Effects of priming cultural syndromes on cognition and motivation. In: R. Sorrentino, S. Yamaguchi (Eds.), Handbook of Motivation and Cognition across Cultures. San Diego, CA: Academic Press. pp. 237–265.

56. Partee, B.H. (2010). Possible Worlds in Humanities, Arts and Sciences // Proceeding of Nobel Symposium. S. Allén, Berlin, NY (de Gruyter). P. 93–123.

57. Piaget, J., Inhelder B. (1958). The growth of logical thinking from childhood to adolescence: An essay on the construction of formal operational structures (A. Parsons &Milgram, Trans.). N.Y.: Basic Books.

58. Putnam, H.W. (1985). Epistemology, Methodology, and Philosophy of Science: Essays in Honour of Carl G. Hempel. edited with Wilhelm K. Essler and Wolfgang Stegmüller. Dordrecht: D. Reidel.

59. Putnam, H.W. (2002). Ethics Without Ontology. Cambridge, Massachusetts: Harvard University Press.

60. Putnam, H.W. (1975). Mathematics, Matter and Method. Philosophical Papers, vol. 1. Cambridge: Cambridge University Press.

61. Putnam, H.W. (1978). Meaning and the Moral Sciences. London: Routledge and Kegan Paul.

62. Putnam, H.W. (1983). Methodology, Epistemology, and Philosophy of Science: Essays in Honour of Wolfgang Stegmüller. edited with Wilhelm K. Essler and Carl G. Hempel. Dordrecht: D. Reidel.

63. Putnam, H.W. (1975). Mind, Language and Reality.Philosophical Papers, vol. 2. Cambridge: Cambridge University Press.

64. Putnam, H.W. (2016). Naturalism, Realism, and Normativity, edited by Mario De Caro, Cam, Mass: Harvard University Press.

65. Putnam, H.W. (2012). Philosophy in an Age of Science, edited by Mario De Caro and David Macarthur. Cambridge, Massachusetts: Harvard University Press.

66. Putnam, H.W. (1971). Philosophy of Logic. New York: Harper & Row.

67. Putnam, H.W. (1983). Philosophy of Mathematics: Selected Readings. Edited with Paul Benacerraf. Englewood Cliffs, N.J.: Prentice-Hall, 1964. 2nd ed., Cambridge: Cambridge University Press.

68. Putnam, H.W. (1993). Pursuits of Reason: Essays in Honor of Stanley Cavell. edited with Ted Cohen and Paul Guyer. Lubbock: Texas Tech University Press.

69. Putnam, H.W. (1990). Realism with a Human Face.edited by J. F. Conant. Cambridge, Massachusetts: Harvard University Press.

70. Putnam, H.W. (1983). Realism and Reason.Philosophical Papers, vol. 3. Cambridge: Cambridge University Press.

71. Putnam, H.W. (1981). Reason, Truth, and History. Cambridge: Cambridge University Press.

72. Putnam, H.W. (1992). Renewing Philosophy. Cambridge, Massachusetts: Harvard University Press.

73. Putnam, H.W. (1988). Representation and Reality. Cambridge, Massachusetts: MIT Press.

74. Putnam, H.W. (2002). The Collapse of the Fact/Value Dichotomy and Other Essays. Cambridge, Massachusetts: Harvard University Press.

75. Putnam, H.W. (1967). The Innateness Hypothesis and Explanatory Models in Linguistics / Synthese, Vol. 17, No.1, pp.12–22.

76. Putnam, H.W. (1987). The Many Faces of Realism. La Salle, Ill.: Open Court.

77. Putnam, H.W. (1999). The Threefold Cord: Mind, Body, and World. New York: Columbia University Press.

78. Putnam, H.W. (1994). Words and Life. edited by J. F. Conant. Cambridge, Massachusetts: Harvard University Press.

79. Raskin, J. D. (2006). Constructivist theories. In J. C. Thomas & D. L. Segal (Eds.), Comprehensive handbook of personality and psychopathology. Vol. 1: Personality and everyday functioning (pp. 212–229). New York, NY: John Wiley.

80. Richerson, P., Boyd R. (2005). Not by genes alone: How culture transforms human evolution. Chicago, IL: University of Chicago.

81. Schneider, G. Michael; Gersting, Judith; Brinkman, Bo (2015). Invitation to Computer Science. Boston: Cengage Learning.

82. Thirumurthy, V. (2002). Learning through Culture. (International/Intercultural). //Childhood Education 79.2.

83. Ussher, B., and Chris, G. (2002). Vygotsky, Physical Education and Social Interaction. Journal of Physical Education New Zealand 35.1.

84. Van der Veer, R., &Valsiner, J. (1991).Understanding Vygotsky: A quest for synthesis. Cambridge, MA: Blackwell.

85. von Neumann, John (1947). Heywood, Robert B. (ed.). The Works of the Mind: The Mathematician. Chicago: University of Chicago Press.

86. Vygotsky, L. (1962). Thought and language. Cambridge, MA: MIT Press.

87. Vygotsky, Lev S. (1978). Mind in Society: The Development of Higher Psychological Processes. Editors: Michael Cole, Vera John-Steiner, Sylvia Scribner, Ellen Souberman. Harvard University Press, 159 p.

88. Vygotsky, Lev S. (1987). The Collected Works of L.S. Vygotsky. Vol. “Problem of General Psychology”. trans. Norman Minick. New York: Plenum.

89. Weinstein, M. (2015). Cognitive science and the model of emerging truth. In Garssen, B.; Godden, D.; Mitchell, G.; Snoeck Henkemans, A. (eds). Proceedings of the8thInternational ISSA Conference, ISSA.

90. Wiener, N. (1948).Cybernetics: Or Control and Communication in the Animal and the Machine. Paris, (Hermann &Cie) &Camb. Mass. (MIT Press).

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