

# From Linguistic Relativity to Ontological

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**Abstract**—Abstract - How to construct linguistic-ontological models as the main problem of cognitive linguistics. Describes the contradictions of the cosmos and the relativistic paradigm through an analysis of the hypotheses of the universal linguistic structures n. Chomsky and linguistic relativity Time-linguistic relativity. Identifies the role of logical-cognitive universals in the intellectual development of the child according to the theory of j. Piaget. Shows lingvo-ontological nature of the crisis in modern physics.

**Keywords**—Substantial and Relativistic paradigm. Linguistic relativity. Universalism. Cognitive development. Logical-cognitive universals. Paradigm in Linguistics and physics. Fundamental ontology. Lingvo-ontological model. Cognitive relativity. The principle of subsidiarity.

## I. LANGUAGE, THINKING, CULTURE.

Psycholinguistics or cognitive linguistics begins with the need to penetrate the "mystery of consciousness" by appealing to its instrument – language and word as an atom of consciousness. The metaphor of the "mystery of consciousness" involves the study of a number of epistemological issues: the mechanisms of understanding the world, of thinking, perception and other intellectual practices. Currently they are referred to as cognitive. The formulation and attempted solution of the problem of the relation of language and thinking was first implemented in the studies of Wilhelm von Humboldt (1767-1835), a distinguished German philologist and philosopher. He suggested one way such a solution: language should be studied not only as a result of cognitive activity, but also as a means. Important to consider the relationship of thinking and language through culture of the people (ethnos). In his opinion, language is an intermediary between man and the world of culture. Thus, mediation does not go unnoticed. On the contrary, the language, condensing in the culture of the ethnic group, determines the relation of man to the world of culture that develops. At the same time, the perception of future generations depends on the language of previous representations. Consideration of the relationship of language and thinking in the modern interpretation means the study of the problem of spiritually-valuable inheritance that occurs in culture.

From a methodological point of such linguistic innovations developed by W. von Humboldt's concept about the relationship of language and thinking can be expressed in the following way. Language is not simply a tool of thought. Thinking and language give rise to material and spiritual culture, which has active influence on the subjects of culture through language. Each culture is national, its character is expressed in language by a particular world view particular

to each ethnic group of the inner form. As the word bears the burden of subjective views of the author, and the language itself influenced the formation of the system of concepts and values from the standpoint of the already established mentality and culture of the people. It offers a new vision of language - not as something fixed, a set of lexical, grammatical or phonetic units and how the process of "formation of thought", expressing not only individual consciousness but also the worldview of a people, "his spirit". In modern language this linguistic paradigm can be described as cultural anthropology as a means of exploring the "mysteries of consciousness" are not only elements of the language, but the process of thinking, formation of public consciousness. Of course, the main protagonist of this process - the subject is presented in a generalized form, in the form of ethnic group – people, as well as the results of conscious activity - the material and spiritual culture. However, the hypothesis of linguistic relativity as based on the idea of thinking from the language gets a formulation in the form of tacit knowledge.

The development of cultural-anthropological research paradigm continued the so-called neohumbertii, which include the famous German linguist Leo Weisgerber (1899-1985). L. Weisgerber went further in conceptualizing the hypothesis and introduced the concept of the language picture of the world that became popular not only in modern linguistics, but also philosophy and culture in General. Weisgerber believed that every language is unique and each language is fraught with its own specific scheme, the model of development of the world - the so-called language picture of the world.

## II. SUBSTANTIALLY AND RELATIVISTIC PARADIGM.

If the transition to reflexive methodological level solution to the problem, which involves the so-called transdisciplinary and cross-cultural synthesis, we can come to the following conclusion. From the point of view of the methodology as a reflection activity, it is not only about the allocation of language as a specific means of cognitive exploration of the world, but also the introduction of new concepts such as schema, defines the General vision of the problem in the form of a picture of the world. In this case, we are talking about ontological by introducing invariant quantities that are the basis of the substantial paradigm modeling world. This method of ontologization is the basic paradigm of classical science. In linguistics as a substance acts as first language culture, and then language picture of the world. It should be note that the concept of a language picture of the world Leo Weisgerber takes into account not only the specificity of ethnic groups, for example in the form of generalized and objectified the characteristics of the mentality, but also contains

contradiction, which will manifest itself in the near future in the study of issues of comparative linguistics and the formation of relativistic paradigms in linguistics.

In other words, the substantial paradigm modeling the world does not hold the "anthropological turn" in linguistics and for his modernization introduces the principle of linguistic relativity. We can say that this principle is based on thinking from the language in the concept of the language picture of the world is becoming more and more clear sounding. With all natural ontological and objective picture of the world in classical science, the method of ontologization is unable to objectify the reality of the language when you change the subject of linguistic research. Namely, this shift occurs when the language is considered in the form of communications and other linguistic practices. When modeling linguistic phenomena as processes of "living" culture, a form of existence which are the various processes of cultural education object-substance paradigm fails, because the subject is organically included in cognitive activity is unavoidable in principle. Attempt to extend substantially ontology, characteristic of the classical type of rationality in linguistics, which deals with linguistic phenomena as objects (simple samosoglasovannyye system) the world of cultural education, through the allocation of linguistic forms and ways of development of the world is not wealthy.

As became clear later (at the methodological conceptualization of the phenomena of quantum mechanics) the substantial paradigm of the study is fundamentally not complete and like a quantum-mechanical way of description of reality needs to be complemented by the relativistic paradigm. And it happened what had to happen. Through cross-cultural translation in linguistics originated non-classical rationality, "the anthropological turn" became more radical, bolder subject displaces the object, transforming the study design.

### III. LINGUISTIC RELATIVITY.

Relativistic concept of language in the form of the linguistic relativity hypothesis emerged in the discourse of ethnolinguistics, which boldly produces anthropological innovations. The founder of the famous hypotheses is not accidental is the great American linguist Edward Sapir, who was an engineer. And this engineering-structural discourse it should be borne in mind, since it reflects the design and structural style of thinking and methodology that guides the Designer. Note that Design (with a capital letter) is written not only as a tribute to developer E. Sapiro, but also meets cultural traditions. In modern culture Design is denoted with a capital letter in order to emphasize its fundamental status, along with scientific research. Thus, unlike classical science and the standard of objectivity of research, the relativity of design to means and goals is the starting presumption.

We will not dwell on the historical discourse of this problem, we only note that the principle of linguistic relativity went into science in the form of a hypothesis Sepira period. However, if we follow the methodological approach, it is necessary to say that this methodological principle plays a role is not a hypothesis. We are dealing with a fundamental innovation in methodological tools, namely non-classical paradigm of solving the problem of the relation of language and thinking. In fact, linguistics has moved to the Design principles in which

dependency (or relativity) result from the goals and means is attributive. Note that the term "ratio" is used as a metaphor, because behind it lies a series of deep questions on the topic, how is the representation of thinking as cognitive activities and what role in this process is played by language forms. That is why, accepted a formulation that language defines thinking and a way of learning is not so much a hypothesis as presumption and in contrast to hypothesis does not require evidence (and only interpretations and justifications).

Note that the formulation of a hypothesis in this revision later became known as "strong". "Force" has emerged from the programme of study. In order to understand the "mystery of consciousness" should study the regularities of formation and functioning of language as an intellectual resource. Further studies showed that the formulation of a hypothesis "language defines thinking and a way of knowing" is a very strong abstraction and should be mitigated for the study of the phenomenon of consciousness and thinking is not confined to the study of linguistic forms (tools). I got a weak formulation of the linguistic relativity hypothesis: language influences thinking. The language was seen as a tool of consciousness, along with other ethno-cultural information and communication, paryzkoyi and other factors, to the tools. So, in the strong version of the hypothesis asserts that language defines (determines) thinking, and in the weak — that language influences thinking

### IV. SUBSTANTIALLY PARADIGM AND UNIVERSALISM.

However, the contradiction between two solutions (paradigms) problems – insight into the secrets of consciousness manifested not only at the phylogenetic level, in the form of ethnic and cultural inheritance. Ontogenetic approach to the problem of socio-cultural and individual linguistic inheritance received General and applied solution in the theory of a universal generative grammar developed by the American linguist N. Chomsky. The essence of his ideas was the assumption that there are certain generic language regularities similar nature, which are subject to socio-genetic inheritance of each individual in the form of inclinations, abilities. In other words all languages of the world at a deep level inherent in some universal structures that are inherited not only in culture, but also at the level of individual development (ontogenesis) that allows the child to learn the native language. Thus, the assumption on the existence of a universal grammar was congruent language picture of the world that has a different mode of existence, and includes substantial paradigm on the level of ontogenesis. And the development of Chomsky has been called the universalist approach, as it fit into the substance-ontological paradigm, in which the role substances play a universal grammatical structure.

### V. THE SYSTEM OF LINGUISTIC UNIVERSALS AND CONSTRAINTS.

"The deep structure of language" according to Chomsky N. are verbal syntax certain linguistic universals that underlie the learning child the native language. When you build your conception of N. Chomsky works in the context of object-substantially paradigm and is in line with the classical type of rationality. Because of this, he takes (often implicitly)

a number of assumptions, idealizations - simplifications, in particular, comes from the subject-object schema modeling language activity: Word (Concept) - Value (Meaning). The object paradigm allows us to consider language as a process of meaning making, the result is every word as sign has a strictly defined value. Ignoring the subjects of word creation - the speaker and the listener, because in the communication process generated not only the meaning but also the importance of relative discursive (depends on context).

The subject - object relation is the basis of the classical object - substance paradigm that goes back to Plato's world of ideas and somatostatine linguistic forms and abstrahierte from linguistic discourse - speech communication. Further, the presumption Chomsky N. also is the exclusively verbal nature of the "deep structures of language", which are in universal grammar-syntax common to all languages without exception.

In our opinion, Chomsky set the task of finding language universals cannot be solved only in the linguistic space defined by syntax, grammar, vocabulary. This space abstrahierte from the speech, so smysopolaganie thinking and information and communication activities. Information transfer implies a broader, and not only anthropogenic, linguistic-semiotic context and can be implemented not only in the form of words but non-verbal languages, and also with the help of information technology.

Non-classical linguistic science is based on the communicative paradigm contains the trinomial model "is the subject (speaking-listening) - meaning - word." In the classical model of words (values) exist independently and can be played and heard absolutely identical in sound form. In the communicative paradigm, the modeling of the speech process is not considered as a set of words and sounds. The meaning is not contained in the phoneme or the morpheme or the sentence itself, which exists outside of speaking, reading, listening. Semiotics, based on the communicative paradigm comes from not just the self-identity of verbal units, which aktualisierete and find meaning in the communication process.

## VI. LOGICAL-COGNITIVE UNIVERSALS.

The fundamental structure of the language, or in another editorial, the system of linguistic universals form the basis of the language picture of the world and can be explicated in the discourse not only of the linguistic paradigm and the theoretical level. The solution to this problem also includes the problem of the formation and the relation of language and thinking. In this sense, language universals Chomsky act as a "genetic code" - a self-sustaining program and paradigm of language development. The creation of artificial intelligence also rests on the development of this problem both at the theoretical and at the empirical level. Another approach - empirical methods for the study of para-linguistic development: anthropoids, anthropo-socio-Genesis. Finally, the construction of an explanatory model of the formation of child's intelligence obtained in the genetic psychology of Jean piaget provide an opportunity to explicate methodology and principles of modeling cognitive development on the basis of a kind of logical-cognitive universals that can be used to represent in the form of diagrams, invariant structures of the work. The emergence of new structures "justified" inside

the child by feeling "needed", which is caused by perceptual activity representation and analysed in line with the relativistic paradigm.

There are three main types of mental schemes. The first level characterizes mental perceptual representation, which is the sensory-motor schema. These schemes are developed in the course of the child's interaction with the environment. They are the basis for understanding causal relationships and fundamental laws of formal logic. Formed a simple representation of the basic relationships between actions and their consequences. The second level contains the symbolic scheme. Mental representation of the relations learned through sensorimotor schemes represented, using symbols. The child can think about things in terms of practice, and by means of symbolic substitutions. However, the symbols are analog in nature, preserving the invariance of the structure. The third level of the schema is operational in nature are often referred to as the process of internalization and represents internal mental processes, symbolic representations of objects. In this way, according to piaget, develops the ability for abstract thinking and problem solving without recourse to action.

In the same way by the technical modeling of artificial intelligence, which starts with the design of technical analogues of representations of sensorimotor circuits through various mechanical sensors and manipulators and ends in the modern "intelligent machines". In this scheme acts as a mental representation of "soft" both in analogue and in digital format.

Competing paradigms in linguistics. Interest is a reflection of the new relativistic paradigm, which took place amid competition object the substantial and project - design paradigms and methodologies in linguistics. Understanding cognitive problems associated with the perception and designation of colours became a space of debate between supporters of the two above mentioned paradigms. Representatives of the relativistic paradigm rightly asserted that lexical marking colors affect thinking and cognition in General and perception of the subject of the color depends on (relatively) from linguistic forms. Universalists, by contrast, argued that the area of color terms is subject to the General laws which are determined by the physiological capacities of the individual to perceive color, and supposedly not depend on the word forms denoting color. A counter-argument for the relativist was the assertion that the physiology of color perception cannot serve as a basis for the substantial paradigm. As such substance should also be considered prototypes. For example, the distinction between blue and dark blue colors more important factor is not a physiological ability to perceive the relevant wavelengths of light, and so-called prototypes. It is known that in the Russian language of prototype blue is the river water, and the blue sky.

It should be said that experimental studies have shown that native speakers of those languages which for certain colors, there are separate word-concept, acquire cognitive advantages in efficiency (speed) to recognize these colors. Modern cognitive development based on experimental methods to study the influence of the specificity of languages and other cultural forms of communication on the processes of thinking not only confirm the relativistic paradigm, and allow us to identify patterns of human exploration of the world. In particular, investigated the relationship between thinking, language and culture and describes the cognitive mechanisms of interaction

in the aspects of: space, time, causality, and ways of orientation in the natural world, gender differences, metaphors as a means of intercultural translation.

Move this discussion to the methodological level, which uses the metalanguage as language models, design analysis of the structure of cognitive activity of the system and refer to physics, as historically the first discourse of methodological research. Our knowledge of the world, which receives verbal representation contains not only information about the world and its objects, but expresses in addition to technical (devices, resources), cognitive tools, among which an important place is occupied by the linguistic forms and ways of development of the world.

As you know, the first time the principle of relativity and the relativistic paradigm of understanding the world in an explicit form was introduced in the scientific use A. Einstein in his special and then General relativity. Then came the quantum mechanical relativity in the description of microscopic phenomena. Later, this methodological innovation was reflected as the birth of non-classical and post-nonclassical types of rationality. It is in this philosophical and methodological discourse based on modern information and cybernetic picture of the world, one can interpret the hypothesis of linguistic relativity as a relativistic paradigm describe reality, additional substantial.

## VII. COMPETING PARADIGMS IN LINGUISTICS.

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## VIII. TWO PARADIGMS OF RESEARCH IN PHYSICS.

When creating physical models of physics and linguists accept a large number of different assumptions that simplify and make possible the solution of the problem. Among these assumptions is the presumption that is taken is often not clearly expressed and specific approaches to modeling reality. For example, in classical science can be explicitate the following assumptions. All natural phenomena representade physical laws expressed in mathematical language. These physical laws are universal in the sense that it does not depend on time and space. All dynamic laws of nature describe a simple system, or objects may be subjected to reduction. The specificity of these postulates is that they are perceived as something self-evident and up to a certain time are not subjected to methodological reflection. In the context of the restructuring of the methodological basis of the theory it turns out that they are merely a component part of one of the approaches (paradigms) to the description of reality.

As follows from the modern philosophical understanding of being and ontology, there are several approaches allowing to construct different concepts of reality: objectivist and constructivist sense. Thus, the presumption or constructivist approach involving the development of ontologies is in itself an innovation in non-classical philosophy, for in classic philosophy, an ontology cannot be built as it exists in the form of fundamental natural constants. However, the problem of constructing ontologies has at least two directions. Of particular scientific (applied) aspect, which includes scientific and empirical interpretation of various theoretical constructs, as well as the mental and technical representation in the symbolic in technical systems. There is also the philosophical and theoretical aspect of understanding in the formulation and solution of problems of existence of objective reality.

Applied aspect of the problem of reality actualized in the interpretation of the specificity of the description of quantum States of micro-objects. And this task could not be solved without an answer to a seemingly simple question: is there a quantum-mechanical reality to the act of measurement. Kant's transcendental object can be used to represent this form of existence. It finds expression in the objects which, although not described themselves objectively (independently of the subjective cognitive activity), but there are real, regardless of the act of measurement. However, such a solution in the form of doubling of reality, which exists as something (before measurement) as well as in the form of micro-objects with specific properties identified in the act of measurement is not satisfactory. Similar contradictions were observed in linguistics in solving problems of color perception and color designations.

This approach to the problem of ontology, not clearly articulated in quantum mechanics and common cosmology, leads to even more questions and does not clarify the situation. If classical physics describes the behavior of material objects in real space and time, quantum physics focused only on the mathematical description of the processes of observation and measurement. The real object with its spatial-temporal characteristics in the form of physical, material reality disappears. In other words, in quantum mechanics the subject of cognition – the observer becomes part of objective reality, along with the object and means of study. In a situation when the object of cognitive activity, the universe, and every subject-the observer is part of it, the question arises, who will act as an outside observer. Attempt to formulate a version of quantum mechanics, which needs no outside observer, was taken by George. Wheeler. The decision was the fact that the model was proposed, according to which the universe constantly splits into an infinite number of copies. Each parallel universe has its observers that see a given set of quantum alternatives, and all these Universes are real.

In other words, not only the properties of individual objects are characterized by cognitive relativity, but the world as a whole, the universe.

#### **IX. THE CRISIS SOLUTION TO THE PROBLEM OF CONSTRUCTING THE ONTOLOGY.**

The crisis of the classic problem-solving cognitive activity in the form of finding the objective truth and describe the world is what it really is, is a crisis of fundamental ontology, the beginning of which is associated with the reflection of the cognitive presumptions. The origins of the solution to the problem of fundamental ontology are, in our opinion, in ancient Greek philosophy and relate the two alternative approaches in the form of Parmenides and Pythagorean models. The first approach is an installation, according to which cognitive activity is a search for objective truth and describe the world is what it really is. The way of the world, nature, and man can only try to understand it as fully as possible. Freedom of choice and responsibility for decisions is highly conditional. He – the subject-the observer, the main mission of which is most adequately understand the world. The second installation (Pythagorean) is based on other presumptions. Man explores the world, describes the process of understanding the world in the form of procedures for assigning certain properties and their names. The difference between the two

approaches lies in the understanding of the role of the subject and of representation of cognitive activity. Objectivist approach removes the responsibility for the decision, presenting the case in such a way that the subject asymptotically approaches the object of reality. The constructivist approach is based on the active role of the subject, the objective reality, especially in the radical version, does not exist by itself but is constructed by the subject.

#### **X. THE PROBLEM OF CONSTRUCTING OF ONTO-LINGUISTIC MODELS.**

Radical changes in the physics of the microcosm in the beginning of XX century, can be described not just as desubstantialization physics, but also the onset of the methodology of relativism. Special and General relativity, and then quantum mechanics has launched the anthropological turn in cognitive science. Along with substantial, appeared with the relativistic picture of the world that goes from questions like what changes and persist the changes? The typical answer that they say "changes the electromagnetic field" is not a substantive response, since the electromagnetic field is not a substance with a defined spatial and temporal characteristics. A similar situation was observed in the explanation of quantum mechanical effects like diffraction or interference of electrons, which was reduced to waves of probability of the potentially possible States.

Towards modeling linguistic reality, you can also say about the loss of linguistics, its object and the search for fundamental ontology. More precisely, linguistics shifts from the object of representation of reality to its design and construction of non-classical object.

An attempt to interpret the specificity of quantum-mechanical way of States of micro-objects was also discussion (Einstein – N. Bor). Einstein tried to preserve the substance and methodology of classical rationality and argued the fundamental incompleteness of the existing version of quantum-mechanical theory. Similar situation, in our view, established with the universalist conception of Chomsky and its supporters in an attempt to prove the untenability of the concept of linguistic relativism. As you know, currently dominated by the Copenhagen interpretation of quantum mechanics, the author of which is N. Boron and which legitimize relativistic paradigm (probability waves to describe the potential of future measurements of the States of micro-objects in which (the States) the subject of cognition implanted in the physical picture of the world. However, not everything is so simple! Further development of science, and particularly elementary particle physics has shown that without a substantial paradigm humanity can do. This is evidenced by the procedure, explanation and interpretation of microalloy when substantial paradigm "dragged back" as temporary scaffolding when building new theory in the form of metaphors and analogies. Note that this metaphorical way of explanation is not the invention of the physicists, and represents a fundamental cognitive methodology for the development of innovations of various kinds, when on the basis of metaphors, as a form of semantic transfer is the allocation of meaning structures as invariants of the cognitive mastering of the world. And the applicable analogy is not a classic use of substantial methodology. Metaphors are farther away from the natural

substances of the original material and increasingly include invariants of cognitive experimental work.

The main methodological issue in this period is the discussion on the possibilities and limitations of use for the understanding of microscopic phenomena of categorical apparatus used in classical science. Categories and concepts at various levels of generalization were developed and corresponded to the practical experience of humanity, which was held on the principle of observability and verification. Then was realized the simple truth that the crisis of interpretation in non-classical physics associated with the problem of formation of concepts and categories as language constructs that require cognitive reflection. In other words, the problem of ontology and to build an adequate picture of the world was understood as a problem of cognitive science. Again, we're not just talking about the problem of language and the analysis of concepts and categories, and the method of constructing language models for explaining the structure of the world - a fundamental ontology, which can effect communication and therefore understanding. In other words, we are talking about the full innovation cycle, starting with awareness and formulation of problems, search of ways and means of its solution, and its linguistic-semiotic expression.

## XI. WHAT'S NEXT?

Currently, substantial debate between universalist and relativist paradigms continues, though lost its edge. This is due primarily to the fact that understanding the inter-complementarity of the two paradigms of relativistic and substantial. Is becoming increasingly clear that no experimental data are unable to put an end to this dispute, since the two paradigms represent two kinds of rationality, two different ways of knowing and naming (labeling) of the world, which depend primarily on the type of system organization of objects. For physicists who are familiar with the discussion of Niels Bohr and Albert Einstein about the nature of quantum-mechanical theory of relativity and properties of micro-objects to the measuring means and conditions of knowledge, the familiarity with the dispute vetoable change in linguistics can have the effect of "désà vu". Methodologists on different epistemological problematic fields, whether it's linguistics or quantum physics, arguing about the same thing. What kind of ontology is true: substantial-objectivist or relativist-constructive. Now we know the answer to this question: the principle of complementarity and compliance. Namely, in the case where the object of the research (including linguistic) can be viewed as a simple system (not evolving, self-identical, e.g., words, terms and their meanings-meanings in the dictionary) is used substantial-objectivist paradigm. If we consider linguistic phenomena in the development as, for example, the reconstruction of meanings in the communication process, it is necessary to proceed from the relativistic-constructivist paradigm. In this case videotony dispute can be seen as an attempt to bring the two paradigms to one - true. In other words, such a discussion can only be explained on the level of reflection and transition to the meta ontology. Two positions cannot be reduced to one, as they are complementary and each has a right to exist and work in their field of competence. Namely, the substantial concepts of the ontology are possible when we are dealing with an open, relativistic and are based on the description of closed systems

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## ОТ ЛИНГВИСТИЧЕСКОЙ ОТНОСИТЕЛЬНОСТИ К ОНТОЛОГИЧЕСКОЙ

В. П. Старжинский

В статье рассматривается построение лингво-онтологических моделей как основная проблема когнитивной лингвистики. Описываются противоречия субстанциальной и релятивистской парадигм моделирования реальности посредством анализа гипотезы универсальных лингвистических структур Н. Хомского и принципа лингвистической относительности Сепира-Уорфа. Выявляется роль логико-когнитивных универсалий в интеллектуальном развитии ребенка согласно теории Ж. Пиаже. Показывается лингво-онтологическая природа кризиса в современной физике. Делается вывод о взаимно-дополнительности субстанциальной и релятивистской парадигм описания. Субстанциальные концепции онтологии используются в ситуации, когда моделируются открытые, а релятивистские онтологии - закрытые системы.