

# Section One

## INERT MATTER

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### Grice's Theory of Implicature in the Philosophy of the Cosmos

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*The article is devoted to the problem of communication between the earthly and unearthly mind. The authors contrasted Grice's theory of implicature with the Philosophy of the Cosmos. As a result, it has been found that the use of Grice's theory of implication at the scale of space exploration changes the meanings of the theory of implicature significantly. The opposition between Grice's theory of implicature and the Philosophy of the Cosmos updates the question "How acceptable are the similarities of the histories of cosmic civilizations at admissibility of similarity of the key phases of the physical, chemical, biological, and neurobiological evolution?" The study has shown that in the scope of space exploration, the meanings of the key term "the history of the cosmic civilization" are changing, in the question posed. They are formalized. The formalization of the term "history of the cosmic civilization" means the concentration of information in it, which is limited by the stages of neuroevolution and its external manifestations — "techne" (in the initial, antique senses). Based on the results obtained, the authors examined Grice's four maxims in space exploration and found their weak practical effect. It was proved that the basic Cooperative Principle, which was complemented by the Q and R Principles of Horn, effectively manifested itself in communication between space civilizations. The authors have concluded that 1) Grice's theory of implicature confirms the truth of the Philosophy of the Cosmos; 2) the main provisions of the theory of implicature are not refuted, however, they are specified.*

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## Introduction

In the article “The Philosophy of the Cosmos as the New Universal Philosophical Teaching about Being” the Philosophy of the Cosmos is presented as the most comprehensive modern teaching on the existence of the world. [Bazaluk & Kharchenko, 2018]. In the Review of the Book “The Idea of the World: A Multi-Disciplinary Argument for the Mental Nature of Reality” Oleg Bazaluk compares *the Philosophy of the Cosmos* with other worldview theories, in particular *the hypothesis of the Mental Universe* by Bernardo Kastrup [Bazaluk, 2018].

Let us note the important quality of the doctrine *The Philosophy of the Cosmos* — it approves the whole world. There is nothing revolutionary in the doctrine “The Philosophy of the Cosmos”. The doctrine accumulates in itself the key knowledge of the earthly civilization. In fact, it is universal, in the broadest, antique understanding of this term. In Antiquity, the term “cosmos” meant order. “The Philosophy of the Cosmos” is a doctrine about the whole world and the order established in it. All processes that occur on the scale of the Earth are the result of processes and phenomena that occur on the scale of the Universe. This applies to all states of matter: Inert, Living, and Intelligent (in the terminology of Bazaluk) [Bazaluk & Kharchenko, 2018].

The analysis of the modern scientific literature convinces of the validity of the similar view on the world. For example, in the article “The Cosmological Origins of Nonlinear Electrodynamics” the authors prove that “any nonlinear theory of electrodynamics to be described as a consequence of a coupling of the electromagnetic field to gravity in the presence of a vacuum represented by the cosmological constant” [Novello & Ducap, 2017]. That is, all physical processes occurring on the Earth are of cosmological origin. They are the result of cosmic processes. The authors of the article “Assessment of the radioactivity of the  $^{226}\text{Ra}$ ,  $^{232}\text{Th}$  and  $^{40}\text{K}$  in soil and plants for estimation of transfer factors and effective dose around Mkuju River Project, Tanzania” reveal the direct link between biochemistry of the plants and the chemical structure of the soil [Banzi et al., 2018]. That is a direct dependence of formation of the structure and functions of Living Matter on the external physical and chemical processes. Biochemistry of plants is a consequence of geological processes, and it reveals the features of the physicochemical evolution. The whole of the geological and biological evolution on a global scale is called an ecosystem.

In recent decades, the whole of neuroevolution has been actively investigated in the scientific world. The journal “New Astronomy” publishes regularly researches on the search for extraterrestrial civilizations and on the features of communication with extraterrestrial intelligence. For example, in 2018 the article “Which colors would extraterrestrial civilizations use to transmit signals?: The “magic wavelengths” for optical SETI”, written by the astronomers who represent University of Hyogo, Japan, was written [Narusawa et al.,

2018]. The authors argue at a high scientific level that in terms of extraterrestrial intelligences “the most favorable wavelength used for interstellar communication would be the one of YAG lasers, at 1.064  $\mu\text{m}$  or its Second Harmonic Generation (532.1 nm)” [Narusawa et al., 2018: 61]. The reasoned ideas about integration of the terrestrial civilization into space processes are published also by authoritative Springer Publishing House. For example, since 2015 Springer has regularly published a series of books called “Astronomers’ Universe”, in which the most significant studies of “armchair astronomers” (or cosmologists) are presented. The article “On the Radio Astronomical Quest for Extraterrestrial Intelligence” was published in this series. The author of the article Gerrit Verschuur, the famous radio astronomer, adjunct professor of physics for the University of Memphis (USA), gives a realistic assessment of the likelihood that human being will ever detect radio signals from extraterrestrial civilizations [Verschuur, 2015].

Thus, in the modern science the whole of the Cosmos does not raise any doubts. On the borderline with the interdisciplinary researches, scientists are trying to figure out the features of the order of the existing of the whole, clarify the details of the structure of the world. In this article, the authors explore the problem of communication between the terrestrial and extraterrestrial intelligence. If we take this hypothesis as a basis for the whole world, which follows from “The Philosophy of the Cosmos”, then neuroevolution, which has led to the emergence of man on the Earth, is valid at any other point in the Universe, with the appropriate physical and chemical characteristics. The authors will consider the question of how the compliance of the key stages of physical, chemical, biological and neurobiological evolution on the Earth and, for example, on the fictional planet X, can help in communication between two cosmic civilizations. After all, even if we assume the similarity of the key stages of neuroevolution and, accordingly, the similarity of the structure and functions of brain of intelligent representatives of the two planets, then a difference in the history of cultures remains there. The authors will conduct the research in the field of the philosophy of language and consider how significant incomparability of “implicature” of two cosmic civilizations is. Grice’s theory of implicature, which occupies an important place in the modern philosophy of language, asserts the fact of incompatibility of the history of cultures and, accordingly, of language. The incomparability of “implicature” of terrestrial and extraterrestrial mind is an important check of the principle of universality, which follows from the Philosophy of the Cosmos. In fact, it can lead to the fundamental impossibility of communication between cosmic civilizations, cause aggression, and as a result, space wars, the death of the Intelligent Matter, and the destruction of the existing order in the Universe. In general, the consequences of Grice’s theory of implicature may refute the Philosophy of the Cosmos or, vice versa, the Philosophy of the Cosmos and its consequences, in the case of proving the compatibility of the cultural history of cosmic civilizations, refutes the basic provisions of Grice’s theory of implicature.

### **Grice’s theory of implicature**

Herbert Paul Grice was the first to systematically study cases in which what a speaker means differs from what the sentence used by the speaker means. Grice introduced the term “implicature”, which revealed the fine line between the spoken speech and the true meaning that a speaker transmitted in the told sentences. Grice proved that implicature was formed from childhood, from the first steps in learning a language. It performs an important role in communication. With its help, verbal efficiency is achieved, an individual style of communication is developed, informal social relations are maintained, an interlocutor is

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misled without obvious lies, etc. In fact, the term “implicature” combines feelings and their manifestations with the conventional conversational implicatures [Grice, 1991].

Based on his research, Grice developed an influential theory that explained and predicted the conversational implicatures, as well as described how they arose and were understood. He introduced the terms “implicate” and “implicature” for the case in which what the speaker said is distinct from what the speaker thereby meant or implied [Grice, 1991]. Grice postulated a general Cooperative Principle and four maxims specifying how to be cooperative. Cooperative Principle: *contribute what is required by the accepted purpose of the conversation*. Four maxims specifying how to be cooperative are [Grice, 1991]:

1. Maxim of Quality: *make your contribution true; so do not convey what you believe false or unjustified.*
2. Maxim of Quantity: *be as informative as required.*
3. Maxim of Relation: *be relevant.*
4. Maxim of Manner: *be perspicuous; so avoid obscurity and ambiguity, and strive for brevity and order.*

The place of Grice’s theory of implicature in the philosophy of language, as well as its significance in comparison with Neo-Gricean theories, as well as mainly with Relevance theories, was investigated by Wayne Davis [Davis, 2013]. Competition between supporters of the theory of implicature and relevance theories up to our days is a key driving force in the philosophy of language. Grice’s theory of implicature has become the basic theory in pragmatics.

For our study, Grice’s theory of implicature is important in that it draws attention to the important fact of any communication: it is impossible to understand a speaker accurately and completely, not knowing what he implies. The full understanding of a speaker implies involvement in the event he is talking about. That is why in the court witnesses are required to answer the question directly, so their testimony reproduced the event reliably, rather than created a new possible reality. Grice contrasted a conversational implicature with a conventional implicature, by which he meant one that is part of the meaning of the sentence used. The most recognized forms of implicature are the figures and modes of speech, such as irony, hyperbole, understatement, metonymy, synecdoche, metaphor, etc. [Grice, 1991; Davis, 2013].

## **Grice’s Theory of Implicature vs the Philosophy of the Cosmos**

What problem does Grice’s theory of implicature in the Philosophy of the Cosmos raise? In the modern scientific world, the consideration of any scientific problem begins with an analysis of the history of its research. Let us take a choice of studies from completely different fields of science. For example, Tatyana Kolesnykova reveals the anthropological aspects of modern library services for scientists [Kolesnykova, 2017]. Valentin Yakushik creates the author’s personal manifesto the “Future of World Order” [Yakushik, 2018]. Larysa Soroka and Olena Syntichenko prove that “the evolution of technology is heading for “green” technologies that are safe for the environment” [Soroka & Syntichenko, 2018]. Denys Svyrydenko and Olena Yatsenko consider the dialectic of nominal and real power in society [Svyrydenko & Yatsenko, 2018]. Despite the fundamental difference between the scientific problems that the authors consider in these works, all these scientific problems have a common basis. Consideration of each of the problems begins with consideration of its history: a) library services; b) researches of “Future of World Order”; c) the development

of “green” technologies; d) the dialectic of nominal and real power. Only knowledge of the history of the problem being investigated fully reveals the problem itself and the possibility of its further solution. Only the historical analysis is able to provide the researcher with a review of current events and phenomena in their entirety and clarity.

The importance of the historical approach in the study of any problem forces us to take a fresh look at the problem of our research. If we allow a chance meeting of two different cosmic civilizations at any point of the Universe, the following question acquires special significance: “To what extent is the similarity of the histories of civilizations admissible with the similarity of the key stages of physical, chemical, biological and neurobiological evolution?”

The significance of the formulated question is explained by two reasons:

1. Responses to the question confirm the truth of one of the theories only: either Grice’s theory of implicature or the Philosophy of the Cosmos.
2. Responses to the question are able to change the strategy of the development of society: to cause the need to form either stereotypes of aggression or stereotypes of peaceful intention.

We will consider how Grice’s theory of implicature is opposed to the Philosophy of the Cosmos.

The question “How admissibly is the similarity of histories of civilisations in the Universe?” assumes only two kinds of the answer: “similarity is admissible” or “similarity is inadmissible”. Grice’s theory of implicature predicts initially the dissimilarity of the stories of cosmic civilizations. The statement about the “dissimilarity of cultures” is the reason for the emergence of the theory of implicature in the philosophy of language and the basic condition for its existence. If we proceed from Grice’s theory of implicature, then the difference of cultures projected on the scales of cosmic civilizations becomes an unsolvable problem. Grice’s theory of implicature can only give one answer to the question “How permissible is the similarity of cosmic civilizations’ stories in the Universe?” The answer is: “this similarity is unacceptable.” This response makes communication between cosmic civilizations impossible. It violates the basic principle of the Philosophy of the Cosmos — the principle of the whole world. The truth of the teaching is questioned. The answer about the dissimilarity of the histories of cosmic civilizations is a potential cause of aggression and space wars, which, as a result, will lead to the disruption of the existing order in Cosmos.

In its turn, the Philosophy of the Cosmos gives the opposite answer the question “How permissible is the similarity of cosmic civilizations in the universe?” “This similarity is permissible.” From the provisions of the Philosophy of the Cosmos, it follows that between cosmic civilizations there should be a similarity between the stories. Accordingly, communication between cosmic civilizations is not only possible, but also mandatory. However, in this case, the basic provisions of Grice’s theory of implicature and the maxims that follow from it are refuted.

The question of the similarity or dissimilarity of the histories of cosmic civilizations not only contrasts Grice’s theory of implicature with the teaching of the Philosophy of the Cosmos, but also actualizes another important problem of communication: the problem of war and peace. If the similarity of cosmic civilizations stories is impossible in principle, then any communication with extraterrestrial civilizations becomes impossible. Accordingly, the earth civilization should initially prepare itself for space wars to protect itself. If the similarity between the stories of cosmic civilizations is possible, then the space wars between

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highly developed space civilizations are the atavism of neuroevolution, the probability of which is unlikely. Therefore, in society it is necessary to develop stereotypes of peacefulness actively, as a more perfect manifestation of neuroevolution.

Thus, Grice's theory of implicature not only opposes its potential to the Philosophy of the Cosmos, thereby testing its truth as the more fundamental teaching. Grice's theory of implicature formulates a question that has the prospect of becoming a base for developing a strategy for the development of the Earth civilization.

### **The question “How acceptable are similarities between histories of the cosmic civilizations?” as a scientific problem**

In the articles of Mario Novello and C.E.L. Ducap, as well as Oleg Bazaluk and Larysa Kharchenko, about which we have written above, the basic principle of evolution theories is affirmed: *any events of a particular order follow from events of a general order*. In particular, Nonlinear Electrodynamics is a consequence of the general theory of relativity and other fundamental cosmological theories [Novello & Ducap, 2017]. Such dependence of events (processes and phenomena) in the physical, chemical and biological world does not cause doubts in the modern scientific environment. The Standard Model and the synthetic theory of evolution, the basic theories of the evolution of Inert and Living Matter, are based on them. Does such dependence persist in neuroevolution?

Gene I. Sher in “Handbook of Neuroevolution Through Erlang” proves that this dependence is preserved in neuroevolution [Sher, 2013]. Sher reviewed the art of the Topology and Weight Evolving Artificial Neural Network (TWEANN) platform. He revealed the peculiarities of the evolution of a neuron into a neural network, as well as the possibility of creating a variety of evolutionary and neurocomputational systems based on a programming language.

Sher's research allows us to introduce an important thinning into the question of the admissibility of the similarity of histories of cosmic civilizations. This clarification applies primarily to the concept of “the history of the cosmic civilization.” When the meeting of terrestrial and extraterrestrial intelligence the concept of “the history of the cosmic civilization” becomes formalized and virtually eliminates the emotional context. It will not go on about the history of Nations, the struggle for power, etc. All this historical content will be not used. On the scale of the notion “the history of the cosmic civilization,” the senses of the history of “techne” (in ancient sense) as the history of the development of existential arete come to the fore [Bazaluk, 2019]. The question “How acceptable are similarities between histories of the cosmic civilizations?” implies the meanings of the history of “techne”. The key stages of neuroevolution are manifested in the key stages of the development of “techne”. That “techne” is the external manifestation of neuroevolution. According to the degree of development of “techne”, you can judge at what stage of neuroevolution is civilization.

Hence, the problem of “the degree of similarity of cosmic civilizations’ stories” is solved as a result of an analysis of the “techne” of a terrestrial and extraterrestrial civilization, or cosmic civilizations as a whole. The methodology of “techne” assessment will allow to determine accurately the level of neuroevolution of any of civilizations, and, consequently, the path traveled by it, the history. The analysis of the “techne” will be sufficient to create a certain involvement of both sides of communication in the subject of conversation. The analysis of the technical equipment of the spacecraft and crewmembers will reveal the degree of neuroevolution of each side of communication, and also allow starting communication in the context of its history. The whole of neuroevolution and the development of “techne” on the scale of the cosmos, which follow from The Philosophy of the Cosmos, will create the

necessary basic conditions in which the theory of implicature and its consequences will be fully manifested.

Thus, considering the question “How permissible is the similarity between histories of cosmic civilizations?” as a scientific problem, we discover new meanings of the concept “the history of the cosmic civilization.” The research of Gene I. Sher draws our attention to the following important fact that the history of the cosmic civilization is, above all, neuroevolution and its manifestations in “techne”, in technologies. Sher’s research forces us to rethink the context of Grice’s theory of implicature, which differs from the usual context on the world scale.

Let us consider the changes that occur in Grice’s theory of implicature when we expand its use to the extent of space exploration.

### **Grice’s four maxims in space exploration**

Let us consider the meeting of representatives of the Earth and extraterrestrial civilization in the N point of the Universe. If we take as a basis the statement, we have considered above, that “the degree of compatibility of cosmic civilizations stories” is determined by the “techne”, then in fact, we have a new basic condition for Grice’s theory of implicature. Having assessed the degree of equipment of spacecraft and crew, both civilizations receive the necessary minimum of information to start communication. Each of them is guided by the Cooperative Principle. The whole of neuroevolution and “techne” in the Universe implies the interest of each of the parties in cooperation. Grice have established correctly that the basis of communication within the boundaries of Intelligent Matter, from man to the cosmic civilization, is one goal — cooperation. The Philosophy of the Cosmos is explained by the need to unite the cosmic civilizations to create a new order in which the Intelligent Matter, represented by the community of civilizations, will be an important and irreplaceable structure [Bazaluk & Kharchenko, 2018]. The pursuit of the whole of the Intelligent Matter in the universe is the empirical basis of the Cooperative Principle.

Consider the effectiveness of Grice’s four maxims in space exploration.

*Maxim of Quality.* The first maxim, proposed by Grice, has no practical value in the communication of terrestrial and extraterrestrial civilization. As we have already discovered, in space exploration the meanings of the term “the history of the cosmic civilization” are becoming formalized. This is primarily the history of neuroevolution and “techne”. Therefore, the criteria of “truth” and “falsehood”, and, accordingly, all the meanings that Grice and his followers put into them, lose all meaning in the communication between two space civilizations. They manifest themselves later, with a deeper study of two cultures. At the beginning of communication of two cosmic civilizations, the term “the history of the cosmic civilization” includes, first of all, knowledge of the key stages of neuroevolution and the features of their manifestations in “techne”. Knowledge of these meanings ensures the initial involvement of the “speakers” in the topic of “conversation” and “make their contribution true.”

*Maxim of Quantity.* The second Maxim is of value, provides the necessary informativeness of the parties. “Be as informative as required” is a necessary condition for the quality of communication of terrestrial and extraterrestrial civilization.

*Maxim of Relation.* The third Grice’s maxim in space exploration scales does not carry any semantic load. Two cosmic civilizations encountered in the Universe are in principle relevant. As follows from the Philosophy of the Cosmos, each of the civilizations is interested in communication and will make every effort to improve the quality and effectiveness of communication. In any other case, it will be destroyed.

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*Maxim of Manner.* The fourth maxim is necessary for communication between the cosmic civilizations.

Thus, we have found that in space exploration two of the four Grice's maxims have neither theoretical nor practical value.

### Neo-Gricean Pragmatics

Some of the disadvantages of the theory of implicature were discovered during the life of Grice. Therefore, Grice to the end of his days improved the theory, expanding the scope of its application and significance in the philosophy of language. This was also caused by competition with the representatives of Relevance theories. [Wilson & Sperber, 2006].

However, in our opinion, Laurence Horn succeeded in bringing the theory of implicature to a new level. Horn tried to improve the Grice's formulation of the conversational principles. Grice's four maxims he replaced by two interrelated principles [The Handbook, 2006]:

1. Q Principle: *Say as much as you can* [given R].
2. R Principle: *Say no more than you must* [given Q].

Horn's Principles eliminate redundancy of Grice's four maxims. In space exploration, in particular, for the definite case we are considering, the Horn's Principles are more effective than the Grice's maxims. When the earth and extraterrestrial intelligence meets at the N point of the Universe, the Cooperative Principle should be used as the basis of communication. It is complemented by Q and R Principles of Horn, according to which you need to say exactly as much as you need to say in order to establish the first steps of communication. Each subsequent meeting will enrich communication; expand knowledge of the history of civilization, i.e. knowledge of the features of neuroevolution and its manifestations in "techne". However, every new meeting of Horn's Principles must be observed.

### Conclusions

Thus, we have examined the effectiveness of using Grice's theory of implicature in the modern teaching about the world — in the Philosophy of the Cosmos. The opposition between Grice's theory of implicature and the Philosophy of the Cosmos actualized the question "How acceptable are similarities between histories of the cosmic civilizations with the admissibility of the similarity of the key stages of physical, chemical, biological and neurobiological evolution?" Initially, both theories offered opposing answers that challenged the truth of either Grice's theory of implicature or the Philosophy of the Cosmos. In the case of an answer about the "inadmissibility of similarity", the truth turned out to be Grice's theory of implicature, and the false the Philosophy of the Cosmos. In the case of a response to the "permissibility of the similarity of histories of cosmic civilizations," the basic tenets of the theory of implicature were refuted. Accordingly, it turned out to be false, but the truth of the teachings of the Philosophy of the Cosmos was asserted.

Our study has showed that in the scope of space exploration in the question posed about the admissibility of similarities in histories of cosmic civilizations, the meanings of the key term "the history of the cosmic civilization" change. We have proved that in space exploration, and, accordingly, in communications between space civilizations, the term "the history of the cosmic civilization" is formalized. The formalization of the term means the concentration in it of information, which is limited to the stages of neuroevolution and its external manifestations — "techne" (in the original, ancient senses).

The formalization of the term “the history of the cosmic civilization” in the question posed, changes the basic context of Grice’s theory of implicature. We have considered Grice’s four maxims in space exploration and found their weak efficiency. We have found that in communication between space civilizations, the basic Cooperative Principle, which is complemented by the Q and R Principles of Horn, manifests itself effectively. In essence, Grice’s theory of implicature confirms the truth of the Philosophy of the Cosmos, while the main tenets of the theory of implicature are not refuted, but only clarified.

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