ABSTRACTS

DUPĂ GÖDEL
MIRCEA MALIȚA

Abstract. The study investigates and develops the concept of complexity. This thorough investigation proposes the intriguing idea that mastering complexity represents the biggest challenge posed by the real phenomena, by the human life and by the human society. Mastering complexity presupposes a succession of programs that are transmitting – starting from the natural source of the human mind - the very complexity, until the most efficient program is accomplished.

KURT GÖDEL ŞI PRIMA PROBLEMĂ A LUI HILBERT

SOLOMON MARCUS

Abstract. Kurt Gödel (1906-1978) was sometimes appreciated as the most important philosopher after Aristotle. His results from the forth decade of the 20th century were so unusual that it took the philosophy of science several decades to include them, în spite of its previous illusions, grasing the meaning of the new reality it was facing. One cannot escape neither the discreet nor the continuum, and their complexity is continuously defying for philosophy. Gödel's lesson is clear: The idea of consecutivity within the field of the trans-finite cannot be clarified by a human mind that was trained for millennia by conceiving only the potenţial finite and infinite.

KURT GÖDEL ŞI DEZBATERILE PRIVIND FUNDAMENTELE MATEMATICII

ALEXANDRU BOBOC

Abstract. Gödel is one of the most important personalities in the whole history of logic. His name remains connected with two great methodological achievements: first, in 1930, consists of the demonstration of the semantic completitude in the case of predicate calculus, and the second is represented by *Gödel theorem of incompletitude*.

„AXIOMELE INFINITULUI”: PROGRAMUL LUI GÖDEL ÎN FILOSOFIA ŞI FUNDAMENTELE MATEMATICII

ILIE PÂRVU

Abstract. In this study I attempt to present Gödel's concept of "mathematical philosophy" on the bases of the examination of one of these programs, known as "Gödel's favorite program", and named also "Gödel's program for new axioms for the theory of the assemblages". The incompletion results of Gödel's approach had a special impact on the research of the mathematical foundations, as on the modification of the entire foundational research, in general. If until 1930 one encounters three main "foundational schemas" (Kreisel 1980), logicism, formalism and intuitionism, to which sometimes there is added the approach of

Poincaré and Weyl (the predicativism), after Gödel's *theorems of incompletion* the situation is radically changed, as well in what concerns the general and philosophical conceptions (the interpretative diagrams for founding and organizing mathematics), as regarding to the concepts and the technical instruments involved in the philosophical analysis of mathematics.

INCOMPLETITUDINEA – ASPECTE MODALE

MIRCEA DUMITRU

Abstract. Applied modal logic proved its worth in studying the foundations of mathematics and in analysing and reconstructing concepts and techniques of mathematical logic *per se* within a genuine new domain of study: the logic of provability. In this field, Gödel's discoveries concerning completeness, consistency and undecidability (or incompleteness) are dealt with the conceptual and technical resources of the modal logic apparatus.

Gödel's ground-breaking work influenced essentially and enormously all the XX-th century thinking in mathematical logic, philosophical logic (the idea of axiomatizing modal logic by adding modal axioms to a sound and complete basis for propositional calculus originates with Gödel), and recently in some areas of philosophy.

In my paper I first sketch a connection between Gödel's first incompleteness theorem and the modal approach to it within provability logic (modal logic of provability), and then I discuss at length a curious semantic incompleteness phenomenon which occurs in modal logic *per se*. Propositional modal logic is usually viewed as a generalization and extension of propositional classical logic. The main argument of the paper is that a good case can be made that modal logic should be construed as a restricted form of second order classical logic. To that purpose I will firstly cover ground and introduce the main modal metalogical concepts both on the modal side and on the second-order side of the construction. The presentation will lead to original work in which I will examine one aspect of this second order connection having to do with an incompleteness phenomenon. The leading concept is that modal incompleteness is to be explained in terms of the incompleteness of standard second order logic, since modal language is basically a second order language.

MATEMATICA TEOREMELOR DE COMPLETITUDINE (I)

GEORGE GEORGESCU

Abstract. This study proposes a discussion over the mathematics involved by the theorems of completitude from the perspective of the seven dimensions characterizing a logical system: syntactic, semantic, algebraic topological, probabilistic, categorial and algorithmical. The first part investigates the theorems of completitude from the classical logic (the propositional calculus and the predicate calculus). There are analyzed four demonstrations of the theorem of completitude of Gödel and the manner they are reflected within the rapport among completion and the representations of algebras associated to calculus of the predicates (polyadical algebras and cylindric algebras). In the end of this first part, two extensions of the theorem of completion are compared: Shorb theorem within the theory of the Boolean algebra and Gaifman Theorem within the theory of the probabilistic models.

„PARITATEA EPISTEMOLOGICĂ”: UN PRINCIPIU EURISTIC?

CONSTANTIN STOENESCU

Abstract. The principle of the epistemological parity remains a constant measure of the philosophical truths sustained by Gödel since his article on Russell and it strenghtens its position within the system of his thought. This principle becomes more than a heuristic principle that is useful in efficiently guiding the activity of the mathematician. Gödel intended to integrate the platonic realism and the rationalism in a unitary theory. Thus, he situates himself within a philosophical approach of subjectivity. It was Husserl's phenomenology that, only after the study of Leibniz, has offered in his view, such a favorable philosophical situation. Converted to phenomenology, Gödel identifies the theoretical resources to give to epistemological parity the statute of a legitimate philosophical thesis.

KURT GÖDEL – ARGUMENTUL ONTOLOGIC

GHEORGHE ŞTEFANOV

Abstract. I am trying to do two different things in my paper. The first is to provide an alternate presentation of Kurt Gödel's ontological argument in a way in which it was easier for me to grasp it. I assume that in this way I could convey a better understanding of his ideas with respect to the topic in view. The second is to offer a critique of his argument with a particular focus on the concept of positive properties. I am trying to argue, in this respect, that Gödel's argument is fundamentally flawed.

DESPRE CE NU PUTEM ŞTI ÎN MOD CONSISTENT

ADRIAN MIROIU

Abstract. As we know, there are known knowns. There are things we know we know. We also know there are known unknowns. That is to say we know there are some things we do not know. But there are also unknown unknowns, the ones we don't know we don't know.

INCOMPLETITUDINEA GÖDEL: REPERCUSIUNI ÎN CONTEXTUL INFORMATIC

DRAGOŞ VAIDA

Abstract. K. Godel (1906-1978) showed that within *a formal system* there are A sentences for which there is neither A or non-A demonstration. even more, he has shown that a system that abounds in axioms, where each and every sentence of the system is decidable, is also *contradictory* (1931). from these theorems results that there are problems that cannot be algorithmically solved. For their solution it is necessary to expand the axiomatic system. A. M. Turing and A. Church transposed the results obtained by K. Godel within an algorithmie context, highlighting that there are numbers and functions that cannot be computed, though. It is considered that the quoted authors are *the founders of the theoretical informatics*. A. Church (1936) introduces the thesis concerning the co-extensiveness of effectiveness and

recursivity. A. M. Turing (1936) models the accountability with a new instrument, namely the Turing machine. P. Martin Lof (1979) is concenied with the connections among the constructive mathematics and informatics. On this theoretical path described are emerging new limits and problems within the theoiy of knowledge, whose evaiuation is now in an incipient stage of development, for instance, at a distance from the *Trilogia cunoaşterii (The Trilogy of Knowledge)* or the model of science Newton-Galileo, within the approach of Lucian Blaga.

KURT GÖDEL ŞI DEMONSTRAŢIA DE INDECIDABILITATE

MIHAI D. VASILE

Abstract. The large approach of the mathematics foundations problem is the immediate problem of eliminating the paradoxes, in a straight subordination with the foundation of logic and mathematics. In order to get out of the unpleasant situation created by antinomies and paradoxes in the foundation of logic and mathematics, two directions of research were identified, namely, the constructivist method (Poincaré, Brouwer, Weyl) and the axiomatical or finitist method (Zermelo, Hilbert, Fraenkel). Kurt Gödel's results concerning the undecidability problem in the formal-axiomatical systems type *Principia Mathematica* **(PM or P)** led to the change of the finitist program.

PROBLEMA SENZAŢIEI ŞI A REPREZENTĂRII FANTEZIEI LA FRANZ BRENTANO

ION TĂNĂSESCU

Abstract. The paper analyses comparatively the topic of intentionality of sensation and of the phantasy presentation by Brentano. It argues that unlike Husserl to whom the sensations are not psychical phenomena and the difference between perception and phantasy presentation is one of intentional reference to on object, Brentano hold that the difference between them is one which refers to the contents immanent to the psychical act.

PLATON FAŢĂ ÎN FAŢĂ CU DESCOPERIRILE NEUROŞTIINŢELOR ŞI ETOLOGIEI – ASUPRA VOINŢEI, LIBERTĂŢII, RAŢIUNII, AFECTIVITĂŢII ŞI RĂULUI

ALEXANDRA PÂRVAN

Abstract. The contemporary neuroscientists along with ethologists discovered that there is no such thing as pure reason, and they exposed the fallibility of any view on that matter a rationalist philosopher might have. Plato is listed first among those philosophers, but this study states that such a reading of Plato is not entirely accurate. Surely Plato spoke of pure reason, but he also acknowledged the vital role played by emotions in the proper functioning of the reason. Similarly he spoke of physiological determinism, putting on question the concept of free will, but although he thought no man acts wrong willingly, he insisted on the necessity of punishment for the wrongdoer and the necessity for any man to educate his will. Plato had a contradictory thinking and there lies its richness: he argued for one thing and then against it. Some of the modern day scientific breakthroughs are not at all contradictory with

Plato's thought, because Plato knew how to be contradictory with himself and to see beyond any contradiction of human nature.

EXPERIMENTUL MENTAL LA FRANK JACKSON
CE AFLĂ MARY ATUNCI CÂND PERCEPE CULORILE CROMATICE?

DAN ROBERT BIŞA

Abstract. The aim of this article is that of determining if Frank Jackson is right when he suggests that the knowledge argument proves the truth of the following two claims: (1) – that we are able to know what it is like to have a sensation or a perception only if we have such a phenomenal experience; (2) – that there are some non-physical properties of our sensations and perceptions. According to the author of the article, only the first claim is sustainable on the grounds of Jackson's argument. As regarding the second claim, its truth does not follow from the thought experiment imagined by the Australian philosopher, because there is at least one alternative explanation of the imagined facts that can be formulated without postulating any non-physical properties.