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# Summaries

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## Summaries

Roman Stanisław Ingarden

### **Modal interpretation of quantum mechanics and classical physical theories**

In 1990, Bas C. van Fraassen defined the modal interpretation of quantum mechanics as a consideration of it as „*a pure theory of the possible*, with testable, empirical implications for what actually happens”. This is a narrow, traditional understanding of modality, as possibility (usually denoted in logic by the C.I. Lewis’s symbol  $\diamond$ ) and necessity  $\square$ , defined by means of  $\diamond$ . In modern logic, however, modality is understood in a much wider sense as any intensional functor (i.e. non-extensional functor: determined not only by the truth value of a sentence). In his recent publication (1997) the author made an attempt to apply this wider understanding of modality to certain interpretation of classical and quantum physics. In the present text, these problems are discussed against the background of a brief review of the logical approach to quantum mechanics in the recent seven decades. In this discussion, the new concepts of sub-modality and super-modality of many orders are used.

Robert Poczobut

### **Supervenience. An Outline of the Concept**

„Supervenience” is now a part of the philosophical vocabulary of the analytical tradition. The basic ontological idea of supervenience is an attempt to characterize the relationship between families of properties, such as moral and natural properties, mental and physical properties, or macro-properties and micro-properties. The aim of the paper is to discuss recent variants of supervenience relation (microphysical supervenience, global and local supervenience, weak and strong supervenience, natural and logical supervenience). Supervenience relations are almost always unexplanatory, that is, supervenience itself merely picks out a certain kind of covariation or correlation — it does not explain why that covariation holds.

Krzysztof Wójtowicz

### **Analysis of the Modal Antirealism**

In the recent years we can observe a sort of renaissance of the philosophy of mathematics. More and more papers and books are published. A few years ago a new journal (*Philosophia Mathematica*) devoted exclusively to the philosophy of mathematics started appearing. In the contemporary discussions — especially in the context of the question of the applicability of mathematics to the description of the physical world — the issue of the existence and the ontological status of mathematical objects plays a particular role. Many new conceptions have appeared — both realistic and antirealistic.

In the paper one of the antirealistic conceptions formulated in the recent years is presented — namely a conception by C. Chihara [1990]. The author rejects both Gödel's and Quine's arguments for the realistic standpoint. First, these standpoints will be briefly summarised, since they play a significant role in the contemporary philosophy of mathematics — and are particularly important in the context of the discussion upon Chihara's conception.

Next, Chihara's arguments will be analysed in detail. As a result it will turn out that these arguments are not conclusive. Chihara's system relies on certain unjustified assumptions. Moreover, the philosophical difficulties that it encounters are not sufficiently discussed.

Mieszko Tałasiewicz

### **A Comprehensional Conception of the Rationality of Science**

The starting point of my considerations is the idea that the criteria of rationality should be distinguished from the essence of rationality (in linguistic formulation: from a non-criterional connotative definition) and that the question of the universality of rationality arises separately for the criteria and for the essence. I notice that a similar distinction between the essence (or a definition) and the criteria applies to the notion of truth. The thesis which constitutes my standpoint is a compromising one: the criteria (the sets of criteria) of rationality change in time and in space, the essence of rationality is universal and unchangeable. Therefore, the principal challenge for the comprehensional conception of rationality, which is to back up my standpoint, is a formulation of a good, non-criterional connotative definition of the rationality of science. My definition is the following: „Science is rational” means „the consecutive stages of its development allow us to better understand (in an identificatory sense) the world”.

Adam Drozdek

### **Neural Networks and the Methodology of Science**

One of the fundamental methodological categories is the notion of theory. However, it is hard to determine decisively what a theory is. Does it have to be a deductive system? What is one to think about the theories in the social sciences and humanities? What are the synchronic and diachronic relations between theories? When is a theory

acceptable? Does a confirmation of a theory suffice or is a falsification also needed? These and other questions have got many various answers, but those answers have at least one thing in common. They take a theory to be a system of sentences. Since the sentences are related in various ways, one may apply to them the rules of inference, build up explanations, predictions and investigate the correspondence between different theories.

The multitude of solutions and the problems they are facing allegedly show that the understanding of a theory as a system of symbols (sentences) is not adequate. Instead, a theory should be formulated as a non-symbolic creation. Therefore, a paradigm of artificial intelligence, which constantly grows in strength, namely *connectionism* arouses huge hopes. Generally speaking, connectionism is a research strategy which explains mental phenomena, in particular the phenomenon of learning, by means of the connections that originate between the stimuli and the reactions in the central nervous system. The main part of the article is devoted to the critical analysis of this paradigm.

Adam Nowaczyk

### **Ajdukiewicz's Theory of Meaning Many Years Later**

Ryszard Wójcicki

#### **Was Ajdukiewicz a Great Man?**

Ryszard Wójcicki's book „Ajdukiewicz. A Theory of Meaning” opens a series of publications *Filozofia polska XX wieku [Polish Philosophy of XX<sup>th</sup> Century]*, created by Wójcicki. The main subject of the book is a theory of the meaning of linguistic expressions, which was formulated in the thirties and is known as a directival theory of meaning. The aim that the author has set for himself is not only to present and popularise that theory (these aims are implied by the character of the series), but also the evaluation of its material adequacy and its significance for further investigations of language as a means of representation and transmission of knowledge. Adam Nowaczyk tries to show that Wójcicki's critique of Ajdukiewicz's conception is unjustified, for the fallacy allegedly committed in this conception is either only apparent or else easily remediable. Wójcicki disagrees with Nowaczyk's objection.

Zdzisława Piątek

#### **On the «Magic Strategy» in the Context of Human Speech Once More**

The paper is a response to Tadeusz Skalski's paper „The «Magic Strategy» and... a Platform to Human Speech”, published in *Filozofia Nauki* 1/2000. Despite Skalski's claim that the essence of our controversy lies in verbal misunderstandings, I will demonstrate that I disagree with him on three issues:

- the question of «magic strategy» both in the context of using ethnic languages and in the context of the origin of these languages;
- the concept of emergence;
- the evaluation of naturalisation *à la* Searle.