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# Summaries

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## Summaries

Roman Duda

### **The integrality of mathematics**

The origins of mathematics, a close connection and interpenetration of its parts, and uniform procedures of dealing with the mathematical matter — all of them speak in favour of the integrality of mathematics. It seems that a strong argument for such a view is a fundamental object of contemporary mathematics; namely a real line, which contains real numbers (so arithmetic as well) and constitutes a basis of geometry, mathematical analysis and all derivative branches. From the basic-structures perspective it is clear that the real line is an exceptionally complex structure, for it contains the ordered-structure (generated by the less-than relation), the algebraic structure (generated by addition and multiplication), the geometrical structure (generated by translations and reflections) and the topological structure (generated by open intervals). This example explains, at least to some extent, the integrality and also the vivacity of mathematics. On the other hand, the integrality has not been confirmed by comprising the whole mathematics in one axiomatised, deductive theory. Moreover, the increasing «volume» of mathematics, unwillingness of mathematicians to cross the specialisation-barriers, emphasis on utility (models) and difficulties with axiomatisations of some parts of mathematics cast some doubts on the integrality in question.

Jarosław Mrozek

### **The origins and perspectives of the development of mathematical proof**

This paper is an attempt to review the historically existing types of demonstration of mathematical theorems. The author shows how the notion of mathematical proof has changed through the time from the moment when mathematicians realised (thanks to the philosophical method) the necessity to justify their theses until a precise notion

of proof has appeared in the framework of the formal method. Next, the author considers the possibility of modifying the notion of mathematical proof under the influence of the development of computer sciences.

Jerzy Gołosz

#### **On the so-called argument of the hole**

The author submits to a critical analysis the argument of the hole, which has been formulated by Einstein and later developed by Earman and Norton. The aim of the analysis is an evaluation of the assumptions made in the argument and the possibility of avoiding its indeterministic consequences. It turns out that it is a particular form of substantialism assumed by Earman and Norton which is responsible for the indeterministic consequences of the argument. It follows that those consequences can be avoided by rejecting either substantialism as a whole or its particular form accepted by both authors. None of the non-substantialistic interpretations proposed can be accepted, including also the one that Earman himself has tried to develop. The presented forms of the structural substantialism and the substantialism rejecting the transworld identification of points are hardly acceptable, either. Hence, there are two alternatives left: either one of the versions of essentialism or else instrumentalism, i.e. giving up doing ontology. Since the author regards instrumentalism as cognitively fruitless, he prefers the first option.

Paweł Garbacz

#### **Towards Łukasiewicz**

The paper contains an attempt at formulating the project of logic comprised in Jan Łukasiewicz's article „On determinism” and a construction of a logic which would realise this project. Such a logic consists of three consequence-operations build upon a four-element algebra. The values of the algebra have been defined by means of the following set of sentences: true and true today, true but not true today, false but not false today and false and false today. It turns out that only one of the consequences is different from the classical consequence and all of them are logically two-valued. It is proved moreover, that the assumption that tautologies consists of sentence-forms which are «always» true today, results in the non-existence of such tautologies.

Marek Tokarz

#### **The relevance theory**

The aim of the paper is a popularisation of a book by Dan Sperber and Deirde Wilson, which is not as well-known among logicians and philosophers as it should be. It is, apart from the famous book by Lakoff and Johnson, probably the most important work on cognitive linguistics in the last two decades. All more extensive works on pragmatics and the philosophy of language written later contain references to this book. „The relevance theory” is now a term of art, explicitly and for ever associated

with the names of the authors. It would be very easy to criticise this work, since from the logical point of view it contains many inaccuracies and dubious ideas, some of which are simply logically fallacious. However, it is a very deep and inspiring work at the same time — also for a logician. In my paper there are no supplements nor critical remarks. It is exclusively a faithful summary of the original ideas of Sperber and Wilson.

Jan Woleński

**Does analytic philosopher need an epistemic *viagra*?**

The paper is a reply to Jan Czerniawski's paper „On epistemic impotence of analytical philosophy”. Czerniawski argues that the analytic method consists either in arbitrary stipulations or in the appeal to linguistic intuitions. He claims that the latter are subjective and moreover they cannot help deciding objective problems, while the former are an arbitrary creation of truth. Hence, the analytic method has to be assisted by an intuitive insight into objective situations. However, Czerniawski forgets one quite elementary circumstance. For there is something else between linguistic intuitions and arbitrary terminological stipulations — namely precisation of intuitions. And this is what the analytic philosophers care for the most; those analytic philosophers who are logicians at the same time, in particular. According to the analytic philosophers philosophically relevant intuitive insight into objective situations is always achieved through language. Therefore, we do not need an epistemic *viagra* in the form of the extra-linguistic insight directly into the objective situation.

Tadeusz Skalski

**«Magic strategy» and ... a platform to human speech**

The text is a rejoinder to critical remarks which Zdzisława Piątek aimed at the paper of the author of „Cats, demon, spells and ... naturalisation”. It appears that the differences between the standpoints of both polemicists are not as great as it might seem. In the author's opinion, one of the sources of the impression that those differences are substantial has been an overfree style of the essay, and in particular a little irresponsible use of the term „magic strategy”. The author tries presently to expose his views in a more accurate way. In particular, he stresses that he did not mean to reduce the phenomenon of ethnic language to magic behaviour, but rather to look for the origins of this language in such a behaviour.