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Modal Logic and its Applications

TIME AND NECESSITY

Ionel NARIȚA

West University, Timișoara

inarita@litere.uvt.ro

Abstract: An important problem of the modal logic is the interpretation of modality symbols. The most used program of the interpretation of modalities is the “possible world’s semantics”. In this study, it is demonstrated that the semantics of possible worlds doesn’t offer a correct interpretation for modalities because it fails in the attempt to give a solution to the strict implication paradoxes and, more than that, the possible worlds cannot exist. This study shows that the modalities can be adequately interpreted only if we take the time into account. For instance, a proposition is necessary true at a given moment only if it is a consequence of the past at that moment. In this way, the modal value of a proposition can be variable in time.

**THE LIAR PARADOX
BETWEEN TRUTH AND PROVABILITY
(Some comments)**

Iulia CADAR
“Babes-Bolyai” University, Cluj-Napoca
bogdandra@yahoo.com

Abstract: Section 1 of this paper gives some different formulations of the Liar Paradox. Section 2 exposes the relationship between this paradox and Gödel’s Incompleteness Theorem (in a system Smullyan’s style). Section 3 is a short presentation of the relevance of incompleteness phenomenon to the dispute machinism – antimachinism.

**AN INCONSISTENCY THEOREM FOR
STANDARD SEMANTICS OF MODAL LOGIC**

Iancu LUCICA
West University, Timisoara
lucica@polsci.uvt.ro

Abstract. The aim of this paper is to show that the standard semantics of possible worlds is sensible to the inconsistent idea of possible but inactual objects. With the aid of the diagonal argument I have tried to shape these ideas in a more precise form. I would like to point out the fact that this is not a solution to the problem, but merely a kind of “rephrasing” it to give the issue more clarity.

**PARADOXES IN PARADISE:
MODAL PARADOXES**

Mihaela SEBENI
Technical College, Câmpia Turzii
mihaelasebeni@yahoo.com

Abstract: Russell's paradox is the most famous of logical or set-theoretical paradoxes. This paradox was first presented in the modern literature of intensional logic by Davies, then by Kaplan and Peacocke. D. Lewis develops it into another form. We will present a part of these paradoxes and a few ways of solving them (as they appear in writings on this issue).

GÖDEL, PENROSE, AND SELF-REFERENCE
(Some comments on circularity)

Virgil DRĂGHICI
"Babeş-Bolyai" University Cluj-Napoca
vidra007@gmail.com

Abstract: The aim of this paper is to give an account of the way the idea of circularity (as self-reference or as diagonalization) is implied in Penrose's argument, by showing: 1 the mathematical part of this argument by using Kleene's T-predicate, 2 the Gödel/Turing form of the argument, 3 why the argument is unsound, 4 where, more generally, are to be found the troubles and 5 the help of modal logic in unraveling the thorn of self-reference.