

Sacchetti, Lorenzo

Incompleteness and fixed points. (English) Zbl 0988.03037

Math. Log. Q. 48, No. 1, 15-28 (2002).

Summary: Our purpose is to present some connections between modal incompleteness and modal logics related to the Gödel-Löb logic GL. One of our goals is to prove that for all $m, n, k, l \in \mathbb{N}$ the logic $K + \bigwedge_{i=m}^n \Box^i (\bigwedge_{j=k}^l \Box^j p \leftrightarrow p) \rightarrow \bigwedge_{i=m}^n \Box^i p$ is incomplete and does not have the fixed point property. As a consequence we shall obtain that the Boolos logic KH does not have the fixed point property.

MSC:

- 03B45 Modal logic (including the logic of norms)
- 03F40 Gödel numberings and issues of incompleteness
- 03F30 First-order arithmetic and fragments

Keywords:

provability predicate; modal logic; stability; modal incompleteness; Gödel-Löb logic; fixed point; Boolos logic

Full Text: [DOI](#)

References:

- [1] The Logic of Provability, Cambridge University Press, Cambridge 1993. · [Zbl 0891.03004](#)
- [2] Boolos, J. Philosophical Logic 14 pp 351– (1985)
- [3] Cresswell, J. Philosophical Logic 16 pp 13– (1987) · [Zbl 0621.03009](#) · [doi:10.1007/BF00250613](#)
- [4] Feferman, Fund. Math. 49 pp 35– (1960)
- [5] and , A New Introduction to Modal Logic. Routledge, London 1996.
- [6] Magari, Boll. Un. Mat. Ital. 6 pp 359– (1982)
- [7] Sacchetti, Boll. Un. Mat. Ital. 8 pp 279– (1999)
- [8] The Fixed Point Property in Modal Logic. Notre Dame J. Formal Logic (to appear). · [Zbl 1031.03039](#)
- [9] Self Reference and Modal Logic. Springer-Verlag, New York 1985. · [Zbl 0596.03001](#)
- [10] Xu, J. Philosophical Logic 20 pp 265– (1991)

This reference list is based on information provided by the publisher or from digital mathematics libraries. Its items are heuristically matched to zbMATH identifiers and may contain data conversion errors. It attempts to reflect the references listed in the original paper as accurately as possible without claiming the completeness or perfect precision of the matching.