Pacuit, Eric

Understanding the Brandenburger-Keisler paradox. (English) Zbl 1137.03008


The author considers a paradox (recently discovered by A. Brandenburger and H. Jerome Keisler) involving the notions of an agent’s belief and of an agent’s assumption. Pacuit first studies this paradox within the semantic framework for modal logic based on neighborhood models. To this end he characterizes a formal language with two modal operators formally representing the above two notions, and defines a certain kind of neighborhood semantic models (viz., two-sorted neighborhood semantic models). These models will provide the semantic interpretations of the language. Next, the author considers the paradox within the context of hybrid logics, i.e., modal logics with distinguished propositional variables called nominals that are used to name each world in a Kripke structure. He characterizes a first-order hybrid language in which the two notions in question can be expressed, and formulates two-sorted Kripke semantic structures for this language. Pacuit shows that it is more convenient to study the paradox within this semantic framework than with that of neighborhood semantic structures. The paradox is shown to be a theorem of a tableaux system for quantified hybrid logic constructed by the author.

Reviewer: Max A. Freund (San José)

MSC:

03B42 Logics of knowledge and belief (including belief change)
03B45 Modal logic (including the logic of norms)
91A26 Rationality and learning in game theory

Keywords:

epistemic foundations of game theory; epistemic logic; hybrid logic; belief paradox; Kripke semantic structures for hybrid logic; neighborhood semantics

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References:


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