

Lifschitz, Vladimir

Frames in the space of situations. (English) Zbl 0743.68122
Artif. Intell. 46, No. 3, 365-376 (1990).

The paper is devoted to the problem of formalization of situations, actions and changes. There are known some paradoxical results of attempts to formalize actions. It is shown in the paper that variables for propositional fluents (functions from a space of situations to (false,true)) range only over a part of the set of all propositional fluents — fluent variables are considered as variables for the fluents that belong to a particular frame (in the sense of McCarthy and Hayes). A particular frame can be represented by a unary predicate, several predicates can be introduced.

It is shown that the Baker's method for formalizing actions can be rendered in terms of an independence of frames. The essence of the ramification problem is in using frames that are not independent.

Distinguishing between arbitrary fluents and the fluents that belong to a frame in the space of situations enables to achieve greater conceptual clarity.

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MSC:

- [68T30](#) Knowledge representation
- [68T20](#) Problem solving in the context of artificial intelligence (heuristics, search strategies, etc.)
- [68T27](#) Logic in artificial intelligence
- [03B80](#) Other applications of logic
- [03B60](#) Other nonclassical logic

Cited in 14 Documents

Keywords:

[circumscription](#); [formalization](#); [situations](#); [actions](#); [changes](#); [frames](#)

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