An imperative account of actions

Jauregui V., Pham S.B.

National ICT Australia Ltd (NICTA), School of Computer Science and Engineering, University of New South Wales, Sydney, Australia; College of Technology, Vietnam National University, Hanoi

Abstract: This article reports on an investigation into an alternative semantics for actions which is based on modal logic, with an underlying computational theme, where actions are interpreted as computations in an abstract machine model of the world. The frame problem is addressed by reformulating and generalising minimal change principles to the principle of 'Occam's razor'-the intended interpretation of an action is given by the simplest computations which realise its direct effects. ?? 2008 Springer Berlin Heidelberg.

Index Keywords: Bionics; Computational linguistics; Information theory; Abstract machines; Modal logics; Occam's razors; Artificial intelligence

Year: 2008

Source title: Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence

and Lecture Notes in Bioinformatics)

Volume: 5351 LNAI

Page: 718-727

Link: Scorpus Link

Correspondence Address: Jauregui, V.; National ICT Australia Ltd (NICTA), School of Computer Science

and Engineering, University of New South Wales, Sydney, Australia; email: vicj@cse.unsw.edu.au Conference name: 10th Pacific Rim International Conference on Artificial Intelligence, PRICAI 2008

Conference date: 15 December 2008 through 19 December 2008

Conference location: Hanoi Conference code: 75109

ISSN: 3029743

ISBN: 354089196X; 9783540891963 DOI: 10.1007/978-3-540-89197-0_66 Language of Original Document: English

Abbreviated Source Title: Lecture Notes in Computer Science (including subseries Lecture Notes in

Artificial Intelligence and Lecture Notes in Bioinformatics)

Document Type: Conference Paper

Source: Scopus

Authors with affiliations:

- 1. Jauregui, V., National ICT Australia Ltd (NICTA), School of Computer Science and Engineering, University of New South Wales, Sydney, Australia
- 2. Pham, S.B., College of Technology, Vietnam National University, Hanoi

References:

1. Shanahan, M., (1997) Solving the frame problem, , MIT Press, Cambridge

- 2. McCarthy, J., Hayes, P., Some philosophical problems from the standpoint of artificial intelligence (1969) Machine intelligence, 4, pp. 463-502
- 3. Prendinger, H., Schurz, G., Reasoning about action and change: A dynamic logic approach (1996) Journal of Logic, Language, and Information, 5 (2), pp. 209-245
- 4. Castilho, M., Gasquet, O., Herzig, A., Formalizing action and change in modal logic i: The frame problem (1999) Journal of Logic and Computation, 5 (9), pp. 701-735
- Zhang, D., Foo, N., EPDL: A logic for causal reasoning (2001) Proceedings of the 17th International Joint Conference on Artificial Intelligence, IJCAI, pp. 131-138
- 6. Giordano, L., Schwind, C., Conditional logic of actions and causation (2004) Artificial intelligence, 157, pp. 239-279
- 7. Goldblatt, R., (1992) Logics of time and computation, , 2nd edn. CSLI
- 8. Chellas, B.F., Basic conditional logic (1975) Journal of philosophical logic, 4, pp. 133-153
- 9. Hanks, S., McDermott, D., Nonmonotonic logic and temporal projection (1987) Artificial intelligence, 33, pp. 379-412
- 10. Baker, A., Nonmonotonic reasoning in the framework of the situation calculus (1991) Artificial intelligence, 49, pp. 5-23
- 11. Thielscher, M., Ramification and causality (1997) Artificial intelligence, 87, pp. 317-364
- 12. Jauregui, V., Semantical considerations for a logic of actions: An imperative manifesto (2006) Proceedings of the 10th international conference on principles of knowledge representation and reasoning, KR
- 13. Lifschitz, V., Frames in the space of situations (1990) Artificial intelligence, 46, pp. 365-376
- 14. Lin, F., Embracing causality in specifying the indirect effects of actions (1995) Proceedings of IJCAI, pp. 1995-1991
- 15. McCain, N., Turner, H., A causal theory of ramifications and qualifications (1995) Proceedings of IJCAI, pp. 1978-1984