

# Coordinated consensus analysis of multi-agent systems using event-B

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**Abstract:** Formal specifications and reasoning techniques in software modelling are needed to ensure the correctness of the system at the design phase. Event-B is a formal method with support tools that allows the stepwise development of reactive systems. Such systems include multi-agent systems as a subclass. In this paper, we propose an approach to specify capabilities of a number of software agents. We then verify whether these capabilities help the agents to accomplish a certain task using a supported tool for Event-B. We use the binary numeral system as a case study to illustrate our approach. © 2009 IEEE.

**Index Keywords:** Consensus analysis; Design phase; Event-B; Formal Specification; Reactive system; Reasoning techniques; Software modelling; Support tool; Multi agent systems; Software agents; Formal methods

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