

Knowledge-based Specification:
Investigating Distributed Mutual Exclusion
(Extended Abstract)

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Abstract

We adopt the knowledge-based approach to distributed systems' analysis. Close examination of a class of practical algorithms for distributed mutual exclusion leads to a knowledge-based specification of the class. The specification is obtained by focusing on the knowledge content of what needs to be communicated at each stage of the protocol. Correctness results are outlined, including our main result on liveness. We discuss how this work sheds light on the subtle nature of the standardly presented algorithms and so provides further evidence of the value of the knowledge-based approach.