Abstract interface behavior of object-oriented languages with monitors. (English)


Summary: We characterize the observable behavior of multi-threaded, object-oriented components with re-entrant monitors. We show that a compositional approach leads to observable uncertainty wrt. monitor operations at the interface which we capture by may- and must-approximations for potential, resp. necessary lock ownership. The concepts are formalized in an object calculus. We show the soundness of the abstractions.

MSC: 68Q55 Semantics in the theory of computing

Keywords: formal semantics; object oriented languages; thread-based concurrency; monitors; open systems; observable interface behavior

Software: Z; Java Jr

Full Text: DOI

References:


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