

情報電子工学科 論文発表

題名	Method for combining paraconsistency and sequentiality in temporal reasoning
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概要	Computation tree logic (CTL) is known to be one of the most useful temporal logics for verifying concurrent systems by model checking technologies. However, CTL is not sufficient for handling inconsistency-tolerant and probabilistic accounts of concurrent systems. In this paper, a paraconsistent (or inconsistency-tolerant) probabilistic computation tree logic (PpCTL) is derived from an existing probabilistic computation tree logic (pCTL) by adding a paraconsistent negation connective. A theorem for embedding PpCTL into pCTL is proven, thereby indicating that we can reuse existing pCTL-based model checking algorithms. A relative decidability theorem for PpCTL, wherein the decidability of pCTL implies that of PpCTL, is proven using this embedding theorem. Some illustrative examples involving the use of PpCTL are also presented.