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Summary: A Linear Logic automaton is a hybrid of a finite automaton and a non-deterministic Petri net. LL automata commands are represented by propositional Horn Linear Logic formulas. Computations performed by LL automata directly correspond to cut-free derivations in Linear logic. A programming language of LL automata is developed in which typical sequential, non-deterministic and parallel programming constructs are expressed in the natural way. All non-deterministic computations, e.g. computations performed by programs built up of guarded commands in the Dijkstra’s approach to non-deterministic programming, are directly simulated within the framework of Linear Logic automata, and thereby within the Horn framework of Linear Logic.

MSC:
68Q05 Models of computation (Turing machines, etc.) (MSC2010) 68Q45 Formal languages and automata 68Q85 Models and methods for concurrent and distributed computing (process algebras, bisimulation, transition nets, etc.) 03B80 Other applications of logic

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