

Multi-valued Automata and their Applications

Orna Kupferman
Hebrew University, Jerusalem, Israel

Standard automata accept or reject input words. Accordingly, an automaton induces a mapping from Σ^* to the binary set $\{true, false\}$. The course will introduce *multi-valued automata*, which induce mappings from Σ^* to richer sets of values. We will focus on *lattice automata*, which map input words to values from a lattice, and *weighted automata*, which map input words to \mathbb{R} (the set of real numbers). We describe applications of lattice automata in abstraction and model checking of multi-valued logics, and describe applications of weighted automata in the competitive analysis of online algorithms.

References

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2. O. Kupferman, Y. Lustig. *Lattice Automata*. Proc. "8th International Conference on Verification, Model Checking, and Abstract Interpretation" (VMCAI 2007), LNCS 4349, Springer-Verlag, pp. 199–213, 2007.

Available from <http://www.cs.huji.ac.il/~ornak/pub.html>