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One-reversal counter machines and multihead automata: revisited. (English summary)
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Computation of a finite state machine can be strengthened either by allowing nondeterminism or by using simultaneous multiple heads or by augmenting the machines with read-write unbounded memories such as stack or counter (a counter is a stack with a single-letter alphabet). Reversal-bounded counter machines were introduced by the second author as finite state machines with a counter which can make a bounded number of reversals ("a reversal is a shift from the non-decreasing mode to the non-increasing mode, or vice versa"). One-reversal counter machines are thus finite state machines with a counter that can make at most one reversal shift during a computation. The authors present a language that can be accepted by a deterministic pushdown counter machine but cannot be accepted by any non-deterministic counter machine: "This means that the pushdown stack strictly increases the power of deterministic counter machines as a language acceptor ... The problem of whether nondeterminism strictly strengthens counter machines remains open in this paper." The authors also introduce the class of bounded languages and show that over this class the following machines can simulate each other: (i) deterministic counter machines, (ii) non-deterministic pushdown counter machines, (iii) deterministic one-way multi-head finite automata, and (iv) non-deterministic one-way multi-head pushdown automata. *Saeed Salehi*

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Note: This list reflects references listed in the original paper as accurately as possible with no attempt to correct errors.