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Automatic Learners with Feedback Queries.
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Automatic classes are classes of languages for which a finite automaton can decide whether a given element is in a set given by its index. The present work studies the learnability of automatic classes by automatic learners which, in each round, output a hypothesis and update a long term memory, depending on the input datum, via an automatic function, that is, via a function whose graph is recognised by a finite automaton. This provides fair, linear time learners. Many variants of automatic learners are investigated: where the long term memory is restricted to be the just prior hypothesis whenever this exists, cannot be of size larger than the size of the longest example or has to consist of a constant number of examples seen so far. Furthermore, learnability is also studied with respect to queries which reveal information about past data or past computation history; the number of queries per round is bounded by a constant. These models are generalisations of the model of feedback queries, given by Lange, Wiehagen and Zeugmann.