

# Input-Driven Queue Automata<sup>\*</sup> <sup>\*\*</sup>

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**Abstract.** We introduce and study the model of input-driven queue automata. On such devices, the input letters uniquely determine the operations on the memory store which is organized as a queue. In particular, we consider the case where only a finite number of turns on the queue is allowed. The resulting language families share with regular languages many desirable properties. We show that emptiness, finiteness, universality, inclusion, and equivalence are decidable. In contrast, all these problems are shown to be undecidable if the condition on a finite number of turns is dropped. Furthermore, we investigate closure under Boolean operations. Finally, the existence of an infinite and tight hierarchy depending on the number of turns is also proved.

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