

# Non-returning Turing machines

Author:

Marek Surovič

xsurov03@stud.fit.vutbr.cz

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Turing machines are one of the core formal models in the theory of computation and formal language theory. Non-returning Turing machines introduce a restriction upon Turing machines in the sense that they cannot move left, thus return on their tape. Other properties, such as the potentially infinite symbol tape or the ability to rewrite symbols on the tape, remain unchanged.

By introducing this restriction we limit the expressive power of the original Turing machine to the point, where a non-returning Turing machine is equivalent to a finite automaton and can be transformed into one.

The transformation process of the new restricted Turing machine into a finite automaton must preserve the properties of the restricted Turing machine. Solutions to challenges introduced by this requirement will be discussed during the presentation and later in the author's bachelor thesis.