A Reduction of Finitely Expandable Deep Pushdown Automata

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Introduction

For a positive integer n, n-expandable deep pushdown automata always contain no more than n occurrences of non-input symbols in their pushdowns during any computation. As its main result, the present paper demonstrates that these automata are as powerful as the same automata with only two non-input pushdown symbols \$ and #, where # always appears solely as the pushdown bottom.

Construction

States in Q_R include not only the states corresponding to the states in Q but also strings of non-input symbols. Whenever M pushes a non-input symbol onto the pushdown, M_R records this information within its current state and pushes \$ onto the pushdown instead.



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