

# Finite Sequentiality of Max-Plus Tree Automata

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## Abstract

We consider the finite sequentiality problem for max-plus tree automata and its decidability for unambiguous and finitely ambiguous max-plus tree automata. A max-plus tree automaton is a weighted tree automaton over the max-plus semiring. A max-plus tree automaton is called unambiguous if there is at most one accepting run on every tree and it is called finitely ambiguous if the number of accepting runs on every tree is bounded by a global constant. The finite sequentiality problem asks whether for a given max-plus tree automaton, there exist finitely many deterministic max-plus tree automata whose pointwise maximum is equivalent to the given automaton. We show that for unambiguous and finitely ambiguous max-plus tree automata, the finite sequentiality problem is decidable. This generalizes results by Bala and Koniński from words to trees.