

# Tableaux-Based Theorem Proving for Common-Sense Reasoning

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This tutorial shows the specific use of analytic tableaux to non-monotonic logic theorem proving. The tutorial is introductory and does not presuppose specific knowledge in non-monotonicity.

In the first part, we introduce tableaux for propositional logic and define some operations on tableaux depending on the logical connectives of the formulas involved.

Subsequently, we will present tableaux methods for minimal entailment, circumscription, default logic and its variants, and theory revision and update.

The application to circumscription involves finding minimal models for a set of formulas. The application of tableaux to default logic and to knowledge base change involves reasoning on closed tableaux. A closed tableau corresponds to an inconsistent set of formulas. In both of these applications the problem can be seen as finding a consistent subset of an inconsistent set of formulas. For the corresponding tableau, this means finding an open tableau contained in a closed tableau.