Tomasz Jarmużek

CONSTRUCTION OF TABLEAUX FOR CLASSICAL LOGIC: Tableaux as Combinations of Branches, Branches as Chains of Sets

Abstract. The paper is devoted to an approach to analytic tableaux for propositional logic, but can be successfully extended to other logics. The distinguishing features of the presented approach are:

(i) a precise set-theoretical description of tableau method;
(ii) a notion of tableau consequence relation is defined without help of a notion of tableau, in our universe of discourse the basic notion is a branch;
(iii) we define a tableau as a finite set of some chosen branches which is enough to check; hence, in our approach a tableau is only a way of choosing a minimal set of closed branches;
(iv) a choice of tableau can be arbitrary, it means that if one tableau starting with some set of premisses is closed in the defined sense, then every branch in the power set of the set of formulas, that starts with the same set, is closed.

Keywords: Analytic tableaux, propositional logic, set-theoretical approach to a description of tableaux, branches as chains of sets of formulas, tableaux consequence relation, choice of branches, tableau combined with branches.