

Empirical Investigations on Combining Resolution and Tableaux

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There are several attempts to automate tableau calculi in first-order classical logic. The combining of tableaux and resolution is one of the directions of such investigations. In some published papers of ours, we proposed a general splitting technique on resolution derivations, by applying tableaux to represent distinct branches of derivations. In order to make tableaux sufficient for such a role, an additional and costly test must be applied for each clause which is being generated during a resolution derivation. In this paper, we investigate if it is worth to apply our splitting technique in practice, by empirical tests. For the sake of empirical investigations, we implemented several resolution calculi in Java, and then we improved each of them with our tableau method. Then, each of the implemented calculi have been executed over 1642 TPTP problems. In this paper, we present the results, from several aspects, and then, we conclude that tableaux are worth to apply with resolution.