



A New Prenexing Strategy for Quantified Boolean Formulae with Bi-Implications

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Résumé en anglais Most of the recent and efficient decision procedures for quantified Boolean formulae accept formulae in negation normal form as input or in an even more restrictive format such conjunctive normal form. But real problems are rarely expressed in such forms. For instance, in specification, intermediate propositional symbols are used to capture local results with always the same pattern. So, in order to use most of the state-of-the-art solvers the original formula has firstly to be converted in prenex form. A drawback of this preliminary step is to destroy completely the original structures of the formula. Furthermore, during the prenexing process, bi-implications are translated in such a way that there is a duplication of their sub-formulae including the quantifiers. In general, this process leads to an exponential growth of the formula. In this work, we focus on this very common pattern of intermediate result. We introduce new logical equivalences allowing us to extract these sub-formulae in a way that can improve the performance of the state-of-the-art quantified Boolean solvers

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