

# Towards Preprocessing for Abstract Argumentation Frameworks

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## Abstract

In recent years we have seen an increasing number of systems for solving abstract argumentation frameworks. This development cumulated in the origination of the International Competition on Computational Models of Argumentation (ICCMA). The 2nd edition of ICCMA is currently running and enjoys great popularity, witnessed by the submission of 16 participating solvers.

However, compared to other areas, the availability of accompanying tools is still lacking. For instance, in SAT or QBF solving, preprocessing turned out to be a crucial building block for making systems more efficient in practice. In a nutshell, preprocessing refers to a family of simplifications which are computationally easy to perform and yield formulas that are logically (or at least satisfiability) equivalent. Preprocessing in the context of argumentation poses some additional challenges since the semantics we have to deal with are nonmonotonic by nature.

In this talk, we first discuss some theoretical foundations which allow to identify equivalence-preserving local replacements. Secondly, we shall highlight further ingredients which are necessary to develop a preprocessing tool. Finally, we pinpoint potential future research directions.

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