

The thesis studies an implementation of arc-consistency filtering algorithms for constraints defined in extension. We propose a new concept of binarization for decomposing high-arity ad-hoc constraints into networks of binary constraints. A theory proving correctness of the binarization is developed. We study the existing algorithms from the perspective of our binarization concept and propose possible binarization schemes for ad-hoc constraints defined in some of the common forms. In the thesis we also propose the filtering algorithms for the elementary constraints. A compound propagator then uses the elementary constraint filtering algorithms to propagate over the high-arity constraint. Finally, we experimentally evaluate the proposed approaches on constraints generated when solving the planning problems.