ELIMINATION OF INEQUALITIES FROM A FACET DESCRIPTION OF A POLYHEDRON

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We consider the following problem: given vertex and facet representations of a convex polyhedron, compute a vertex representation of the polyhedron defined by a subsystem of inequalities of the original polyhedron. We present a new algorithm, prove its correctness, and give upper bounds for the complexity. Unlike other approaches, the proposed algorithm is polynomial for the case of removing one inequality. Computational experiments show that the algorithm outperforms the incremental method in a number of cases.

Keywords: convex polyhedra, constraint removal, double description method.

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