

How fast can we compute orbits of groups?

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Many problems in Combinatorics and related fields reduce to the problem of computing orbits of groups acting on finite sets. These problems are about classifying objects of a certain type. The main techniques are these: There is canonical augmentation [5] and Snakes and Ladders [7]. In this talk, we would like to give the theoretical framework for both techniques and compare the performance of some of the available implementations. Orbiter [2] is a C++ package which provides an implementation of Snakes and Ladders. Another implementation exists in the computer algebra system GAP [4], using the Fining package [1] for finite geometry. An implementation in Magma [3] would be desirable. The canonical augmentation algorithm has been implemented in Nauty and more recently in Traces. See [6] for the latest description of this work.

References

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