Improving DPOP with Function Filtering

DPOP is an algorithm for distributed constraint optimization which has, as main drawback, the exponential size of some of its messages. %which uses a solving strategy similar to bucket elimination in the centralized case. Recently, some algorithms for distributed cluster tree elimination have been proposed. They also suffer from exponential size messages. However, using the strategy of cost function filtering, in practice these algorithms obtain important reductions in maximum message size and total communication cost. In this paper, we explain the relation between DPOP and these algorithms, and show how cost function filtering can be combined with DPOP. We present experimental evidence of the benefits of this new approach.
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