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Collusion Resistant Mechanism Design

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Abstract

We consider the problem of designing mechanisms with the incentive property that no coalition of agents can engage in a collusive strategy that results in an increase in the combined utility of the coalition. For single parameter agents, we give a characterization that essentially restricts such mechanisms to those that post a "take it or leave it" price to for each agent in advance. This prohibits the design of any interesting mechanisms. We then consider relaxing the incentive property to only hold with high probability. In this relaxed model, we are able to design approximate profit maximizing auctions and approximately efficient auctions. We generalized these results to give a methodology for designing collusion resistant mechanisms for single parameter agents.

This is joint work with Andrew Goldberg.