

Information Elicitation Mechanisms for Bayesian Auctions (Abstract Reprint)

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Abstract Reprint. This is an abstract reprint of the journal article by Chen, Li, and Li (2025).

Abstract

In this paper we design information elicitation mechanisms for Bayesian auctions. While in Bayesian mechanism design the distributions of the players private types are often assumed to be common knowledge, information elicitation considers the situation where the players know the distributions better than the decision maker. To weaken the information assumption in Bayesian auctions, we consider an information structure where the knowledge about the distributions is arbitrarily scattered among the players. In such an unstructured information setting, we design mechanisms for unit-demand auctions and additive auctions that aggregate the players knowledge, generating revenue that are constant approximations to the optimal Bayesian mechanisms with a common prior. Our mechanisms are 2-step dominant-strategy truthful, and the approximation ratios improve gracefully with the amount of knowledge the players collectively have.

References

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