

Algorithmic game theory

Martin Balko

10th lecture

December 12th 2022



Mechanism design basics

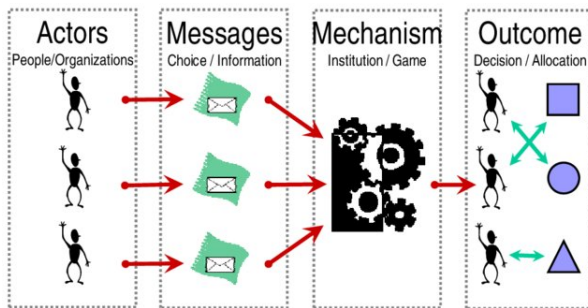
Mechanism design

Mechanism design

- Designing games toward desired objectives.

Mechanism design

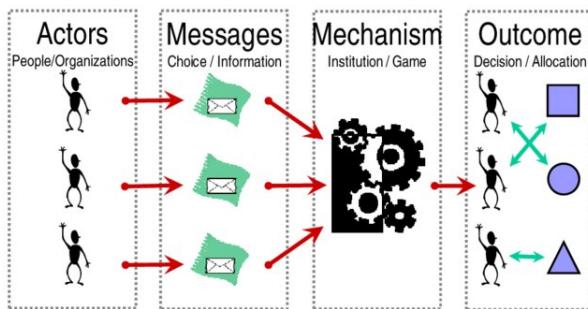
- Designing games toward desired objectives.
- **We try to design rules of the game** so that strategic behavior by participants leads to a desirable outcome.



Source: Innovations in Defense Acquisition: Asymmetric Information and Incentive Contract Design

Mechanism design

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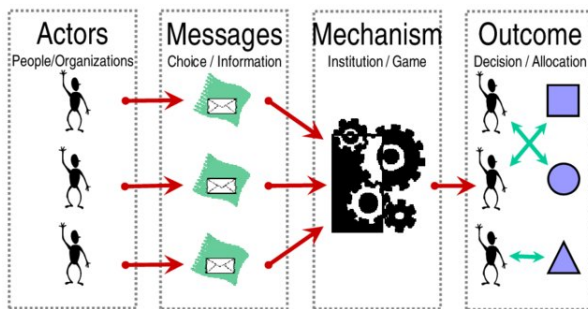


Source: Innovations in Defense Acquisition: Asymmetric Information and Incentive Contract Design

- We start with **single item auctions**.

Mechanism design

- Designing games toward desired objectives.
- We try to design rules of the game so that strategic behavior by participants leads to a desirable outcome.



Source: Innovations in Defense Acquisition: Asymmetric Information and Incentive Contract Design

- We start with **single item auctions**.
- We then extend these desired properties to a more general setting of **single-parameter environments** using so-called **Myerson's lemma**.

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Source: <https://proceedinnovative.com>

Myerson's lemma

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- A powerful tool for designing DSIC mechanisms.

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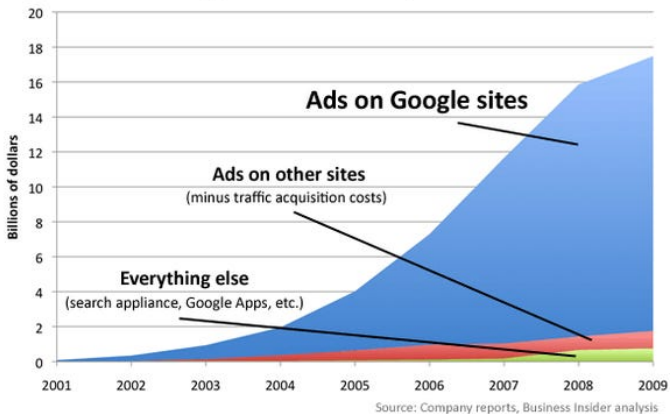


Figure: Roger Myerson (born 1951) receiving a Nobel prize in economics.





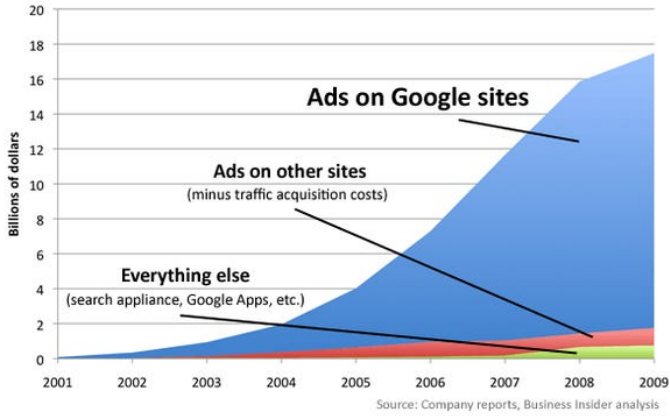
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