

# Algorithmic game theory

Martin Balko

9th lecture

December 3rd 2020



# Mechanism design basics

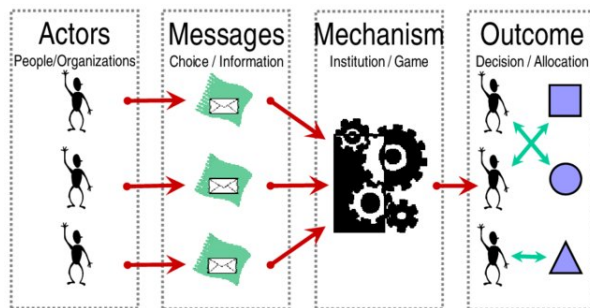
# Mechanism design

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- Designing games toward desired objectives.

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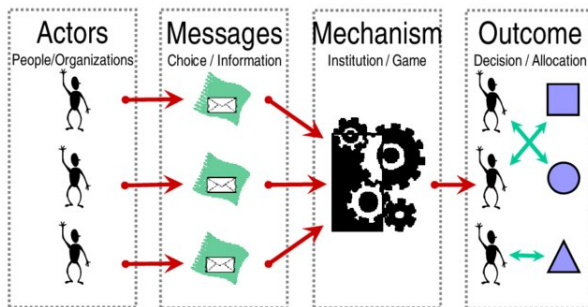
- Designing games toward desired objectives.
- We try to design rules of the game so that strategic behavior by participants leads to a desirable outcome.



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

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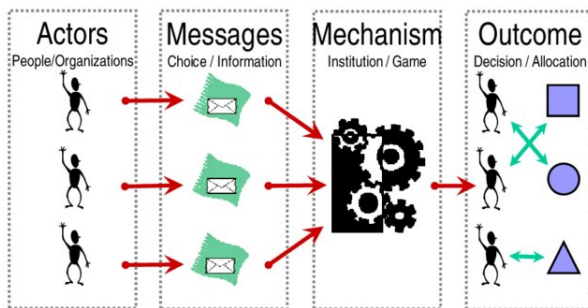


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- We start with **single item auctions**.

# Mechanism design

- Designing games toward desired objectives.
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- 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**.

# Sponsored search



# Sponsored search

Google water restoration **Paid Ads** Search Advanced Search **Paid Ads**

Results 1 - 10 of about 9,420,000 for **water restoration**. (0.28 seconds)

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**Arizona Fire and Water Restoration Services: Mold and Mildew ...**  
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**Water** Fire Flood Clean up Repair  
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www.floodFireCleanup.com  
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Source: <https://proceedinnovative.com>

# Myerson's lemma

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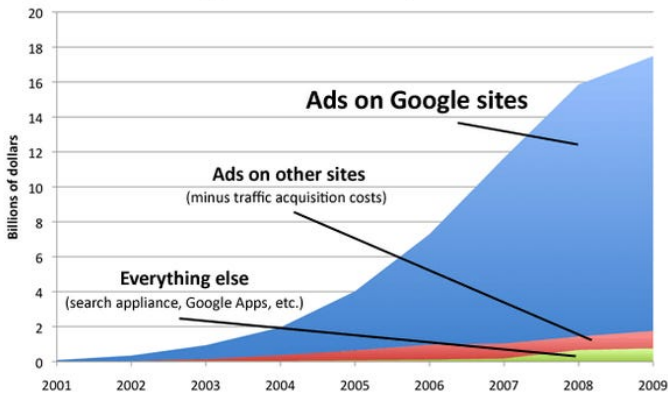


Figure: Roger Myerson (born 1951) receiving a Nobel prize in economics.





## Google Revenue By Source

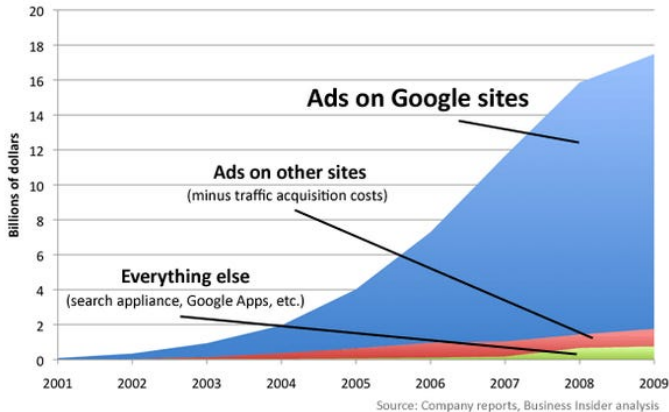


Source: Company reports, Business Insider analysis

Source: <https://businessinsider.com>



## Google Revenue By Source



Source: <https://businessinsider.com>

Thank you for your attention.