Exercise 10.1: Optimal Bid

Recall

- cumulative distribution function: $F_X(z) = \mathbf{Pr}[X < z]$
- uniform distribution on $[0, 1]$: $F_X(z) = z$
- first-price auction: highest bidder wins, winner pays bid.

Exercise 10.1: Optimal Bid

Setup:

- you are bidding in a first-price auction
- other bidders with i.i.d. uniform bids on $[0, 1]$

Questions: your value is $v = 1/2$

- What should you bid against one other bidder?
- What should you bid against two other bidders?

Lecture 10: Learning to Bid

Assigned Today: Project 3

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Last Time:

- auction theory
- second-price auction
- first-price auction
- complete information analysis (Nash equilibrium)
- incomlpete information analysis (Bayes-Nash equilbrium)

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Today:

- learning to bid
- full feedback
- partial feedback
- equilibrium of no-regret learning
  (coarse correlated equilibrium)