ALGORITHMIC GAME THEORY #7

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1. Auctions

1a) We have seen second-price auctions. Now consider a different variant: third-price auctions, where the only difference wrt the second-price ones is that the winner pays the third highest bid instead of the second.

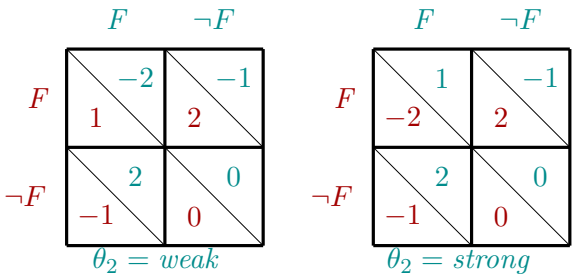
- Is truth-telling a dominant strategy?
- Do you expect a different behaviour by the bidders?

1b) Consider a second price auction with one object. You value the object 10. There are two opponents, who bid natural numbers uniformly at random, within their budget. Both you and your opponents have a budget of 10.

- Is truth telling a dominant strategy for you?
- At what price do you expect the object to be sold?

2. Bayesian Games

Consider the following scenario: You (Player 1) are considering to have a fight with Player 2, who could be of the *weak* or the *strong* type. (Your own type is clear to everyone.)



Let p be the probability (common prior) that Player 2 is *weak*.
3.1) Analyse the specials cases of $p = 1$, $p = 0$ and $p = \frac{1}{2}$.

4) Model first and second price seal bid auctions as Bayesian games.