

Tutorial 2

Question 1. Recall the Monotonic Concession Protocol (MCP) introduced in the lecture. Now consider the following strategy to be used with this protocol:

- Start by proposing your most preferred agreement.
- In the next round, make a minimal concession.
- In all subsequent rounds, if your opponent has conceded $x\%$ of the time so far, then make a (minimal) concession with probability $(100 - x)\%$.

Answer the following questions:

- (a) Is this strategy stable, i.e. is it in equilibrium with itself?
- (b) Is this strategy efficient, i.e. does it guarantee Pareto optimal outcomes if used by both agents?

Question 2. Recall the English auction protocol introduced in the lecture.

- (a) What is the dominant strategy for a bidder in a private value auction following the English Auction protocol?
- (b) Justify your answer to part (a).

Question 3. Vickrey auctions are one-shot second-price sealed-bid auctions. We have seen the advantages of using second-price rather than first-price auctions in the lecture. Maybe we could get further improvements by introducing a third-price auction?

- (a) Define the protocol for one-shot third-price sealed-bid auctions.
- (b) What would be a good bidding strategy for this type of auction?
- (c) Recall that the dominant bidding strategy for private value Vickrey auctions is to bid your true valuation. Is there a dominant strategy for third-price auctions?
- (d) Recall that the four auction protocols discussed in the lecture are Pareto efficient. Is this also the case for the third-price protocol?