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Courses » Strategy: An Introduction to Game Theory

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## Unit 9 - Week 8



### Course outline

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Week 8

- Non Cooperative Bargaining
- Axiomatic Bargaining
- Extensive Form Game with Incomplete Information
- Introduction to perfect Bayesian Equilibrium
- Obtaining PBE
- Gift Game
- Quiz : Assignment - 8

## Assignment - 8

The due date for submitting this assignment has passed. **Due on 2017-03-21, 23:59 IST**  
As per our records you have not submitted this assignment.

**(Two period bargaining with constant cost of delay)** Consider a variant of a bargaining game which was discussed in lecture module, in which player  $i$ 's payoff when he accepts the proposal  $(y_1, y_2)$  in period two is  $y_i - c_i$  (where  $0 < c_i < 1$ ) instead of  $\delta_i y_i$  (where  $\delta_i$  used to be a discount factor) and his payoff is  $-c_i$  (instead of 0) whenever game ends in rejection for  $i = 1, 2$ . (Please make sure that a proposal must be a pair of non-negative numbers)

1) This bargaining game has

1.5 points

- A unique SPNE
- Finitely many SPNE
- Infinitely many SPNE
- No SPNE

**No, the answer is incorrect.**

**Score: 0**

**Accepted Answers:**

*A unique SPNE*

2) In an SPNE, player 1 in period one

1.5 points

- Proposes  $(c_1, 1 - c_1)$
- Proposes  $(c_2, 1 - c_2)$
- Proposes  $(1 - c_1, c_1)$
- Proposes  $(1 - c_2, c_2)$

**No, the answer is incorrect.**

**Score: 0**

**Accepted Answers:**

*Proposes  $(c_2, 1 - c_2)$*

3) In the same SPNE, player 1 in period 2

1.5 points

- Accepts only proposals  $> c_1$
- Accepts only proposals  $> c_2$
- Both
- None

**No, the answer is incorrect.**

**Score: 0**

**Accepted Answers:**

*None*

4) In the same SPNE, player 2 in period 1

1.5 points

- Accepts all proposals
- Accepts any proposal if and only if it gives him payoff at least  $(1-c_1)$
- Accepts any proposal if and only if it gives him payoff at least  $(1-c_2)$
- None

**No, the answer is incorrect.**

**Score: 0**

**Accepted Answers:**

*Accepts any proposal if and only if it gives him payoff at least  $(1-c_2)$*

5) In the same SPNE, player 2 in period 2

1.5 points

- Proposes  $(c_1, 1-c_1)$  after any history
- Proposes  $(c_2, 1-c_2)$  after any history
- Proposes  $(0, 1)$  after any history
- None

**No, the answer is incorrect.**

**Score: 0**

**Accepted Answers:**

*Proposes  $(0, 1)$  after any history*

6) What is the outcome of this SPNE

1.5 points

- Proposal  $(c_1, 1-c_1)$  is made by player 1 and player 2 immediately accepts it
- Proposal  $(c_2, 1-c_2)$  is made by player 1 and player 2 immediately accepts it
- Proposal  $(1, 0)$  is made by player 1 and player 2 immediately accepts it
- Proposal  $(1, 0)$  is made by player 1 and player 2 immediately accepts it

**No, the answer is incorrect.**

**Score: 0**

**Accepted Answers:**

*Proposal  $(c_2, 1-c_2)$  is made by player 1 and player 2 immediately accepts it*

**(Job market signaling)** Consider a situation depicted in the form of following extensive game of incomplete information. Game involves a worker (W) and a firm (F). The worker has private information about his level of ability. With probability  $1/3$  he is a worker of high type (H) and with probability  $2/3$  he is a worker of low type (L). After observing his own type, the worker decides whether to obtain a costly education (E) or not (N). The firm can only observe the education level of the worker but not his ability type. The firm then decides whether to employ the worker in an important managerial job (M) or in a much less important clerical job (C).

7) A pooling equilibrium of this game is

3 points

- $(EE', MM')$  with beliefs  $p=1/3$  and  $q \leq 2/5$
- $(NN', CC')$  with beliefs  $p=1/3$  and  $q \leq 2/5$
- $(NN', CC')$  with beliefs  $p=2/5$  and  $q \leq 1/3$
- $(EE', MM')$  with beliefs  $p=2/5$  and  $q \leq 1/3$

**No, the answer is incorrect.**

**Score: 0**

**Accepted Answers:**

*$(NN', CC')$  with beliefs  $p=1/3$  and  $q \leq 2/5$*

8) A separating equilibrium of this game is

3 points

- $(EN', MC')$  with  $p = 0$  and  $q = 1$
- $(NE', MC')$  with  $p = 0$  and  $q = 1$
- $(EN', CM')$  with  $p = 1$  and  $q = 0$
- $(NE', CM')$  with  $p = 1$  and  $q = 0$

No, the answer is incorrect.

Score: 0

Accepted Answers:

(EN', MC') with  $p = 0$  and  $q = 1$

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