

Rudolf Kerschbamer
Commitment and Information in Games

Problem Set 14

(Dynamic Games of Incomplete Information: Refinements of PBE)

Name: _____

14.1 Consider the **Beer-Quiche-Game** as described in Lecture 14.

a) Find all (pure strategy) pooling PBEs of this game.

b) Find all (pure strategy) separating PBEs of the game.

c) Which of the PBEs found in questions a and b (if any) satisfies Signalling Requirement 5?

d) Which of the PBEs (if any) satisfies Signalling Requirement 6?

14.2 Consider **Job-Market Signalling Version 3** (as described in Lecture 14) but assume that there is **no opportunity** for the employee **to signal his productivity by acquiring education** (as in the version described in Lecture 14 the productivity is not observable).

a) Are there any (pure strategy) separating PBEs in this game? If yes, characterize them and give conditions for the equilibrium outcome to be efficient. If no, show that there is no such equilibrium.

b) Are there any (pure strategy) pooling PBEs in this game? If yes, characterize them and give conditions for the equilibrium outcome to be efficient. If no, show that there is no such equilibrium.

14.3 Consider now the version of **Job-Market Signalling Version 3** described in Lecture 14 (where there **is an opportunity** for the employee **to signal** his **productivity by acquiring education**). Suppose $t_h = 20$, $t_l = 5$, $\lambda = 0.8$ and $c(t, e) = 100e/t$

a) Characterize the best pooling PBE for the employee.

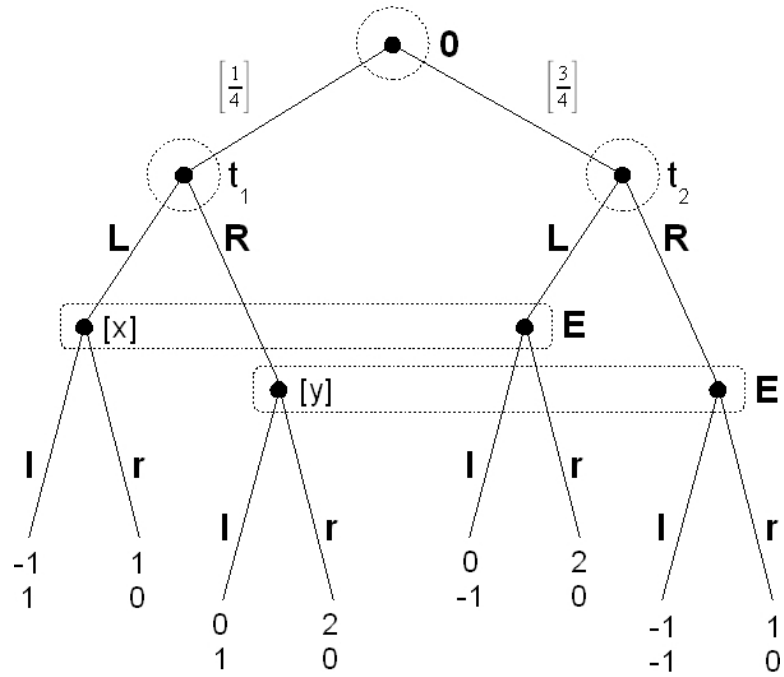
b) Characterize the best separating PBE for the high productivity employee

c) Find the highest level of education (for the high productivity type) that can arise in a separating PBE (assuming that e is unrestricted).

d) Find o.o.e. beliefs and behavior that support the education choice found in previous question (question c)

e) Compare the equilibrium payoffs (of all types of all players) in the best separating PBE (your answer to question 14.3 b) to the equilibrium payoffs that arise in the best PBE (for the employee) in a world where no signalling opportunities are available (your answer to question 14.2). Who is better off, who is worse off?

14.4 Consider the following signaling game:



a) Characterise the set of (pure strategy) pooling PBEs.

b) Characterise the set of all separating PBEs

c) Which of the PBEs found in questions a and b survives Signalling Requirement 5?

d) Which of the PBEs found in questions a and b survives Signalling Requirement 6?