

Problem 1

- What is a dominant strategy?
- Which strategies are dominated in the following games:

		2		
		L	C	R
1	U	5, 9	0, 1	4, 3
	M	3, 2	0, 9	1, 1
	D	2, 8	0, 1	8, 4

		2			
		W	X	Y	Z
1	U	3, 6	4, 10	5, 0	0, 8
	M	2, 6	3, 3	4, 10	1, 1
	D	1, 5	2, 9	3, 0	4, 6

Problem 2

- What is a rationalizable strategy?
- Find the set of rationalizable strategies in both games:

		2		
		L	C	R
1	U	6, 3	5, 1	0, 2
	M	0, 1	4, 6	6, 0
	D	2, 1	3, 5	2, 8

		2		
		X	Y	Z
1	A	8, 6	0, 1	8, 2
	B	1, 0	2, 6	5, 1
	C	0, 8	1, 0	4, 4

Problem 3

- What is a Nash-Equilibrium?
- Find all pure and mixed-strategy Nash equilibria in the following games:

		2	
		A	B
1	A	1, 4	2, 0
	B	0, 8	3, 9

		2		
		L	M	R
1	U	8, 1	0, 2	4, 3
	C	3, 1	4, 4	0, 0
	D	5, 0	3, 3	1, 4

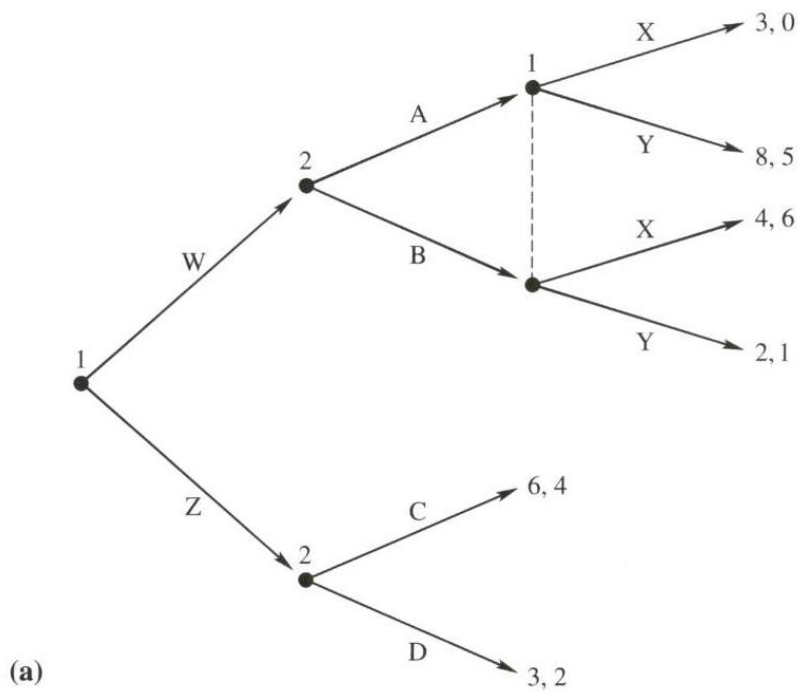
Problem 4

Consider an asymmetric Cournot-duopoly game, where the two firms have different costs of production. Firm 1 selects quantity q_1 at a production cost of $2q_1$. Firm 2 selects quantity q_2 and pays the production cost $4q_2$. The market price is given by $p = 12 - q_1 - q_2$.

- What are the firms' payoff functions?
- Calculate the firms' best-response functions.
- Find the Nash-equilibrium of the Cournot-game.

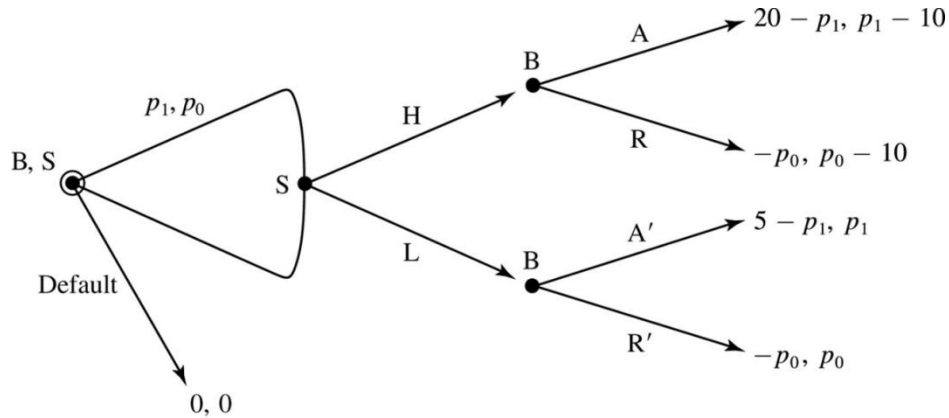
Problem 5

Find all Nash-equilibria and Subgame-perfect Nash equilibria in the following game:



Problem 6

Consider the following sequential move game over the delivery of a good between a buyer and seller:



The buyer (B) and seller (S) first negotiate on prices p_1 and p_0 that the buyer has to pay depending on whether he accepts the delivery (A) or rejects it (R). Prior to trade, the seller can choose to deliver a high (H) or low (L) quality good (high quality costs the seller 10).

- What is the efficient outcome of the game?
- Fully describe the negotiation equilibrium of the game, under the assumption that the parties have equal bargaining weights.

Problem 7

- Consider a repeated game in which the stage game below is played in each of two periods, and that there is no discounting. Describe a subgame-perfect equilibrium in which the players select (U, L) in the first period.

		2		
		L	M	R
1	U	8, 8	0, 9	0, 0
	C	9, 0	0, 0	3, 1
	D	0, 0	1, 3	3, 3

- b) Assume now that the following stage game (prisoners' dilemma) is played twice. Is there a subgame perfect Nash equilibrium where (C,C) is played in the first period?

		2	
		C	D
1	C	2, 2	0, 3
	D	3, 0	1, 1

- c) Will the answer in b) change if the stage game is played 10 times instead of two? Explain.

Problem 8

Consider the following game in which two players can choose to invest (I) or not invest (N)

		2	
		I	N
1	I	6, 8	0, 9
	N	7, 0	0, 0

- a) What is the Nash equilibrium in this game?

Assume now that the players can write a contract whereby they agree to invest, and that a court of law can verify the players' behavior.

- b) How does the induced game look like if the court applies expectation damages in case of a breach
Can (I, I) be enforced?

- c) How does the induced game look like if the court applies reliance damages in case of a breach?
Can (I, I) be enforced?

Assume now that the court applies expectation damages, but that the court only can verify whether or not there has been a breach (N), not who has breached the contract.

- d) Is there a contract that makes it possible that both invests, i.e. that they play (I,I)?