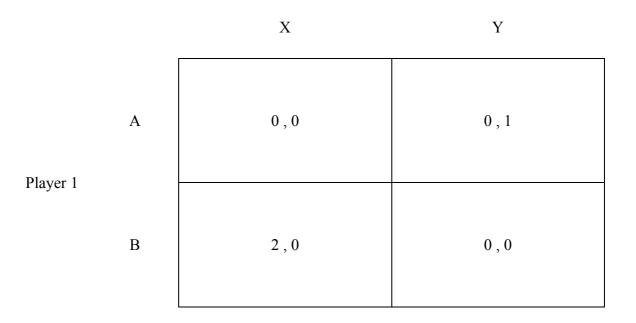
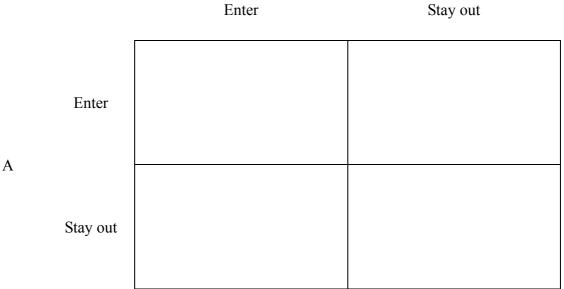
What is/are the equilibrium/s in pure strategies in this game? Find all of them. Is this game dominance-solvable? If it was, what would the dominant strategy equilibrium be?



Player 2

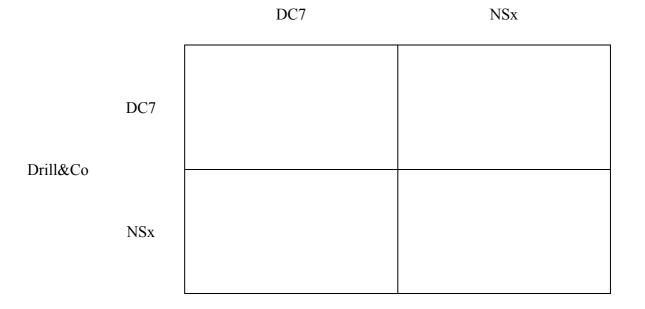
Two gas-distribution companies decide on entering a new market. Company A is a well-established firm. Company B is a newcomer. Both companies decide independently, however, they are aware of each other's intentions. If both enter, they will face each other. Expected gross revenue for A is \$75 million, for B \$65 million, however, both would also spend \$35 m. as investment and advertising costs. If A enters the market and B does not, A will have to invest \$30 m., however, it will subsequently earn \$110 m. B will loose \$20 m. in costs. If neither of them enter, A saves \$30 m. and B \$20 m. in investment costs. If only B enters the market, it will spend \$20 m. on investment, but will cash \$70 m. in returns, while A would save itself \$30 m. If we presume rationality of both actors, how would both companies decide and why?





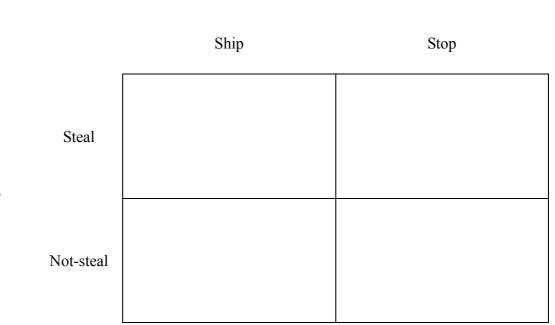


Two companies are developing a new drilling technology. Given the circumstances, the question of compatibility of both technologies is important. Drill&Co is developing technology DC7, company NorthStar is developing incompatible technology NSx. Both companies agree, that if they both adopt the same technology, they would cash \$20 B from the developing industry. If they adopt different technologies, compatibility issues would jeopardize both companies and each would end up with \$0. Accommodating technology of the competitor would cost Drill&Co \$10 B. If NorthStar was to adopt the competitor's technology, it would need to spend \$25 B. Which technology is going to be used, if both companies were aware of the costs and decision was made simultaneously?



NorthStar

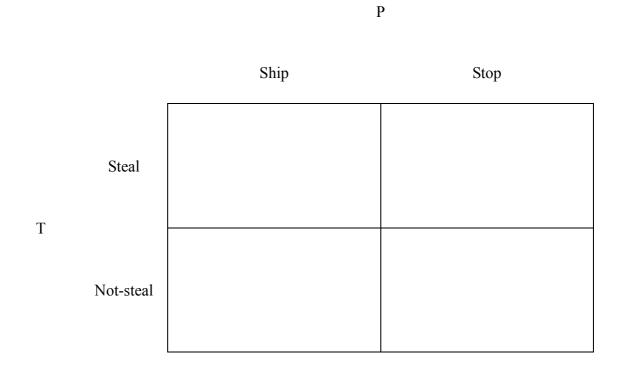
Imagine a situation, where natural gas producer P is deciding, whether to ship natural gas via pipelines of the transit country T. Transit country T decides, whether to siphon (steal) natural gas from transit pipelines, or not. It is important to note that producer has no other transit option. P decides between shipping 90 bcm of gas, each bcm worth \$400. T is capable of stealing 10 bcm. If T steals 10 bcm, P will loose the revenue of the stolen amount and will earn revenue of the rest, while T earns the value of stolen gas. If P decides not to ship gas, it will loose all the revenues from the whole shipment of 90 bcm. If T decides not to steal or no amount is shipped, it will earn 0. What is/are the equilibrium/s of this game? How could we interpret it?



Р



How would the previous game change if there was an alternative route of transport that would circumvent the transit country? What is/are the equilibrium/s of this modified game?



Bonus question

How many equilibriums in pure strategies can you find in Rock-Paper-Scissors game? Justify the result.

Player 2

		Rock	Paper	Scissors
Player 1	Rock	0,0	-1 , 1	1 , -1
	Paper	1,-1	0,0	-1,1
	Scissors	-1,1	1,-1	0,0

Hints:

1. Row player's payoffs are always written first, column player's payoffs are second

2. When searching for dominant strategy equilibrium, compare payoffs of the player between her strategies - for row player, compare all her payoffs in each column; for column player, compare all her payoffs in each row

3. When searching for NE, compare, what is the player's A best reply to player's B particular strategy - always ask: if player B played a strategy *s*, which strategy of player A is the best reply to B's strategy *s* (yields highest payoff)? Again, compare payoffs in each column for row player; compare payoffs in each row for column player