

1. What is a Nash equilibrium? Why would strategies that do not constitute a Nash equilibrium be an unlikely outcome of a game?

Nash equilibrium is a situation when each player in a non-cooperative game chooses a strategy that yield the most payoff regarding other player's strategies.

The other strategies besides Nash equilibrium is unlikely to be chosen due to the less payoff compared to Nash equilibrium strategy.

2. What is special about the prisoners' dilemma game? Is every game presented in this chapter a prisoners' dilemma?

Prisoners' dilemma is a very intense one-shot game. A situation with 2 or more players in which player has to choose between the collective interest of all players and self-interest of individual player. However, not every game a prisoner's dilemma.

3. What is the difference between a dominant strategy and a dominated strategy? Why would a player in a game be unlikely to choose a dominated strategy?

Dominant strategy is the strategy that yield the highest outcome compared to all available strategy, but dominated strategy is the strategy that gives the lowest payoff in which is dominated by the rest of the strategy. Therefore, a regular marginal player will likely to choose dominant strategy instead of dominated strategy considering the outcome.

14.6. Asahi and Kirin are the two largest sellers of beer in Japan. These two firms compete head to head in the dry beer category in Japan. The following table shows the profit (in millions of yen) that each firm earns when it charges different prices for its beer:

		Kirin			
		¥630	¥660	¥690	¥720
Asahi	¥630	180, 180	184, 178	185, 175	186, 173
	¥660	178, 184	183, 183	192, 182	194, 180
	¥690	175, 185	182, 192	191, 191	198, 190
	¥720	173, 186	180, 194	190, 198	196, 196

b) Both Asahi and Kirin have a dominated strategy: Find and identify it.

Asahi's dominated strategy = ¥720

Kirin's dominated strategy = ¥720

Nash equilibrium = ¥630 for both sellers

14.15. Consider the following game between Sony, a manufacturer of video cassette players, and Columbia Pictures, a movie studio. Each firm must decide whether to use the VHS or Beta format—Sony to make video players, Columbia to release its movies for rental or purchase.

		Columbia Pictures	
		Beta	VHS
Sony	Beta	20, 10	0, 0
	VHS	0, 0	10, 20

b) Is there a mixed strategy Nash equilibrium in this game? If so, what is it?

Yes, when both Sony and Columbia Pictures play the same strategy with a 50% chance of playing either Beta or VHS.

14.23. ABC and XYZ are the two cereal manufacturers contemplating entry into a South American market. Each will be able to build one plant, and that plant can be used to make either a cereal that is high in fiber and low in calories (High Fiber) or a less healthy cereal with a sweet taste (Sweet). Once a plant is chosen to produce one kind of cereal, it will be prohibitively expensive to switch production to the other type. The following table shows the annual profit (in millions of pesos) that each firm would earn given the production choices of the two firms.

		XYZ	
		High Fiber	Sweet
ABC	Sweet	50, 60	30, 40
	High Fiber	20, 30	40, 60

b) Would ABC have a first-mover advantage if capacities were chosen sequentially? If so, briefly explain how it might credibly implement this strategy.

Yes, ABC can choose to go for Sweet and make \$50M profit instead of \$40M.

ABC's profit is the left number in each cell; XYZ's profit is the right number. For example, if ABC makes the sweet cereal and XYZ produces the high-fiber cereal, annual profits will be 50 million pesos for ABC and 60 million pesos for XYZ.