Chapter 22

1.   For each of the following situations, identify the principal and the agent, describe the information asymmetry involved, and explain how moral hazard has been reduced.

a.   Dental insurance companies offer free annual check-ups

Answer:
The insurance company is the principal; the insured is the agent. Only the agent knows how well he takes care of his teeth. By checking the insured's teeth each year, the insurance company can better monitor the behaviour of the insured and reduce major future claims.

b.   Firms compensate travelling salespersons with commissions (a percentage of the value of the sales)

Answer:
The firm is the principal; the salesperson is the agent. The firm does not know how hard the salesperson works. By only paying the salesperson a commission, the firm is able to better monitor the salespersons work habits, and the worker is less likely to shirk.

c.   Agricultural seed companies pay migrant workers bonuses if they work the entire summer season

Answer:
The firm is the principal; the worker is the agent. The firm does not know how hard the migrant worker works. By paying a large bonus for completing the season, the firm raises the cost of shirking and the cost of being fired. The worker is less likely to shirk.

d.   McDonald's pays twice the minimum wage to high school students

Answer:
McDonald's is the principal; the student is the agent. McDonald's does not know how hard the student works. By paying above market wages, McDonald's increases the cost of shirking and the cost of being fired. The worker is less likely to shirk.

2.   For each of the following situations, describe the information asymmetry involved, name the type of action that has been taken to reduce adverse selection (signalling or screening), and explain how adverse selection has been reduced.

a.   McDonald's only hires older school students with good grades

Answer:
McDonald's doesn't know the abilities of the potential workers as well as do the workers. McDonald's *screens* potential workers using past educational performance and it is able to select high-ability workers.

b.   Hyundai (a Korean car manufacturer) provides a 100,000 kilometre

warranty on its new cars

Answer:
Buyers may be unsure of the quality of Hyundai cars because they are relatively new to the European market. Hyundai *signals* high quality with a long warranty and buyers are able to select high quality cars.

c.   A health insurance company requires prospective customers to take a physical examination

Answer:
The insurance company does not know as much about the health of the insurance buyer as does the buyer. The insurance company *screens* prospective customers with a physical exam to find hidden health problems so its insurance pool is not sicker than average.

d.   The brewers of the beer, Budweiser, sponsors the National Football League (NFL) US Super Bowl half-time show – sponsorship of this popular global event does not come cheap!

Answer:
Beer buyers don't know the quality of Budweiser as well as Budweiser. Budweiser *signals* high quality with expensive advertising because they could only afford to do it if they could generate repeat buyers. Customers are more likely to choose a high quality beer.

3.   Answer the questions regarding the Condorcet paradox for the three sets of voting preferences below.

Case 1

	Voter Type		
	Type 1	Type 2	Type 3
Percent of electorate	15	40	45
First Choice	C	A	B
Second Choice	A	B	C
Third Choice	B	C	A

a.   If voters must choose between A and B, what are the percentages of votes that each outcome receives and which outcome wins?

b.
     If voters must choose between B and C, what are the percentages of votes that each outcome receives and which outcome wins?

c.   If voters must choose between C and A, what are the percentages of votes that each outcome receives and which outcome wins?

d.   Do these preferences exhibit the axiom of transitivity? Explain.

e.   If the voters choose between A and B and then compare to C, which outcome wins? If the voters choose between B and C and then compare to A, which outcome wins? If the voters choose between A and C, and then compare to B which outcome wins?

Does the order in which items are voted on matter in this case? Why?

Answer: Case 1:

a. A = 15 + 40 = 55, B = 45. A beatsB.
b. B = 40 + 45 = 85, C = 15. B beats C.
c. C = 15 + 45 = 60, A = 40. C beats A.
d. No. A beats B and B beats C, so transitivity requires that A beats C but, in fact, C beats

A.

e. A beats B, so compare A to C and C wins.
B beats C, so compare B to A and A wins.
C beats A, so compare C to B and B wins.
Yes, because these preferences do not exhibit transitivity.

Case 2

	Voter Type		
	Type 1	Type 2	Type 3
Percent of electorate	30	15	55
First Choice	A	B	C
Second Choice	B	C	A
Third Choice	C	A	B

a.   If voters must choose between A and B, what are the percentages of votes that each outcome receives and which outcome wins?

b.
If voters must choose between B and C, what are the percentages of votes that each outcome receives and which outcome wins?

c.
If voters must choose between C and A, what are the percentages of votes that each outcome receives and which outcome wins?

d.   Do these preferences exhibit transitivity? Explain.

e.

If the voters choose between A and B and then compare to C, which outcome wins? If the voters choose between B and C and then compare to A, which outcome wins? If the voters choose between A and C and then compare to B, which outcome wins? Does the order in which items are voted on matter in this case? Why?

Answer: Case 2:

a. A = 30 + 55 = 85, B = 15. A beatsB.
b. B = 30 + 15 = 45, C = 55. C beatsB.
c. A = 30, C = 15 + 55 = 70. C beats A.
d. Yes. C beats A and A beats B. Transitivity requires that C beats B and it does.
e. A beats B, so compare B to C and C wins.

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C beats B, so compare C to A and C wins.
C beats A, so compare C to B and C wins.
No, because these preferences exhibit transitivity.

   a. If voters must choose between A and B, what are the percentages of votes that each outcome receives and which outcome wins?
   b. If voters must choose between B and C, what are the percentages of votes that each outcome receives and which outcome wins?

Case 3

	Voter Type		
	Type 1	Type 2	Type 3
Percent of electorate	25	35	40
First Choice	A	B	C
Second Choice	B	A	A
Third Choice	C	C	B

c. If voters must choose between C and A, what are the percentages of votes that each outcome receives and which outcome wins?

d. Do these preferences exhibit transitivity? Explain.

e.

   If the voters choose between A and B and then compare to C, which outcome wins? If the voters choose between B and C and then compare to A, which outcome wins? If the voters choose between A and C and then compare to B, which outcome wins? Does the order in which items are voted on matter in this case? Why? Is the winning outcome the first choice of a large portion of the population? How can this be?

Answer: Case 3:
   a. A = 25 + 40 = 65, B = 35. A beatsB.
   b. B = 25 + 35 = 60, C = 40. B beats C.
   c. A = 25 + 35 = 60, C = 40. A beats C.
   d. Yes. A beats B and B beats C. Transitivity requires that A beats C and it does.
   e. A beats B, so compare A to C and A wins.
B beats C, so compare B to A and A wins.
A beats C, so compare A to B and A wins.
No, because these preferences exhibit transitivity. No, only 25 percent of the population chooses A as their first choice, but most of the population greatly dislikes C and none of the population greatly dislikes A.

4. a.   For Case 1 in problem 3 above, which outcome wins if you use a Borda count to determine the winner among outcomes A, B, and C, and what are the scores for each outcome?

Answer:
If choosing between A, B, and C, A = 30 + 120 + 45 = 195, B = 15 + 80 + 135 = 230, C = 45 + 40 + 90 = 175 and B wins.

b.   For Case 1 in problem 3 above, eliminate outcome C and use a Borda count to

find the winner from the remaining choices of A and B. What property required of a perfect voting system has been violated? Explain

Answer:
If choosing between only A and B, A = 30 + 80 + 45= 155, B = 15 + 40 + 90 = 145 and A wins. Independence of irrelevant alternatives: the rankings of A and B shouldn't change when C is removed but the ranking did change.

c.   Compare the results of Case 1 in problem 3 under simple majority rule, a Borda count with three choices, and a Borda count with two choices. What conclusions can you draw from these results?

Answer:
A wins, then B wins, then A wins again. Thus, majority voting does not necessarily tell us what society wants and deciding the order on which items are voted may affect the outcome.

5. In each of the following situations, describe the behaviour that suggests that people may not always behave as self-interested rational maximizers.

a.   Workers agree to a labour contract that gives them a 5 per cent raise for each of the next three years. After one year passes, they discover that the firm's profits have increased by 100 per cent. The workers go on strike and receive no income during the strike.

Answer:
People care about fairness and may be willing to accept nothing so that their adversary gets nothing if they think the split was unfair.

b.   A worker plans to start saving 20 per cent of his income starting three months from now because he has to first pay off some overdue bills. After three months passes, the worker saves nothing and instead spends all of his monthly income.

Answer:
People are inconsistent over time. From 3 months away, saving seems like a good idea but as that date approaches, the desire for immediate gratification takes over.

c.   After a famous rock star dies in a plane crash, many people decide to travel by train rather than fly.

Answer:
People give too much weight to a small number of vivid observations. The probability of a plane crash has probably not changed yet people are more afraid to fly due to one highly publicized case.

d.   Erik wants to go on a fishing trip to Ireland and his wife, Angela, wishes to take a different type of trip. The newspaper reports that the size and number of fish being caught in the area where Erik hopes to fish is greater than normal because the temperature has become unseasonally cool. Erik is more sure

about his choice of the fishing trip and Angela is more sure about her desire to go on a different type of trip.

What does this story highlight in the way people interpret evidence?
Answer:
People are reluctant to change their minds. Both Erik and Angela use the same information to defend their original opinion.