CSPB 3702 - Reckwerdt - Cognitive Science

Started on	Monday, 6 November 2023, 8:44 PM
State	Finished
Completed on	Monday, 6 November 2023, 8:58 PM
Time taken	14 mins 43 secs

Question **1**

Correct

Marked out of 1.00

Which of the following assumptions / rules in the original Schelling model of neighborhoods as presented in lecture (not considering the adaptations on the original model)?

Select one or more:

- ☑ a. At each step, an unhappy family will move to an empty cell ✔

- ☑ b. Each family needs a certain number of neighbors that are alike (red families want a certain number of red neighbors and blue families want a certain number of blue neighbors) ✔

- ☐ c. A family has a maximum number of similar neighbors it is looking for.

- ☐ d. At each step, the mover will choose a cell that it knows will satisfy its wants.

Your answer is correct.

Question **2**

Correct

Marked out of 1.00

Why do we need to use a [toroid](#) shape (we imagine the left/right edges connecting to each other) in the Schelling model of neighborhoods as discussed in the lecture? (See video 4.1 timestamp 15:13)

Select one:

○ a. A toroid is just more interesting - it doesn't actually matter for our neighborhood problem.

○ b. A toroid is a better representation of a neighborhood, because neighborhoods aren't usually perfect squares

◉ c. A toroid allows all individuals to have exactly 8 neighbors, otherwise the corner location cannot possibly have 4 neighbors.   ✔

○ d. A toroid is better suited to a multiple-agent model because a toroid sounds like something a secret agent would use.

Your answer is correct.

Question **3**

Correct

Marked out of 1.00

Which of the following statements is the best description of Game Theory?

Select one:

○ a. The approach of understanding how animals make decisions.

◉ b. A model of making decisions in the presence of other decision-making agents.   ✔

○ c. The approach to solving a problem in a non-traditional manner.

○ d. The theory around building a game (video, board, sport, etc.) that provides a balance between effort and reward for the player.

Your answer is correct.

Question **4**

Correct

Marked out of 1.00

Which of the following modifications would eliminate the effectiveness of the Prisoner's Dilemma? (Choose all that apply)

Select one or more:

☐ a. Changing the situation so you are earning rewards (e.g. getting money) instead of facing penalties (e.g. going to prison).

☑ b. Allowing the players to negotiate their choices with each other. ✔

☐ c. Adding a third prisoner.

☑ d. Penalizing the Cooperate - Cooperate decision at the same loss as the Cooperate (you) - Defect (other) scenario. ✔

Your answer is correct.

Question **5**

Correct

Marked out of 1.00

Game Theory is a unique field of cognitive science because, unlike what we have studied so far, it:

○ a. offers us a way to look at the mind computationally.

◉ b. involves the operation of two or more minds. ✔

○ c. shows us how the mind interacts with the outside world.

○ d. replicates real-world scenarios.

Your answer is correct.

Question **6**

Correct

Marked out of 1.00

Neighborhoods are a complex social phenomenon. Which of the following are true of neighborhoods?

Select one or more:

- a.
  Neighborhoods have well-defined boundaries and there is never conflict between two neighboring neighborhoods.

- ☑ b.
  They can make adjusting to life in a new country easier ✔

- c.
  They are inherently good

- ☑ d.
  They can be both inclusive and exclusive ✔

Your answer is correct.

Question **7**

Correct

Marked out of 1.00

What are the most important lessons and themes of Schelling's experiment discussed in lecture?

Select one or more:

- ☑ a.
  When modeling cognition, we need to look beyond the individual and see the decisions that are being made by other actors simultaneously. ✔

- ☑ b.
  Schelling's model serves as a prelude to game theory, as it involves simultaneous decision-making and is an agent-based model. ✔

- c.
  Schelling's model has allowed us to perfectly replicate and predict the formation of neighborhoods in all western countries except The Vatican.

- ☑ d.
  Neighborhoods are formed by individual decision-making and then the emergent collective phenomenon occurs. ✔

Your answer is correct.

Question **8**

Correct

Marked out of 1.00

Which of the following is one of the most dramatic evolutionary changes we've seen in a relatively short time?

○ a. Our improved vision.

◉ b. The tripling of brain volume.   ✔

○ c. Our ability to pat our heads and rub our stomachs simultaneously.

○ d. The amount of time children spend at home.

Your answer is correct.

Question **9**

Correct

Marked out of 1.00

What is the negative consequence of making a dominant choice in the prisoner's dilemma?

○ a. Choosing the dominant choice prevents you from knowing the other player's choice.

○ b. The other player could go free and be able to take all of your hidden loot.

◉ c. If the other player also make the dominate choice, you have a much worse outcome than if you had both cooperated.   ✔

○ d. You could get the maximum penalty.

Your answer is correct.

Question **10**

Correct

Marked out of 1.00

Consider Bonnie and Clyde's prisoner's dilemma discussed in lecture. Which of the following characterize that game?

Select one or more:

- ☑ a.
  It's a two-person game. ✔

- ☐ b.
  It's a zero-sum game.

c.

It's an iterated game.

☑ d.

it's a game with a finite number of strategy choices. ✔

> Your answer is correct.

Question **11**

Correct

Marked out of 3.00

In lecture, we discussed Robert Axelrod's Prisoner's Dilemma Tournament, employing the following payoff matrix:

	A Cooperate	A Defect
B Cooperate	3, 3	5, 0
B Defect	0, 5	1, 1

(Points are for A, B)

As we mentioned, the TIT-FOR-TAT strategy (cooperate on the very first round, then on each subsequent round do whatever the other player did on the previous round) works well in this setting. If A and B both cooperate on the first round, how many points will they each average through four rounds?

○ a. 6 points.

○ b. 1 point.

○ c. 0 points.

◉ d. 3 points.   ✔

> Your answer is correct.

Question **12**

Correct

Marked out of 4.00

Players A and B are participating in Robert Axelrod's Prisoner's Dilemma Tournament using a tit-for-tat strategy.

In the first round, players A and B both cooperate. What will each player do on the second round?

○ a. Player A will defect and player B will cooperate.

◉ b. Player A will cooperate and player B will cooperate.   ✔

○ c. Player A will cooperate and player B will defect.

○ d. Player A will defect and player B will defect.

> Your answer is correct.

Question **13**

Incorrect

Marked out of 4.00

Consider the strategy SKEPTICAL-TIT-FOR-TAT (or STFT, for short): this strategy is just like TIT-FOR-TAT, except that it defects on the very first round, after which it imitates the other player's previous action. Think about a four-round tournament game between two (identical) STFT players. How many points, on average, does each player earn per round?

○ a. 3 points.

○ b. 1 point.

◉ c. 2 points.   ✖

○ d. 0 points.

> Your answer is incorrect.

Question **14**

Correct

Marked out of 4.00

Consider a four-round tournament between a STFT player and a TIT-FOR-TAT player. How many points, on average, does each player earn per round?

- ○ a. 1 point.

- ○ b. 5 points.

- ⦿ c. 2.5 points. ✔

- ○ d. 10 points.

> Your answer is correct.

Question **15**

Correct

Marked out of 5.00

A "true" Prisoner's Dilemma matrix must have the property that CC > (DC + CD)/2. What does this imply?

- ⦿ a. The reward for mutual cooperation is greater than the average reward for two rounds in which players "trade" cooperation and defection ✔

- ○ b. The reward for mutual cooperation is less than the average reward for two rounds in which players always defect.

- ○ c. The reward for mutual destruction is greater than the average reward for two rounds in which platers "trade" cooperation and defection

- ○ d. The reward for mutual cooperation is less than the average reward for two rounds in which players "trade" cooperation and defection

> Your answer is correct.

Question **16**

Correct

Marked out of 5.00

Let's consider another game theory scenario.

Take a look at the matrix:

	A Cooperate	A Defect
B Cooperate	3, 3	4, 2
B Defect	2, 4	0, 0

(Points are for A, B)

Suppose you're player A. If B cooperates, what is your preferred strategy?

○ a. I want to cooperate.

◉ b. I want to defect.   ✔

○ c. I want to do whatever B does.

○ d. I want to ask some questions first.

Your answer is correct.

Question **17**

Correct

Marked out of 5.00

Let's consider another game theory scenario.

Take a look at the matrix below:

	A Cooperate	A Defect
B Cooperate	3, 3	4, 2
B Defect	2, 4	0, 0

(Points are for A, B)

Suppose B could somehow convince you that they are going to defect. (For instance, B says to you, "Before you make your choice, I just want you to know that I have already defected, and am now going home. See you later." Rationally, what you should you do?

Would B's pre-emptive announcement work the same way in a prisoner's dilemma game - what would your decision be if you are Blue and Red says it will for sure defect.? (See Prisoner's dilemma video 4.2 35:04)?

(By the way, if you want to see more about this situation, it is called a snowdrift game, for reasons I will leave you to discover.)

○ a. If B defects, I want to defect as well. In prisoner's dilemma I would want to defect as well.

○ b. If B defects, I want to cooperate. In prisoner's dilemma I would want to cooperate as well.

◉ c. If B defects, I want to cooperate. In prisoner's dilemma I would want to defect as well.   ✔

○ d. If B defects, I want to defect as well. In prisoner's dilemma I would want to cooperate.

Your answer is correct.