EXAMINATION TWO

I. AXELROD AND THE SCIENTIFIC METHOD [50 points]

1. What is Axelrod’s basic research question? [2 points]

2. Provide a concise characterization of Axelrod’s underlying theory. [2 points]

3. What are the basic elements of Axelrod’s model? [7 points]

4. What are two interpretations that Axelrod gives w? [2 points]

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5. Calculate both expected values when someone playing TFT meets someone playing ALL D (assuming $w = .9$). [4 points]

- $\text{EV[ALLD|TFT]} =$

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6. Axelrod’s Theoretical Hypothesis

- What is Proposition #1? [2 points]

- What is the relevance of Proposition #1 to CAP [2 points]

7. What is Axelrod’s testable hypothesis? [4 points]
8. How does Axelrod obtain a sample of strategies for Round #2? Evaluate his sample in terms of whether it is random and representative.

- Sample [2 points]
- Random and/or Representative [1 point]

9. How does Axelrod collect his data? What is the basic item of data he collects?

- Data collection method – [2 points]
- Basic item of data – [1 point]

10. Patterns – Identify and define the four attributes of strategies that do well in Round #2. [8 points]
11. What are the four factors that Axelrod says will affect an individual’s performance in an iterated prisoner’s dilemma game? [8 points]

- Factor:
  - How will it affect performance?

- Factor:
  - How will it affect performance?

- Factor:
  - How will it affect performance?

- Factor:
  - How will it affect performance?

12. Identify three ways to promote cooperation according to Axelrod. [3 points]

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II. Chronology of Cooperation [30 points]

1. What is invasion? [2 points]

2. What is collective stability? [2 points]

3. Using the algebra of invasion, demonstrate how TFT can invade ALL D. Using the mathematical results, provide a short discussion of how invasion might take place as well as why it is able to take place. [7 points]

4. Identify the four central results in the chronology of cooperation. [4 points]
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5. Describe the rescue fire as an iterated prisoner’s dilemma game. [5 points]

   - Elements of IPD

   - Rescue Fire as IPD

6. Using the algebra of invasion, explain why cooperation did not flourish on the island insofar as the rescue fire is concerned. Be sure to include a short written summary that highlights the results of the calculation. [10 points]
V. NON-ZERO-SUM-NESS [20 points]

1. What is the central hypothesis of Wright’s Non Zero? [3 points]

2. Compare and contrast Wright’s hypothesis with Axelrod’s Proposition #1. [3 points]

3. What is non-zero-sum-ness according to Wright? [2 points]

4. Compare and contrast Wright’s conception of non-zero-sum-ness with Axelrod’s IPD. [2 points]
5. Answer two of the following three questions [10 points]

a. On the basis of your analysis of the rescue fire, do you think that Axelrod’s model is falsified or not falsified? Why or why not? [65 points]

b. How does the trench warfare case study influence the degree to which you are persuaded by Axelrod’s conclusions from the chronology of cooperation? [5 points]

c. Identify one story or episode from Non Zero and discuss how it influences the degree of belief that you have in Axelrod’s conclusions from the chronology of cooperation. [5 points]