

# Introduction to Agent-Based Modeling (Summer 2023)

## 3.6 Unit 3 Wrap-up » Unit 3 Exam

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### Instructions 1

Please provide the best answer. You can use NetLogo while answering this exam.

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### Question 2

What are the two terms that W. Brian Arthur used to describe the way agents are modeled as making decisions in the El Farol Bar Problem?

- A. inductive reasoning, bounded rationality
  - B. deductive reasoning, bounded rationality
  - C. inductive reasoning, perfectly rational
  - D. heuristics, bag of strategies
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### Question 3

Visualization is important for agent-based modeling because...

- A. visualization is better than statistics.
  - B. visualization can more easily represent some complex concepts that might be difficult for people to understand from a table of numbers.
  - C. it is one of the major differences between ABM and other modeling methods.
  - D. the only ABMs that work are those with good visuals.
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### Question 4

NetLogo like many languages, uses numbers to correspond to colors. What is the NetLogo number for the base color of red?

- A. 5
  - B. 15
  - C. 10.1
  - D. 19.9
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### Question 5

Why is it sometimes useful to look at the median and the mean of an agent property distribution?

- A. They provide completely different insights into the model.
  - B. They can tell you exactly what kind of distribution you have.
  - C. The mean is rarely descriptive of the overall agent population.
  - D. The mean and the median are the same for a perfectly normal distribution. Looking at both gives you a better sense of the overall distribution.
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### Question 6

Given the way that the NetLogo version of the El Farol Bar Problem represents strategies, which of these strategies could not exist in the NetLogo version?

- A. the attendance for this week will be twice last week's attendance
- B. the attendance for this week will be the same as the average attendance at the first three weeks of the beginning of the model run throughout the model run
- C. the attendance for this week will be the same as the attendance two weeks ago
- D. the attendance for this week will be an average of the last five week's attendance

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**Question 7**

How was machine learning used in the combined GA + El Farol Bar Problem model discussed in Unit 3.5?

- A. the GA was used to optimize the overall parameters of the model
  - B. the GA optimized the strategy that each agent used to decide whether to attend the bar
  - C. the GA controlled the entire model
  - D. the GA mixed the drinks at the bar
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**Question 8**

In the extensions that we added to the El Farol Bar Problem, where did we add the code to plot the data?

- A. code tab
  - B. info tab
  - C. interface tab
  - D. bar tab
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**Question 9**

What would happen if all agents made decisions about attending the bar in exactly the same way?

- A. the attendance at the bar would average 60
  - B. everyone would either go to the bar or not go to the bar
  - C. the attendance at the bar would be 57
  - D. this is what the current NetLogo model does
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**Question 10**

How is the El Farol Bar Problem related to the Minority Game?

- A. it isn't
  - B. they were created by the same people
  - C. they are both perfect representations of a real stock market
  - D. In the minority game you get rewarded for being in the minority similar to the way that when less than 60 people attend the bar you get rewarded
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**Question 11**

What was the command that we used to color the turtles based on reward?

- A. scale-color
- B. color
- C. plot
- D. color-swatches