

Module 7

Overview



- Agent-agent interactions
- Artificial life
- Programming is modeling
- Computer simulations
- Scientific method

Agent-Agent Interactions

- Neilogo agenis can interact with other agenis
- Check if there are other turtles on the patch
- Two commands:
 - count turtles-here > 1
 - count turtles-here with [condition] > 0

Artificial Life



- Many ways to define life
- Artificial life may vary in complexity
 - Just existing
 - Moving, reproducing, dying, interacting etc
- The weak claim vs the strong claim

Weak vs Strong Claim

- Focus on understanding
- Try to predict things
- Strong: computational systems are alive
 - Focus on building
 - Try to get things to work

Programming is Modeling

- How is programming a type of modeling?
- Elements of a model:
 - A version of reality
 - Objects and rules of behavior
 - Mapping between the previous elements
 - Prediction



- Gaining popularity
- Help with design, creation and evaluation of

complex systems

- Changes to the actual system may be difficult to implement, expensive, or impractical



- Weather forecasting
- Flight simulators
- Car crash modeling

Types of Simulation Models - Discrete models

- Changes occur at specific times
- Continuous models
 - Changes occur continuously
- Mixed models
 - Both discrete and continuous elements

The Scientific Method

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all

- Consists of the following steps:
 - Make an observation
 - Ask a question
 - Try to create a **testable** explanation
 - Make a prediction based on the explanation
 - Experiment to test your prediction
 - Refine and iterate



Thank you for watching!



Video created by Bianca Bologa

https://moseslab.cs.unm.edu/lab-page/bianca-bologa.html