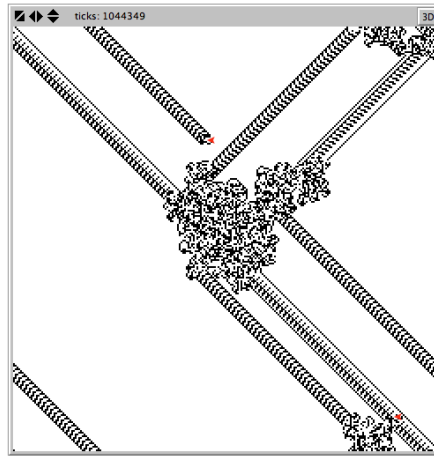THE UNIVERSITY *of*
NEW MEXICO

Lab 3: NetLogo Experiments with Virtual Ants

There are two NetLogo video lectures that accompany lab 3:
1) NetLogo and Langton's Ant – part 1 (part of week 3)
2) NetLogo and Langton's Ant – part 2 (part of week 4)

Assignment For Week 3:

The "NetLogo and Langton's Ant – part 1" fully develops the code you will be entering, running and using in your first experiment.

Even though the code is fully developed in the video, it remains part of this assignment for you, the student, to type that code and get it to run.

After you get the Vants1 program running, you are to design and run experiments then address the following questions:

1) Did knowing (and even programming) the rule being followed by Langton's ant make it easy for you to anticipate its cumulative behavior?

2) In your opinion, does Langton's ant exhibit more than one mode of cumulative behavior? If so, how would you characterize these different modes of behavior?

3) What effect would changes to the initial location or heading of the ant have on its cumulative behavior?

Note: by "cumulative" behavior, we mean the cumulative effect of the ant acting over many iterations, with the results of its previous actions feeding back into its actions.

Grading Rubric for week 3 [10 points total]:

[1 points]: Attached the file in Blackboard Learn with the file name:

`Vants1`.*firstname.lastname*`.nlogo`

Note: DO NOT copy and paste your source code into Blackboard Learn. You must ***attach*** the NetLogo source file.

*****After attaching, you MUST CLICK SUBMIT *****

[1 points]: The "info" section of each your programs includes your name, the date and a description of what the program does.

[8 points]: For the Vants code, design and run experiments that attempt to answer the three questions described above. Describe your design, list the experiments you ran, report your results and state your conclusion. All this reporting must be included within the "info" tab of the

`Vants1`.*firstname.lastname*`.nlogo` file you submit into Blackboard Learn. Note: The points you earn for this section are NOT based at all on your conclusion. Rather, they are based on the on the following criteria:

a) Is your experimental design well-conceived? This includes number of experiments run and ranges of values tested.
b) Is your reporting clear, well organized and easy to read?