

Introduction to Agent-Based Modeling for Social Scientists

Day 4

with your host:

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About Your Host: Aaron Bramson

- Fourth-Year PhD Student Joint PoliSci and Philosophy
- Certificate in Complex Systems
- M.S. in Mathematics from Northeastern University
- Graduate Coursework at Boston University in Economics
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- Employee of Lockheed Martin - Orincon in San Diego
- Specialize in Methodology and Measures
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Getting Started with NetLogo

Locate Sources of Help

- NetLogo Home Page: ccl.northwestern.edu/netlogo/docs/
- Owen Densmore's Page: backspaces.net/
- Yahoo Group: groups.yahoo.com/group/netlogo-educators/
- Google It (Search Personal Websites)
- Aaron Bramson (and other humanoids)

Locate Code to Steal

- Model Library and Code Examples (ctrl+m)
- Above Websites (check links on ComplexityBlog.com)

Can It Be Done in NetLogo?

- Know the Limitations Before Wasting Time
- Doable vs Worth the Effort vs Easy To Do

Getting Started with NetLogo

Tutorials

- Opening, Running, and Altering Models
- Code Basics and Building Blocks of Netlogo
- Become Familiar with Interface and Components

Programming Guide

- How to Use Specific Aspects (Colors, Plotting, Networks)
- Good Reference for Example Implementations
- Closest Thing to a How-To Guide

Primitives Dictionary

- Alphabetical Guide to All Built-In Capabilities
- Brief Descriptions without Good Examples

All Accessible through Help

Getting Started with NetLogo

Planning Algorithms Before Writing Them

- Start with Pencil (or Pen) and Paper
- Describe the Module **in Words** First
- Plan Each Module as an Independent Function
- Write the Code and **ReEvaluate** (Use Lemma Technique)

Reuse as Much Code as Possible (but not more)

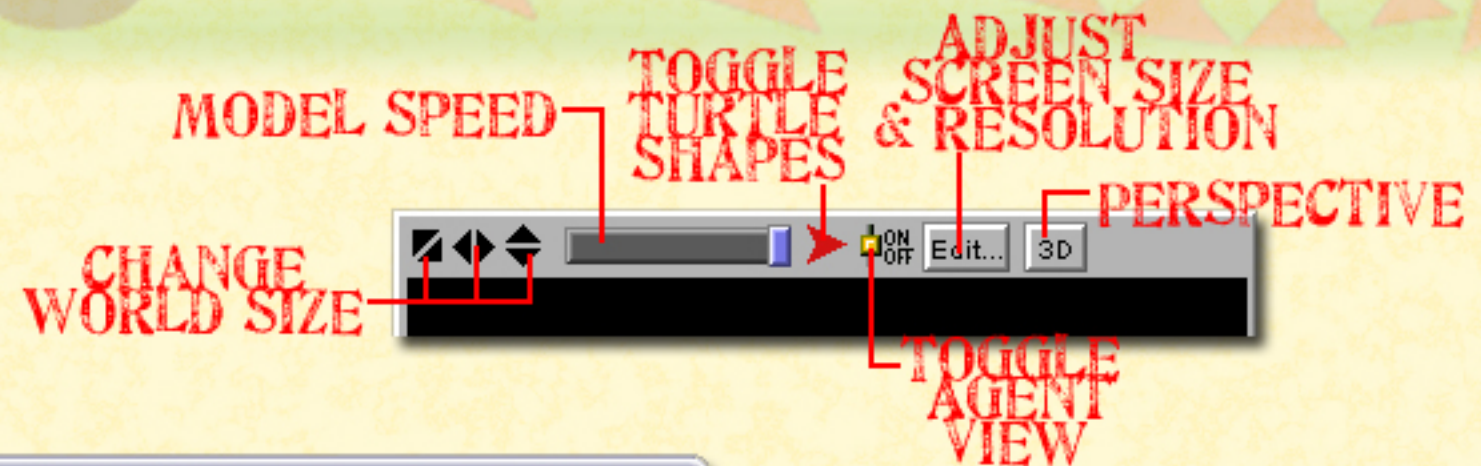
- Save Time and Brain Power by Reusing Methods
- Use the **Same Code** for the **Same Behavior**
- Consider Alternate Methods from Time to Time
- The Bottom Line is: **Modularity is Good**

Facilitate Ease of Coding

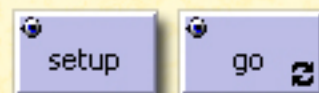
- Have **Two** Netlogo Applications Running Side by Side
- Learn **Keyboard Shortcuts** and Built-in Functionality

Getting Started with NetLogo

Elements of the Interface

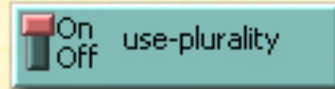


BUTTONS



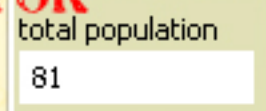
ONCE FOREVER

SLIDER

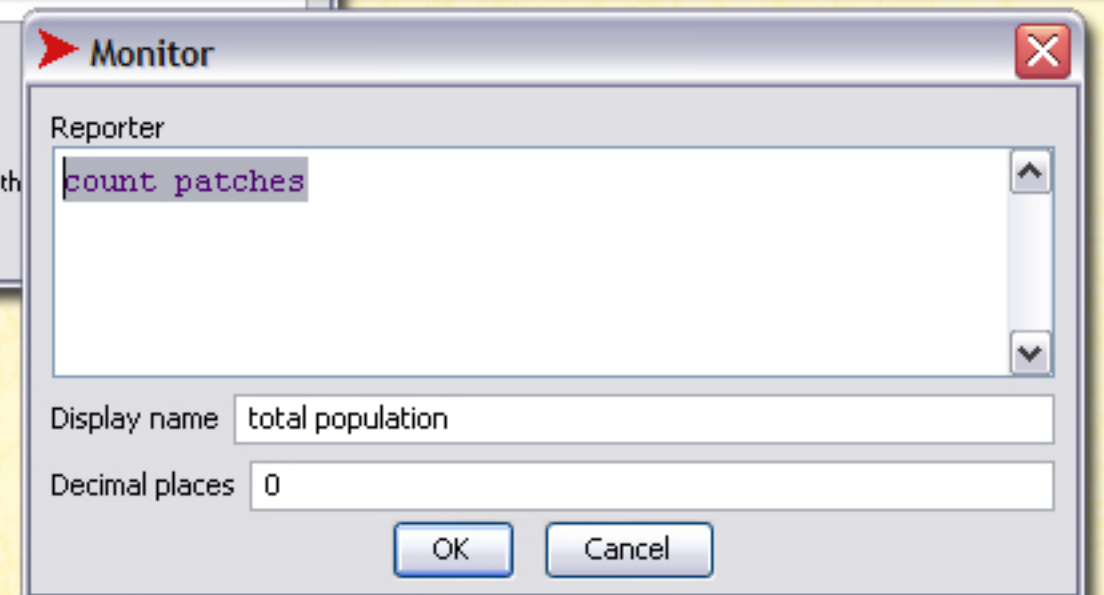
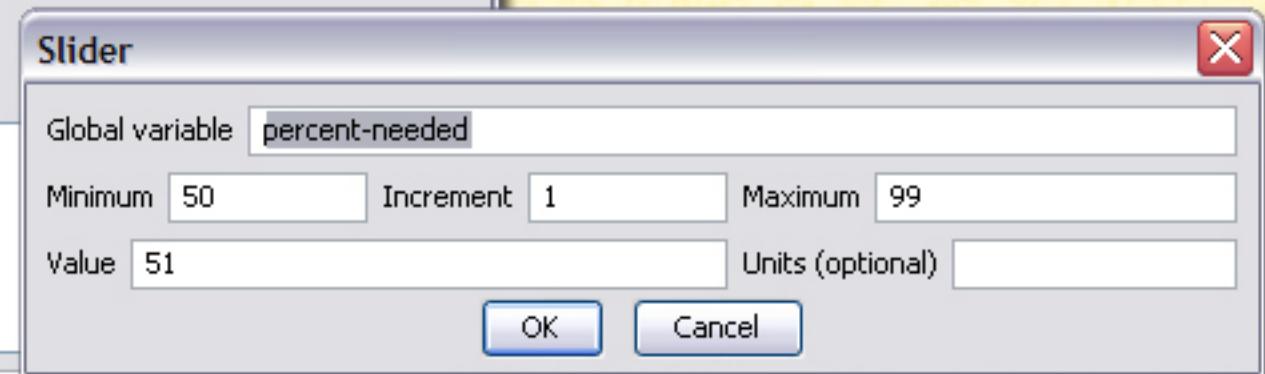
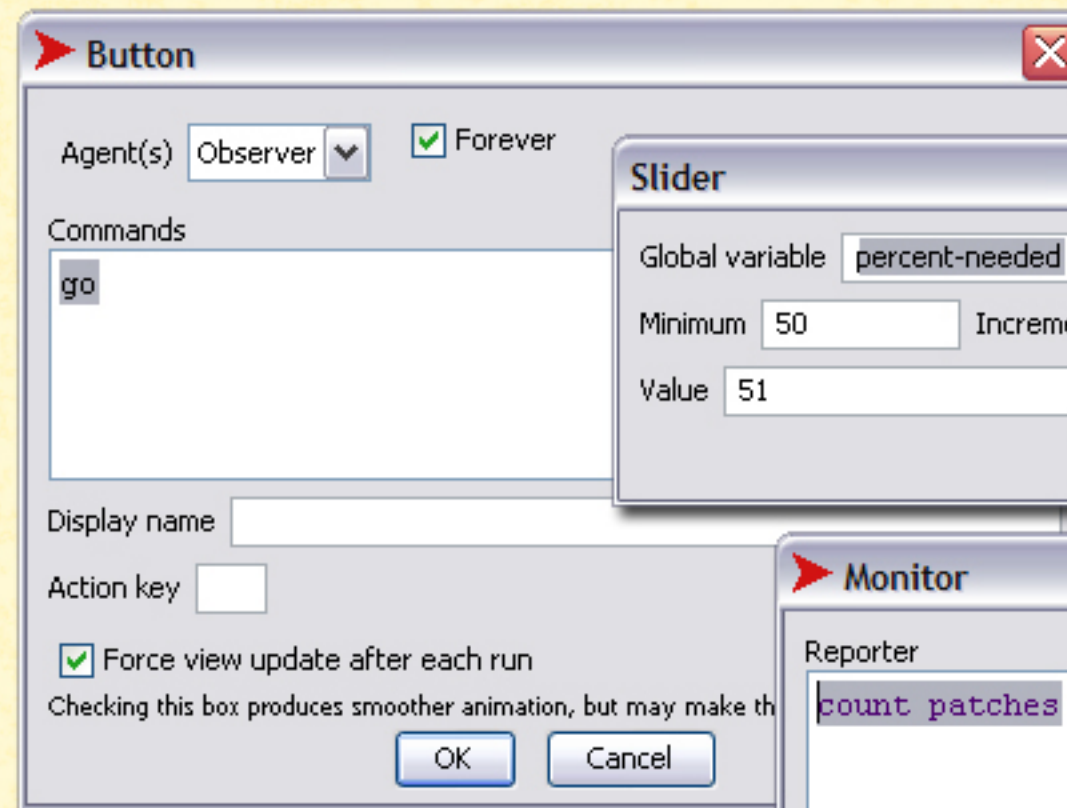


SWITCH

MONITOR



CHOOSER



Getting Started with NetLogo

Phenomenal Changes in Voting Behavior

- 1) Open the Voting Model from the Model Library.
- 2) Setup with 'change-vote-if-tied' and 'award-close-calls-to-losers' off.
- 3) Run 'go' until it settles down.
- 4) Switch 'change-vote-if-tied' on...what happens?
- 5) Switch 'award-close-calls-to-losers' on... holy cow!!!
- 6) Run 'setup' and 'go' again (with both on).

How is it different?

- 7) Look, we have a model of voter-behavior path dependence from institutional change!!!!