

Overview

This replication package generates figures 1, 2 and 8. The NetLogo agent-based modeling software package generates figures 1 and 2, the first in a 1 minute or 2, the second more quickly. Figure 8 requires Mathematica and takes only a few seconds to run.

Data Availability and Provenance Statements

The only original data in this paper concerns figure 8, involving citation counts using data gleaned from Google Scholar. Figure 10 is from Batten (2013) and is based on data on microprocessors that is in the public domain here:

<https://www.karlsruhp.net/2015/06/40-years-of-microprocessor-trend-data/>.

Statement about Rights

- ✓ I certify that the authors have legitimate access to and permission to use the data employed in this manuscript.
- ✓ I certify that the authors of the manuscript have documented permission to redistribute/publish the data contained within this replication package.

Summary of Availability

- ✓ All data **are** publicly available.

Details on the single Data Source

Figure 8 is the only one that uses original data, citation counts for the terms “game theory,” “experimental economics,” “agent-based models,” and “ABM”, as acquired through the use of Google Scholar (2018), basing queries on specific years for each of the years in question. The data on which this plot is based are located in the “Paper counts-final.nb” file in the “Figures” folder. This is a *Mathematica* notebook file.

Computational requirements

Two software packages are needed, NetLogo, which is available for free, and Mathematica. No special hardware is required.

Software Requirements

- NetLogo (codes were last run with version 6.4.0):
 - This agent-based modeling development environment is available for free here: <https://ccl.northwestern.edu/netlogo/download.shtml>. A script cannot be provided to automate the download and installation process as user-specific information must be entered in order to proceed with the download.
- Mathematica (notebook was last run with Mathematica version 12.2.0.0)
 - Notebook contents can be viewed with the Wolfram Player, available for free.

Controlled Randomness

Random number generators are used in the NetLogo codes:

- ✓ The seed is set to - 1013275810 on line 18 of ‘Schelling.nlogo’
- ✓ The seed is set to 42 on line 48 of ‘ZI traders.nlogo’

Memory and Runtime Requirements

No special memory or runtime requirements. The NetLogo and Mathematica files should run on any laptop computer.

Summary

Approximate time needed to reproduce figures 1, 2, and 8 on a 2024 laptop:

- ✓ < 5 minutes

Note

These codes were last run on an Intel-based MacBook Pro with OS version 11.7.10.

Description of programs/codes

- The files in Models are NetLogo codes that, once the software is downloaded, will fire up the application by simply double-clicking on either of them.
- Note: only one NetLogo model can be run at a time.
- The .nb file in Figures is a Mathematica notebook that creates figure 8 in the main text.
- The other 3 files in Figures are snapshots from running the 'Schelling.nlogo' model.

Instructions to Replicators

- Each NetLogo model has a fixed seed and will exactly reproduce the figures in the paper. Changing the seed changes the results. Use 'let seed new-seed' on line 18 of 'Schelling.nlogo' or 'randm-seed new-seed' on line 48 of 'ZI traders.nlogo' to make each run turn out differently.

Details

- To run the NetLogo models, first hit 'Setup' and then 'Go'
- To run the Mathematica notebook, first click on the cell brackets on the right and then hitting either Enter or Shift + Return.

List of tables and programs

The provided code reproduces:

- ✓ Selected figures in the paper, as explained below.

Figure #	Program	Note
Figure 1	Schelling.nlogo	Images in the paper are from times 0, 100, and 200
Figure 2	ZI traders.nlogo	The image in the paper is from the final timestep
Figures 8	Paper counts.nb	The images in the paper are the final plots

References

Batten, Christopher. 2013. "Intro to Electrical + Computer Engineering." Accessed 23 May 2018. <https://www.csl.cornell.edu/~cbatten/misc/batten-ece-engrg1060-2013.pdf>.

Google Scholar. n.d. Accessed 21 May 2018. <https://scholar.google.com>.