Specifying models: The ODD protocol

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Contents

Reading:

Required Reading (everyone):

- Agent-Based and Individual-Based Modeling, Ch. 3.

Reading Notes:

Read carefully through the different design principles. Some of them have meanings that are a bit different from what you might infer from colloquial use.

For instance:

- **Adaptation** does not mean a persistent change in a turtle's behavior similar to the biological/Darwinian sense of adaptation in species. Rather, it means the way an agent changes its behavior in response to its *immediate* conditions. Thus, adaptation in the ODD sense might include behaviors such as eating when you are hungry (*eating* is an **adaptation** to *hunger*), putting on warmer clothing when it's cold out (bundling up is an adaptation to cold), and running away from a predator.
- The kind of persistent changes that arise over time from experience fall under the ODD design concept of **learning**: If there is more food near a river than on hills, turtles may **learn** to go to rivers when they are hungry.

You can download several useful documents related to the ODD protocol from the class web site:

- The journal article, V. Grimm *et al.* (2010). "The ODD protocol: A review and first update" *Ecological Modeling* **221**, 2760–68.. https://ees4760.jgilligan.org/files/odd/Grimm_2010_ODD_update.pdf
- A Word document that provides a template for writing ODDs: https://ees4760.jgilligan.org/files/odd/Grimm_2010_odd_template.docx
- Lists of scientific publications using agent-based and individual-based models that either do or don't use the ODD protocol (this appeared as Appendix 1 of the Grimm *et al.* paper):
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