UNIVERSITÄT ZU LÜBECK
INSTITUT FÜR MULTIMEDIALE
UND INTERAKTIVE SYSTEME

Crash Course Julia & Agents.jl

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General

- It‘s easy to use!
- Similar to Python (also has good integration)
- Not object-oriented!
- Extensive documentation available:
  https://docs.julialang.org/en/v1/
- Or in VS Code: Hover over highlighted text

Jupyter Notebook

- We will use a Jupyter notebook in VS Code
- Interactive Cell Execution:
  - Run cells using the play (▶️) button or Shift+Enter
  - Each cell can be run independently, and outputs (e.g., plots, tables) appear inline.
  - Note: There is a dependency between some cells at the beginning.

Syntax: Some things to note

- Run code line by line
- Symbols :symbol1, :symbol2
  - Immutable identifiers
  - Lightweight, interned strings
  - Here: used to describe parameter choices
- Precompilation might take some time, but only has to be done once (after package installations)

Syntax: Some things to note

- function! ← exclamation mark indicates in-place operation
- function(positional_argument; named_argument = …)
  - function(; …) -> only named arguments
  - network_type = network_type not necessary! (if the same)

Agents.jl - Basics

- Framework for agent-based modeling
- Discrete time simulation
- Three main components
  - Agents (acting individuals)
  - Environment (space) – in our case: GraphSpace
  - Changes (rules for agents and environments)
- Run model (agent_step, model_step)