Pure Functional Programming in Agent-Based Simulation
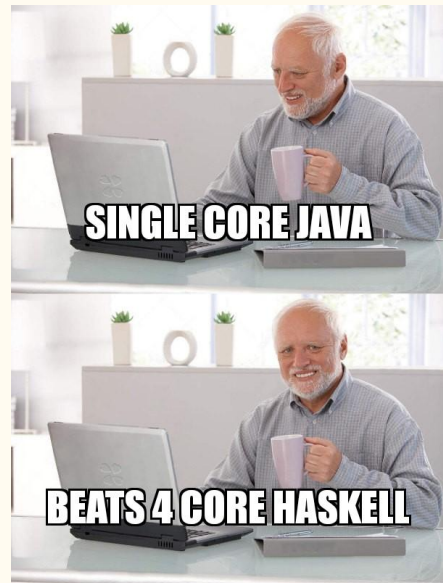
Supervisors: Dr. Peer-Olaf Siebers, Dr. Thorsten Altenkirch

—

Jonathan Thaler

General research topic

How can we implement ABS in pure functional programming paradigm (Haskell) and **what** are the benefits and drawbacks?

- How: Functional Reactive Programming (FRP)

- Benefits so far...
  - Everything is explicit
  - Parallelism for free
  - Concurrency a piece of cake
  - Explicit control of side-effects

- Drawbacks so far...
  - Everything is explicit
  - Performance

Current research activities (3rd Year)

- One more (conference) paper
  - Selling functional programming to ABS community
  - Case-Study: full implementation of Sugarscape
  - Solved central problem: direct agent-interaction
  - Looking into automated testing

- Writing Thesis: January onwards

- After 2 years
  - Enthusiasm replaced by realism
  - Still some self-doubt

AND THEN HE SAID

FUNCTIONAL PROGRAMMING IS GREAT FOR AGENT-BASED SIMULATION

imgflip.com