MASON Retirement Age

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RA

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Outline

The two souls of the paper

- An experiment in replication

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- An experiment in replication
- An experiment in MASON

Replication

- If we choose a very simple model, can we achieve “numerical identity”?

Replication

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- No

Replication

- If we choose a very simple model, can we achieve “numerical identity”?
- No
- Numerical identity is really hard

MASON

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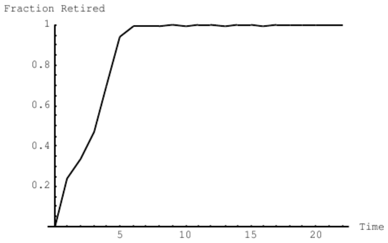
MASON

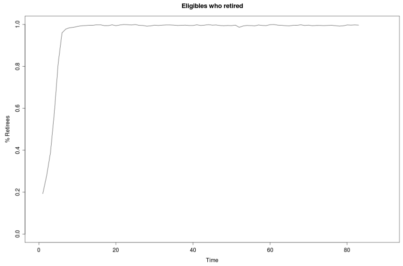
- *Models are completely independent from visualization, which can be added, removed, or changed at any time*
- Can we believe advertisement?
- Maybe.

Outline

The Good



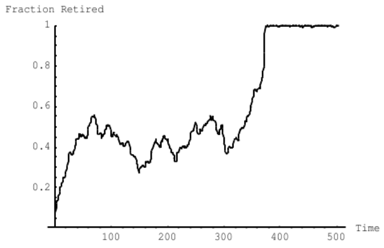
(a) Original Paper



(b) MASON replication

Figure: 20% rational agents case comparison

The Good



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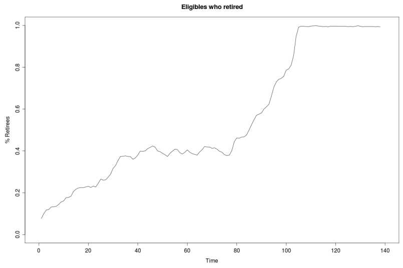
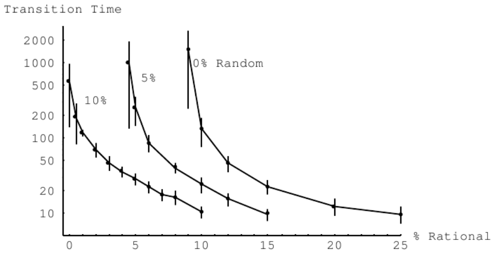


(b) MASON replication

Figure: 5% rational agents case comparison

The (kind of) good



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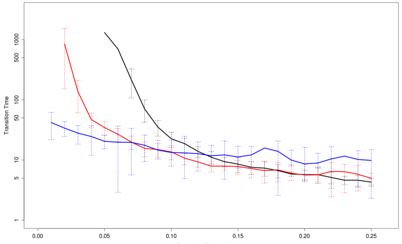

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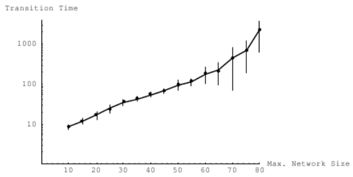

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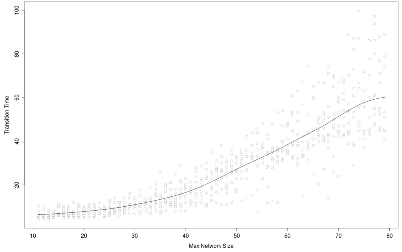

(b) MASON replication

Figure: Changes in time to get full-retirement equilibrium by changing maximum network size. Grey dots represent runs

The really bad

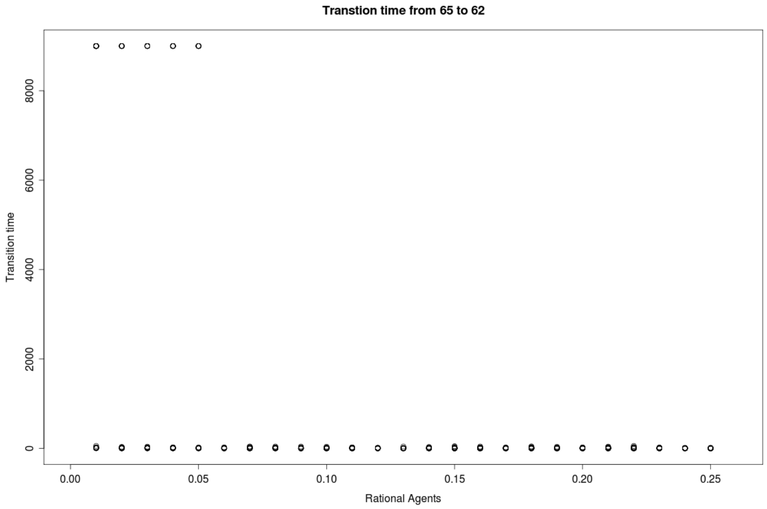

Figure: Weird dynamics

The weird

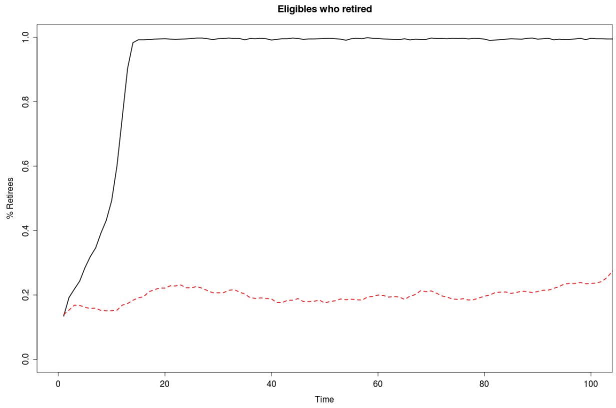

Figure: The black line is the simulation with strict threshold, the red line is without

Outline

The Advantages of Java

- Can use premade data structures
- Can use premade modelling structures
- Object-oriented programming!

Amateur Perspective

- Never write twice

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- Small meaningful functions

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- Implementation Hiding

Amateur Perspective

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- Implementation Hiding ... sort of

Agent Type

- Three types of agents

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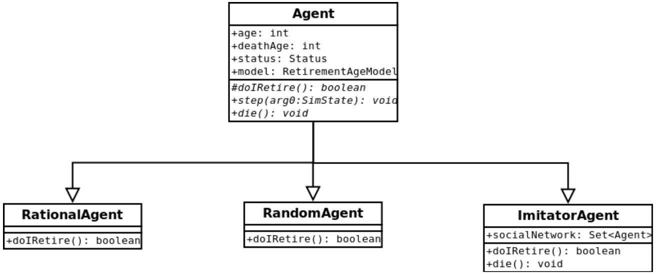
- Keep them as a class
- Instantiate them in proportion

It's UML Time!


Agent
+age: int
+deathAge: int
+status: Status
+model: RetirementAgeModel
#doIRetire(): boolean
+step(arg0:SimState): void
+die(): void
RationalAgent
+doIRetire(): boolean
RandomAgent
+doIRetire(): boolean
ImitatorAgent
+socialNetwork: Set<Agent>
+doIRetire(): boolean
+die(): void

Agent

- Interface vs Abstract Class

Agent

- Interface vs Abstract Class

```
public void step(SimState arg0) {

age++;

if(age >= deathAge)
this.die();

else if (status == Status.WORKING)
status = doIRetire();
}
```

Overriding

- The difference in agents is only in the method *doIRetire()*

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- ImitatorAgent extends *die()*

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- ImitatorAgent extends *die()*
- All we need to do is schedule them.

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- It “automatically” destroys unused objects
- Automatically: unlinked objects
- Cannot be done manually

Delete agents

- Do we really need to destroy them?

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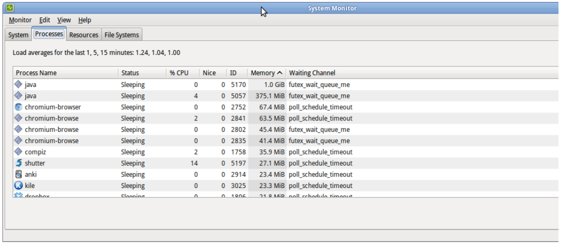

Load averages for the last 1, 5, 15 minutes: 1.24, 1.04, 1.00

Process Name	Status	% CPU	Nice	ID	Memory	Waiting Channel
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shutter	Sleeping	14	0	5197	27.1 MiB	poll_schedule_timeout
anki	Sleeping	0	0	2914	23.4 MiB	poll_schedule_timeout
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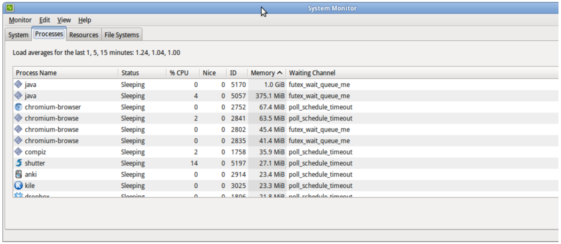

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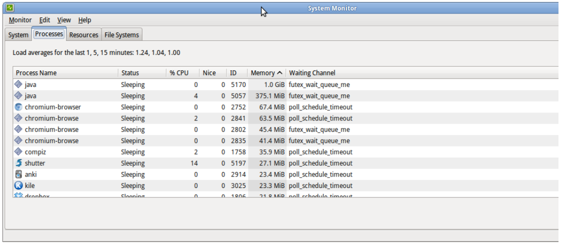

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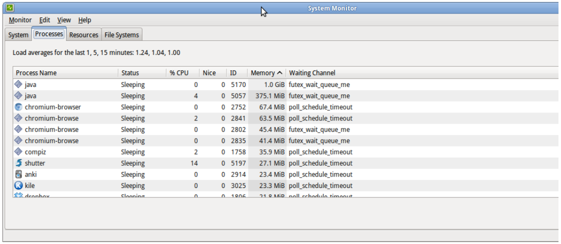

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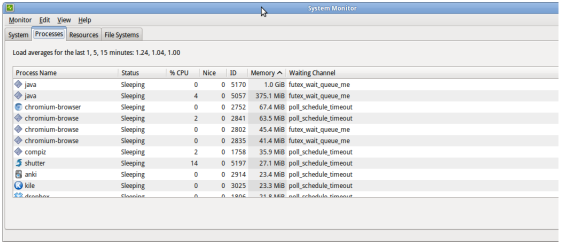

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- How does schedule works?
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- **public** *Stoppable scheduleRepeating(Steppable agent)*

Delete agents 2

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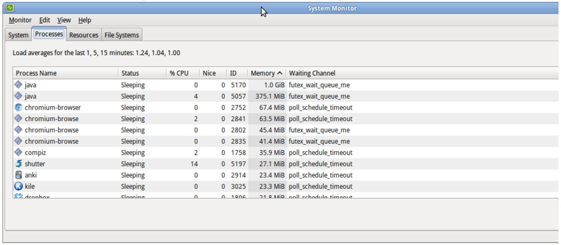

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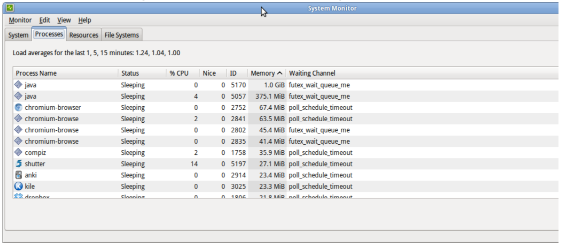

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Social Network

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- As long as one of your friend is alive (or a friend of that friend...) you will not be recycled
- This created enormous slowdowns, even after fixing for the other two
- Morale: Garbage collector thinks you are smarter than you are