

Simoji Quickstart Guide

Simoji is a language and tool for thinkers to write shareable simulations using 🐜 's. You write your simulations in a simple language using mostly Emojis and then click play. Simoji is public domain, open [source](#) and suggestions welcome!

Example Program

```
comment Define an ant agent
🐜
comment Ants turn then move one space per tick
onTick
  turnRandomly
  move
comment Ants pick up food.
onHit
🍌
  pickItUp

comment Define an ant hill
🏠
comment On each tick, with 5% odds
onTick 0.05
comment Spawn an ant
spawn 🐜

🍌

comment Set up the board.
insert 3 🍌
insert 1 🏠
```

Concepts

Board

The Board is the rectangle on which your simulation takes place. It has a width and height and is divided into a grid.

Agents

Agents are the key concept in Simoji. Everything you see on your board is an agent. In the code above, the ant, hill, and food are all agent types.

Events

Events are blocks of commands that execute during the running of the experiments. Probabilities can be assigned so blocks run stochastically.

- onTick
- onHit
- onTouch
- onDeath

Some events can also happen on the board level:

- onTick
- onExtinct

Commands

- kickIt
- replaceWith
- spawn
- remove
- pickItUp
- turnRandomly
- turnToward

Attributes

Agents can have attributes. You can define your own. Some are built in like:

- health

Some attributes are booleans with only 2 states like:

- solid
- bouncy

Experiments

You can run multiple boards at the same time using the `experiment` keyword. You can tweak any words in your experiments. Usually you want to change Settings. The maximum boards at one time is currently 4.

Parameters

You can define parameters that you use throughout your simulation code. This makes it easy to tweak them in experiments. For example:

```
lightningFrequencySetting .1

experiment
comment Lots of lightning
lightningFrequencySetting .5
```

Reports

Data is collected during the running of every experiment. You can export this data to CSV and/or start analyzing it immediately in the Ohayo app.

Board Setup

You can setup your board with the following commands.

- insert
- paste

Agent Palette

You can drop new Agents onto your board using the Agent Palette on the right side of your screen.

Tree Notation

Simoji the language is a [TreeLanguage](#). There are no visible syntax characters. Indentation is used for parent/child relationships. Here is the [grammar](#).

Keyboard shortcuts

Combo	Command
Spacebar	Play/Pause
?	Toggle Help
r	Reset Experiments
s	Snapshot Current Starting Params
o	Open Reports
c	Export CSV data
d	Toggle Debugger
Arrows	Move selection
Backspace	Delete selection

Sharing Your Simulations

At the top of the page you should see a link that you can copy and paste to share your sim. When you update your simulation code that link will update.

Getting Involved

The source code for Simoji and all development happens on [Github](#).

Printable Version

This cheat sheet is also available as a [printable](#) version.