Titel:	Robotics Übung 02 Abgabe
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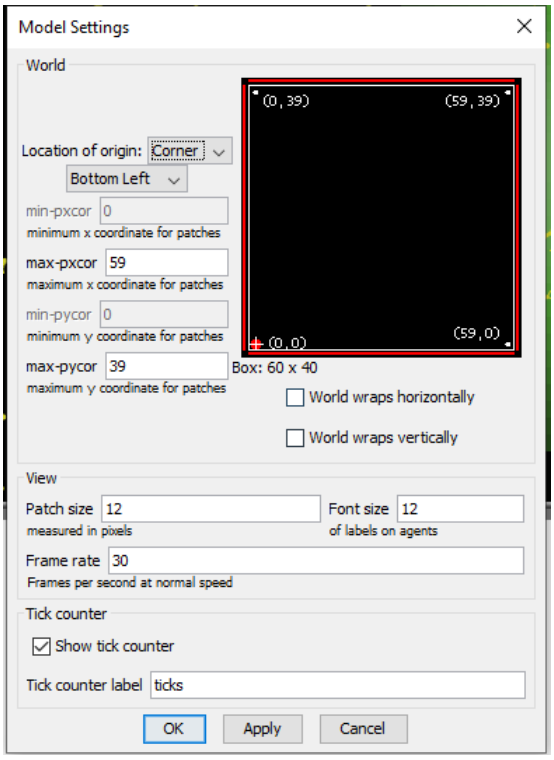
Datum:	12.06.2021 15:45

- **Aufgabe 02.01**: 1/1 pt



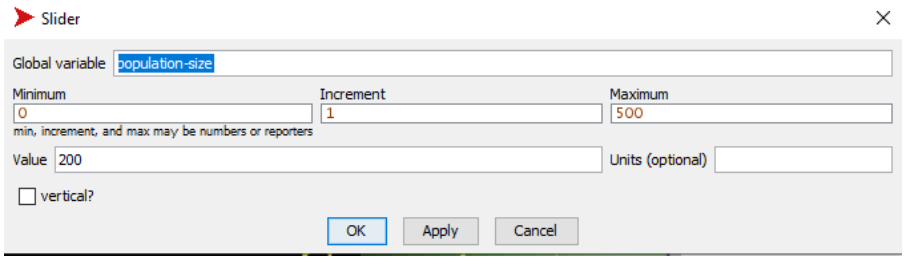
- **Aufgabe 02.02**: 3/3 pt

```
to setup
  ca
  create-world
  load-bees
end

to create-world
  ask patch 59 20 [
    ask patches in-radius 20
    [
      set quality (125 - (distance patch 59 20) * 5)
    ]
  ]
  ask patch 0 20 [
    ask patches in-radius 20
    [
      set quality (90 - (distance patch 0 20) * 5)
    ]
  ]
  color-patches
  reset-ticks
end
```

```
to load-bees
   create-bees population-size [
   set size 1
   set shape "bug"
   set color yellow
   setxy random-xcor random-ycor
  ]
end
```

- **Aufgabe 02.03**: 1/1 pt



Entire go method:

```
to go
  ask bees [
    if patch-ahead 1 = nobody [
         lt random 180 + 90
      ]
    (ifelse estimated-wait-time > 0 [
        set estimated-wait-time estimated-wait-time - 1
    ]
    any? other bees in-cone 1.5 120 = true
    [
      set estimated-wait-time quality * 4
    ]
    )

    if estimated-wait-time <= 0 [
     if random 10 = 1 [
        lt random 90
        rt random 90
     ]
     fd 1
    ]
  ]
  ; sehen in-cone
  ; rand erkennen patch-ahead 1 = nobody
  tick
  plot-optima
end
```

- **Aufgabe 02.04**: 3/3 pt

```
if estimated-wait-time <= 0 [
 if random 10 = 1 [
    lt random 90
    rt random 90
 ]
 fd 1
]
```

- **Aufgabe 02.05**: 2/2 pt

```
any? other bees in-cone 1.5 120 = true
[
  set estimated-wait-time quality * 4
]
```

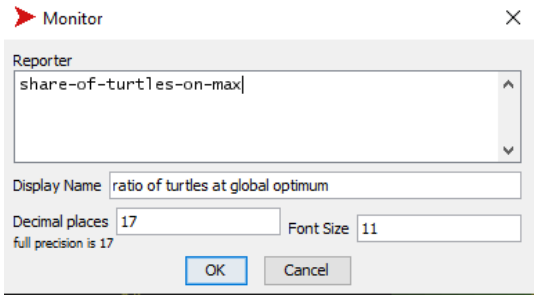
- **Aufgabe 02.06**: 1/1 pt

```
if patch-ahead 1 = nobody [
    lt random 180 + 90
  ]
```

- **Aufgabe 02.07**: 1/1 pt
- **Aufgabe 02.08**: 3/3 pt

```
to plot-optima
  set-current-plot "at_optima"
  set-current-plot-pen "local"
  ask patch 0 20 [
    plot count bees in-radius 20
  ]
  set-current-plot-pen "global"
  ask patch 59 20 [
    plot count bees in-radius 20
    set share-of-turtles-on-max count bees in-radius 20  / population-size * 100
  ]
end
```

- **Aufgabe 02.09**: 1/1 pt




```
set share-of-turtles-on-max count bees in-radius 20  / population-size * 100
```

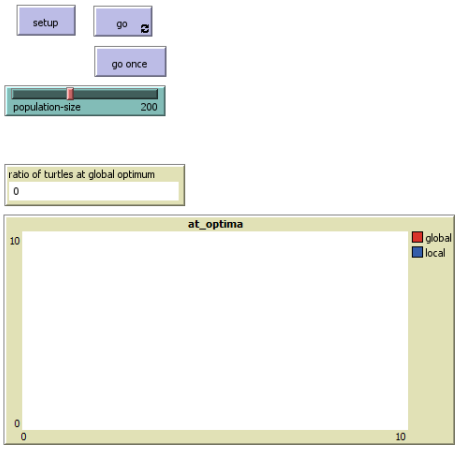
- **Aufgabe 02.10**: 2/2 pt

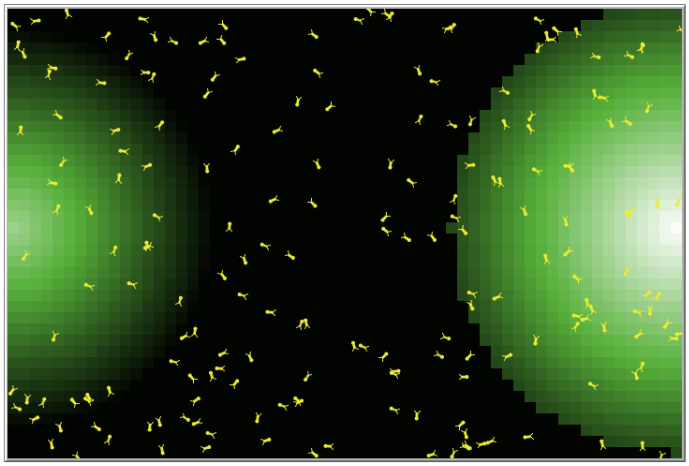
The behavior of one single bee is random (or as random as the code allows it to be). The only thing which is not decided randomly is the wait time on a patch as said wait time is directly proportional to the quality of the patch the bee is waiting on. The quality of a patch is not random but centered around two maxima, one local and one global with ever decreasing quality the further the patch from the maxima.

This leads to that bees stay stationary for longer on patches which are of better quality. And because bees stop when they “see” another bee, being stationary for longer increases the likelihood of being spotted, which then again leads to more bees stopping and so forth.

- **Summe der Punkte Self Assessment**: 18 / 18 Punkten

Interface:





Bedienung:

Setup -> go

Beschreibung:

Es funktioniert alles wie gefordert.