

## MicroRécif Report 2

### Execution procedure – t43.txt

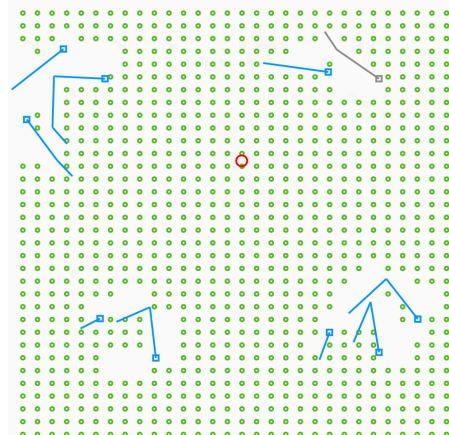
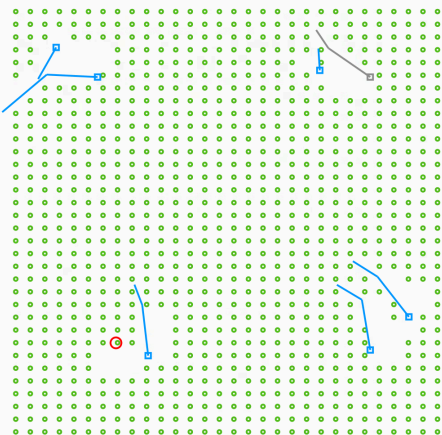
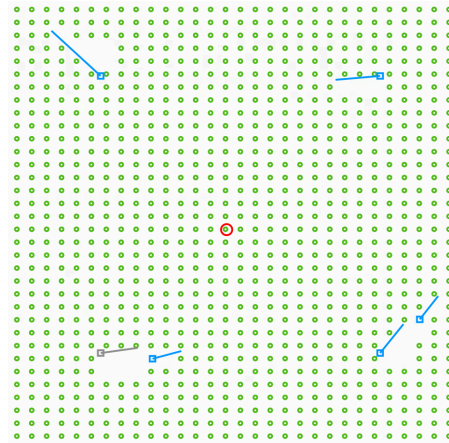
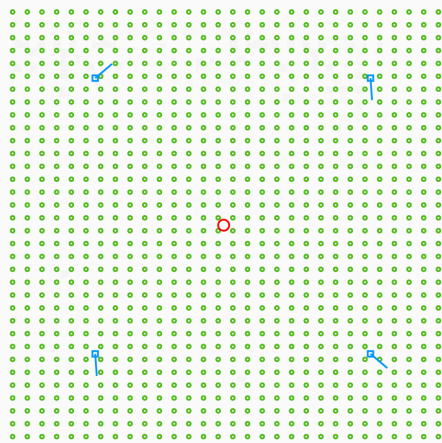
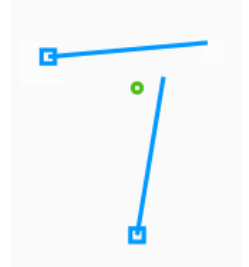
By execution of test number 43 the code undertakes actions specified in the following. *Initialisation* and interpretation of the simulation initial state, by **linedecoding** as specified by the data in t43.txt. Data extracted is Coral A and B direction of rotation, TRIGO. The simulation is drawn by **drawSimulation**.

Coral A initiates search for algae with **searchEatAlg()**. Subsequently, the algae is identified to be within range, tagged for consumption, and the angular distance is calculated with **closeAlg()**. For Cora B **searchEatAlg()** yields no algae within range. Both Corals have their angles incremented to the nearest algae if within range. If not, the angle is incremented by **delta\_rot**. The method **collision()** is called to ensure that the update does not imply a collision. If however, a collision and/or intersection is detected by the updated Corals the update is canceled. Hereafter the rotational direction of a colliding Coral is switched. As a consequence Coral A remains at the same position but with rotational direction INVTRIGO.

For both Corals A and B **searchEatAlg()** yields no algae within range. Both Corals have their angles incremented by **delta\_rot**.

Once again for both Corals A and B **searchEatAlg()** yields no algae within range. Both Corals have their angles incremented by **delta\_rot**.

### t46.txt



### **Methodology and Work Organization**

Our work process for the project consisted of a top-down approach creating the pseudocode for each of the 3 hand-ins. Hereafter, code was written using a bottom-up approach creating the basic code components necessary for the functioning of the module in question. Thus we started working on the module, shape, as it is one of the most fundamental ones. The production of code in separate components allowed for tests by scaffolding which greatly facilitated the debugging process. A frequently utilized tool for keeping the code organized was GitHub. Especially the ability that allows for the creation of different branches was useful in order for work on the code to be done simultaneously. Working simultaneously ensured time efficiency meanwhile allowing for testing of code while another part was still being edited, thus not compilable. The proportion of work done together (physically or virtually) is estimated to be 35% whereas the remaining 65% were spent apart producing code and preparing to merge what we had created. In hindsight we would not change the time proportions but rather that when together we would agree upon specific outputs as well as function signatures so that merging our respective codes would go smoother.

The most frequent bug encountered during our work was segmentation fault and it was corrected. The bug that caused the most problems was one that stemmed from the interpretation of the test file provided. It caused a lot of problems as it was only detectable after initializing a 2nd segment. Even in the case of several segments it did not always cause an error at **readfile**. Therefore it took a great deal of time to identify the source of the bug given the many number of candidates that could cause a bug resulting in the same error output. In order to identify the bug a systematic approach by process of elimination was applied.

### **Conclusion**

In conclusion, our work on MicroRécif has successfully increased our understanding on object oriented programming, what this programming approach entails, and why it may be beneficial for our future programming challenges. As for the environment put at our disposal it has been accommodating to our needs as we have worked primarily on our personal laptops. Regarding the help provided at the exercise sessions we found it to be very insufficient, not due to the quality of the help but due to the lack of available assistants. As we progressed through the hand-ins we've gotten to know one another better which gradually increased the efficiency of our team work. Were we to do it again we would pick up applying the experience gained from our work process previously described.