

Project Assignment #1

Robby the Soda Can Collector

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1 Plot of Fitness Scores

The plot for the best performing robots (with default parameters) could be seen below in Figure 1.

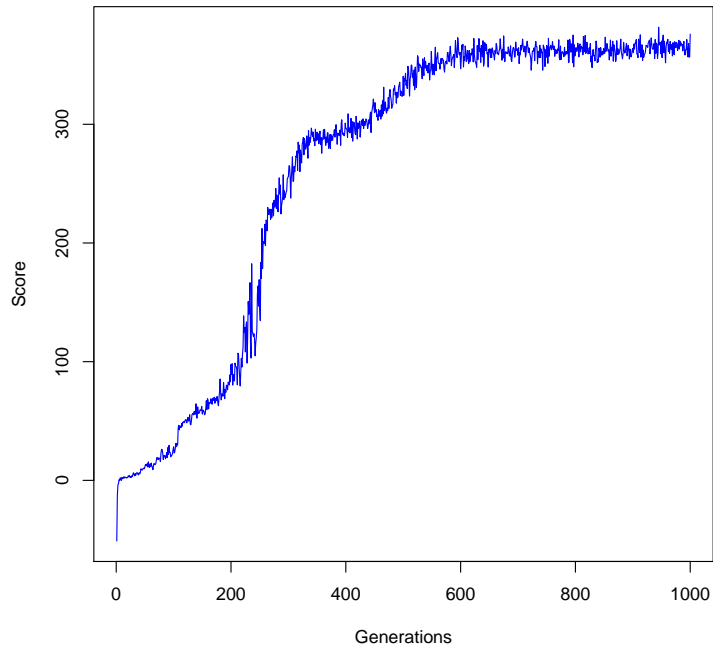


Figure 1: Best performing robots through generations

2 Changes in Mutation Probability

We observe the score stalling after a short period of time in in Figure 2 when mutation probability is set to zero.

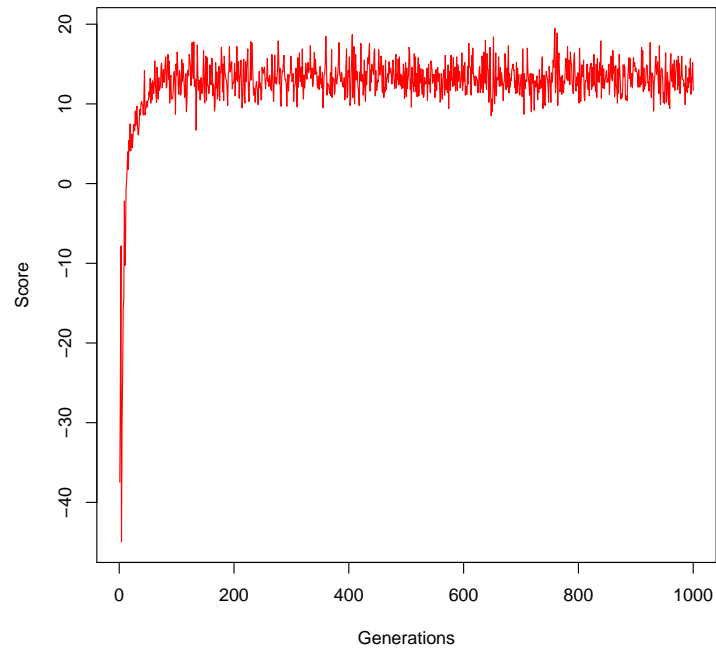


Figure 2: Best performing robots through generations (no mutation)

2.1 Discussion

If we compare previous figures, we can see that the robots with zero mutation probability score poorly in their following generations. The comparison could be seen in Figure 3.

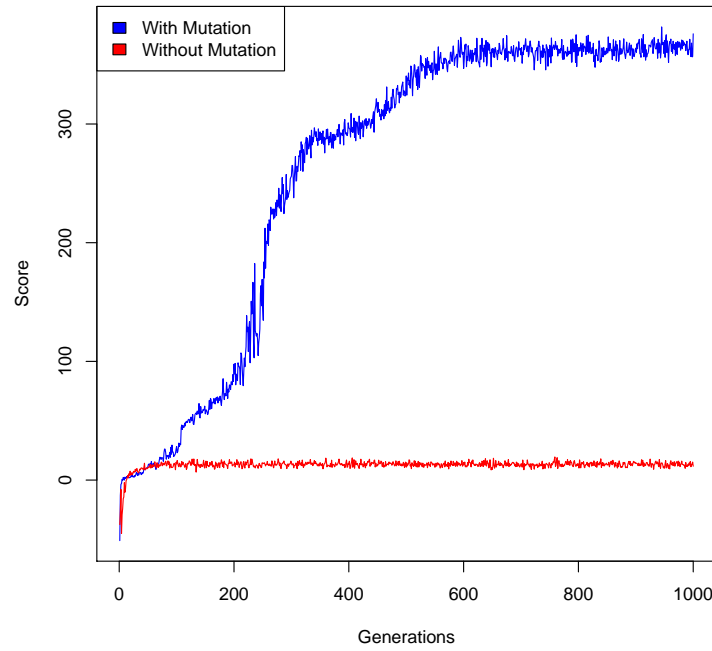


Figure 3: Comparison of generations in contrast of mutation probabilities

3 Indexing

“I always thought something was fundamentally wrong with the universe” [1]
(This is a part in progress.)

4 STAY_PUT Actions

The average usage of the STAY_PUT operation for a generation (calculated among 1000 generations) is 50.88, and for a single robot: 0.2544. The standard deviation for the number of STAY_PUT actions is 11.48676. We can observe decrease in the amount of STAY_PUT actions through generations as our robot gets clever (or rather, less stupid). The plot for this could be seen below in Figure 4.

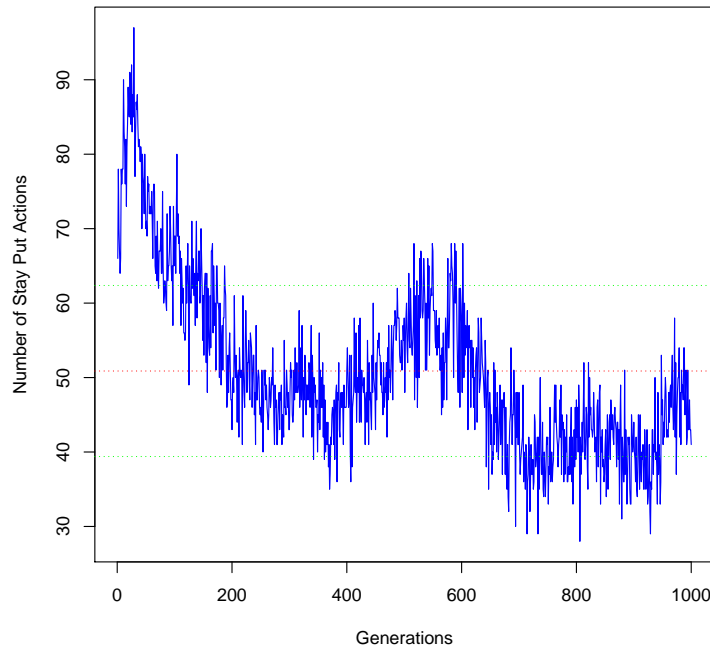


Figure 4: The decrease in STAY_PUT actions as generation id increases

References

- [1] D. Adams. *The Hitchhiker's Guide to the Galaxy*. San Val, 1995.