Errata sheet for: An Empirical Analysis of Collaboration Methods in Cooperative Coevolutionary Algorithms

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Corrected Results

There are several errors in the paper titled *An Empirical Analysis of Collaboration Methods in Cooperative Coevolutionary Algorithms* appearing in the GECCO 2001 proceedings. The mistakes were regarding the number of evaluations performed for various experiments. The mistakes affect the results of the paper somewhat, and the conclusions minimally. In several cases repairs to the article can be made by simply noting some correctional information about the experiments, but in other cases we elected to re-run the experiments in order to obtain better results.

Corrections regarding the following results should be noted. Tables 3–5, printed on the fifth page of the article represent runs of 20,000 evaluations long, rather than the stated 100,000. Figure 5 on the next page shows nine piegraphs in a three by three grid. The last two columns of this graph are experiments where a collaborator poolsize of two is used. Here, again, experiments were halted after only 20,000 evaluations. The first column of piecharts in figure 5 illustrate results for experimental groups run with collaboration poolsizes of three. In these cases, the experiments were halted after 30,000 evaluations.

Since several of the comparisons for the collaboration selection pressure and collaboration poolsize suggest a fixed–budget of evaluations is the best approach, the experiments which generated the results displayed in figures 2–4 were re-run. Corrected versions of these figures appear in this errata. The corrected versions *do* represent groups run to 100,000 evaluations in all cases.

The conclusions of this study are affected somewhat. To address this, a section has been added to this errata itemizing the conclusions in summary. We are working on a more in–depth correction to the article, which will be publicly available.

Corrected Conclusions

- An optimistic approach is generally the best mechanism for collaboration credit assignment
- Collaboration poolsize and collaboration selection pressure are important for fitness landscapes with strongly interacting subcomponents
- For fitness landscapes with weakly interacting subcomponents, the collaboration selection pressure is the most significant factor.
- Combining these approaches (CCA-2) may be a good first stab at solving a problem when the degree of variable interactivity is unknown

[1]From Proceedings of the Genetic and Evolutionary Computation Conference, 2001.

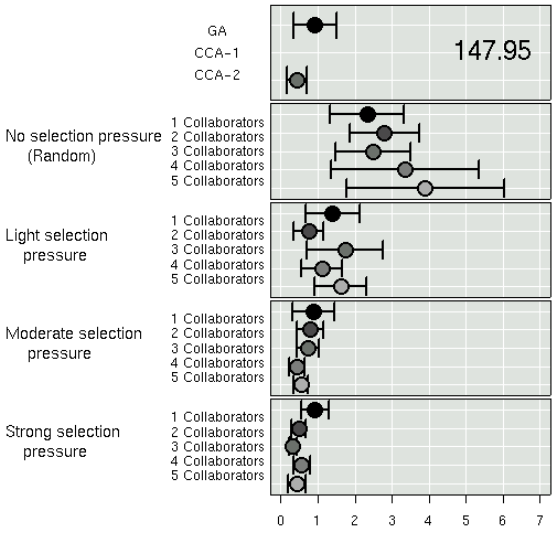

Figure 2: Results for Rosenbrock (f_1) minimization experiments. The x-axis represents the final reported result from the EA after 100,000 function evaluations. The points plotted are averages of 50 trials, and the whiskers show the 95% confidence intervals.

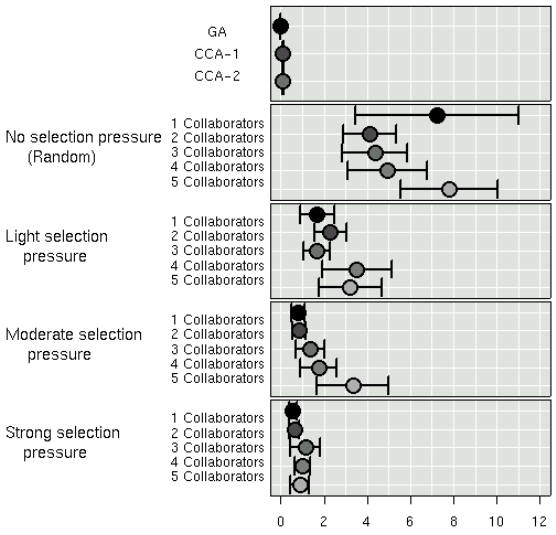

Figure 4: Results for the off-axis quadratic (f_3) minimization experiments. The x-axis represents the final reported result from the EA after 100,000 function evaluations. The points plotted are averages of 50 trials, and the whiskers show the 95% confidence intervals.

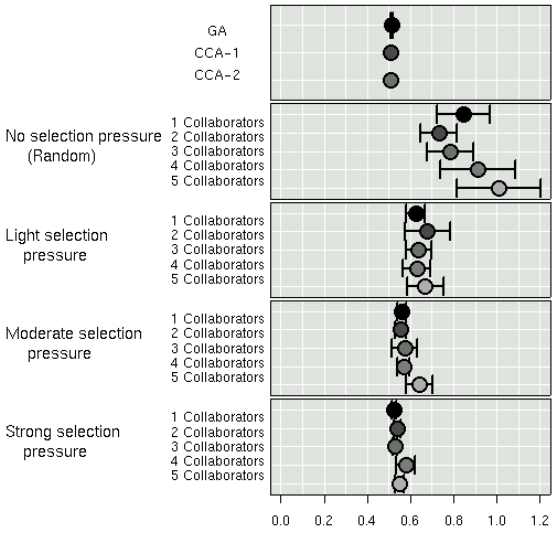

Figure 3: Results for Rastrigin (f_2) minimization experiments. The x-axis represents the final reported result form the EA after 100,000 function evaluations. The points plotted are averages of 50 trials, and the whiskers show the 95% confidence intervals.

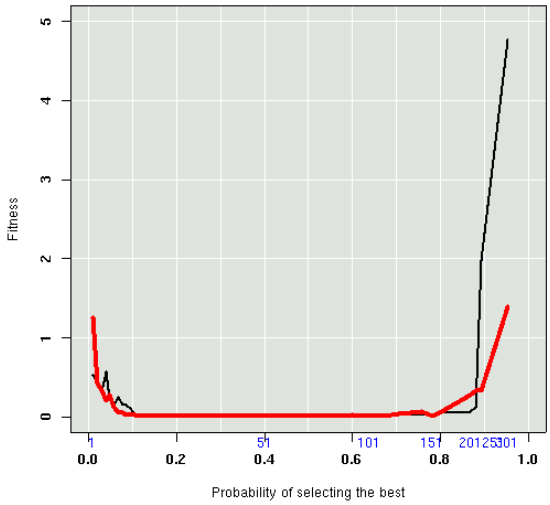

Figure 6: Results for the Rosenbrock (f_1) function as selection pressure is increased. The black line represents selection of a single collaborator (poolsize = 1), while the red shows experiments involving a collaborator poolsize of two. As Q is increased, the probability of selecting the best individual increases. The x-axis represents this probability, while the y-axis shows the fitness score obtained during minimization. Each point represents the median of 50 independent runs.