

Erratum to: “Self-adaptation in non-Elitist Evolutionary Algorithms on Discrete Problems with Unknown Structure”

September 14, 2020

Abstract

Lemma 7 in [1] contained a mistake. The error can be fixed by replacing the lemma as described below, without changing any of the theorems.

Lemma 7 in [1] incorrectly states that for all $c > 0$ and $j > 0$, $1 - c^{1/j} \geq \ln(1/c)/j$, while instead it should read $1 - c^{1/j} \leq \ln(1/c)/j$.

To correct the paper, we can instead use the following lemma

Lemma 7. For all $c \in (0, 1)$ and $j \geq 1$, $1 - c^{1/j} \geq (1 - c)/j$.

Proof. By Bernoulli’s (generalised) inequality,

$$1 - c^{1/j} = 1 - (1 - (1 - c))^{1/j} \geq 1 - (1 - (1 - c)/j).$$

□

On page 657, replace

$$\ln(1/q)/j = \Omega(1/j)$$

with

$$(1 - q)/j = \Omega(1/j).$$

On page 658, replace

$$\frac{b^2}{2Aj} \ln \left(\frac{1 + \delta}{\alpha_0 p_{\text{inc}}} \right) = \Omega(1/j)$$

with

$$\frac{b^2}{2Aj} \left(1 - \frac{1 + \delta}{\alpha_0 p_{\text{inc}}} \right) = \Omega(1/j)$$

References

- [1] Brendan Case and Per Kristian Lehre. Self-adaptation in non-Elitist Evolutionary Algorithms on Discrete Problems with Unknown Structure. *IEEE Transactions on Evolutionary Computation*, pages 1–1, 2020.