

## A PARAMETERS IN DE AND EGWO

In this section we show the algorithm parameters used in DE and EGWO respectively.

The parameters used in DE are:

- number of iteration: 500
- number of elements in the population: 100
- weight that controls the mutation operation: 0.5
- weight that controls the crossover operation: 0.7
- number of retries when refines initial population: 10
- random seeds: 1-10

The parameters used in EGWO are:

- number of iteration: 500

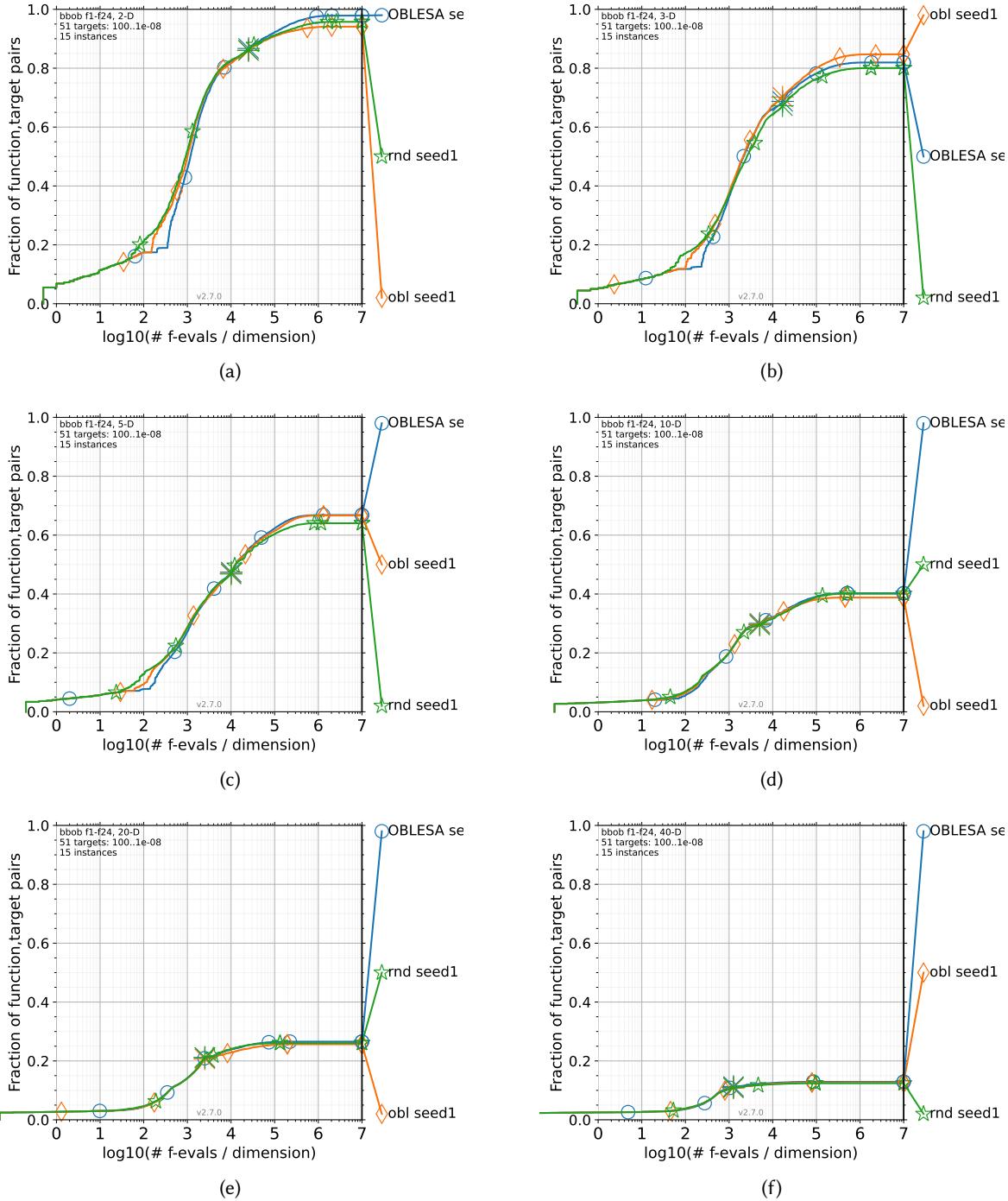
- number of elements in the population: 100
- random seeds: 1-10

## B RESULTS ON EGWO

The aggregated experiment results on EGWO across all the benchmark functions. Each with one seed. The six figures show results from different dimensions: 2D, 3D, 5D, 10D, 20D, and 40D.

## C RESULTS ON DE

The aggregated experiment results on DE across all the benchmark functions. Each with one seed. The six figures show results from different dimensions: 2D, 3D, 5D, 10D, 20D, and 40D.

**Figure 1: Seed1.**

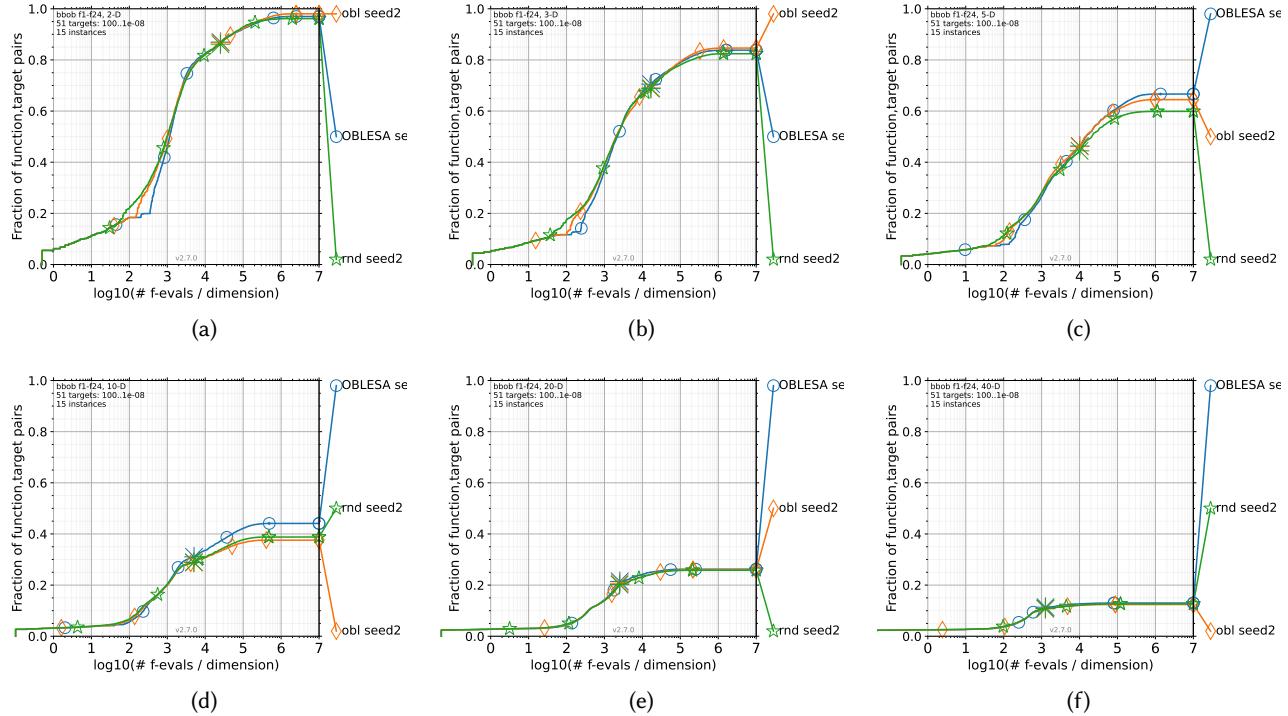


Figure 2: Seed 2.

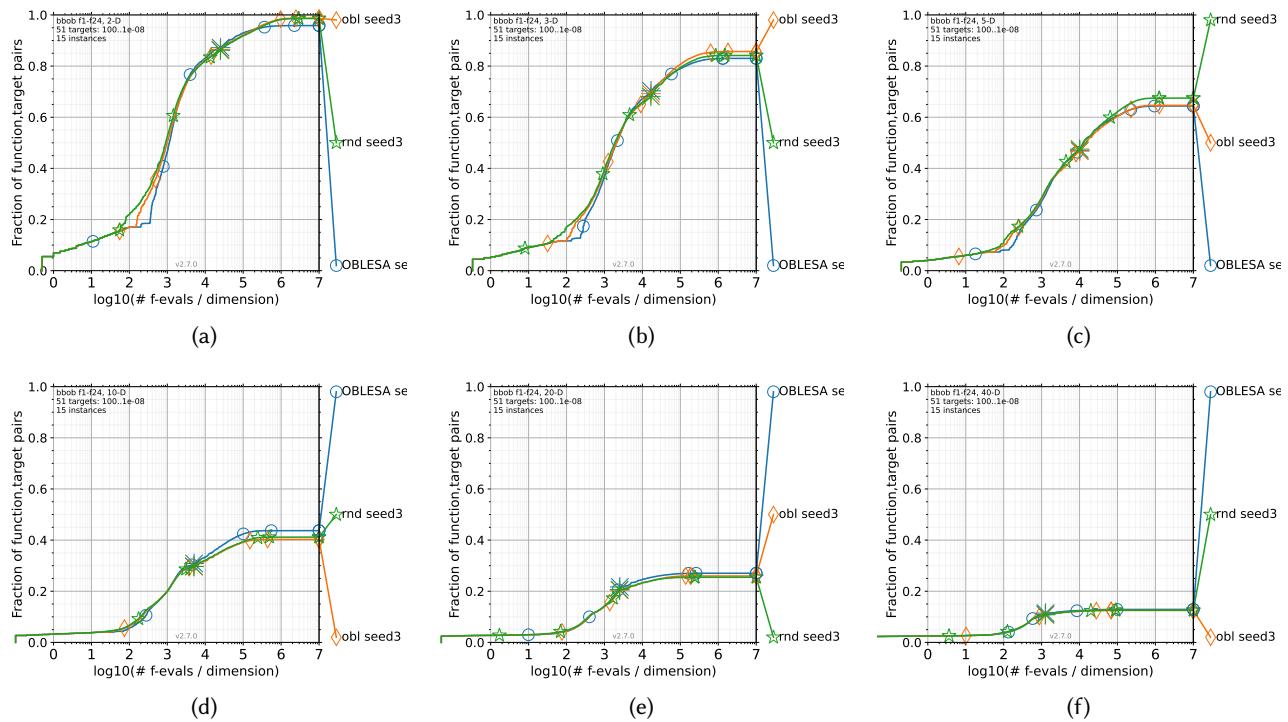


Figure 3: Seed 3.

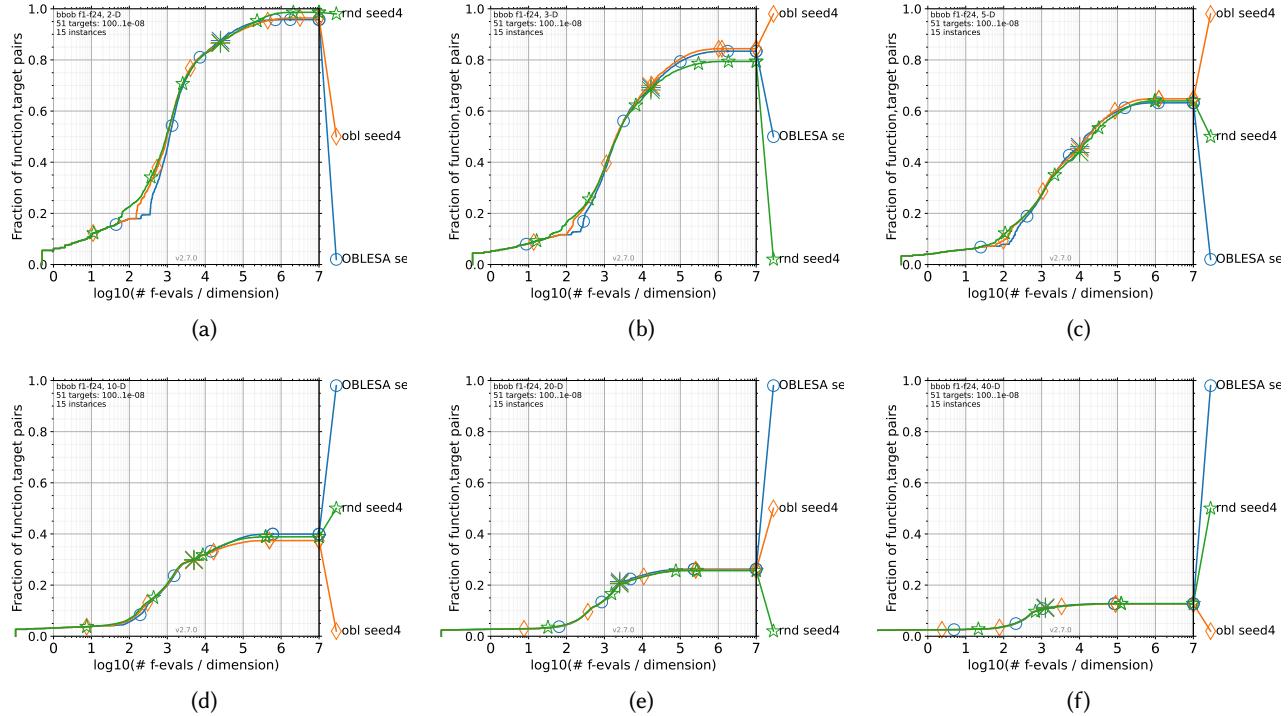


Figure 4: Seed 4.

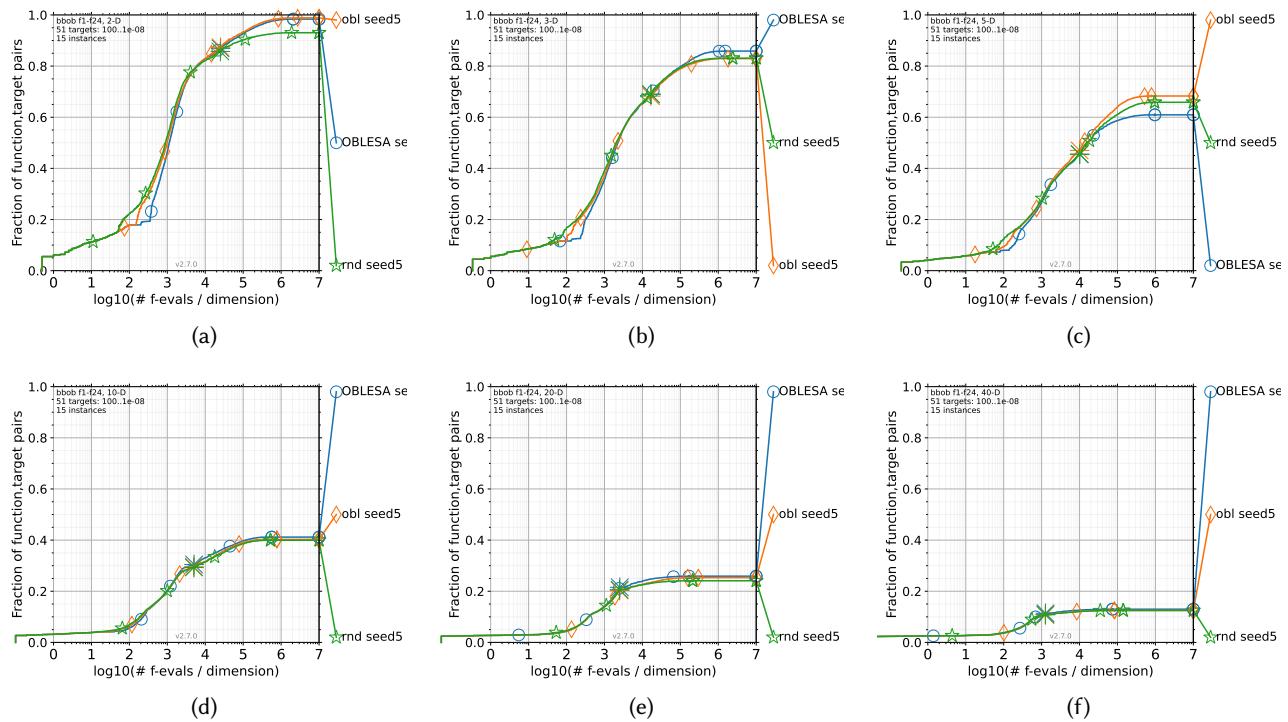


Figure 5: Seed 5.

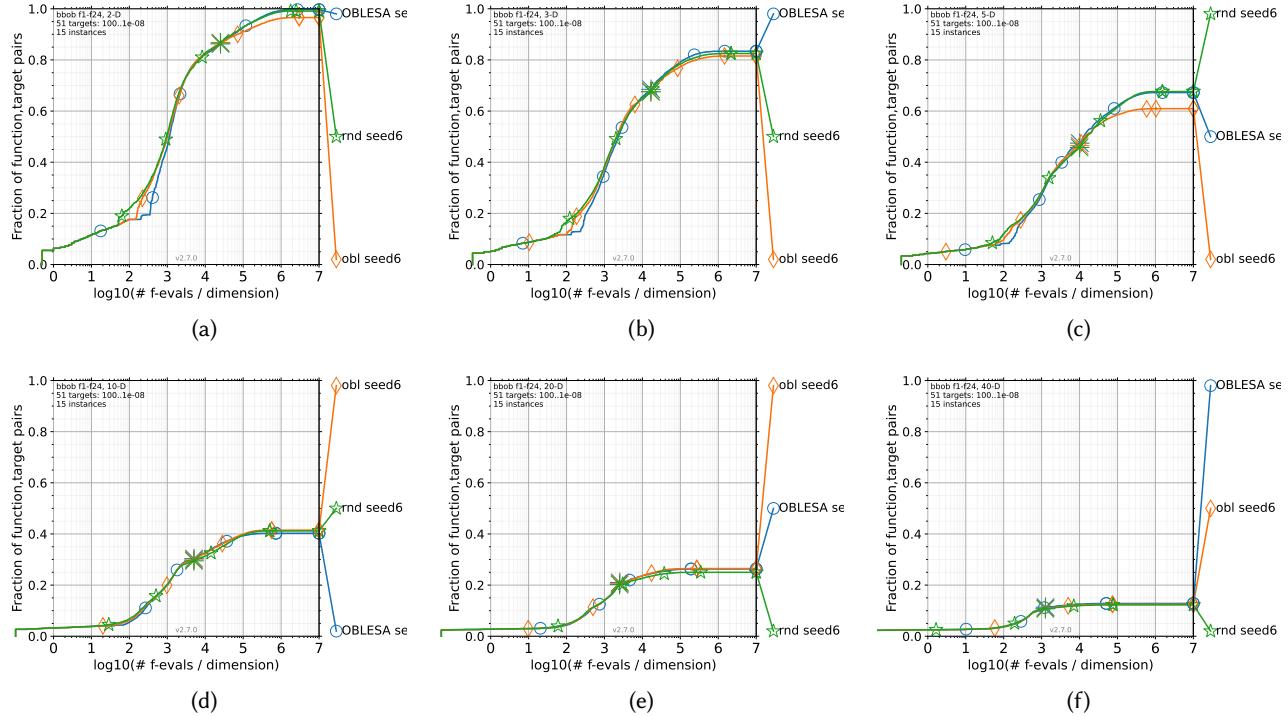


Figure 6: Seed 6.

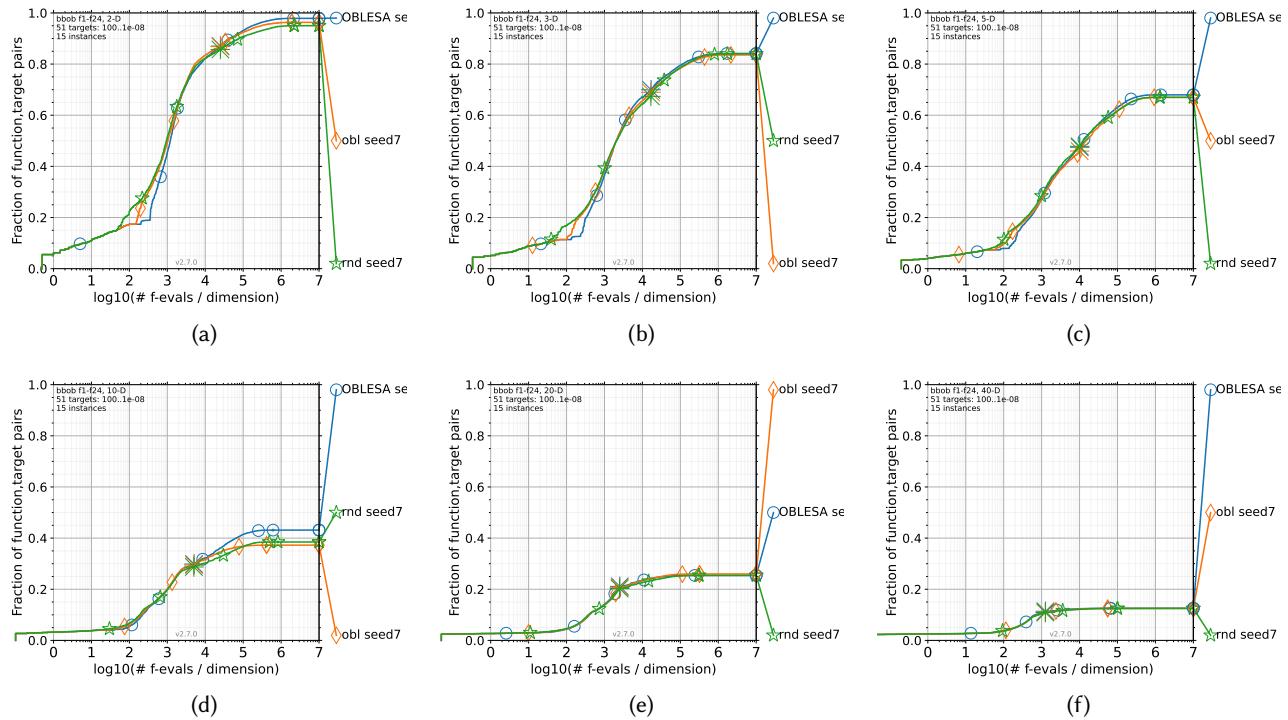


Figure 7: Seed 7.

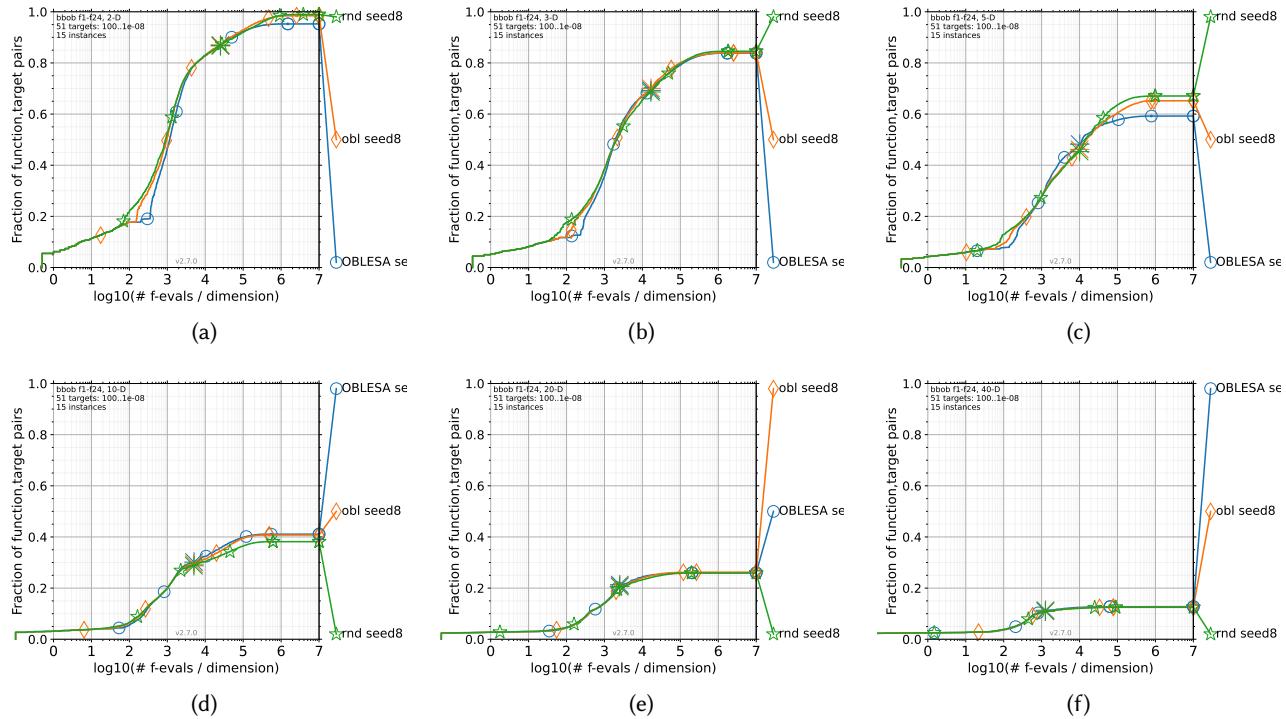


Figure 8: Seed 8.

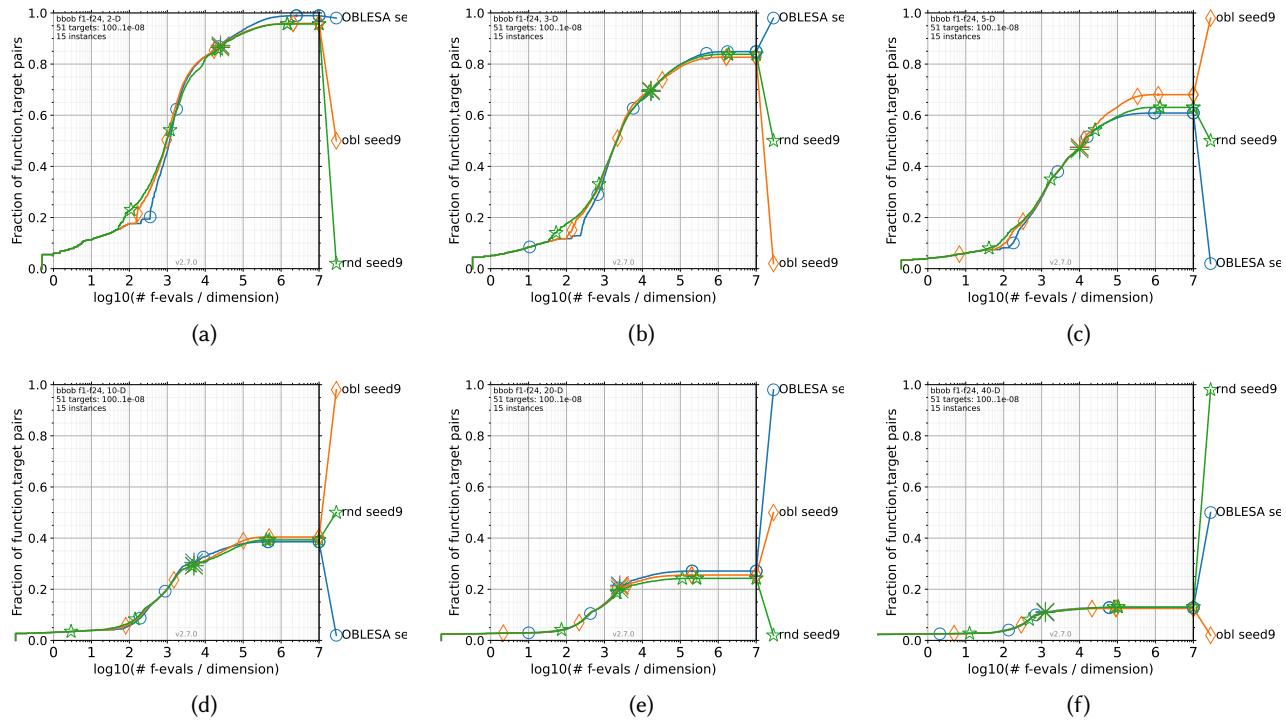


Figure 9: Seed 9.

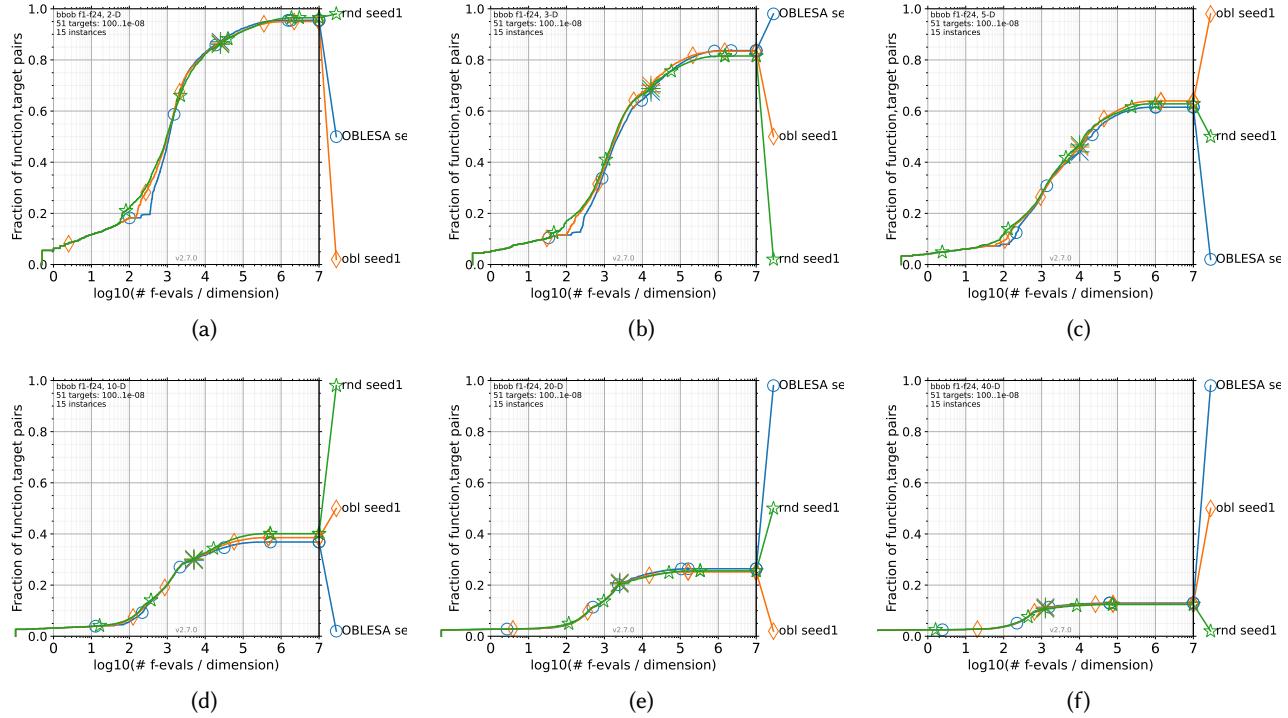


Figure 10: Seed 10.

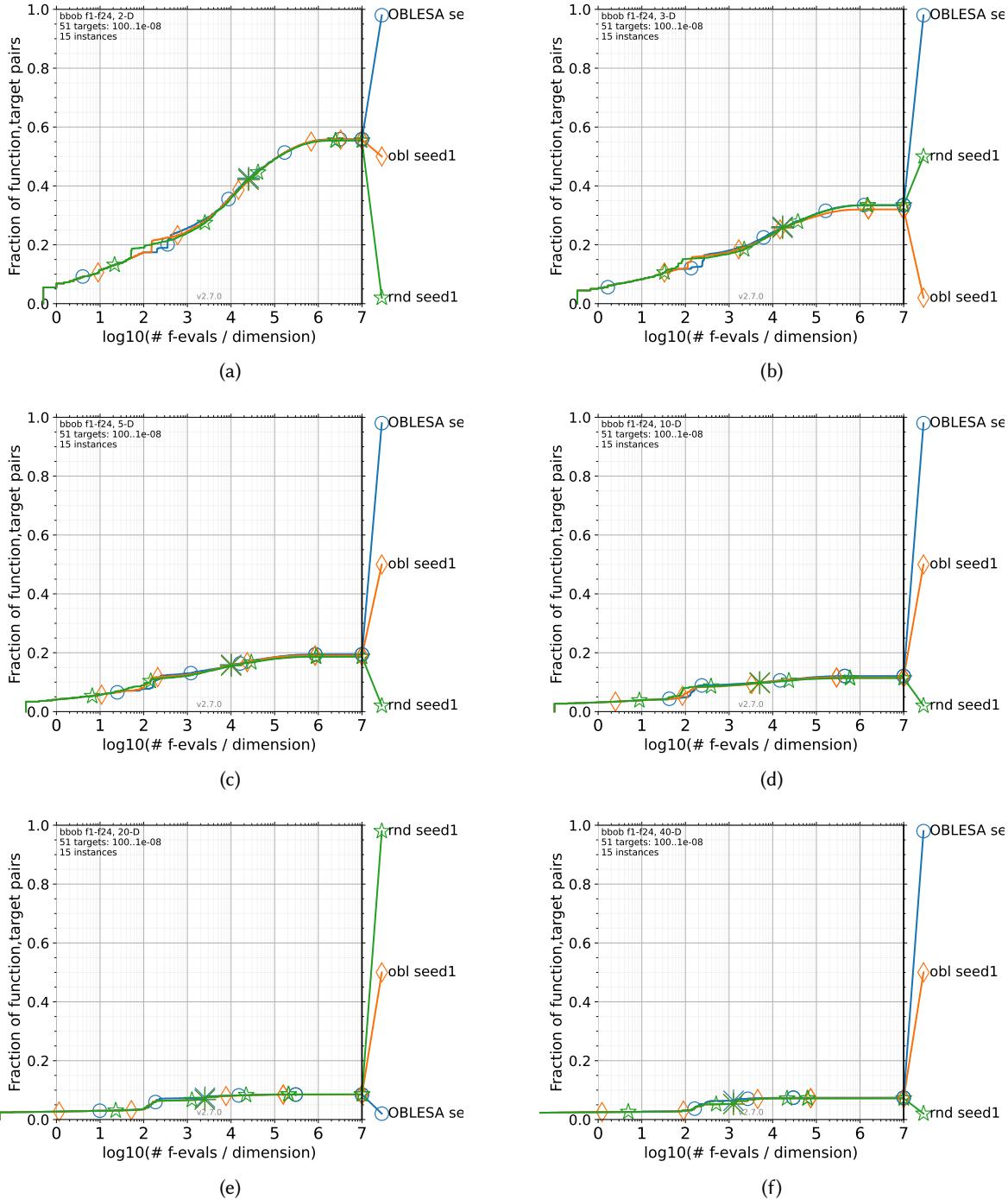


Figure 11: Seed1.

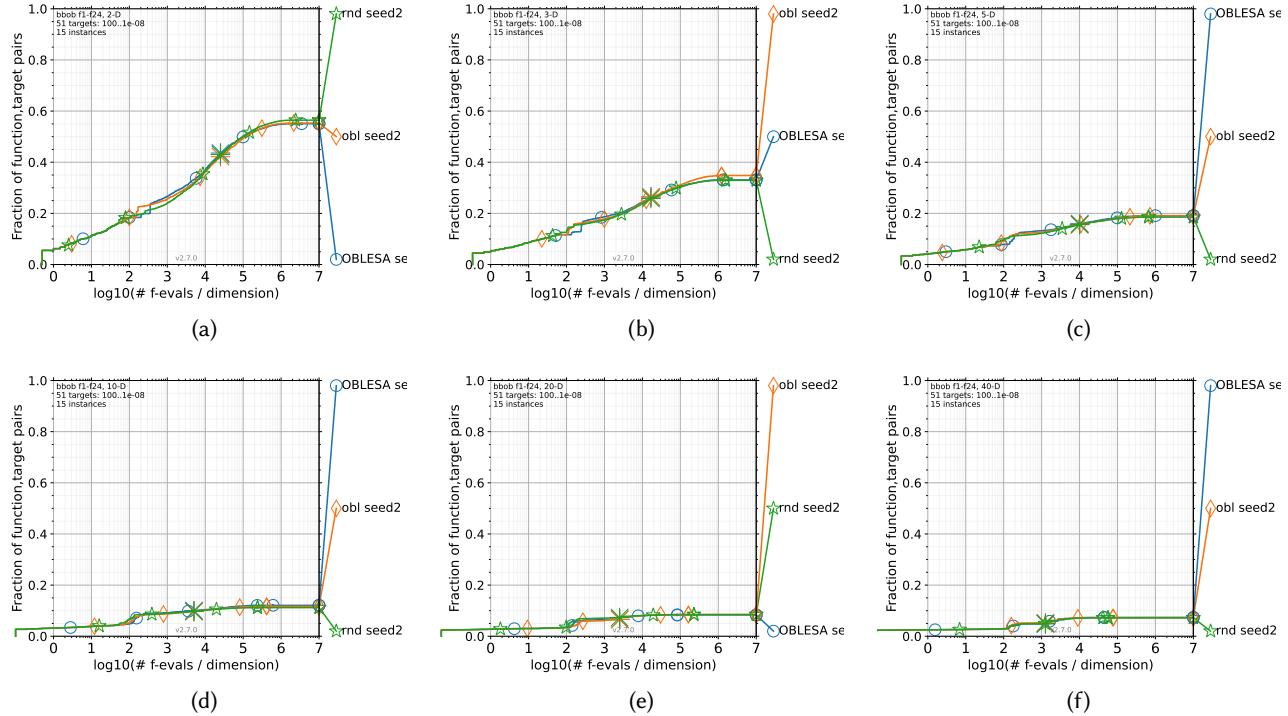


Figure 12: Seed 2.

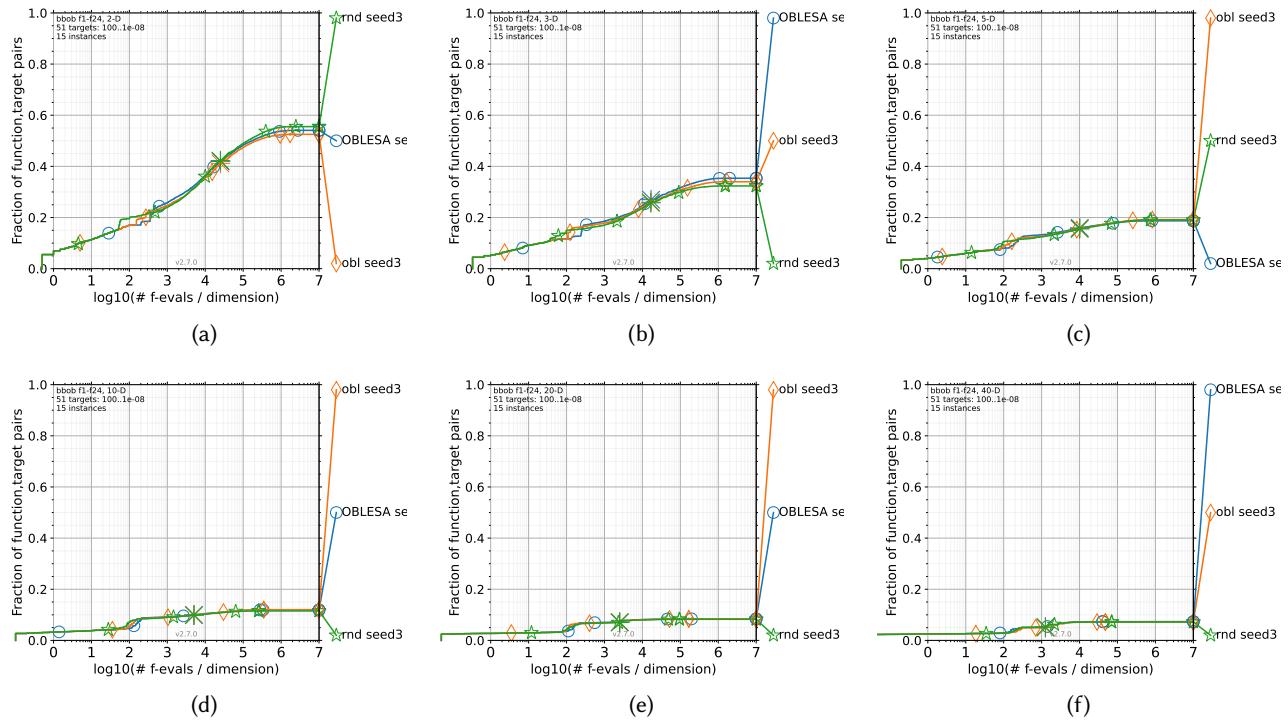


Figure 13: Seed 3.

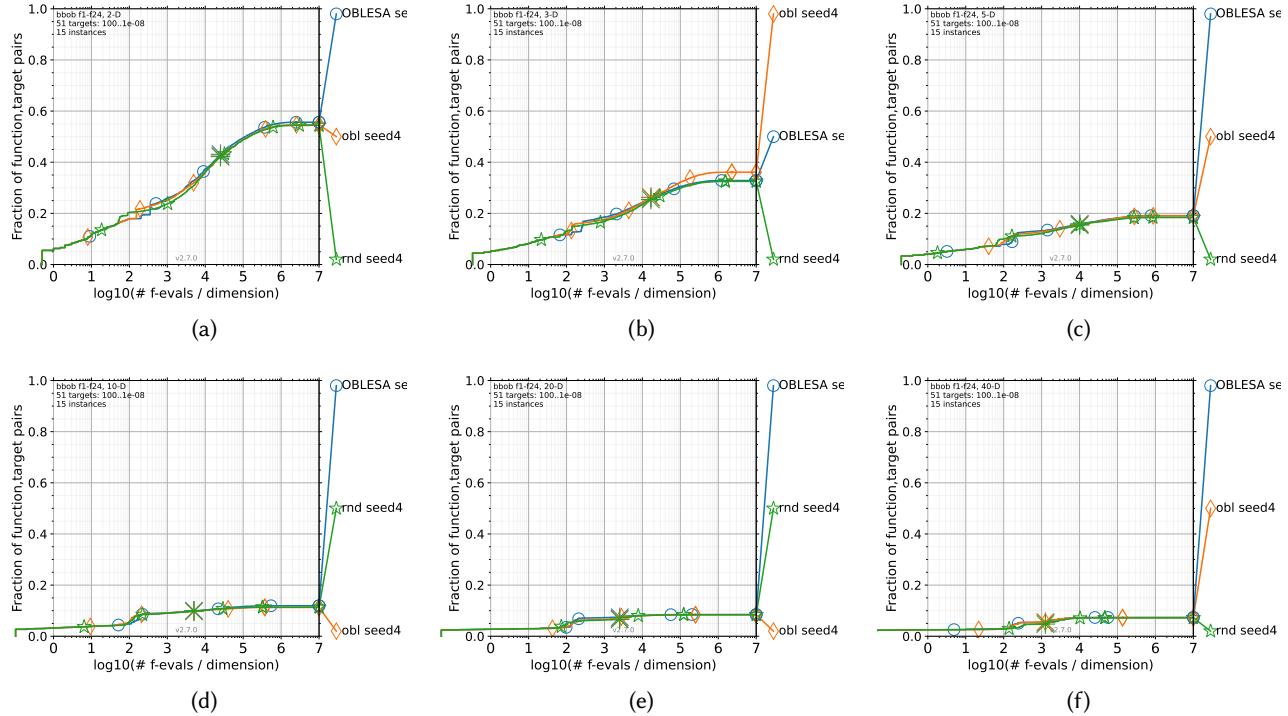


Figure 14: Seed 4.

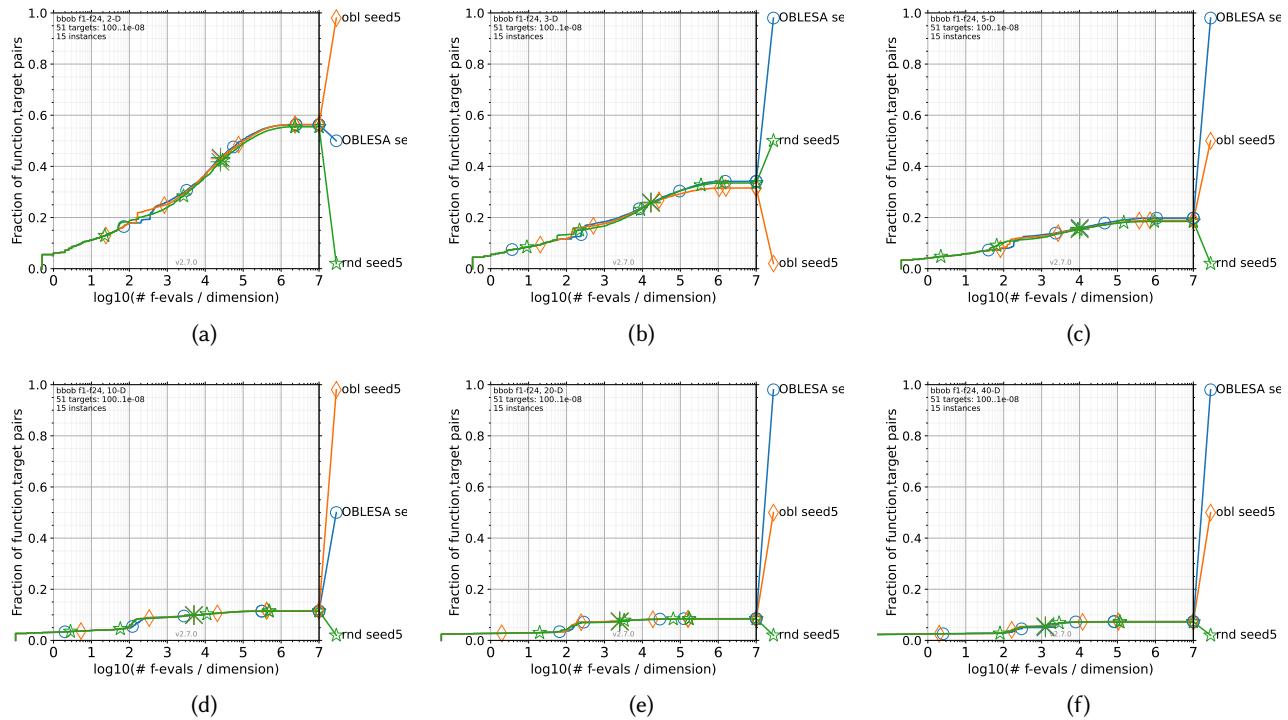


Figure 15: Seed 5.

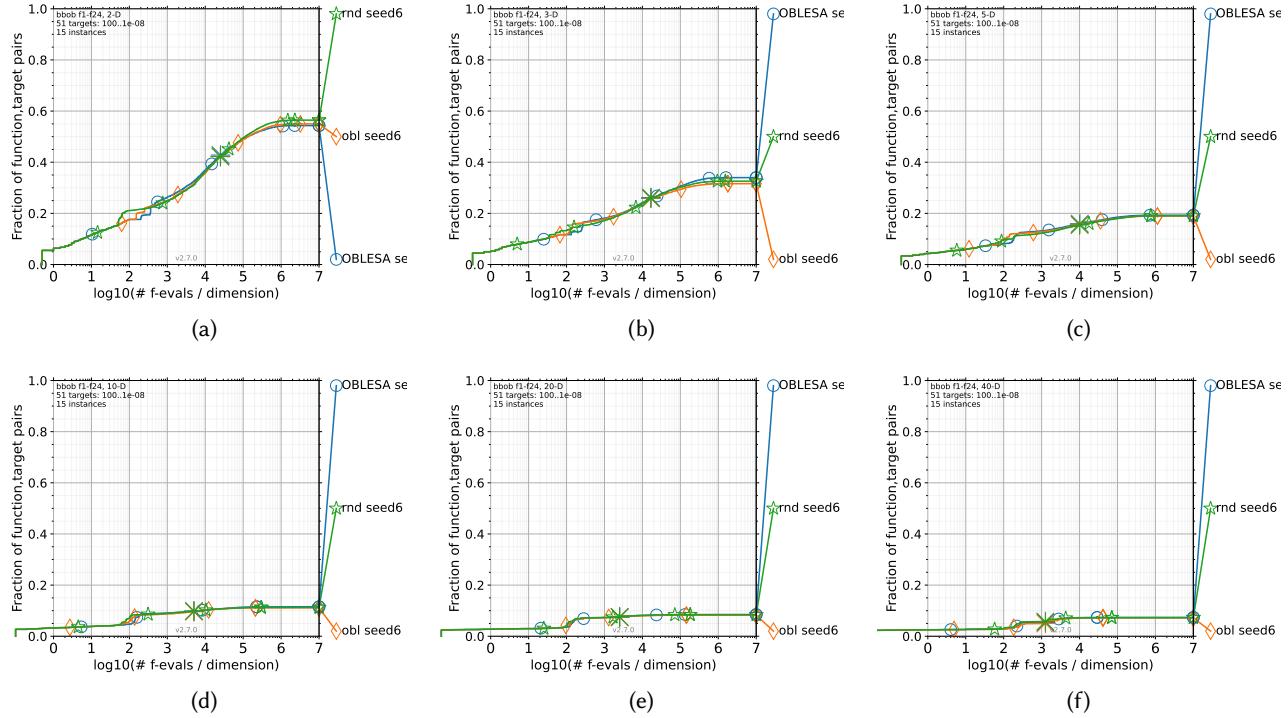


Figure 16: Seed 10.

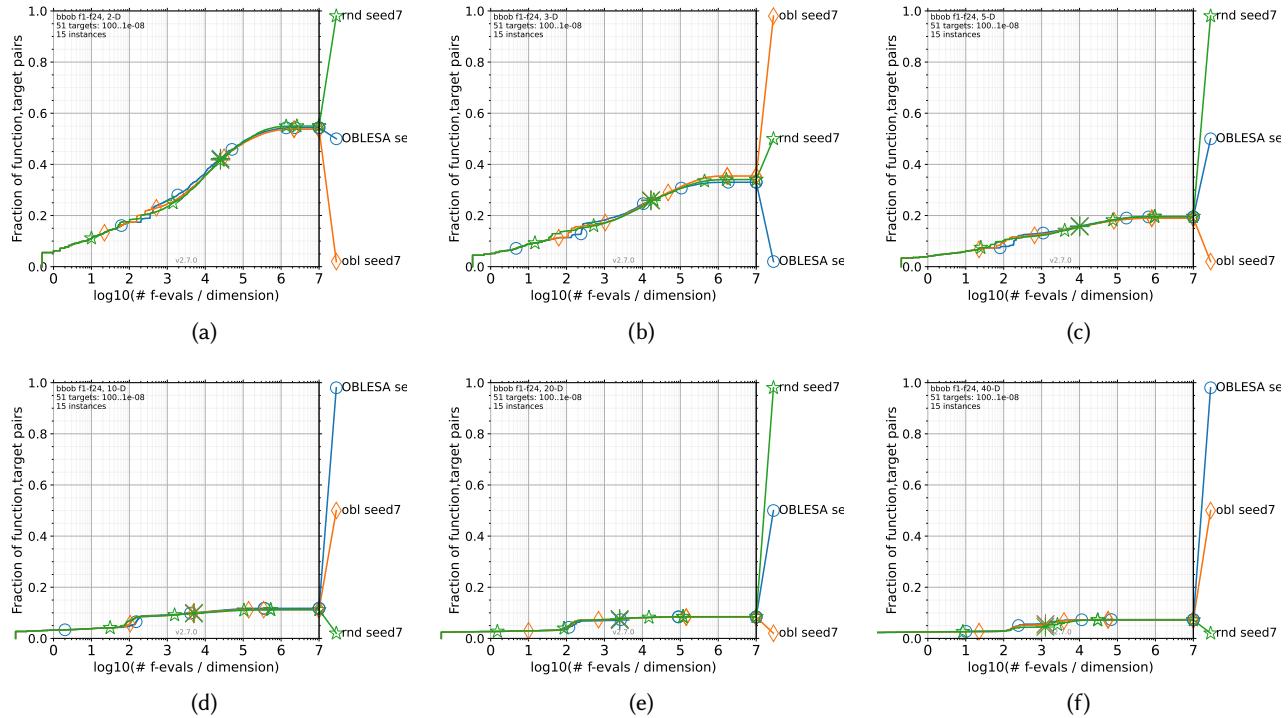


Figure 17: Seed 7.

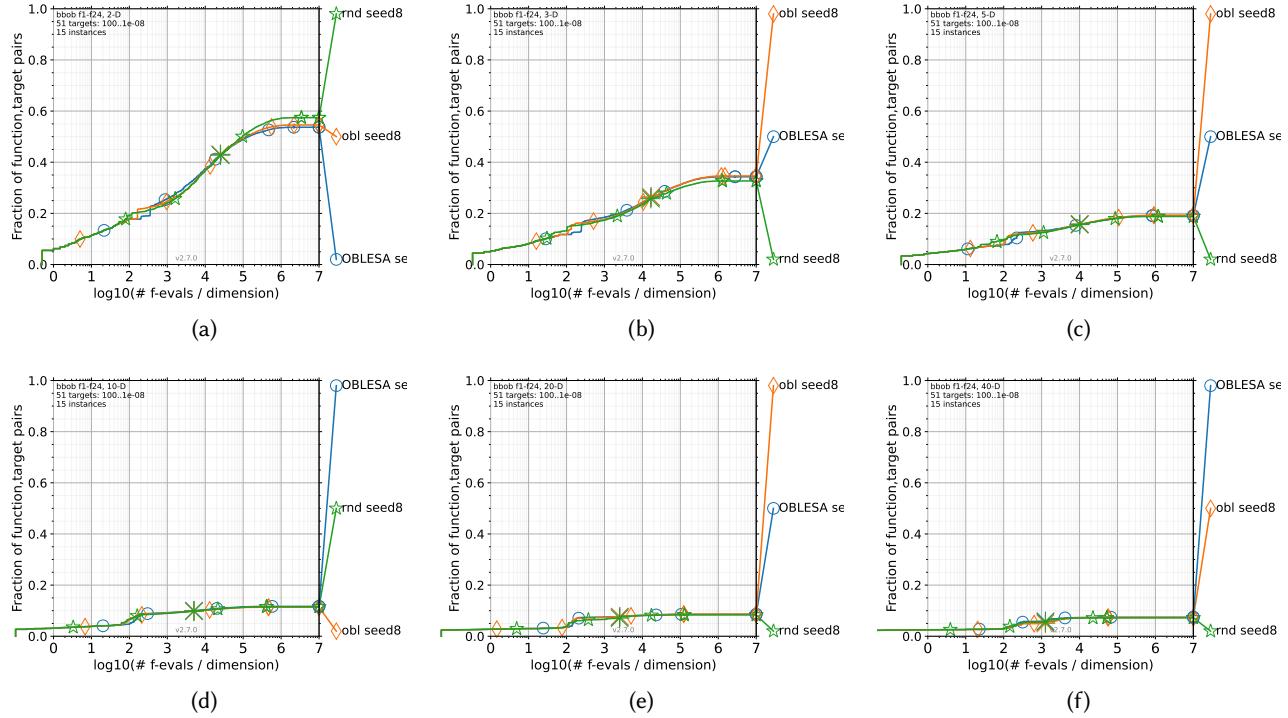


Figure 18: Seed 10.

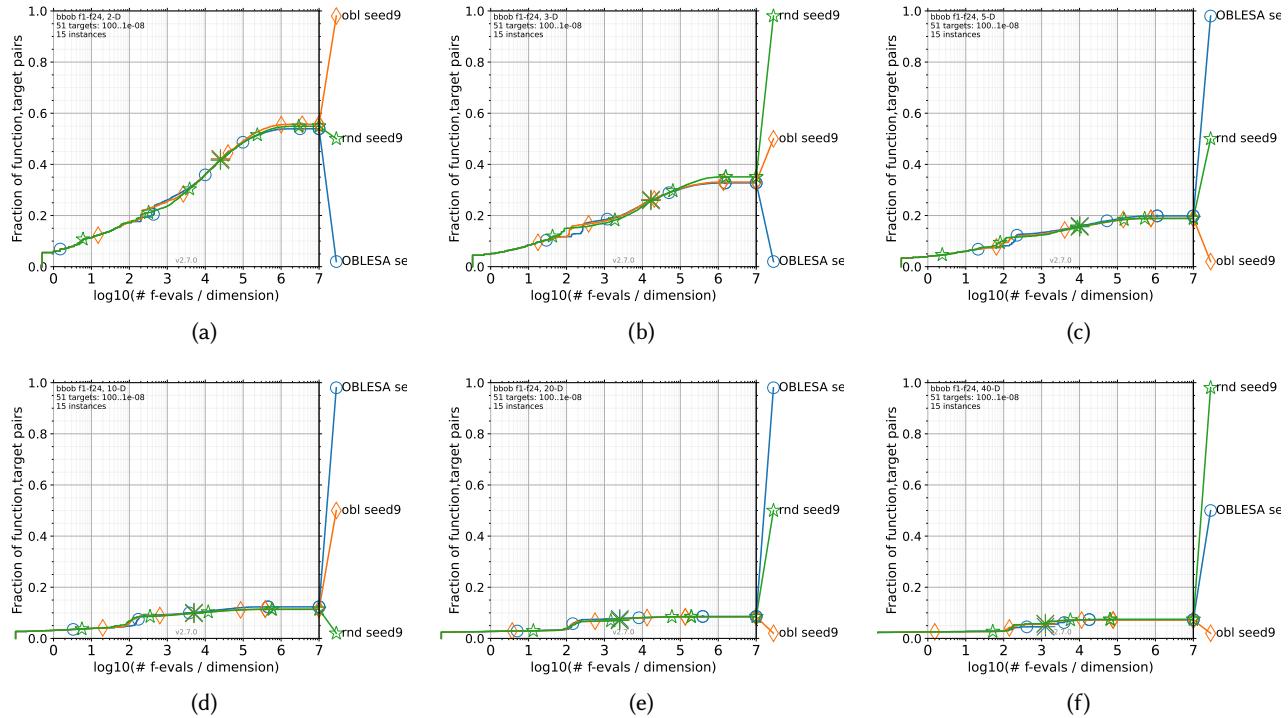


Figure 19: Seed 10.

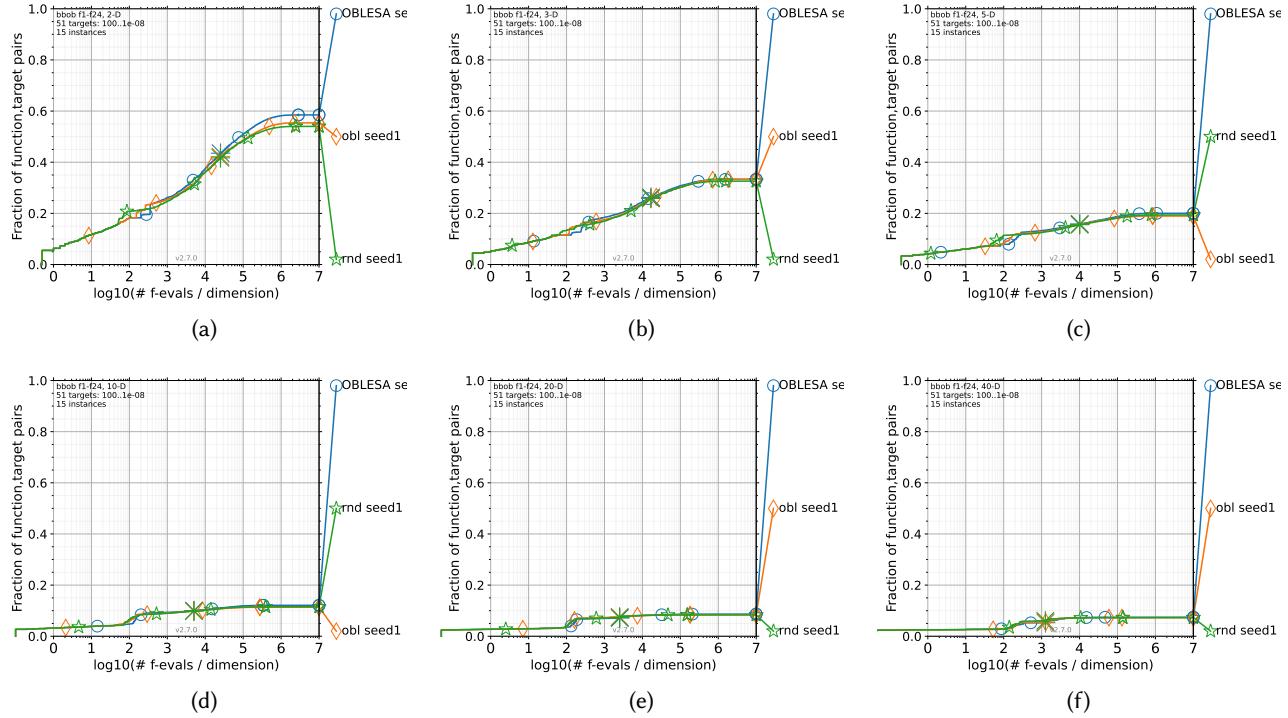


Figure 20: Seed 10.