Chapter 8

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Appendix A

Parameter dependence of jDE

Section 3.4.2.6 concluded that a disadvantage of the *jDE* algorithm of Brest *et al.* [2009] is that it contains 16 parameters which may have to be fine-tuned for optimal results. This appendix empirically shows that *jDE* is sensitive to at least two of these parameters.

An experiment was designed to determine how various combinations of values for τ_3 and τ_5 affect the offline error of *jDE*. The first parameter, τ_3, is the age that must be reached by the best individual in a sub-population before the sub-population may be reinitialised. The second parameter, τ_5, is the age that must be reached by an individual in a sub-population before the individual may be reinitialised (refer to Section 3.4.2.3). Brest *et al.* [2009] suggested that $\tau_3 = 30$ and $\tau_5 = 25$ be used as defaults.

Four benchmark instances were utilised in these experiments: GDBG function F_3 using change periods of 5 000 and 100 000 function evaluations, and GDBG F_5 using change periods of 5 000 and 100 000 function evaluations. Change type T_1 was used in 5 dimensions for all four environments. All the combinations of values for parameters τ_3 and τ_5, which were increased in increments of 5 from 5 to 50, were evaluated. Results were averaged over 30 repeats of each of the experiments.

Figures A.1 to A.4 give the offline errors of *jDE* on F_3 with a change period of 5 000, F_3 with a change period of 100 000, F_5 with a change period of 5 000, and F_5 with a change period of 100 000, respectively. The settings for τ_3 and τ_5 had a large impact on the offline error, especially when using a change period of 5 000.

The optimal settings for τ_3 and τ_5 on F_3 with a change period of 5 000 were found to

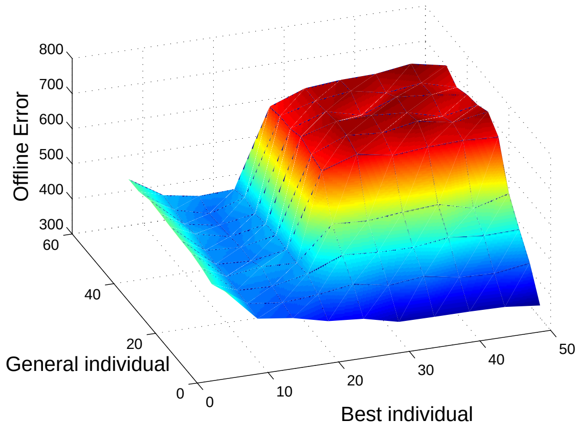

Figure A.1: Offline errors of *jDE* on the GDBG function F_3 using change type T_1 in 5 dimensions with a change period of 5 000 function evaluations for various combinations of settings for the parameters τ_3 and τ_5.

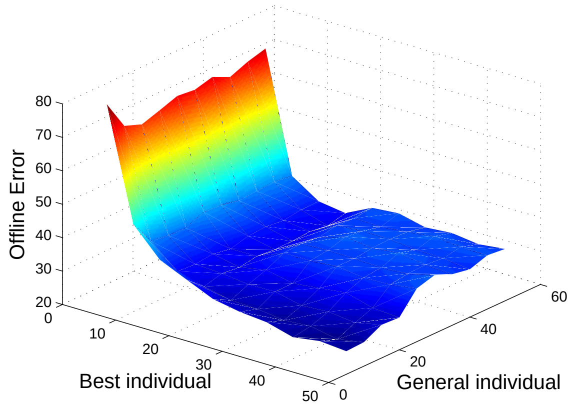

Figure A.2: Offline errors of *jDE* on the GDBG function F_3 using change type T_1 in 5 dimensions with a change period of 100 000 function evaluations for various combinations of settings for the parameters τ_3 and τ_5.

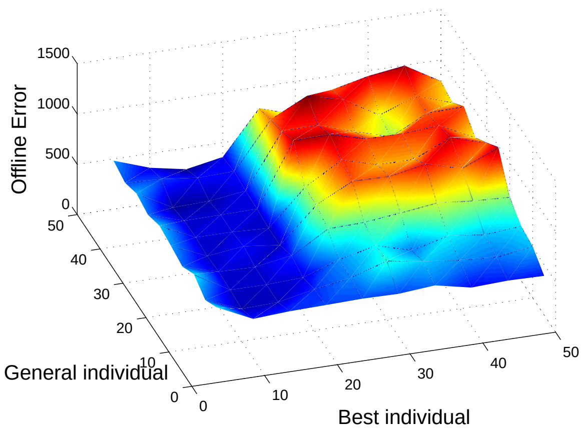

Figure A.3: Offline errors of *jDE* on the GDBG function F_5 using change type T_1 in 5 dimensions with a change period of 5 000 function evaluations for various combinations of settings for the parameters τ_3 and τ_5.

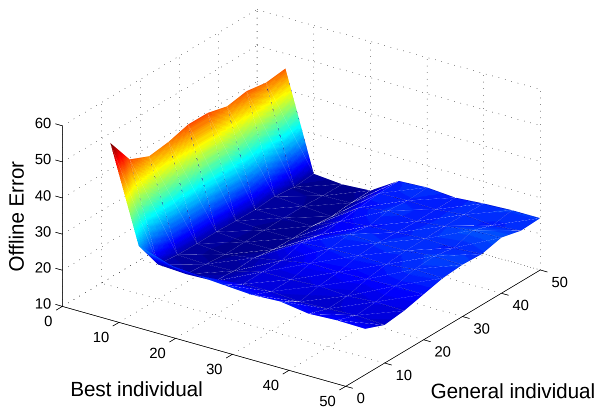

Figure A.4: Offline errors of *jDE* on the GDBG function F_5 using change type T_1 in 5 dimensions with a change period of 100 000 function evaluations for various combinations of settings for the parameters τ_3 and τ_5.

be $\tau_3 = 50$ and $\tau_5 = 5$. The values $\tau_3 = 15$ and $\tau_5 = 50$ were found to be the optimal settings on F_3 with a change period of 100 000. The optimal settings for τ_3 and τ_5 on F_5 with a change period of 5 000 were found be $\tau_3 = 45$ and $\tau_5 = 10$. The optimal settings for τ_3 and τ_5 on F_5 with a change period of 100 000 were found be $\tau_3 = 20$ and $\tau_5 = 40$. The average offline errors produced by the optimal settings were found to be statistically significantly better than the average offline errors produced by the default settings in each of the four environments. *jDE* is thus clearly sensitive to values of the parameters τ_3 and τ_5.

Appendix B

Additional Results - Chapter 4

This appendix contains results that were omitted from Chapter 4 due to space constraints. Tables B.1 and B.2 give the performance analysis of CDE compared to CPE on variations of the standard set of environments. Tables B.3 and B.4 give the performance analysis of CDE compared to RMC. The comparative performance analysis of CDE and CjDE is given in Tables B.5 and B.6.

Table B.1: CDE vs CPE performance analysis - Part 1

Cp		100	500	1000	5000	10000	25000	50000	100000	Total
Set.	**Max**	**5 Dimensions**								
		MPB								
C_s 1	(2)	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑1 ↓0	↑1 ↓0	↑0 ↓0	↑1 ↓0	↑1 ↓0	↑4 ↓0
5	(2)	↑0 ↓0	↑0 ↓0	↑1 ↓0	↑1 ↓0	↑2 ↓0	↑2 ↓0	↑1 ↓0	↑1 ↓0	↑8 ↓0
10	(2)	↑0 ↓1	↑0 ↓0	↑0 ↓0	↑1 ↓0	↑1 ↓0	↑1 ↓0	↑0 ↓0	↑1 ↓0	↑4 ↓1
20	(2)	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑1 ↓0	↑1 ↓0	↑1 ↓0	↑1 ↓0	↑1 ↓0	↑5 ↓0
40	(2)	↑0 ↓1	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑1 ↓0	↑0 ↓0	↑1 ↓0	↑2 ↓1
80	(2)	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑1 ↓0	↑1 ↓0	↑1 ↓0	↑1 ↓0	↑0 ↓0	↑4 ↓0
C	(6)	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑1 ↓0	↑1 ↓0	↑1 ↓0	↑0 ↓0	↑0 ↓0	↑3 ↓0
S	(6)	↑0 ↓2	↑0 ↓0	↑1 ↓0	↑4 ↓0	↑5 ↓0	↑5 ↓0	↑4 ↓0	↑5 ↓0	↑24 ↓2
		GBG								
F_{1a}	(6)	↑1 ↓0	↑1 ↓0	↑0 ↓0	↑1 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑1 ↓0	↑4 ↓0
F_{1b}	(6)	↑1 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓2	↑1 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑2 ↓2
F_2	(6)	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑1 ↓0	↑2 ↓0	↑1 ↓0	↑0 ↓0	↑0 ↓0	↑4 ↓0
F_3	(6)	↑1 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑1 ↓0	↑0 ↓0	↑2 ↓0
F_4	(6)	↑1 ↓0	↑0 ↓0	↑2 ↓0	↑0 ↓0	↑1 ↓0	↑0 ↓0	↑1 ↓0	↑0 ↓0	↑5 ↓0
F_5	(6)	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓1	↑0 ↓0	↑0 ↓1
F_6	(6)	↑0 ↓0	↑1 ↓0	↑0 ↓0	↑0 ↓2	↑0 ↓1	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑1 ↓3
T_1	(7)	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓1	↑1 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑1 ↓1
T_2	(7)	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑1 ↓1	↑2 ↓1	↑0 ↓0	↑1 ↓0	↑0 ↓0	↑4 ↓2
T_3	(7)	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑1 ↓1	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑1 ↓1
T_4	(7)	↑1 ↓0	↑1 ↓0	↑1 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑3 ↓0
T_5	(7)	↑3 ↓0	↑1 ↓0	↑1 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑1 ↓0	↑0 ↓0	↑6 ↓0
T_6	(7)	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓1	↑1 ↓0	↑1 ↓0	↑0 ↓1	↑1 ↓0	↑3 ↓2
All	(54)	↑4 ↓2	↑2 ↓0	↑3 ↓0	↑7 ↓4	↑10 ↓1	↑7 ↓0	↑6 ↓1	↑6 ↓0	↑45 ↓8
Set.	**Max**	**10 Dimensions**								
		MPB								
C_s 1	(2)	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0
5	(2)	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0
10	(2)	↑0 ↓0	↑0 ↓0	↑0 ↓1	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓1
20	(2)	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑1 ↓0	↑0 ↓0	↑1 ↓0
40	(2)	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑1 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑1 ↓0
80	(2)	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0
C	(6)	↑0 ↓0	↑0 ↓0	↑0 ↓1	↑0 ↓0	↑1 ↓0	↑0 ↓0	↑1 ↓0	↑0 ↓0	↑2 ↓1
S	(6)	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0
		GBG								
F_{1a}	(6)	↑1 ↓1	↑1 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓1	↑1 ↓0	↑0 ↓0	↑0 ↓0	↑3 ↓2
F_{1b}	(6)	↑0 ↓0	↑0 ↓1	↑0 ↓0	↑1 ↓1	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑1 ↓2
F_2	(6)	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓1	↑0 ↓0	↑1 ↓0	↑0 ↓0	↑1 ↓1
F_3	(6)	↑0 ↓0	↑0 ↓0	↑1 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑2 ↓0	↑1 ↓1	↑4 ↓1
F_4	(6)	↑1 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓1	↑1 ↓1
F_5	(6)	↑0 ↓0	↑1 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑1 ↓0	↑2 ↓0
F_6	(6)	↑0 ↓0	↑1 ↓0	↑0 ↓1	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑1 ↓1
T_1	(7)	↑0 ↓0	↑1 ↓0	↑0 ↓1	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑1 ↓0	↑2 ↓1
T_2	(7)	↑1 ↓0	↑1 ↓0	↑1 ↓0	↑1 ↓0	↑0 ↓0	↑0 ↓0	↑1 ↓0	↑0 ↓1	↑5 ↓1
T_3	(7)	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑1 ↓0	↑1 ↓0
T_4	(7)	↑1 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓1	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑1 ↓1
T_5	(7)	↑0 ↓1	↑1 ↓1	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑1 ↓0	↑0 ↓0	↑2 ↓2
T_6	(7)	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓1	↑0 ↓1	↑1 ↓0	↑1 ↓0	↑0 ↓1	↑2 ↓3
All	(54)	↑2 ↓1	↑3 ↓1	↑1 ↓2	↑1 ↓1	↑1 ↓2	↑1 ↓0	↑4 ↓0	↑2 ↓2	↑15 ↓9
Set.	**Max**	**25 Dimensions**								
		MPB								
C_s 1	(2)	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0
5	(2)	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0
10	(2)	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0
20	(2)	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0
40	(2)	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0
80	(2)	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0
C	(6)	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0
S	(6)	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0
		GBG								
F_{1a}	(6)	↑0 ↓1	↑0 ↓0	↑0 ↓0	↑0 ↓1	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓2
F_{1b}	(6)	↑0 ↓0	↑0 ↓0	↑0 ↓1	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓1
F_2	(6)	↑0 ↓0	↑0 ↓1	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓1
F_3	(6)	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0
F_4	(6)	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓1	↑0 ↓0	↑1 ↓0	↑0 ↓1	↑0 ↓1	↑1 ↓3
F_5	(6)	↑0 ↓1	↑1 ↓0	↑0 ↓0	↑1 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓1	↑0 ↓0	↑2 ↓2
F_6	(6)	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑1 ↓0	↑0 ↓1	↑1 ↓1
T_1	(7)	↑0 ↓2	↑1 ↓0	↑0 ↓0	↑0 ↓1	↑0 ↓0	↑0 ↓0	↑0 ↓2	↑0 ↓0	↑1 ↓5
T_2	(7)	↑0 ↓0	↑0 ↓1	↑0 ↓1	↑0 ↓1	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓3
T_3	(7)	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑1 ↓0	↑0 ↓0	↑1 ↓0
T_4	(7)	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓1	↑0 ↓1
T_5	(7)	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑1 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑1 ↓0
T_6	(7)	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑1 ↓0	↑0 ↓0	↑0 ↓1	↑1 ↓1
All	(54)	↑0 ↓2	↑1 ↓1	↑0 ↓1	↑1 ↓2	↑0 ↓0	↑1 ↓0	↑1 ↓2	↑0 ↓2	↑4 ↓10

Table B.2: CDE vs CPE performance analysis - Part 2

Cp		100	500	1000	5000	10000	25000	50000	100000	Total
Set.	**Max**	**50 Dimensions**								
		MPB								
C_s 1	(2)	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0
5	(2)	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	**↑1 ↓0**	**↑1 ↓0**
10	(2)	↑0 ↓0	**↑1 ↓0**	↑0 ↓0	↑1 ↓1	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	**↑2 ↓1**
20	(2)	↑0 ↓1	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓1
40	(2)	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0
80	(2)	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0
C	(6)	↑0 ↓0	↑0 ↓0	↑0 ↓0	**↑1 ↓0**	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	**↑1 ↓0**
S	(6)	↑0 ↓1	**↑1 ↓0**	↑0 ↓0	↑0 ↓1	↑0 ↓0	↑0 ↓0	↑0 ↓0	**↑1 ↓0**	↑2 ↓2
		GBG								
F_{1a}	(6)	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0
F_{1b}	(6)	↑0 ↓0	↑0 ↓0	↑0 ↓1	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓1
F_2	(6)	↑0 ↓1	**↑1 ↓0**	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	**↑1 ↓0**	↑0 ↓0	**↑2 ↓1**
F_3	(6)	↑0 ↓1	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	**↑2 ↓0**	**↑2 ↓1**
F_4	(6)	↑0 ↓0	↑0 ↓1	↑0 ↓0	↑0 ↓0	↑0 ↓1	↑0 ↓1	↑0 ↓0	↑0 ↓0	↑0 ↓3
F_5	(6)	↑0 ↓0	**↑1 ↓0**	↑0 ↓0	**↑1 ↓0**	↑0 ↓0	↑0 ↓1	↑0 ↓0	↑0 ↓0	**↑2 ↓1**
F_6	(6)	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0
T_1	(7)	↑0 ↓0	↑0 ↓0	↑0 ↓0	**↑1 ↓0**	↑0 ↓0	↑0 ↓1	**↑1 ↓0**	↑0 ↓0	**↑2 ↓1**
T_2	(7)	↑0 ↓0	↑0 ↓1	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓1
T_3	(7)	↑0 ↓1	↑0 ↓0	↑0 ↓1	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓2
T_4	(7)	↑0 ↓0	**↑1 ↓0**	↑0 ↓0	↑0 ↓0	↑0 ↓1	↑0 ↓1	↑0 ↓0	↑0 ↓0	↑1 ↓2
T_5	(7)	↑0 ↓1	**↑1 ↓0**	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	**↑1 ↓0**	**↑2 ↓1**
T_6	(7)	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	**↑1 ↓0**	**↑1 ↓0**
All	(54)	↑0 ↓3	**↑3 ↓1**	↑0 ↓1	**↑2 ↓1**	↑0 ↓1	↑0 ↓2	**↑1 ↓0**	**↑3 ↓0**	↑9 ↓9
Set.	**Max**	**100 Dimensions**								
		MPB								
C_s 1	(2)	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	**↑1 ↓0**	↑0 ↓0	**↑1 ↓0**
5	(2)	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0
10	(2)	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0
20	(2)	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0
40	(2)	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0
80	(2)	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0
C	(6)	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	**↑1 ↓0**	↑0 ↓0	**↑1 ↓0**
S	(6)	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0
		GBG								
F_{1a}	(6)	**↑1 ↓0**	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓1	↑0 ↓0	**↑1 ↓0**	↑1 ↓1	**↑3 ↓2**
F_{1b}	(6)	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓1	↑0 ↓1	↑0 ↓0	↑0 ↓1	↑0 ↓3
F_2	(6)	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	**↑1 ↓0**	↑0 ↓1	↑0 ↓0	↑1 ↓1
F_3	(6)	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	**↑2 ↓0**	↑0 ↓0	↑0 ↓0	**↑2 ↓0**
F_4	(6)	↑0 ↓0	↑0 ↓0	↑1 ↓1	↑0 ↓0	↑0 ↓0	**↑1 ↓0**	↑0 ↓0	↑0 ↓0	**↑2 ↓1**
F_5	(6)	**↑1 ↓0**	↑0 ↓0	**↑1 ↓0**	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓2	↑2 ↓2
F_6	(6)	↑0 ↓0	**↑1 ↓0**	↑0 ↓0	↑1 ↓1	↑0 ↓0	↑0 ↓0	↑0 ↓1	↑0 ↓0	↑2 ↓2
T_1	(7)	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	**↑2 ↓1**	↑0 ↓0	↑1 ↓2	↑3 ↓3
T_2	(7)	↑0 ↓0	**↑1 ↓0**	**↑1 ↓0**	↑0 ↓0	↑0 ↓1	↑0 ↓0	↑0 ↓1	↑0 ↓0	↑2 ↓2
T_3	(7)	**↑1 ↓0**	↑0 ↓0	↑0 ↓1	↑0 ↓0	↑0 ↓0	**↑1 ↓0**	**↑1 ↓0**	↑0 ↓1	**↑3 ↓2**
T_4	(7)	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓1	↑0 ↓0	↑0 ↓1
T_5	(7)	**↑1 ↓0**	↑0 ↓0	↑0 ↓0	↑0 ↓1	↑0 ↓1	↑0 ↓0	↑0 ↓0	↑0 ↓1	↑1 ↓3
T_6	(7)	↑0 ↓0	↑0 ↓0	**↑1 ↓0**	**↑1 ↓0**	↑0 ↓0	**↑1 ↓0**	↑0 ↓0	↑0 ↓0	**↑3 ↓0**
All	(54)	**↑2 ↓0**	**↑1 ↓0**	**↑2 ↓1**	↑1 ↓1	↑0 ↓2	**↑4 ↓1**	↑2 ↓2	↑1 ↓4	**↑13 ↓11**
Set.	**Max**	**All Dimensions**								
		MPB								
C_s 1	(10)	↑0 ↓0	↑0 ↓0	↑0 ↓0	**↑1 ↓0**	**↑1 ↓0**	↑0 ↓0	**↑2 ↓0**	**↑1 ↓0**	**↑5 ↓0**
5	(10)	↑0 ↓0	↑0 ↓0	**↑1 ↓0**	**↑1 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑1 ↓0**	**↑2 ↓0**	**↑9 ↓0**
10	(10)	↑0 ↓1	**↑1 ↓0**	↑0 ↓1	**↑2 ↓1**	**↑1 ↓0**	**↑1 ↓0**	↑0 ↓0	**↑1 ↓0**	**↑6 ↓3**
20	(10)	↑0 ↓1	↑0 ↓0	↑0 ↓0	**↑1 ↓0**	**↑1 ↓0**	**↑1 ↓0**	**↑2 ↓0**	**↑1 ↓0**	**↑6 ↓1**
40	(10)	↑0 ↓1	↑0 ↓0	↑0 ↓0	↑0 ↓0	**↑1 ↓0**	**↑1 ↓0**	↑0 ↓0	**↑1 ↓0**	**↑3 ↓1**
80	(10)	↑0 ↓0	↑0 ↓0	↑0 ↓0	**↑1 ↓0**	**↑1 ↓0**	**↑1 ↓0**	**↑1 ↓0**	↑0 ↓0	**↑4 ↓0**
C	(6)	↑0 ↓0	↑0 ↓0	↑0 ↓1	**↑2 ↓0**	**↑2 ↓0**	**↑1 ↓0**	**↑2 ↓0**	↑0 ↓0	**↑7 ↓1**
S	(6)	↑0 ↓3	**↑1 ↓0**	**↑1 ↓0**	**↑4 ↓1**	**↑5 ↓0**	**↑5 ↓0**	**↑4 ↓0**	**↑6 ↓0**	**↑26 ↓4**
		GBG								
F_{1a}	(30)	**↑3 ↓2**	**↑2 ↓0**	↑0 ↓0	↑1 ↓1	↑0 ↓2	**↑1 ↓0**	**↑1 ↓0**	**↑2 ↓1**	**↑10 ↓6**
F_{1b}	(30)	**↑1 ↓0**	↑0 ↓1	↑0 ↓2	↑1 ↓3	↑1 ↓1	↑0 ↓1	↑0 ↓0	↑0 ↓1	↑3 ↓9
F_2	(30)	↑0 ↓1	↑1 ↓1	↑0 ↓0	**↑1 ↓0**	**↑2 ↓1**	**↑2 ↓0**	**↑2 ↓1**	↑0 ↓0	**↑8 ↓4**
F_3	(30)	↑1 ↓1	↑0 ↓0	**↑1 ↓0**	↑0 ↓0	↑0 ↓0	**↑2 ↓0**	**↑3 ↓0**	**↑3 ↓1**	**↑10 ↓2**
F_4	(30)	**↑2 ↓0**	↑0 ↓1	**↑3 ↓1**	↑0 ↓1	↑1 ↓1	**↑2 ↓1**	↑1 ↓1	↑0 ↓2	**↑9 ↓8**
F_5	(30)	↑1 ↓1	**↑3 ↓0**	**↑1 ↓0**	**↑2 ↓0**	↑0 ↓0	↑0 ↓1	↑0 ↓2	↑1 ↓2	**↑8 ↓6**
F_6	(30)	↑0 ↓0	**↑3 ↓0**	↑0 ↓1	↑1 ↓3	↑0 ↓1	↑0 ↓0	↑1 ↓1	↑0 ↓1	↑5 ↓7
T_1	(35)	↑0 ↓2	**↑2 ↓0**	↑0 ↓1	↑1 ↓2	**↑1 ↓0**	↑2 ↓2	↑1 ↓2	↑2 ↓2	↑9 ↓11
T_2	(35)	**↑1 ↓0**	↑2 ↓2	**↑2 ↓1**	↑2 ↓2	↑2 ↓2	↑0 ↓0	**↑2 ↓1**	↑0 ↓1	**↑11 ↓9**
T_3	(35)	↑1 ↓1	↑0 ↓0	↑0 ↓2	↑1 ↓1	↑0 ↓0	**↑1 ↓0**	**↑2 ↓0**	↑1 ↓1	**↑6 ↓5**
T_4	(35)	**↑2 ↓0**	**↑2 ↓0**	**↑1 ↓0**	↑0 ↓0	↑0 ↓2	↑0 ↓1	↑0 ↓1	↑0 ↓1	↑5 ↓5
T_5	(35)	**↑4 ↓2**	**↑3 ↓1**	**↑1 ↓0**	↑1 ↓1	↑0 ↓1	↑0 ↓0	**↑2 ↓0**	↑1 ↓1	**↑12 ↓6**
T_6	(35)	↑0 ↓0	↑0 ↓0	**↑1 ↓0**	↑1 ↓2	↑1 ↓1	**↑4 ↓0**	↑1 ↓1	↑2 ↓2	**↑10 ↓6**
All	(270)	↑8 ↓8	**↑10 ↓3**	**↑6 ↓5**	**↑12 ↓9**	**↑11 ↓6**	**↑13 ↓3**	**↑14 ↓5**	**↑12 ↓8**	**↑86 ↓47**

Table B.3: CDE vs RMC performance analysis - Part 1

Cp		100	500	1000	5000	10000	25000	50000	100000	Total
Set.	**Max**	**5 Dimensions**								
		MPB								
C_s 1	(2)	↑0 ↓0	↑1 ↓0	↑0 ↓0	↑1 ↓0	↑1 ↓0	↑1 ↓0	↑0 ↓0	↑1 ↓0	↑5 ↓0
5	(2)	↑0 ↓0	↑1 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑1 ↓0	↑12 ↓0
10	(2)	↑0 ↓0	↑0 ↓1	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑12 ↓1
20	(2)	↑0 ↓0	↑0 ↓0	↑1 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑1 ↓0	↑10 ↓0
40	(2)	↑0 ↓0	↑0 ↓0	↑2 ↓0	↑1 ↓0	↑1 ↓0	↑1 ↓0	↑1 ↓0	↑1 ↓1	↑7 ↓1
80	(2)	↑0 ↓0	↑0 ↓0	↑1 ↓0	↑2 ↓0	↑0 ↓0	↑1 ↓0	↑1 ↓0	↑1 ↓0	↑6 ↓0
C	(6)	↑0 ↓0	↑2 ↓1	↑3 ↓0	↑5 ↓0	↑4 ↓0	↑4 ↓0	↑3 ↓0	↑1 ↓1	↑22 ↓2
S	(6)	↑0 ↓0	↑0 ↓0	↑5 ↓0	↑5 ↓0	↑4 ↓0	↑5 ↓0	↑5 ↓0	↑6 ↓0	↑30 ↓0
		GBG								
F_{1a}	(6)	↑0 ↓2	↑5 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑0 ↓3	↑0 ↓6	↑0 ↓6	↑23 ↓17
F_{1b}	(6)	↑0 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑5 ↓0	↑0 ↓5	↑0 ↓6	↑0 ↓6	↑23 ↓17
F_2	(6)	↑0 ↓1	↑4 ↓0	↑5 ↓0	↑5 ↓1	↑3 ↓3	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑17 ↓23
F_3	(6)	↑0 ↓0	↑2 ↓0	↑3 ↓0	↑1 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑6 ↓0
F_4	(6)	↑0 ↓1	↑2 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑4 ↓1	↑0 ↓6	↑0 ↓6	↑24 ↓14
F_5	(6)	↑0 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑4 ↓2	↑1 ↓4	↑0 ↓6	↑29 ↓12
F_6	(6)	↑0 ↓0	↑4 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑5 ↓1	↑4 ↓1	↑1 ↓2	↑32 ↓4
T_1	(7)	↑0 ↓1	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑4 ↓1	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑22 ↓20
T_2	(7)	↑0 ↓0	↑5 ↓0	↑7 ↓0	↑6 ↓0	↑6 ↓0	↑3 ↓2	↑1 ↓5	↑0 ↓5	↑28 ↓12
T_3	(7)	↑0 ↓1	↑5 ↓0	↑7 ↓0	↑6 ↓0	↑5 ↓1	↑3 ↓1	↑1 ↓4	↑1 ↓5	↑28 ↓12
T_4	(7)	↑0 ↓1	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑1 ↓4	↑0 ↓5	↑0 ↓6	↑25 ↓16
T_5	(7)	↑0 ↓1	↑3 ↓0	↑5 ↓0	↑5 ↓1	↑5 ↓1	↑3 ↓2	↑2 ↓4	↑0 ↓5	↑23 ↓14
T_6	(7)	↑0 ↓0	↑4 ↓0	↑7 ↓0	↑7 ↓0	↑6 ↓0	↑3 ↓3	↑1 ↓5	↑0 ↓5	↑28 ↓13
All	(54)	↑0 ↓4	↑31 ↓1	↑46 ↓0	↑46 ↓1	↑40 ↓3	↑22 ↓18	↑13 ↓29	↑8 ↓33	↑206 ↓89
Set.	**Max**	**10 Dimensions**								
		MPB								
C_s 1	(2)	↑0 ↓0	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑0 ↓1	↑0 ↓1	↑0 ↓0	↑0 ↓1	↑3 ↓6
5	(2)	↑0 ↓0	↑1 ↓0	↑1 ↓0	↑1 ↓0	↑1 ↓0	↑1 ↓0	↑1 ↓0	↑0 ↓0	↑6 ↓0
10	(2)	↑0 ↓0	↑0 ↓0	↑1 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑11 ↓0
20	(2)	↑0 ↓0	↑0 ↓0	↑1 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑11 ↓0
40	(2)	↑0 ↓0	↑0 ↓0	↑1 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑11 ↓0
80	(2)	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑10 ↓0
C	(6)	↑0 ↓0	↑2 ↓0	↑4 ↓0	↑6 ↓0	↑5 ↓0	↑5 ↓0	↑5 ↓0	↑4 ↓0	↑31 ↓0
S	(6)	↑0 ↓0	↑0 ↓1	↑1 ↓1	↑4 ↓1	↑4 ↓1	↑4 ↓1	↑4 ↓0	↑4 ↓1	↑21 ↓6
		GBG								
F_{1a}	(6)	↑0 ↓1	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑5 ↓0	↑0 ↓6	↑0 ↓5	↑29 ↓12
F_{1b}	(6)	↑0 ↓1	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑3 ↓0	↑0 ↓5	↑0 ↓5	↑27 ↓11
F_2	(6)	↑0 ↓0	↑4 ↓0	↑4 ↓0	↑6 ↓0	↑4 ↓1	↑3 ↓3	↑1 ↓4	↑0 ↓6	↑22 ↓14
F_3	(6)	↑0 ↓0	↑2 ↓0	↑5 ↓0	↑2 ↓0	↑2 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓1	↑11 ↓1
F_4	(6)	↑1 ↓0	↑2 ↓0	↑5 ↓0	↑6 ↓0	↑4 ↓1	↑3 ↓1	↑2 ↓4	↑0 ↓6	↑23 ↓12
F_5	(6)	↑0 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑4 ↓2	↑40 ↓2
F_6	(6)	↑0 ↓0	↑5 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑5 ↓1	↑40 ↓1
T_1	(7)	↑0 ↓0	↑7 ↓0	↑7 ↓0	↑6 ↓0	↑6 ↓0	↑5 ↓0	↑2 ↓4	↑0 ↓6	↑33 ↓10
T_2	(7)	↑1 ↓0	↑5 ↓0	↑7 ↓0	↑7 ↓0	↑5 ↓0	↑4 ↓1	↑2 ↓4	↑2 ↓4	↑33 ↓9
T_3	(7)	↑0 ↓0	↑5 ↓0	↑6 ↓0	↑7 ↓0	↑7 ↓0	↑3 ↓1	↑2 ↓3	↑2 ↓2	↑32 ↓6
T_4	(7)	↑0 ↓0	↑6 ↓0	↑7 ↓0	↑6 ↓0	↑6 ↓0	↑4 ↓0	↑3 ↓2	↑1 ↓5	↑33 ↓7
T_5	(7)	↑0 ↓1	↑4 ↓0	↑5 ↓0	↑6 ↓0	↑4 ↓2	↑4 ↓2	↑2 ↓4	↑2 ↓4	↑27 ↓13
T_6	(7)	↑0 ↓1	↑4 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑4 ↓2	↑2 ↓5	↑34 ↓8
All	(54)	↑1 ↓2	↑33 ↓1	↑43 ↓1	↑48 ↓1	↑43 ↓3	↑35 ↓5	↑24 ↓19	↑17 ↓27	↑244 ↓59
Set.	**Max**	**25 Dimensions**								
		MPB								
C_s 1	(2)	↑0 ↓0	↑1 ↓0	↑1 ↓0	↑1 ↓0	↑1 ↓1	↑1 ↓0	↑1 ↓0	↑2 ↓0	↑8 ↓1
5	(2)	↑0 ↓0	↑1 ↓0	↑2 ↓0	↑1 ↓0	↑1 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑11 ↓0
10	(2)	↑0 ↓0	↑1 ↓0	↑1 ↓0	↑1 ↓0	↑1 ↓0	↑2 ↓0	↑0 ↓0	↑1 ↓0	↑7 ↓0
20	(2)	↑0 ↓0	↑2 ↓0	↑1 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑13 ↓0
40	(2)	↑0 ↓0	↑0 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑12 ↓0
80	(2)	↑0 ↓0	↑0 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑12 ↓0
C	(6)	↑0 ↓0	↑4 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑5 ↓0	↑5 ↓0	↑38 ↓0
S	(6)	↑0 ↓0	↑1 ↓0	↑3 ↓0	↑3 ↓0	↑3 ↓1	↑5 ↓0	↑4 ↓0	↑6 ↓0	↑25 ↓1
		GBG								
F_{1a}	(6)	↑0 ↓0	↑5 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑3 ↓2	↑38 ↓2
F_{1b}	(6)	↑0 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑4 ↓0	↑1 ↓3	↑35 ↓3
F_2	(6)	↑0 ↓0	↑3 ↓0	↑3 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑3 ↓0	↑3 ↓0	↑30 ↓0
F_3	(6)	↑0 ↓0	↑0 ↓0	↑5 ↓0	↑4 ↓0	↑2 ↓1	↑0 ↓1	↑0 ↓3	↑0 ↓4	↑11 ↓9
F_4	(6)	↑0 ↓0	↑3 ↓0	↑3 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑4 ↓0	↑3 ↓0	↑31 ↓0
F_5	(6)	↑1 ↓1	↑4 ↓0	↑5 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑40 ↓1
F_6	(6)	↑0 ↓0	↑4 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑5 ↓0	↑6 ↓0	↑39 ↓0
T_1	(7)	↑0 ↓1	↑6 ↓0	↑7 ↓0	↑6 ↓0	↑6 ↓1	↑6 ↓1	↑6 ↓1	↑5 ↓1	↑42 ↓5
T_2	(7)	↑0 ↓0	↑4 ↓0	↑6 ↓0	↑7 ↓0	↑7 ↓0	↑6 ↓0	↑4 ↓1	↑2 ↓2	↑36 ↓3
T_3	(7)	↑0 ↓0	↑3 ↓0	↑6 ↓0	↑7 ↓0	↑7 ↓0	↑6 ↓0	↑4 ↓1	↑3 ↓1	↑36 ↓2
T_4	(7)	↑0 ↓0	↑6 ↓0	↑6 ↓0	↑7 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑4 ↓3	↑41 ↓3
T_5	(7)	↑1 ↓0	↑3 ↓0	↑4 ↓0	↑7 ↓0	↑6 ↓0	↑6 ↓0	↑3 ↓0	↑4 ↓0	↑34 ↓0
T_6	(7)	↑0 ↓0	↑3 ↓0	↑5 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑5 ↓0	↑4 ↓2	↑35 ↓2
All	(54)	↑1 ↓1	↑30 ↓0	↑43 ↓0	↑49 ↓0	↑47 ↓2	↑47 ↓1	↑37 ↓3	↑33 ↓9	↑287 ↓16

Table B.4: CDE vs RMC performance analysis - Part 2

Cp		100	500	1000	5000	10000	25000	50000	100000	Total
Set.	**Max**	**50 Dimensions**								
		MPB								
C_s 1	(2)	↑0 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑1 ↓0	↑13 ↓0
5	(2)	↑0 ↓0	↑1 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑1 ↓0	↑12 ↓0
10	(2)	↑1 ↓0	↑1 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑1 ↓0	↑13 ↓0
20	(2)	↑0 ↓0	↑0 ↓0	↑1 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑11 ↓0
40	(2)	↑0 ↓0	↑0 ↓0	↑1 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑11 ↓0
80	(2)	↑0 ↓0	↑1 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑13 ↓0
C	(6)	↑1 ↓0	↑4 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑3 ↓0	↑38 ↓0
S	(6)	↑0 ↓0	↑1 ↓0	↑4 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑35 ↓0
		GBG								
F_{1a}	(6)	↑1 ↓0	↑5 ↓0	↑5 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑5 ↓0	↑40 ↓0
F_{1b}	(6)	↑0 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑4 ↓0	↑40 ↓0
F_2	(6)	↑0 ↓1	↑5 ↓0	↑5 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑5 ↓0	↑4 ↓1	↑37 ↓2
F_3	(6)	↑0 ↓1	↑0 ↓0	↑4 ↓0	↑6 ↓0	↑5 ↓0	↑0 ↓3	↑0 ↓4	↑0 ↓5	↑15 ↓13
F_4	(6)	↑0 ↓1	↑4 ↓0	↑5 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑5 ↓0	↑4 ↓0	↑36 ↓1
F_5	(6)	↑0 ↓0	↑2 ↓0	↑4 ↓0	↑3 ↓0	↑6 ↓0	↑5 ↓0	↑5 ↓0	↑3 ↓1	↑28 ↓1
F_6	(6)	↑0 ↓0	↑3 ↓0	↑5 ↓0	↑6 ↓0	↑6 ↓0	↑5 ↓0	↑5 ↓0	↑6 ↓0	↑36 ↓0
T_1	(7)	↑0 ↓0	↑5 ↓0	↑7 ↓0	↑6 ↓0	↑7 ↓0	↑5 ↓1	↑6 ↓1	↑5 ↓2	↑41 ↓4
T_2	(7)	↑0 ↓0	↑5 ↓0	↑5 ↓0	↑7 ↓0	↑7 ↓0	↑6 ↓0	↑4 ↓1	↑4 ↓2	↑38 ↓3
T_3	(7)	↑0 ↓1	↑4 ↓0	↑6 ↓0	↑7 ↓0	↑7 ↓0	↑6 ↓0	↑6 ↓0	↑4 ↓1	↑40 ↓2
T_4	(7)	↑0 ↓1	↑3 ↓0	↑7 ↓0	↑7 ↓0	↑7 ↓0	↑6 ↓1	↑6 ↓1	↑5 ↓1	↑41 ↓4
T_5	(7)	↑0 ↓1	↑5 ↓0	↑5 ↓0	↑6 ↓0	↑6 ↓0	↑5 ↓0	↑5 ↓1	↑4 ↓1	↑36 ↓3
T_6	(7)	↑1 ↓0	↑3 ↓0	↑4 ↓0	↑6 ↓0	↑7 ↓0	↑6 ↓1	↑5 ↓0	↑4 ↓0	↑36 ↓1
All	(54)	↑2 ↓3	↑30 ↓0	↑44 ↓0	↑51 ↓0	↑53 ↓0	↑46 ↓3	↑44 ↓4	↑35 ↓7	↑305 ↓17
Set.	**Max**	**100 Dimensions**								
		MPB								
C_s 1	(2)	↑0 ↓0	↑2 ↓0	↑2 ↓0	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑9 ↓5
5	(2)	↑0 ↓0	↑1 ↓0	↑2 ↓0	↑2 ↓0	↑1 ↓1	↑2 ↓0	↑1 ↓1	↑0 ↓1	↑9 ↓3
10	(2)	↑0 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑14 ↓0
20	(2)	↑0 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑2 ↓0	↑11 ↓3
40	(2)	↑0 ↓0	↑1 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑1 ↓1	↑2 ↓0	↑12 ↓1
80	(2)	↑0 ↓0	↑1 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑13 ↓0
C	(6)	↑0 ↓0	↑3 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑5 ↓0	↑38 ↓0
S	(6)	↑0 ↓0	↑6 ↓0	↑6 ↓0	↑5 ↓1	↑3 ↓3	↑4 ↓2	↑2 ↓4	↑4 ↓2	↑30 ↓12
		GBG								
F_{1a}	(6)	↑0 ↓0	↑5 ↓0	↑5 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑40 ↓0
F_{1b}	(6)	↑0 ↓1	↑5 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑41 ↓1
F_2	(6)	↑0 ↓0	↑5 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑5 ↓1	↑40 ↓1
F_3	(6)	↑0 ↓0	↑0 ↓4	↑4 ↓0	↑6 ↓0	↑5 ↓0	↑4 ↓0	↑0 ↓0	↑0 ↓5	↑19 ↓9
F_4	(6)	↑0 ↓0	↑6 ↓0	↑5 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑5 ↓1	↑40 ↓1
F_5	(6)	↑0 ↓0	↑1 ↓0	↑2 ↓1	↑4 ↓0	↑3 ↓0	↑4 ↓0	↑3 ↓0	↑3 ↓0	↑20 ↓1
F_6	(6)	↑0 ↓0	↑4 ↓0	↑4 ↓0	↑6 ↓0	↑6 ↓0	↑4 ↓0	↑4 ↓1	↑4 ↓2	↑32 ↓3
T_1	(7)	↑0 ↓0	↑5 ↓1	↑5 ↓0	↑6 ↓0	↑6 ↓0	↑7 ↓0	↑5 ↓0	↑5 ↓1	↑39 ↓2
T_2	(7)	↑0 ↓0	↑6 ↓1	↑7 ↓0	↑7 ↓0	↑7 ↓0	↑7 ↓0	↑6 ↓0	↑4 ↓3	↑44 ↓4
T_3	(7)	↑0 ↓1	↑2 ↓1	↑5 ↓0	↑7 ↓0	↑7 ↓0	↑6 ↓0	↑5 ↓0	↑5 ↓2	↑37 ↓4
T_4	(7)	↑0 ↓0	↑5 ↓1	↑6 ↓0	↑7 ↓0	↑7 ↓0	↑7 ↓0	↑6 ↓0	↑6 ↓1	↑44 ↓2
T_5	(7)	↑0 ↓0	↑5 ↓0	↑6 ↓1	↑6 ↓0	↑6 ↓0	↑4 ↓0	↑4 ↓1	↑4 ↓2	↑35 ↓4
T_6	(7)	↑0 ↓0	↑3 ↓0	↑3 ↓0	↑7 ↓0	↑5 ↓0	↑5 ↓0	↑5 ↓0	↑5 ↓0	↑33 ↓0
All	(54)	↑0 ↓1	↑35 ↓4	↑44 ↓1	↑51 ↓1	↑47 ↓3	↑46 ↓2	↑39 ↓5	↑38 ↓11	↑300 ↓28
Set.	**Max**	**All Dimensions**								
		MPB								
C_s 1	(10)	↑0 ↓0	↑7 ↓1	↑6 ↓1	↑6 ↓2	↑5 ↓3	↑5 ↓2	↑4 ↓1	↑5 ↓2	↑38 ↓12
5	(10)	↑0 ↓0	↑5 ↓0	↑9 ↓0	↑8 ↓0	↑7 ↓1	↑9 ↓0	↑8 ↓1	↑4 ↓1	↑50 ↓3
10	(10)	↑1 ↓0	↑4 ↓1	↑8 ↓0	↑9 ↓0	↑9 ↓0	↑10 ↓0	↑8 ↓0	↑8 ↓0	↑57 ↓1
20	(10)	↑0 ↓0	↑4 ↓0	↑6 ↓0	↑10 ↓0	↑9 ↓1	↑9 ↓1	↑9 ↓1	↑9 ↓0	↑56 ↓3
40	(10)	↑0 ↓0	↑1 ↓0	↑8 ↓0	↑9 ↓0	↑9 ↓0	↑9 ↓0	↑8 ↓1	↑9 ↓1	↑53 ↓2
80	(10)	↑0 ↓0	↑2 ↓0	↑7 ↓0	↑10 ↓0	↑8 ↓0	↑9 ↓0	↑9 ↓0	↑9 ↓0	↑54 ↓0
C	(6)	↑1 ↓0	↑15 ↓1	↑25 ↓0	↑29 ↓0	↑27 ↓0	↑27 ↓0	↑25 ↓0	↑18 ↓1	↑167 ↓2
S	(6)	↑0 ↓0	↑8 ↓1	↑19 ↓1	↑23 ↓2	↑20 ↓5	↑24 ↓3	↑21 ↓4	↑26 ↓3	↑141 ↓19
		GBG								
F_{1a}	(30)	↑1 ↓3	↑26 ↓0	↑28 ↓0	↑30 ↓0	↑30 ↓0	↑23 ↓3	↑18 ↓12	↑14 ↓13	↑170 ↓31
F_{1b}	(30)	↑0 ↓2	↑29 ↓0	↑30 ↓0	↑30 ↓0	↑29 ↓0	↑21 ↓5	↑16 ↓11	↑11 ↓14	↑166 ↓32
F_2	(30)	↑0 ↓2	↑21 ↓0	↑23 ↓0	↑29 ↓1	↑25 ↓4	↑21 ↓9	↑15 ↓10	↑12 ↓14	↑146 ↓40
F_3	(30)	↑0 ↓1	↑4 ↓4	↑21 ↓0	↑19 ↓0	↑14 ↓1	↑4 ↓4	↑0 ↓7	↑0 ↓15	↑62 ↓32
F_4	(30)	↑1 ↓2	↑17 ↓0	↑24 ↓0	↑30 ↓0	↑28 ↓1	↑25 ↓2	↑17 ↓10	↑12 ↓13	↑154 ↓28
F_5	(30)	↑1 ↓1	↑19 ↓0	↑23 ↓1	↑25 ↓0	↑27 ↓0	↑25 ↓2	↑21 ↓4	↑16 ↓9	↑157 ↓17
F_6	(30)	↑0 ↓0	↑20 ↓0	↑27 ↓0	↑30 ↓0	↑30 ↓0	↑26 ↓1	↑24 ↓2	↑22 ↓5	↑179 ↓8
T_1	(35)	↑0 ↓2	↑29 ↓1	↑32 ↓0	↑30 ↓0	↑29 ↓2	↑23 ↓8	↑19 ↓12	↑15 ↓16	↑177 ↓41
T_2	(35)	↑1 ↓0	↑25 ↓1	↑32 ↓0	↑34 ↓0	↑32 ↓0	↑26 ↓3	↑17 ↓11	↑12 ↓16	↑179 ↓31
T_3	(35)	↑0 ↓3	↑19 ↓1	↑30 ↓0	↑34 ↓0	↑33 ↓1	↑24 ↓2	↑18 ↓8	↑15 ↓11	↑173 ↓26
T_4	(35)	↑0 ↓2	↑26 ↓1	↑32 ↓0	↑33 ↓0	↑32 ↓0	↑24 ↓5	↑21 ↓8	↑16 ↓16	↑184 ↓32
T_5	(35)	↑1 ↓3	↑20 ↓0	↑25 ↓1	↑30 ↓1	↑27 ↓3	↑22 ↓4	↑16 ↓10	↑14 ↓12	↑155 ↓34
T_6	(35)	↑1 ↓1	↑17 ↓0	↑25 ↓0	↑32 ↓0	↑30 ↓0	↑26 ↓4	↑20 ↓7	↑15 ↓12	↑166 ↓24
All	(270)	↑4 ↓11	↑159 ↓6	↑220 ↓2	↑245 ↓3	↑230 ↓11	↑196 ↓29	↑157 ↓60	↑131 ↓87	↑1342 ↓209

Table B.5: CDE vs CjDE performance analysis - Part 1

Cp		100	500	1000	5000	10000	25000	50000	100000	Total
Set.	**Max**	**5 Dimensions**								
		MPB								
C_s 1	(2)	↑0 ↓1	↑1 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑13 ↓1
5	(2)	↑0 ↓2	↑0 ↓2	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑12 ↓4
10	(2)	↑0 ↓2	↑0 ↓2	↑0 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑10 ↓4
20	(2)	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑10 ↓6
40	(2)	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑0 ↓1	↑1 ↓1	↑1 ↓0	↑2 ↓0	↑2 ↓0	↑6 ↓8
80	(2)	↑0 ↓1	↑0 ↓2	↑0 ↓2	↑0 ↓1	↑0 ↓1	↑1 ↓1	↑1 ↓1	↑2 ↓0	↑4 ↓9
C	(6)	↑0 ↓5	↑1 ↓5	↑2 ↓3	↑4 ↓0	↑5 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑30 ↓13
S	(6)	↑0 ↓5	↑0 ↓5	↑2 ↓3	↑4 ↓2	↑4 ↓2	↑4 ↓1	↑5 ↓1	↑6 ↓0	↑25 ↓19
		GBG								
F_{1a}	(6)	↑2 ↓0	↑5 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑43 ↓0
F_{1b}	(6)	↑2 ↓1	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑44 ↓1
F_2	(6)	↑0 ↓0	↑2 ↓1	↑5 ↓1	↑2 ↓2	↑4 ↓2	↑4 ↓1	↑4 ↓1	↑5 ↓0	↑26 ↓8
F_3	(6)	↑1 ↓0	↑0 ↓2	↑3 ↓1	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑4 ↓33
F_4	(6)	↑2 ↓0	↑1 ↓4	↑4 ↓1	↑5 ↓1	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑36 ↓6
F_5	(6)	↑2 ↓3	↑5 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑43 ↓3
F_6	(6)	↑1 ↓1	↑3 ↓1	↑5 ↓0	↑5 ↓0	↑4 ↓1	↑3 ↓0	↑3 ↓0	↑3 ↓1	↑27 ↓4
T_1	(7)	↑4 ↓0	↑6 ↓0	↑7 ↓0	↑6 ↓1	↑6 ↓1	↑6 ↓1	↑6 ↓1	↑6 ↓1	↑47 ↓5
T_2	(7)	↑1 ↓1	↑4 ↓1	↑5 ↓0	↑5 ↓1	↑6 ↓1	↑6 ↓1	↑6 ↓1	↑6 ↓1	↑39 ↓7
T_3	(7)	↑0 ↓1	↑4 ↓1	↑7 ↓0	↑5 ↓2	↑5 ↓2	↑4 ↓1	↑4 ↓1	↑5 ↓1	↑34 ↓9
T_4	(7)	↑5 ↓0	↑3 ↓2	↑6 ↓1	↑6 ↓1	↑6 ↓1	↑6 ↓1	↑6 ↓1	↑6 ↓1	↑44 ↓8
T_5	(7)	↑0 ↓0	↑1 ↓4	↑3 ↓2	↑3 ↓3	↑4 ↓3	↑4 ↓2	↑4 ↓2	↑4 ↓1	↑23 ↓17
T_6	(7)	↑0 ↓3	↑4 ↓0	↑7 ↓0	↑5 ↓1	↑5 ↓1	↑5 ↓1	↑5 ↓1	↑5 ↓2	↑36 ↓9
All	(54)	↑10 ↓15	↑23 ↓18	↑39 ↓9	↑38 ↓11	↑41 ↓11	↑41 ↓8	↑42 ↓8	↑44 ↓7	↑278 ↓87
Set.	**Max**	**10 Dimensions**								
		MPB								
C_s 1	(2)	↑0 ↓2	↑0 ↓2	↑1 ↓1	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑11 ↓5
5	(2)	↑0 ↓2	↑0 ↓2	↑1 ↓1	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑11 ↓5
10	(2)	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑10 ↓6
20	(2)	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑10 ↓6
40	(2)	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑1 ↓1	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑9 ↓7
80	(2)	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑0 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑3 ↓12
C	(6)	↑0 ↓6	↑0 ↓6	↑2 ↓4	↑5 ↓1	↑5 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑30 ↓17
S	(6)	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑4 ↓2	↑5 ↓1	↑5 ↓1	↑5 ↓1	↑5 ↓1	↑24 ↓24
		GBG								
F_{1a}	(6)	↑1 ↓1	↑4 ↓1	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑41 ↓2
F_{1b}	(6)	↑2 ↓1	↑5 ↓1	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑43 ↓2
F_2	(6)	↑3 ↓0	↑1 ↓3	↑3 ↓1	↑5 ↓1	↑5 ↓1	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑35 ↓6
F_3	(6)	↑2 ↓0	↑0 ↓6	↑1 ↓2	↑2 ↓2	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑5 ↓34
F_4	(6)	↑1 ↓0	↑1 ↓2	↑3 ↓1	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑35 ↓3
F_5	(6)	↑3 ↓2	↑2 ↓4	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑41 ↓6
F_6	(6)	↑2 ↓2	↑1 ↓3	↑5 ↓1	↑5 ↓0	↑5 ↓0	↑3 ↓1	↑3 ↓3	↑3 ↓3	↑27 ↓13
T_1	(7)	↑2 ↓0	↑6 ↓1	↑6 ↓0	↑6 ↓1	↑6 ↓1	↑6 ↓1	↑6 ↓1	↑6 ↓1	↑44 ↓6
T_2	(7)	↑0 ↓2	↑3 ↓1	↑6 ↓0	↑7 ↓0	↑6 ↓1	↑6 ↓1	↑6 ↓1	↑6 ↓1	↑40 ↓7
T_3	(7)	↑0 ↓2	↑1 ↓3	↑5 ↓0	↑7 ↓0	↑6 ↓1	↑5 ↓1	↑5 ↓2	↑5 ↓2	↑34 ↓11
T_4	(7)	↑4 ↓0	↑2 ↓5	↑4 ↓1	↑6 ↓1	↑6 ↓1	↑6 ↓1	↑6 ↓1	↑6 ↓1	↑40 ↓11
T_5	(7)	↑3 ↓0	↑0 ↓7	↑3 ↓4	↑4 ↓1	↑4 ↓2	↑5 ↓2	↑5 ↓2	↑5 ↓2	↑29 ↓20
T_6	(7)	↑5 ↓2	↑2 ↓3	↑6 ↓0	↑6 ↓0	↑6 ↓1	↑5 ↓1	↑5 ↓2	↑5 ↓2	↑40 ↓11
All	(54)	↑14 ↓18	↑14 ↓32	↑32 ↓15	↑45 ↓6	↑44 ↓8	↑44 ↓8	↑44 ↓10	↑44 ↓10	↑281 ↓107
Set.	**Max**	**25 Dimensions**								
		MPB								
C_s 1	(2)	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓0	↑2 ↓0	↑6 ↓9
5	(2)	↑0 ↓1	↑0 ↓2	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑2 ↓0	↑2 ↓0	↑8 ↓7
10	(2)	↑0 ↓2	↑0 ↓2	↑0 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓0	↑2 ↓0	↑2 ↓0	↑7 ↓7
20	(2)	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑1 ↓1	↑1 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑8 ↓7
40	(2)	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑1 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑9 ↓6
80	(2)	↑0 ↓1	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑1 ↓1	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑7 ↓8
C	(6)	↑0 ↓5	↑0 ↓6	↑1 ↓4	↑5 ↓1	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑30 ↓16
S	(6)	↑0 ↓5	↑0 ↓6	↑0 ↓6	↑0 ↓5	↑1 ↓4	↑3 ↓2	↑5 ↓0	↑6 ↓0	↑15 ↓28
		GBG								
F_{1a}	(6)	↑5 ↓0	↑4 ↓1	↑5 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑44 ↓1
F_{1b}	(6)	↑4 ↓0	↑5 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑45 ↓0
F_2	(6)	↑3 ↓1	↑1 ↓3	↑1 ↓1	↑5 ↓1	↑5 ↓1	↑5 ↓0	↑6 ↓0	↑6 ↓0	↑32 ↓7
F_3	(6)	↑2 ↓2	↑0 ↓6	↑0 ↓6	↑2 ↓3	↑0 ↓4	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑4 ↓39
F_4	(6)	↑3 ↓0	↑1 ↓2	↑1 ↓1	↑5 ↓1	↑5 ↓1	↑5 ↓0	↑6 ↓0	↑6 ↓0	↑32 ↓5
F_5	(6)	↑2 ↓0	↑1 ↓5	↑3 ↓3	↑6 ↓0	↑5 ↓0	↑5 ↓0	↑5 ↓1	↑4 ↓1	↑31 ↓10
F_6	(6)	↑2 ↓2	↑1 ↓5	↑3 ↓2	↑5 ↓1	↑5 ↓1	↑3 ↓1	↑3 ↓3	↑2 ↓3	↑24 ↓18
T_1	(7)	↑0 ↓0	↑6 ↓1	↑6 ↓1	↑6 ↓1	↑6 ↓1	↑6 ↓1	↑6 ↓1	↑6 ↓1	↑42 ↓7
T_2	(7)	↑2 ↓3	↑2 ↓4	↑4 ↓1	↑7 ↓0	↑6 ↓0	↑6 ↓1	↑6 ↓1	↑5 ↓1	↑38 ↓11
T_3	(7)	↑1 ↓2	↑1 ↓3	↑2 ↓2	↑7 ↓0	↑6 ↓0	↑5 ↓1	↑5 ↓2	↑5 ↓2	↑32 ↓12
T_4	(7)	↑6 ↓0	↑2 ↓5	↑3 ↓1	↑6 ↓1	↑6 ↓1	↑6 ↓1	↑6 ↓1	↑6 ↓1	↑41 ↓11
T_5	(7)	↑6 ↓0	↑0 ↓6	↑2 ↓5	↑3 ↓4	↑3 ↓4	↑3 ↓2	↑5 ↓2	↑4 ↓2	↑26 ↓25
T_6	(7)	↑6 ↓0	↑2 ↓3	↑2 ↓3	↑6 ↓0	↑5 ↓1	↑4 ↓1	↑4 ↓3	↑4 ↓3	↑33 ↓14
All	(54)	↑21 ↓15	↑13 ↓34	↑20 ↓23	↑40 ↓12	↑39 ↓11	↑39 ↓9	↑43 ↓10	↑42 ↓10	↑257 ↓124

Table B.6: CDE vs CjDE performance analysis - Part 2

Cp		100	500	1000	5000	10000	25000	50000	100000	Total
Set.	**Max**	**50 Dimensions**								
		MPB								
C_s 1	(2)	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑5 ↓11
5	(2)	↑0 ↓1	↑0 ↓2	↑0 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑5 ↓9
10	(2)	↑0 ↓2	↑0 ↓2	↑0 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑5 ↓10
20	(2)	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑1 ↓0	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑2 ↓0	↑6 ↓9
40	(2)	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑2 ↓0	↑2 ↓0	↑1 ↓0	↑2 ↓0	↑2 ↓0	↑9 ↓6
80	(2)	↑0 ↓1	↑0 ↓2	↑0 ↓2	↑1 ↓1	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑9 ↓6
C	(6)	↑0 ↓4	↑0 ↓6	↑0 ↓4	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑30 ↓14
S	(6)	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑1 ↓4	↑2 ↓4	↑1 ↓4	↑2 ↓4	↑3 ↓3	↑9 ↓37
		GBG								
F_{1a}	(6)	↑3 ↓0	↑4 ↓0	↑5 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑5 ↓0	↑41 ↓0
F_{1b}	(6)	↑5 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑47 ↓0
F_2	(6)	↑2 ↓3	↑1 ↓0	↑3 ↓1	↑5 ↓1	↑5 ↓1	↑5 ↓0	↑6 ↓0	↑6 ↓0	↑33 ↓6
F_3	(6)	↑2 ↓3	↑0 ↓6	↑0 ↓6	↑0 ↓5	↑0 ↓5	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑2 ↓43
F_4	(6)	↑2 ↓3	↑1 ↓1	↑3 ↓1	↑5 ↓1	↑5 ↓1	↑5 ↓0	↑5 ↓0	↑5 ↓0	↑31 ↓7
F_5	(6)	↑1 ↓1	↑0 ↓6	↑0 ↓5	↑2 ↓2	↑3 ↓1	↑3 ↓1	↑4 ↓1	↑3 ↓2	↑16 ↓19
F_6	(6)	↑2 ↓2	↑0 ↓5	↑2 ↓3	↑5 ↓1	↑5 ↓1	↑3 ↓3	↑3 ↓3	↑1 ↓3	↑21 ↓21
T_1	(7)	↑1 ↓4	↑4 ↓2	↑5 ↓1	↑6 ↓1	↑6 ↓1	↑6 ↓1	↑6 ↓1	↑4 ↓1	↑38 ↓12
T_2	(7)	↑1 ↓4	↑2 ↓3	↑3 ↓2	↑6 ↓1	↑6 ↓1	↑6 ↓1	↑6 ↓1	↑5 ↓1	↑35 ↓14
T_3	(7)	↑1 ↓4	↑1 ↓3	↑2 ↓3	↑5 ↓1	↑6 ↓1	↑5 ↓2	↑5 ↓2	↑4 ↓2	↑29 ↓18
T_4	(7)	↑6 ↓0	↑2 ↓3	↑4 ↓2	↑5 ↓1	↑5 ↓1	↑5 ↓1	↑5 ↓1	↑5 ↓2	↑37 ↓11
T_5	(7)	↑2 ↓0	↑1 ↓4	↑2 ↓5	↑2 ↓5	↑2 ↓4	↑2 ↓2	↑4 ↓2	↑4 ↓2	↑19 ↓24
T_6	(7)	↑6 ↓0	↑2 ↓3	↑3 ↓3	↑5 ↓1	↑5 ↓1	↑4 ↓3	↑4 ↓3	↑4 ↓3	↑33 ↓17
All	(54)	↑17 ↓22	↑12 ↓30	↑19 ↓26	↑36 ↓14	↑38 ↓13	↑35 ↓14	↑38 ↓14	↑35 ↓14	↑230 ↓147
Set.	**Max**	**100 Dimensions**								
		MPB								
C_s 1	(2)	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑5 ↓11
5	(2)	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑5 ↓11
10	(2)	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑5 ↓11
20	(2)	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑1 ↓0	↑1 ↓0	↑1 ↓0	↑1 ↓1	↑1 ↓0	↑5 ↓7
40	(2)	↑0 ↓1	↑0 ↓2	↑0 ↓2	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑1 ↓0	↑1 ↓1	↑8 ↓6
80	(2)	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑10 ↓6
C	(6)	↑0 ↓5	↑0 ↓6	↑0 ↓6	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑30 ↓17
S	(6)	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑2 ↓3	↑2 ↓3	↑2 ↓3	↑1 ↓4	↑1 ↓4	↑8 ↓35
		GBG								
F_{1a}	(6)	↑4 ↓1	↑4 ↓0	↑5 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑43 ↓1
F_{1b}	(6)	↑3 ↓2	↑4 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑43 ↓2
F_2	(6)	↑2 ↓3	↑2 ↓1	↑5 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑39 ↓4
F_3	(6)	↑2 ↓3	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑2 ↓45
F_4	(6)	↑3 ↓3	↑2 ↓1	↑3 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑38 ↓4
F_5	(6)	↑0 ↓2	↑0 ↓6	↑0 ↓6	↑0 ↓4	↑1 ↓4	↑3 ↓3	↑2 ↓3	↑1 ↓4	↑7 ↓32
F_6	(6)	↑2 ↓3	↑0 ↓6	↑1 ↓3	↑5 ↓1	↑4 ↓1	↑2 ↓4	↑2 ↓4	↑1 ↓4	↑17 ↓26
T_1	(7)	↑0 ↓6	↑4 ↓3	↑5 ↓2	↑5 ↓2	↑5 ↓2	↑6 ↓1	↑6 ↓1	↑4 ↓2	↑35 ↓19
T_2	(7)	↑2 ↓4	↑4 ↓3	↑4 ↓2	↑5 ↓1	↑6 ↓1	↑5 ↓2	↑5 ↓2	↑5 ↓2	↑36 ↓17
T_3	(7)	↑1 ↓5	↑0 ↓3	↑3 ↓3	↑5 ↓1	↑5 ↓1	↑5 ↓2	↑4 ↓2	↑4 ↓2	↑27 ↓19
T_4	(7)	↑4 ↓2	↑2 ↓5	↑2 ↓2	↑5 ↓2	↑5 ↓2	↑5 ↓2	↑5 ↓2	↑5 ↓2	↑33 ↓19
T_5	(7)	↑3 ↓0	↑2 ↓3	↑3 ↓3	↑4 ↓3	↑4 ↓3	↑4 ↓3	↑4 ↓3	↑4 ↓3	↑28 ↓21
T_6	(7)	↑6 ↓0	↑0 ↓3	↑3 ↓3	↑5 ↓2	↑4 ↓2	↑4 ↓3	↑4 ↓3	↑4 ↓3	↑30 ↓19
All	(54)	↑16 ↓28	↑12 ↓32	↑20 ↓27	↑37 ↓14	↑37 ↓14	↑37 ↓16	↑35 ↓17	↑33 ↓18	↑227 ↓166
Set.	**Max**	**All Dimensions**								
		MPB								
C_s 1	(10)	↑0 ↓9	↑1 ↓8	↑3 ↓7	↑7 ↓3	↑7 ↓3	↑7 ↓3	↑7 ↓2	↑8 ↓2	↑40 ↓37
5	(10)	↑0 ↓8	↑0 ↓10	↑4 ↓5	↑7 ↓3	↑7 ↓3	↑7 ↓3	↑8 ↓2	↑8 ↓2	↑41 ↓36
10	(10)	↑0 ↓10	↑0 ↓10	↑0 ↓6	↑7 ↓3	↑7 ↓3	↑7 ↓2	↑8 ↓2	↑8 ↓2	↑37 ↓38
20	(10)	↑0 ↓10	↑0 ↓10	↑0 ↓10	↑7 ↓1	↑7 ↓1	↑8 ↓1	↑8 ↓2	↑9 ↓0	↑39 ↓35
40	(10)	↑0 ↓9	↑0 ↓10	↑0 ↓10	↑6 ↓2	↑9 ↓1	↑8 ↓0	↑9 ↓0	↑9 ↓1	↑41 ↓33
80	(10)	↑0 ↓7	↑0 ↓10	↑0 ↓10	↑3 ↓6	↑5 ↓3	↑8 ↓2	↑8 ↓2	↑9 ↓1	↑33 ↓41
C	(6)	↑0 ↓25	↑1 ↓29	↑5 ↓21	↑26 ↓2	↑28 ↓0	↑30 ↓0	↑30 ↓0	↑30 ↓0	↑150 ↓77
S	(6)	↑0 ↓28	↑0 ↓29	↑2 ↓27	↑11 ↓16	↑14 ↓14	↑15 ↓11	↑18 ↓10	↑21 ↓8	↑81 ↓143
		GBG								
F_{1a}	(30)	↑15 ↓2	↑21 ↓2	↑27 ↓0	↑30 ↓0	↑30 ↓0	↑30 ↓0	↑30 ↓0	↑29 ↓0	↑212 ↓4
F_{1b}	(30)	↑16 ↓4	↑26 ↓1	↑30 ↓0	↑30 ↓0	↑30 ↓0	↑30 ↓0	↑30 ↓0	↑30 ↓0	↑222 ↓5
F_2	(30)	↑10 ↓7	↑7 ↓8	↑17 ↓4	↑23 ↓5	↑25 ↓5	↑26 ↓1	↑28 ↓1	↑29 ↓0	↑165 ↓31
F_3	(30)	↑9 ↓8	↑0 ↓26	↑4 ↓21	↑4 ↓22	↑0 ↓27	↑0 ↓30	↑0 ↓30	↑0 ↓30	↑17 ↓194
F_4	(30)	↑11 ↓6	↑6 ↓10	↑14 ↓4	↑27 ↓3	↑28 ↓2	↑28 ↓0	↑29 ↓0	↑29 ↓0	↑172 ↓25
F_5	(30)	↑8 ↓8	↑8 ↓21	↑15 ↓14	↑20 ↓6	↑21 ↓5	↑23 ↓4	↑23 ↓5	↑20 ↓7	↑138 ↓70
F_6	(30)	↑9 ↓10	↑5 ↓20	↑16 ↓9	↑25 ↓3	↑23 ↓4	↑14 ↓9	↑14 ↓13	↑10 ↓14	↑116 ↓82
T_1	(35)	↑7 ↓10	↑26 ↓7	↑29 ↓4	↑29 ↓6	↑29 ↓6	↑30 ↓5	↑30 ↓5	↑26 ↓6	↑206 ↓49
T_2	(35)	↑6 ↓14	↑15 ↓12	↑22 ↓5	↑30 ↓3	↑30 ↓4	↑29 ↓6	↑29 ↓6	↑27 ↓6	↑188 ↓56
T_3	(35)	↑3 ↓14	↑7 ↓13	↑19 ↓8	↑29 ↓4	↑28 ↓5	↑24 ↓7	↑23 ↓9	↑23 ↓9	↑156 ↓69
T_4	(35)	↑25 ↓2	↑11 ↓20	↑19 ↓7	↑28 ↓6	↑28 ↓6	↑28 ↓6	↑28 ↓6	↑28 ↓7	↑195 ↓60
T_5	(35)	↑14 ↓0	↑4 ↓24	↑13 ↓19	↑16 ↓16	↑17 ↓16	↑18 ↓11	↑22 ↓11	↑21 ↓10	↑125 ↓107
T_6	(35)	↑23 ↓5	↑10 ↓12	↑21 ↓9	↑27 ↓4	↑25 ↓6	↑22 ↓9	↑22 ↓12	↑22 ↓13	↑172 ↓70
All	(270)	↑78 ↓98	↑74 ↓146	↑130 ↓100	↑196 ↓57	↑199 ↓57	↑196 ↓55	↑202 ↓59	↑198 ↓59	↑1273 ↓631

Appendix C

Additional Results - Chapter 5

This appendix contains results that were omitted from Chapter 5 due to space constraints. Table C.1 and gives the performance analysis of CDE compared to DynDE on the n_p standard set of environments. CDE and DynDE used equal numbers of sub-populations as numbers of peaks. Table C.2 gives the performance analysis of DynDE10 compared to DynDE on the n_p standard set of environments. The comparative performance analysis on variations of the standard set of DynPopDE versus DynDE is given in Tables C.3 and C.4.

Table C.1: CDE vs DynDE performance analysis on the n_p standard set

Cp		**100**	**500**	**1000**	**5000**	**10000**	**25000**	**50000**	**100000**	**Total**
Set.	**Max**	**5 Dimensions**								
n_p 5	(2)	↑0 ↓0	↑0 ↓0	**↑1 ↓0**	**↑1 ↓0**	**↑1 ↓0**	**↑1 ↓0**	↑0 ↓0	↑0 ↓0	**↑4 ↓0**
10	(2)	↑0 ↓0	**↑1 ↓0**	↑0 ↓0	**↑1 ↓0**	**↑2 ↓0**	**↑1 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑9 ↓0**
25	(2)	↑0 ↓0	↑0 ↓0	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑12 ↓0**
50	(2)	↑0 ↓0	↑0 ↓0	*↑0 ↓1*	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑10 ↓1**
100	(2)	↑0 ↓0	↑0 ↓0	↑0 ↓0	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑10 ↓0**
200	(2)	↑0 ↓0	**↑1 ↓0**	↑0 ↓0	**↑1 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑10 ↓0**
C	(6)	↑0 ↓0	**↑2 ↓0**	**↑2 ↓0**	**↑5 ↓0**	**↑6 ↓0**	**↑5 ↓0**	**↑5 ↓0**	**↑5 ↓0**	**↑30 ↓0**
S	(6)	↑0 ↓0	↑0 ↓0	↑1 ↓1	**↑4 ↓0**	**↑5 ↓0**	**↑5 ↓0**	**↑5 ↓0**	**↑5 ↓0**	**↑25 ↓1**
All	(12)	↑0 ↓0	**↑2 ↓0**	**↑3 ↓1**	**↑9 ↓0**	**↑11 ↓0**	**↑10 ↓0**	**↑10 ↓0**	**↑10 ↓0**	**↑55 ↓1**
Set.	**Max**	**10 Dimensions**								
n_p 5	(2)	**↑1 ↓0**	↑0 ↓0	*↑0 ↓1*	↑0 ↓0	↑0 ↓0	*↑0 ↓1*	*↑0 ↓1*	↑0 ↓0	*↑1 ↓3*
10	(2)	↑0 ↓0	↑1 ↓1	↑1 ↓1	↑0 ↓0	↑0 ↓0	↑0 ↓0	*↑0 ↓1*	*↑0 ↓1*	*↑2 ↓4*
25	(2)	**↑1 ↓0**	↑0 ↓0	↑1 ↓1	**↑1 ↓0**	↑1 ↓1	↑1 ↓1	*↑0 ↓1*	*↑0 ↓1*	↑5 ↓5
50	(2)	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	*↑0 ↓1*	*↑4 ↓5*
100	(2)	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑5 ↓5
200	(2)	↑0 ↓0	↑0 ↓0	↑0 ↓0	*↑0 ↓1*	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	*↑4 ↓5*
C	(6)	**↑1 ↓0**	**↑1 ↓0**	**↑2 ↓0**	**↑3 ↓0**	**↑4 ↓0**	**↑4 ↓1**	**↑3 ↓0**	**↑2 ↓1**	**↑20 ↓2**
S	(6)	**↑1 ↓0**	*↑0 ↓1*	*↑0 ↓3*	*↑0 ↓3*	*↑0 ↓4*	*↑0 ↓4*	*↑0 ↓6*	*↑0 ↓4*	*↑1 ↓25*
All	(12)	**↑2 ↓0**	↑1 ↓1	*↑2 ↓3*	↑3 ↓3	↑4 ↓4	*↑4 ↓5*	*↑3 ↓6*	*↑2 ↓5*	*↑21 ↓27*
Set.	**Max**	**25 Dimensions**								
n_p 5	(2)	↑0 ↓0	**↑1 ↓0**	**↑2 ↓0**	**↑1 ↓0**	**↑2 ↓0**	↑0 ↓0	↑0 ↓0	**↑1 ↓0**	**↑7 ↓0**
10	(2)	↑0 ↓0	**↑1 ↓0**	**↑1 ↓0**	**↑1 ↓0**	**↑2 ↓0**	**↑1 ↓0**	**↑1 ↓0**	↑0 ↓0	**↑7 ↓0**
25	(2)	↑0 ↓0	↑0 ↓0	↑1 ↓1	**↑2 ↓0**	**↑1 ↓0**	**↑1 ↓0**	**↑1 ↓0**	**↑1 ↓0**	**↑7 ↓1**
50	(2)	**↑1 ↓0**	↑0 ↓0	↑0 ↓0	**↑1 ↓0**	**↑1 ↓0**	↑1 ↓1	**↑1 ↓0**	**↑1 ↓0**	**↑6 ↓1**
100	(2)	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	**↑1 ↓0**	**↑5 ↓4**
200	(2)	↑0 ↓0	*↑0 ↓1*	*↑0 ↓1*	*↑0 ↓2*	↑1 ↓1	↑1 ↓1	**↑1 ↓0**	↑1 ↓1	*↑4 ↓7*
C	(6)	↑0 ↓0	**↑2 ↓1**	**↑3 ↓0**	**↑5 ↓1**	**↑6 ↓0**	**↑5 ↓0**	**↑5 ↓0**	**↑4 ↓0**	**↑30 ↓2**
S	(6)	**↑1 ↓0**	↑0 ↓0	*↑1 ↓2*	*↑1 ↓2*	↑2 ↓2	*↑0 ↓3*	*↑0 ↓1*	↑1 ↓1	*↑6 ↓11*
All	(12)	**↑1 ↓0**	**↑2 ↓1**	**↑4 ↓2**	**↑6 ↓3**	**↑8 ↓2**	**↑5 ↓3**	**↑5 ↓1**	**↑5 ↓1**	**↑36 ↓13**
Set.	**Max**	**50 Dimensions**								
n_p 5	(2)	↑0 ↓0	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑1 ↓0**	**↑1 ↓0**	**↑12 ↓0**
10	(2)	↑0 ↓0	**↑1 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑13 ↓0**
25	(2)	↑0 ↓0	↑0 ↓0	**↑1 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑11 ↓0**
50	(2)	↑0 ↓0	**↑1 ↓0**	↑0 ↓0	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑11 ↓0**
100	(2)	↑0 ↓0	↑0 ↓0	↑0 ↓0	**↑1 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑9 ↓0**
200	(2)	↑0 ↓0	↑0 ↓0	↑0 ↓0	*↑0 ↓2*	↑1 ↓1	**↑1 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑6 ↓3**
C	(6)	↑0 ↓0	**↑3 ↓0**	**↑3 ↓0**	**↑5 ↓1**	**↑6 ↓0**	**↑6 ↓0**	**↑5 ↓0**	**↑5 ↓0**	**↑33 ↓1**
S	(6)	↑0 ↓0	**↑1 ↓0**	**↑2 ↓0**	**↑4 ↓1**	**↑5 ↓1**	**↑5 ↓0**	**↑6 ↓0**	**↑6 ↓0**	**↑29 ↓2**
All	(12)	↑0 ↓0	**↑4 ↓0**	**↑5 ↓0**	**↑9 ↓2**	**↑11 ↓1**	**↑11 ↓0**	**↑11 ↓0**	**↑11 ↓0**	**↑62 ↓3**
Set.	**Max**	**100 Dimensions**								
n_p 5	(2)	**↑1 ↓0**	**↑1 ↓0**	**↑1 ↓0**	**↑1 ↓0**	**↑1 ↓0**	**↑1 ↓0**	↑0 ↓0	↑0 ↓0	**↑6 ↓0**
10	(2)	*↑0 ↓1*	**↑2 ↓0**	**↑2 ↓0**	**↑1 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑13 ↓1**
25	(2)	↑0 ↓0	↑0 ↓0	**↑1 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑11 ↓0**
50	(2)	↑0 ↓0	↑0 ↓0	↑0 ↓0	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑10 ↓0**
100	(2)	↑0 ↓0	↑0 ↓0	↑0 ↓0	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑10 ↓0**
200	(2)	↑0 ↓0	↑0 ↓0	↑0 ↓0	*↑0 ↓2*	**↑1 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑7 ↓2**
C	(6)	**↑1 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑5 ↓1**	**↑6 ↓0**	**↑6 ↓0**	**↑5 ↓0**	**↑5 ↓0**	**↑32 ↓1**
S	(6)	*↑0 ↓1*	**↑1 ↓0**	**↑2 ↓0**	**↑3 ↓1**	**↑4 ↓0**	**↑5 ↓0**	**↑5 ↓0**	**↑5 ↓0**	**↑25 ↓2**
All	(12)	↑1 ↓1	**↑3 ↓0**	**↑4 ↓0**	**↑8 ↓2**	**↑10 ↓0**	**↑11 ↓0**	**↑10 ↓0**	**↑10 ↓0**	**↑57 ↓3**
Set.	**Max**	**All Dimensions**								
n_p 5	(10)	**↑2 ↓0**	**↑4 ↓0**	**↑6 ↓1**	**↑5 ↓0**	**↑6 ↓0**	**↑4 ↓1**	↑1 ↓1	**↑2 ↓0**	**↑30 ↓3**
10	(10)	*↑0 ↓1*	**↑6 ↓1**	**↑6 ↓1**	**↑5 ↓0**	**↑8 ↓0**	**↑6 ↓0**	**↑7 ↓1**	**↑6 ↓1**	**↑44 ↓5**
25	(10)	**↑1 ↓0**	↑0 ↓0	**↑6 ↓2**	**↑9 ↓0**	**↑8 ↓1**	**↑8 ↓1**	**↑7 ↓1**	**↑7 ↓1**	**↑46 ↓6**
50	(10)	**↑1 ↓0**	**↑1 ↓0**	*↑0 ↓1*	**↑8 ↓1**	**↑8 ↓1**	**↑8 ↓2**	**↑8 ↓1**	**↑7 ↓1**	**↑41 ↓7**
100	(10)	↑0 ↓0	↑0 ↓0	↑0 ↓0	**↑7 ↓2**	**↑8 ↓2**	**↑8 ↓2**	**↑8 ↓2**	**↑8 ↓1**	**↑39 ↓9**
200	(10)	↑0 ↓0	↑1 ↓1	*↑0 ↓1*	*↑1 ↓7*	**↑6 ↓3**	**↑7 ↓2**	**↑8 ↓1**	**↑8 ↓2**	**↑31 ↓17**
C	(30)	**↑2 ↓0**	**↑10 ↓1**	**↑12 ↓0**	**↑23 ↓3**	**↑28 ↓0**	**↑26 ↓1**	**↑23 ↓0**	**↑21 ↓1**	**↑145 ↓6**
S	(30)	**↑2 ↓1**	**↑2 ↓1**	↑6 ↓6	**↑12 ↓7**	**↑16 ↓7**	**↑15 ↓7**	**↑16 ↓7**	**↑17 ↓5**	**↑86 ↓41**
All	(60)	**↑4 ↓1**	**↑12 ↓2**	**↑18 ↓6**	**↑35 ↓10**	**↑44 ↓7**	**↑41 ↓8**	**↑39 ↓7**	**↑38 ↓6**	**↑231 ↓47**

Table C.2: DynDE10 vs DynDE performance analysis on the n_p standard set

Cp		**100**	**500**	**1000**	**5000**	**10000**	**25000**	**50000**	**100000**	**Total**
Set.	**Max**	**5 Dimensions**								
n_p 5	(2)	*↑0 ↓2*	*↑0 ↓2*	*↑0 ↓2*	*↑0 ↓2*	*↑0 ↓2*	*↑0 ↓2*	↑1 ↓1	↑1 ↓1	*↑2 ↓14*
10	(2)	**↑1 ↓0**	*↑0 ↓1*	↑0 ↓0	↑0 ↓0	**↑2 ↓0**	↑0 ↓0	↑0 ↓0	↑0 ↓0	**↑3 ↓1**
25	(2)	**↑1 ↓0**	**↑2 ↓0**	**↑2 ↓0**	*↑0 ↓2*	*↑0 ↓2*	*↑0 ↓2*	*↑0 ↓2*	*↑0 ↓2*	*↑5 ↓10*
50	(2)	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	*↑0 ↓2*	*↑0 ↓2*	*↑0 ↓2*	*↑0 ↓2*	*↑0 ↓2*	*↑6 ↓10*
100	(2)	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	*↑0 ↓1*	*↑0 ↓2*	*↑0 ↓2*	*↑0 ↓2*	*↑0 ↓2*	*↑6 ↓9*
200	(2)	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	*↑0 ↓1*	*↑0 ↓2*	*↑0 ↓2*	*↑0 ↓2*	**↑8 ↓7**
C	(6)	**↑4 ↓1**	**↑4 ↓2**	**↑4 ↓1**	*↑1 ↓3*	*↑1 ↓4*	*↑0 ↓5*	*↑1 ↓4*	*↑1 ↓4*	*↑16 ↓24*
S	(6)	**↑4 ↓1**	**↑4 ↓1**	**↑4 ↓1**	*↑1 ↓4*	*↑1 ↓5*	*↑0 ↓5*	*↑0 ↓5*	*↑0 ↓5*	*↑14 ↓27*
All	(12)	**↑8 ↓2**	**↑8 ↓3**	**↑8 ↓2**	*↑2 ↓7*	*↑2 ↓9*	*↑0 ↓10*	*↑1 ↓9*	*↑1 ↓9*	*↑30 ↓51*
Set.	**Max**	**10 Dimensions**								
n_p 5	(2)	*↑0 ↓1*	*↑0 ↓2*	*↑0 ↓2*	*↑0 ↓2*	*↑0 ↓2*	*↑0 ↓2*	↑1 ↓1	*↑0 ↓2*	*↑1 ↓14*
10	(2)	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0
25	(2)	**↑1 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	*↑0 ↓1*	*↑0 ↓2*	*↑0 ↓2*	*↑0 ↓2*	↑7 ↓7
50	(2)	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑1 ↓0**	*↑0 ↓2*	*↑0 ↓2*	*↑0 ↓2*	**↑9 ↓6**
100	(2)	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	↑1 ↓1	*↑0 ↓2*	*↑0 ↓2*	**↑11 ↓5**
200	(2)	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	↑1 ↓1	*↑0 ↓1*	*↑0 ↓2*	**↑11 ↓4**
C	(6)	**↑3 ↓0**	**↑4 ↓1**	**↑4 ↓1**	**↑4 ↓1**	↑2 ↓2	*↑0 ↓5*	*↑1 ↓4*	*↑0 ↓5*	*↑18 ↓19*
S	(6)	**↑4 ↓1**	**↑4 ↓1**	**↑4 ↓1**	**↑4 ↓1**	**↑3 ↓1**	*↑2 ↓3*	*↑0 ↓4*	*↑0 ↓5*	**↑21 ↓17**
All	(12)	**↑7 ↓1**	**↑8 ↓2**	**↑8 ↓2**	**↑8 ↓2**	**↑5 ↓3**	*↑2 ↓8*	*↑1 ↓8*	*↑0 ↓10*	**↑39 ↓36**
Set.	**Max**	**25 Dimensions**								
n_p 5	(2)	*↑0 ↓1*	*↑0 ↓2*	*↑0 ↓2*	*↑0 ↓2*	*↑0 ↓2*	*↑0 ↓2*	*↑0 ↓2*	*↑0 ↓1*	*↑0 ↓14*
10	(2)	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0
25	(2)	**↑1 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	↑1 ↓1	↑1 ↓1	**↑13 ↓2**
50	(2)	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	↑1 ↓1	**↑15 ↓1**
100	(2)	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	↑1 ↓1	**↑15 ↓1**
200	(2)	**↑2 ↓0**	**↑1 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑15 ↓0**
C	(6)	**↑3 ↓0**	**↑3 ↓1**	**↑4 ↓1**	**↑4 ↓1**	**↑4 ↓1**	**↑4 ↓1**	**↑3 ↓2**	*↑1 ↓3*	**↑26 ↓10**
S	(6)	**↑4 ↓1**	**↑4 ↓1**	**↑4 ↓1**	**↑4 ↓1**	**↑4 ↓1**	**↑4 ↓1**	**↑4 ↓1**	**↑4 ↓1**	**↑32 ↓8**
All	(12)	**↑7 ↓1**	**↑7 ↓2**	**↑8 ↓2**	**↑8 ↓2**	**↑8 ↓2**	**↑8 ↓2**	**↑7 ↓3**	**↑5 ↓4**	**↑58 ↓18**
Set.	**Max**	**50 Dimensions**								
n_p 5	(2)	*↑0 ↓1*	*↑0 ↓2*	*↑0 ↓2*	*↑0 ↓2*	*↑0 ↓2*	*↑0 ↓2*	*↑0 ↓2*	*↑0 ↓2*	*↑0 ↓15*
10	(2)	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0
25	(2)	**↑1 ↓0**	**↑1 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑1 ↓0**	**↑13 ↓0**
50	(2)	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑16 ↓0**
100	(2)	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑16 ↓0**
200	(2)	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑16 ↓0**
C	(6)	**↑3 ↓0**	**↑3 ↓1**	**↑4 ↓1**	**↑4 ↓1**	**↑4 ↓1**	**↑4 ↓1**	**↑4 ↓1**	**↑3 ↓1**	**↑29 ↓7**
S	(6)	**↑4 ↓1**	**↑4 ↓1**	**↑4 ↓1**	**↑4 ↓1**	**↑4 ↓1**	**↑4 ↓1**	**↑4 ↓1**	**↑4 ↓1**	**↑32 ↓8**
All	(12)	**↑7 ↓1**	**↑7 ↓2**	**↑8 ↓2**	**↑8 ↓2**	**↑8 ↓2**	**↑8 ↓2**	**↑8 ↓2**	**↑7 ↓2**	**↑61 ↓15**
Set.	**Max**	**100 Dimensions**								
n_p 5	(2)	↑0 ↓0	*↑0 ↓1*	*↑0 ↓2*	*↑0 ↓2*	↑1 ↓1	*↑0 ↓2*	↑1 ↓1	*↑0 ↓2*	*↑2 ↓11*
10	(2)	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0
25	(2)	**↑2 ↓0**	**↑1 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑15 ↓0**
50	(2)	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑16 ↓0**
100	(2)	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑16 ↓0**
200	(2)	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑16 ↓0**
C	(6)	**↑4 ↓0**	**↑3 ↓0**	**↑4 ↓1**	**↑4 ↓1**	**↑4 ↓1**	**↑4 ↓1**	**↑4 ↓1**	**↑4 ↓1**	**↑31 ↓6**
S	(6)	**↑4 ↓0**	**↑4 ↓1**	**↑4 ↓1**	**↑4 ↓1**	**↑5 ↓0**	**↑4 ↓1**	**↑5 ↓0**	**↑4 ↓1**	**↑34 ↓5**
All	(12)	**↑8 ↓0**	**↑7 ↓1**	**↑8 ↓2**	**↑8 ↓2**	**↑9 ↓1**	**↑8 ↓2**	**↑9 ↓1**	**↑8 ↓2**	**↑65 ↓11**
Set.	**Max**	**All Dimensions**								
n_p 5	(10)	*↑0 ↓5*	*↑0 ↓9*	*↑0 ↓10*	*↑0 ↓10*	*↑1 ↓9*	*↑0 ↓10*	*↑3 ↓7*	*↑1 ↓8*	*↑5 ↓68*
10	(10)	**↑1 ↓0**	*↑0 ↓1*	↑0 ↓0	↑0 ↓0	**↑2 ↓0**	↑0 ↓0	↑0 ↓0	↑0 ↓0	**↑3 ↓1**
25	(10)	**↑6 ↓0**	**↑8 ↓0**	**↑10 ↓0**	**↑8 ↓2**	**↑6 ↓3**	**↑6 ↓4**	↑5 ↓5	*↑4 ↓5*	**↑53 ↓19**
50	(10)	**↑10 ↓0**	**↑10 ↓0**	**↑10 ↓0**	**↑8 ↓2**	**↑7 ↓2**	**↑6 ↓4**	**↑6 ↓4**	↑5 ↓5	**↑62 ↓17**
100	(10)	**↑10 ↓0**	**↑10 ↓0**	**↑10 ↓0**	**↑8 ↓1**	**↑8 ↓2**	**↑7 ↓3**	**↑6 ↓4**	↑5 ↓5	**↑64 ↓15**
200	(10)	**↑10 ↓0**	**↑9 ↓0**	**↑10 ↓0**	**↑10 ↓0**	**↑8 ↓1**	**↑7 ↓3**	**↑6 ↓3**	**↑6 ↓4**	**↑66 ↓11**
C	(30)	**↑17 ↓1**	**↑17 ↓5**	**↑20 ↓5**	**↑17 ↓7**	**↑15 ↓9**	*↑12 ↓13*	**↑13 ↓12**	*↑9 ↓14*	**↑120 ↓66**
S	(30)	**↑20 ↓4**	**↑20 ↓5**	**↑20 ↓5**	**↑17 ↓8**	**↑17 ↓8**	**↑14 ↓11**	**↑13 ↓11**	*↑12 ↓13*	**↑133 ↓65**
All	(60)	**↑37 ↓5**	**↑37 ↓10**	**↑40 ↓10**	**↑34 ↓15**	**↑32 ↓17**	**↑26 ↓24**	**↑26 ↓23**	*↑21 ↓27*	**↑253 ↓131**

Table C.3: DynPopDE vs DynDE performance analysis - Part 1

Cp		100	500	1000	5000	10000	25000	50000	100000	Total
Set.	**Max**	**5 Dimensions**								
		MPB								
C_s 1	(2)	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑0 ↓0	↑1 ↓0	↑2 ↓0	↑0 ↓0	↑0 ↓0	↑9 ↓0
5	(2)	↑0 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑14 ↓0
10	(2)	↑0 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑14 ↓0
20	(2)	↑0 ↓1	↑1 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑1 ↓0	↑1 ↓0	↑11 ↓1
40	(2)	↑0 ↓2	↑1 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑1 ↓0	↑1 ↓0	↑1 ↓1	↑10 ↓3
80	(2)	↑0 ↓2	↑0 ↓1	↑0 ↓0	↑2 ↓0	↑2 ↓0	↑1 ↓0	↑1 ↓0	↑1 ↓0	↑7 ↓3
C	(6)	↑1 ↓2	↑4 ↓0	↑5 ↓0	↑5 ↓0	↑6 ↓0	↑4 ↓0	↑2 ↓0	↑2 ↓1	↑29 ↓3
S	(6)	↑1 ↓3	↑4 ↓1	↑5 ↓0	↑5 ↓0	↑5 ↓0	↑6 ↓0	↑5 ↓0	↑5 ↓0	↑36 ↓4
		GBG								
F_{1a}	(6)	↑2 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑2 ↓3	↑0 ↓6	↑0 ↓6	↑28 ↓15
F_{1b}	(6)	↑3 ↓1	↑6 ↓0	↑5 ↓1	↑3 ↓3	↑1 ↓3	↑0 ↓4	↑0 ↓5	↑0 ↓5	↑18 ↓22
F_2	(6)	↑3 ↓0	↑6 ↓0	↑5 ↓0	↑5 ↓1	↑4 ↓1	↑0 ↓5	↑0 ↓6	↑0 ↓6	↑23 ↓19
F_3	(6)	↑0 ↓0	↑0 ↓1	↑0 ↓1	↑2 ↓1	↑4 ↓0	↑5 ↓0	↑6 ↓0	↑6 ↓0	↑23 ↓3
F_4	(6)	↑3 ↓0	↑3 ↓0	↑5 ↓1	↑4 ↓2	↑1 ↓3	↑0 ↓5	↑0 ↓6	↑0 ↓6	↑16 ↓23
F_5	(6)	↑3 ↓0	↑5 ↓0	↑4 ↓1	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑12 ↓31
F_6	(6)	↑0 ↓1	↑2 ↓0	↑1 ↓1	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑3 ↓32
T_1	(7)	↑5 ↓0	↑4 ↓0	↑1 ↓5	↑1 ↓6	↑1 ↓5	↑0 ↓5	↑1 ↓5	↑1 ↓5	↑14 ↓31
T_2	(7)	↑2 ↓0	↑4 ↓0	↑5 ↓0	↑4 ↓2	↑3 ↓2	↑2 ↓5	↑1 ↓6	↑1 ↓6	↑22 ↓21
T_3	(7)	↑0 ↓2	↑5 ↓0	↑5 ↓0	↑5 ↓2	↑4 ↓2	↑2 ↓4	↑1 ↓6	↑1 ↓6	↑23 ↓22
T_4	(7)	↑5 ↓0	↑6 ↓1	↑4 ↓0	↑3 ↓4	↑2 ↓4	↑1 ↓6	↑1 ↓6	↑1 ↓6	↑23 ↓27
T_5	(7)	↑1 ↓0	↑4 ↓0	↑5 ↓0	↑4 ↓2	↑3 ↓2	↑1 ↓3	↑1 ↓6	↑1 ↓6	↑20 ↓19
T_6	(7)	↑1 ↓0	↑5 ↓0	↑6 ↓0	↑3 ↓3	↑3 ↓4	↑1 ↓6	↑1 ↓6	↑1 ↓6	↑21 ↓25
All	(54)	↑16 ↓7	↑36 ↓2	↑36 ↓5	↑30 ↓19	↑27 ↓19	↑17 ↓29	↑13 ↓35	↑13 ↓36	↑188 ↓152
Set.	**Max**	**10 Dimensions**								
		MPB								
C_s 1	(2)	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑1 ↓0	↑1 ↓0	↑1 ↓0	↑1 ↓0	↑12 ↓0
5	(2)	↑1 ↓0	↑1 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑1 ↓0	↑1 ↓0	↑1 ↓0	↑11 ↓0
10	(2)	↑0 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑1 ↓0	↑1 ↓0	↑12 ↓0
20	(2)	↑0 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑14 ↓0
40	(2)	↑0 ↓1	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑14 ↓1
80	(2)	↑0 ↓1	↑0 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑12 ↓1
C	(6)	↑2 ↓0	↑5 ↓0	↑6 ↓0	↑6 ↓0	↑5 ↓0	↑4 ↓0	↑3 ↓0	↑3 ↓0	↑34 ↓0
S	(6)	↑1 ↓2	↑4 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑41 ↓2
		GBG								
F_{1a}	(6)	↑3 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑5 ↓1	↑0 ↓5	↑0 ↓6	↑32 ↓12
F_{1b}	(6)	↑2 ↓0	↑6 ↓0	↑5 ↓0	↑4 ↓2	↑4 ↓2	↑2 ↓3	↑0 ↓6	↑0 ↓6	↑23 ↓19
F_2	(6)	↑3 ↓0	↑5 ↓0	↑5 ↓1	↑4 ↓1	↑3 ↓2	↑2 ↓4	↑0 ↓6	↑0 ↓6	↑22 ↓20
F_3	(6)	↑0 ↓2	↑0 ↓2	↑0 ↓5	↑0 ↓6	↑0 ↓6	↑0 ↓4	↑0 ↓3	↑2 ↓1	↑2 ↓29
F_4	(6)	↑4 ↓0	↑4 ↓0	↑5 ↓1	↑4 ↓1	↑4 ↓2	↑2 ↓4	↑0 ↓5	↑0 ↓6	↑23 ↓19
F_5	(6)	↑1 ↓1	↑2 ↓3	↑1 ↓4	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑4 ↓38
F_6	(6)	↑1 ↓0	↑0 ↓0	↑1 ↓3	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓5	↑2 ↓32
T_1	(7)	↑6 ↓1	↑4 ↓2	↑1 ↓5	↑1 ↓6	↑1 ↓6	↑1 ↓6	↑0 ↓7	↑0 ↓6	↑14 ↓39
T_2	(7)	↑3 ↓0	↑4 ↓1	↑4 ↓3	↑4 ↓3	↑3 ↓3	↑1 ↓5	↑0 ↓7	↑0 ↓7	↑19 ↓29
T_3	(7)	↑0 ↓2	↑5 ↓0	↑4 ↓2	↑4 ↓3	↑4 ↓3	↑4 ↓3	↑0 ↓7	↑0 ↓6	↑21 ↓26
T_4	(7)	↑3 ↓0	↑4 ↓2	↑4 ↓3	↑1 ↓4	↑1 ↓6	↑0 ↓7	↑0 ↓6	↑1 ↓6	↑14 ↓34
T_5	(7)	↑2 ↓0	↑3 ↓0	↑6 ↓1	↑4 ↓3	↑4 ↓3	↑4 ↓2	↑0 ↓4	↑0 ↓5	↑23 ↓18
T_6	(7)	↑0 ↓0	↑3 ↓0	↑4 ↓0	↑4 ↓3	↑4 ↓3	↑1 ↓5	↑0 ↓6	↑1 ↓6	↑17 ↓23
All	(54)	↑17 ↓5	↑32 ↓5	↑35 ↓14	↑30 ↓22	↑28 ↓24	↑21 ↓28	↑9 ↓37	↑11 ↓36	↑183 ↓171
Set.	**Max**	**25 Dimensions**								
		MPB								
C_s 1	(2)	↑1 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑1 ↓0	↑1 ↓0	↑13 ↓0
5	(2)	↑0 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑1 ↓0	↑1 ↓0	↑1 ↓0	↑11 ↓0
10	(2)	↑1 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑1 ↓0	↑2 ↓0	↑1 ↓0	↑13 ↓0
20	(2)	↑0 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑14 ↓0
40	(2)	↑0 ↓0	↑1 ↓0	↑2 ↓0	↑1 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑12 ↓0
80	(2)	↑0 ↓1	↑1 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑1 ↓0	↑2 ↓0	↑1 ↓0	↑11 ↓1
C	(6)	↑0 ↓0	↑4 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑4 ↓0	↑4 ↓0	↑3 ↓0	↑33 ↓0
S	(6)	↑2 ↓1	↑6 ↓0	↑6 ↓0	↑5 ↓0	↑6 ↓0	↑5 ↓0	↑6 ↓0	↑5 ↓0	↑41 ↓1
		GBG								
F_{1a}	(6)	↑2 ↓0	↑5 ↓0	↑5 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑4 ↓1	↑2 ↓2	↑36 ↓3
F_{1b}	(6)	↑3 ↓0	↑6 ↓0	↑6 ↓0	↑4 ↓1	↑5 ↓1	↑5 ↓1	↑3 ↓2	↑1 ↓3	↑33 ↓8
F_2	(6)	↑6 ↓0	↑6 ↓0	↑4 ↓0	↑3 ↓2	↑2 ↓3	↑0 ↓5	↑1 ↓4	↑0 ↓4	↑22 ↓18
F_3	(6)	↑0 ↓3	↑0 ↓5	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓44
F_4	(6)	↑6 ↓0	↑5 ↓0	↑3 ↓0	↑2 ↓2	↑2 ↓4	↑1 ↓5	↑0 ↓4	↑0 ↓4	↑19 ↓19
F_5	(6)	↑1 ↓2	↑1 ↓3	↑0 ↓4	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑2 ↓39
F_6	(6)	↑0 ↓0	↑0 ↓3	↑0 ↓4	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑1 ↓5	↑1 ↓36
T_1	(7)	↑4 ↓1	↑4 ↓3	↑3 ↓3	↑1 ↓5	↑2 ↓5	↑2 ↓5	↑2 ↓5	↑1 ↓5	↑19 ↓32
T_2	(7)	↑3 ↓1	↑4 ↓2	↑4 ↓3	↑2 ↓3	↑2 ↓5	↑2 ↓5	↑1 ↓5	↑0 ↓6	↑18 ↓30
T_3	(7)	↑2 ↓0	↑3 ↓2	↑2 ↓3	↑4 ↓3	↑4 ↓3	↑2 ↓5	↑2 ↓3	↑1 ↓2	↑20 ↓21
T_4	(7)	↑4 ↓1	↑4 ↓2	↑3 ↓2	↑1 ↓6	↑1 ↓6	↑1 ↓6	↑0 ↓7	↑0 ↓7	↑14 ↓37
T_5	(7)	↑3 ↓2	↑5 ↓0	↑3 ↓1	↑4 ↓3	↑4 ↓3	↑3 ↓3	↑3 ↓3	↑2 ↓3	↑27 ↓18
T_6	(7)	↑2 ↓0	↑3 ↓2	↑3 ↓2	↑3 ↓3	↑2 ↓4	↑2 ↓5	↑0 ↓6	↑0 ↓7	↑15 ↓29
All	(54)	↑20 ↓6	↑33 ↓11	↑30 ↓14	↑26 ↓23	↑27 ↓26	↑21 ↓29	↑18 ↓29	↑12 ↓30	↑187 ↓168

Table C.4: DynPopDE vs DynDE performance analysis - Part 2

Cp		100	500	1000	5000	10000	25000	50000	100000	Total
Set.	Max	50 Dimensions								
		MPB								
C_s 1	(2)	↑1 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑1 ↓0	↑14 ↓0
5	(2)	↑1 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑1 ↓0	↑1 ↓1	↑13 ↓1
10	(2)	↑0 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑1 ↓0	↑1 ↓0	↑12 ↓0
20	(2)	↑0 ↓0	↑1 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑1 ↓0	↑1 ↓0	↑11 ↓0
40	(2)	↑0 ↓0	↑2 ↓0	↑2 ↓0	↑1 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑13 ↓0
80	(2)	↑0 ↓1	↑1 ↓0	↑2 ↓0	↑1 ↓0	↑2 ↓0	↑1 ↓1	↑1 ↓1	↑1 ↓0	↑9 ↓3
C	(6)	↑0 ↓0	↑5 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑3 ↓0	↑2 ↓1	↑34 ↓1
S	(6)	↑2 ↓1	↑5 ↓0	↑6 ↓0	↑4 ↓0	↑6 ↓0	↑5 ↓1	↑5 ↓1	↑5 ↓0	↑38 ↓3
		GBG								
F_{1a}	(6)	↑2 ↓0	↑4 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑4 ↓1	↑40 ↓1
F_{1b}	(6)	↑3 ↓0	↑5 ↓0	↑6 ↓0	↑5 ↓1	↑5 ↓1	↑5 ↓1	↑5 ↓1	↑3 ↓2	↑37 ↓6
F_2	(6)	↑6 ↓0	↑5 ↓0	↑4 ↓1	↑0 ↓4	↑0 ↓6	↑0 ↓5	↑0 ↓5	↑0 ↓5	↑15 ↓26
F_3	(6)	↑0 ↓3	↑0 ↓4	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓43
F_4	(6)	↑6 ↓0	↑5 ↓0	↑2 ↓0	↑0 ↓2	↑0 ↓6	↑0 ↓5	↑0 ↓6	↑0 ↓5	↑13 ↓24
F_5	(6)	↑2 ↓0	↑4 ↓0	↑2 ↓1	↑1 ↓3	↑1 ↓3	↑0 ↓4	↑0 ↓4	↑0 ↓5	↑10 ↓20
F_6	(6)	↑0 ↓0	↑0 ↓5	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓41
T_1	(7)	↑3 ↓0	↑4 ↓2	↑4 ↓2	↑2 ↓5	↑2 ↓5	↑2 ↓5	↑2 ↓5	↑2 ↓5	↑21 ↓29
T_2	(7)	↑3 ↓1	↑4 ↓2	↑2 ↓3	↑2 ↓4	↑2 ↓5	↑2 ↓5	↑2 ↓5	↑2 ↓5	↑19 ↓30
T_3	(7)	↑3 ↓0	↑3 ↓2	↑3 ↓2	↑2 ↓4	↑2 ↓5	↑2 ↓5	↑2 ↓5	↑1 ↓5	↑18 ↓28
T_4	(7)	↑4 ↓1	↑5 ↓2	↑3 ↓3	↑1 ↓5	↑1 ↓5	↑1 ↓6	↑1 ↓6	↑0 ↓7	↑16 ↓35
T_5	(7)	↑4 ↓1	↑5 ↓1	↑5 ↓2	↑3 ↓2	↑3 ↓4	↑2 ↓2	↑2 ↓3	↑2 ↓3	↑26 ↓18
T_6	(7)	↑2 ↓0	↑2 ↓0	↑3 ↓2	↑2 ↓2	↑2 ↓4	↑2 ↓4	↑2 ↓4	↑0 ↓5	↑15 ↓21
All	(54)	↑21 ↓4	↑33 ↓9	↑32 ↓14	↑22 ↓22	↑24 ↓28	↑22 ↓28	↑19 ↓29	↑14 ↓31	↑187 ↓165
Set.	Max	100 Dimensions								
		MPB								
C_s 1	(2)	↑0 ↓0	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑7 ↓7
5	(2)	↑0 ↓0	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓0	↑1 ↓1	↑1 ↓1	↑0 ↓1	↑6 ↓6
10	(2)	↑0 ↓0	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑0 ↓1	↑6 ↓7
20	(2)	↑0 ↓0	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑0 ↓1	↑6 ↓7
40	(2)	↑0 ↓0	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑0 ↓1	↑0 ↓1	↑5 ↓7
80	(2)	↑0 ↓0	↑0 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑6 ↓7
C	(6)	↑0 ↓0	↑5 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑5 ↓0	↑2 ↓0	↑36 ↓0
S	(6)	↑0 ↓0	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓5	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓41
		GBG								
F_{1a}	(6)	↑2 ↓0	↑4 ↓0	↑5 ↓0	↑4 ↓1	↑4 ↓2	↑1 ↓4	↑0 ↓4	↑0 ↓6	↑20 ↓17
F_{1b}	(6)	↑3 ↓0	↑4 ↓0	↑5 ↓0	↑4 ↓1	↑4 ↓2	↑1 ↓4	↑0 ↓6	↑0 ↓6	↑21 ↓19
F_2	(6)	↑6 ↓0	↑6 ↓0	↑2 ↓1	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑14 ↓31
F_3	(6)	↑0 ↓2	↑0 ↓5	↑0 ↓5	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓42
F_4	(6)	↑6 ↓0	↑6 ↓0	↑1 ↓0	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑13 ↓30
F_5	(6)	↑2 ↓1	↑4 ↓0	↑4 ↓0	↑3 ↓0	↑2 ↓0	↑1 ↓1	↑1 ↓3	↑1 ↓3	↑18 ↓8
F_6	(6)	↑0 ↓0	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓42
T_1	(7)	↑3 ↓0	↑4 ↓2	↑3 ↓2	↑0 ↓4	↑0 ↓6	↑0 ↓7	↑0 ↓7	↑0 ↓7	↑10 ↓35
T_2	(7)	↑4 ↓0	↑4 ↓2	↑3 ↓3	↑3 ↓4	↑3 ↓4	↑0 ↓6	↑0 ↓7	↑0 ↓7	↑17 ↓33
T_3	(7)	↑4 ↓1	↑3 ↓2	↑1 ↓2	↑3 ↓4	↑3 ↓4	↑1 ↓4	↑1 ↓5	↑0 ↓6	↑16 ↓28
T_4	(7)	↑4 ↓1	↑5 ↓2	↑4 ↓2	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓7	↑0 ↓7	↑13 ↓37
T_5	(7)	↑2 ↓1	↑4 ↓2	↑4 ↓2	↑3 ↓4	↑2 ↓4	↑2 ↓4	↑0 ↓5	↑1 ↓6	↑18 ↓28
T_6	(7)	↑2 ↓0	↑4 ↓1	↑2 ↓1	↑2 ↓4	↑2 ↓4	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑12 ↓28
All	(54)	↑19 ↓3	↑29 ↓17	↑23 ↓18	↑17 ↓32	↑16 ↓33	↑9 ↓39	↑6 ↓43	↑3 ↓45	↑122 ↓230
Set.	Max	All Dimensions								
		MPB								
C_s 1	(10)	↑6 ↓0	↑9 ↓1	↑9 ↓1	↑7 ↓1	↑7 ↓1	↑8 ↓1	↑5 ↓1	↑4 ↓1	↑55 ↓7
5	(10)	↑2 ↓0	↑8 ↓1	↑9 ↓1	↑9 ↓1	↑9 ↓0	↑7 ↓1	↑6 ↓1	↑5 ↓2	↑55 ↓7
10	(10)	↑1 ↓0	↑9 ↓1	↑9 ↓1	↑9 ↓1	↑9 ↓1	↑8 ↓1	↑7 ↓1	↑5 ↓1	↑57 ↓7
20	(10)	↑0 ↓1	↑7 ↓1	↑9 ↓1	↑9 ↓1	↑9 ↓1	↑9 ↓1	↑7 ↓1	↑6 ↓1	↑56 ↓8
40	(10)	↑0 ↓3	↑7 ↓1	↑9 ↓1	↑7 ↓1	↑9 ↓1	↑8 ↓1	↑7 ↓1	↑7 ↓2	↑54 ↓11
80	(10)	↑0 ↓5	↑2 ↓2	↑7 ↓1	↑8 ↓1	↑9 ↓1	↑6 ↓2	↑7 ↓2	↑6 ↓1	↑45 ↓15
C	(30)	↑3 ↓2	↑23 ↓0	↑29 ↓0	↑29 ↓0	↑29 ↓0	↑24 ↓0	↑17 ↓0	↑12 ↓2	↑166 ↓4
S	(30)	↑6 ↓7	↑19 ↓7	↑23 ↓6	↑20 ↓6	↑23 ↓5	↑22 ↓7	↑22 ↓7	↑21 ↓6	↑156 ↓51
		GBG								
F_{1a}	(30)	↑11 ↓0	↑25 ↓0	↑28 ↓0	↑28 ↓1	↑28 ↓2	↑20 ↓8	↑10 ↓16	↑6 ↓21	↑156 ↓48
F_{1b}	(30)	↑14 ↓1	↑27 ↓0	↑27 ↓1	↑20 ↓8	↑19 ↓9	↑13 ↓13	↑8 ↓20	↑4 ↓22	↑132 ↓74
F_2	(30)	↑24 ↓0	↑28 ↓0	↑20 ↓3	↑12 ↓14	↑9 ↓18	↑2 ↓25	↑1 ↓27	↑0 ↓27	↑96 ↓114
F_3	(30)	↑0 ↓10	↑0 ↓17	↑0 ↓23	↑2 ↓25	↑4 ↓24	↑5 ↓22	↑6 ↓21	↑8 ↓19	↑25 ↓161
F_4	(30)	↑25 ↓0	↑23 ↓0	↑16 ↓2	↑10 ↓13	↑7 ↓21	↑3 ↓25	↑0 ↓27	↑0 ↓27	↑84 ↓115
F_5	(30)	↑9 ↓4	↑16 ↓6	↑11 ↓10	↑4 ↓21	↑3 ↓21	↑1 ↓23	↑1 ↓25	↑1 ↓26	↑46 ↓136
F_6	(30)	↑1 ↓1	↑2 ↓14	↑2 ↓20	↑0 ↓30	↑0 ↓30	↑0 ↓30	↑0 ↓30	↑1 ↓28	↑6 ↓183
T_1	(35)	↑21 ↓2	↑20 ↓9	↑12 ↓17	↑5 ↓26	↑6 ↓27	↑5 ↓28	↑5 ↓29	↑4 ↓28	↑78 ↓166
T_2	(35)	↑15 ↓2	↑20 ↓7	↑18 ↓12	↑15 ↓16	↑13 ↓19	↑7 ↓26	↑4 ↓30	↑3 ↓31	↑95 ↓143
T_3	(35)	↑9 ↓5	↑19 ↓6	↑15 ↓9	↑18 ↓16	↑17 ↓17	↑11 ↓21	↑6 ↓26	↑3 ↓25	↑98 ↓125
T_4	(35)	↑20 ↓3	↑24 ↓9	↑18 ↓10	↑6 ↓25	↑5 ↓27	↑3 ↓31	↑2 ↓32	↑2 ↓33	↑80 ↓170
T_5	(35)	↑12 ↓4	↑21 ↓3	↑23 ↓6	↑18 ↓14	↑16 ↓16	↑12 ↓14	↑6 ↓21	↑6 ↓23	↑114 ↓101
T_6	(35)	↑7 ↓0	↑17 ↓3	↑18 ↓5	↑14 ↓15	↑13 ↓19	↑6 ↓26	↑3 ↓28	↑2 ↓30	↑80 ↓126
All	(270)	↑93 ↓25	↑163 ↓44	↑156 ↓65	↑125 ↓118	↑122 ↓130	↑90 ↓153	↑65 ↓173	↑53 ↓178	↑867 ↓886

Appendix D

Additional Results - Chapter 6

This appendix contains results that were omitted from Chapter 6 due to space constraints. Tables D.1 and D.2 give the performance analysis of jSA2Ran compared to DynDE on variations of the standard set of environments. Tables D.3 and D.4 give the performance analysis of SABrNorRes compared to DynDE on variations of the standard set of environments. The comparative performance analysis on variations of the standard set of SACDE versus DynDE is given in Tables D.5 and D.6. Tables D.7 and D.8 give the performance analysis of SADynPopDE compared to CDE on variations of the standard set of environments. Tables D.9 and D.10 give the performance analysis of SADynPopDE compared to SACDE on variations of the standard set of environments. The comparative performance analysis on the n_p standard set of DynPopDE versus SACDE is given in Table D.11. Table D.12 gives the performance analysis of SACDE compared to CDE on the $n_p(t)$ standard set of environments. The comparative performance analysis on the $n_p(t)$ standard set of SADynPopDE versus SACDE is given in Table D.13.

Table D.1: jSA2Ran vs DynDE performance analysis - Part 1

Cp		100	500	1000	5000	10000	25000	50000	100000	Total
Set.	**Max**	**5 Dimensions**								
		MPB								
C_s 1	(2)	↑0 ↓0	↑1 ↓0	↑1 ↓0	↑2 ↓0	↑2 ↓0	↑0 ↓0	↑0 ↓0	↑2 ↓0	↑8 ↓0
5	(2)	↑0 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑14 ↓0
10	(2)	↑1 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑1 ↓0	↑14 ↓0
20	(2)	↑0 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑1 ↓0	↑13 ↓0
40	(2)	↑0 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑1 ↓0	↑1 ↓0	↑12 ↓0
80	(2)	↑0 ↓0	↑1 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑1 ↓0	↑1 ↓0	↑1 ↓0	↑10 ↓0
C	(6)	↑0 ↓0	↑5 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑4 ↓0	↑3 ↓0	↑2 ↓0	↑32 ↓0
S	(6)	↑1 ↓0	↑5 ↓0	↑5 ↓0	↑6 ↓0	↑6 ↓0	↑5 ↓0	↑5 ↓0	↑6 ↓0	↑39 ↓0
		GBG								
F_{1a}	(6)	↑0 ↓1	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑1 ↓4	↑0 ↓6	↑0 ↓6	↑25 ↓17
F_{1b}	(6)	↑1 ↓1	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑5 ↓1	↑0 ↓5	↑0 ↓6	↑0 ↓6	↑24 ↓19
F_2	(6)	↑0 ↓0	↑3 ↓0	↑6 ↓0	↑4 ↓2	↑0 ↓4	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑13 ↓24
F_3	(6)	↑0 ↓0	↑3 ↓0	↑5 ↓0	↑2 ↓0	↑1 ↓0	↑1 ↓0	↑4 ↓0	↑4 ↓0	↑20 ↓0
F_4	(6)	↑0 ↓1	↑3 ↓0	↑5 ↓0	↑6 ↓0	↑5 ↓0	↑3 ↓2	↑0 ↓6	↑0 ↓6	↑22 ↓15
F_5	(6)	↑0 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑5 ↓0	↑4 ↓2	↑1 ↓5	↑0 ↓6	↑28 ↓13
F_6	(6)	↑0 ↓0	↑5 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑4 ↓1	↑4 ↓1	↑1 ↓3	↑32 ↓5
T_1	(7)	↑0 ↓0	↑7 ↓0	↑7 ↓0	↑6 ↓0	↑3 ↓2	↑1 ↓6	↑1 ↓6	↑1 ↓6	↑26 ↓20
T_2	(7)	↑0 ↓1	↑7 ↓0	↑7 ↓0	↑7 ↓0	↑5 ↓1	↑4 ↓2	↑1 ↓5	↑0 ↓6	↑31 ↓15
T_3	(7)	↑0 ↓1	↑5 ↓0	↑7 ↓0	↑6 ↓1	↑5 ↓1	↑3 ↓1	↑2 ↓5	↑1 ↓5	↑29 ↓14
T_4	(7)	↑0 ↓1	↑6 ↓0	↑7 ↓0	↑6 ↓0	↑5 ↓0	↑0 ↓5	↑2 ↓5	↑1 ↓6	↑27 ↓17
T_5	(7)	↑1 ↓0	↑3 ↓0	↑5 ↓0	↑5 ↓1	↑5 ↓1	↑2 ↓3	↑2 ↓4	↑0 ↓5	↑23 ↓14
T_6	(7)	↑0 ↓0	↑4 ↓0	↑7 ↓0	↑6 ↓0	↑5 ↓0	↑3 ↓3	↑1 ↓5	↑2 ↓5	↑28 ↓13
All	(54)	↑2 ↓3	↑42 ↓0	↑51 ↓0	↑48 ↓2	↑40 ↓5	↑22 ↓20	↑17 ↓30	↑13 ↓33	↑235 ↓93
Set.	**Max**	**10 Dimensions**								
		MPB								
C_s 1	(2)	↑0 ↓0	↑1 ↓0	↑1 ↓1	↑1 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓1	↑3 ↓2
5	(2)	↑0 ↓0	↑1 ↓0	↑2 ↓0	↑2 ↓0	↑1 ↓0	↑2 ↓0	↑0 ↓0	↑0 ↓0	↑8 ↓0
10	(2)	↑0 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑1 ↓0	↑13 ↓0
20	(2)	↑1 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑15 ↓0
40	(2)	↑0 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑14 ↓0
80	(2)	↑1 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑15 ↓0
C	(6)	↑0 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑5 ↓0	↑5 ↓0	↑4 ↓0	↑3 ↓1	↑35 ↓1
S	(6)	↑2 ↓0	↑4 ↓0	↑5 ↓1	↑5 ↓0	↑4 ↓0	↑5 ↓0	↑4 ↓0	↑4 ↓0	↑33 ↓1
		GBG								
F_{1a}	(6)	↑0 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑4 ↓0	↑0 ↓4	↑0 ↓6	↑28 ↓10
F_{1b}	(6)	↑0 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑3 ↓1	↑0 ↓5	↑0 ↓6	↑27 ↓12
F_2	(6)	↑0 ↓1	↑3 ↓0	↑5 ↓0	↑6 ↓0	↑3 ↓3	↑3 ↓3	↑0 ↓4	↑0 ↓6	↑20 ↓17
F_3	(6)	↑0 ↓0	↑4 ↓0	↑4 ↓0	↑5 ↓0	↑3 ↓0	↑3 ↓0	↑3 ↓0	↑3 ↓0	↑25 ↓0
F_4	(6)	↑0 ↓0	↑2 ↓0	↑5 ↓0	↑5 ↓0	↑3 ↓1	↑3 ↓3	↑1 ↓4	↑0 ↓6	↑19 ↓14
F_5	(6)	↑0 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑4 ↓1	↑40 ↓1
F_6	(6)	↑0 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑5 ↓1	↑41 ↓1
T_1	(7)	↑0 ↓1	↑7 ↓0	↑7 ↓0	↑7 ↓0	↑7 ↓0	↑6 ↓1	↑3 ↓4	↑1 ↓6	↑38 ↓12
T_2	(7)	↑0 ↓0	↑5 ↓0	↑7 ↓0	↑7 ↓0	↑5 ↓1	↑4 ↓2	↑3 ↓4	↑2 ↓4	↑33 ↓11
T_3	(7)	↑0 ↓0	↑5 ↓0	↑7 ↓0	↑7 ↓0	↑4 ↓1	↑3 ↓2	↑2 ↓2	↑3 ↓4	↑31 ↓9
T_4	(7)	↑0 ↓0	↑6 ↓0	↑7 ↓0	↑7 ↓0	↑6 ↓0	↑5 ↓0	↑3 ↓2	↑1 ↓4	↑35 ↓6
T_5	(7)	↑0 ↓0	↑4 ↓0	↑4 ↓0	↑5 ↓0	↑5 ↓2	↑4 ↓2	↑2 ↓3	↑3 ↓4	↑27 ↓11
T_6	(7)	↑0 ↓0	↑6 ↓0	↑6 ↓0	↑7 ↓0	↑6 ↓0	↑6 ↓0	↑3 ↓2	↑2 ↓4	↑36 ↓6
All	(54)	↑2 ↓1	↑43 ↓0	↑49 ↓1	↑51 ↓0	↑42 ↓4	↑38 ↓7	↑24 ↓17	↑19 ↓27	↑268 ↓57
Set.	**Max**	**25 Dimensions**								
		MPB								
C_s 1	(2)	↑0 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑1 ↓0	↑13 ↓0
5	(2)	↑0 ↓1	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑1 ↓0	↑13 ↓1
10	(2)	↑0 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑14 ↓0
20	(2)	↑0 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑14 ↓0
40	(2)	↑0 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑14 ↓0
80	(2)	↑0 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑14 ↓0
C	(6)	↑0 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑4 ↓0	↑40 ↓0
S	(6)	↑0 ↓1	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑42 ↓1
		GBG								
F_{1a}	(6)	↑0 ↓1	↑5 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑3 ↓2	↑38 ↓3
F_{1b}	(6)	↑0 ↓1	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑5 ↓0	↑2 ↓1	↑37 ↓2
F_2	(6)	↑0 ↓1	↑4 ↓0	↑4 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑4 ↓0	↑4 ↓0	↑34 ↓1
F_3	(6)	↑0 ↓2	↑0 ↓0	↑4 ↓0	↑6 ↓0	↑4 ↓0	↑1 ↓0	↑1 ↓0	↑0 ↓0	↑16 ↓2
F_4	(6)	↑0 ↓1	↑3 ↓0	↑5 ↓0	↑6 ↓0	↑6 ↓0	↑4 ↓0	↑4 ↓0	↑4 ↓1	↑32 ↓2
F_5	(6)	↑0 ↓1	↑5 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑41 ↓1
F_6	(6)	↑0 ↓0	↑4 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑40 ↓0
T_1	(7)	↑0 ↓1	↑6 ↓0	↑6 ↓0	↑7 ↓0	↑7 ↓0	↑6 ↓0	↑7 ↓0	↑6 ↓0	↑45 ↓1
T_2	(7)	↑0 ↓0	↑5 ↓0	↑7 ↓0	↑7 ↓0	↑7 ↓0	↑6 ↓0	↑4 ↓0	↑2 ↓1	↑38 ↓1
T_3	(7)	↑0 ↓1	↑4 ↓0	↑6 ↓0	↑7 ↓0	↑7 ↓0	↑6 ↓0	↑5 ↓0	↑5 ↓0	↑40 ↓1
T_4	(7)	↑0 ↓1	↑4 ↓0	↑7 ↓0	↑7 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑4 ↓1	↑40 ↓2
T_5	(7)	↑0 ↓3	↑5 ↓0	↑5 ↓0	↑7 ↓0	↑6 ↓0	↑5 ↓0	↑4 ↓0	↑4 ↓0	↑36 ↓3
T_6	(7)	↑0 ↓1	↑3 ↓0	↑6 ↓0	↑7 ↓0	↑7 ↓0	↑6 ↓0	↑6 ↓0	↑4 ↓2	↑39 ↓3
All	(54)	↑0 ↓8	↑39 ↓0	↑49 ↓0	↑54 ↓0	↑52 ↓0	↑47 ↓0	↑44 ↓0	↑35 ↓4	↑320 ↓12

Table D.2: jSA2Ran vs DynDE performance analysis - Part 2

Cp		100	500	1000	5000	10000	25000	50000	100000	Total
Set.	**Max**	**50 Dimensions**								
		MPB								
C_s 1	(2)	↑0 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑1 ↓0	↑13 ↓0
5	(2)	↑0 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑1 ↓0	↑13 ↓0
10	(2)	↑0 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑14 ↓0
20	(2)	↑0 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑14 ↓0
40	(2)	↑0 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑14 ↓0
80	(2)	↑0 ↓0	↑1 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑13 ↓0
C	(6)	↑0 ↓0	↑5 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑4 ↓0	↑39 ↓0
S	(6)	↑0 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑42 ↓0
		GBG								
F_{1a}	(6)	↑0 ↓1	↑4 ↓0	↑5 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑39 ↓1
F_{1b}	(6)	↑0 ↓2	↑5 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑41 ↓2
F_2	(6)	↑0 ↓2	↑3 ↓0	↑5 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑38 ↓2
F_3	(6)	↑0 ↓2	↑0 ↓3	↑1 ↓0	↑6 ↓0	↑5 ↓0	↑5 ↓0	↑0 ↓0	↑0 ↓0	↑17 ↓5
F_4	(6)	↑0 ↓2	↑4 ↓0	↑3 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑37 ↓2
F_5	(6)	↑2 ↓0	↑5 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑43 ↓0
F_6	(6)	↑0 ↓2	↑4 ↓0	↑4 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑38 ↓2
T_1	(7)	↑0 ↓2	↑6 ↓1	↑6 ↓0	↑7 ↓0	↑7 ↓0	↑7 ↓0	↑6 ↓0	↑6 ↓0	↑45 ↓3
T_2	(7)	↑1 ↓0	↑4 ↓0	↑3 ↓0	↑7 ↓0	↑7 ↓0	↑7 ↓0	↑6 ↓0	↑6 ↓0	↑41 ↓0
T_3	(7)	↑0 ↓0	↑2 ↓1	↑3 ↓0	↑7 ↓0	↑7 ↓0	↑7 ↓0	↑6 ↓0	↑6 ↓0	↑38 ↓1
T_4	(7)	↑1 ↓5	↑4 ↓1	↑6 ↓0	↑7 ↓0	↑7 ↓0	↑7 ↓0	↑6 ↓0	↑6 ↓0	↑44 ↓6
T_5	(7)	↑0 ↓3	↑6 ↓0	↑7 ↓0	↑7 ↓0	↑7 ↓0	↑7 ↓0	↑6 ↓0	↑6 ↓0	↑46 ↓3
T_6	(7)	↑0 ↓1	↑3 ↓0	↑5 ↓0	↑7 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑39 ↓1
All	(54)	↑2 ↓11	↑36 ↓3	↑42 ↓0	↑54 ↓0	↑53 ↓0	↑53 ↓0	↑48 ↓0	↑46 ↓0	↑334 ↓14
Set.	**Max**	**100 Dimensions**								
		MPB								
C_s 1	(2)	↑0 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑10 ↓4
5	(2)	↑0 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑10 ↓4
10	(2)	↑0 ↓0	↑2 ↓0	↑2 ↓0	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑2 ↓0	↑2 ↓0	↑11 ↓3
20	(2)	↑0 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑1 ↓1	↑1 ↓1	↑12 ↓2
40	(2)	↑0 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑11 ↓3
80	(2)	↑0 ↓1	↑1 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑13 ↓1
C	(6)	↑0 ↓1	↑5 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑41 ↓1
S	(6)	↑0 ↓0	↑6 ↓0	↑6 ↓0	↑5 ↓1	↑3 ↓3	↑2 ↓4	↑2 ↓4	↑2 ↓4	↑26 ↓16
		GBG								
F_{1a}	(6)	↑0 ↓0	↑4 ↓0	↑5 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑39 ↓0
F_{1b}	(6)	↑0 ↓0	↑3 ↓0	↑5 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑38 ↓0
F_2	(6)	↑0 ↓1	↑3 ↓0	↑4 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑37 ↓1
F_3	(6)	↑0 ↓0	↑0 ↓2	↑1 ↓0	↑5 ↓0	↑6 ↓0	↑5 ↓0	↑5 ↓0	↑6 ↓0	↑28 ↓2
F_4	(6)	↑0 ↓0	↑3 ↓0	↑4 ↓0	↑5 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑36 ↓0
F_5	(6)	↑2 ↓0	↑4 ↓0	↑5 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑41 ↓0
F_6	(6)	↑1 ↓1	↑3 ↓0	↑4 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑5 ↓1	↑5 ↓0	↑36 ↓2
T_1	(7)	↑0 ↓1	↑6 ↓0	↑6 ↓0	↑7 ↓0	↑7 ↓0	↑7 ↓0	↑7 ↓0	↑7 ↓0	↑47 ↓1
T_2	(7)	↑0 ↓0	↑3 ↓1	↑7 ↓0	↑7 ↓0	↑7 ↓0	↑7 ↓0	↑7 ↓0	↑7 ↓0	↑45 ↓1
T_3	(7)	↑1 ↓0	↑1 ↓1	↑3 ↓0	↑7 ↓0	↑7 ↓0	↑7 ↓0	↑7 ↓0	↑6 ↓0	↑39 ↓1
T_4	(7)	↑1 ↓1	↑4 ↓0	↑5 ↓0	↑7 ↓0	↑7 ↓0	↑7 ↓0	↑7 ↓0	↑7 ↓0	↑45 ↓1
T_5	(7)	↑1 ↓0	↑4 ↓0	↑5 ↓0	↑7 ↓0	↑7 ↓0	↑7 ↓0	↑6 ↓1	↑7 ↓0	↑44 ↓1
T_6	(7)	↑0 ↓0	↑2 ↓0	↑2 ↓0	↑5 ↓0	↑7 ↓0	↑6 ↓0	↑6 ↓0	↑7 ↓0	↑35 ↓0
All	(54)	↑3 ↓3	↑31 ↓2	↑40 ↓0	↑51 ↓1	↑51 ↓3	↑49 ↓4	↑48 ↓5	↑49 ↓4	↑322 ↓22
Set.	**Max**	**All Dimensions**								
		MPB								
C_s 1	(10)	↑0 ↓0	↑8 ↓0	↑8 ↓1	↑9 ↓0	↑7 ↓1	↑5 ↓1	↑5 ↓1	↑5 ↓2	↑47 ↓6
5	(10)	↑0 ↓1	↑9 ↓0	↑10 ↓0	↑10 ↓0	↑8 ↓1	↑9 ↓1	↑7 ↓1	↑5 ↓1	↑58 ↓5
10	(10)	↑1 ↓0	↑10 ↓0	↑10 ↓0	↑9 ↓1	↑9 ↓1	↑9 ↓1	↑10 ↓0	↑8 ↓0	↑66 ↓3
20	(10)	↑1 ↓0	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑9 ↓1	↑8 ↓1	↑68 ↓2
40	(10)	↑0 ↓0	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑9 ↓1	↑8 ↓1	↑8 ↓1	↑65 ↓3
80	(10)	↑1 ↓1	↑7 ↓0	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑9 ↓0	↑9 ↓0	↑9 ↓0	↑65 ↓1
C	(30)	↑0 ↓1	↑27 ↓0	↑30 ↓0	↑30 ↓0	↑29 ↓0	↑27 ↓0	↑25 ↓0	↑19 ↓1	↑187 ↓2
S	(30)	↑3 ↓1	↑27 ↓0	↑28 ↓1	↑28 ↓1	↑25 ↓3	↑24 ↓4	↑23 ↓4	↑24 ↓4	↑182 ↓18
		GBG								
F_{1a}	(30)	↑0 ↓3	↑25 ↓0	↑28 ↓0	↑30 ↓0	↑30 ↓0	↑23 ↓4	↑18 ↓10	↑15 ↓14	↑169 ↓31
F_{1b}	(30)	↑1 ↓4	↑26 ↓0	↑29 ↓0	↑30 ↓0	↑29 ↓1	↑21 ↓6	↑17 ↓11	↑14 ↓13	↑167 ↓35
F_2	(30)	↑0 ↓5	↑16 ↓0	↑24 ↓0	↑28 ↓2	↑21 ↓7	↑21 ↓9	↑16 ↓10	↑16 ↓12	↑142 ↓45
F_3	(30)	↑0 ↓4	↑7 ↓5	↑15 ↓0	↑24 ↓0	↑19 ↓0	↑15 ↓0	↑13 ↓0	↑13 ↓0	↑106 ↓9
F_4	(30)	↑0 ↓4	↑15 ↓0	↑22 ↓0	↑28 ↓0	↑26 ↓1	↑22 ↓5	↑17 ↓10	↑16 ↓13	↑146 ↓33
F_5	(30)	↑4 ↓1	↑26 ↓0	↑29 ↓0	↑30 ↓0	↑29 ↓0	↑28 ↓2	↑25 ↓5	↑22 ↓7	↑193 ↓15
F_6	(30)	↑1 ↓3	↑22 ↓0	↑26 ↓0	↑30 ↓0	↑30 ↓0	↑28 ↓1	↑27 ↓2	↑23 ↓4	↑187 ↓10
T_1	(35)	↑0 ↓5	↑32 ↓1	↑32 ↓0	↑34 ↓0	↑31 ↓2	↑27 ↓7	↑24 ↓10	↑21 ↓12	↑201 ↓37
T_2	(35)	↑1 ↓1	↑24 ↓1	↑31 ↓0	↑35 ↓0	↑31 ↓2	↑28 ↓4	↑21 ↓9	↑17 ↓11	↑188 ↓28
T_3	(35)	↑1 ↓2	↑17 ↓2	↑26 ↓0	↑34 ↓1	↑30 ↓2	↑26 ↓3	↑22 ↓7	↑21 ↓9	↑177 ↓26
T_4	(35)	↑2 ↓8	↑24 ↓1	↑32 ↓0	↑34 ↓0	↑31 ↓0	↑25 ↓5	↑24 ↓7	↑19 ↓11	↑191 ↓32
T_5	(35)	↑2 ↓6	↑22 ↓0	↑26 ↓0	↑31 ↓1	↑30 ↓3	↑25 ↓5	↑20 ↓8	↑20 ↓9	↑176 ↓32
T_6	(35)	↑0 ↓2	↑18 ↓0	↑26 ↓0	↑32 ↓0	↑31 ↓0	↑27 ↓3	↑22 ↓7	↑21 ↓11	↑177 ↓23
All	(270)	↑9 ↓26	↑191 ↓5	↑231 ↓1	↑258 ↓3	↑238 ↓12	↑209 ↓31	↑181 ↓52	↑162 ↓68	↑1479 ↓198

Table D.3: SABrNorRes vs DynDE performance analysis - Part 1

Cp		100	500	1000	5000	10000	25000	50000	100000	Total
Set.	**Max**	**5 Dimensions**								
		MPB								
C_s 1	(2)	↑1 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑1 ↓0	↑2 ↓0	↑1 ↓0	↑1 ↓0	↑12 ↓0
5	(2)	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑16 ↓0
10	(2)	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑1 ↓0	↑15 ↓0
20	(2)	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑16 ↓0
40	(2)	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑16 ↓0
80	(2)	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑16 ↓0
C	(6)	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑5 ↓0	↑6 ↓0	↑5 ↓0	↑4 ↓0	↑44 ↓0
S	(6)	↑5 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑47 ↓0
		GBG								
F_{1a}	(6)	↑0 ↓2	↑4 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑40 ↓2
F_{1b}	(6)	↑2 ↓1	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑5 ↓0	↑5 ↓0	↑42 ↓1
F_2	(6)	↑0 ↓1	↑1 ↓1	↑2 ↓1	↑3 ↓2	↑3 ↓1	↑3 ↓1	↑3 ↓1	↑3 ↓2	↑18 ↓10
F_3	(6)	↑1 ↓1	↑5 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑42 ↓1
F_4	(6)	↑0 ↓1	↑3 ↓0	↑5 ↓0	↑5 ↓0	↑6 ↓0	↑5 ↓0	↑4 ↓0	↑4 ↓1	↑32 ↓2
F_5	(6)	↑0 ↓5	↑5 ↓1	↑4 ↓0	↑3 ↓0	↑3 ↓0	↑2 ↓2	↑1 ↓4	↑1 ↓4	↑19 ↓16
F_6	(6)	↑2 ↓0	↑4 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑5 ↓0	↑5 ↓0	↑5 ↓0	↑39 ↓0
T_1	(7)	↑0 ↓4	↑2 ↓2	↑5 ↓1	↑7 ↓0	↑7 ↓0	↑5 ↓0	↑4 ↓1	↑4 ↓2	↑34 ↓10
T_2	(7)	↑3 ↓1	↑5 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑44 ↓1
T_3	(7)	↑0 ↓1	↑6 ↓0	↑6 ↓0	↑5 ↓1	↑5 ↓0	↑5 ↓0	↑4 ↓1	↑4 ↓2	↑35 ↓5
T_4	(7)	↑0 ↓4	↑6 ↓0	↑7 ↓0	↑7 ↓0	↑7 ↓0	↑7 ↓0	↑6 ↓0	↑6 ↓0	↑46 ↓4
T_5	(7)	↑0 ↓1	↑3 ↓0	↑4 ↓0	↑4 ↓1	↑5 ↓1	↑4 ↓2	↑4 ↓2	↑4 ↓2	↑28 ↓9
T_6	(7)	↑2 ↓0	↑6 ↓0	↑7 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓1	↑6 ↓1	↑6 ↓1	↑45 ↓3
All	(54)	↑16 ↓11	↑40 ↓2	↑47 ↓1	↑47 ↓2	↑47 ↓1	↑45 ↓3	↑41 ↓5	↑40 ↓7	↑323 ↓32
Set.	**Max**	**10 Dimensions**								
		MPB								
C_s 1	(2)	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑1 ↓0	↑1 ↓0	↑1 ↓0	↑13 ↓0
5	(2)	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑1 ↓0	↑1 ↓0	↑14 ↓0
10	(2)	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑1 ↓0	↑15 ↓0
20	(2)	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑16 ↓0
40	(2)	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑16 ↓0
80	(2)	↑1 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑15 ↓0
C	(6)	↑5 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑5 ↓0	↑4 ↓0	↑3 ↓0	↑41 ↓0
S	(6)	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑48 ↓0
		GBG								
F_{1a}	(6)	↑0 ↓1	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑5 ↓0	↑41 ↓1
F_{1b}	(6)	↑0 ↓1	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑5 ↓0	↑41 ↓1
F_2	(6)	↑0 ↓3	↑3 ↓1	↑4 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑37 ↓4
F_3	(6)	↑0 ↓2	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑42 ↓2
F_4	(6)	↑0 ↓1	↑1 ↓1	↑4 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑5 ↓0	↑34 ↓2
F_5	(6)	↑2 ↓3	↑1 ↓3	↑1 ↓5	↑2 ↓3	↑1 ↓4	↑0 ↓6	↑1 ↓5	↑0 ↓5	↑8 ↓34
F_6	(6)	↑0 ↓1	↑5 ↓0	↑5 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑40 ↓1
T_1	(7)	↑0 ↓2	↑4 ↓3	↑3 ↓1	↑7 ↓0	↑6 ↓1	↑6 ↓1	↑6 ↓1	↑6 ↓0	↑38 ↓9
T_2	(7)	↑0 ↓0	↑5 ↓0	↑6 ↓0	↑7 ↓0	↑7 ↓0	↑6 ↓1	↑7 ↓0	↑5 ↓1	↑43 ↓2
T_3	(7)	↑1 ↓1	↑5 ↓0	↑6 ↓1	↑6 ↓1	↑6 ↓1	↑6 ↓1	↑6 ↓1	↑4 ↓1	↑40 ↓7
T_4	(7)	↑0 ↓6	↑6 ↓1	↑6 ↓1	↑6 ↓0	↑6 ↓0	↑6 ↓1	↑6 ↓1	↑6 ↓1	↑42 ↓11
T_5	(7)	↑0 ↓2	↑3 ↓1	↑5 ↓1	↑6 ↓1	↑6 ↓1	↑6 ↓1	↑6 ↓1	↑6 ↓1	↑38 ↓9
T_6	(7)	↑1 ↓1	↑5 ↓0	↑6 ↓1	↑6 ↓1	↑6 ↓1	↑6 ↓1	↑6 ↓1	↑6 ↓1	↑42 ↓7
All	(54)	↑13 ↓12	↑40 ↓5	↑44 ↓5	↑50 ↓3	↑49 ↓4	↑47 ↓6	↑47 ↓5	↑42 ↓5	↑332 ↓45
Set.	**Max**	**25 Dimensions**								
		MPB								
C_s 1	(2)	↑1 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑1 ↓0	↑14 ↓0
5	(2)	↑1 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑1 ↓0	↑1 ↓0	↑13 ↓0
10	(2)	↑1 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑15 ↓0
20	(2)	↑1 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑15 ↓0
40	(2)	↑1 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑15 ↓0
80	(2)	↑0 ↓2	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑14 ↓2
C	(6)	↑0 ↓1	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑5 ↓0	↑4 ↓0	↑39 ↓1
S	(6)	↑5 ↓1	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑47 ↓1
		GBG								
F_{1a}	(6)	↑0 ↓4	↑5 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑41 ↓4
F_{1b}	(6)	↑0 ↓4	↑5 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑41 ↓4
F_2	(6)	↑0 ↓6	↑2 ↓0	↑3 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑5 ↓0	↑34 ↓6
F_3	(6)	↑0 ↓6	↑5 ↓0	↑3 ↓0	↑6 ↓0	↑6 ↓0	↑4 ↓0	↑2 ↓0	↑1 ↓0	↑27 ↓6
F_4	(6)	↑0 ↓6	↑1 ↓0	↑2 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑5 ↓0	↑32 ↓6
F_5	(6)	↑6 ↓0	↑4 ↓2	↑4 ↓2	↑2 ↓3	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑16 ↓31
F_6	(6)	↑0 ↓4	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑42 ↓4
T_1	(7)	↑1 ↓3	↑6 ↓1	↑6 ↓1	↑6 ↓1	↑6 ↓1	↑6 ↓1	↑6 ↓1	↑6 ↓1	↑43 ↓10
T_2	(7)	↑1 ↓6	↑5 ↓0	↑4 ↓0	↑6 ↓1	↑6 ↓1	↑6 ↓1	↑5 ↓1	↑3 ↓1	↑36 ↓11
T_3	(7)	↑1 ↓4	↑4 ↓0	↑4 ↓0	↑7 ↓0	↑6 ↓1	↑5 ↓1	↑5 ↓1	↑5 ↓1	↑37 ↓8
T_4	(7)	↑1 ↓5	↑3 ↓1	↑6 ↓1	↑6 ↓1	↑6 ↓1	↑6 ↓1	↑5 ↓1	↑5 ↓1	↑38 ↓12
T_5	(7)	↑1 ↓6	↑6 ↓0	↑5 ↓0	↑6 ↓0	↑6 ↓1	↑6 ↓1	↑6 ↓1	↑5 ↓1	↑41 ↓10
T_6	(7)	↑1 ↓6	↑4 ↓0	↑5 ↓0	↑7 ↓0	↑6 ↓1	↑5 ↓1	↑5 ↓1	↑5 ↓1	↑38 ↓10
All	(54)	↑11 ↓32	↑40 ↓2	↑42 ↓2	↑50 ↓3	↑48 ↓6	↑46 ↓6	↑43 ↓6	↑39 ↓6	↑319 ↓63

Table D.4: SABrNorRes vs DynDE performance analysis - Part 2

Cp		100	500	1000	5000	10000	25000	50000	100000	Total
Set.	**Max**	**50 Dimensions**								
		MPB								
C_s 1	(2)	↑1 ↓1	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑15 ↓1
5	(2)	↑1 ↓1	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑1 ↓0	↑1 ↓0	↑13 ↓1
10	(2)	↑0 ↓1	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑1 ↓0	↑1 ↓0	↑12 ↓1
20	(2)	↑1 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑1 ↓0	↑2 ↓0	↑14 ↓0
40	(2)	↑0 ↓1	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑14 ↓1
80	(2)	↑0 ↓1	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑14 ↓1
C	(6)	↑0 ↓4	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑3 ↓0	↑4 ↓0	↑37 ↓4
S	(6)	↑3 ↓1	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑45 ↓1
		GBG								
F_{1a}	(6)	↑0 ↓3	↑2 ↓2	↑5 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑37 ↓5
F_{1b}	(6)	↑0 ↓5	↑1 ↓3	↑5 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑36 ↓8
F_2	(6)	↑0 ↓6	↑1 ↓2	↑3 ↓0	↑5 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑33 ↓8
F_3	(6)	↑0 ↓6	↑3 ↓0	↑2 ↓1	↑2 ↓0	↑2 ↓0	↑1 ↓1	↑1 ↓3	↑1 ↓3	↑12 ↓14
F_4	(6)	↑0 ↓6	↑0 ↓1	↑2 ↓1	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑32 ↓8
F_5	(6)	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑3 ↓1	↑3 ↓2	↑2 ↓3	↑1 ↓4	↑1 ↓4	↑28 ↓14
F_6	(6)	↑0 ↓6	↑5 ↓0	↑6 ↓0	↑5 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑40 ↓6
T_1	(7)	↑1 ↓4	↑5 ↓0	↑6 ↓0	↑6 ↓1	↑6 ↓1	↑6 ↓1	↑6 ↓1	↑6 ↓1	↑42 ↓9
T_2	(7)	↑1 ↓5	↑3 ↓0	↑4 ↓0	↑5 ↓0	↑5 ↓1	↑5 ↓1	↑5 ↓2	↑5 ↓2	↑33 ↓11
T_3	(7)	↑1 ↓5	↑1 ↓1	↑2 ↓1	↑5 ↓0	↑6 ↓0	↑5 ↓1	↑5 ↓2	↑5 ↓2	↑30 ↓12
T_4	(7)	↑1 ↓6	↑2 ↓2	↑5 ↓1	↑5 ↓0	↑5 ↓0	↑5 ↓1	↑5 ↓2	↑5 ↓2	↑33 ↓14
T_5	(7)	↑1 ↓6	↑4 ↓2	↑7 ↓0	↑7 ↓0	↑7 ↓0	↑6 ↓0	↑5 ↓0	↑5 ↓0	↑42 ↓8
T_6	(7)	↑1 ↓6	↑3 ↓3	↑4 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑38 ↓9
All	(54)	↑9 ↓37	↑30 ↓8	↑40 ↓2	↑46 ↓1	↑47 ↓2	↑45 ↓4	↑41 ↓7	↑42 ↓7	↑300 ↓68
Set.	**Max**	**100 Dimensions**								
		MPB								
C_s 1	(2)	↑0 ↓2	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑7 ↓9
5	(2)	↑0 ↓2	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑7 ↓9
10	(2)	↑0 ↓2	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑0 ↓1	↑0 ↓1	↑5 ↓9
20	(2)	↑0 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑0 ↓1	↑0 ↓1	↑5 ↓8
40	(2)	↑0 ↓2	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑0 ↓1	↑6 ↓9
80	(2)	↑0 ↓2	↑1 ↓1	↑1 ↓0	↑1 ↓0	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑7 ↓7
C	(6)	↑0 ↓5	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑4 ↓0	↑3 ↓0	↑37 ↓5
S	(6)	↑0 ↓6	↑0 ↓6	↑0 ↓5	↑0 ↓5	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓46
		GBG								
F_{1a}	(6)	↑0 ↓3	↑1 ↓3	↑3 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑34 ↓6
F_{1b}	(6)	↑0 ↓6	↑1 ↓5	↑2 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑33 ↓11
F_2	(6)	↑0 ↓6	↑0 ↓5	↑1 ↓2	↑4 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑29 ↓13
F_3	(6)	↑0 ↓6	↑2 ↓3	↑1 ↓2	↑2 ↓1	↑3 ↓0	↑3 ↓0	↑2 ↓1	↑0 ↓2	↑13 ↓15
F_4	(6)	↑0 ↓6	↑0 ↓5	↑2 ↓1	↑5 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑31 ↓12
F_5	(6)	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑5 ↓0	↑5 ↓1	↑46 ↓1
F_6	(6)	↑0 ↓6	↑3 ↓1	↑4 ↓1	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑5 ↓0	↑5 ↓0	↑35 ↓8
T_1	(7)	↑1 ↓5	↑5 ↓0	↑5 ↓0	↑7 ↓0	↑7 ↓0	↑7 ↓0	↑7 ↓0	↑6 ↓0	↑45 ↓5
T_2	(7)	↑1 ↓5	↑1 ↓4	↑2 ↓0	↑5 ↓0	↑7 ↓0	↑7 ↓0	↑5 ↓0	↑5 ↓1	↑33 ↓10
T_3	(7)	↑1 ↓5	↑1 ↓4	↑1 ↓4	↑6 ↓1	↑6 ↓0	↑6 ↓0	↑5 ↓0	↑5 ↓1	↑31 ↓15
T_4	(7)	↑1 ↓6	↑2 ↓5	↑3 ↓1	↑4 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓1	↑6 ↓1	↑34 ↓14
T_5	(7)	↑1 ↓6	↑3 ↓4	↑5 ↓0	↑7 ↓0	↑7 ↓0	↑7 ↓0	↑7 ↓0	↑6 ↓0	↑43 ↓10
T_6	(7)	↑1 ↓6	↑1 ↓5	↑3 ↓1	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑35 ↓12
All	(54)	↑6 ↓44	↑19 ↓28	↑25 ↓11	↑41 ↓6	↑45 ↓6	↑45 ↓6	↑40 ↓7	↑37 ↓9	↑258 ↓117
Set.	**Max**	**All Dimensions**								
		MPB								
C_s 1	(10)	↑5 ↓3	↑9 ↓1	↑9 ↓1	↑9 ↓1	↑8 ↓1	↑8 ↓1	↑7 ↓1	↑6 ↓1	↑61 ↓10
5	(10)	↑6 ↓3	↑9 ↓1	↑9 ↓1	↑9 ↓1	↑9 ↓1	↑9 ↓1	↑6 ↓1	↑6 ↓1	↑63 ↓10
10	(10)	↑5 ↓3	↑9 ↓1	↑9 ↓1	↑9 ↓1	↑9 ↓1	↑9 ↓1	↑7 ↓1	↑5 ↓1	↑62 ↓10
20	(10)	↑6 ↓1	↑9 ↓1	↑9 ↓1	↑9 ↓1	↑9 ↓1	↑9 ↓1	↑7 ↓1	↑8 ↓1	↑66 ↓8
40	(10)	↑5 ↓3	↑9 ↓1	↑9 ↓1	↑9 ↓1	↑9 ↓1	↑9 ↓1	↑9 ↓1	↑8 ↓1	↑67 ↓10
80	(10)	↑3 ↓5	↑9 ↓1	↑9 ↓0	↑9 ↓0	↑9 ↓1	↑9 ↓1	↑9 ↓1	↑9 ↓1	↑66 ↓10
C	(30)	↑11 ↓10	↑30 ↓0	↑30 ↓0	↑30 ↓0	↑29 ↓0	↑29 ↓0	↑21 ↓0	↑18 ↓0	↑198 ↓10
S	(30)	↑19 ↓8	↑24 ↓6	↑24 ↓5	↑24 ↓5	↑24 ↓6	↑24 ↓6	↑24 ↓6	↑24 ↓6	↑187 ↓48
		GBG								
F_{1a}	(30)	↑0 ↓13	↑18 ↓5	↑26 ↓0	↑30 ↓0	↑30 ↓0	↑30 ↓0	↑30 ↓0	↑29 ↓0	↑193 ↓18
F_{1b}	(30)	↑2 ↓17	↑19 ↓8	↑25 ↓0	↑30 ↓0	↑30 ↓0	↑30 ↓0	↑29 ↓0	↑28 ↓0	↑193 ↓25
F_2	(30)	↑0 ↓22	↑7 ↓9	↑13 ↓3	↑24 ↓2	↑27 ↓1	↑27 ↓1	↑27 ↓1	↑26 ↓2	↑151 ↓41
F_3	(30)	↑1 ↓21	↑21 ↓3	↑18 ↓3	↑22 ↓1	↑23 ↓0	↑20 ↓1	↑17 ↓4	↑14 ↓5	↑136 ↓38
F_4	(30)	↑0 ↓20	↑5 ↓7	↑15 ↓2	↑28 ↓0	↑30 ↓0	↑29 ↓0	↑28 ↓0	↑26 ↓1	↑161 ↓30
F_5	(30)	↑20 ↓8	↑22 ↓6	↑21 ↓7	↑16 ↓7	↑13 ↓12	↑10 ↓17	↑8 ↓19	↑7 ↓20	↑117 ↓96
F_6	(30)	↑2 ↓17	↑23 ↓1	↑26 ↓1	↑30 ↓0	↑30 ↓0	↑29 ↓0	↑28 ↓0	↑28 ↓0	↑196 ↓19
T_1	(35)	↑3 ↓18	↑22 ↓6	↑25 ↓3	↑33 ↓2	↑32 ↓3	↑30 ↓3	↑29 ↓4	↑28 ↓4	↑202 ↓43
T_2	(35)	↑6 ↓17	↑19 ↓4	↑22 ↓0	↑29 ↓1	↑31 ↓2	↑30 ↓3	↑28 ↓3	↑24 ↓5	↑189 ↓35
T_3	(35)	↑4 ↓16	↑17 ↓5	↑19 ↓6	↑29 ↓3	↑29 ↓2	↑27 ↓3	↑25 ↓5	↑23 ↓7	↑173 ↓47
T_4	(35)	↑3 ↓27	↑19 ↓9	↑27 ↓4	↑28 ↓1	↑30 ↓1	↑30 ↓3	↑28 ↓5	↑28 ↓5	↑193 ↓55
T_5	(35)	↑3 ↓21	↑19 ↓7	↑26 ↓1	↑30 ↓2	↑31 ↓3	↑29 ↓4	↑28 ↓4	↑26 ↓4	↑192 ↓46
T_6	(35)	↑6 ↓19	↑19 ↓8	↑25 ↓2	↑31 ↓1	↑30 ↓2	↑29 ↓3	↑29 ↓3	↑29 ↓3	↑198 ↓41
All	(270)	↑55 ↓136	↑169 ↓45	↑198 ↓21	↑234 ↓15	↑236 ↓19	↑228 ↓25	↑212 ↓30	↑200 ↓34	↑1532 ↓325

Table D.5: SACDE vs DynDE performance analysis - Part 1

Cp		100	500	1000	5000	10000	25000	50000	100000	Total
Set.	**Max**	**5 Dimensions**								
		MPB								
C_s 1	(2)	↑0 ↓0	↑2 ↓0	↑2 ↓0	↑1 ↓0	↑1 ↓0	↑1 ↓0	↑1 ↓0	↑1 ↓0	↑9 ↓0
5	(2)	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑1 ↓0	↑2 ↓0	↑15 ↓0
10	(2)	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑1 ↓0	↑15 ↓0
20	(2)	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑16 ↓0
40	(2)	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑16 ↓0
80	(2)	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑16 ↓0
C	(6)	↑5 ↓0	↑6 ↓0	↑6 ↓0	↑5 ↓0	↑5 ↓0	↑5 ↓0	↑4 ↓0	↑4 ↓0	↑40 ↓0
S	(6)	↑5 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑47 ↓0
		GBG								
F_{1a}	(6)	↑0 ↓3	↑5 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑41 ↓3
F_{1b}	(6)	↑0 ↓2	↑5 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑5 ↓0	↑40 ↓2
F_2	(6)	↑0 ↓2	↑1 ↓1	↑1 ↓1	↑3 ↓3	↑3 ↓3	↑2 ↓3	↑2 ↓3	↑3 ↓2	↑15 ↓18
F_3	(6)	↑0 ↓2	↑5 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑41 ↓2
F_4	(6)	↑0 ↓2	↑3 ↓0	↑4 ↓0	↑6 ↓0	↑5 ↓0	↑4 ↓0	↑4 ↓0	↑4 ↓1	↑30 ↓3
F_5	(6)	↑0 ↓5	↑3 ↓1	↑5 ↓1	↑3 ↓0	↑2 ↓1	↑2 ↓3	↑1 ↓4	↑0 ↓5	↑16 ↓20
F_6	(6)	↑2 ↓1	↑4 ↓0	↑5 ↓0	↑6 ↓0	↑6 ↓0	↑5 ↓0	↑5 ↓0	↑5 ↓0	↑38 ↓1
T_1	(7)	↑0 ↓5	↑1 ↓2	↑3 ↓2	↑7 ↓0	↑6 ↓0	↑3 ↓1	↑4 ↓1	↑4 ↓2	↑28 ↓13
T_2	(7)	↑1 ↓3	↑6 ↓0	↑6 ↓0	↑6 ↓1	↑6 ↓1	↑6 ↓1	↑6 ↓1	↑5 ↓0	↑42 ↓7
T_3	(7)	↑0 ↓1	↑7 ↓0	↑6 ↓0	↑5 ↓1	↑5 ↓1	↑5 ↓2	↑5 ↓2	↑4 ↓2	↑37 ↓9
T_4	(7)	↑0 ↓7	↑4 ↓0	↑6 ↓0	↑7 ↓0	↑7 ↓0	↑7 ↓0	↑5 ↓1	↑6 ↓1	↑42 ↓9
T_5	(7)	↑0 ↓1	↑2 ↓0	↑5 ↓0	↑5 ↓1	↑4 ↓2	↑4 ↓2	↑4 ↓1	↑4 ↓2	↑28 ↓9
T_6	(7)	↑1 ↓0	↑6 ↓0	↑7 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓1	↑6 ↓1	↑44 ↓2
All	(54)	↑12 ↓17	↑38 ↓2	↑45 ↓2	↑47 ↓3	↑45 ↓4	↑42 ↓6	↑40 ↓7	↑39 ↓8	↑308 ↓49
Set.	**Max**	**10 Dimensions**								
		MPB								
C_s 1	(2)	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑1 ↓0	↑1 ↓0	↑1 ↓0	↑1 ↓0	↑12 ↓0
5	(2)	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑1 ↓0	↑1 ↓0	↑14 ↓0
10	(2)	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑1 ↓0	↑15 ↓0
20	(2)	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑16 ↓0
40	(2)	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑16 ↓0
80	(2)	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑16 ↓0
C	(6)	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑5 ↓0	↑5 ↓0	↑4 ↓0	↑3 ↓0	↑41 ↓0
S	(6)	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑48 ↓0
		GBG								
F_{1a}	(6)	↑0 ↓1	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑5 ↓0	↑41 ↓1
F_{1b}	(6)	↑0 ↓1	↑4 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑4 ↓0	↑38 ↓1
F_2	(6)	↑0 ↓4	↑1 ↓1	↑3 ↓1	↑5 ↓0	↑5 ↓0	↑4 ↓0	↑5 ↓0	↑6 ↓0	↑29 ↓6
F_3	(6)	↑0 ↓5	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑42 ↓5
F_4	(6)	↑0 ↓3	↑0 ↓1	↑4 ↓1	↑5 ↓0	↑5 ↓0	↑5 ↓0	↑5 ↓0	↑5 ↓0	↑29 ↓5
F_5	(6)	↑3 ↓3	↑1 ↓3	↑1 ↓5	↑2 ↓3	↑1 ↓5	↑2 ↓3	↑0 ↓4	↑1 ↓4	↑11 ↓30
F_6	(6)	↑1 ↓2	↑4 ↓0	↑5 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑40 ↓2
T_1	(7)	↑1 ↓3	↑2 ↓3	↑3 ↓3	↑7 ↓0	↑6 ↓1	↑7 ↓0	↑6 ↓0	↑6 ↓0	↑38 ↓10
T_2	(7)	↑1 ↓2	↑4 ↓0	↑7 ↓0	↑5 ↓0	↑5 ↓0	↑5 ↓0	↑5 ↓1	↑6 ↓0	↑38 ↓3
T_3	(7)	↑1 ↓3	↑5 ↓0	↑5 ↓1	↑6 ↓1	↑6 ↓1	↑6 ↓1	↑6 ↓1	↑4 ↓1	↑39 ↓9
T_4	(7)	↑0 ↓7	↑3 ↓1	↑6 ↓1	↑6 ↓0	↑6 ↓1	↑6 ↓0	↑6 ↓0	↑5 ↓1	↑38 ↓11
T_5	(7)	↑0 ↓2	↑3 ↓1	↑4 ↓1	↑6 ↓1	↑6 ↓1	↑5 ↓1	↑5 ↓1	↑6 ↓1	↑35 ↓9
T_6	(7)	↑1 ↓2	↑5 ↓0	↑6 ↓1	↑6 ↓1	↑6 ↓1	↑6 ↓1	↑6 ↓1	↑6 ↓1	↑42 ↓8
All	(54)	↑16 ↓19	↑34 ↓5	↑43 ↓7	↑48 ↓3	↑46 ↓5	↑46 ↓3	↑44 ↓4	↑42 ↓4	↑319 ↓50
Set.	**Max**	**25 Dimensions**								
		MPB								
C_s 1	(2)	↑1 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑15 ↓0
5	(2)	↑1 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑1 ↓0	↑1 ↓0	↑1 ↓0	↑12 ↓0
10	(2)	↑1 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑1 ↓0	↑1 ↓0	↑1 ↓0	↑12 ↓0
20	(2)	↑1 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑15 ↓0
40	(2)	↑1 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑15 ↓0
80	(2)	↑0 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑14 ↓0
C	(6)	↑0 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑4 ↓0	↑4 ↓0	↑4 ↓0	↑36 ↓0
S	(6)	↑5 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑47 ↓0
		GBG								
F_{1a}	(6)	↑0 ↓3	↑2 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑38 ↓3
F_{1b}	(6)	↑0 ↓6	↑4 ↓1	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑40 ↓7
F_2	(6)	↑0 ↓6	↑0 ↓0	↑1 ↓1	↑5 ↓0	↑6 ↓0	↑6 ↓0	↑5 ↓0	↑5 ↓0	↑28 ↓7
F_3	(6)	↑0 ↓6	↑4 ↓0	↑3 ↓0	↑5 ↓0	↑5 ↓0	↑4 ↓0	↑3 ↓0	↑4 ↓0	↑28 ↓6
F_4	(6)	↑0 ↓6	↑0 ↓0	↑1 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑5 ↓0	↑30 ↓6
F_5	(6)	↑6 ↓0	↑4 ↓2	↑4 ↓2	↑2 ↓3	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑16 ↓31
F_6	(6)	↑0 ↓5	↑5 ↓0	↑5 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑40 ↓5
T_1	(7)	↑1 ↓4	↑3 ↓1	↑5 ↓1	↑6 ↓1	↑6 ↓1	↑6 ↓1	↑6 ↓1	↑6 ↓1	↑39 ↓11
T_2	(7)	↑1 ↓5	↑5 ↓0	↑4 ↓0	↑5 ↓1	↑6 ↓1	↑6 ↓1	↑4 ↓1	↑3 ↓1	↑34 ↓10
T_3	(7)	↑1 ↓5	↑1 ↓0	↑4 ↓1	↑6 ↓0	↑6 ↓1	↑5 ↓1	↑5 ↓1	↑5 ↓1	↑33 ↓10
T_4	(7)	↑1 ↓6	↑2 ↓2	↑5 ↓1	↑6 ↓1	↑6 ↓1	↑6 ↓1	↑6 ↓1	↑6 ↓1	↑38 ↓14
T_5	(7)	↑1 ↓6	↑4 ↓0	↑4 ↓0	↑6 ↓0	↑6 ↓1	↑5 ↓1	↑5 ↓1	↑6 ↓1	↑37 ↓10
T_6	(7)	↑1 ↓6	↑4 ↓0	↑4 ↓0	↑7 ↓0	↑5 ↓1	↑6 ↓1	↑6 ↓1	↑6 ↓1	↑39 ↓10
All	(54)	↑11 ↓32	↑31 ↓3	↑38 ↓3	↑48 ↓3	↑47 ↓6	↑44 ↓6	↑42 ↓6	↑42 ↓6	↑303 ↓65

Table D.6: SACDE vs DynDE performance analysis - Part 2

Cp		100	500	1000	5000	10000	25000	50000	100000	Total
Set.	Max	50 Dimensions								
		MPB								
C_s 1	(2)	↑0 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑14 ↓0
5	(2)	↑0 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑1 ↓0	↑1 ↓0	↑12 ↓0
10	(2)	↑0 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑1 ↓0	↑1 ↓0	↑1 ↓0	↑11 ↓0
20	(2)	↑0 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑1 ↓0	↑1 ↓0	↑12 ↓0
40	(2)	↑0 ↓1	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑14 ↓1
80	(2)	↑0 ↓2	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑2 ↓0	↑14 ↓2
C	(6)	↑0 ↓2	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑5 ↓0	↑3 ↓0	↑3 ↓0	↑35 ↓2
S	(6)	↑0 ↓1	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑42 ↓1
		GBG								
F_{1a}	(6)	↑0 ↓4	↑1 ↓2	↑4 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑35 ↓6
F_{1b}	(6)	↑0 ↓6	↑1 ↓4	↑3 ↓1	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑34 ↓11
F_2	(6)	↑0 ↓6	↑0 ↓3	↑2 ↓2	↑5 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑31 ↓11
F_3	(6)	↑0 ↓6	↑2 ↓0	↑1 ↓3	↑3 ↓0	↑5 ↓0	↑4 ↓0	↑2 ↓0	↑3 ↓0	↑20 ↓9
F_4	(6)	↑0 ↓6	↑0 ↓3	↑1 ↓1	↑5 ↓0	↑6 ↓0	↑6 ↓0	↑5 ↓0	↑6 ↓0	↑29 ↓10
F_5	(6)	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑3 ↓1	↑3 ↓2	↑2 ↓3	↑1 ↓4	↑1 ↓4	↑28 ↓14
F_6	(6)	↑0 ↓6	↑3 ↓0	↑4 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑37 ↓6
T_1	(7)	↑1 ↓5	↑4 ↓0	↑5 ↓0	↑6 ↓1	↑6 ↓1	↑6 ↓1	↑6 ↓1	↑6 ↓1	↑40 ↓10
T_2	(7)	↑1 ↓6	↑2 ↓2	↑4 ↓1	↑5 ↓0	↑6 ↓1	↑6 ↓1	↑5 ↓1	↑5 ↓1	↑34 ↓13
T_3	(7)	↑1 ↓6	↑1 ↓3	↑1 ↓3	↑4 ↓0	↑7 ↓0	↑5 ↓0	↑5 ↓1	↑5 ↓1	↑29 ↓14
T_4	(7)	↑1 ↓6	↑2 ↓2	↑3 ↓2	↑6 ↓0	↑6 ↓0	↑6 ↓1	↑5 ↓1	↑6 ↓1	↑35 ↓13
T_5	(7)	↑1 ↓5	↑3 ↓2	↑4 ↓0	↑7 ↓0	↑7 ↓0	↑7 ↓0	↑5 ↓0	↑5 ↓0	↑39 ↓7
T_6	(7)	↑1 ↓6	↑1 ↓3	↑4 ↓1	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑7 ↓0	↑37 ↓10
All	(54)	↑6 ↓37	↑25 ↓12	↑33 ↓7	↑46 ↓1	↑50 ↓2	↑47 ↓3	↑41 ↓4	↑43 ↓4	↑291 ↓70
Set.	Max	100 Dimensions								
		MPB								
C_s 1	(2)	↑0 ↓2	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑7 ↓9
5	(2)	↑0 ↓2	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑7 ↓9
10	(2)	↑0 ↓2	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑0 ↓1	↑0 ↓1	↑5 ↓9
20	(2)	↑0 ↓2	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑0 ↓1	↑0 ↓2	↑5 ↓10
40	(2)	↑0 ↓2	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑0 ↓2	↑6 ↓10
80	(2)	↑0 ↓2	↑1 ↓1	↑1 ↓0	↑1 ↓0	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑7 ↓7
C	(6)	↑0 ↓6	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑4 ↓0	↑3 ↓2	↑37 ↓8
S	(6)	↑0 ↓6	↑0 ↓6	↑0 ↓5	↑0 ↓5	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓46
		GBG								
F_{1a}	(6)	↑0 ↓3	↑1 ↓4	↑2 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑33 ↓7
F_{1b}	(6)	↑0 ↓6	↑1 ↓5	↑0 ↓3	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑31 ↓14
F_2	(6)	↑0 ↓6	↑0 ↓6	↑0 ↓4	↑2 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑26 ↓16
F_3	(6)	↑0 ↓6	↑1 ↓2	↑1 ↓2	↑5 ↓0	↑5 ↓0	↑5 ↓0	↑5 ↓0	↑6 ↓0	↑28 ↓10
F_4	(6)	↑0 ↓6	↑0 ↓5	↑0 ↓5	↑2 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑26 ↓16
F_5	(6)	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑5 ↓0	↑5 ↓1	↑46 ↓1
F_6	(6)	↑0 ↓6	↑3 ↓1	↑4 ↓1	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑37 ↓8
T_1	(7)	↑1 ↓5	↑4 ↓1	↑3 ↓0	↑7 ↓0	↑7 ↓0	↑7 ↓0	↑7 ↓0	↑7 ↓0	↑43 ↓6
T_2	(7)	↑1 ↓5	↑1 ↓4	↑2 ↓2	↑5 ↓0	↑7 ↓0	↑7 ↓0	↑6 ↓0	↑6 ↓1	↑35 ↓12
T_3	(7)	↑1 ↓5	↑1 ↓4	↑1 ↓4	↑5 ↓0	↑7 ↓0	↑7 ↓0	↑7 ↓0	↑7 ↓0	↑36 ↓13
T_4	(7)	↑1 ↓6	↑2 ↓5	↑2 ↓4	↑5 ↓0	↑7 ↓0	↑7 ↓0	↑7 ↓0	↑7 ↓0	↑38 ↓15
T_5	(7)	↑1 ↓6	↑3 ↓4	↑3 ↓2	↑7 ↓0	↑7 ↓0	↑7 ↓0	↑7 ↓0	↑7 ↓0	↑42 ↓12
T_6	(7)	↑1 ↓6	↑1 ↓5	↑2 ↓3	↑4 ↓0	↑6 ↓0	↑6 ↓0	↑6 ↓0	↑7 ↓0	↑33 ↓14
All	(54)	↑6 ↓45	↑18 ↓29	↑19 ↓20	↑39 ↓5	↑47 ↓6	↑47 ↓6	↑44 ↓6	↑44 ↓9	↑264 ↓126
Set.	Max	All Dimensions								
		MPB								
C_s 1	(10)	↑3 ↓2	↑9 ↓1	↑9 ↓1	↑8 ↓1	↑7 ↓1	↑7 ↓1	↑7 ↓1	↑7 ↓1	↑57 ↓9
5	(10)	↑5 ↓2	↑9 ↓1	↑9 ↓1	↑9 ↓1	↑9 ↓1	↑8 ↓1	↑5 ↓1	↑6 ↓1	↑60 ↓9
10	(10)	↑5 ↓2	↑9 ↓1	↑9 ↓1	↑9 ↓1	↑9 ↓1	↑7 ↓1	↑6 ↓1	↑4 ↓1	↑58 ↓9
20	(10)	↑5 ↓2	↑9 ↓1	↑9 ↓1	↑9 ↓1	↑9 ↓1	↑9 ↓1	↑7 ↓1	↑7 ↓2	↑64 ↓10
40	(10)	↑5 ↓3	↑9 ↓1	↑9 ↓1	↑9 ↓1	↑9 ↓1	↑9 ↓1	↑9 ↓1	↑8 ↓2	↑67 ↓11
80	(10)	↑4 ↓4	↑9 ↓1	↑9 ↓0	↑9 ↓0	↑9 ↓1	↑9 ↓1	↑9 ↓1	↑9 ↓1	↑67 ↓9
C	(30)	↑11 ↓8	↑30 ↓0	↑30 ↓0	↑29 ↓0	↑28 ↓0	↑25 ↓0	↑19 ↓0	↑17 ↓2	↑189 ↓10
S	(30)	↑16 ↓7	↑24 ↓6	↑24 ↓5	↑24 ↓5	↑24 ↓6	↑24 ↓6	↑24 ↓6	↑24 ↓6	↑184 ↓47
		GBG								
F_{1a}	(30)	↑0 ↓14	↑15 ↓6	↑24 ↓0	↑30 ↓0	↑30 ↓0	↑30 ↓0	↑30 ↓0	↑29 ↓0	↑188 ↓20
F_{1b}	(30)	↑0 ↓21	↑15 ↓10	↑21 ↓4	↑30 ↓0	↑30 ↓0	↑30 ↓0	↑30 ↓0	↑27 ↓0	↑183 ↓35
F_2	(30)	↑0 ↓24	↑2 ↓11	↑7 ↓9	↑20 ↓3	↑26 ↓3	↑24 ↓3	↑24 ↓3	↑26 ↓2	↑129 ↓58
F_3	(30)	↑0 ↓25	↑18 ↓2	↑17 ↓5	↑25 ↓0	↑27 ↓0	↑25 ↓0	↑22 ↓0	↑25 ↓0	↑159 ↓32
F_4	(30)	↑0 ↓23	↑3 ↓9	↑10 ↓7	↑24 ↓0	↑28 ↓0	↑27 ↓0	↑26 ↓0	↑26 ↓1	↑144 ↓40
F_5	(30)	↑21 ↓8	↑20 ↓6	↑22 ↓8	↑16 ↓7	↑12 ↓14	↑12 ↓15	↑7 ↓18	↑7 ↓20	↑117 ↓96
F_6	(30)	↑3 ↓20	↑19 ↓1	↑23 ↓1	↑30 ↓0	↑30 ↓0	↑29 ↓0	↑29 ↓0	↑29 ↓0	↑192 ↓22
T_1	(35)	↑4 ↓22	↑14 ↓7	↑19 ↓6	↑33 ↓2	↑31 ↓3	↑29 ↓3	↑29 ↓3	↑29 ↓4	↑188 ↓50
T_2	(35)	↑5 ↓21	↑18 ↓6	↑23 ↓3	↑26 ↓2	↑30 ↓3	↑30 ↓3	↑26 ↓4	↑25 ↓3	↑183 ↓45
T_3	(35)	↑4 ↓20	↑15 ↓7	↑17 ↓9	↑26 ↓2	↑31 ↓3	↑28 ↓4	↑28 ↓5	↑25 ↓5	↑174 ↓55
T_4	(35)	↑3 ↓32	↑13 ↓10	↑22 ↓8	↑30 ↓1	↑32 ↓2	↑32 ↓2	↑29 ↓3	↑30 ↓4	↑191 ↓62
T_5	(35)	↑3 ↓20	↑15 ↓7	↑20 ↓3	↑31 ↓2	↑30 ↓4	↑28 ↓4	↑26 ↓3	↑28 ↓4	↑181 ↓47
T_6	(35)	↑5 ↓20	↑17 ↓8	↑23 ↓5	↑29 ↓1	↑29 ↓2	↑30 ↓2	↑30 ↓3	↑32 ↓3	↑195 ↓44
All	(270)	↑51 ↓150	↑146 ↓51	↑178 ↓39	↑228 ↓15	↑235 ↓23	↑226 ↓24	↑211 ↓27	↑210 ↓31	↑1485 ↓360

Table D.7: SADynPopDE vs CDE performance analysis - Part 1

Cp		100	500	1000	5000	10000	25000	50000	100000	Total
Set.	**Max**	**5 Dimensions**								
		MPB								
C_s 1	(2)	**↑2 ↓0**	*↑0 ↓1*	*↑0 ↓2*	*↑0 ↓1*	*↑0 ↓2*	*↑0 ↓2*	*↑0 ↓2*	↑1 ↓1	*↑3 ↓11*
5	(2)	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	*↑0 ↓2*	*↑0 ↓2*	*↑0 ↓2*	↑1 ↓1	*↑0 ↓1*	*↑7 ↓8*
10	(2)	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑1 ↓0**	**↑1 ↓0**	**↑2 ↓0**	**↑1 ↓0**	**↑13 ↓0**
20	(2)	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑16 ↓0**
40	(2)	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑16 ↓0**
80	(2)	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑16 ↓0**
C	(6)	**↑6 ↓0**	**↑5 ↓1**	**↑5 ↓1**	**↑4 ↓2**	**↑3 ↓2**	**↑3 ↓2**	**↑5 ↓1**	**↑4 ↓0**	**↑35 ↓9**
S	(6)	**↑6 ↓0**	**↑5 ↓0**	**↑5 ↓1**	**↑4 ↓1**	**↑4 ↓2**	**↑4 ↓2**	**↑4 ↓2**	**↑4 ↓2**	**↑36 ↓10**
		GBG								
F_{1a}	(6)	**↑4 ↓1**	**↑4 ↓2**	↑2 ↓2	*↑1 ↓2*	**↑4 ↓0**	**↑6 ↓0**	**↑6 ↓0**	**↑6 ↓0**	**↑33 ↓7**
F_{1b}	(6)	**↑2 ↓1**	*↑2 ↓3*	*↑0 ↓5*	*↑0 ↓5*	*↑0 ↓5*	**↑4 ↓1**	**↑6 ↓0**	**↑6 ↓0**	↑20 ↓20
F_2	(6)	**↑2 ↓0**	**↑4 ↓1**	**↑4 ↓1**	**↑4 ↓2**	**↑4 ↓1**	**↑6 ↓0**	**↑6 ↓0**	**↑6 ↓0**	**↑36 ↓5**
F_3	(6)	*↑0 ↓1*	**↑3 ↓1**	↑0 ↓0	**↑6 ↓0**	**↑6 ↓0**	**↑6 ↓0**	**↑6 ↓0**	**↑6 ↓0**	**↑33 ↓2**
F_4	(6)	**↑4 ↓0**	**↑3 ↓1**	**↑3 ↓2**	*↑1 ↓5*	*↑0 ↓5*	*↑0 ↓5*	*↑0 ↓3*	**↑2 ↓0**	*↑13 ↓21*
F_5	(6)	↑1 ↓1	*↑0 ↓6*	*↑0 ↓6*	*↑0 ↓6*	*↑0 ↓6*	*↑0 ↓6*	*↑0 ↓6*	*↑0 ↓6*	*↑1 ↓43*
F_6	(6)	**↑4 ↓0**	**↑3 ↓1**	*↑1 ↓3*	*↑0 ↓6*	*↑0 ↓5*	*↑0 ↓5*	*↑0 ↓5*	*↑0 ↓4*	*↑8 ↓29*
T_1	(7)	**↑6 ↓0**	*↑0 ↓6*	*↑0 ↓6*	*↑1 ↓6*	*↑1 ↓5*	**↑4 ↓3**	**↑4 ↓2**	**↑5 ↓2**	*↑21 ↓30*
T_2	(7)	**↑2 ↓0**	**↑5 ↓1**	*↑2 ↓3*	*↑2 ↓4*	*↑3 ↓4*	**↑4 ↓3**	**↑4 ↓3**	**↑4 ↓2**	**↑26 ↓20**
T_3	(7)	**↑4 ↓0**	**↑6 ↓1**	**↑2 ↓1**	*↑2 ↓3*	*↑2 ↓3*	**↑4 ↓3**	**↑4 ↓3**	**↑4 ↓2**	**↑28 ↓16**
T_4	(7)	*↑0 ↓4*	*↑0 ↓4*	*↑0 ↓5*	*↑1 ↓6*	*↑2 ↓4*	**↑4 ↓3**	**↑4 ↓3**	**↑4 ↓2**	*↑15 ↓31*
T_5	(7)	**↑1 ↓0**	**↑3 ↓1**	**↑3 ↓2**	**↑4 ↓3**	**↑3 ↓2**	**↑3 ↓1**	**↑4 ↓1**	**↑5 ↓1**	**↑26 ↓11**
T_6	(7)	**↑4 ↓0**	**↑5 ↓2**	**↑3 ↓2**	*↑2 ↓4*	*↑3 ↓4*	*↑3 ↓4*	**↑4 ↓2**	**↑4 ↓1**	**↑28 ↓19**
All	(54)	**↑29 ↓4**	**↑29 ↓16**	*↑20 ↓21*	*↑20 ↓29*	*↑21 ↓26*	**↑29 ↓21**	**↑33 ↓17**	**↑34 ↓12**	**↑215 ↓146**
Set.	**Max**	**10 Dimensions**								
		MPB								
C_s 1	(2)	**↑2 ↓0**	**↑1 ↓0**	**↑1 ↓0**	↑1 ↓1	↑1 ↓1	**↑1 ↓0**	**↑1 ↓0**	**↑1 ↓0**	**↑9 ↓2**
5	(2)	**↑2 ↓0**	**↑2 ↓0**	**↑1 ↓0**	*↑0 ↓1*	*↑0 ↓1*	*↑0 ↓1*	*↑0 ↓1*	↑0 ↓0	**↑5 ↓4**
10	(2)	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	↑1 ↓1	*↑0 ↓2*	*↑0 ↓2*	*↑0 ↓2*	*↑0 ↓2*	*↑7 ↓9*
20	(2)	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑1 ↓0**	**↑1 ↓0**	**↑1 ↓0**	**↑1 ↓0**	**↑12 ↓0**
40	(2)	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑16 ↓0**
80	(2)	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑16 ↓0**
C	(6)	**↑6 ↓0**	**↑5 ↓0**	**↑4 ↓0**	↑3 ↓3	*↑2 ↓3*	↑2 ↓2	↑2 ↓2	**↑2 ↓1**	**↑26 ↓11**
S	(6)	**↑6 ↓0**	**↑6 ↓0**	**↑6 ↓0**	**↑5 ↓0**	**↑4 ↓1**	**↑4 ↓1**	**↑4 ↓1**	**↑4 ↓1**	**↑39 ↓4**
		GBG								
F_{1a}	(6)	**↑2 ↓1**	*↑0 ↓4*	*↑0 ↓5*	*↑0 ↓4*	*↑1 ↓2*	**↑6 ↓0**	**↑6 ↓0**	**↑6 ↓0**	**↑21 ↓16**
F_{1b}	(6)	**↑2 ↓1**	*↑0 ↓5*	*↑0 ↓6*	*↑0 ↓5*	*↑0 ↓4*	**↑3 ↓2**	**↑6 ↓0**	**↑5 ↓0**	*↑16 ↓23*
F_2	(6)	*↑0 ↓2*	*↑0 ↓2*	*↑1 ↓4*	*↑2 ↓4*	↑3 ↓3	↑3 ↓3	**↑4 ↓0**	**↑6 ↓0**	**↑19 ↓18**
F_3	(6)	*↑0 ↓2*	↑1 ↓1	*↑0 ↓6*	*↑0 ↓6*	*↑0 ↓3*	**↑4 ↓0**	**↑6 ↓0**	**↑6 ↓0**	*↑17 ↓18*
F_4	(6)	↑1 ↓1	*↑0 ↓2*	*↑0 ↓3*	*↑2 ↓4*	*↑2 ↓3*	*↑2 ↓3*	↑3 ↓3	**↑5 ↓0**	*↑15 ↓19*
F_5	(6)	↑2 ↓2	*↑0 ↓6*	*↑0 ↓6*	*↑0 ↓6*	*↑0 ↓6*	*↑0 ↓6*	*↑0 ↓6*	*↑0 ↓6*	*↑2 ↓44*
F_6	(6)	**↑2 ↓0**	**↑3 ↓2**	*↑1 ↓4*	*↑0 ↓6*	*↑0 ↓6*	*↑0 ↓6*	*↑0 ↓6*	*↑0 ↓6*	*↑6 ↓36*
T_1	(7)	**↑4 ↓0**	*↑0 ↓6*	*↑0 ↓7*	*↑0 ↓7*	*↑0 ↓7*	*↑1 ↓4*	↑3 ↓3	**↑5 ↓2**	*↑13 ↓36*
T_2	(7)	**↑1 ↓0**	*↑1 ↓3*	*↑0 ↓7*	*↑0 ↓7*	*↑1 ↓4*	**↑4 ↓2**	**↑5 ↓2**	**↑5 ↓2**	*↑17 ↓27*
T_3	(7)	↑1 ↓1	↑1 ↓1	*↑1 ↓3*	*↑2 ↓3*	*↑2 ↓3*	**↑5 ↓2**	**↑5 ↓2**	**↑4 ↓2**	**↑21 ↓17**
T_4	(7)	*↑0 ↓6*	*↑0 ↓7*	*↑0 ↓7*	*↑0 ↓7*	*↑0 ↓6*	*↑2 ↓5*	↑3 ↓3	**↑4 ↓2**	*↑9 ↓43*
T_5	(7)	*↑0 ↓2*	*↑1 ↓2*	*↑1 ↓5*	*↑2 ↓4*	**↑3 ↓2**	**↑4 ↓2**	**↑5 ↓2**	**↑5 ↓2**	↑21 ↓21
T_6	(7)	**↑3 ↓0**	*↑1 ↓3*	*↑0 ↓5*	*↑0 ↓7*	*↑0 ↓5*	*↑2 ↓5*	**↑4 ↓3**	**↑5 ↓2**	*↑15 ↓30*
All	(54)	**↑21 ↓9**	*↑15 ↓22*	*↑12 ↓34*	*↑12 ↓38*	*↑12 ↓31*	**↑24 ↓23**	**↑31 ↓18**	**↑34 ↓14**	*↑161 ↓189*
Set.	**Max**	**25 Dimensions**								
		MPB								
C_s 1	(2)	**↑1 ↓0**	**↑2 ↓0**	**↑1 ↓0**	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	**↑1 ↓0**	**↑9 ↓4**
5	(2)	**↑1 ↓0**	**↑2 ↓0**	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	**↑9 ↓6**
10	(2)	**↑1 ↓0**	**↑2 ↓0**	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	**↑9 ↓6**
20	(2)	**↑1 ↓0**	**↑2 ↓0**	**↑2 ↓0**	*↑0 ↓1*	*↑0 ↓1*	*↑0 ↓2*	*↑0 ↓2*	*↑0 ↓2*	*↑5 ↓8*
40	(2)	**↑1 ↓0**	**↑2 ↓0**	**↑2 ↓0**	↑1 ↓1	↑1 ↓1	*↑0 ↓1*	*↑0 ↓2*	*↑0 ↓2*	↑7 ↓7
80	(2)	↑0 ↓0	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑14 ↓0**
C	(6)	↑0 ↓0	**↑6 ↓0**	**↑3 ↓2**	*↑1 ↓5*	*↑1 ↓5*	*↑1 ↓5*	*↑1 ↓5*	*↑1 ↓4*	*↑14 ↓26*
S	(6)	**↑5 ↓0**	**↑6 ↓0**	**↑6 ↓0**	**↑5 ↓0**	**↑5 ↓0**	**↑4 ↓1**	**↑4 ↓2**	**↑4 ↓2**	**↑39 ↓5**
		GBG								
F_{1a}	(6)	*↑1 ↓4*	*↑0 ↓6*	*↑0 ↓6*	*↑0 ↓6*	*↑0 ↓5*	**↑3 ↓0**	**↑6 ↓0**	**↑6 ↓0**	*↑16 ↓27*
F_{1b}	(6)	*↑1 ↓4*	*↑0 ↓6*	*↑0 ↓6*	*↑0 ↓6*	*↑0 ↓6*	*↑1 ↓2*	**↑5 ↓0**	**↑6 ↓0**	*↑13 ↓30*
F_2	(6)	*↑0 ↓5*	*↑0 ↓5*	*↑0 ↓5*	*↑0 ↓6*	*↑0 ↓6*	*↑1 ↓5*	*↑1 ↓4*	*↑2 ↓3*	*↑4 ↓39*
F_3	(6)	*↑0 ↓5*	*↑0 ↓4*	*↑0 ↓6*	*↑0 ↓6*	*↑0 ↓6*	*↑0 ↓6*	*↑0 ↓6*	*↑0 ↓6*	*↑0 ↓45*
F_4	(6)	*↑0 ↓5*	*↑0 ↓5*	*↑0 ↓5*	*↑0 ↓6*	*↑0 ↓5*	*↑1 ↓5*	*↑2 ↓4*	*↑2 ↓3*	*↑5 ↓38*
F_5	(6)	**↑6 ↓0**	**↑4 ↓2**	↑3 ↓3	*↑0 ↓6*	*↑0 ↓6*	*↑0 ↓6*	*↑0 ↓6*	*↑0 ↓6*	*↑13 ↓35*
F_6	(6)	*↑0 ↓4*	*↑0 ↓6*	*↑0 ↓6*	*↑0 ↓6*	*↑0 ↓6*	*↑0 ↓6*	*↑0 ↓6*	*↑0 ↓6*	*↑0 ↓46*
T_1	(7)	**↑3 ↓1**	*↑0 ↓6*	*↑0 ↓7*	*↑0 ↓7*	*↑0 ↓7*	*↑0 ↓6*	*↑2 ↓5*	*↑2 ↓5*	*↑7 ↓44*
T_2	(7)	*↑1 ↓4*	*↑1 ↓6*	*↑0 ↓7*	*↑0 ↓7*	*↑0 ↓7*	*↑0 ↓5*	*↑2 ↓5*	*↑2 ↓3*	*↑6 ↓44*
T_3	(7)	*↑1 ↓5*	*↑1 ↓6*	*↑1 ↓6*	*↑0 ↓7*	*↑0 ↓6*	*↑0 ↓5*	*↑2 ↓3*	**↑4 ↓3**	*↑9 ↓41*
T_4	(7)	*↑1 ↓6*	*↑0 ↓7*	*↑0 ↓7*	*↑0 ↓7*	*↑0 ↓7*	*↑1 ↓6*	*↑2 ↓5*	*↑2 ↓5*	*↑6 ↓50*
T_5	(7)	*↑1 ↓5*	*↑1 ↓3*	*↑1 ↓4*	*↑0 ↓7*	*↑0 ↓6*	**↑4 ↓3**	**↑4 ↓3**	**↑4 ↓3**	*↑15 ↓34*
T_6	(7)	*↑1 ↓6*	*↑1 ↓6*	*↑1 ↓6*	*↑0 ↓7*	*↑0 ↓7*	*↑1 ↓5*	*↑2 ↓5*	*↑2 ↓5*	*↑8 ↓47*
All	(54)	*↑13 ↓27*	*↑16 ↓34*	*↑12 ↓39*	*↑6 ↓47*	*↑6 ↓45*	*↑11 ↓36*	*↑19 ↓33*	*↑21 ↓30*	*↑104 ↓291*

Table D.8: SADynPopDE vs CDE performance analysis - Part 2

Cp		100	500	1000	5000	10000	25000	50000	100000	Total
Set.	**Max**	**50 Dimensions**								
		MPB								
C_s 1	(2)	**↑1 ↓0**	**↑1 ↓0**	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	**↑1 ↓0**	**↑8 ↓5**
5	(2)	**↑1 ↓0**	**↑1 ↓0**	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	**↑8 ↓6**
10	(2)	**↑1 ↓0**	**↑1 ↓0**	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	**↑8 ↓6**
20	(2)	**↑1 ↓0**	**↑1 ↓0**	**↑1 ↓0**	↑0 ↓2	↑0 ↓2	↑1 ↓1	↑0 ↓1	↑0 ↓1	↑4 ↓7
40	(2)	↑0 ↓0	**↑2 ↓0**	**↑1 ↓0**	↑1 ↓1	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑4 ↓9
80	(2)	↑0 ↓2	**↑1 ↓0**	**↑2 ↓0**	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑0 ↓2	↑0 ↓2	↑6 ↓9
C	(6)	↑0 ↓1	**↑1 ↓0**	↑1 ↓3	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓5	↑2 ↓33
S	(6)	**↑4 ↓1**	**↑6 ↓0**	**↑6 ↓0**	**↑5 ↓1**	**↑4 ↓2**	**↑5 ↓1**	**↑3 ↓2**	**↑3 ↓2**	**↑36 ↓9**
		GBG								
F_{1a}	(6)	↑0 ↓4	↑0 ↓5	↑0 ↓5	↑0 ↓6	↑0 ↓6	↑0 ↓6	**↑5 ↓0**	**↑6 ↓0**	↑11 ↓32
F_{1b}	(6)	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	**↑5 ↓0**	**↑6 ↓0**	↑11 ↓36
F_2	(6)	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓1	↑0 ↓43
F_3	(6)	↑0 ↓6	↑0 ↓5	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓47
F_4	(6)	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	**↑3 ↓0**	↑3 ↓42
F_5	(6)	**↑6 ↓0**	**↑6 ↓0**	**↑6 ↓0**	↑3 ↓3	↑1 ↓3	↑1 ↓4	↑1 ↓5	↑1 ↓5	**↑25 ↓20**
F_6	(6)	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓48
T_1	(7)	↑1 ↓5	↑1 ↓6	↑1 ↓6	↑0 ↓7	↑0 ↓7	↑0 ↓7	↑2 ↓5	↑3 ↓3	↑8 ↓46
T_2	(7)	↑1 ↓6	↑1 ↓6	↑1 ↓6	↑0 ↓7	↑0 ↓7	↑0 ↓7	↑2 ↓5	↑3 ↓3	↑8 ↓47
T_3	(7)	↑1 ↓5	↑1 ↓5	↑1 ↓5	↑1 ↓6	↑0 ↓6	↑0 ↓7	↑1 ↓5	↑2 ↓3	↑7 ↓42
T_4	(7)	↑1 ↓6	↑1 ↓6	↑1 ↓6	↑0 ↓7	↑0 ↓7	↑0 ↓7	↑1 ↓5	↑3 ↓3	↑7 ↓47
T_5	(7)	↑1 ↓6	↑1 ↓5	↑1 ↓6	↑1 ↓6	↑0 ↓6	↑0 ↓6	↑2 ↓5	↑2 ↓3	↑8 ↓43
T_6	(7)	↑1 ↓6	↑1 ↓6	↑1 ↓6	↑1 ↓6	↑1 ↓6	↑1 ↓6	↑3 ↓4	↑3 ↓3	↑12 ↓43
All	(54)	↑10 ↓36	↑13 ↓34	↑13 ↓38	↑8 ↓46	↑5 ↓47	↑6 ↓47	↑14 ↓37	↑19 ↓25	↑88 ↓310
Set.	**Max**	**100 Dimensions**								
		MPB								
C_s 1	(2)	↑0 ↓2	↑0 ↓1	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑1 ↓1	↑1 ↓14
5	(2)	↑0 ↓2	↑0 ↓1	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑1 ↓1	↑0 ↓2	↑1 ↓14
10	(2)	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑0 ↓16
20	(2)	↑0 ↓1	↑0 ↓1	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑0 ↓14
40	(2)	↑0 ↓2	↑0 ↓1	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑0 ↓15
80	(2)	↑0 ↓1	↑0 ↓1	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑0 ↓14
C	(6)	↑0 ↓4	↑0 ↓1	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓41
S	(6)	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑1 ↓5	↑1 ↓5	↑2 ↓46
		GBG								
F_{1a}	(6)	↑0 ↓3	↑0 ↓5	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	**↑5 ↓0**	↑5 ↓38
F_{1b}	(6)	↑0 ↓4	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	**↑6 ↓0**	↑6 ↓40
F_2	(6)	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓48
F_3	(6)	↑0 ↓6	↑0 ↓4	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓46
F_4	(6)	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓48
F_5	(6)	**↑6 ↓0**	**↑6 ↓0**	**↑6 ↓0**	**↑6 ↓0**	**↑5 ↓0**	**↑5 ↓0**	**↑5 ↓1**	**↑4 ↓2**	**↑43 ↓3**
F_6	(6)	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓48
T_1	(7)	↑1 ↓4	↑1 ↓6	↑1 ↓6	↑1 ↓6	↑1 ↓6	↑1 ↓6	↑1 ↓6	↑3 ↓4	↑10 ↓44
T_2	(7)	↑1 ↓5	↑1 ↓6	↑1 ↓6	↑1 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓7	↑2 ↓5	↑6 ↓47
T_3	(7)	↑1 ↓4	↑1 ↓5	↑1 ↓6	↑1 ↓6	↑1 ↓6	↑1 ↓6	↑1 ↓6	↑2 ↓4	↑9 ↓43
T_4	(7)	↑1 ↓6	↑1 ↓6	↑1 ↓6	↑1 ↓6	↑1 ↓6	↑1 ↓6	↑1 ↓6	↑2 ↓5	↑9 ↓47
T_5	(7)	↑1 ↓6	↑1 ↓5	↑1 ↓6	↑1 ↓6	↑1 ↓6	↑1 ↓6	↑1 ↓6	↑3 ↓4	↑10 ↓45
T_6	(7)	↑1 ↓6	↑1 ↓5	↑1 ↓6	↑1 ↓6	↑1 ↓6	↑1 ↓6	↑1 ↓6	↑3 ↓4	↑10 ↓45
All	(54)	↑6 ↓41	↑6 ↓40	↑6 ↓48	↑6 ↓48	↑5 ↓48	↑5 ↓48	↑6 ↓48	↑16 ↓37	↑56 ↓358
Set.	**Max**	**All Dimensions**								
		MPB								
C_s 1	(10)	**↑6 ↓2**	**↑4 ↓2**	↑3 ↓5	↑3 ↓6	↑3 ↓7	↑3 ↓6	↑3 ↓6	**↑5 ↓2**	↑30 ↓36
5	(10)	**↑6 ↓2**	**↑7 ↓1**	**↑5 ↓4**	↑2 ↓7	↑2 ↓7	↑2 ↓7	↑4 ↓5	↑2 ↓5	↑30 ↓38
10	(10)	**↑6 ↓2**	**↑7 ↓2**	**↑6 ↓4**	↑5 ↓5	↑3 ↓6	↑3 ↓6	↑4 ↓6	↑3 ↓6	↑37 ↓37
20	(10)	**↑6 ↓1**	**↑7 ↓1**	**↑7 ↓2**	↑4 ↓5	↑3 ↓5	↑4 ↓5	↑3 ↓5	↑3 ↓5	**↑37 ↓29**
40	(10)	**↑5 ↓2**	**↑8 ↓1**	**↑7 ↓2**	**↑6 ↓4**	↑5 ↓5	↑4 ↓5	↑4 ↓6	↑4 ↓6	**↑43 ↓31**
80	(10)	**↑4 ↓3**	**↑7 ↓1**	**↑8 ↓2**	**↑7 ↓3**	**↑7 ↓3**	**↑7 ↓3**	**↑6 ↓4**	**↑6 ↓4**	**↑52 ↓23**
C	(30)	**↑12 ↓5**	**↑17 ↓2**	**↑13 ↓12**	↑8 ↓22	↑6 ↓22	↑6 ↓21	↑8 ↓20	↑7 ↓16	↑77 ↓120
S	(30)	**↑21 ↓7**	**↑23 ↓6**	**↑23 ↓7**	**↑19 ↓8**	**↑17 ↓11**	**↑17 ↓11**	**↑16 ↓12**	**↑16 ↓12**	**↑152 ↓74**
		GBG								
F_{1a}	(30)	↑7 ↓13	↑4 ↓22	↑2 ↓24	↑1 ↓24	↑5 ↓19	**↑15 ↓12**	**↑23 ↓6**	**↑29 ↓0**	↑86 ↓120
F_{1b}	(30)	↑5 ↓16	↑2 ↓26	↑0 ↓29	↑0 ↓28	↑0 ↓27	↑8 ↓17	**↑22 ↓6**	**↑29 ↓0**	↑66 ↓149
F_2	(30)	↑2 ↓19	↑4 ↓20	↑5 ↓22	↑6 ↓24	↑7 ↓22	↑10 ↓20	↑11 ↓16	**↑14 ↓10**	↑59 ↓153
F_3	(30)	↑0 ↓20	↑4 ↓15	↑0 ↓24	↑6 ↓24	↑6 ↓21	↑10 ↓18	↑12 ↓18	↑12 ↓18	↑50 ↓158
F_4	(30)	↑5 ↓18	↑3 ↓20	↑3 ↓22	↑3 ↓27	↑2 ↓25	↑3 ↓25	↑5 ↓22	**↑12 ↓9**	↑36 ↓168
F_5	(30)	**↑21 ↓3**	**↑16 ↓14**	↑15 ↓15	↑9 ↓21	↑6 ↓21	↑6 ↓22	↑6 ↓24	↑5 ↓25	↑84 ↓145
F_6	(30)	↑6 ↓16	↑6 ↓21	↑2 ↓25	↑0 ↓30	↑0 ↓29	↑0 ↓29	↑0 ↓29	↑0 ↓28	↑14 ↓207
T_1	(35)	**↑15 ↓10**	↑2 ↓30	↑2 ↓32	↑2 ↓33	↑2 ↓32	↑6 ↓26	↑12 ↓21	**↑18 ↓16**	↑59 ↓200
T_2	(35)	↑6 ↓15	↑9 ↓22	↑4 ↓29	↑3 ↓31	↑4 ↓28	↑8 ↓23	↑13 ↓22	**↑16 ↓15**	↑63 ↓185
T_3	(35)	↑8 ↓15	↑10 ↓18	↑6 ↓21	↑6 ↓25	↑5 ↓24	↑10 ↓23	↑13 ↓19	**↑16 ↓14**	↑74 ↓159
T_4	(35)	↑3 ↓28	↑2 ↓30	↑2 ↓31	↑2 ↓33	↑3 ↓30	↑8 ↓27	↑11 ↓22	↑15 ↓17	↑46 ↓218
T_5	(35)	↑4 ↓19	↑7 ↓16	↑7 ↓23	↑8 ↓26	↑7 ↓22	↑12 ↓18	↑16 ↓17	**↑19 ↓13**	↑80 ↓154
T_6	(35)	↑10 ↓18	↑9 ↓22	↑6 ↓25	↑4 ↓30	↑5 ↓28	↑8 ↓26	↑14 ↓20	**↑17 ↓15**	↑73 ↓184
All	(270)	↑79 ↓117	↑79 ↓146	↑63 ↓180	↑52 ↓208	↑49 ↓197	↑75 ↓175	↑103 ↓153	**↑124 ↓118**	↑624 ↓1294

Table D.9: SADynPopDE vs SACDE performance analysis - Part 1

Cp		100	500	1000	5000	10000	25000	50000	100000	Total
Set.	**Max**	**5 Dimensions**								
		MPB								
C_s 1	(2)	**↑2 ↓0**	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑2 ↓14
5	(2)	**↑2 ↓0**	↑1 ↓1	↑0 ↓1	↑0 ↓2	↑0 ↓2	↑0 ↓1	↑0 ↓1	↑0 ↓2	↑3 ↓10
10	(2)	**↑2 ↓0**	**↑1 ↓0**	↑1 ↓1	↑0 ↓1	↑0 ↓1	↑0 ↓1	↑1 ↓1	↑0 ↓1	↑5 ↓6
20	(2)	↑0 ↓0	**↑2 ↓0**	**↑1 ↓0**	↑1 ↓1	↑0 ↓1	↑0 ↓1	↑0 ↓1	↑0 ↓1	↑4 ↓5
40	(2)	↑0 ↓0	**↑2 ↓0**	**↑2 ↓0**	↑1 ↓1	**↑1 ↓0**	**↑1 ↓0**	↑0 ↓1	↑0 ↓1	**↑7 ↓3**
80	(2)	↑0 ↓0	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑1 ↓0**	**↑1 ↓0**	**↑1 ↓0**	↑1 ↓1	**↑10 ↓1**
C	(6)	**↑3 ↓0**	**↑5 ↓1**	**↑4 ↓1**	**↑3 ↓2**	↑1 ↓2	↑1 ↓1	↑1 ↓1	↑0 ↓3	**↑18 ↓11**
S	(6)	**↑3 ↓0**	**↑3 ↓2**	↑2 ↓3	↑1 ↓5	↑1 ↓4	↑1 ↓4	↑1 ↓5	↑1 ↓5	↑13 ↓28
		GBG								
F_{1a}	(6)	**↑4 ↓0**	**↑6 ↓0**	**↑4 ↓0**	↑2 ↓2	↑2 ↓3	↑2 ↓3	↑1 ↓3	↑0 ↓3	**↑21 ↓14**
F_{1b}	(6)	**↑3 ↓0**	↑3 ↓3	↑3 ↓3	↑0 ↓5	↑0 ↓5	↑0 ↓5	↑1 ↓3	**↑4 ↓2**	↑14 ↓26
F_2	(6)	**↑3 ↓0**	**↑5 ↓0**	**↑5 ↓0**	**↑4 ↓1**	**↑4 ↓2**	**↑4 ↓2**	**↑3 ↓1**	**↑3 ↓2**	**↑31 ↓8**
F_3	(6)	**↑1 ↓0**	↑0 ↓5	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓5	↑1 ↓40
F_4	(6)	**↑5 ↓0**	**↑3 ↓1**	**↑4 ↓1**	↑1 ↓5	↑1 ↓5	↑1 ↓5	↑0 ↓5	↑0 ↓6	↑15 ↓28
F_5	(6)	**↑4 ↓0**	↑0 ↓5	↑0 ↓6	↑0 ↓4	↑0 ↓3	↑0 ↓3	↑0 ↓3	↑2 ↓3	↑6 ↓27
F_6	(6)	**↑2 ↓0**	**↑1 ↓0**	↑0 ↓3	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑3 ↓33
T_1	(7)	**↑7 ↓0**	↑1 ↓4	↑0 ↓5	↑0 ↓7	↑0 ↓7	↑0 ↓7	↑1 ↓6	↑1 ↓6	↑10 ↓42
T_2	(7)	**↑4 ↓0**	**↑4 ↓2**	**↑4 ↓3**	↑2 ↓5	↑2 ↓5	↑1 ↓5	↑1 ↓4	↑2 ↓3	↑20 ↓27
T_3	(7)	**↑1 ↓0**	**↑5 ↓2**	**↑4 ↓2**	↑1 ↓3	↑1 ↓3	↑2 ↓3	↑1 ↓3	↑3 ↓3	↑18 ↓19
T_4	(7)	**↑6 ↓0**	↑2 ↓3	↑1 ↓4	↑0 ↓6	↑0 ↓7	↑0 ↓7	↑0 ↓6	↑1 ↓6	↑10 ↓39
T_5	(7)	**↑3 ↓0**	**↑3 ↓0**	**↑4 ↓2**	↑3 ↓4	↑3 ↓3	↑3 ↓3	↑2 ↓3	↑1 ↓4	**↑22 ↓19**
T_6	(7)	**↑1 ↓0**	↑3 ↓3	↑3 ↓3	↑1 ↓4	↑1 ↓5	↑1 ↓5	↑0 ↓5	↑1 ↓5	↑11 ↓30
All	(54)	**↑28 ↓0**	**↑26 ↓17**	↑22 ↓23	↑11 ↓36	↑9 ↓36	↑9 ↓35	↑7 ↓33	↑10 ↓35	↑122 ↓215
Set.	**Max**	**10 Dimensions**								
		MPB								
C_s 1	(2)	**↑2 ↓0**	↑0 ↓1	↑0 ↓1	↑0 ↓1	↑0 ↓1	↑0 ↓1	↑0 ↓1	↑0 ↓1	↑2 ↓7
5	(2)	**↑1 ↓0**	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑1 ↓14
10	(2)	↑0 ↓0	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑0 ↓14
20	(2)	**↑1 ↓0**	↑0 ↓2	↑0 ↓1	↑0 ↓1	↑0 ↓1	↑0 ↓2	↑0 ↓1	↑0 ↓1	↑1 ↓9
40	(2)	**↑1 ↓0**	↑0 ↓2	↑1 ↓1	↑1 ↓1	↑0 ↓1	↑0 ↓1	↑0 ↓1	↑0 ↓1	↑3 ↓8
80	(2)	**↑1 ↓0**	↑0 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑0 ↓1	↑0 ↓1	↑5 ↓7
C	(6)	**↑1 ↓0**	↑0 ↓5	↑2 ↓3	↑2 ↓3	↑1 ↓3	↑1 ↓4	↑0 ↓3	↑0 ↓3	↑7 ↓24
S	(6)	**↑5 ↓0**	↑0 ↓5	↑0 ↓5	↑0 ↓5	↑0 ↓5	↑0 ↓5	↑0 ↓5	↑0 ↓5	↑5 ↓35
		GBG								
F_{1a}	(6)	**↑2 ↓0**	↑0 ↓5	↑0 ↓3	↑0 ↓3	↑0 ↓3	↑0 ↓3	↑0 ↓3	↑0 ↓4	↑2 ↓24
F_{1b}	(6)	**↑3 ↓0**	↑0 ↓5	↑0 ↓4	↑0 ↓5	↑0 ↓5	↑0 ↓5	↑0 ↓5	↑2 ↓2	↑5 ↓31
F_2	(6)	**↑3 ↓0**	↑0 ↓2	↑1 ↓2	↑3 ↓3	↑3 ↓3	↑3 ↓3	↑2 ↓3	↑2 ↓3	↑17 ↓19
F_3	(6)	**↑3 ↓0**	↑0 ↓5	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓4	↑3 ↓39
F_4	(6)	**↑3 ↓0**	↑0 ↓2	↑0 ↓2	↑3 ↓3	↑3 ↓3	↑2 ↓3	↑2 ↓3	↑1 ↓4	↑14 ↓20
F_5	(6)	**↑3 ↓0**	↑2 ↓2	↑2 ↓2	**↑3 ↓2**	↑3 ↓3	**↑3 ↓2**	**↑3 ↓2**	**↑3 ↓2**	**↑22 ↓15**
F_6	(6)	**↑2 ↓0**	↑0 ↓4	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑2 ↓40
T_1	(7)	**↑7 ↓0**	↑0 ↓7	↑0 ↓7	↑0 ↓7	↑0 ↓7	↑0 ↓7	↑0 ↓7	↑1 ↓6	↑8 ↓48
T_2	(7)	**↑2 ↓0**	↑0 ↓4	↑0 ↓3	↑2 ↓4	↑2 ↓4	↑1 ↓4	↑0 ↓4	↑0 ↓3	↑7 ↓26
T_3	(7)	**↑2 ↓0**	↑1 ↓2	↑1 ↓2	**↑3 ↓2**	**↑3 ↓2**	**↑3 ↓2**	**↑3 ↓2**	↑2 ↓2	**↑18 ↓14**
T_4	(7)	**↑3 ↓0**	↑0 ↓5	↑0 ↓6	↑0 ↓6	↑0 ↓7	↑0 ↓6	↑0 ↓6	↑1 ↓5	↑4 ↓41
T_5	(7)	**↑3 ↓0**	↑1 ↓2	↑2 ↓3	↑3 ↓3	↑3 ↓3	↑3 ↓3	↑3 ↓3	↑3 ↓3	**↑21 ↓20**
T_6	(7)	**↑2 ↓0**	↑0 ↓5	↑0 ↓4	↑1 ↓6	↑1 ↓6	↑1 ↓6	↑1 ↓6	↑1 ↓6	↑7 ↓39
All	(54)	**↑25 ↓0**	↑2 ↓35	↑5 ↓33	↑11 ↓36	↑10 ↓37	↑9 ↓37	↑7 ↓36	↑8 ↓33	↑77 ↓247
Set.	**Max**	**25 Dimensions**								
		MPB								
C_s 1	(2)	**↑1 ↓0**	↑0 ↓2	↑0 ↓1	↑0 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑0 ↓1	↑4 ↓8
5	(2)	**↑1 ↓0**	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑1 ↓14
10	(2)	**↑1 ↓0**	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑1 ↓14
20	(2)	↑0 ↓0	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑0 ↓14
40	(2)	↑0 ↓0	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑0 ↓1	↑0 ↓2	↑0 ↓1	↑0 ↓12
80	(2)	**↑1 ↓0**	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑0 ↓1	↑0 ↓1	↑0 ↓1	↑0 ↓1	↑1 ↓10
C	(6)	↑0 ↓0	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓5	↑0 ↓4	↑0 ↓5	↑0 ↓4	↑0 ↓36
S	(6)	**↑4 ↓0**	↑0 ↓6	↑0 ↓5	↑0 ↓5	↑1 ↓5	↑1 ↓5	↑1 ↓5	↑0 ↓5	↑7 ↓36
		GBG								
F_{1a}	(6)	**↑3 ↓0**	↑0 ↓5	↑0 ↓6	↑0 ↓6	↑0 ↓5	↑0 ↓5	↑0 ↓4	↑0 ↓4	↑3 ↓35
F_{1b}	(6)	**↑5 ↓0**	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓5	↑0 ↓5	↑0 ↓4	↑5 ↓38
F_2	(6)	**↑5 ↓0**	↑0 ↓5	↑0 ↓4	↑0 ↓6	↑0 ↓6	↑0 ↓5	↑0 ↓5	↑0 ↓3	↑5 ↓34
F_3	(6)	**↑3 ↓0**	↑0 ↓6	↑0 ↓5	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑3 ↓41
F_4	(6)	**↑5 ↓0**	↑0 ↓4	↑0 ↓5	↑0 ↓6	↑0 ↓5	↑0 ↓5	↑0 ↓5	↑0 ↓4	↑5 ↓34
F_5	(6)	↑0 ↓1	↑0 ↓3	↑1 ↓2	**↑2 ↓1**	**↑3 ↓0**	**↑6 ↓0**	**↑6 ↓0**	**↑6 ↓0**	**↑24 ↓7**
F_6	(6)	**↑3 ↓0**	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑3 ↓42
T_1	(7)	**↑6 ↓0**	↑0 ↓6	↑1 ↓6	↑1 ↓6	↑1 ↓6	↑1 ↓6	↑1 ↓6	↑1 ↓6	↑12 ↓42
T_2	(7)	**↑4 ↓0**	↑0 ↓7	↑0 ↓7	↑0 ↓6	↑1 ↓6	↑1 ↓6	↑1 ↓4	↑1 ↓3	↑8 ↓39
T_3	(7)	**↑4 ↓0**	↑0 ↓6	↑0 ↓5	↑0 ↓7	↑0 ↓5	↑1 ↓4	↑1 ↓5	↑1 ↓2	↑7 ↓34
T_4	(7)	**↑3 ↓1**	↑0 ↓6	↑0 ↓7	↑1 ↓6	↑1 ↓6	↑1 ↓6	↑1 ↓6	↑1 ↓6	↑8 ↓44
T_5	(7)	**↑3 ↓0**	↑0 ↓4	↑0 ↓4	↑0 ↓6	↑0 ↓5	↑1 ↓4	↑1 ↓4	↑1 ↓4	↑6 ↓31
T_6	(7)	**↑4 ↓0**	↑0 ↓6	↑0 ↓5	↑0 ↓6	↑0 ↓6	↑1 ↓6	↑1 ↓6	↑1 ↓6	↑7 ↓41
All	(54)	**↑28 ↓1**	↑0 ↓47	↑1 ↓45	↑2 ↓48	↑4 ↓44	↑7 ↓41	↑7 ↓41	↑6 ↓36	↑55 ↓303

Table D.10: SADynPopDE vs SACDE performance analysis - Part 2

Cp		100	500	1000	5000	10000	25000	50000	100000	Total
Set.	**Max**	**50 Dimensions**								
		MPB								
C_s 1	(2)	**↑1 ↓0**	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑0 ↓1	↑0 ↓1	↑0 ↓1	↑1 ↓11
5	(2)	**↑1 ↓0**	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑1 ↓14
10	(2)	**↑1 ↓0**	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑1 ↓14
20	(2)	↑0 ↓0	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑0 ↓14
40	(2)	**↑1 ↓0**	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑1 ↓14
80	(2)	**↑2 ↓0**	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑2 ↓14
C	(6)	**↑1 ↓0**	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑1 ↓42
S	(6)	**↑5 ↓0**	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓5	↑0 ↓5	↑0 ↓5	↑5 ↓39
		GBG								
F_{1a}	(6)	**↑2 ↓0**	↑0 ↓4	↑0 ↓5	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓5	↑0 ↓4	↑2 ↓36
F_{1b}	(6)	**↑2 ↓0**	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓5	↑0 ↓6	↑2 ↓41
F_2	(6)	**↑3 ↓0**	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑3 ↓42
F_3	(6)	**↑4 ↓0**	↑0 ↓6	↑0 ↓5	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑4 ↓41
F_4	(6)	**↑4 ↓0**	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓5	↑4 ↓41
F_5	(6)	↑1 ↓1	↑0 ↓2	↑0 ↓1	↑0 ↓3	↑1 ↓2	↑1 ↓2	**↑2 ↓1**	**↑2 ↓0**	↑7 ↓12
F_6	(6)	**↑2 ↓0**	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑2 ↓42
T_1	(7)	**↑2 ↓0**	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑1 ↓6	↑1 ↓6	↑1 ↓6	↑1 ↓6	↑6 ↓42
T_2	(7)	**↑2 ↓0**	↑0 ↓7	↑0 ↓6	↑0 ↓7	↑0 ↓7	↑0 ↓7	↑0 ↓7	↑0 ↓6	↑2 ↓47
T_3	(7)	**↑2 ↓0**	↑0 ↓5	↑0 ↓5	↑0 ↓7	↑0 ↓6	↑0 ↓6	↑0 ↓4	↑0 ↓5	↑2 ↓38
T_4	(7)	**↑4 ↓1**	↑0 ↓6	↑0 ↓7	↑0 ↓7	↑0 ↓7	↑0 ↓7	↑1 ↓6	↑1 ↓6	↑6 ↓47
T_5	(7)	**↑1 ↓0**	↑0 ↓5	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓4	↑1 ↓39
T_6	(7)	**↑7 ↓0**	↑0 ↓7	↑0 ↓5	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑7 ↓42
All	(54)	**↑24 ↓1**	↑0 ↓48	↑0 ↓47	↑0 ↓51	↑1 ↓50	↑1 ↓49	↑2 ↓46	↑2 ↓44	↑30 ↓336
Set.	**Max**	**100 Dimensions**								
		MPB								
C_s 1	(2)	**↑2 ↓0**	↑0 ↓2	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑8 ↓8
5	(2)	↑0 ↓0	↑0 ↓2	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑6 ↓8
10	(2)	↑0 ↓0	↑0 ↓2	↑0 ↓2	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑5 ↓9
20	(2)	**↑1 ↓0**	↑0 ↓1	↑0 ↓2	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑6 ↓8
40	(2)	↑0 ↓0	↑0 ↓1	↑0 ↓1	↑0 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑4 ↓7
80	(2)	↑0 ↓0	↑0 ↓1	↑0 ↓1	↑0 ↓1	↑0 ↓1	↑1 ↓1	↑0 ↓1	↑0 ↓1	↑1 ↓7
C	(6)	**↑2 ↓0**	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑2 ↓42
S	(6)	**↑1 ↓0**	↑0 ↓3	↑2 ↓2	**↑4 ↓0**	**↑5 ↓0**	**↑6 ↓0**	**↑5 ↓0**	**↑5 ↓0**	**↑28 ↓5**
		GBG								
F_{1a}	(6)	**↑1 ↓0**	↑0 ↓5	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑1 ↓41
F_{1b}	(6)	↑1 ↓1	↑0 ↓4	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑1 ↓41
F_2	(6)	↑0 ↓1	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓43
F_3	(6)	**↑3 ↓0**	↑0 ↓5	↑0 ↓5	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑3 ↓40
F_4	(6)	**↑1 ↓0**	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑1 ↓42
F_5	(6)	↑1 ↓1	↑0 ↓1	↑0 ↓1	↑0 ↓2	↑0 ↓2	↑0 ↓2	↑0 ↓4	↑0 ↓4	↑1 ↓17
F_6	(6)	↑0 ↓0	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓42
T_1	(7)	**↑1 ↓0**	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑1 ↓42
T_2	(7)	↑0 ↓0	↑0 ↓6	↑0 ↓7	↑0 ↓7	↑0 ↓7	↑0 ↓7	↑0 ↓7	↑0 ↓7	↑0 ↓48
T_3	(7)	↑1 ↓1	↑0 ↓4	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓7	↑0 ↓7	↑1 ↓43
T_4	(7)	↑1 ↓2	↑0 ↓7	↑0 ↓6	↑0 ↓7	↑0 ↓7	↑0 ↓7	↑0 ↓7	↑0 ↓7	↑1 ↓50
T_5	(7)	↑0 ↓0	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓7	↑0 ↓6	↑0 ↓43
T_6	(7)	**↑4 ↓0**	↑0 ↓4	↑0 ↓5	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓6	↑0 ↓7	↑4 ↓40
All	(54)	**↑10 ↓3**	↑0 ↓42	↑2 ↓44	↑4 ↓44	↑5 ↓44	↑6 ↓44	↑5 ↓46	↑5 ↓46	↑37 ↓313
Set.	**Max**	**All Dimensions**								
		MPB								
C_s 1	(10)	**↑8 ↓0**	↑0 ↓9	↑1 ↓7	↑1 ↓7	↑2 ↓7	↑2 ↓6	↑2 ↓6	↑1 ↓6	↑17 ↓48
5	(10)	**↑5 ↓0**	↑1 ↓9	↑1 ↓8	↑1 ↓9	↑1 ↓9	↑1 ↓8	↑1 ↓8	↑1 ↓9	↑12 ↓60
10	(10)	**↑4 ↓0**	↑1 ↓8	↑1 ↓9	↑1 ↓8	↑1 ↓8	↑1 ↓8	↑2 ↓8	↑1 ↓8	↑12 ↓57
20	(10)	**↑2 ↓0**	↑2 ↓7	↑1 ↓7	↑2 ↓7	↑1 ↓7	↑1 ↓8	↑1 ↓7	↑1 ↓7	↑11 ↓50
40	(10)	**↑2 ↓0**	↑2 ↓7	↑3 ↓6	↑2 ↓7	↑2 ↓6	↑2 ↓5	↑1 ↓7	↑1 ↓6	↑15 ↓44
80	(10)	**↑4 ↓0**	↑2 ↓6	↑3 ↓6	↑3 ↓6	↑2 ↓5	↑3 ↓5	↑1 ↓5	↑1 ↓6	↑19 ↓39
C	(30)	**↑7 ↓0**	↑5 ↓24	↑6 ↓22	↑5 ↓23	↑2 ↓22	↑2 ↓21	↑1 ↓21	↑0 ↓22	↑28 ↓155
S	(30)	**↑18 ↓0**	↑3 ↓22	↑4 ↓21	↑5 ↓21	↑7 ↓20	↑8 ↓19	↑7 ↓20	↑6 ↓20	↑58 ↓143
		GBG								
F_{1a}	(30)	**↑12 ↓0**	↑6 ↓19	↑4 ↓20	↑2 ↓23	↑2 ↓23	↑2 ↓23	↑1 ↓21	↑0 ↓21	↑29 ↓150
F_{1b}	(30)	**↑14 ↓1**	↑3 ↓24	↑3 ↓25	↑0 ↓28	↑0 ↓28	↑0 ↓27	↑1 ↓24	↑6 ↓20	↑27 ↓177
F_2	(30)	**↑14 ↓1**	↑5 ↓19	↑6 ↓18	↑7 ↓22	↑7 ↓23	↑7 ↓22	↑5 ↓21	↑5 ↓20	↑56 ↓146
F_3	(30)	**↑14 ↓0**	↑0 ↓27	↑0 ↓27	↑0 ↓30	↑0 ↓30	↑0 ↓30	↑0 ↓30	↑0 ↓27	↑14 ↓201
F_4	(30)	**↑18 ↓0**	↑3 ↓19	↑4 ↓20	↑4 ↓26	↑4 ↓25	↑3 ↓25	↑2 ↓25	↑1 ↓25	↑39 ↓165
F_5	(30)	**↑9 ↓3**	↑2 ↓13	↑3 ↓12	↑5 ↓12	↑7 ↓10	**↑10 ↓9**	**↑11 ↓10**	**↑13 ↓9**	↑60 ↓78
F_6	(30)	**↑9 ↓0**	↑1 ↓22	↑0 ↓27	↑0 ↓30	↑0 ↓30	↑0 ↓30	↑0 ↓30	↑0 ↓30	↑10 ↓199
T_1	(35)	**↑23 ↓0**	↑1 ↓29	↑1 ↓30	↑1 ↓32	↑2 ↓32	↑2 ↓32	↑3 ↓31	↑4 ↓30	↑37 ↓216
T_2	(35)	**↑12 ↓0**	↑4 ↓26	↑4 ↓26	↑4 ↓29	↑5 ↓29	↑3 ↓29	↑2 ↓26	↑3 ↓22	↑37 ↓187
T_3	(35)	**↑10 ↓1**	↑6 ↓19	↑5 ↓20	↑4 ↓25	↑4 ↓22	↑6 ↓21	↑5 ↓21	↑6 ↓19	↑46 ↓148
T_4	(35)	**↑17 ↓4**	↑2 ↓27	↑1 ↓30	↑1 ↓32	↑1 ↓34	↑1 ↓33	↑2 ↓31	↑4 ↓30	↑29 ↓221
T_5	(35)	**↑10 ↓0**	↑4 ↓17	↑6 ↓21	↑6 ↓25	↑6 ↓23	↑7 ↓22	↑6 ↓23	↑5 ↓21	↑50 ↓152
T_6	(35)	**↑18 ↓0**	↑3 ↓25	↑3 ↓22	↑2 ↓28	↑2 ↓29	↑3 ↓29	↑2 ↓29	↑3 ↓30	↑36 ↓192
All	(270)	**↑115 ↓5**	↑28 ↓189	↑30 ↓192	↑28 ↓215	↑29 ↓211	↑32 ↓206	↑28 ↓202	↑31 ↓194	↑321 ↓1414

Table D.11: DynPopDE vs SACDE performance analysis on the n_p standard set

Cp		**100**	**500**	**1000**	**5000**	**10000**	**25000**	**50000**	**100000**	**Total**
Set.	**Max**	**5 Dimensions**								
n_p 5	(2)	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑16 ↓0**
10	(2)	**↑2 ↓0**	**↑1 ↓0**	↑1 ↓1	*↑0 ↓1*	↑1 ↓1	↑1 ↓1	↑1 ↓1	*↑0 ↓1*	**↑7 ↓6**
25	(2)	**↑1 ↓0**	↑1 ↓1	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑14 ↓1**
50	(2)	**↑1 ↓0**	**↑1 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑14 ↓0**
100	(2)	**↑1 ↓0**	**↑1 ↓0**	**↑1 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑13 ↓0**
200	(2)	**↑1 ↓0**	**↑1 ↓0**	↑1 ↓1	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑13 ↓1**
C	(6)	**↑2 ↓0**	**↑2 ↓1**	**↑4 ↓1**	**↑5 ↓0**	**↑6 ↓0**	**↑6 ↓0**	**↑6 ↓0**	**↑5 ↓0**	**↑36 ↓2**
S	(6)	**↑6 ↓0**	**↑5 ↓0**	**↑5 ↓1**	**↑5 ↓1**	**↑5 ↓1**	**↑5 ↓1**	**↑5 ↓1**	**↑5 ↓1**	**↑41 ↓6**
All	(12)	**↑8 ↓0**	**↑7 ↓1**	**↑9 ↓2**	**↑10 ↓1**	**↑11 ↓1**	**↑11 ↓1**	**↑11 ↓1**	**↑10 ↓1**	**↑77 ↓8**
Set.	**Max**	**10 Dimensions**								
n_p 5	(2)	**↑1 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	↑0 ↓0	**↑13 ↓0**
10	(2)	**↑1 ↓0**	↑0 ↓0	↑0 ↓0	↑0 ↓0	*↑0 ↓1*	*↑0 ↓1*	↑0 ↓0	*↑0 ↓2*	*↑1 ↓4*
25	(2)	**↑1 ↓0**	**↑1 ↓0**	↑0 ↓0	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑12 ↓0**
50	(2)	**↑1 ↓0**	↑1 ↓1	↑1 ↓1	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑13 ↓2**
100	(2)	**↑2 ↓0**	↑1 ↓1	**↑1 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑14 ↓1**
200	(2)	**↑1 ↓0**	↑1 ↓1	**↑1 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑13 ↓1**
C	(6)	**↑1 ↓0**	*↑1 ↓3*	↑1 ↓1	**↑5 ↓0**	**↑5 ↓0**	**↑5 ↓0**	**↑5 ↓0**	**↑4 ↓1**	**↑27 ↓5**
S	(6)	**↑6 ↓0**	**↑5 ↓0**	**↑4 ↓0**	**↑5 ↓0**	**↑5 ↓1**	**↑5 ↓1**	**↑5 ↓0**	**↑4 ↓1**	**↑39 ↓3**
All	(12)	**↑7 ↓0**	**↑6 ↓3**	**↑5 ↓1**	**↑10 ↓0**	**↑10 ↓1**	**↑10 ↓1**	**↑10 ↓0**	**↑8 ↓2**	**↑66 ↓8**
Set.	**Max**	**25 Dimensions**								
n_p 5	(2)	**↑1 ↓0**	**↑1 ↓0**	*↑0 ↓1*	*↑0 ↓1*	↑1 ↓1	↑1 ↓1	*↑0 ↓1*	*↑0 ↓1*	*↑4 ↓6*
10	(2)	**↑2 ↓0**	*↑0 ↓1*	*↑0 ↓1*	*↑0 ↓1*	*↑0 ↓1*	*↑0 ↓1*	*↑0 ↓2*	*↑0 ↓1*	*↑2 ↓8*
25	(2)	**↑1 ↓0**	↑0 ↓0	*↑0 ↓2*	*↑0 ↓2*	↑1 ↓1	↑1 ↓1	**↑1 ↓0**	**↑2 ↓0**	↑6 ↓6
50	(2)	**↑1 ↓0**	↑0 ↓0	*↑0 ↓2*	*↑0 ↓1*	↑1 ↓1	**↑1 ↓0**	**↑1 ↓0**	**↑2 ↓0**	**↑6 ↓4**
100	(2)	**↑2 ↓0**	*↑0 ↓1*	*↑0 ↓2*	↑1 ↓1	**↑1 ↓0**	**↑1 ↓0**	**↑1 ↓0**	**↑2 ↓0**	**↑8 ↓4**
200	(2)	**↑1 ↓0**	↑0 ↓0	*↑0 ↓2*	*↑0 ↓1*	**↑1 ↓0**	**↑1 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑7 ↓3**
C	(6)	**↑3 ↓0**	↑1 ↓1	*↑0 ↓4*	↑1 ↓1	**↑5 ↓0**	**↑5 ↓0**	**↑4 ↓1**	**↑4 ↓0**	**↑23 ↓7**
S	(6)	**↑5 ↓0**	*↑0 ↓1*	*↑0 ↓6*	*↑0 ↓6*	*↑0 ↓4*	*↑0 ↓3*	*↑1 ↓2*	**↑4 ↓2**	*↑10 ↓24*
All	(12)	**↑8 ↓0**	*↑1 ↓2*	*↑0 ↓10*	*↑1 ↓7*	**↑5 ↓4**	**↑5 ↓3**	**↑5 ↓3**	**↑8 ↓2**	**↑33 ↓31**
Set.	**Max**	**50 Dimensions**								
n_p 5	(2)	**↑1 ↓0**	↑1 ↓1	*↑0 ↓1*	*↑0 ↓1*	*↑0 ↓1*	*↑0 ↓1*	*↑0 ↓1*	*↑0 ↓1*	*↑2 ↓7*
10	(2)	**↑2 ↓0**	*↑0 ↓1*	*↑0 ↓1*	*↑0 ↓1*	*↑0 ↓1*	*↑0 ↓2*	*↑0 ↓2*	*↑0 ↓2*	*↑2 ↓10*
25	(2)	**↑2 ↓0**	*↑0 ↓2*	*↑0 ↓1*	*↑0 ↓2*	*↑0 ↓1*	↑1 ↓1	*↑0 ↓1*	*↑0 ↓1*	*↑3 ↓9*
50	(2)	**↑2 ↓0**	*↑0 ↓2*	*↑0 ↓2*	*↑0 ↓2*	*↑0 ↓1*	↑1 ↓1	↑1 ↓1	↑1 ↓1	*↑5 ↓10*
100	(2)	**↑2 ↓0**	*↑0 ↓2*	*↑0 ↓1*	*↑0 ↓2*	↑1 ↓1	↑1 ↓1	↑1 ↓1	↑1 ↓1	*↑6 ↓9*
200	(2)	**↑2 ↓0**	*↑0 ↓2*	*↑0 ↓1*	*↑0 ↓2*	*↑0 ↓1*	↑1 ↓1	↑1 ↓1	↑1 ↓1	*↑5 ↓9*
C	(6)	**↑5 ↓0**	*↑1 ↓4*	*↑0 ↓1*	*↑0 ↓4*	**↑1 ↓0**	**↑4 ↓1**	**↑3 ↓1**	**↑3 ↓1**	**↑17 ↓12**
S	(6)	**↑6 ↓0**	*↑0 ↓6*	*↑0 ↓6*	*↑0 ↓6*	*↑0 ↓6*	*↑0 ↓6*	*↑0 ↓6*	*↑0 ↓6*	*↑6 ↓42*
All	(12)	**↑11 ↓0**	*↑1 ↓10*	*↑0 ↓7*	*↑0 ↓10*	*↑1 ↓6*	*↑4 ↓7*	*↑3 ↓7*	*↑3 ↓7*	*↑23 ↓54*
Set.	**Max**	**100 Dimensions**								
n_p 5	(2)	**↑1 ↓0**	↑1 ↓1	**↑1 ↓0**	**↑1 ↓0**	**↑1 ↓0**	**↑1 ↓0**	↑1 ↓1	↑1 ↓1	**↑8 ↓3**
10	(2)	**↑2 ↓0**	↑1 ↓1	↑1 ↓1	**↑1 ↓0**	**↑1 ↓0**	**↑1 ↓0**	↑1 ↓1	↑1 ↓1	**↑9 ↓4**
25	(2)	**↑2 ↓0**	↑1 ↓1	*↑0 ↓1*	**↑1 ↓0**	**↑1 ↓0**	**↑1 ↓0**	↑1 ↓1	*↑0 ↓1*	**↑7 ↓4**
50	(2)	**↑2 ↓0**	↑0 ↓0	*↑0 ↓1*	↑0 ↓0	↑0 ↓0	↑0 ↓0	↑0 ↓0	**↑1 ↓0**	**↑3 ↓1**
100	(2)	**↑2 ↓0**	↑0 ↓0	↑1 ↓1	↑1 ↓1	↑0 ↓0	**↑2 ↓0**	**↑2 ↓0**	**↑1 ↓0**	**↑9 ↓2**
200	(2)	**↑2 ↓0**	**↑2 ↓0**	↑1 ↓1	↑1 ↓1	**↑1 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑2 ↓0**	**↑13 ↓2**
C	(6)	**↑5 ↓0**	*↑1 ↓3*	*↑0 ↓5*	*↑0 ↓2*	↑0 ↓0	**↑2 ↓0**	*↑2 ↓3*	↑3 ↓3	*↑13 ↓16*
S	(6)	**↑6 ↓0**	**↑4 ↓0**	**↑4 ↓0**	**↑5 ↓0**	**↑4 ↓0**	**↑5 ↓0**	**↑5 ↓0**	**↑3 ↓0**	**↑36 ↓0**
All	(12)	**↑11 ↓0**	**↑5 ↓3**	*↑4 ↓5*	**↑5 ↓2**	**↑4 ↓0**	**↑7 ↓0**	**↑7 ↓3**	**↑6 ↓3**	**↑49 ↓16**
Set.	**Max**	**All Dimensions**								
n_p 5	(10)	**↑6 ↓0**	**↑7 ↓2**	**↑5 ↓2**	**↑5 ↓2**	**↑6 ↓2**	**↑6 ↓2**	**↑5 ↓3**	↑3 ↓3	**↑43 ↓16**
10	(10)	**↑9 ↓0**	*↑2 ↓3*	*↑2 ↓4*	*↑1 ↓3*	*↑2 ↓4*	*↑2 ↓5*	*↑2 ↓6*	*↑1 ↓7*	*↑21 ↓32*
25	(10)	**↑7 ↓0**	*↑3 ↓4*	*↑2 ↓4*	**↑5 ↓4**	**↑6 ↓2**	**↑7 ↓2**	**↑6 ↓2**	**↑6 ↓2**	**↑42 ↓20**
50	(10)	**↑7 ↓0**	*↑2 ↓3*	*↑3 ↓6*	**↑4 ↓3**	**↑5 ↓2**	**↑6 ↓1**	**↑6 ↓1**	**↑8 ↓1**	**↑41 ↓17**
100	(10)	**↑9 ↓0**	*↑2 ↓4*	*↑3 ↓4*	**↑6 ↓4**	**↑6 ↓1**	**↑8 ↓1**	**↑8 ↓1**	**↑8 ↓1**	**↑50 ↓16**
200	(10)	**↑7 ↓0**	**↑4 ↓3**	*↑3 ↓5*	**↑5 ↓4**	**↑6 ↓1**	**↑8 ↓1**	**↑9 ↓1**	**↑9 ↓1**	**↑51 ↓16**
C	(30)	**↑16 ↓0**	*↑6 ↓12*	*↑5 ↓12*	**↑11 ↓7**	**↑17 ↓0**	**↑22 ↓1**	**↑20 ↓5**	**↑19 ↓5**	**↑116 ↓42**
S	(30)	**↑29 ↓0**	**↑14 ↓7**	↑13 ↓13	**↑15 ↓13**	**↑14 ↓12**	**↑15 ↓11**	**↑16 ↓9**	**↑16 ↓10**	**↑132 ↓75**
All	(60)	**↑45 ↓0**	**↑20 ↓19**	*↑18 ↓25*	**↑26 ↓20**	**↑31 ↓12**	**↑37 ↓12**	**↑36 ↓14**	**↑35 ↓15**	**↑248 ↓117**

Table D.12: SACDE vs CDE performance analysis on the $n_p(t)$ standard set

Cp		100	500	1000	5000	10000	25000	50000	100000	Total
Set.	**Max**	**5 Dimensions**								
n_p 10	(10)	↑10 ↓0	↑9 ↓0	↑7 ↓0	↑2 ↓4	↑1 ↓3	↑0 ↓3	↑1 ↓2	↑1 ↓3	↑31 ↓15
25	(10)	↑10 ↓0	↑9 ↓0	↑8 ↓0	↑5 ↓0	↑4 ↓0	↑3 ↓0	↑3 ↓0	↑3 ↓0	↑45 ↓0
50	(10)	↑9 ↓0	↑9 ↓0	↑10 ↓0	↑7 ↓0	↑5 ↓0	↑4 ↓0	↑2 ↓0	↑3 ↓0	↑49 ↓0
100	(10)	↑9 ↓0	↑10 ↓0	↑9 ↓0	↑9 ↓0	↑8 ↓0	↑7 ↓0	↑6 ↓0	↑6 ↓0	↑64 ↓0
200	(10)	↑9 ↓0	↑8 ↓0	↑8 ↓0	↑10 ↓0	↑7 ↓0	↑8 ↓0	↑6 ↓0	↑7 ↓0	↑63 ↓0
pc 5	(10)	↑9 ↓0	↑7 ↓0	↑6 ↓0	↑4 ↓2	↑2 ↓1	↑1 ↓1	↑2 ↓1	↑2 ↓1	↑33 ↓6
10	(10)	↑10 ↓0	↑8 ↓0	↑6 ↓0	↑4 ↓1	↑3 ↓1	↑2 ↓1	↑1 ↓0	↑2 ↓0	↑36 ↓3
20	(10)	↑8 ↓0	↑10 ↓0	↑10 ↓0	↑7 ↓1	↑4 ↓1	↑5 ↓1	↑3 ↓1	↑2 ↓1	↑49 ↓5
40	(10)	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑8 ↓0	↑7 ↓0	↑6 ↓0	↑4 ↓0	↑6 ↓1	↑61 ↓1
80	(10)	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑9 ↓0	↑8 ↓0	↑8 ↓0	↑8 ↓0	↑73 ↓0
C	(25)	↑23 ↓0	↑25 ↓0	↑24 ↓0	↑18 ↓3	↑17 ↓3	↑13 ↓3	↑12 ↓2	↑12 ↓3	↑144 ↓14
S	(25)	↑24 ↓0	↑20 ↓0	↑18 ↓0	↑15 ↓1	↑8 ↓0	↑9 ↓0	↑6 ↓0	↑8 ↓0	↑108 ↓1
All	(50)	↑47 ↓0	↑45 ↓0	↑42 ↓0	↑33 ↓4	↑25 ↓3	↑22 ↓3	↑18 ↓2	↑20 ↓3	↑252 ↓15
Set.	**Max**	**10 Dimensions**								
n_p 10	(10)	↑9 ↓0	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑9 ↓0	↑8 ↓0	↑9 ↓0	↑8 ↓0	↑73 ↓0
25	(10)	↑6 ↓0	↑10 ↓0	↑10 ↓0	↑9 ↓0	↑9 ↓0	↑9 ↓0	↑10 ↓0	↑7 ↓0	↑70 ↓0
50	(10)	↑7 ↓0	↑10 ↓0	↑10 ↓0	↑9 ↓0	↑8 ↓0	↑9 ↓0	↑8 ↓0	↑5 ↓1	↑66 ↓1
100	(10)	↑8 ↓0	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑9 ↓0	↑8 ↓0	↑8 ↓0	↑8 ↓0	↑71 ↓0
200	(10)	↑8 ↓0	↑10 ↓0	↑10 ↓0	↑8 ↓0	↑9 ↓0	↑8 ↓0	↑7 ↓0	↑6 ↓0	↑66 ↓0
pc 5	(10)	↑9 ↓0	↑10 ↓0	↑10 ↓0	↑8 ↓0	↑5 ↓0	↑6 ↓0	↑6 ↓0	↑4 ↓1	↑58 ↓1
10	(10)	↑8 ↓0	↑10 ↓0	↑10 ↓0	↑8 ↓0	↑9 ↓0	↑6 ↓0	↑7 ↓0	↑3 ↓0	↑61 ↓0
20	(10)	↑8 ↓0	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑9 ↓0	↑7 ↓0	↑74 ↓0
40	(10)	↑6 ↓0	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑76 ↓0
80	(10)	↑7 ↓0	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑77 ↓0
C	(25)	↑14 ↓0	↑25 ↓0	↑25 ↓0	↑21 ↓0	↑19 ↓0	↑18 ↓0	↑19 ↓0	↑14 ↓1	↑155 ↓1
S	(25)	↑24 ↓0	↑25 ↓0	↑25 ↓0	↑25 ↓0	↑25 ↓0	↑24 ↓0	↑23 ↓0	↑20 ↓0	↑191 ↓0
All	(50)	↑38 ↓0	↑50 ↓0	↑50 ↓0	↑46 ↓0	↑44 ↓0	↑42 ↓0	↑42 ↓0	↑34 ↓1	↑346 ↓1
Set.	**Max**	**25 Dimensions**								
n_p 10	(10)	↑5 ↓1	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑8 ↓0	↑9 ↓0	↑8 ↓0	↑70 ↓1
25	(10)	↑1 ↓2	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑9 ↓0	↑10 ↓0	↑9 ↓0	↑69 ↓2
50	(10)	↑3 ↓1	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑9 ↓0	↑10 ↓0	↑8 ↓0	↑10 ↓0	↑70 ↓1
100	(10)	↑2 ↓0	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑9 ↓0	↑8 ↓0	↑9 ↓0	↑10 ↓0	↑68 ↓0
200	(10)	↑1 ↓2	↑10 ↓0	↑10 ↓0	↑9 ↓0	↑9 ↓0	↑10 ↓0	↑8 ↓0	↑9 ↓0	↑66 ↓2
pc 5	(10)	↑4 ↓2	↑10 ↓0	↑10 ↓0	↑9 ↓0	↑7 ↓0	↑7 ↓0	↑8 ↓0	↑7 ↓0	↑62 ↓2
10	(10)	↑3 ↓1	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑8 ↓0	↑6 ↓0	↑10 ↓0	↑67 ↓1
20	(10)	↑2 ↓1	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑9 ↓0	↑71 ↓1
40	(10)	↑1 ↓2	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑71 ↓2
80	(10)	↑2 ↓0	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑72 ↓0
C	(25)	↑0 ↓6	↑25 ↓0	↑25 ↓0	↑24 ↓0	↑22 ↓0	↑20 ↓0	↑19 ↓0	↑21 ↓0	↑156 ↓6
S	(25)	↑12 ↓0	↑25 ↓0	↑25 ↓0	↑25 ↓0	↑25 ↓0	↑25 ↓0	↑25 ↓0	↑25 ↓0	↑187 ↓0
All	(50)	↑12 ↓6	↑50 ↓0	↑50 ↓0	↑49 ↓0	↑47 ↓0	↑45 ↓0	↑44 ↓0	↑46 ↓0	↑343 ↓6
Set.	**Max**	**50 Dimensions**								
n_p 10	(10)	↑0 ↓5	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑8 ↓0	↑9 ↓0	↑67 ↓5
25	(10)	↑0 ↓6	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑8 ↓0	↑10 ↓0	↑68 ↓6
50	(10)	↑0 ↓3	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑9 ↓0	↑9 ↓0	↑9 ↓0	↑9 ↓0	↑66 ↓3
100	(10)	↑0 ↓3	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑8 ↓0	↑9 ↓0	↑10 ↓0	↑67 ↓3
200	(10)	↑1 ↓6	↑9 ↓0	↑10 ↓0	↑10 ↓0	↑9 ↓0	↑8 ↓0	↑8 ↓0	↑10 ↓0	↑65 ↓6
pc 5	(10)	↑1 ↓4	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑8 ↓0	↑8 ↓0	↑6 ↓0	↑10 ↓0	↑63 ↓4
10	(10)	↑0 ↓4	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑7 ↓0	↑9 ↓0	↑8 ↓0	↑64 ↓4
20	(10)	↑0 ↓4	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑8 ↓0	↑10 ↓0	↑68 ↓4
40	(10)	↑0 ↓3	↑9 ↓0	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑9 ↓0	↑10 ↓0	↑68 ↓3
80	(10)	↑0 ↓8	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑70 ↓8
C	(25)	↑0 ↓15	↑24 ↓0	↑25 ↓0	↑25 ↓0	↑23 ↓0	↑20 ↓0	↑17 ↓0	↑23 ↓0	↑157 ↓15
S	(25)	↑1 ↓8	↑25 ↓0	↑25 ↓0	↑25 ↓0	↑25 ↓0	↑25 ↓0	↑25 ↓0	↑25 ↓0	↑176 ↓8
All	(50)	↑1 ↓23	↑49 ↓0	↑50 ↓0	↑50 ↓0	↑48 ↓0	↑45 ↓0	↑42 ↓0	↑48 ↓0	↑333 ↓23
Set.	**Max**	**100 Dimensions**								
n_p 10	(10)	↑0 ↓6	↑2 ↓5	↑5 ↓5	↑5 ↓5	↑5 ↓5	↑5 ↓5	↑3 ↓5	↑5 ↓5	↑30 ↓41
25	(10)	↑0 ↓9	↑2 ↓5	↑5 ↓5	↑4 ↓5	↑4 ↓5	↑5 ↓5	↑4 ↓5	↑5 ↓3	↑29 ↓42
50	(10)	↑0 ↓10	↑0 ↓5	↑3 ↓5	↑5 ↓5	↑5 ↓5	↑3 ↓5	↑4 ↓5	↑3 ↓3	↑23 ↓43
100	(10)	↑0 ↓8	↑0 ↓5	↑4 ↓5	↑5 ↓5	↑4 ↓5	↑2 ↓5	↑4 ↓4	↑4 ↓3	↑23 ↓40
200	(10)	↑0 ↓8	↑0 ↓4	↑4 ↓2	↑5 ↓5	↑3 ↓4	↑2 ↓5	↑5 ↓2	↑5 ↓3	↑24 ↓33
pc 5	(10)	↑0 ↓9	↑2 ↓4	↑5 ↓4	↑5 ↓5	↑2 ↓4	↑2 ↓5	↑3 ↓4	↑5 ↓5	↑24 ↓40
10	(10)	↑0 ↓9	↑1 ↓5	↑5 ↓5	↑4 ↓5	↑4 ↓5	↑2 ↓5	↑4 ↓5	↑4 ↓3	↑24 ↓42
20	(10)	↑0 ↓8	↑1 ↓5	↑5 ↓5	↑5 ↓5	↑5 ↓5	↑3 ↓5	↑3 ↓4	↑3 ↓4	↑25 ↓41
40	(10)	↑0 ↓8	↑0 ↓5	↑3 ↓4	↑5 ↓5	↑5 ↓5	↑5 ↓5	↑5 ↓3	↑5 ↓2	↑28 ↓37
80	(10)	↑0 ↓7	↑0 ↓5	↑3 ↓4	↑5 ↓5	↑5 ↓5	↑5 ↓5	↑5 ↓5	↑5 ↓3	↑28 ↓39
C	(25)	↑0 ↓17	↑4 ↓0	↑21 ↓0	↑24 ↓0	↑21 ↓0	↑17 ↓0	↑20 ↓0	↑22 ↓0	↑129 ↓17
S	(25)	↑0 ↓24	↑0 ↓24	↑0 ↓22	↑0 ↓25	↑0 ↓24	↑0 ↓25	↑0 ↓21	↑0 ↓17	↑0 ↓182
All	(50)	↑0 ↓41	↑4 ↓24	↑21 ↓22	↑24 ↓25	↑21 ↓24	↑17 ↓25	↑20 ↓21	↑22 ↓17	↑129 ↓199
Set.	**Max**	**All Dimensions**								
n_p 10	(50)	↑24 ↓12	↑41 ↓5	↑42 ↓5	↑37 ↓9	↑35 ↓8	↑31 ↓8	↑30 ↓7	↑31 ↓8	↑271 ↓62
25	(50)	↑17 ↓17	↑41 ↓5	↑43 ↓5	↑38 ↓5	↑37 ↓5	↑36 ↓5	↑35 ↓5	↑34 ↓3	↑281 ↓50
50	(50)	↑19 ↓14	↑39 ↓5	↑43 ↓5	↑41 ↓5	↑36 ↓5	↑35 ↓5	↑31 ↓5	↑30 ↓4	↑274 ↓48
100	(50)	↑19 ↓11	↑40 ↓5	↑43 ↓5	↑44 ↓5	↑40 ↓5	↑33 ↓5	↑36 ↓4	↑38 ↓3	↑293 ↓43
200	(50)	↑19 ↓16	↑37 ↓4	↑42 ↓2	↑42 ↓5	↑37 ↓4	↑36 ↓5	↑34 ↓2	↑37 ↓3	↑284 ↓41
pc 5	(50)	↑23 ↓15	↑39 ↓4	↑41 ↓4	↑36 ↓7	↑24 ↓5	↑24 ↓6	↑25 ↓5	↑28 ↓7	↑240 ↓53
10	(50)	↑21 ↓14	↑39 ↓5	↑41 ↓5	↑36 ↓6	↑36 ↓6	↑25 ↓6	↑27 ↓5	↑27 ↓3	↑252 ↓50
20	(50)	↑18 ↓13	↑41 ↓5	↑45 ↓5	↑42 ↓6	↑39 ↓6	↑38 ↓6	↑33 ↓5	↑31 ↓5	↑287 ↓51
40	(50)	↑17 ↓13	↑39 ↓5	↑43 ↓4	↑43 ↓5	↑42 ↓5	↑41 ↓5	↑38 ↓3	↑41 ↓3	↑304 ↓43
80	(50)	↑19 ↓15	↑40 ↓5	↑43 ↓4	↑45 ↓5	↑44 ↓5	↑43 ↓5	↑43 ↓5	↑43 ↓3	↑320 ↓47
C	(125)	↑37 ↓38	↑103 ↓0	↑120 ↓0	↑112 ↓3	↑102 ↓3	↑88 ↓3	↑87 ↓2	↑92 ↓4	↑741 ↓53
S	(125)	↑61 ↓32	↑95 ↓24	↑93 ↓22	↑90 ↓26	↑83 ↓24	↑83 ↓25	↑79 ↓21	↑78 ↓17	↑662 ↓191
All	(250)	↑98 ↓70	↑198 ↓24	↑213 ↓22	↑202 ↓29	↑185 ↓27	↑171 ↓28	↑166 ↓23	↑170 ↓21	↑1403 ↓244

Table D.13: SADynPopDE vs SACDE performance analysis on the $n_p(t)$ standard set

Cp		100	500	1000	5000	10000	25000	50000	100000	Total
Set.	Max	5 Dimensions								
n_p 10	(10)	↑8 ↓0	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑9 ↓0	↑9 ↓0	↑10 ↓0	↑76 ↓0
25	(10)	↑7 ↓0	↑7 ↓0	↑7 ↓0	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑71 ↓0
50	(10)	↑3 ↓0	↑1 ↓0	↑3 ↓0	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑57 ↓0
100	(10)	↑3 ↓0	↑2 ↓2	↑1 ↓1	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑56 ↓3
200	(10)	↑2 ↓0	↑0 ↓2	↑0 ↓2	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑52 ↓4
pc 5	(10)	↑8 ↓0	↑4 ↓3	↑2 ↓1	↑10 ↓0	↑10 ↓0	↑9 ↓0	↑10 ↓0	↑10 ↓0	↑63 ↓4
10	(10)	↑6 ↓0	↑3 ↓1	↑3 ↓0	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑9 ↓0	↑10 ↓0	↑61 ↓1
20	(10)	↑3 ↓0	↑3 ↓0	↑5 ↓2	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑61 ↓2
40	(10)	↑3 ↓0	↑5 ↓0	↑5 ↓0	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑63 ↓0
80	(10)	↑3 ↓0	↑5 ↓0	↑6 ↓0	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑64 ↓0
C	(25)	↑12 ↓0	↑11 ↓2	↑9 ↓3	↑25 ↓0	↑25 ↓0	↑25 ↓0	↑25 ↓0	↑25 ↓0	↑157 ↓5
S	(25)	↑11 ↓0	↑9 ↓2	↑12 ↓0	↑25 ↓0	↑25 ↓0	↑24 ↓0	↑24 ↓0	↑25 ↓0	↑155 ↓2
All	(50)	↑23 ↓0	↑20 ↓4	↑21 ↓3	↑50 ↓0	↑50 ↓0	↑49 ↓0	↑49 ↓0	↑50 ↓0	↑312 ↓7
Set.	Max	10 Dimensions								
n_p 10	(10)	↑6 ↓0	↑0 ↓2	↑5 ↓0	↑8 ↓0	↑9 ↓0	↑8 ↓0	↑7 ↓0	↑6 ↓0	↑49 ↓2
25	(10)	↑6 ↓0	↑0 ↓5	↑0 ↓3	↑7 ↓0	↑9 ↓0	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑52 ↓8
50	(10)	↑3 ↓0	↑0 ↓6	↑0 ↓5	↑7 ↓0	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑50 ↓11
100	(10)	↑1 ↓0	↑0 ↓6	↑0 ↓7	↑6 ↓0	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑47 ↓13
200	(10)	↑3 ↓1	↑0 ↓6	↑0 ↓7	↑2 ↓1	↑8 ↓0	↑9 ↓0	↑9 ↓0	↑10 ↓0	↑41 ↓15
pc 5	(10)	↑6 ↓1	↑0 ↓4	↑1 ↓5	↑8 ↓0	↑10 ↓0	↑9 ↓0	↑9 ↓0	↑9 ↓0	↑52 ↓10
10	(10)	↑4 ↓0	↑0 ↓5	↑1 ↓4	↑6 ↓1	↑8 ↓0	↑9 ↓0	↑10 ↓0	↑9 ↓0	↑47 ↓10
20	(10)	↑2 ↓0	↑0 ↓4	↑0 ↓2	↑4 ↓0	↑10 ↓0	↑10 ↓0	↑9 ↓0	↑10 ↓0	↑45 ↓6
40	(10)	↑5 ↓0	↑0 ↓5	↑1 ↓4	↑7 ↓0	↑10 ↓0	↑10 ↓0	↑10 ↓0	↑9 ↓0	↑52 ↓9
80	(10)	↑2 ↓0	↑0 ↓7	↑2 ↓7	↑5 ↓0	↑8 ↓0	↑9 ↓0	↑8 ↓0	↑9 ↓0	↑43 ↓14
C	(25)	↑5 ↓0	↑0 ↓19	↑1 ↓16	↑12 ↓0	↑22 ↓0	↑23 ↓0	↑22 ↓0	↑21 ↓0	↑106 ↓35
S	(25)	↑14 ↓1	↑0 ↓6	↑4 ↓6	↑18 ↓1	↑24 ↓0	↑24 ↓0	↑24 ↓0	↑25 ↓0	↑133 ↓14
All	(50)	↑19 ↓1	↑0 ↓25	↑5 ↓22	↑30 ↓1	↑46 ↓0	↑47 ↓0	↑46 ↓0	↑46 ↓0	↑239 ↓49
Set.	Max	25 Dimensions								
n_p 10	(10)	↑5 ↓0	↑0 ↓9	↑0 ↓9	↑2 ↓5	↑5 ↓2	↑5 ↓1	↑5 ↓0	↑5 ↓0	↑27 ↓26
25	(10)	↑6 ↓0	↑0 ↓7	↑0 ↓9	↑0 ↓6	↑3 ↓2	↑5 ↓0	↑5 ↓0	↑6 ↓0	↑25 ↓24
50	(10)	↑3 ↓0	↑0 ↓9	↑0 ↓9	↑0 ↓8	↑2 ↓2	↑4 ↓0	↑8 ↓0	↑10 ↓0	↑27 ↓28
100	(10)	↑5 ↓0	↑1 ↓8	↑0 ↓7	↑0 ↓8	↑2 ↓2	↑5 ↓1	↑8 ↓0	↑9 ↓0	↑30 ↓26
200	(10)	↑3 ↓0	↑0 ↓8	↑0 ↓9	↑0 ↓8	↑0 ↓6	↑4 ↓2	↑7 ↓1	↑9 ↓0	↑23 ↓34
pc 5	(10)	↑5 ↓0	↑1 ↓8	↑0 ↓9	↑1 ↓5	↑3 ↓3	↑7 ↓0	↑8 ↓0	↑8 ↓0	↑33 ↓25
10	(10)	↑4 ↓0	↑0 ↓7	↑0 ↓8	↑0 ↓6	↑4 ↓2	↑6 ↓0	↑8 ↓0	↑8 ↓0	↑30 ↓23
20	(10)	↑3 ↓0	↑0 ↓7	↑0 ↓6	↑1 ↓7	↑2 ↓3	↑5 ↓1	↑7 ↓0	↑8 ↓0	↑26 ↓24
40	(10)	↑6 ↓0	↑0 ↓9	↑0 ↓10	↑0 ↓8	↑2 ↓3	↑3 ↓0	↑5 ↓0	↑8 ↓0	↑24 ↓30
80	(10)	↑4 ↓0	↑0 ↓10	↑0 ↓10	↑0 ↓9	↑1 ↓3	↑2 ↓3	↑5 ↓1	↑7 ↓0	↑19 ↓36
C	(25)	↑4 ↓0	↑0 ↓25	↑0 ↓24	↑0 ↓25	↑0 ↓13	↑3 ↓3	↑10 ↓0	↑16 ↓0	↑33 ↓90
S	(25)	↑18 ↓0	↑1 ↓16	↑0 ↓19	↑2 ↓10	↑12 ↓1	↑20 ↓1	↑23 ↓1	↑23 ↓0	↑99 ↓48
All	(50)	↑22 ↓0	↑1 ↓41	↑0 ↓43	↑2 ↓35	↑12 ↓14	↑23 ↓4	↑33 ↓1	↑39 ↓0	↑132 ↓138
Set.	Max	50 Dimensions								
n_p 10	(10)	↑4 ↓0	↑0 ↓10	↑0 ↓10	↑0 ↓9	↑0 ↓9	↑4 ↓5	↑3 ↓4	↑4 ↓1	↑15 ↓48
25	(10)	↑4 ↓0	↑0 ↓10	↑0 ↓10	↑0 ↓10	↑0 ↓7	↑0 ↓5	↑1 ↓3	↑3 ↓2	↑8 ↓47
50	(10)	↑3 ↓0	↑0 ↓9	↑0 ↓9	↑0 ↓10	↑0 ↓7	↑0 ↓5	↑1 ↓1	↑5 ↓0	↑9 ↓41
100	(10)	↑3 ↓0	↑0 ↓9	↑0 ↓10	↑0 ↓9	↑0 ↓9	↑0 ↓7	↑2 ↓1	↑5 ↓0	↑10 ↓45
200	(10)	↑2 ↓0	↑0 ↓8	↑0 ↓9	↑0 ↓10	↑0 ↓8	↑0 ↓6	↑1 ↓3	↑6 ↓1	↑9 ↓45
pc 5	(10)	↑4 ↓0	↑0 ↓10	↑0 ↓10	↑0 ↓9	↑0 ↓6	↑1 ↓5	↑2 ↓4	↑7 ↓2	↑14 ↓46
10	(10)	↑3 ↓0	↑0 ↓10	↑0 ↓10	↑0 ↓10	↑0 ↓7	↑1 ↓4	↑1 ↓2	↑7 ↓0	↑12 ↓43
20	(10)	↑2 ↓0	↑0 ↓10	↑0 ↓8	↑0 ↓9	↑0 ↓7	↑1 ↓5	↑1 ↓1	↑5 ↓0	↑9 ↓40
40	(10)	↑2 ↓0	↑0 ↓9	↑0 ↓10	↑0 ↓10	↑0 ↓10	↑1 ↓6	↑3 ↓0	↑2 ↓0	↑8 ↓45
80	(10)	↑5 ↓0	↑0 ↓7	↑0 ↓10	↑0 ↓10	↑0 ↓10	↑0 ↓8	↑1 ↓5	↑2 ↓2	↑8 ↓52
C	(25)	↑4 ↓0	↑0 ↓21	↑0 ↓25	↑0 ↓25	↑0 ↓25	↑0 ↓23	↑1 ↓10	↑5 ↓3	↑10 ↓132
S	(25)	↑12 ↓0	↑0 ↓25	↑0 ↓23	↑0 ↓23	↑0 ↓15	↑4 ↓5	↑7 ↓2	↑18 ↓1	↑41 ↓94
All	(50)	↑16 ↓0	↑0 ↓46	↑0 ↓48	↑0 ↓48	↑0 ↓40	↑4 ↓28	↑8 ↓12	↑23 ↓4	↑51 ↓226
Set.	Max	100 Dimensions								
n_p 10	(10)	↑2 ↓1	↑1 ↓8	↑1 ↓9	↑5 ↓5	↑5 ↓5	↑5 ↓5	↑5 ↓5	↑5 ↓5	↑29 ↓43
25	(10)	↑4 ↓0	↑0 ↓3	↑1 ↓7	↑3 ↓5	↑5 ↓5	↑5 ↓5	↑5 ↓5	↑5 ↓5	↑28 ↓35
50	(10)	↑1 ↓0	↑1 ↓2	↑0 ↓6	↑3 ↓5	↑5 ↓5	↑5 ↓5	↑5 ↓5	↑5 ↓4	↑25 ↓32
100	(10)	↑1 ↓0	↑0 ↓4	↑0 ↓7	↑2 ↓5	↑4 ↓5	↑5 ↓5	↑5 ↓5	↑5 ↓4	↑22 ↓35
200	(10)	↑1 ↓1	↑0 ↓6	↑0 ↓8	↑0 ↓5	↑2 ↓5	↑5 ↓5	↑5 ↓5	↑5 ↓3	↑18 ↓38
pc 5	(10)	↑3 ↓0	↑0 ↓7	↑2 ↓6	↑4 ↓5	↑4 ↓5	↑5 ↓5	↑5 ↓5	↑5 ↓4	↑28 ↓37
10	(10)	↑1 ↓0	↑2 ↓3	↑0 ↓6	↑4 ↓5	↑5 ↓5	↑5 ↓5	↑5 ↓5	↑5 ↓4	↑27 ↓33
20	(10)	↑2 ↓0	↑0 ↓4	↑0 ↓8	↑3 ↓5	↑5 ↓5	↑5 ↓5	↑5 ↓5	↑5 ↓3	↑25 ↓35
40	(10)	↑1 ↓1	↑0 ↓4	↑0 ↓9	↑1 ↓5	↑4 ↓5	↑5 ↓5	↑5 ↓5	↑5 ↓5	↑21 ↓39
80	(10)	↑2 ↓1	↑0 ↓5	↑0 ↓8	↑1 ↓5	↑3 ↓5	↑5 ↓5	↑5 ↓5	↑5 ↓5	↑21 ↓39
C	(25)	↑3 ↓0	↑0 ↓10	↑0 ↓24	↑0 ↓25	↑0 ↓25	↑0 ↓25	↑0 ↓25	↑0 ↓21	↑3 ↓155
S	(25)	↑6 ↓2	↑2 ↓13	↑2 ↓13	↑13 ↓0	↑21 ↓0	↑25 ↓0	↑25 ↓0	↑25 ↓0	↑119 ↓28
All	(50)	↑9 ↓2	↑2 ↓23	↑2 ↓37	↑13 ↓25	↑21 ↓25	↑25 ↓25	↑25 ↓25	↑25 ↓21	↑122 ↓183
Set.	Max	All Dimensions								
n_p 10	(50)	↑25 ↓1	↑11 ↓29	↑16 ↓28	↑25 ↓19	↑29 ↓16	↑31 ↓11	↑29 ↓9	↑30 ↓6	↑196 ↓119
25	(50)	↑27 ↓0	↑7 ↓25	↑8 ↓29	↑20 ↓21	↑27 ↓14	↑30 ↓10	↑31 ↓8	↑34 ↓7	↑184 ↓114
50	(50)	↑13 ↓0	↑2 ↓26	↑3 ↓29	↑20 ↓23	↑27 ↓14	↑29 ↓10	↑34 ↓6	↑40 ↓4	↑168 ↓112
100	(50)	↑13 ↓0	↑3 ↓29	↑1 ↓32	↑18 ↓22	↑26 ↓16	↑30 ↓13	↑35 ↓6	↑39 ↓4	↑165 ↓122
200	(50)	↑11 ↓2	↑0 ↓30	↑0 ↓35	↑12 ↓24	↑20 ↓19	↑28 ↓13	↑32 ↓9	↑40 ↓4	↑143 ↓136
pc 5	(50)	↑26 ↓1	↑5 ↓32	↑5 ↓31	↑23 ↓19	↑27 ↓14	↑31 ↓10	↑34 ↓9	↑39 ↓6	↑190 ↓122
10	(50)	↑18 ↓0	↑5 ↓26	↑4 ↓28	↑20 ↓22	↑27 ↓14	↑31 ↓9	↑33 ↓7	↑39 ↓4	↑177 ↓110
20	(50)	↑12 ↓0	↑3 ↓25	↑5 ↓26	↑18 ↓21	↑27 ↓15	↑31 ↓11	↑32 ↓6	↑38 ↓3	↑166 ↓107
40	(50)	↑17 ↓1	↑5 ↓27	↑6 ↓33	↑18 ↓23	↑26 ↓18	↑29 ↓11	↑33 ↓5	↑34 ↓5	↑168 ↓123
80	(50)	↑16 ↓1	↑5 ↓29	↑8 ↓35	↑16 ↓24	↑22 ↓18	↑26 ↓16	↑29 ↓11	↑33 ↓7	↑155 ↓141
C	(125)	↑28 ↓0	↑11 ↓77	↑10 ↓92	↑37 ↓75	↑47 ↓63	↑51 ↓51	↑58 ↓35	↑67 ↓24	↑309 ↓417
S	(125)	↑61 ↓3	↑12 ↓62	↑18 ↓61	↑58 ↓34	↑82 ↓16	↑97 ↓6	↑103 ↓3	↑116 ↓1	↑547 ↓186
All	(250)	↑89 ↓3	↑23 ↓139	↑28 ↓153	↑95 ↓109	↑129 ↓79	↑148 ↓57	↑161 ↓38	↑183 ↓25	↑856 ↓603

Appendix E

List of Symbols

a	general counter
b	general counter
c	change counter
$\vec{c}_p$	change in p-th peak location
$\vec{d}$	average location of all individuals
d_j	j-th component of vector $\vec{d}$
$f_{description}$	underlying benchmark function
f_p	p-th peak / underlying benchmark function
$f_{p,opti}$	optimum value of the p-th underlying benchmark function
g	generation counter
h_p	height of p-th peak
i	individual index
j	dimension / component index
j_{rand}	randomly selected index
k	sub-population index
$\vec{l}_F$	location of the global optimum of dynamic function F
$\vec{l}_p$	location of optimum of function f_p
$l_{p,j}$	j-th component of location of optimum of function f_p
n_c	total number of changes in a dynamic environment
n_d	number of dimensions

n_{excess}	threshold of number of free swarms
n_{exp}	number of experimental environments
n_{free}	number of free swarms
n_g	number of generations
n_I	total number of individuals in population including sub-populations
$n_{I,k}$	number of individuals in k-th sub-population
n_k	number of sub-populations
n_p	number of peaks
n_s	number of samples
n_t	total number of function evaluations
$\vec{o}$	vector used in GDBG
p	peak / underlying function index
q	GDBG control parameter index
r	random number
$\vec{r}$	random vector
r_j	random number associated with dimension j
r_{brown}	Brownian radius
r_{dev}	deviation from which r_{brown} is selected
r_{excl}	exclusion radius
r_{conv}	convergence radius
$r_{pop,k}$	population radius of of k-th sub-population
s	GDBG selected dimensions
t	time, generation counter
$\vec{u}_i$	i-th DE trial vector
$u_{i,j}$	j-th component of i-th trial vector
$\vec{v}_i$	i-th DE mutant vector
$v_{i,j}$	j-th component of i-th mutant vector
w_p	width of p-th peak
$\vec{x}^*$	global optimum
$\vec{x}_i$	i-th individual in the population

$\vec{x}_{i,k}$	i-th individual in the k-th population
$x_{i,j}$	j-th component of i-th individual
$\vec{x}_{best}$	best individual in the population P_x since the last change in the environment
$\vec{x}_{best}(g)$	best individual in the population P_x in generation g
$\vec{x}_{best,k}$	best individual in sub-population P_k since the last change in the environment
$\vec{x}_{brown}$	Brownian individual
$\vec{y}_i$	personal best of i-th individual
$\hat{\vec{y}}_i$	global best
$\vec{z}$	general individual
$A_{i,k}$	age of i-th individual in k-th sub-population
B	basis function in MPB
$C(a,b)$	random number from Cauchy distribution with median a and scale value b
Cr	crossover factor
Cr_i	crossover factor associated with i-th individual
Cr_{new_i}	new crossover factor associated with i-th individual
C_s	change severity
Ct	change type
Cp	change period
D	diversity
Det	change detection strategy
D_{AP}	average diversity per sub-population
$E_{BC}(\vec{x}_i(t), c)$	error of $\vec{x}_i$ immediately before the c-th change in the environment
F	function to be optimised
F_{opti}	global optimum of function F
$\mathcal{F}$	scale factor
$\mathcal{F}_i$	scale factor associated with i-th individual
$\mathcal{F}_{new_i}$	new scale factor associated with i-th individual
$\mathcal{F}_l$	lower bound of scale factor in *jDE*
$\mathcal{F}_u$	range of scale factor changes in *jDE*
$\mathcal{G}$	DE variant greediness factor

H	performance measure
$H_{OE,a}$	average offline errors of an algorithm on environment a
L	Longest diagonal in the search space
M_{n_p}	maximum number of peaks
M_c	maximum fraction change in the number of peaks
$N(a, b)$	random number from normal distribution with mean a and deviation b
P_x	population
P_k	k-th sub-population
P_{ar}	archive sub-population
$\mathbf{R}$	rotation matrix
R_k	relative fitness of k-th sub-population
RE	relative error
S	stagnation function
$\mathcal{S}^{n_d}$	n_d dimensional search space
$\mathbf{T}$	transformation matrix
$\mathcal{T}$	set of all time steps
$U(a, b)$	random number between a and b sampled from an uniform distribution
$V_{max,F}$	upper search range bound of function F
$V_{min,F}$	lower search range bound of function F
V_{max,f_p}	upper search range bound of underlying function f_p
V_{min,f_p}	lower search range bound of underlying function f_p
$W_{best}(g)$	function value of the best individual within a window of ω generations
$W_{worst}(g)$	function value of the worst individual within a window of ω generations
α	method of selecting the DE base vector
β	number of DE difference vectors
γ	method of producing DE trial vectors
η	constant controlling gradient step sizes
λ	correlation in peak shifts
$\rho_1 \ldots \rho_5$	parameters
ϱ	parameter

σ_{f_p}	stretch factor associated with f_p
ς	value used in GDBG
$\tau_1 \ldots \tau_{14}$	parameters
$\vec{\phi}_\Omega$	vector of GDBG control parameter Ω
$\phi_{\Omega,q}$	q-th component GDBG control parameter Ω
$\phi_{\Omega,max}$	maximum value of the GDBG control parameter Ω
$\phi_{\Omega,min}$	minimum value of the GDBG control parameter Ω
$\phi_{\Omega,sev}$	severity by which the value of the q-th component GDBG control parameter Ω is changed
ϖ	parameter
ψ_p	weighting factor of p-th underlying function used in GDBG
ω	window size
Ω	GDBG control parameter
$\mathcal{P}$	performance value
$\mathcal{P}_k$	performance value of k-th sub-population

Appendix F

List of Abbreviations

API	Average Percentage Improvement
CDE	Competing Differential Evolution
CESO	Collaborative Evolutionary-Swarm Optimisation
CPE	Competitive Population Evaluation
DE	Differential Evolution
DOP	Dynamic Optimisation Problem
DynPopDE	Dynamic Population Differential Evolution
EA	Evolutionary Algorithm
EO	Extremal Optimisation
EP	Evolutionary Programming
ES	Evolution Strategies
ESCA	Evolutionary Swarm Cooperative Algorithm
GA	Genetic Algorithm
GDBG	Generalised Dynamic Benchmark Generator
MGA	Multinational Genetic Algorithm
MMEO	Multi-Phase Multi-Individual Extremal Optimisation
MPB	Moving Peaks Benchmark
PSO	Particle Swarm Optimisation
RMC	Reinitialisation Midpoint Check
SACDE	Self-Adaptive Competing Differential Evolution

SADynPopDE	Self-Adaptive Dynamic Population Differential Evolution
SOS	Self-Organizing Scouts
SBGA	Shifting Balance Genetic Algorithm
SDE	Self-adaptive Differential Evolution
SPSO	Speciation-based Particle Swarm Optimisation

Appendix G

Derived Publications

This appendix lists the publications that have resulted from this study.

M.C. du Plessis and A.P. Engelbrecht. Improved differential evolution for dynamic optimization problems. IEEE Congress on Evolutionary Computation, pages 229-234. IEEE, 2008.

M.C. du Plessis and A.P. Engelbrecht. Self-adaptive competitive differential evolution for dynamic environments. IEEE Symposium on Differential Evolution. IEEE, 2011.

M.C. du Plessis and A.P. Engelbrecht. Using competitive population evaluation in a differential evolution algorithm for dynamic environments. *European Journal of Operational Research*, 218(1):7-20. Elsevier, 2012

M.C. du Plessis and A.P. Engelbrecht. Differential evolution for dynamic environments with unknown numbers of optima. *Journal of Global Optimization.* Springer, Available online February 7, 2012

M.C. du Plessis and A.P. Engelbrecht. Self-adaptive differential evolution for dynamic environments with fluctuating numbers of optima. *Metaheuristics for Dynamic Optimization*, E. Alba, A. Nakib, P. Siarry (eds.), Springer, to appear 2012