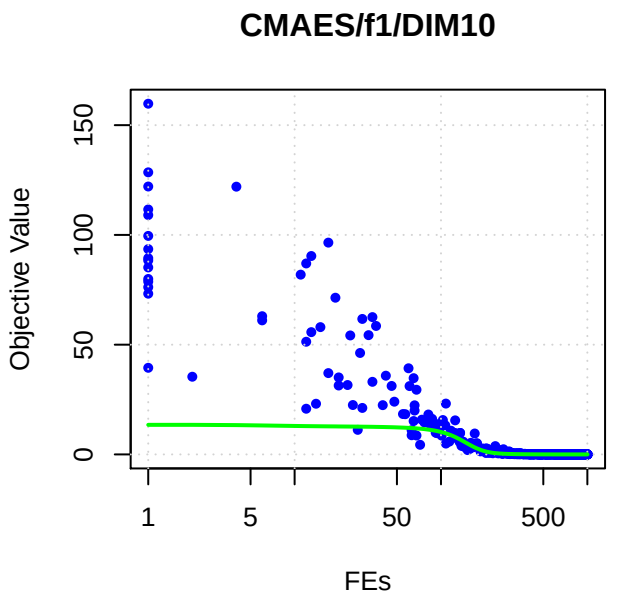
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Objective Value
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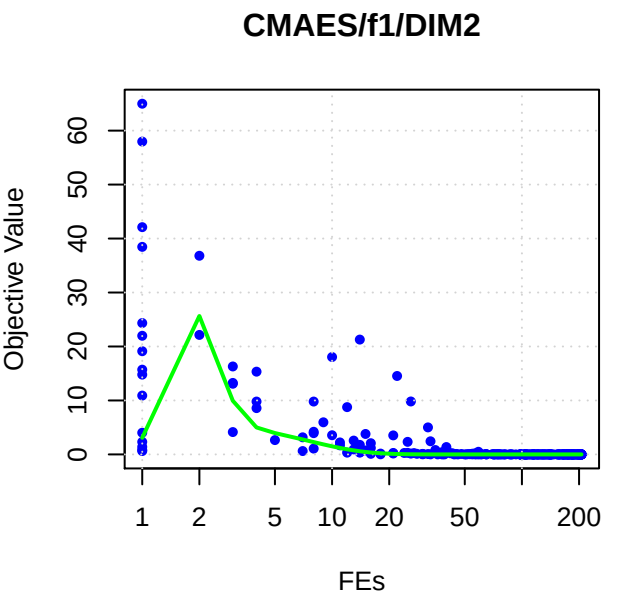
FEs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Objective Value
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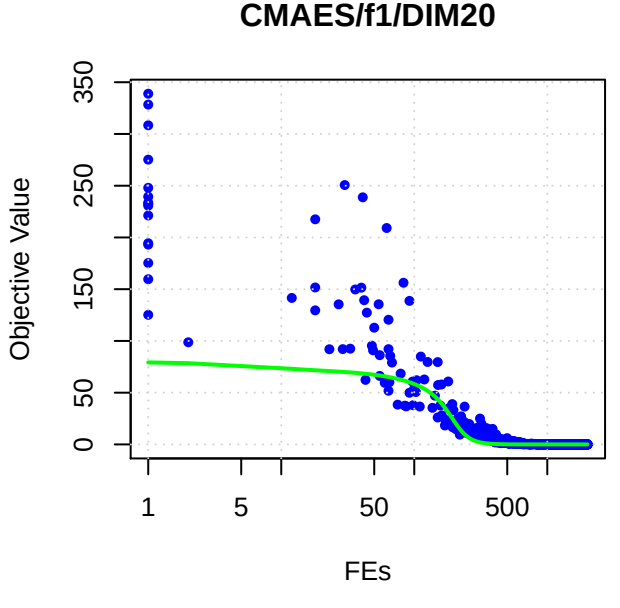
FEs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Objective Value
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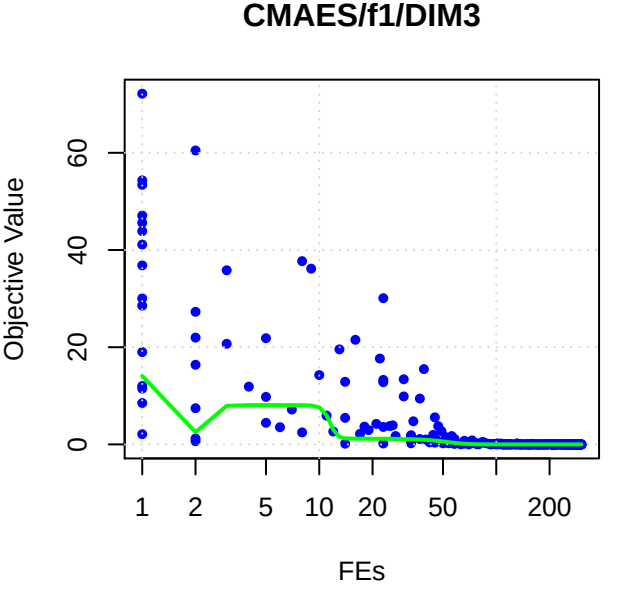
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Objective Value
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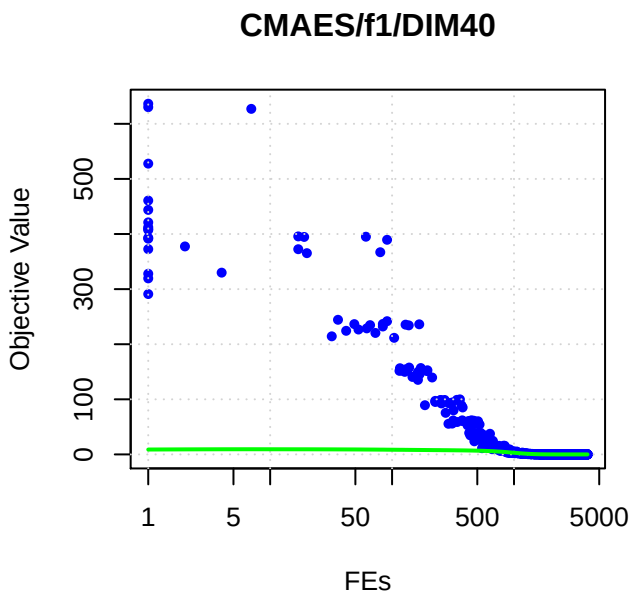
FEs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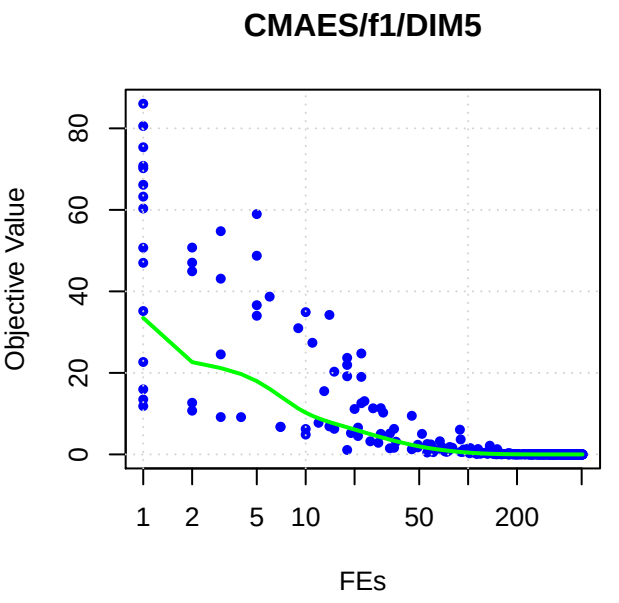
FEs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Objective Value
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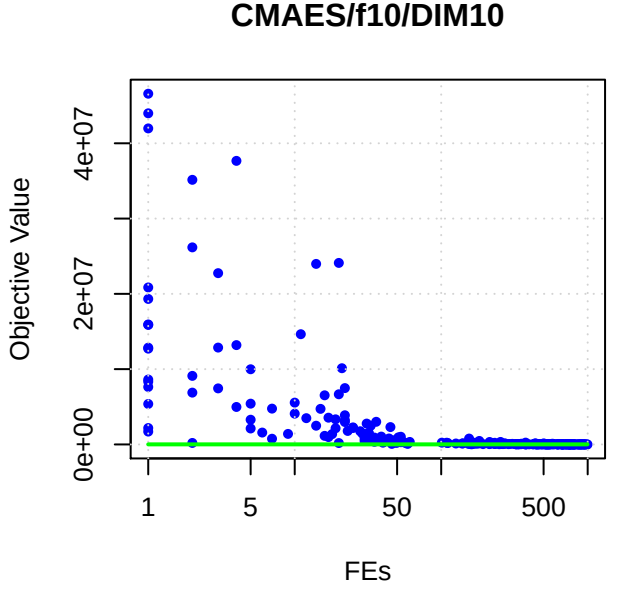
FEs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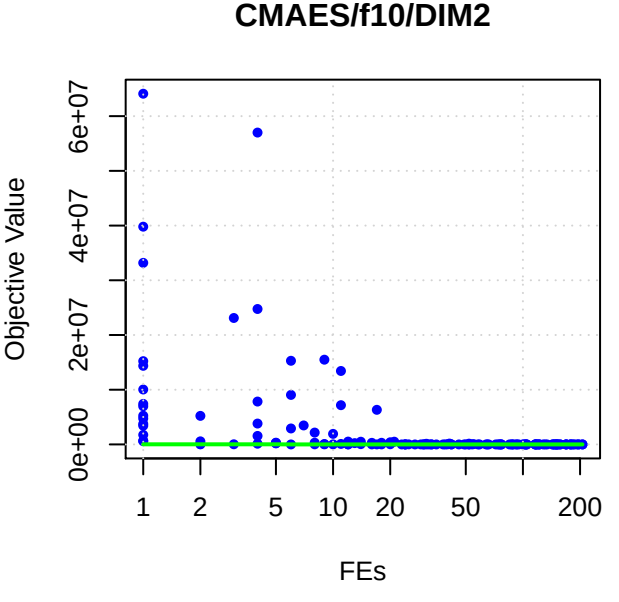
CMAES/f10/DIM2
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6e+07
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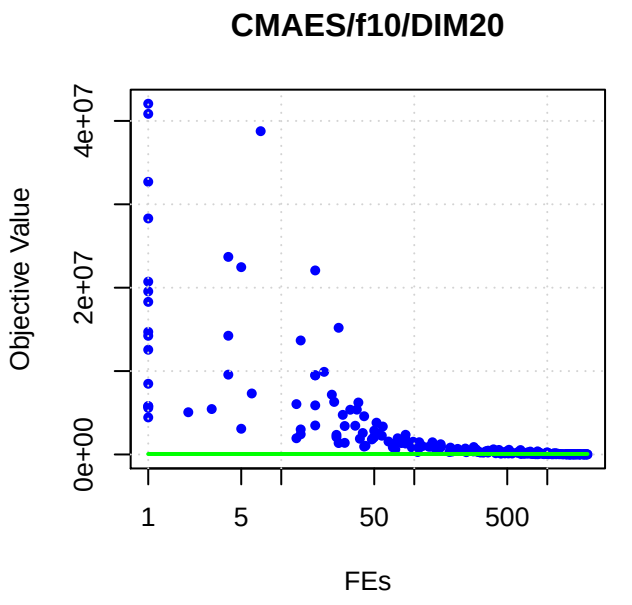
FEs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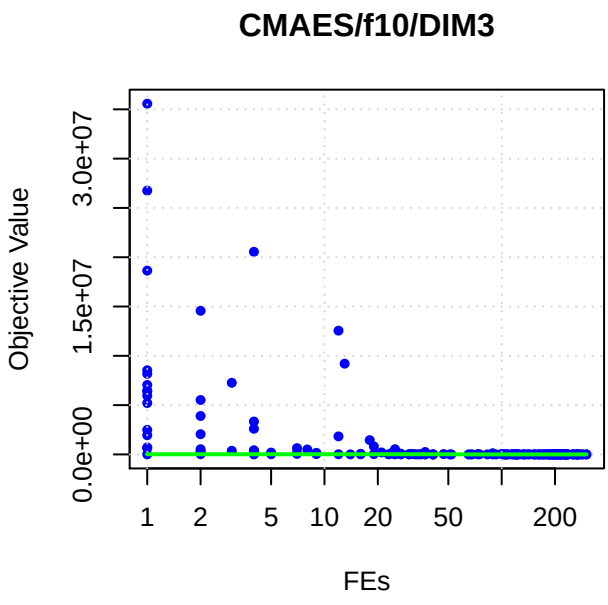
FEs


CMAES/f10/DIM3
Objective Value
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3.0e+07
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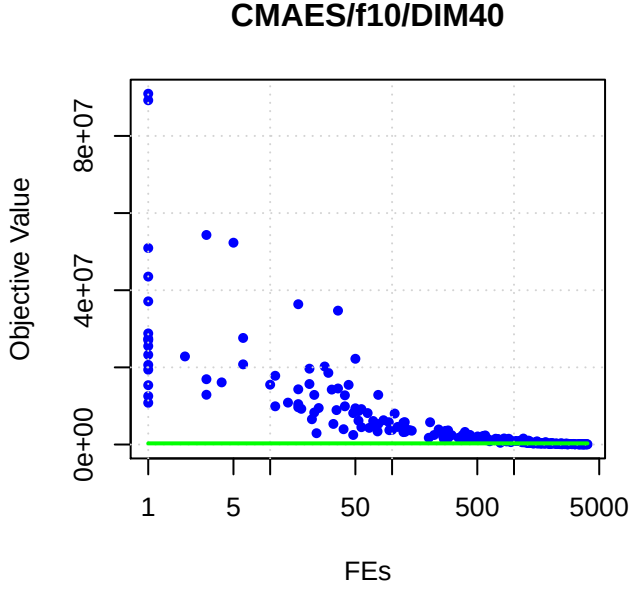
FEs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8e+07
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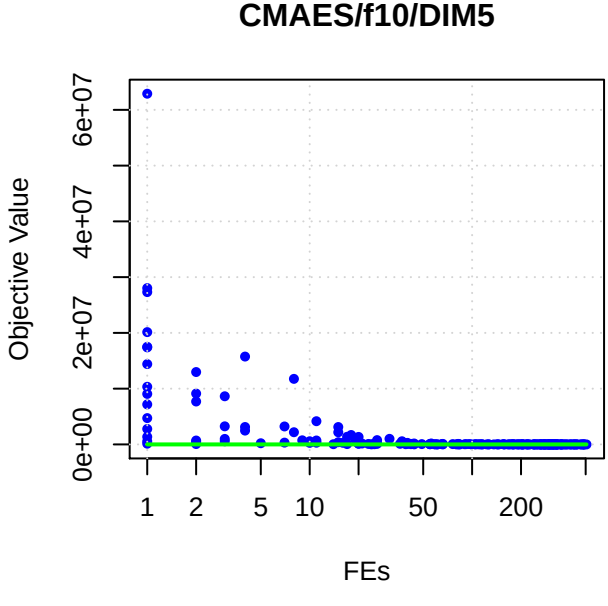
5000
FEs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Objective Value
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4e+07
6e+07
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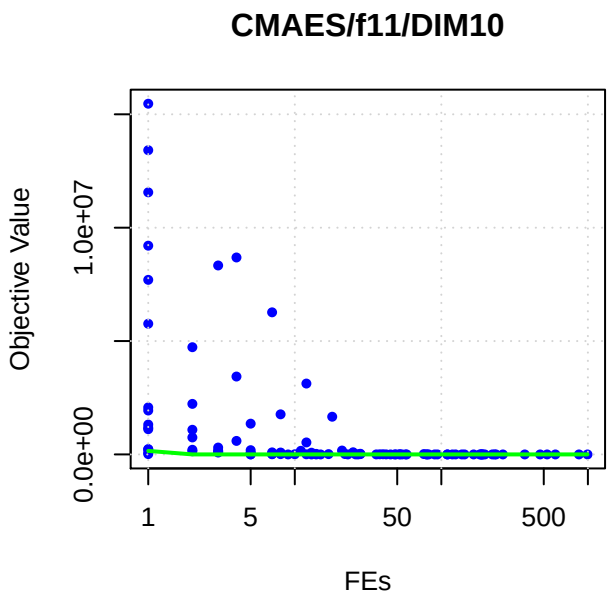
FEs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Objective Value
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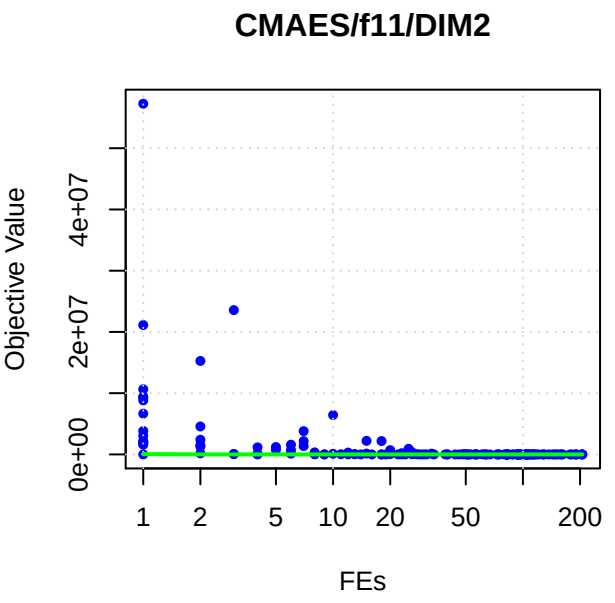
FEs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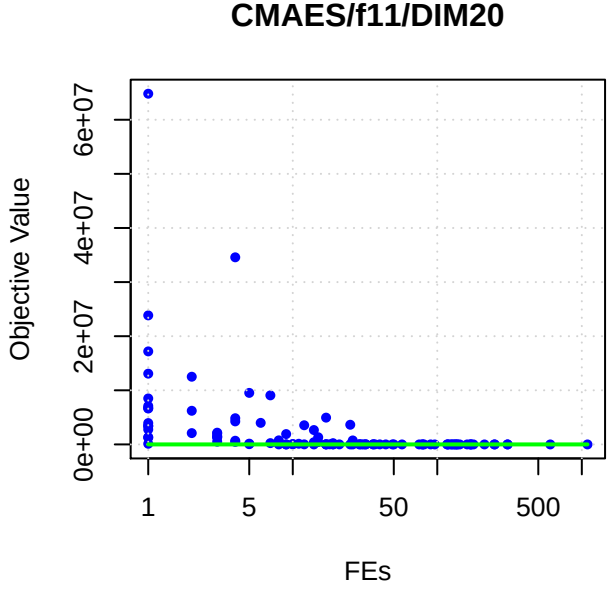
FEs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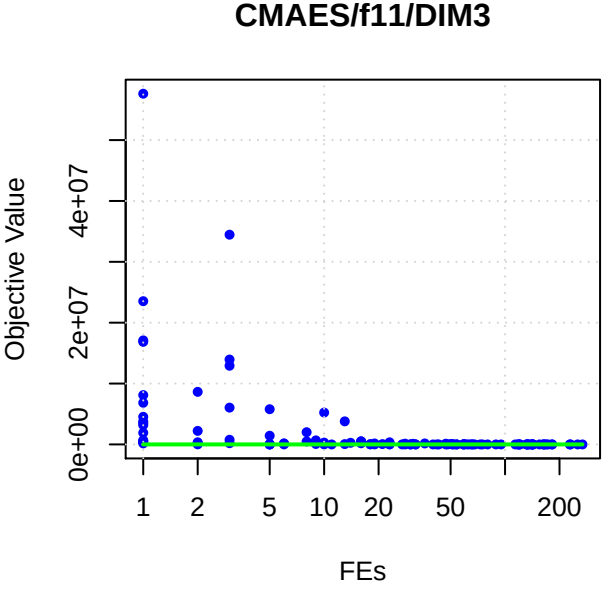
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Objective Value
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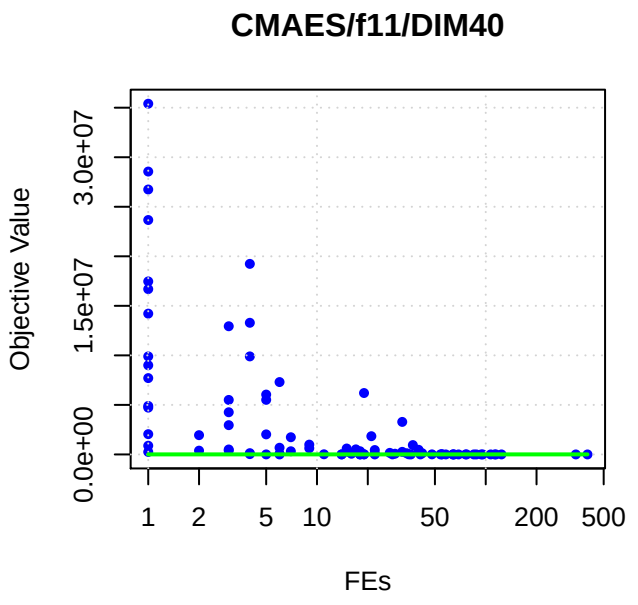
FEs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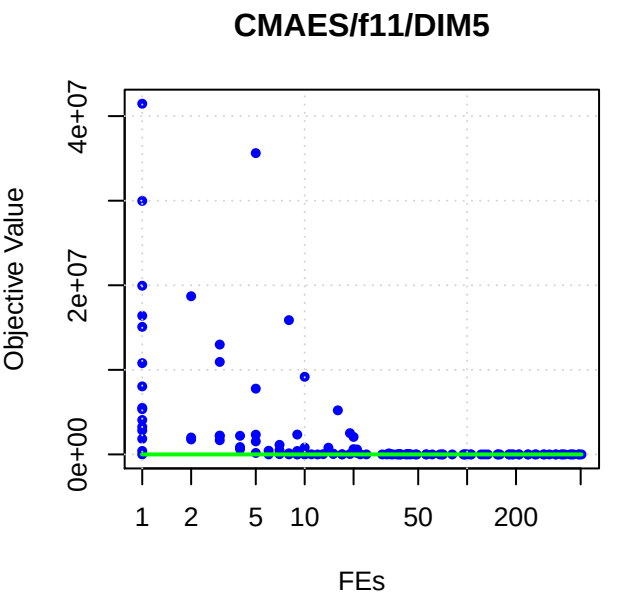
FEs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Objective Value
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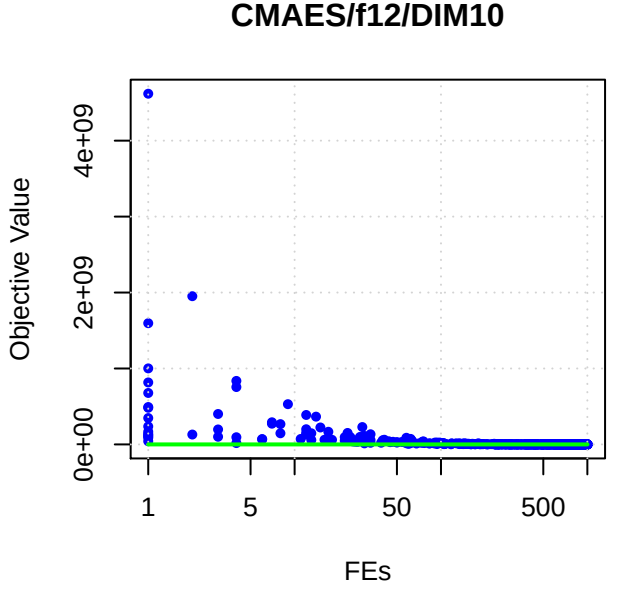
FEs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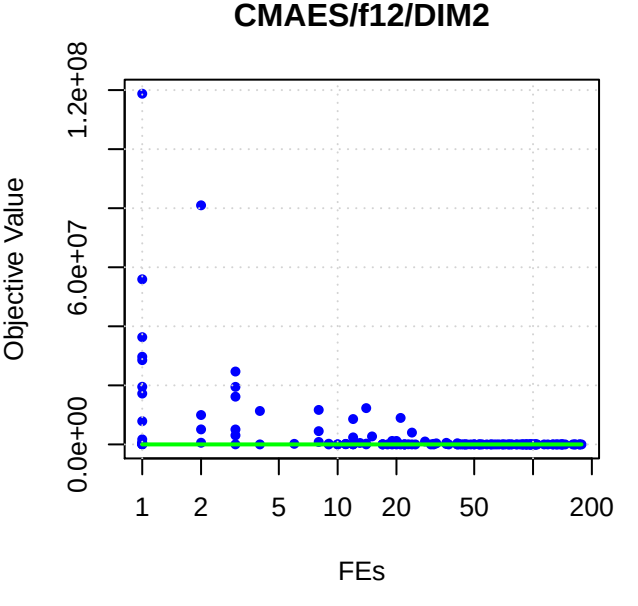
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Objective Value
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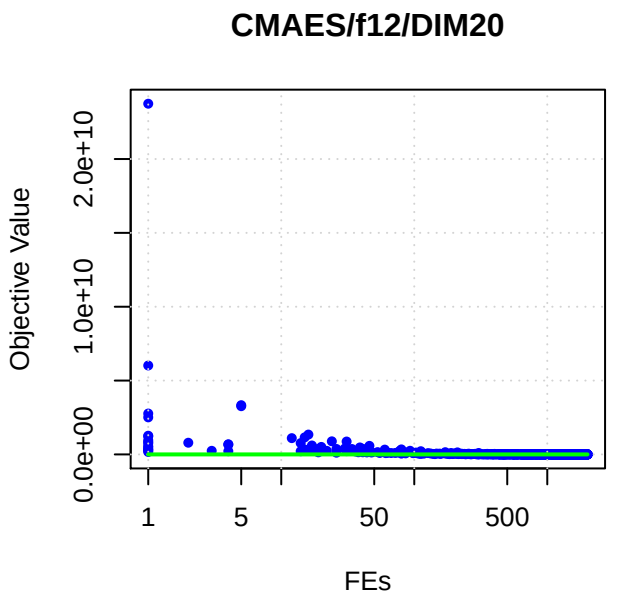
FEs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Objective Value
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2.0e+10
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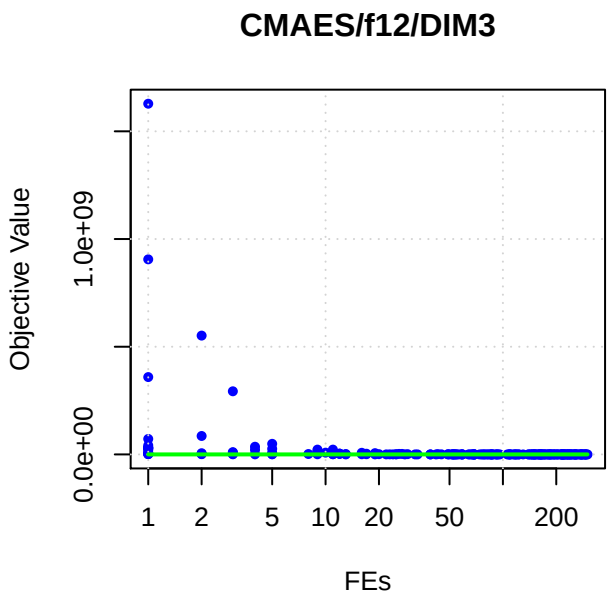
FEs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Objective Value
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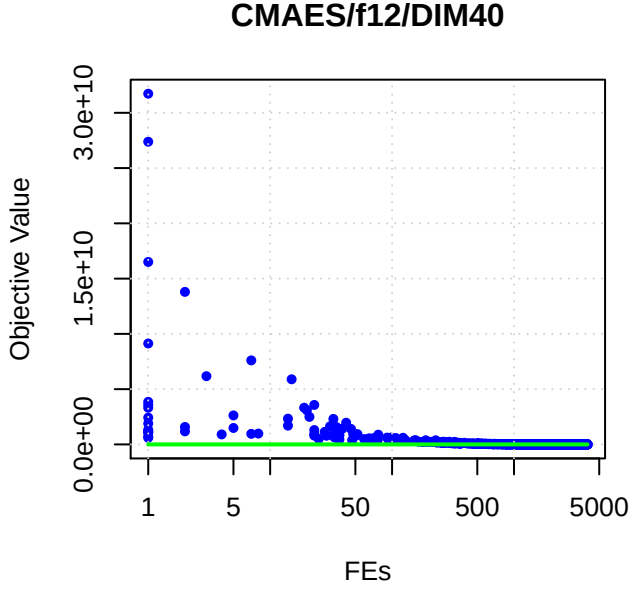
FEs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Objective Value
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3.0e+10
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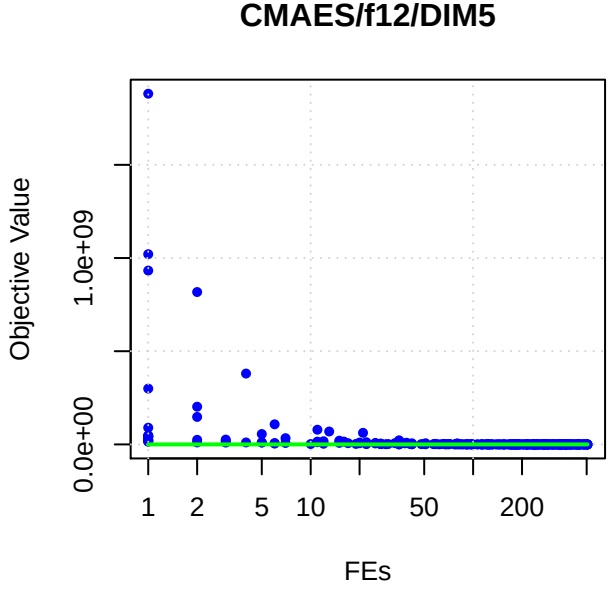
FEs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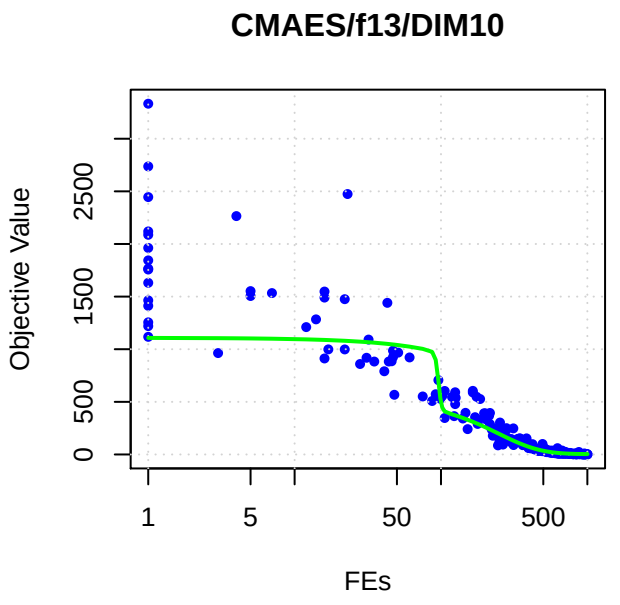
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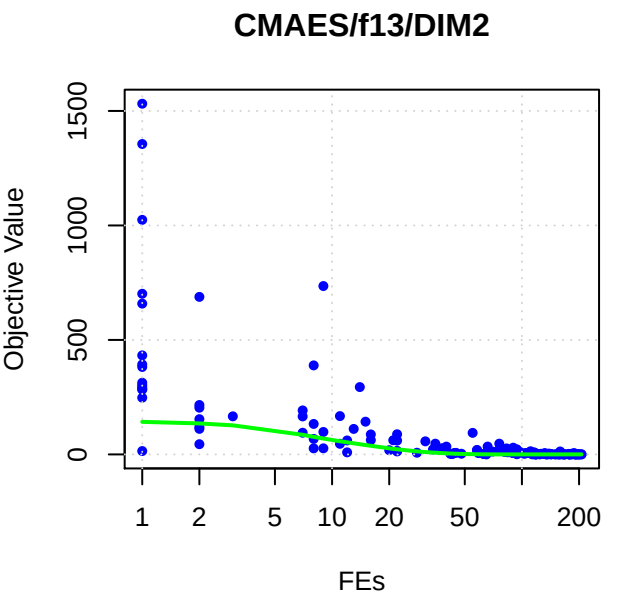
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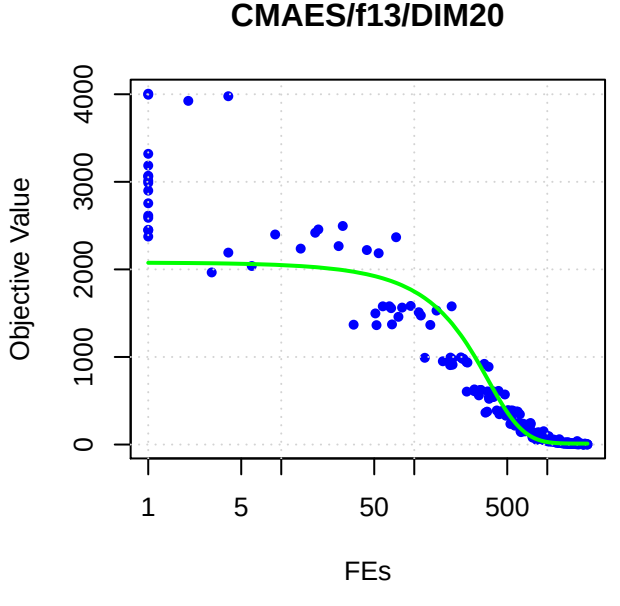
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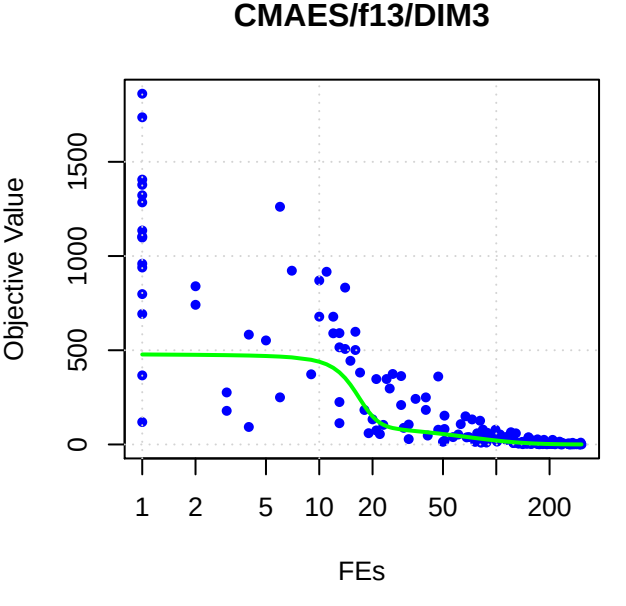
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Objective Value
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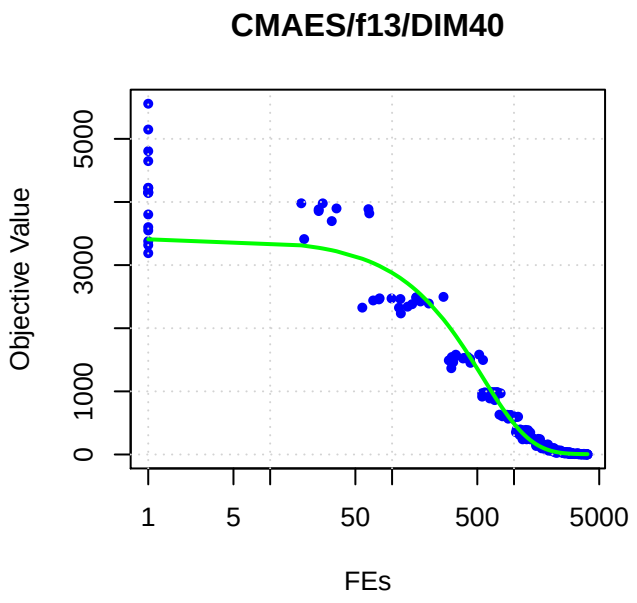
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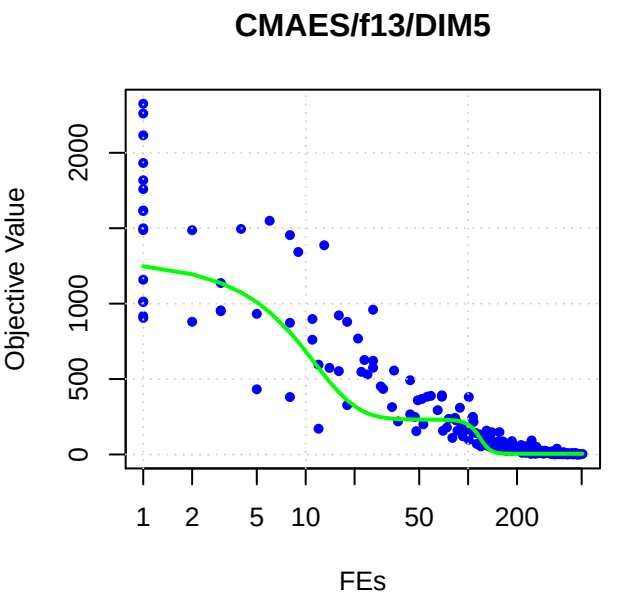
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Objective Value
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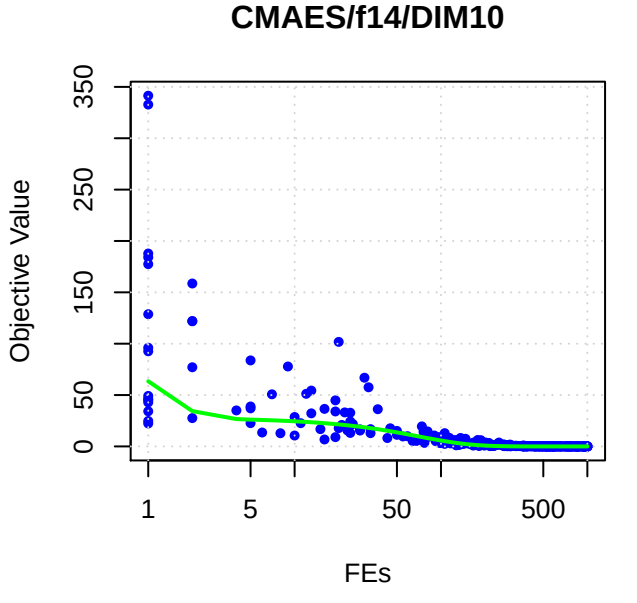
FEs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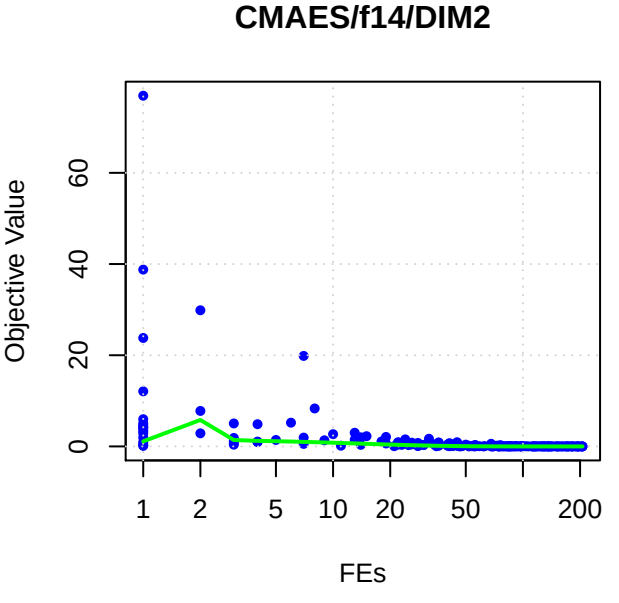
FEs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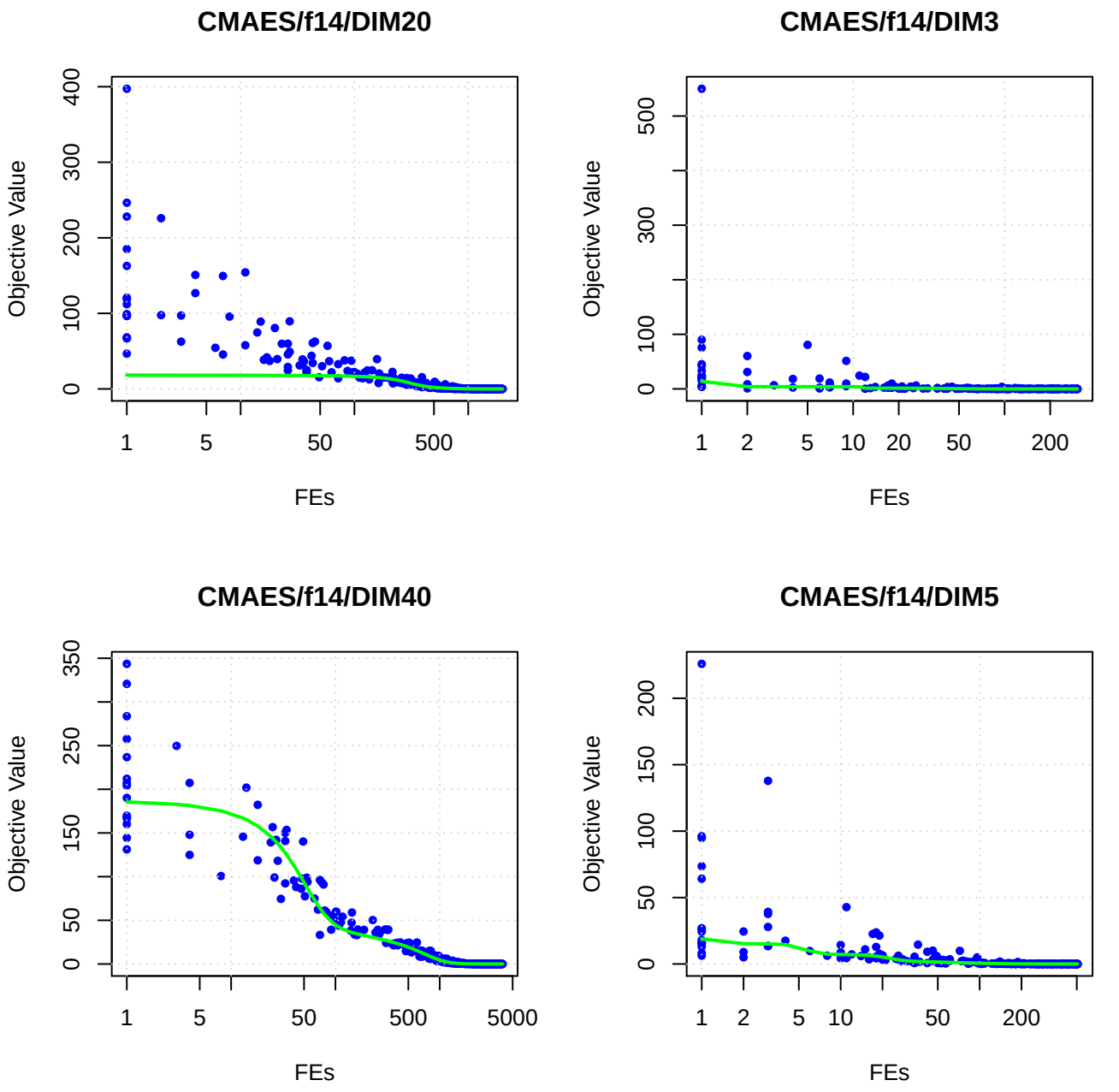
FEs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FEs
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Objective Value
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1
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FEs
CMAES/f14/DIM40
Objective Value
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FEs
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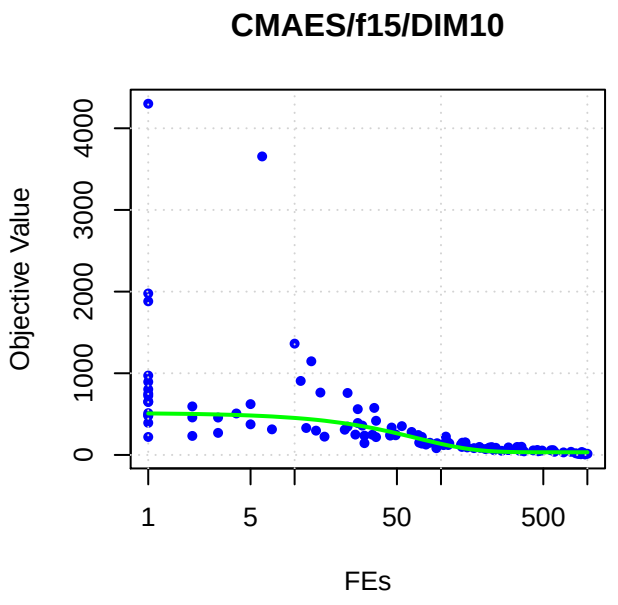
FEs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Objective Value
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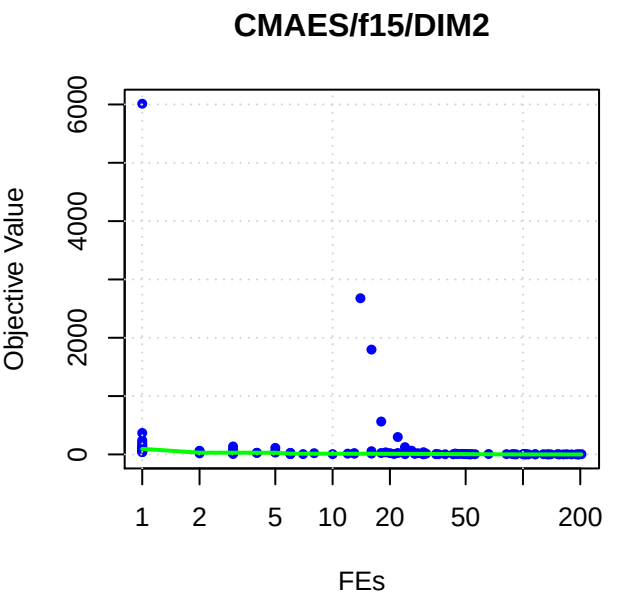
FEs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Objective Value
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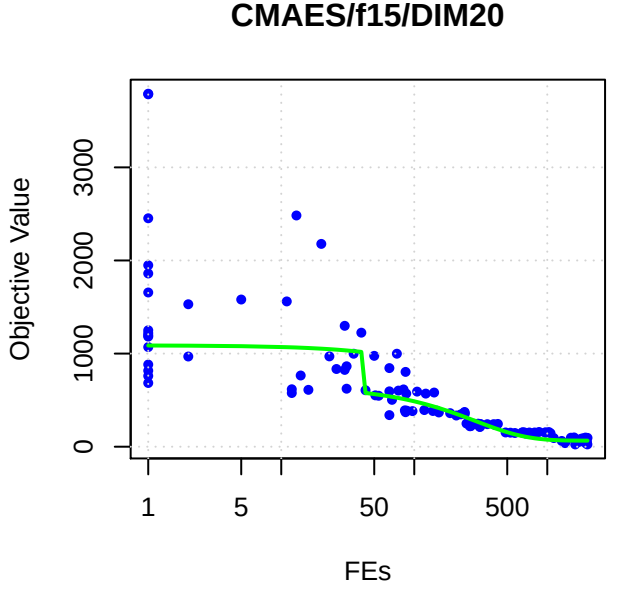
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Objective Value
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1
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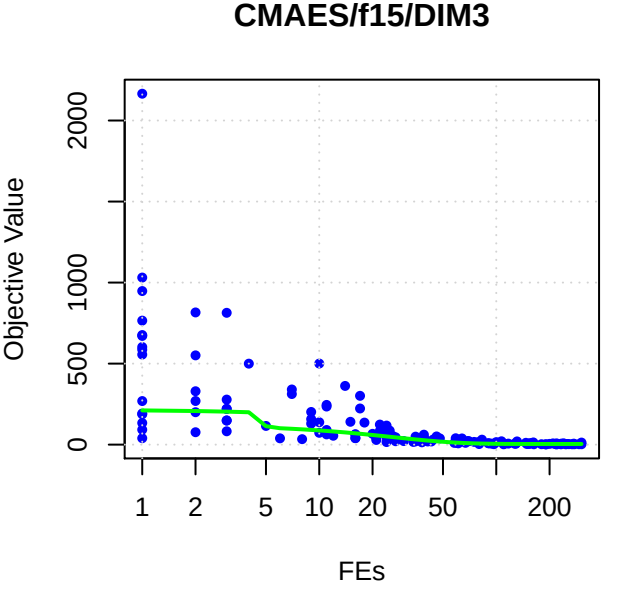
FEs


CMAES/f15/DIM3
Objective Value
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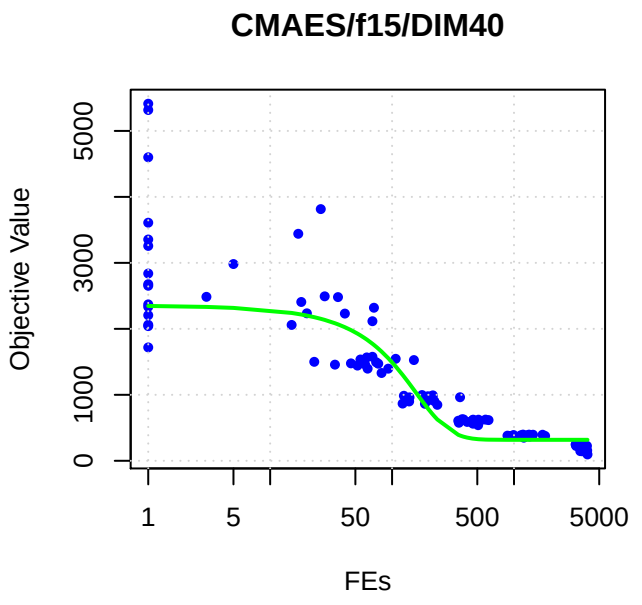
FEs


CMAES/f15/DIM40
Objective Value
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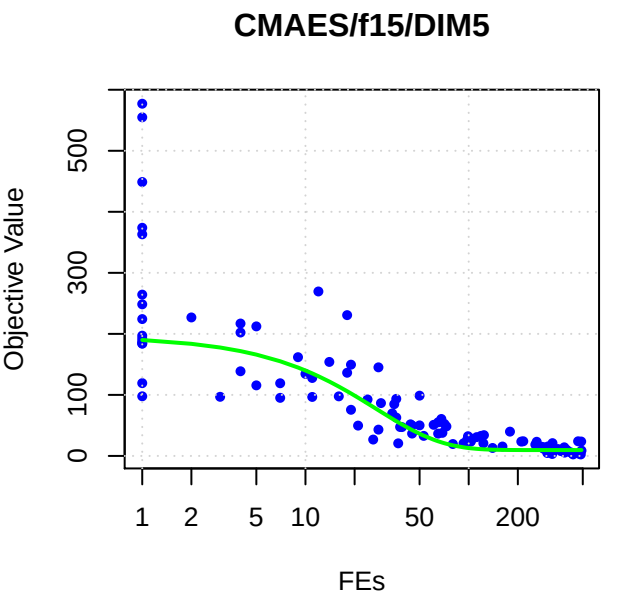
500
5000
FEs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Objective Value
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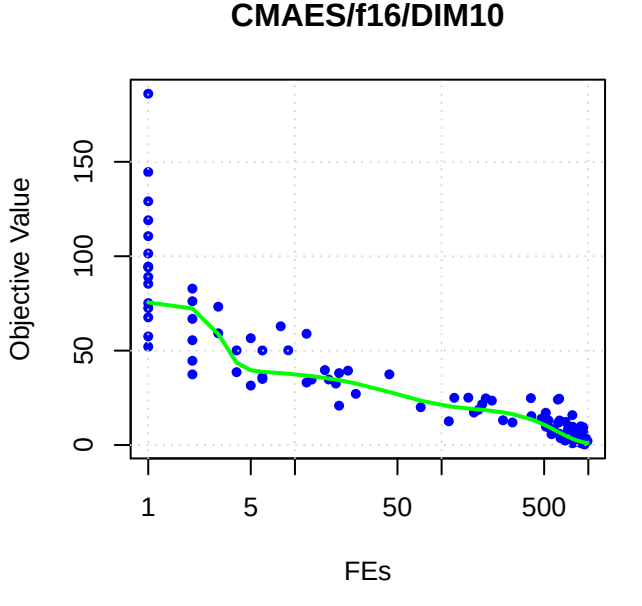
FEs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Objective Value
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1
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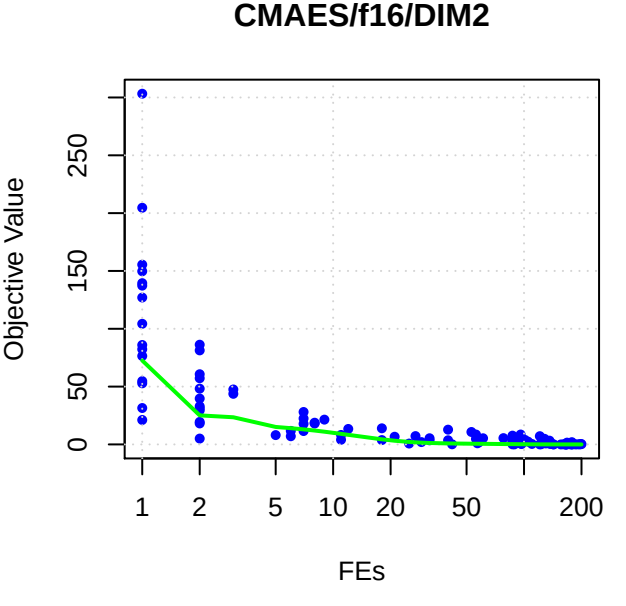
FEs


CMAES/f16/DIM2
Objective Value
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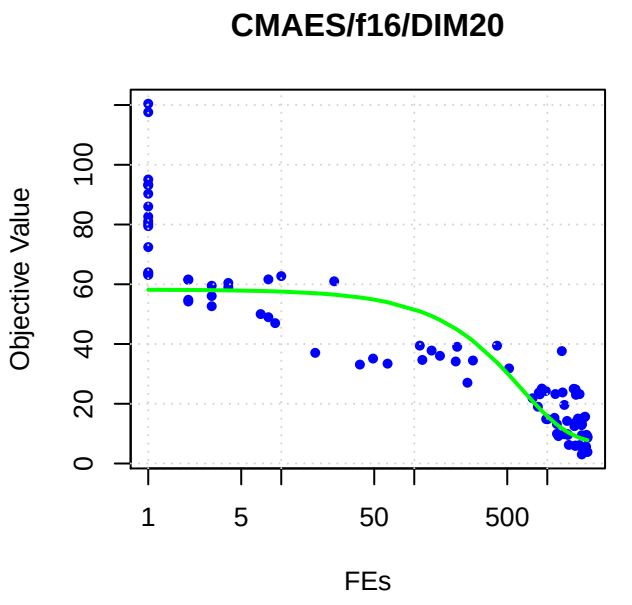
FEs


CMAES/f16/DIM20
Objective Value
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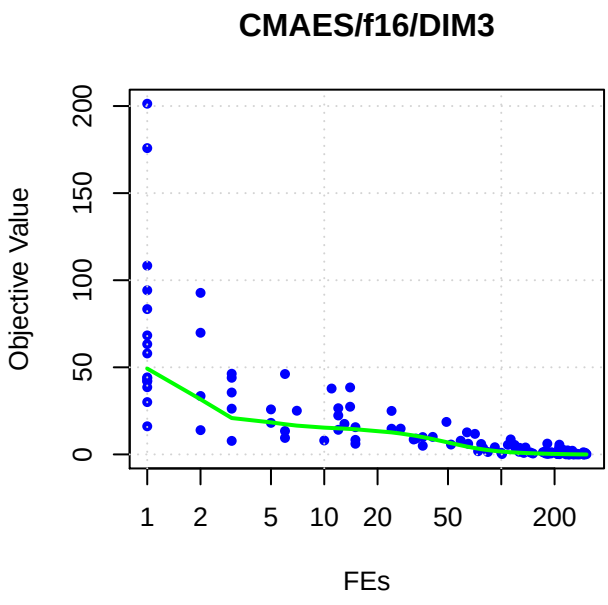
FEs


CMAES/f16/DIM3
Objective Value
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20
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200
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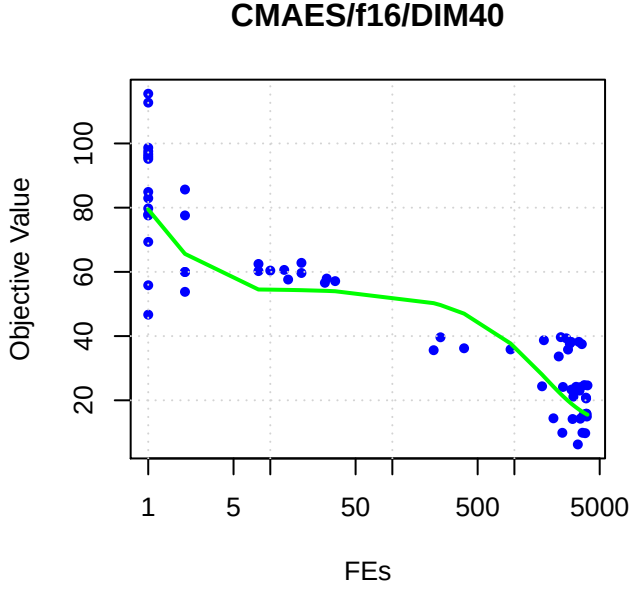
CMAES/f16/DIM40
Objective Value
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80
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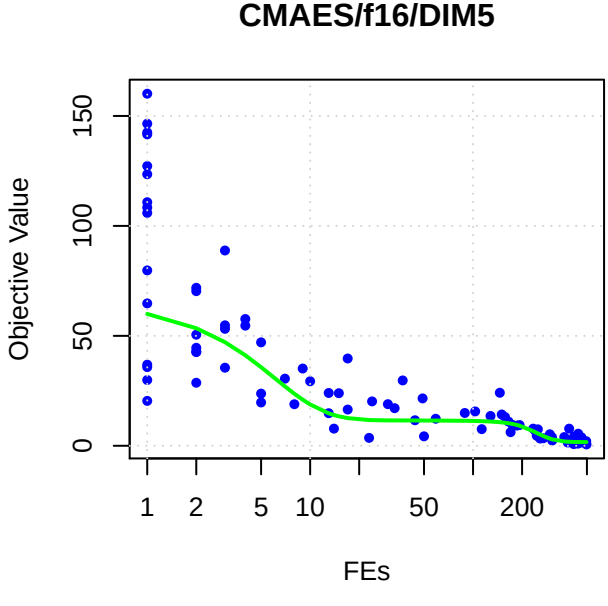
5000
FEs


CMAES/f16/DIM5
Objective Value
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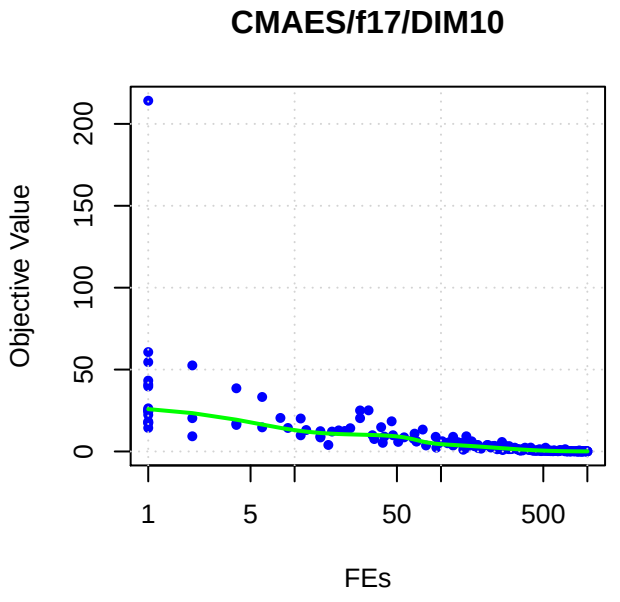
1
2
5
10
50
200
FEs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Objective Value
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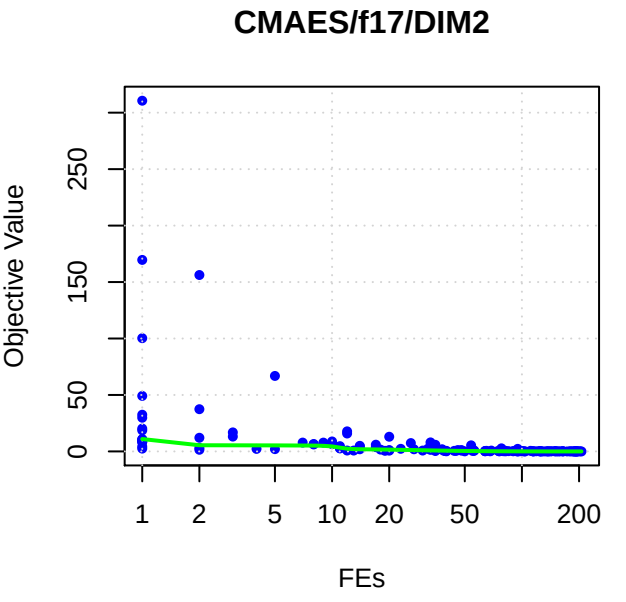
FEs


CMAES/f17/DIM2
Objective Value
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150
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1
2
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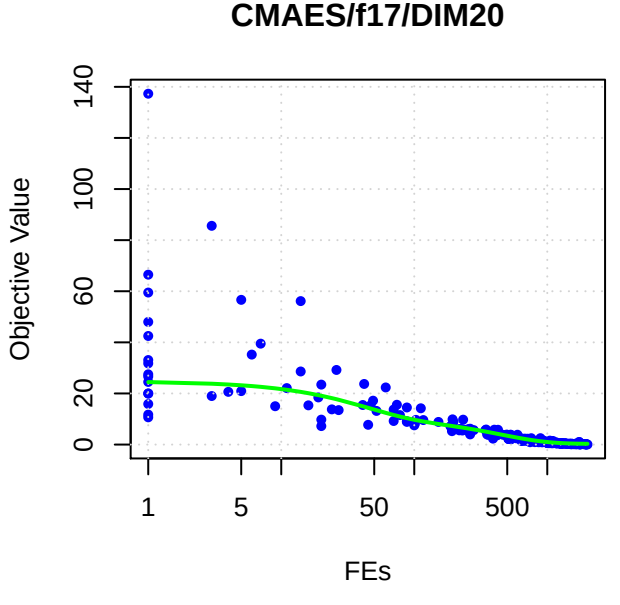
200
FEs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Objective Value
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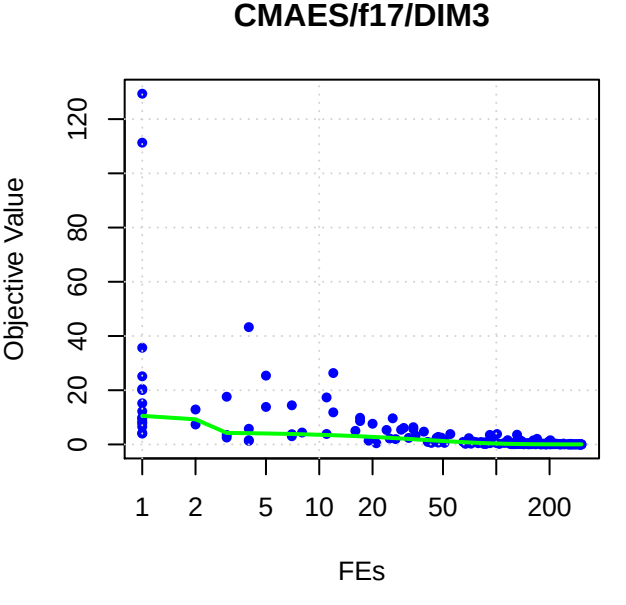
FEs


CMAES/f17/DIM3
Objective Value
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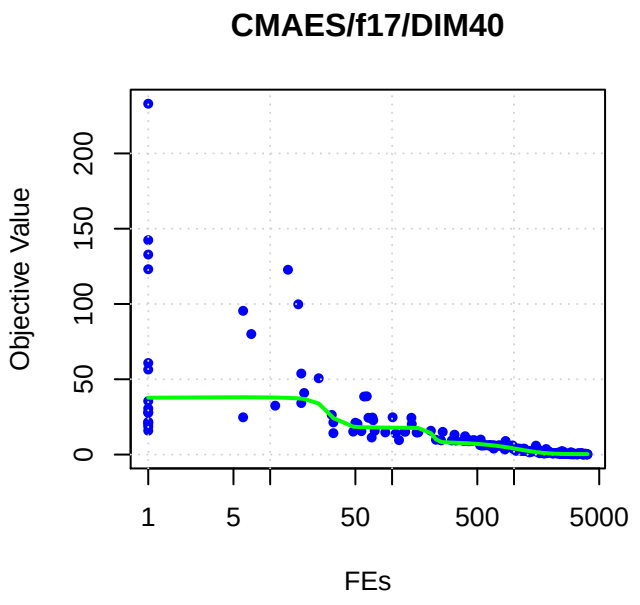
1
2
5
10
20
50
200
FEs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Objective Value
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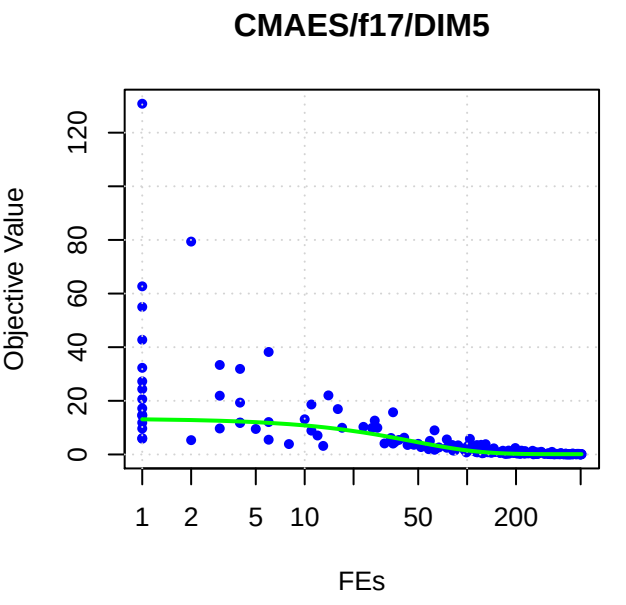
500
5000
FEs


CMAES/f17/DIM5
Objective Value
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10
50
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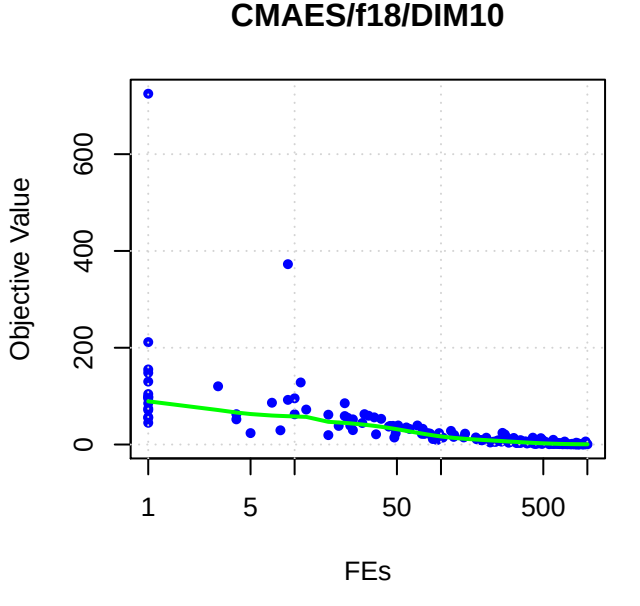
FEs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Objective Value
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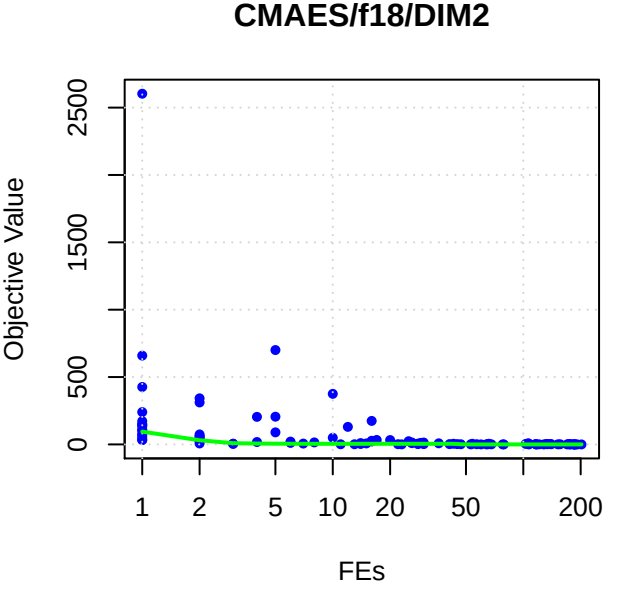
1
5
50
500
FEs


CMAES/f18/DIM2
Objective Value
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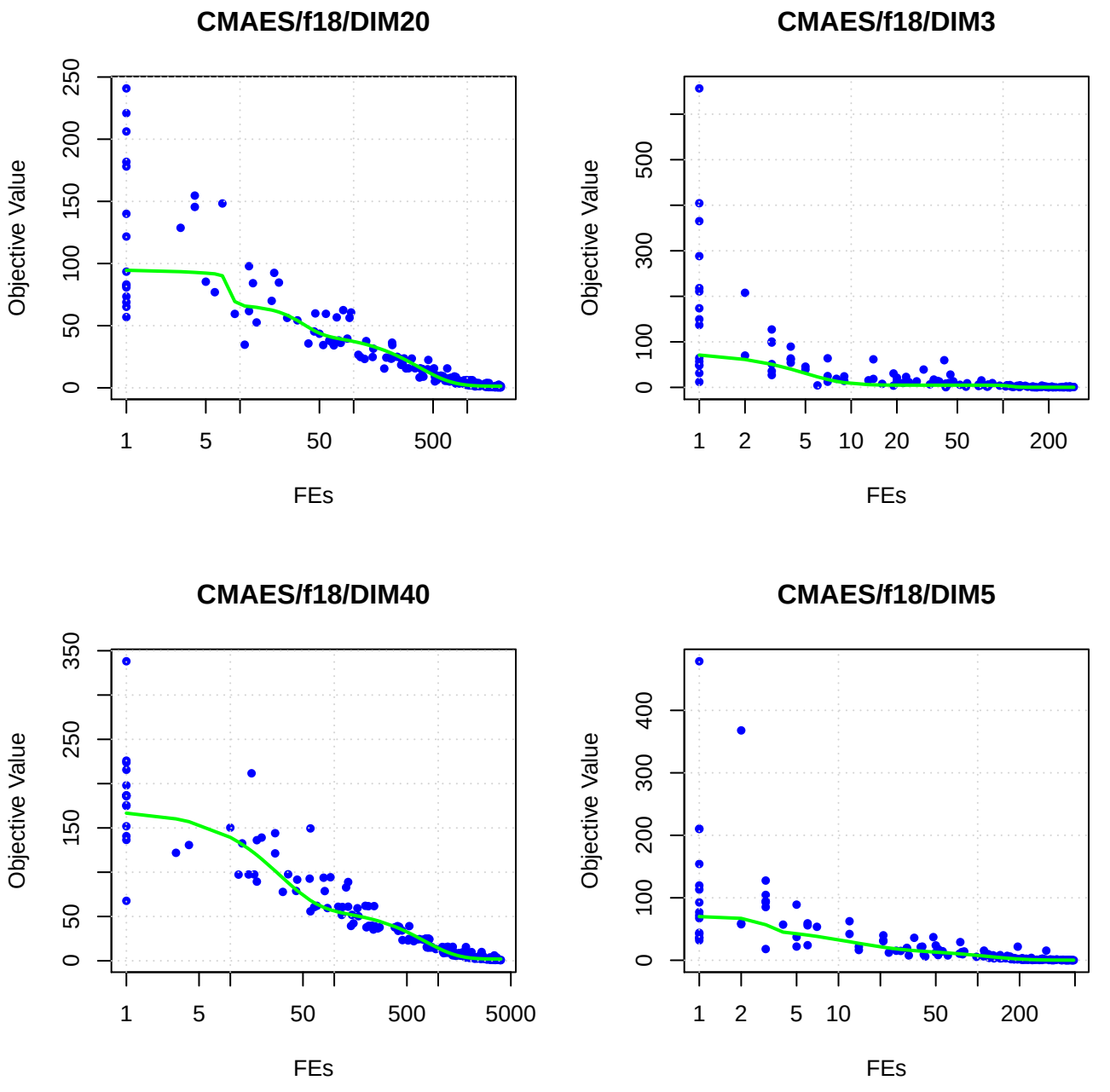
1500
2500
1
2
5
10
20
50
200
FEs


CMAES/f18/DIM20
Objective Value
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100
150
200
250
1
5
50
500
FEs
CMAES/f18/DIM3
Objective Value
0
100
300
500
1
2
5
10
20
50
200
FEs
CMAES/f18/DIM40
Objective Value
0
50
150
250
350
1
5
50
500
5000
FEs
CMAES/f18/DIM5
Objective Value
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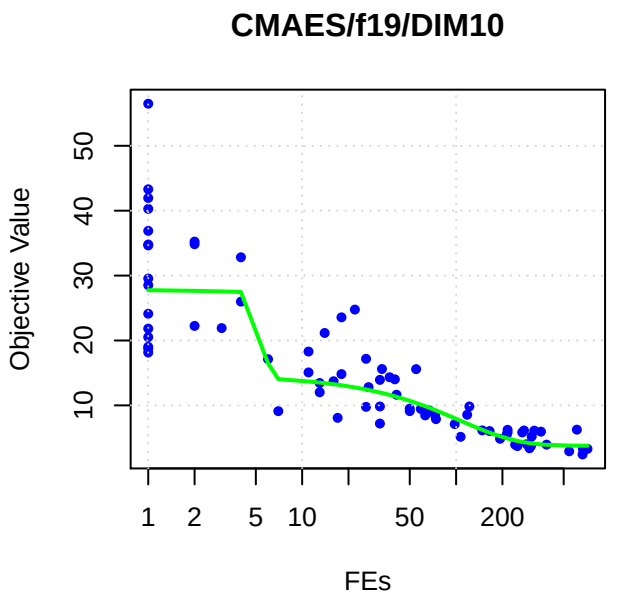
100
200
300
400
1
2
5
10
50
200
FEs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Objective Value
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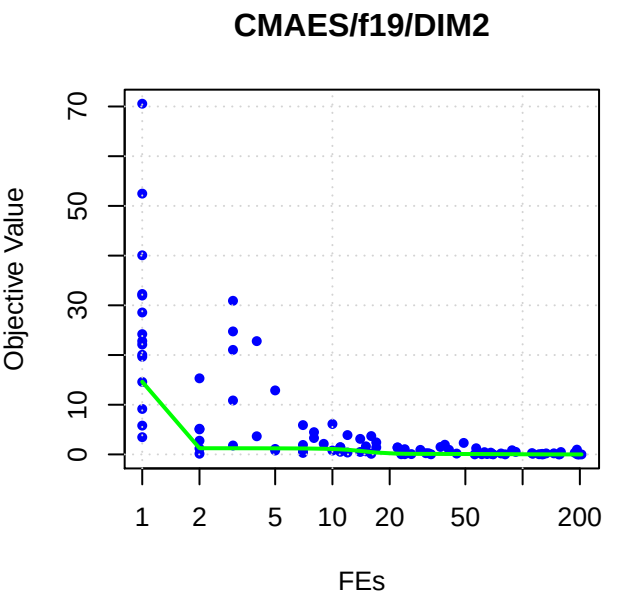
200
FEs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Objective Value
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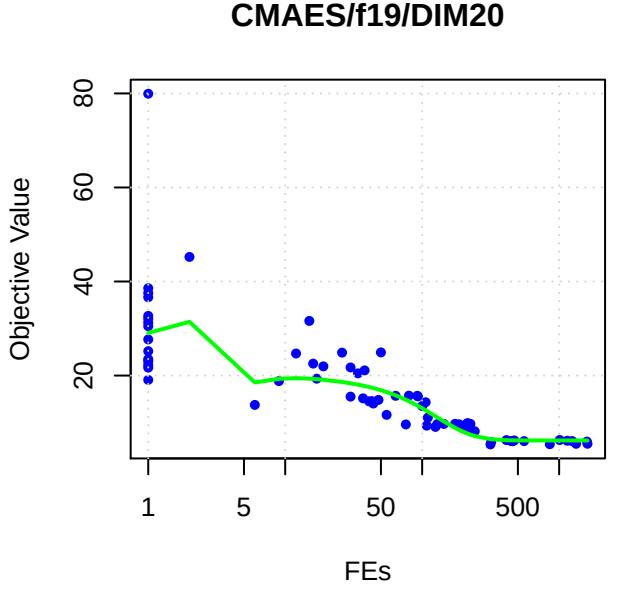
5
10
20
50
200
FEs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Objective Value
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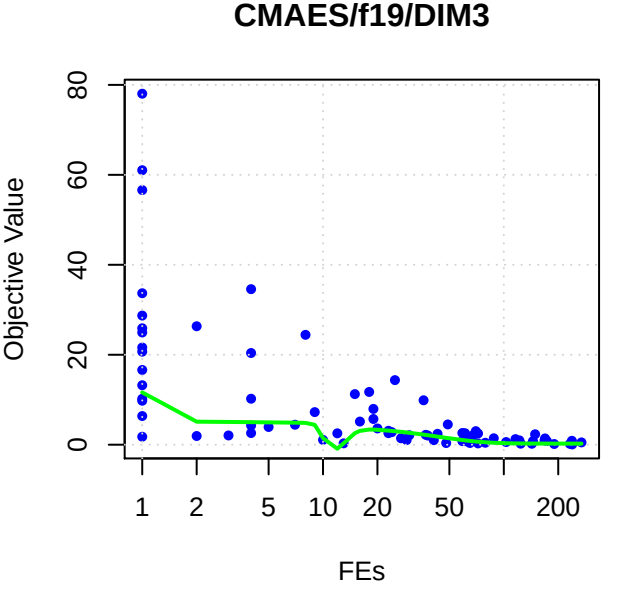
500
FEs


CMAES/f19/DIM3
Objective Value
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1
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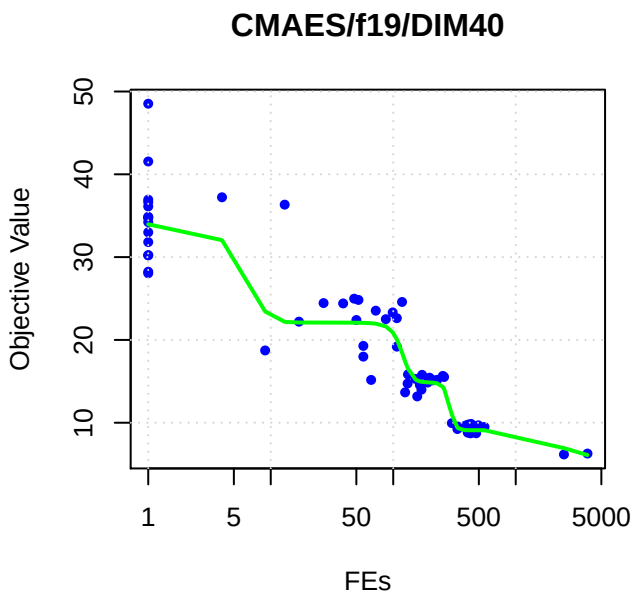
20
50
200
FEs


CMAES/f19/DIM40
Objective Value
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30
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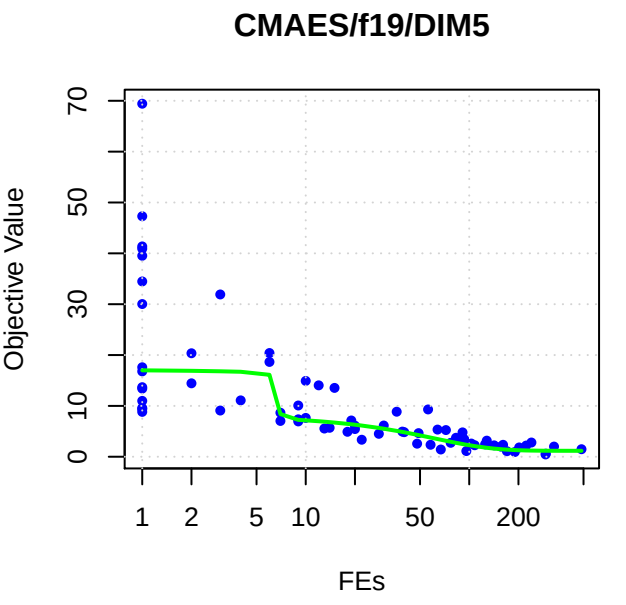
1
5
50
500
5000
FEs


CMAES/f19/DIM5
Objective Value
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30
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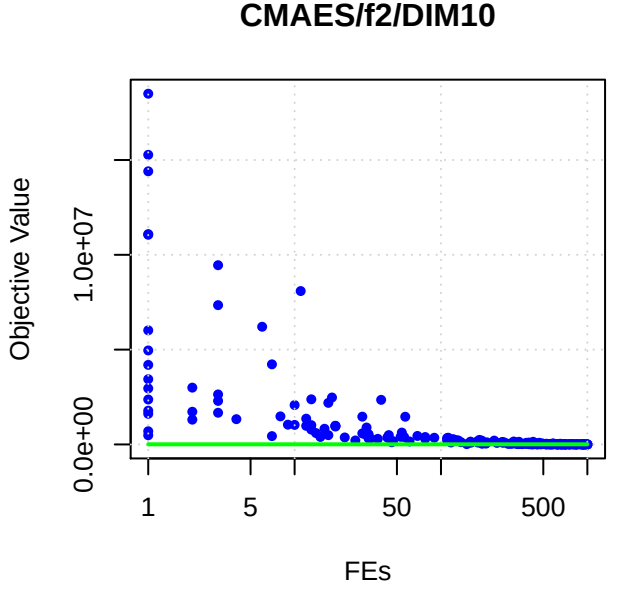
70
1
2
5
10
50
200
FEs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Objective Value
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1.0e+07
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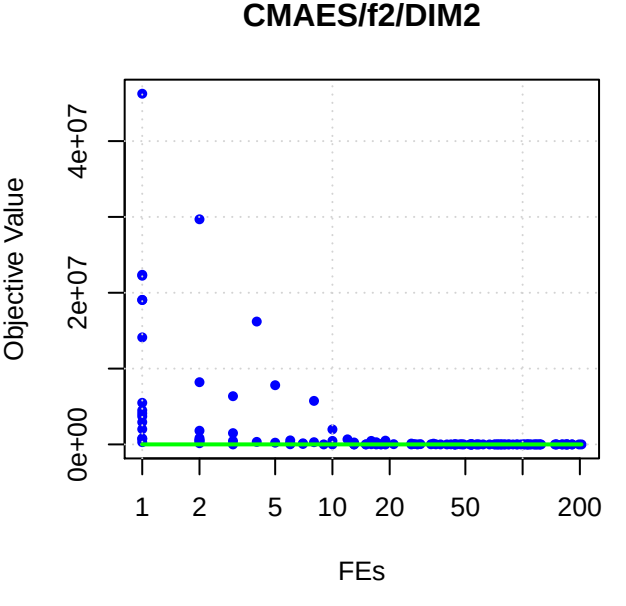
5
50
500
FEs


CMAES/f2/DIM2
Objective Value
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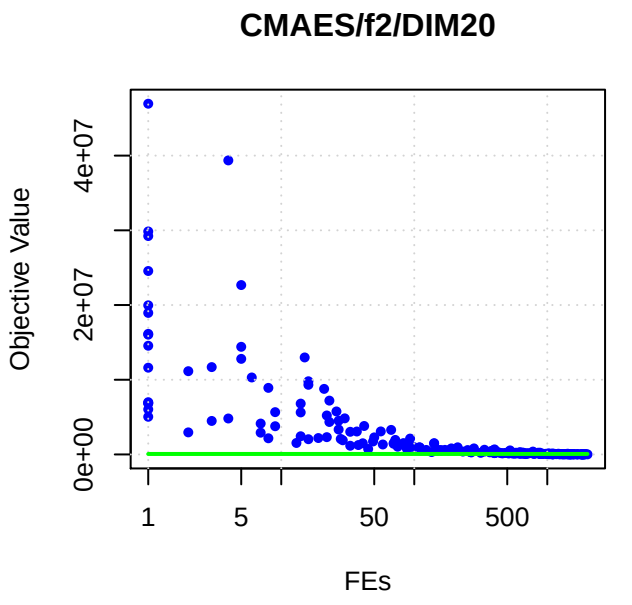
2e+07
4e+07
1
2
5
10
20
50
200
FEs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Objective Value
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4e+07
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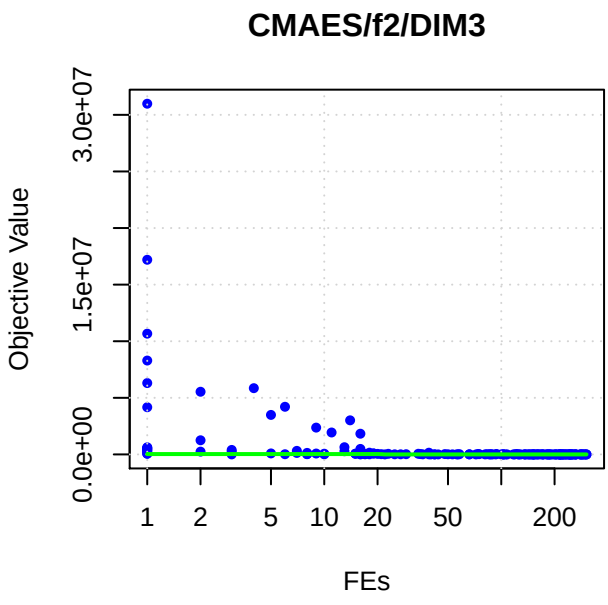
FEs


CMAES/f2/DIM3
Objective Value
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3.0e+07
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2
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20
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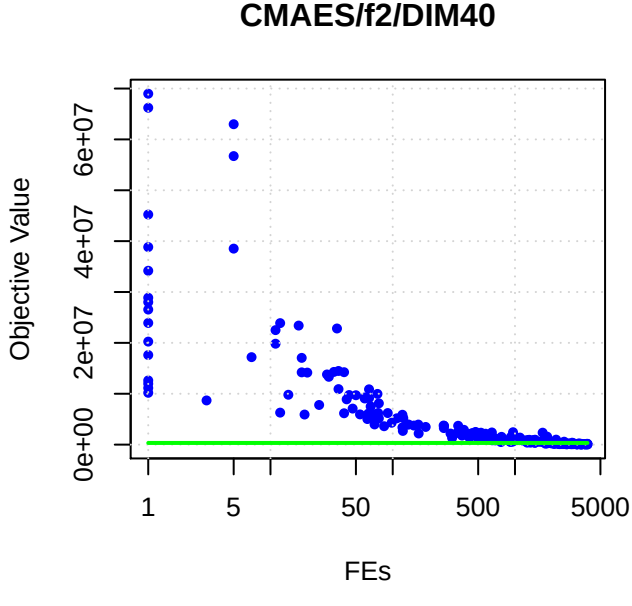
FEs


CMAES/f2/DIM40
Objective Value
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2e+07
4e+07
6e+07
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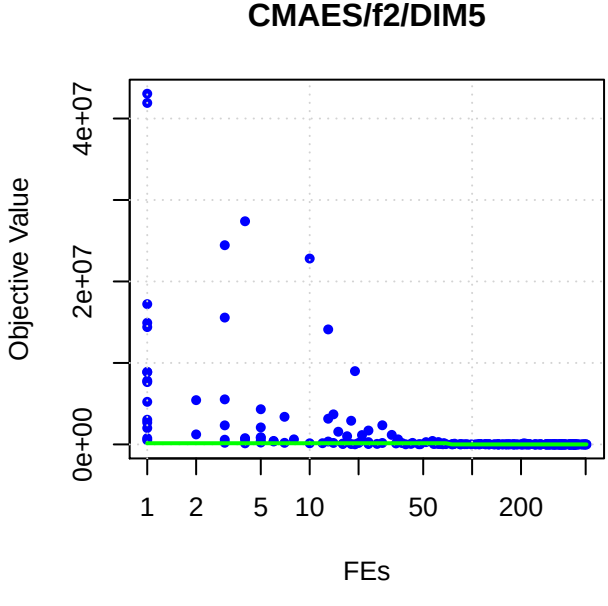
5
50
500
5000
FEs


CMAES/f2/DIM5
Objective Value
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2
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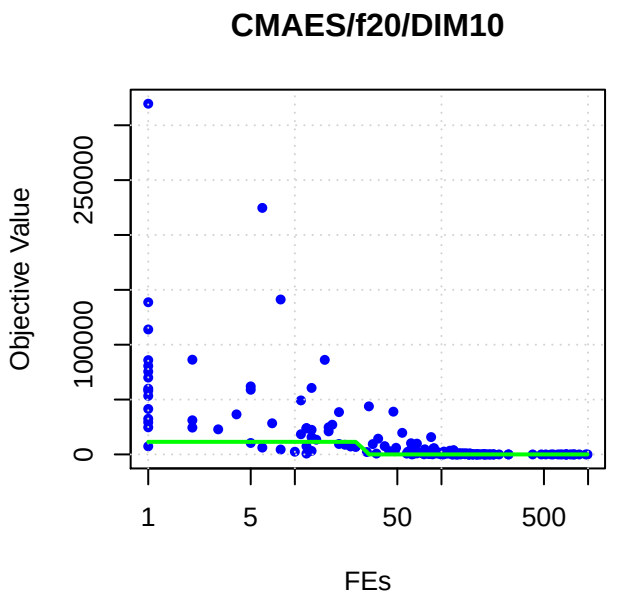
FEs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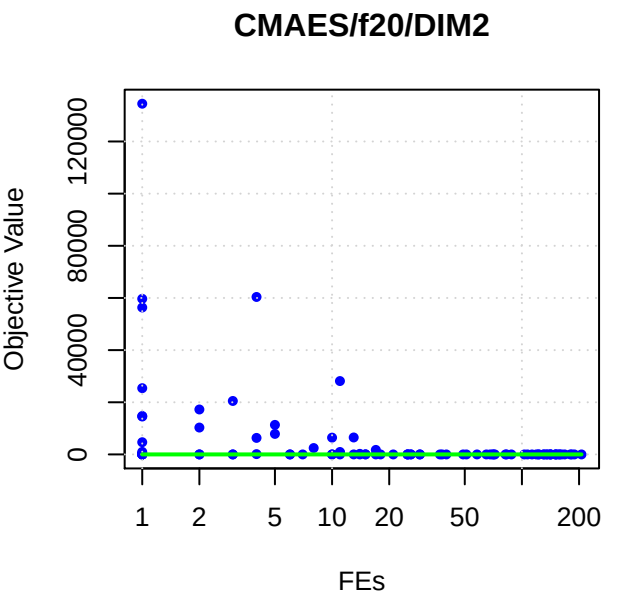
FEs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Objective Value
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120000
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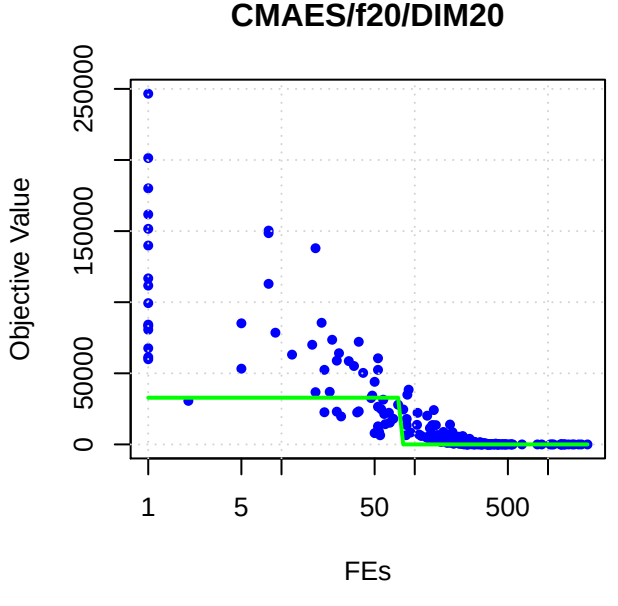
FEs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250000
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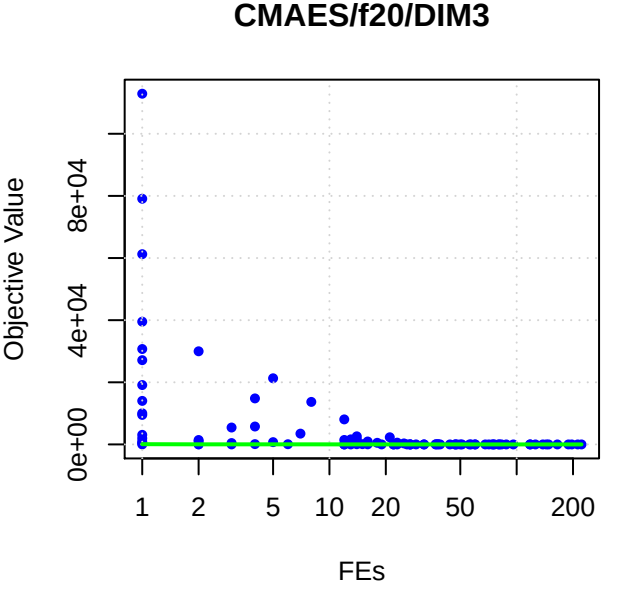
500
FEs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Objective Value
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8e+04
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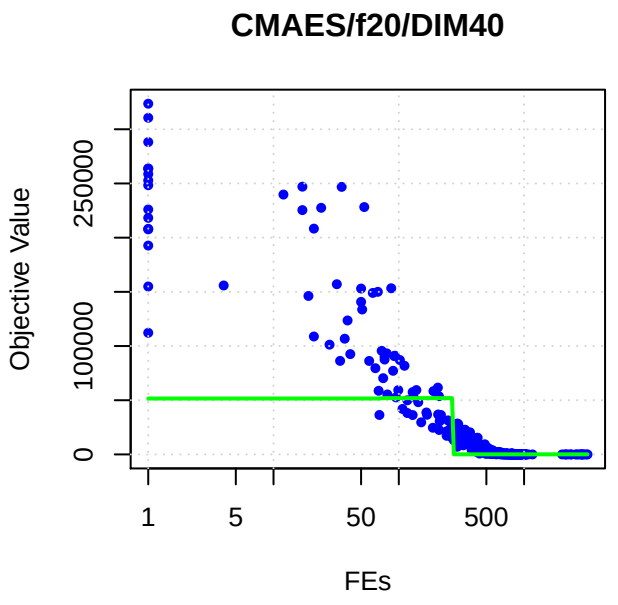
FEs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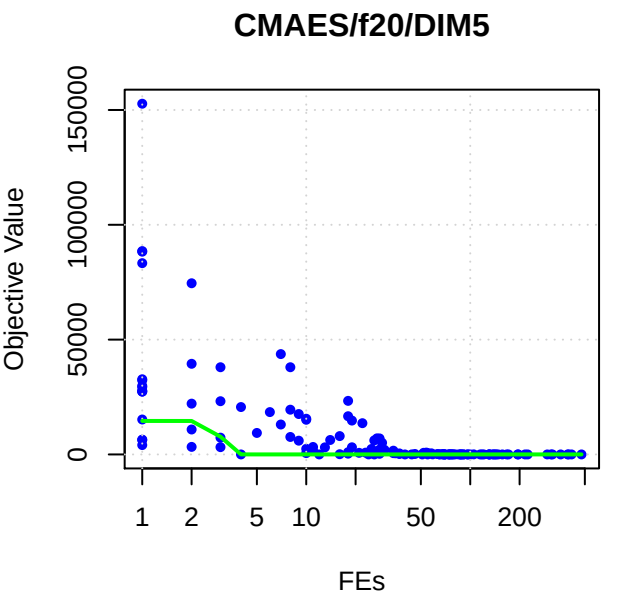
FEs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Objective Value
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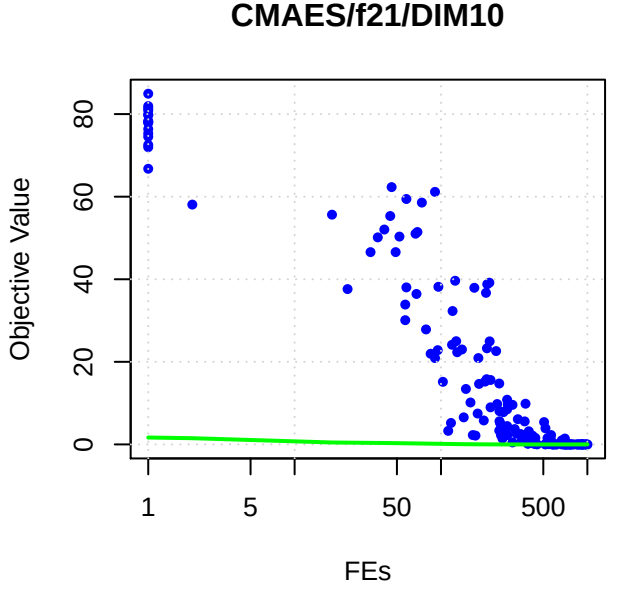
FEs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Objective Value
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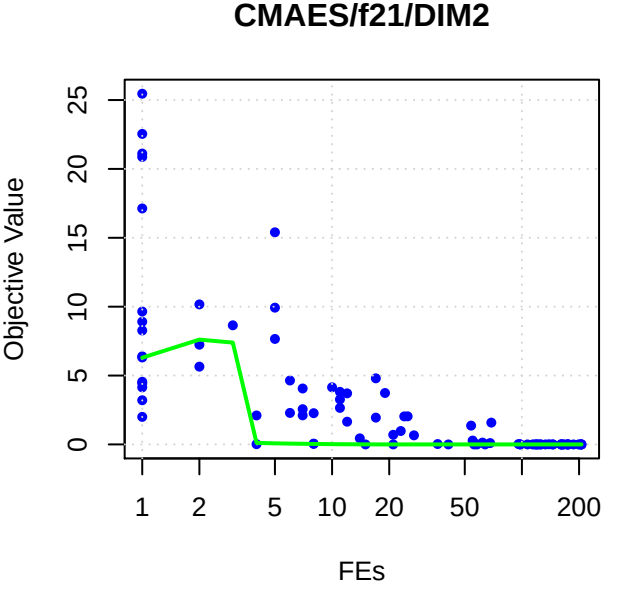
FEs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Objective Value
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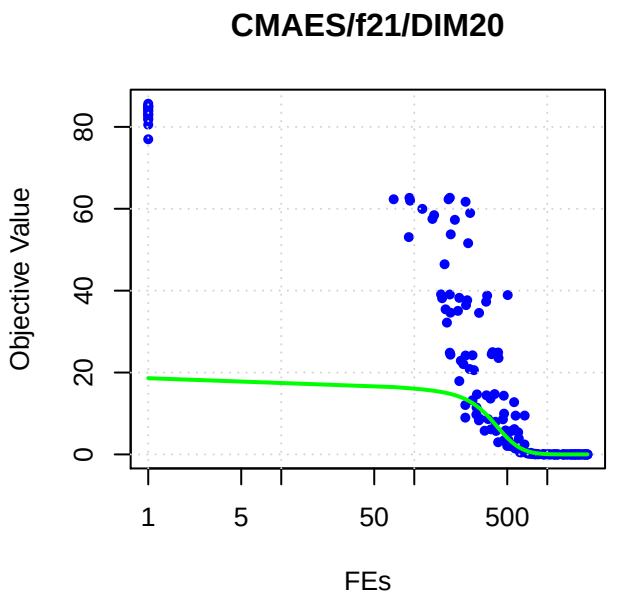
FEs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Objective Value
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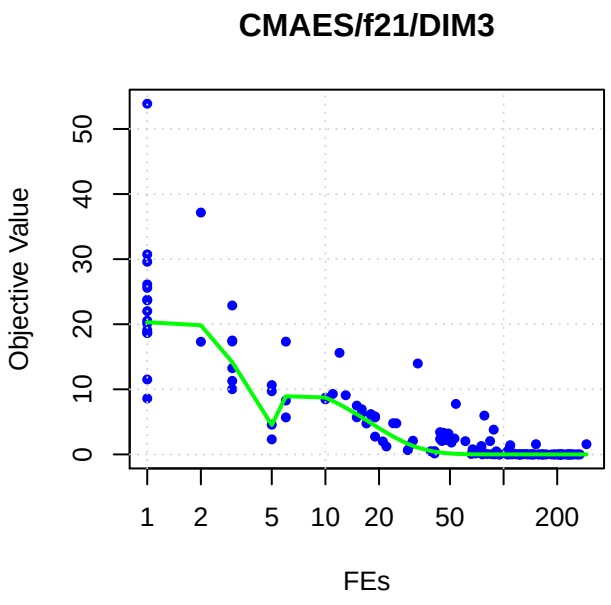
FEs


CMAES/f21/DIM3
Objective Value
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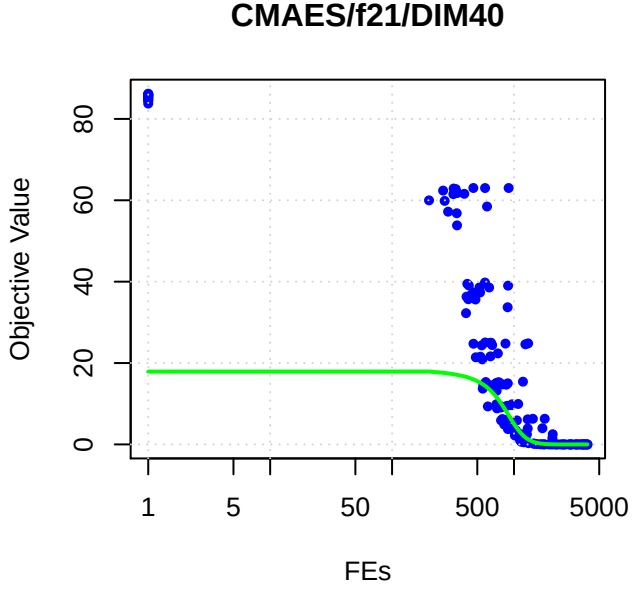
FEs


CMAES/f21/DIM40
Objective Value
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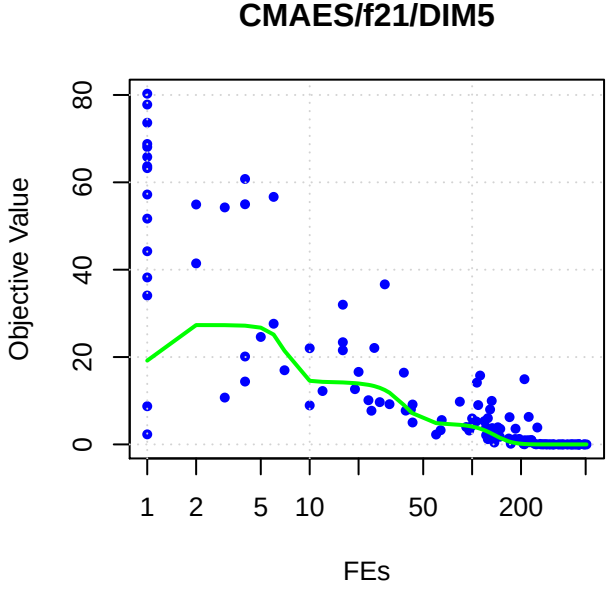
5000
FEs


CMAES/f21/DIM5
Objective Value
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1
2
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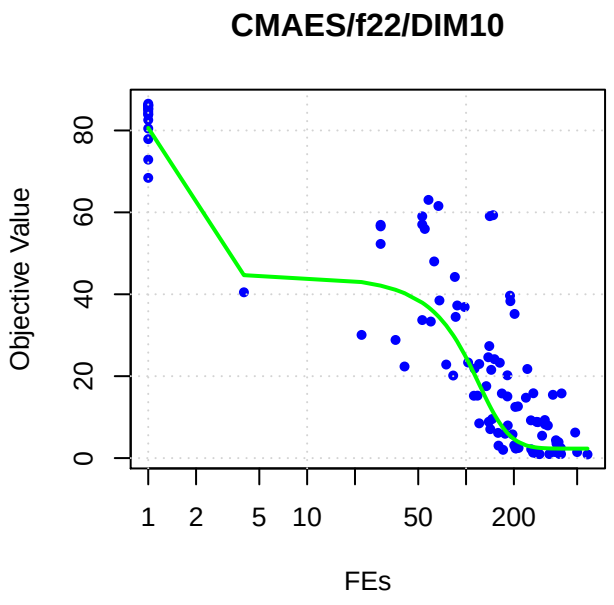
10
50
200
FEs


CMAES/f22/DIM10
Objective Value
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1
2
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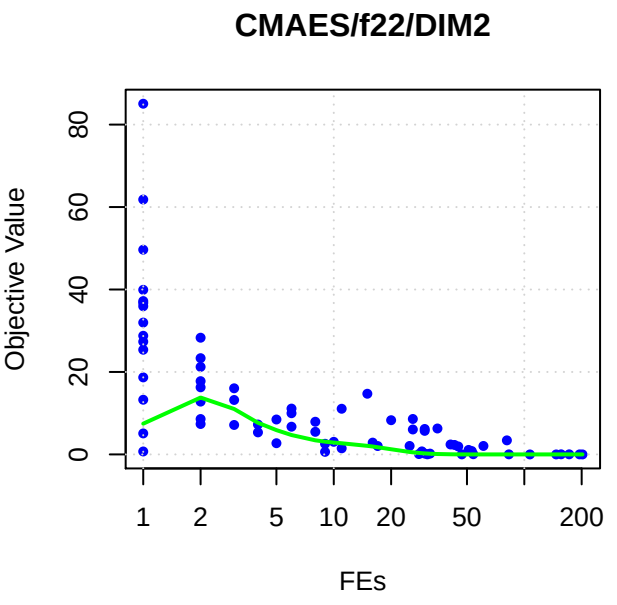
FEs


CMAES/f22/DIM2
Objective Value
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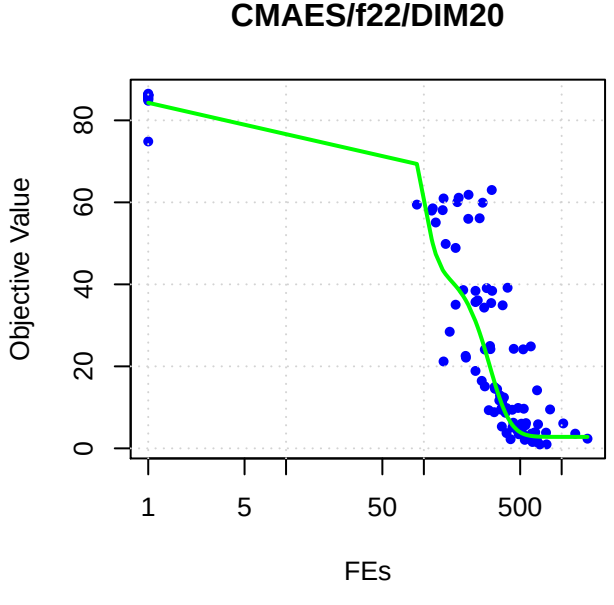
200
FEs


CMAES/f22/DIM20
Objective Value
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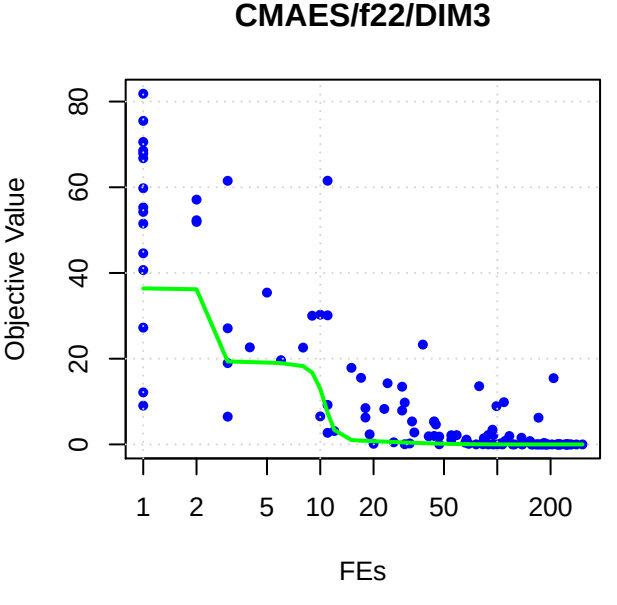
FEs


CMAES/f22/DIM3
Objective Value
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80
1
2
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10
20
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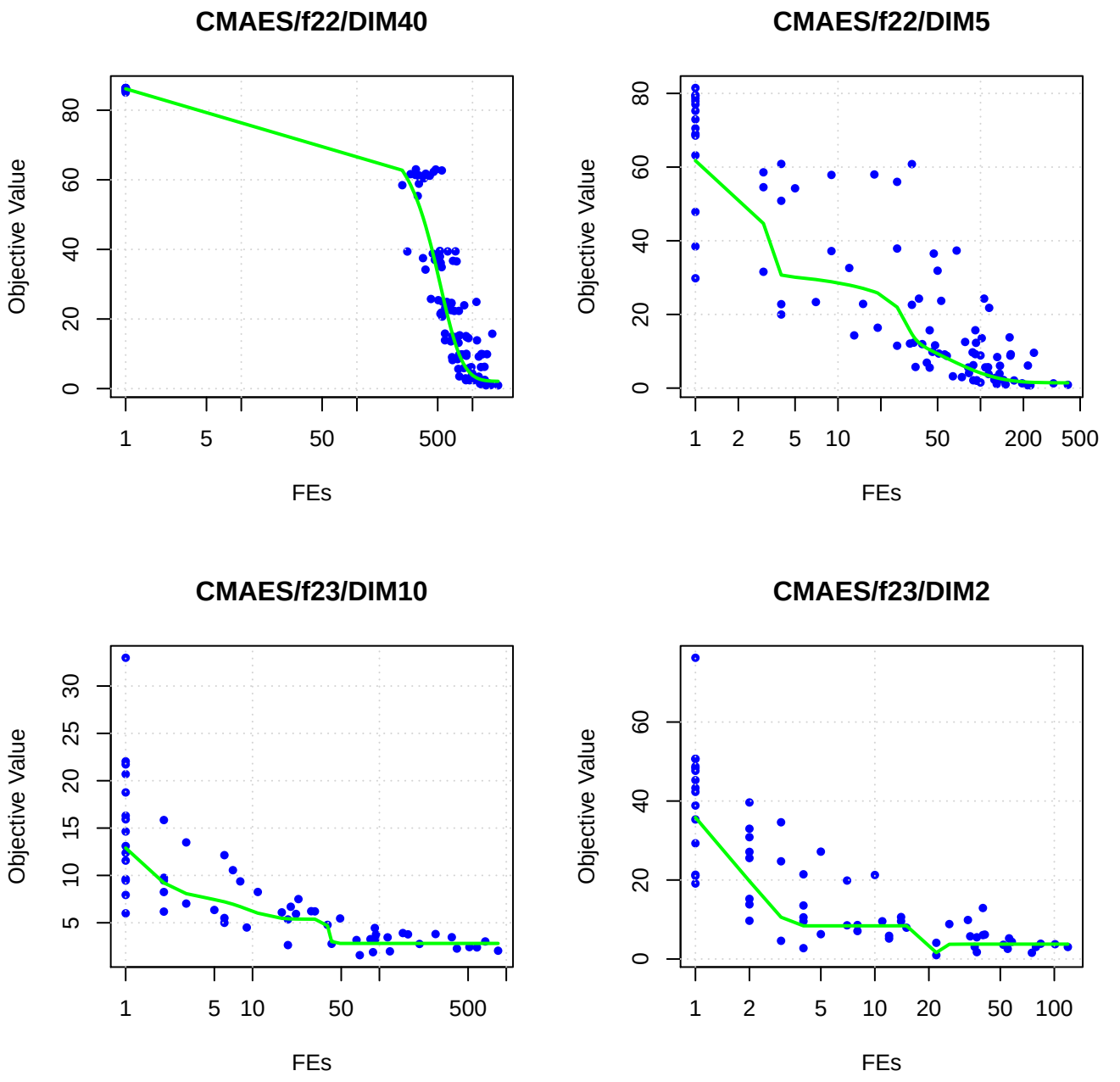
200
FEs


CMAES/f22/DIM40
Objective Value
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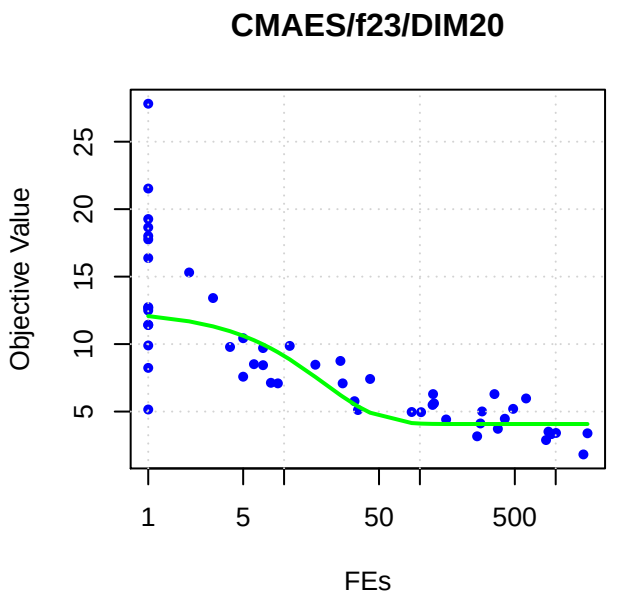
20
40
60
80
1
5
50
500
FEs
CMAES/f22/DIM5
Objective Value
0
20
40
60
80
1
2
5
10
50
200
500
FEs
CMAES/f23/DIM10
Objective Value
5
10
15
20
25
30
1
5
10
50
500
FEs
CMAES/f23/DIM2
Objective Value
0
20
40
60
1
2
5
10
20
50
100
FEs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Objective Value
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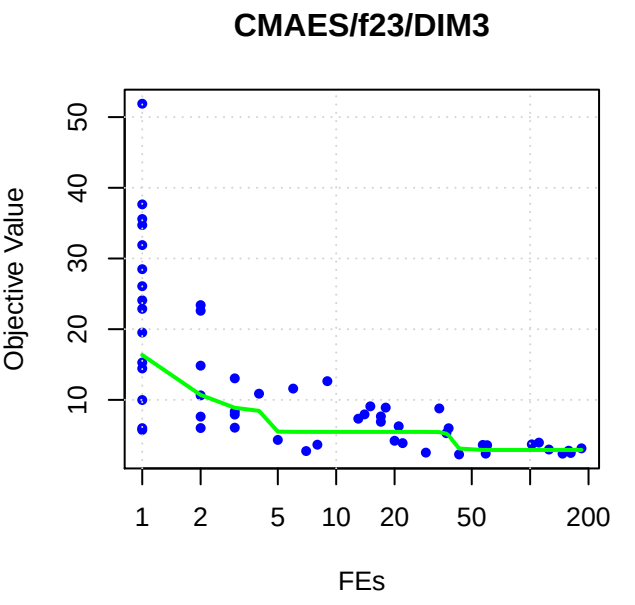
FEs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Objective Value
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1
2
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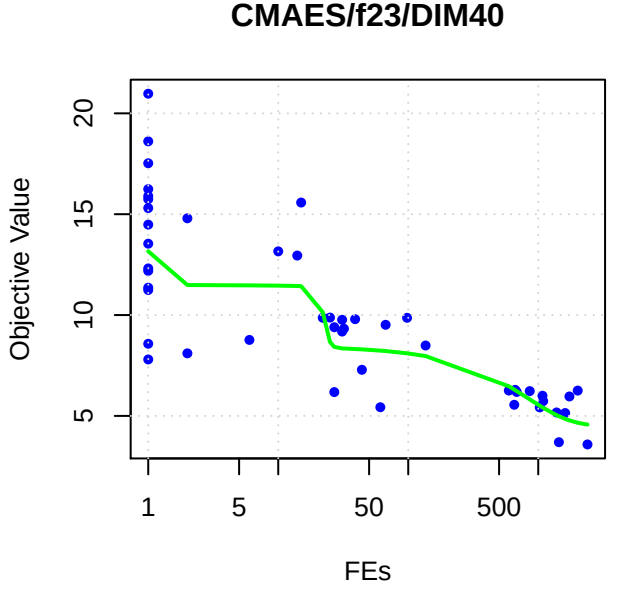
20
50
200
FEs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Objective Value
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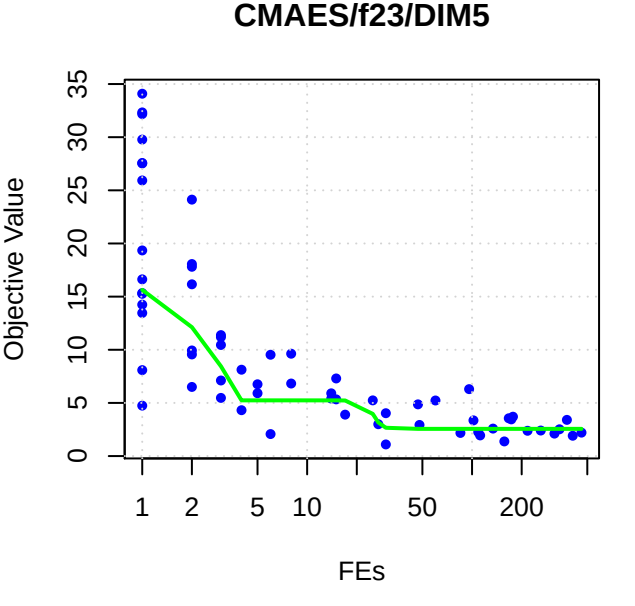
FEs


CMAES/f23/DIM5
Objective Value
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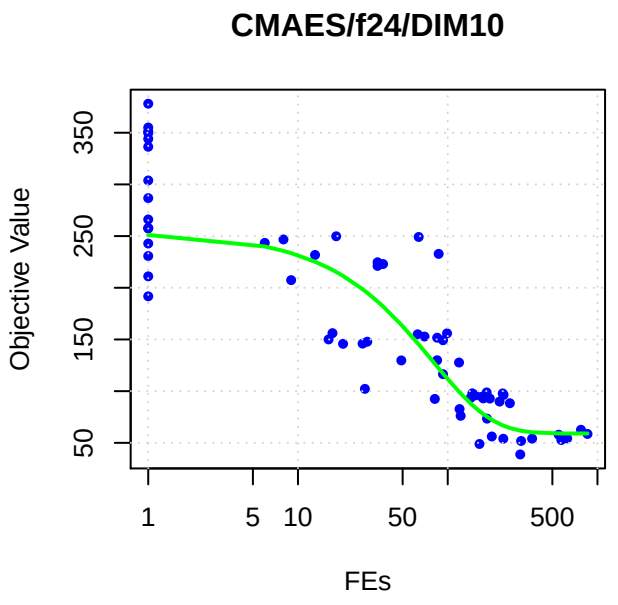
10
15
20
25
30
35
1
2
5
10
50
200
FEs


CMAES/f24/DIM10
Objective Value
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150
50
1
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10
50
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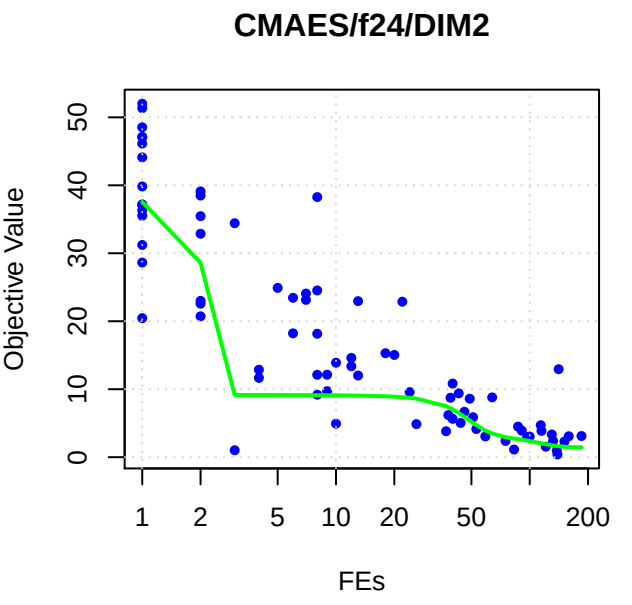
FEs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Objective Value
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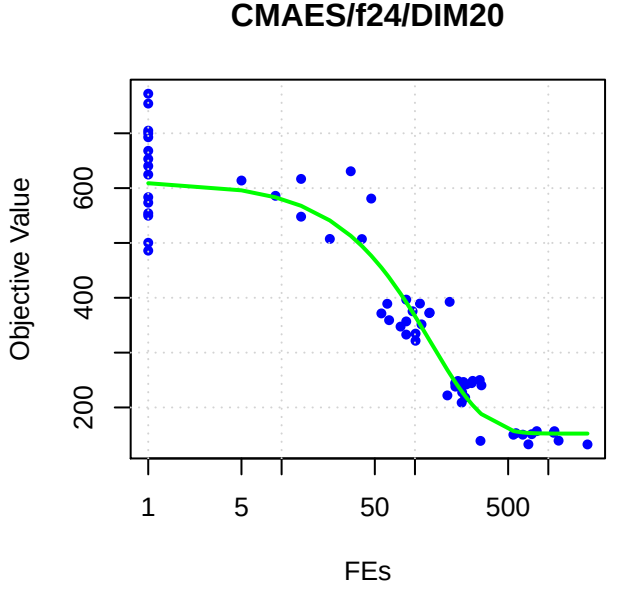
30
20
10
0
1
2
5
10
20
50
200
FEs


CMAES/f24/DIM20
Objective Value
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200
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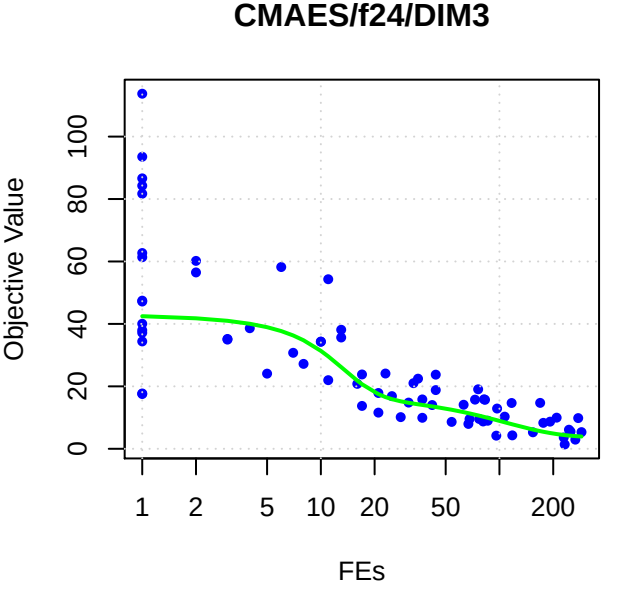
5
50
500
FEs


CMAES/f24/DIM3
Objective Value
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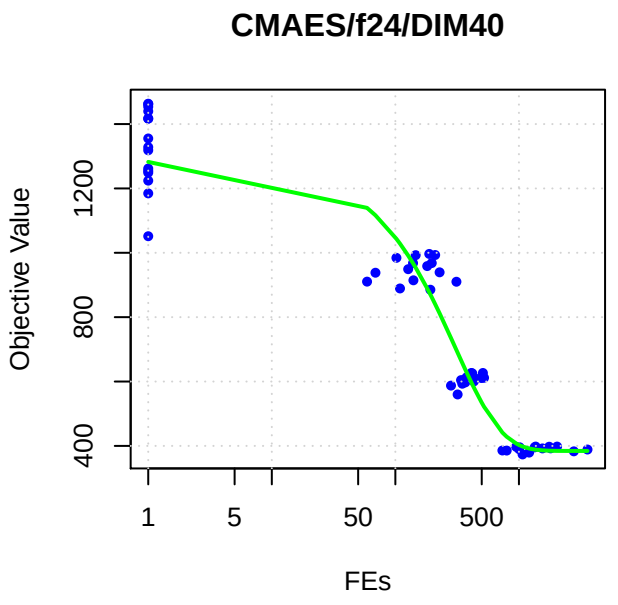
20
0
1
2
5
10
20
50
200
FEs


CMAES/f24/DIM40
Objective Value
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1200
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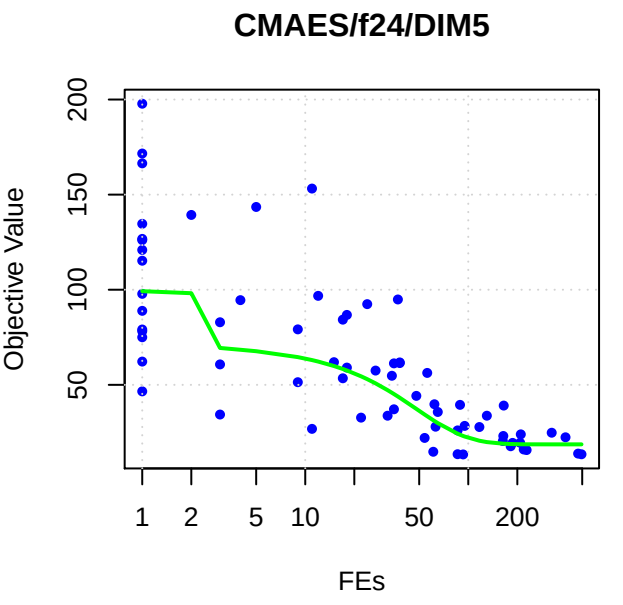
5
50
500
FEs


CMAES/f24/DIM5
Objective Value
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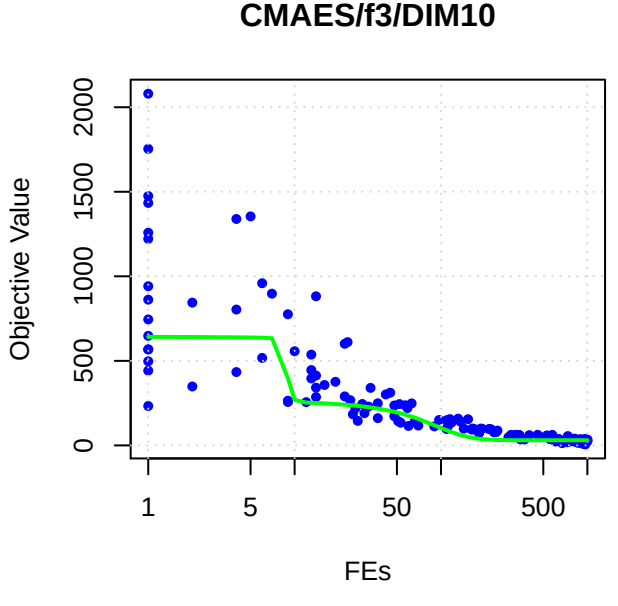
200
1
2
5
10
50
200
FEs


CMAES/f3/DIM10
Objective Value
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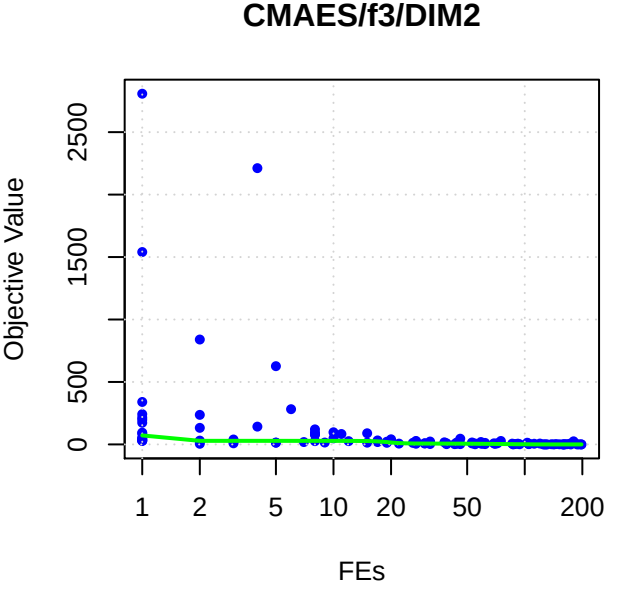
1
5
50
500
FEs


CMAES/f3/DIM2
Objective Value
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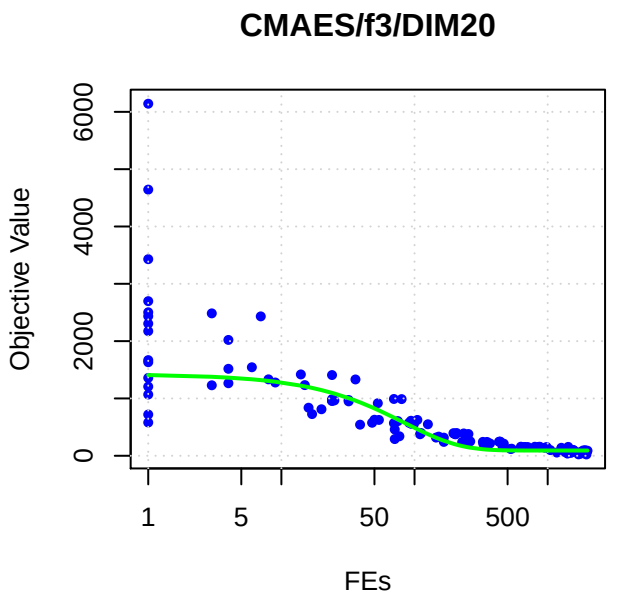
1500
2500
1
2
5
10
20
50
200
FEs


CMAES/f3/DIM20
Objective Value
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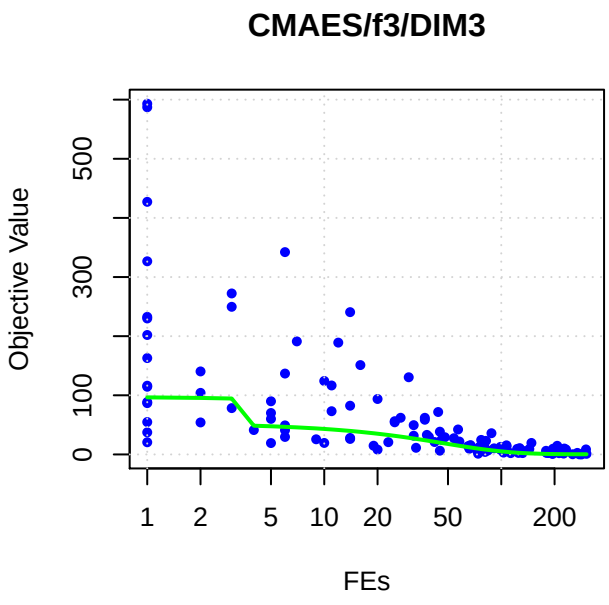
6000
1
5
50
500
FEs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Objective Value
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1
2
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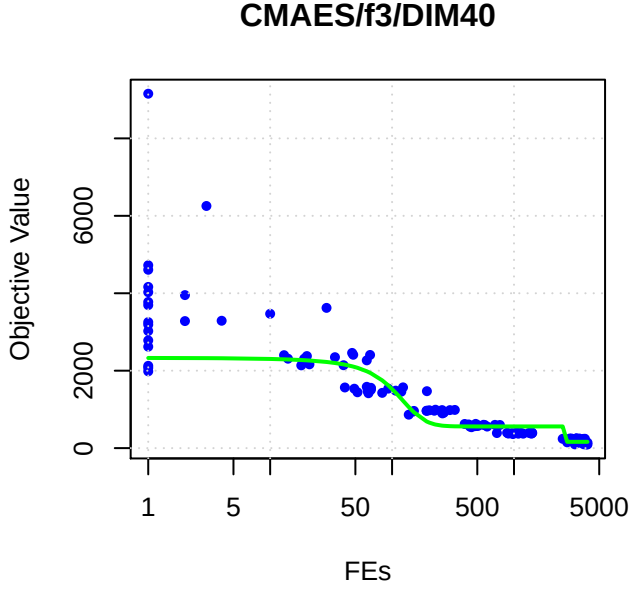
10
20
50
200
FEs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Objective Value
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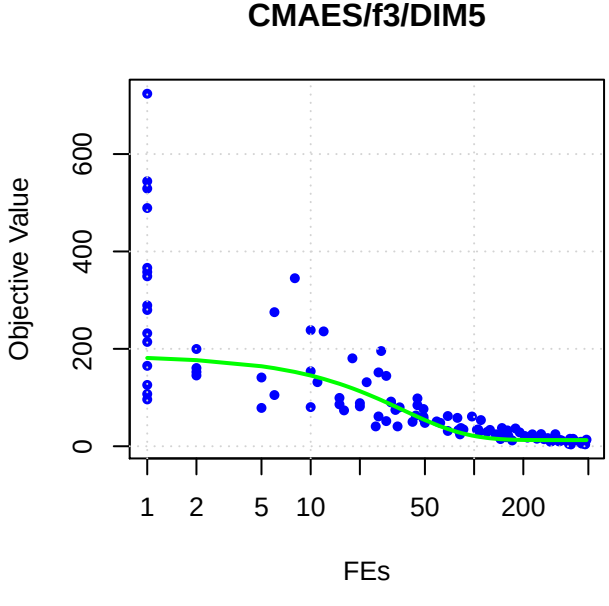
500
5000
FEs


CMAES/f3/DIM5
Objective Value
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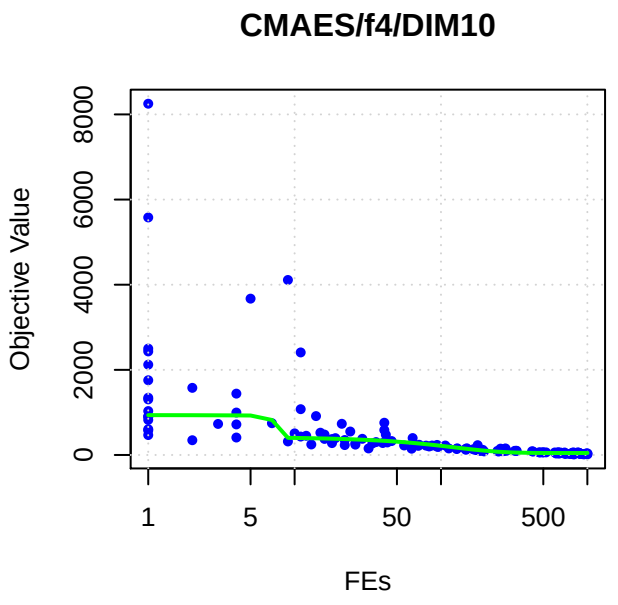
400
600
1
2
5
10
50
200
FEs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Objective Value
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8000
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5
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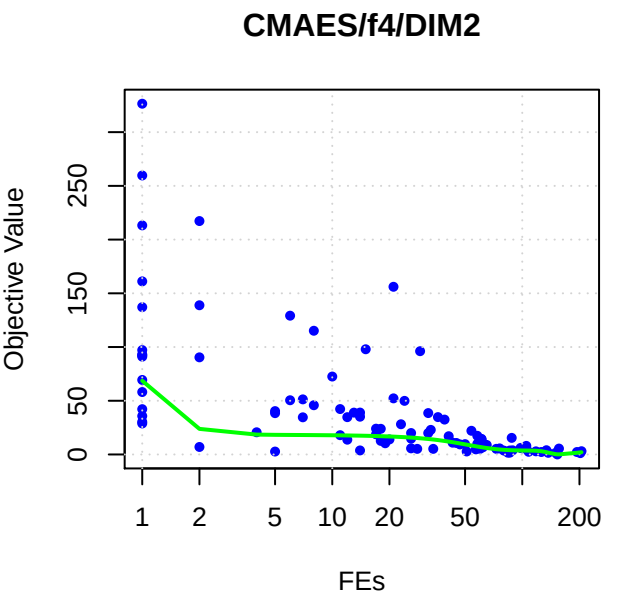
500
FEs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Objective Value
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150
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1
2
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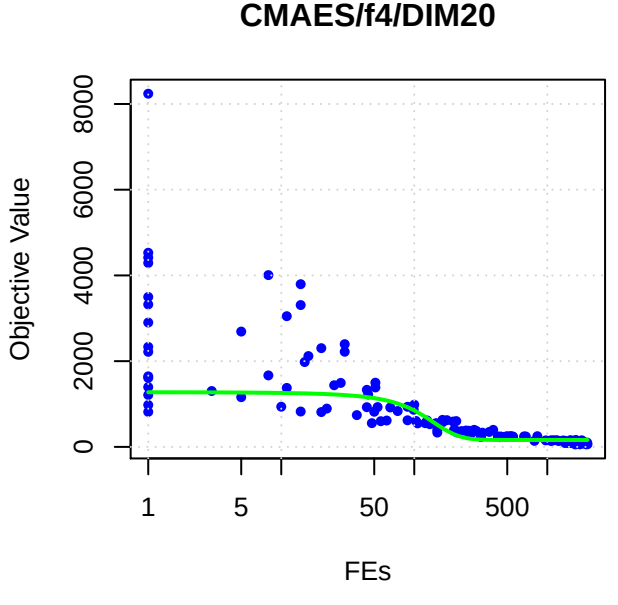
10
20
50
200
FEs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Objective Value
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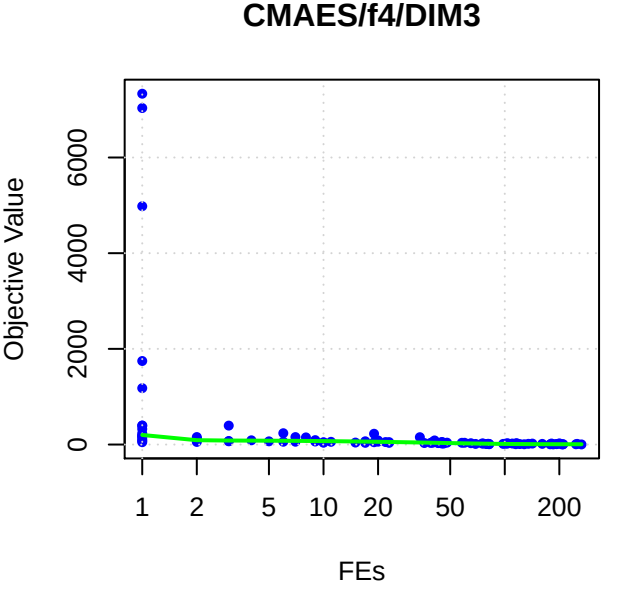
FEs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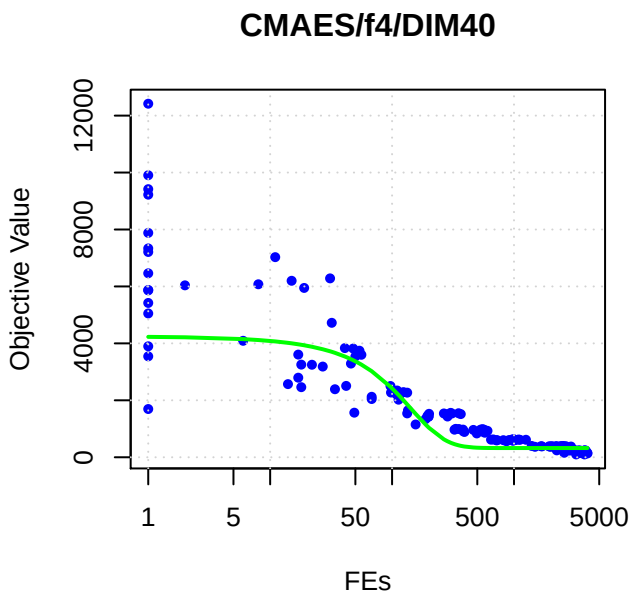
FEs


CMAES/f4/DIM40
Objective Value
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12000
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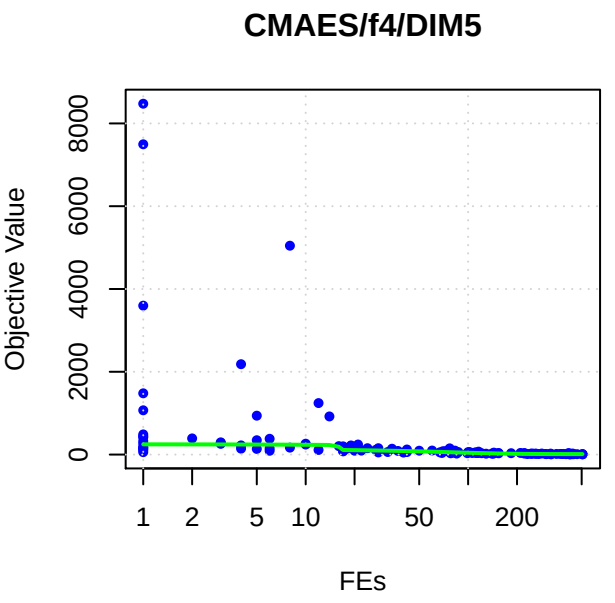
FEs


CMAES/f4/DIM5
Objective Value
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8000
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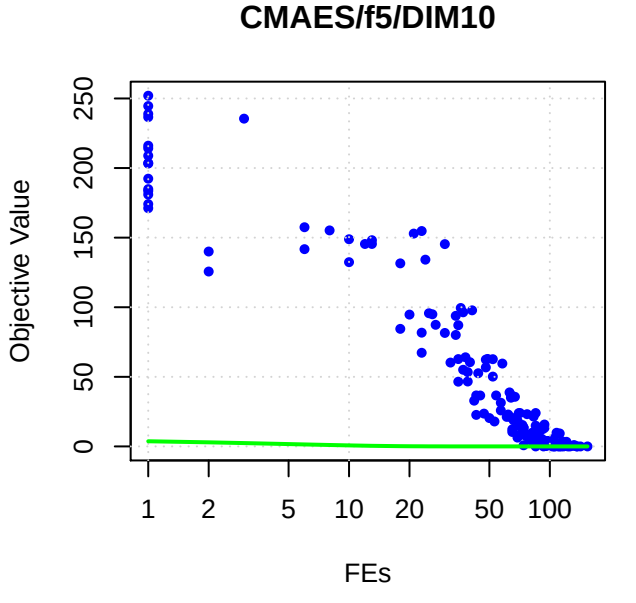
FEs


CMAES/f5/DIM10
Objective Value
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20
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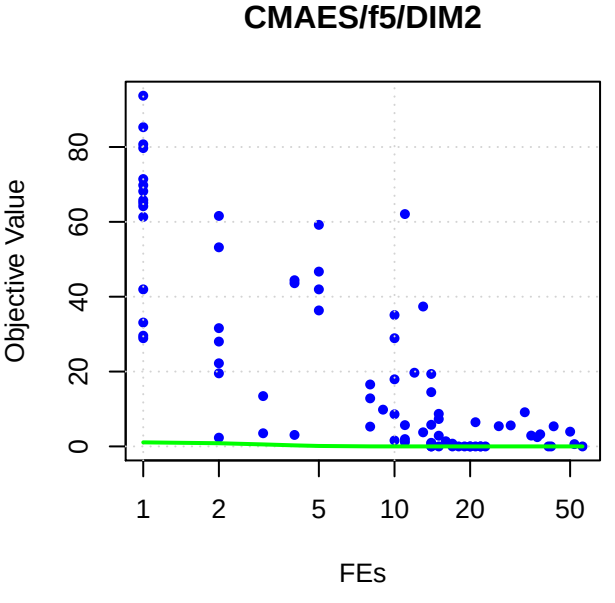
100
FEs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Objective Value
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1
2
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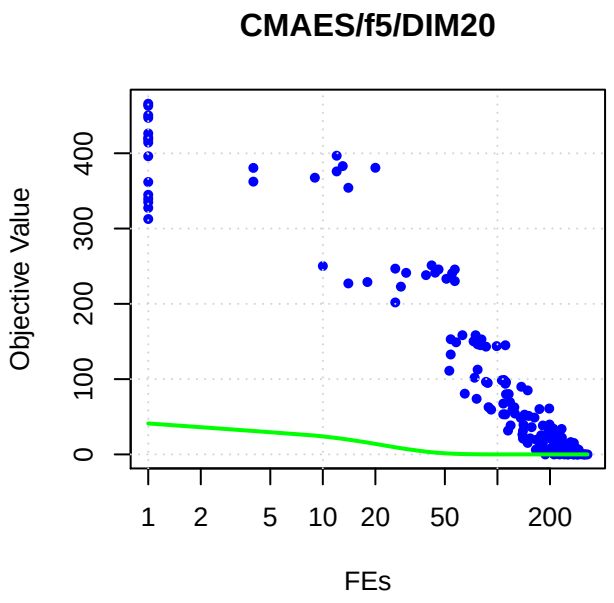
10
20
50
FEs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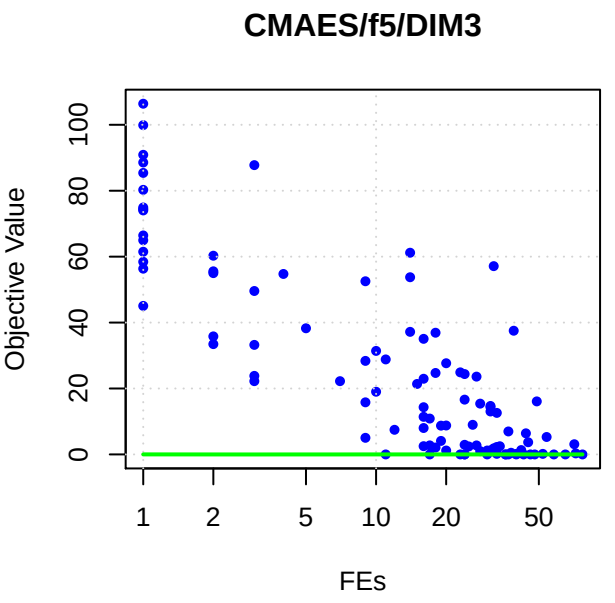
FEs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Objective Value
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2
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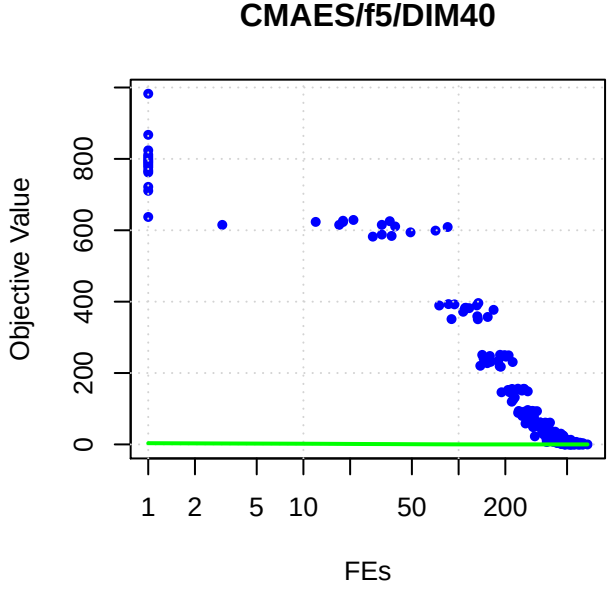
FEs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800
1
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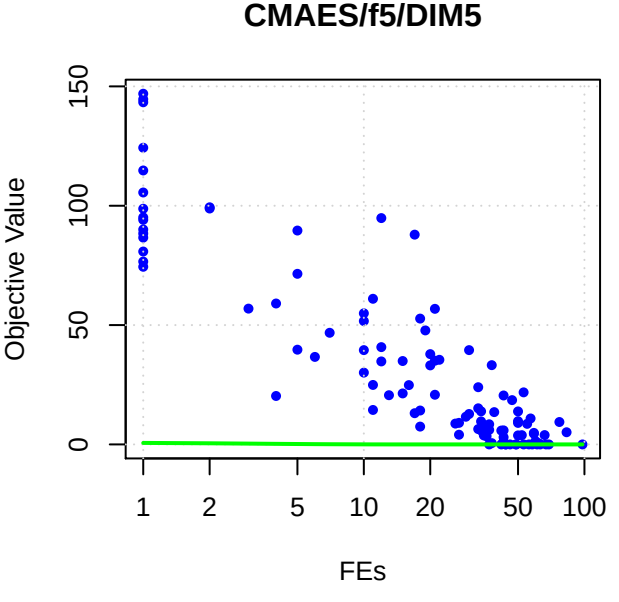
FEs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1
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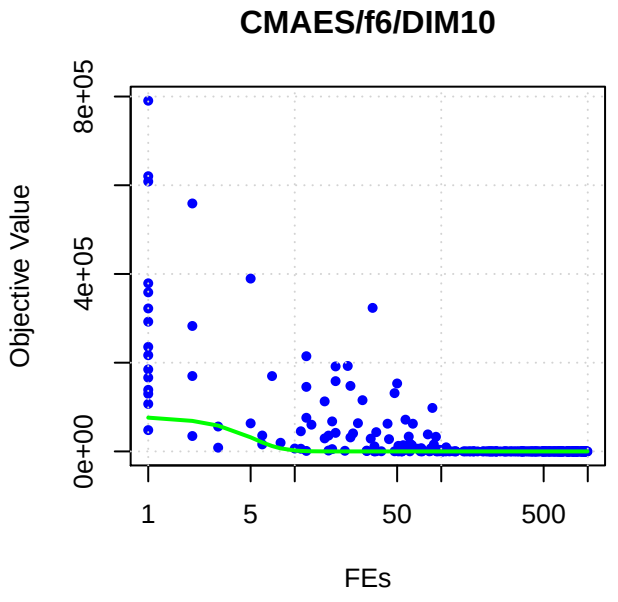
100
FEs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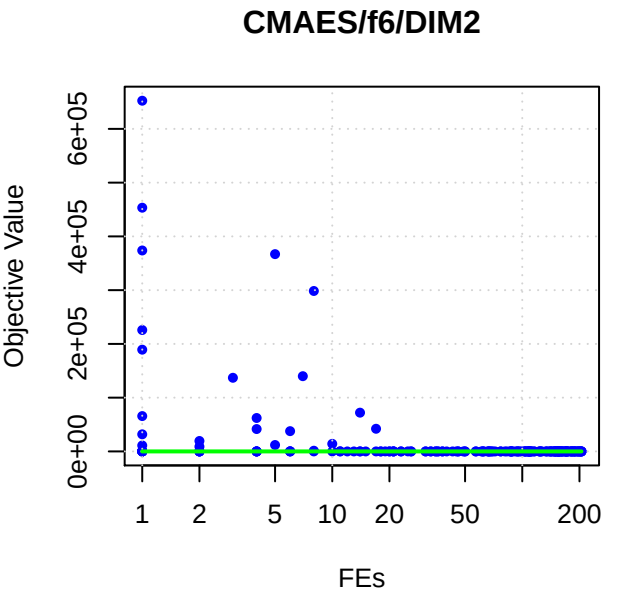
500
FEs


CMAES/f6/DIM2
Objective Value
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4e+05
6e+05
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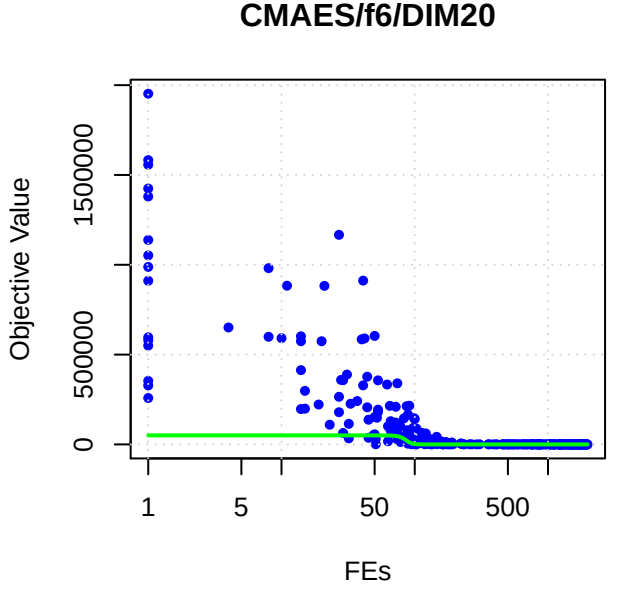
2
5
10
20
50
200
FEs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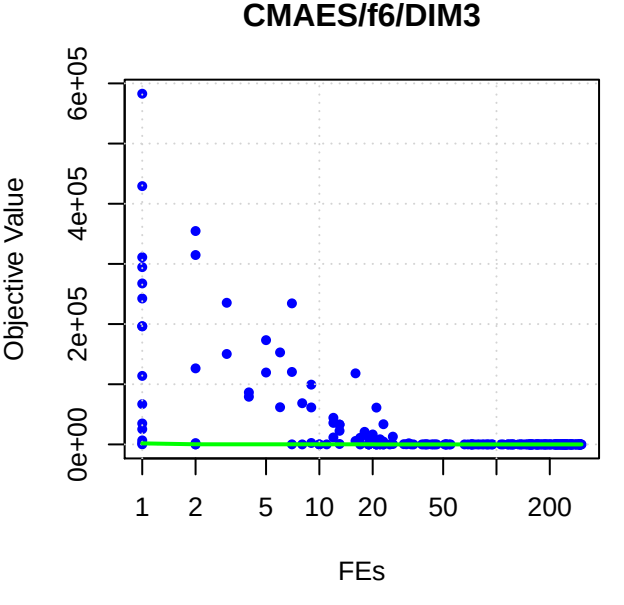
500
FEs


CMAES/f6/DIM3
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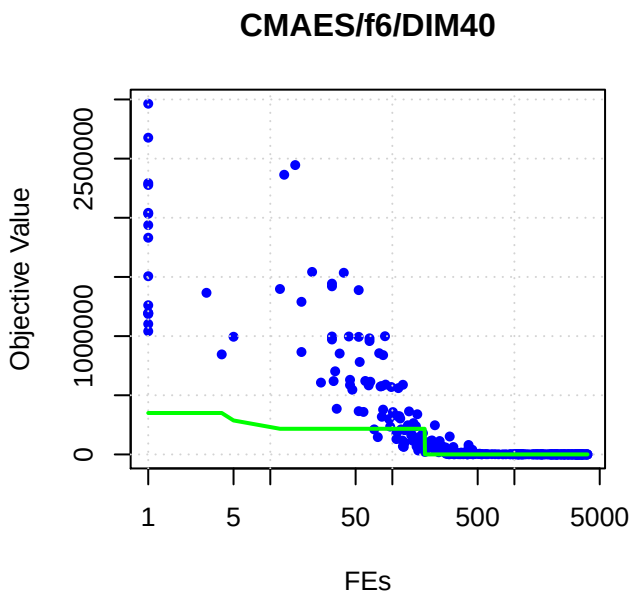
FEs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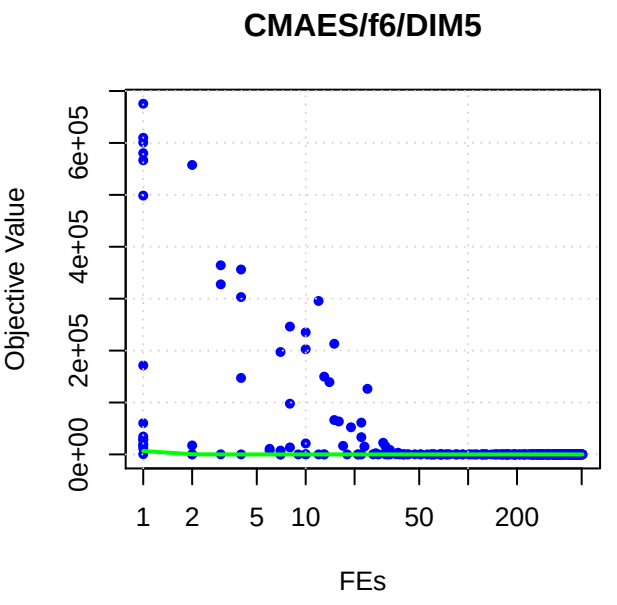
CMAES/f6/DIM5
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4e+05
6e+05
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2
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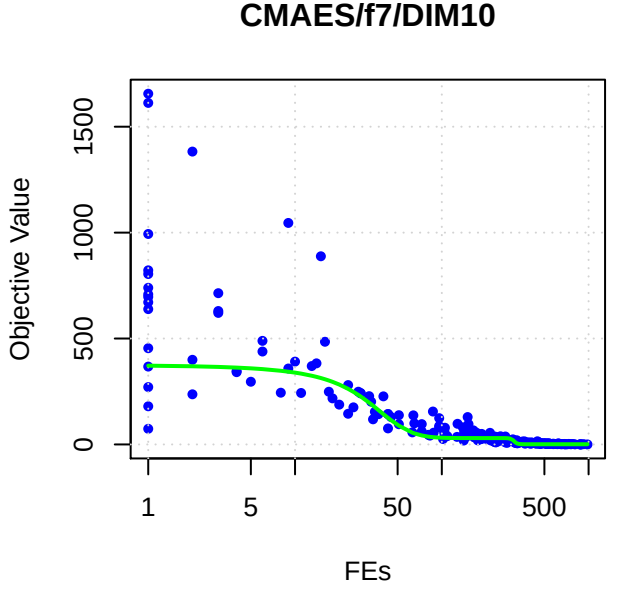
10
50
200
FEs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Objective Value
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1500
1
5
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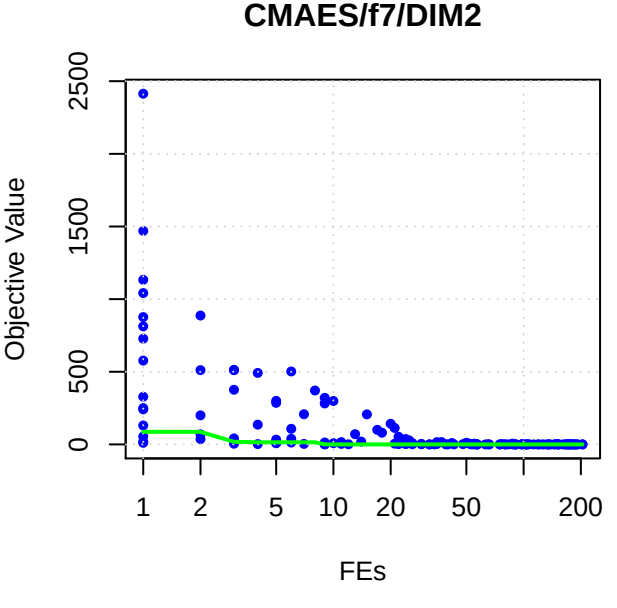
500
FEs


CMAES/f7/DIM2
Objective Value
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1500
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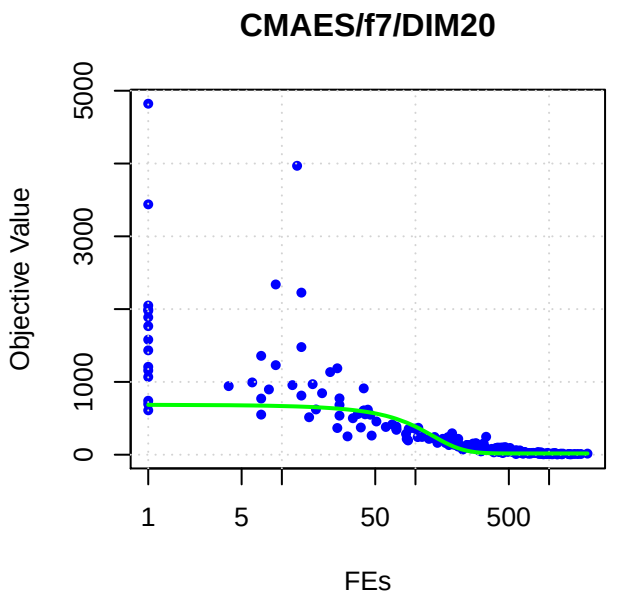
1
2
5
10
20
50
200
FEs


CMAES/f7/DIM20
Objective Value
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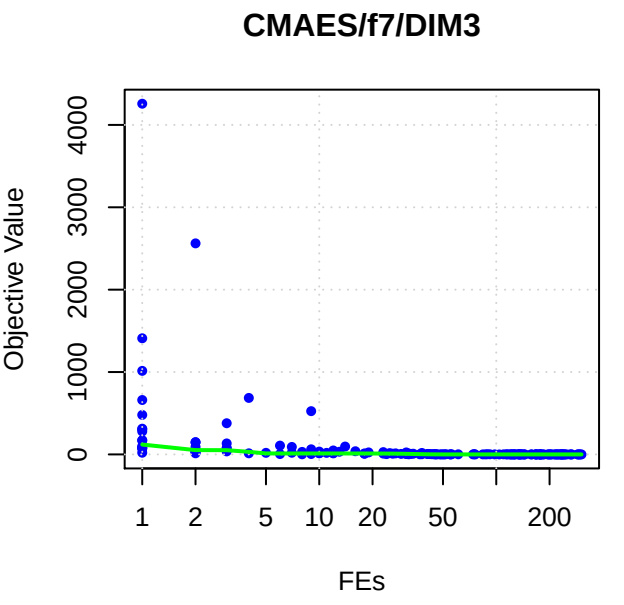
500
FEs


CMAES/f7/DIM3
Objective Value
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1
2
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20
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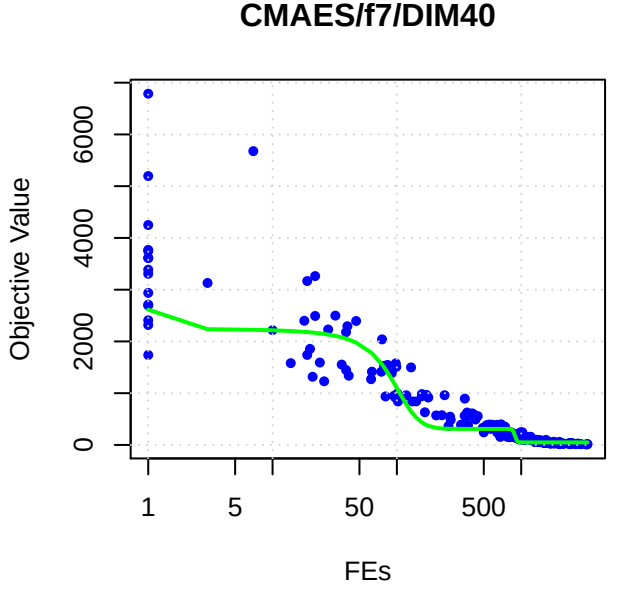
200
FEs


CMAES/f7/DIM40
Objective Value
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6000
1
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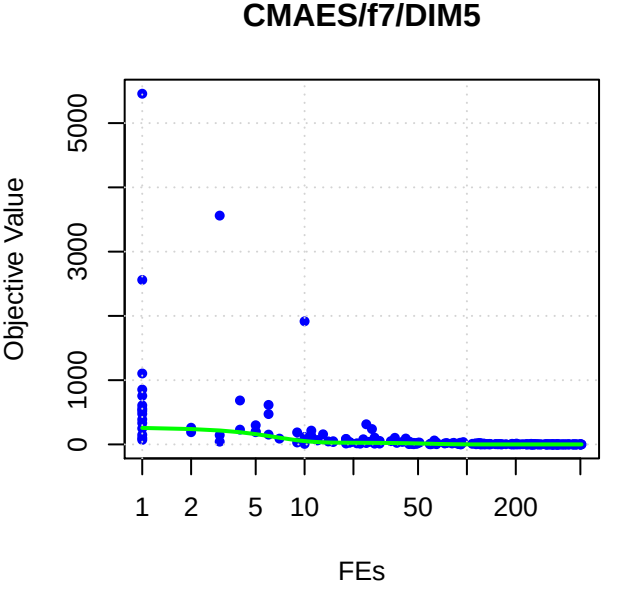
FEs


CMAES/f7/DIM5
Objective Value
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1000
3000
5000
1
2
5
10
50
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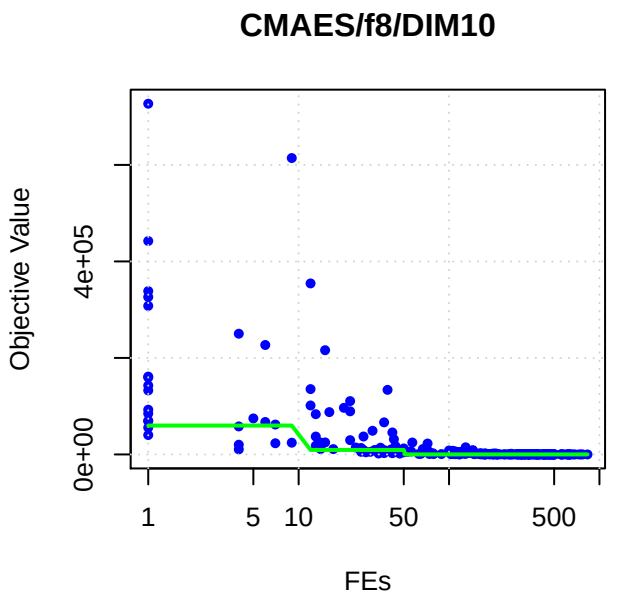
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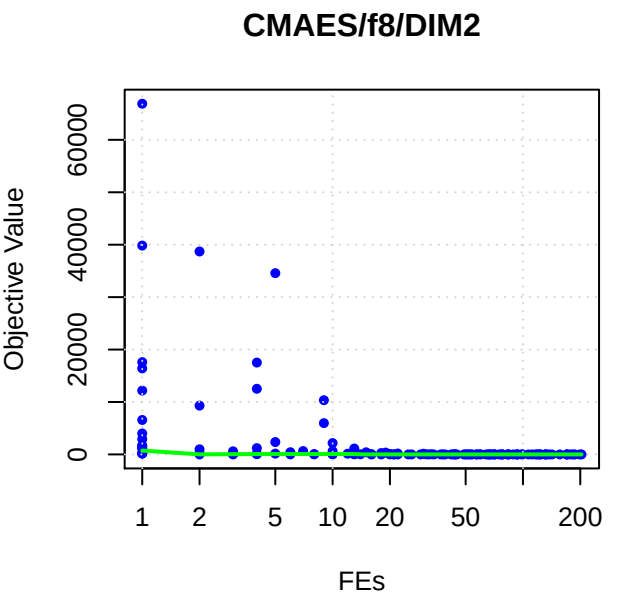
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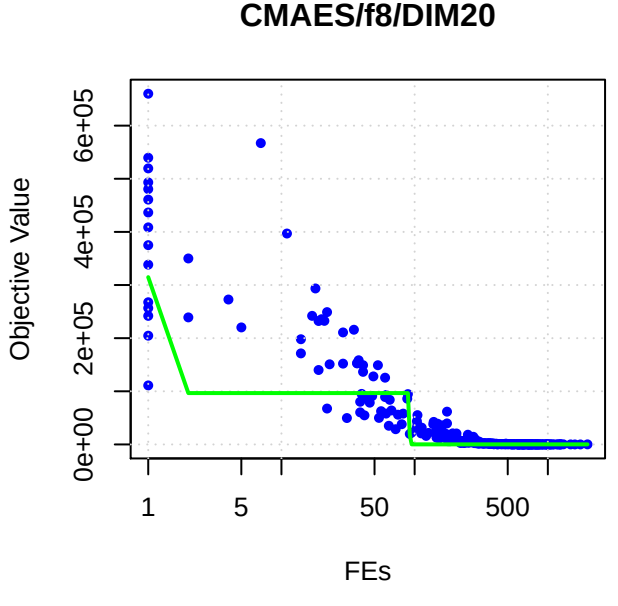
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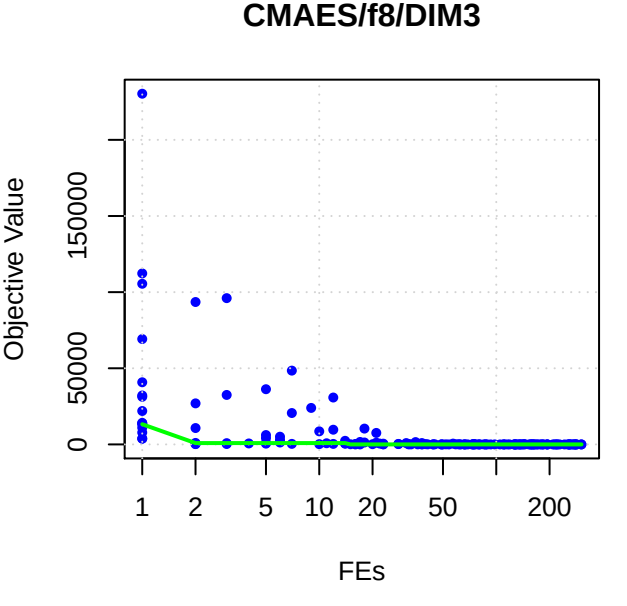
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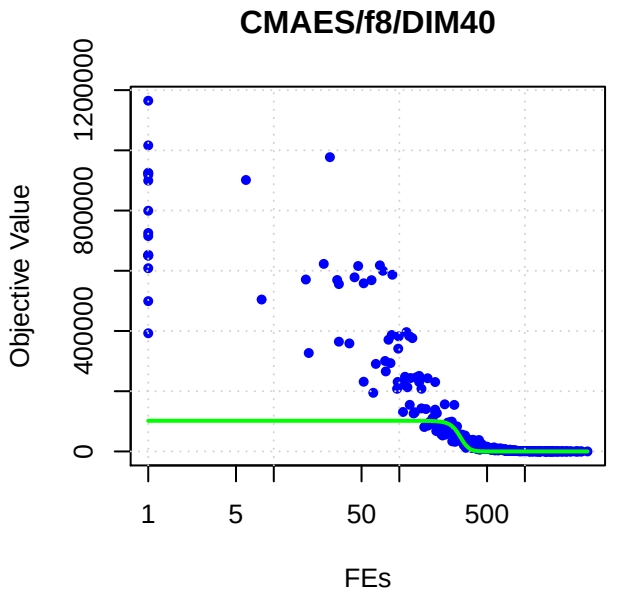
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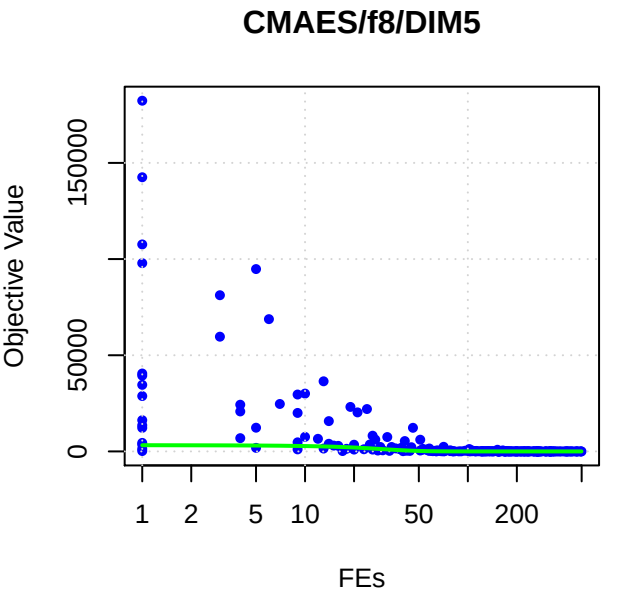
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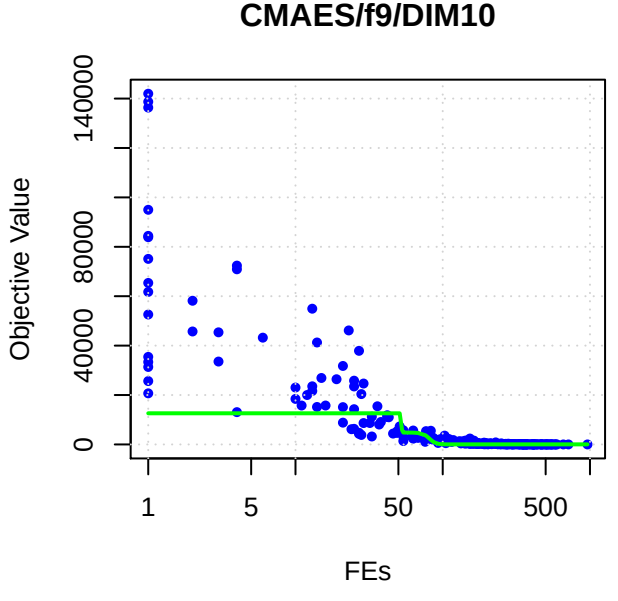
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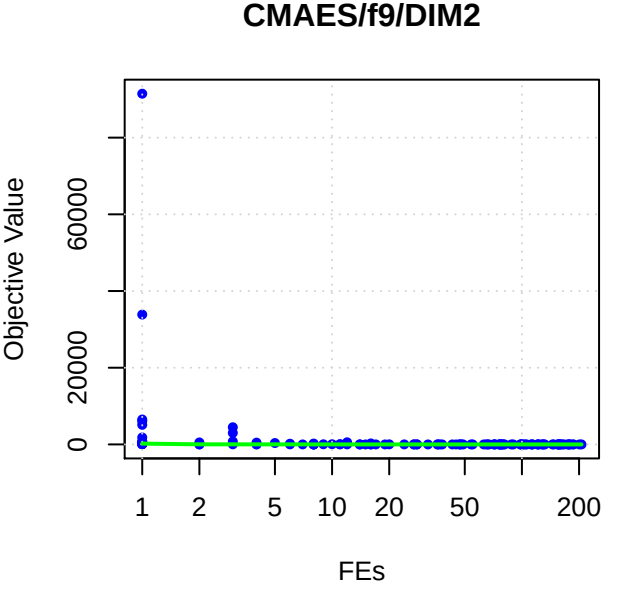
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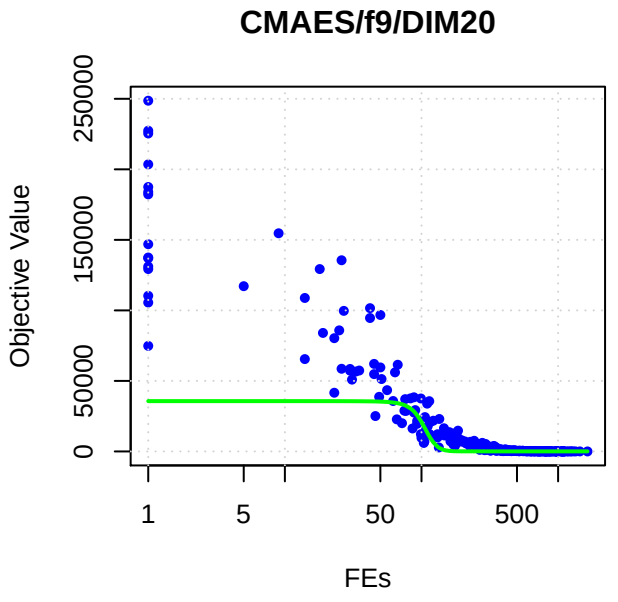
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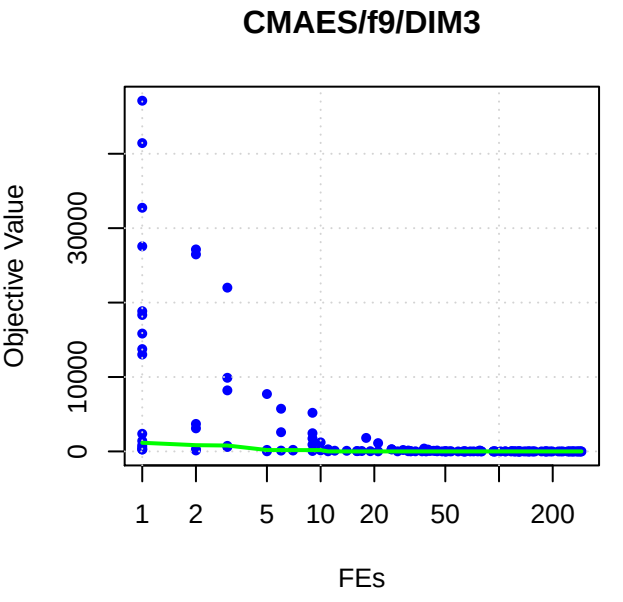
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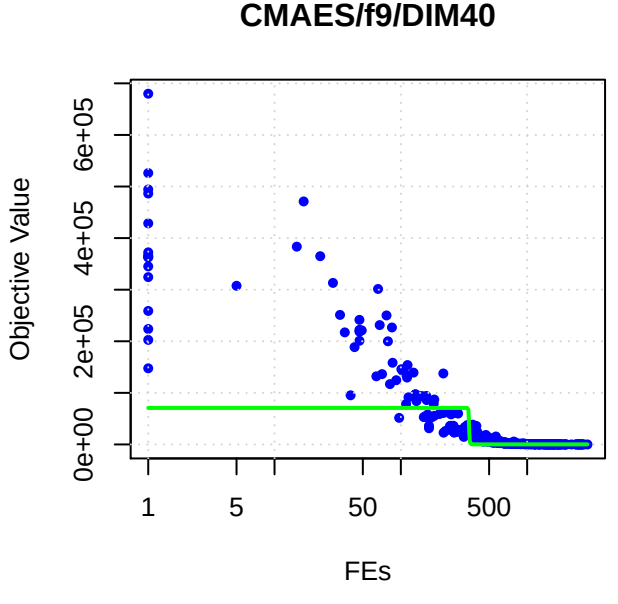
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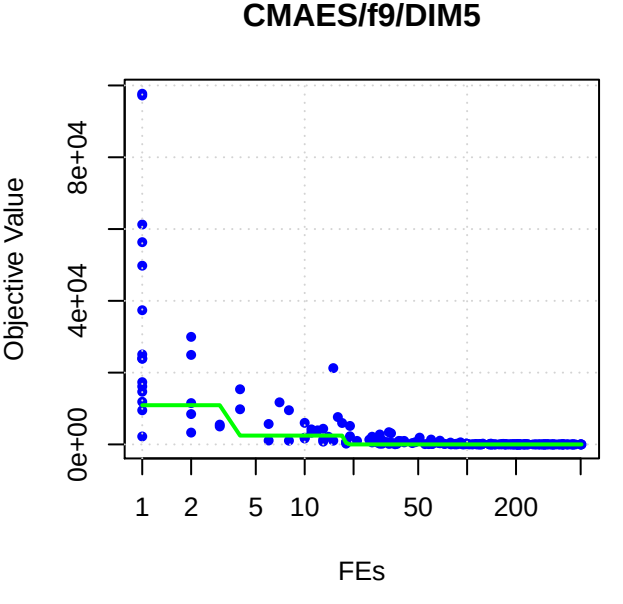
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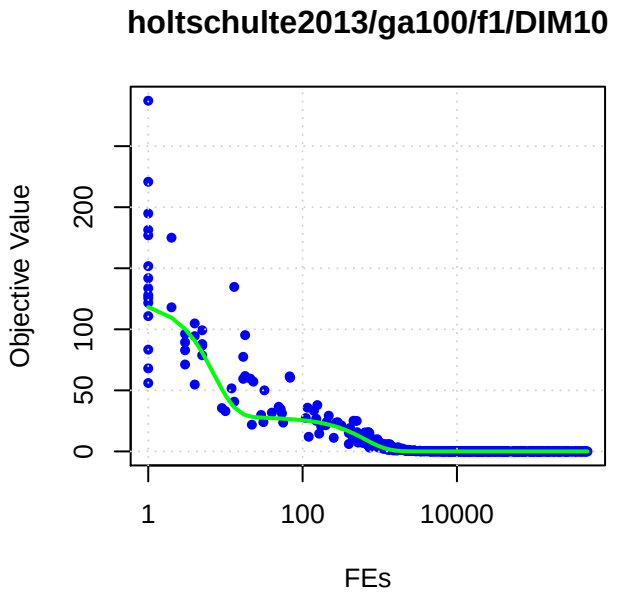
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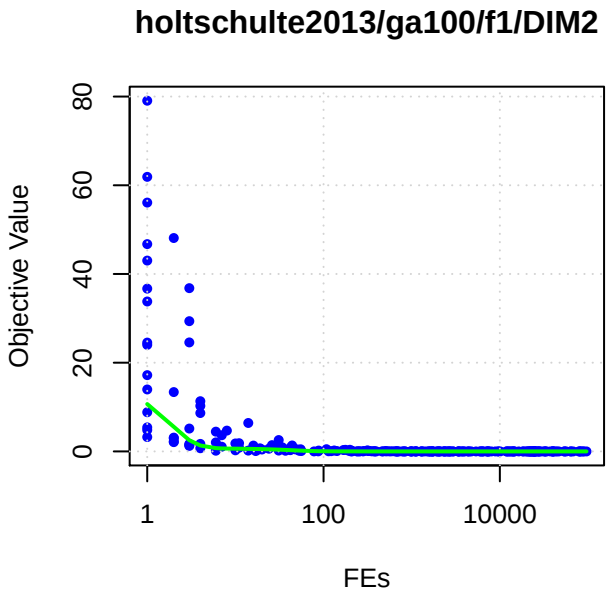
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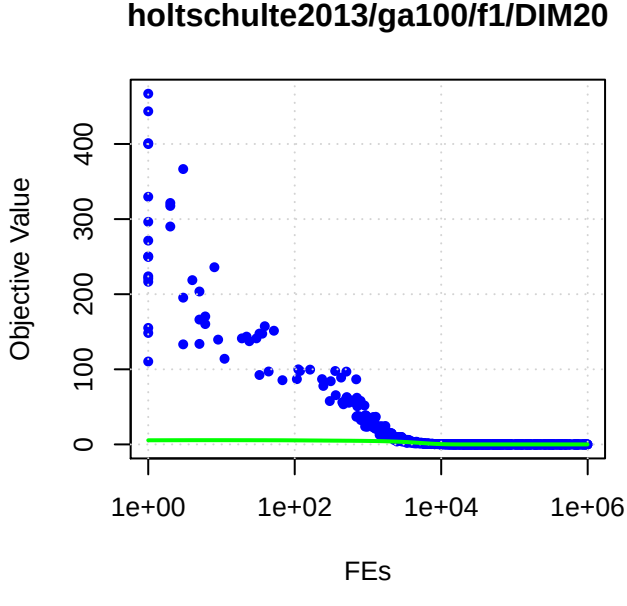
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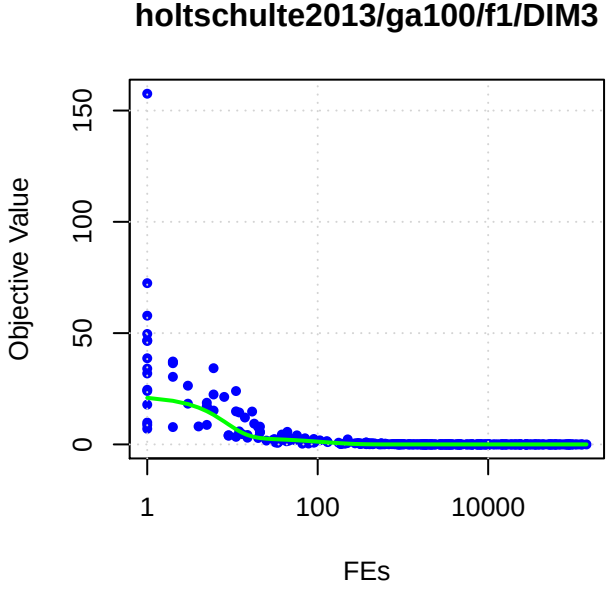
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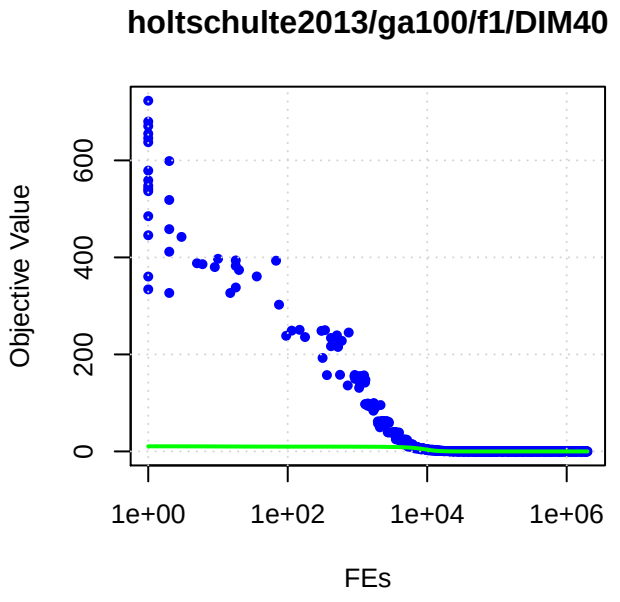
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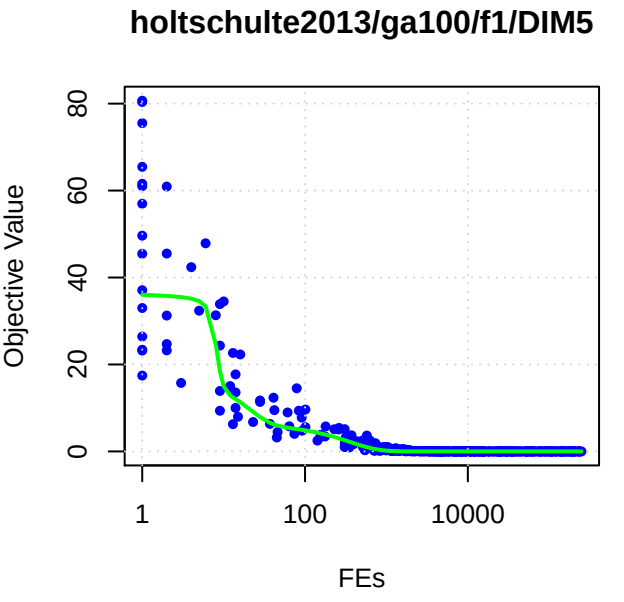
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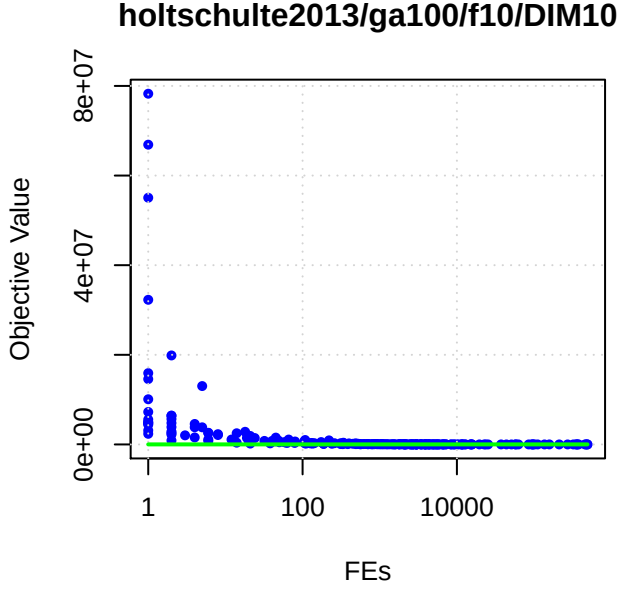
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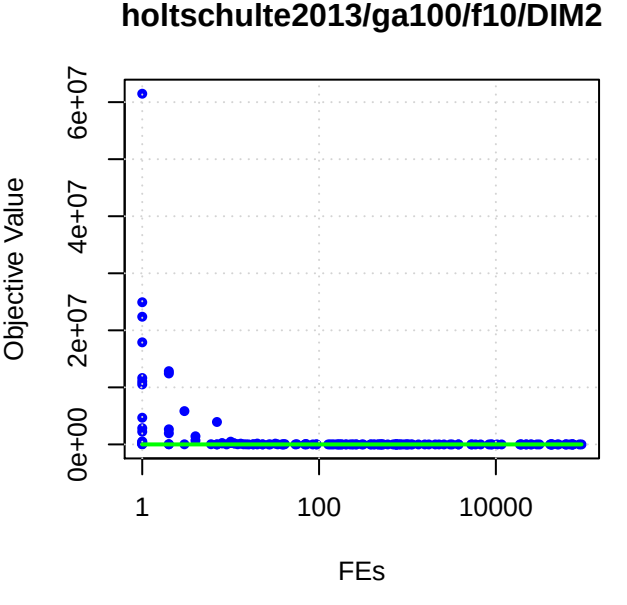
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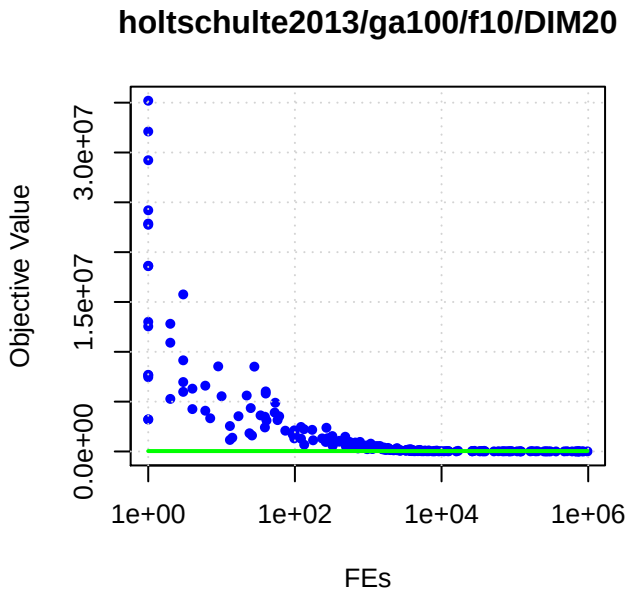
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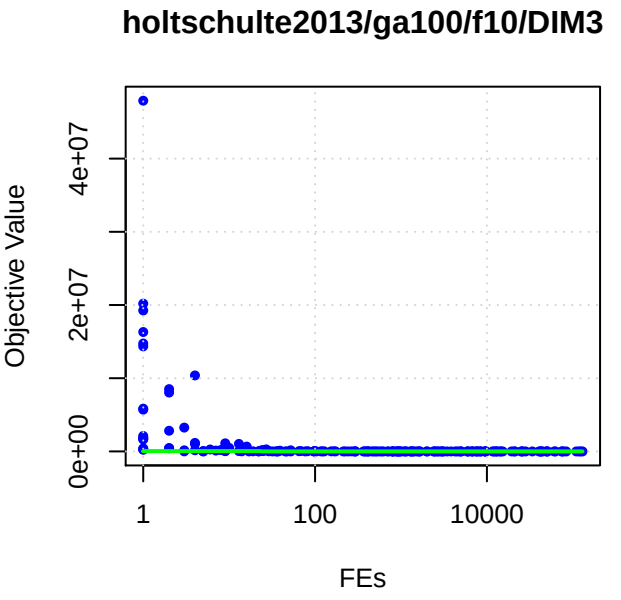
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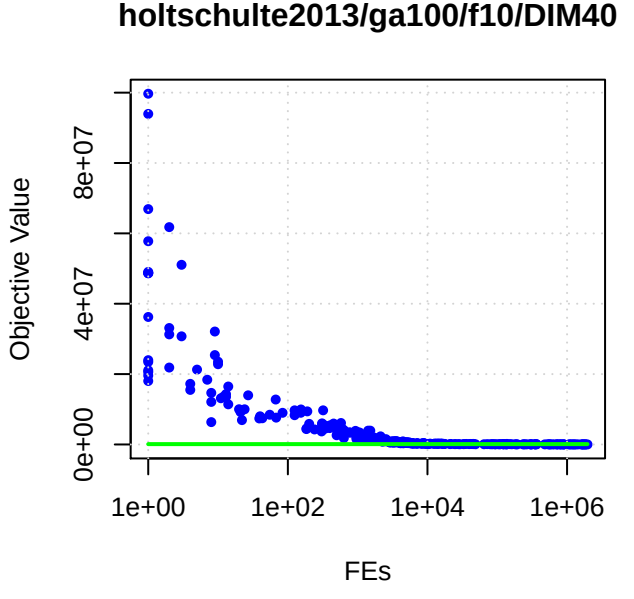
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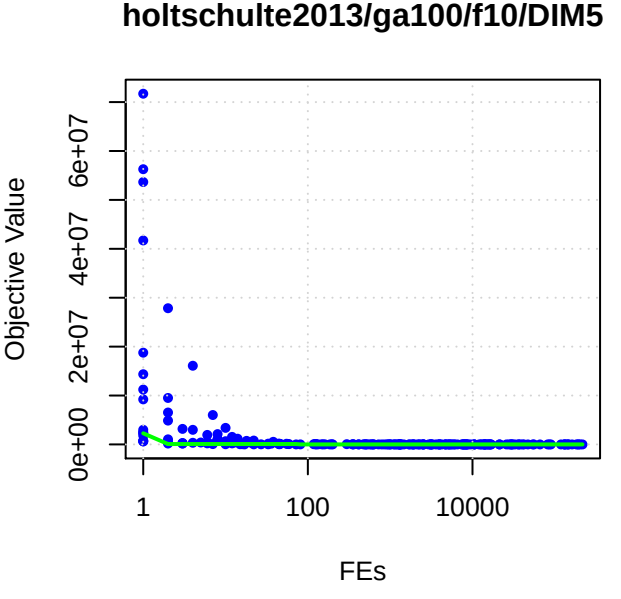
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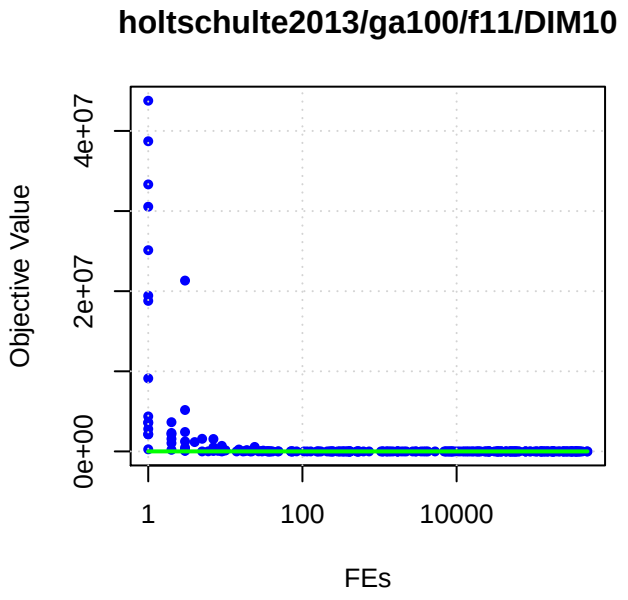
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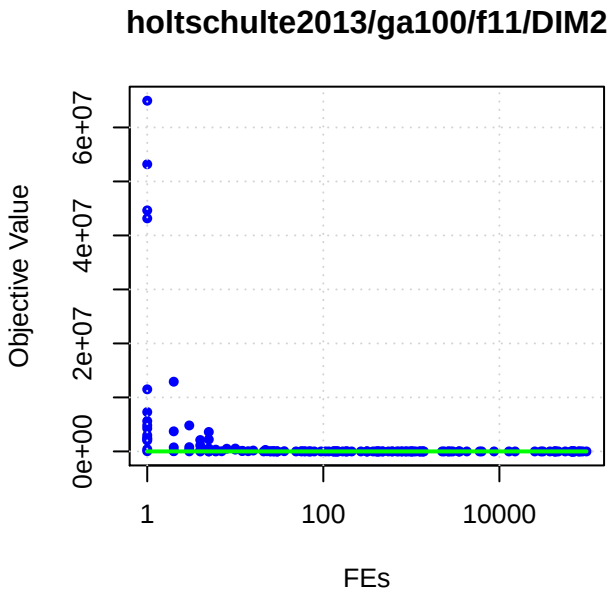
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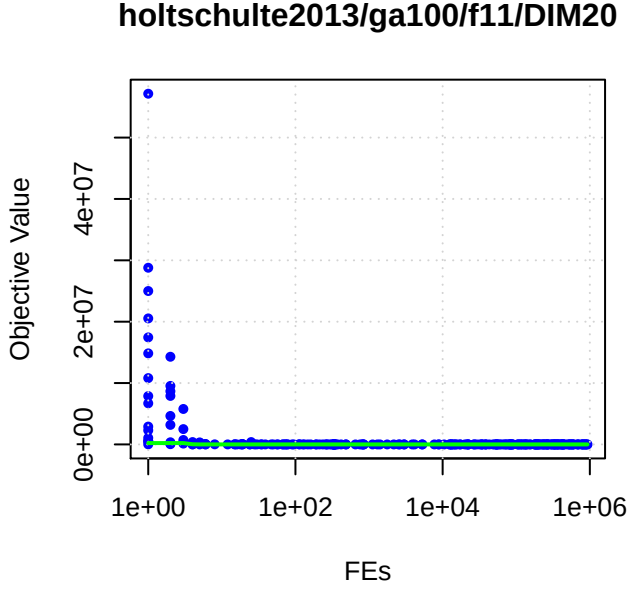
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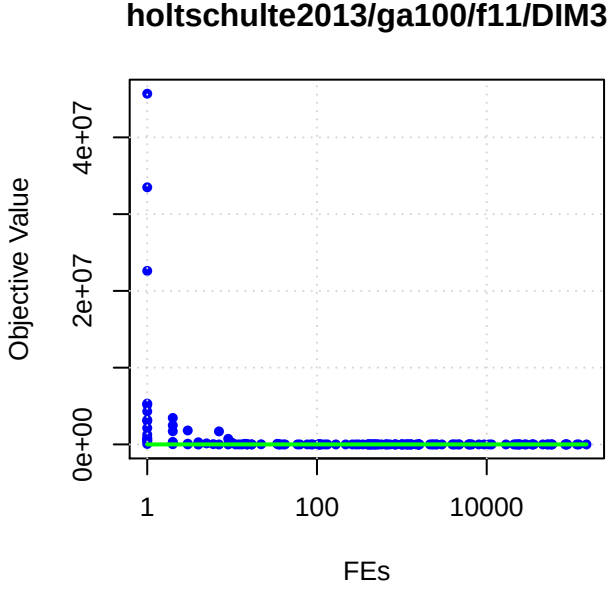
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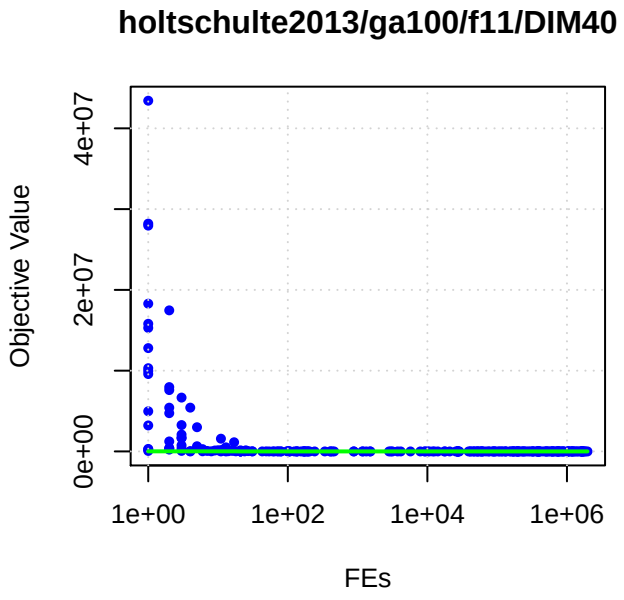
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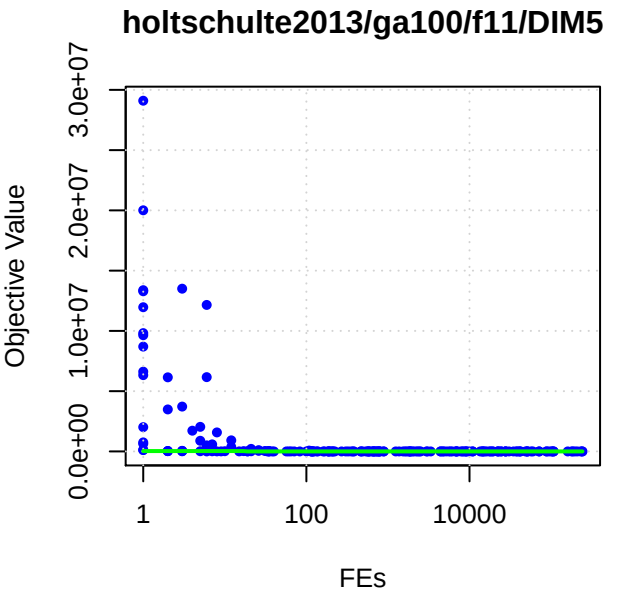
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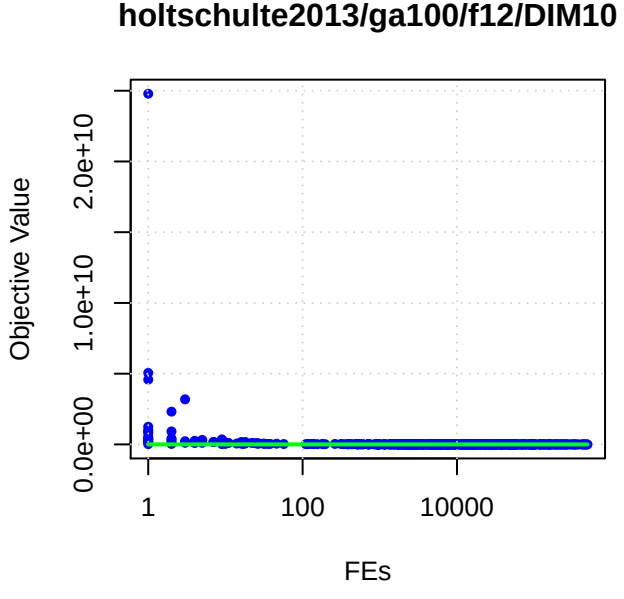
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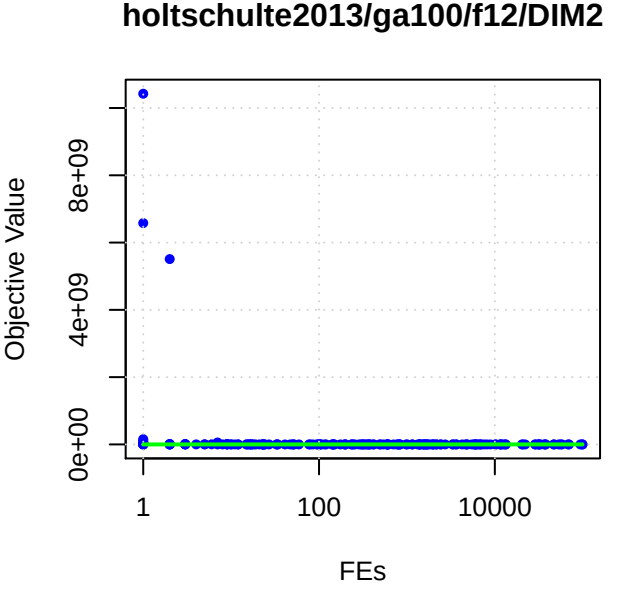
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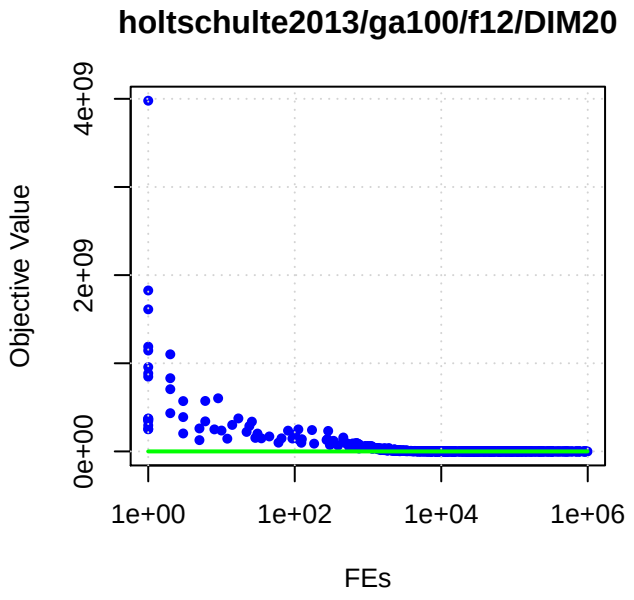
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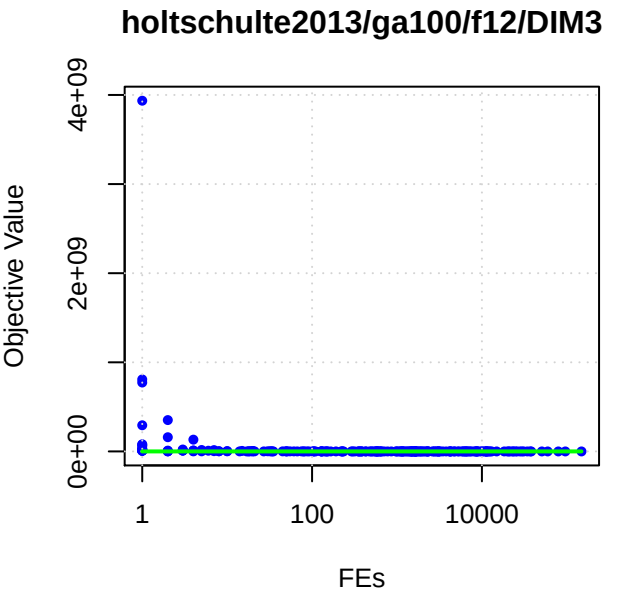
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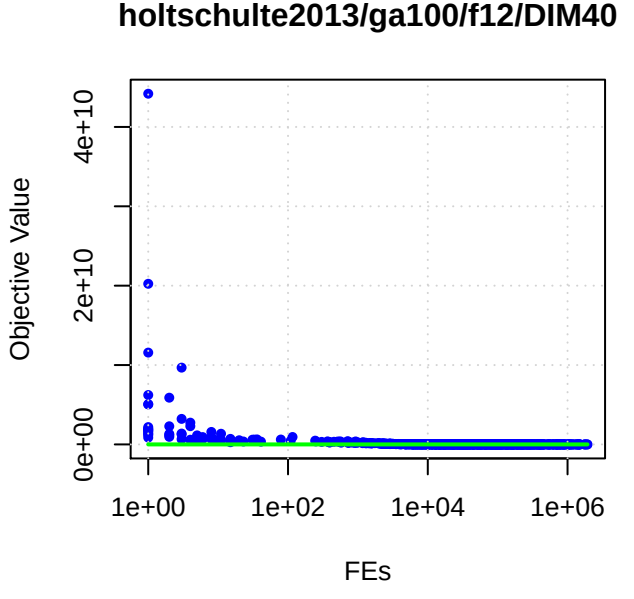
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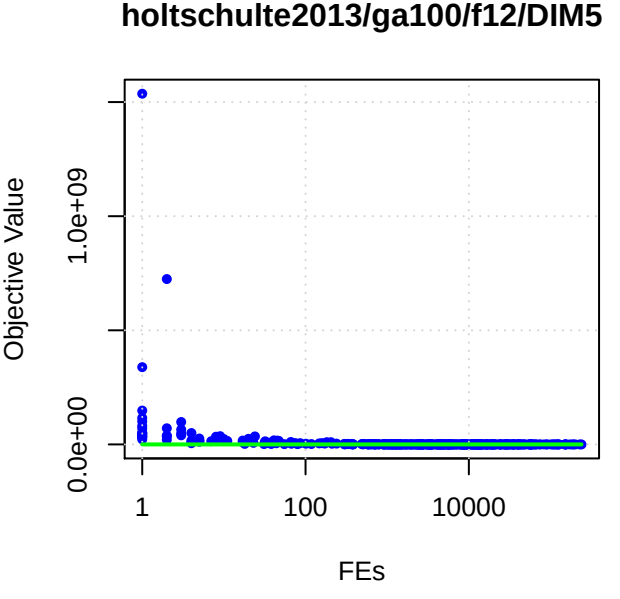
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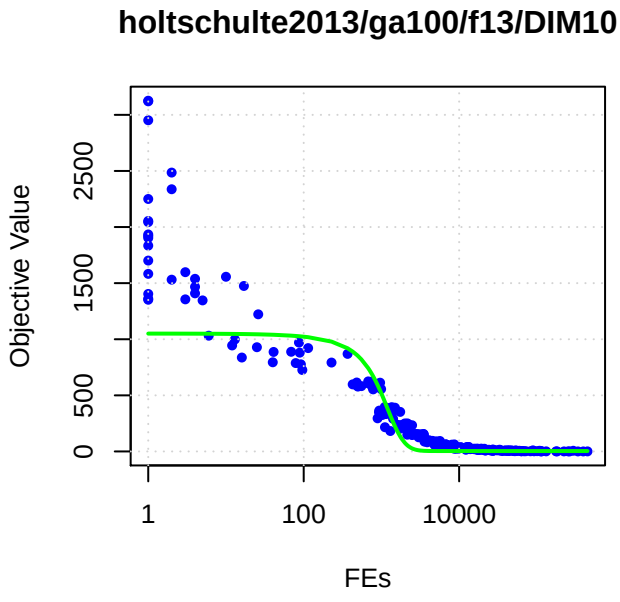
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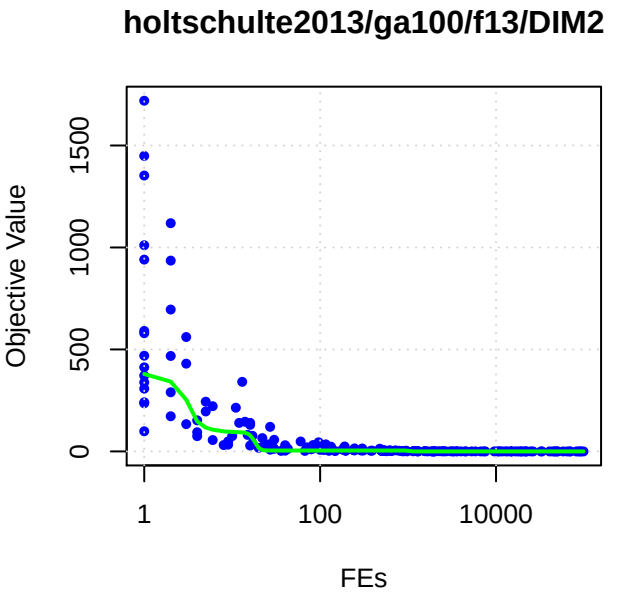
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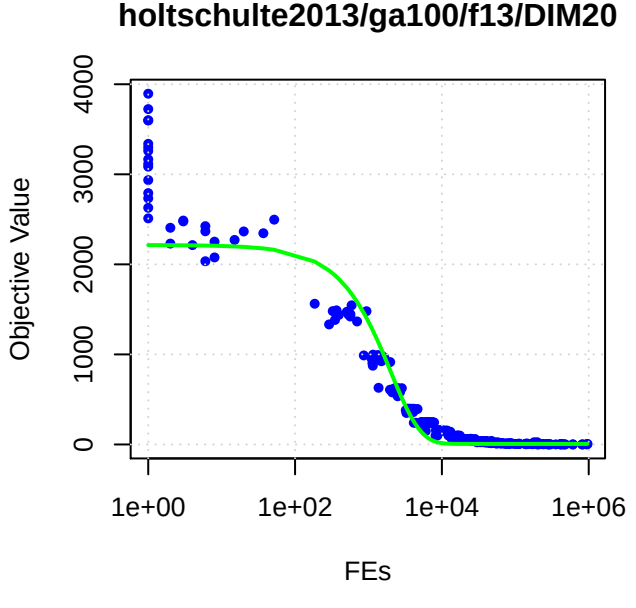
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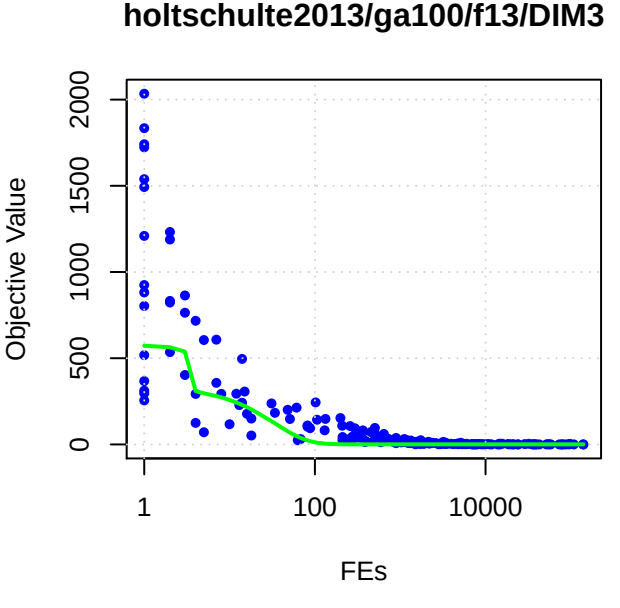
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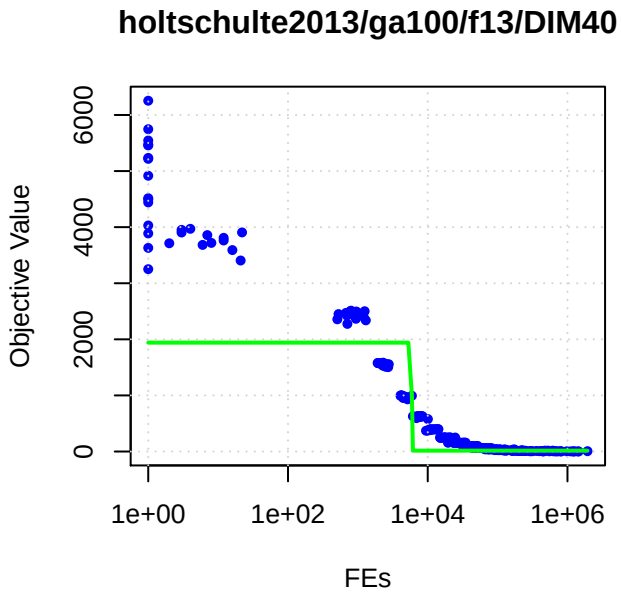
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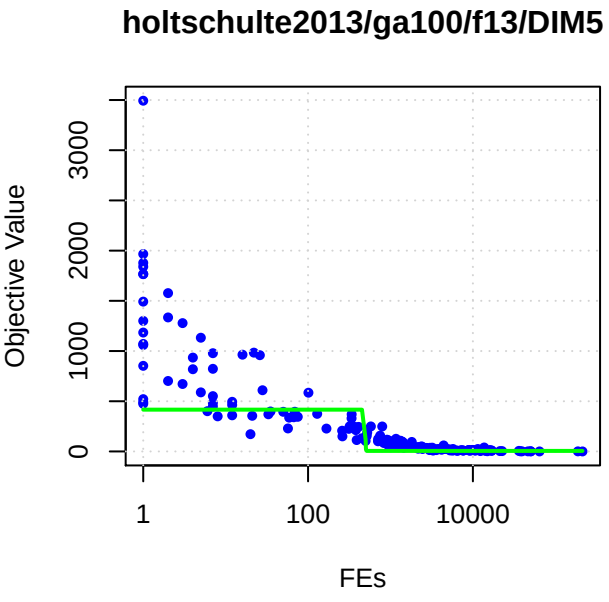
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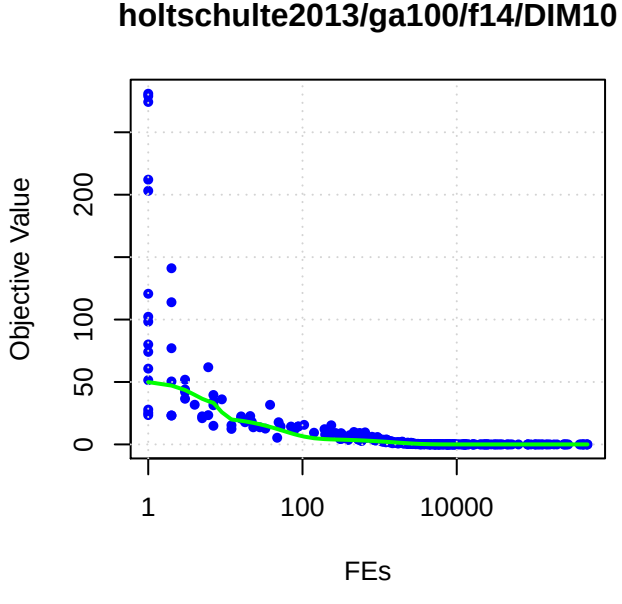
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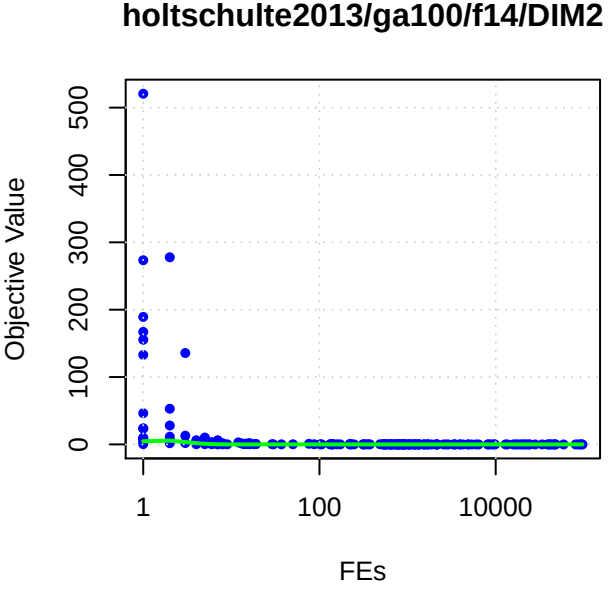
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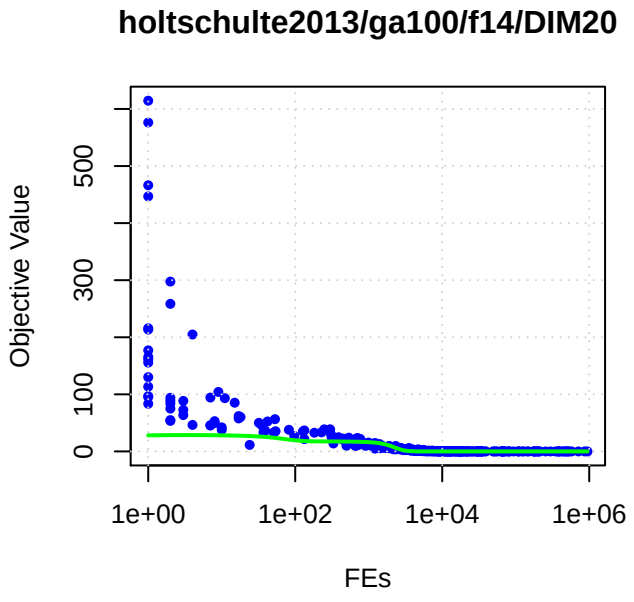
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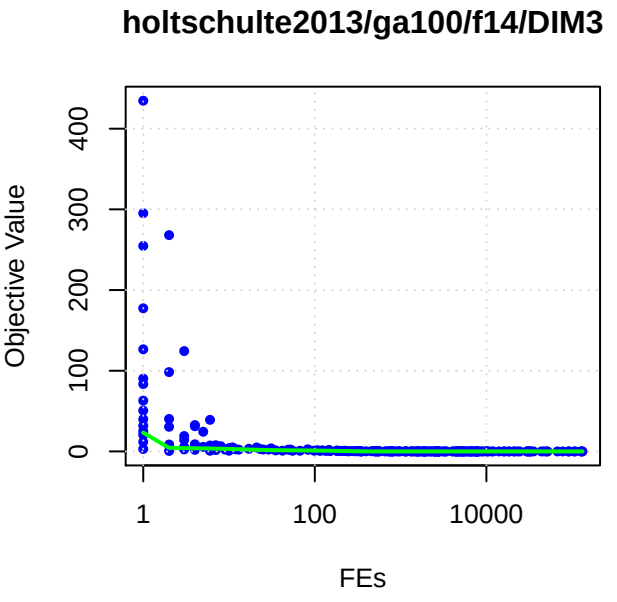
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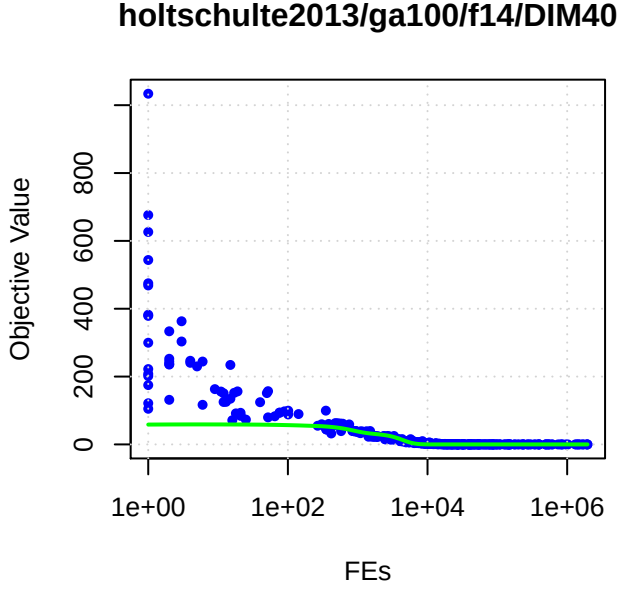
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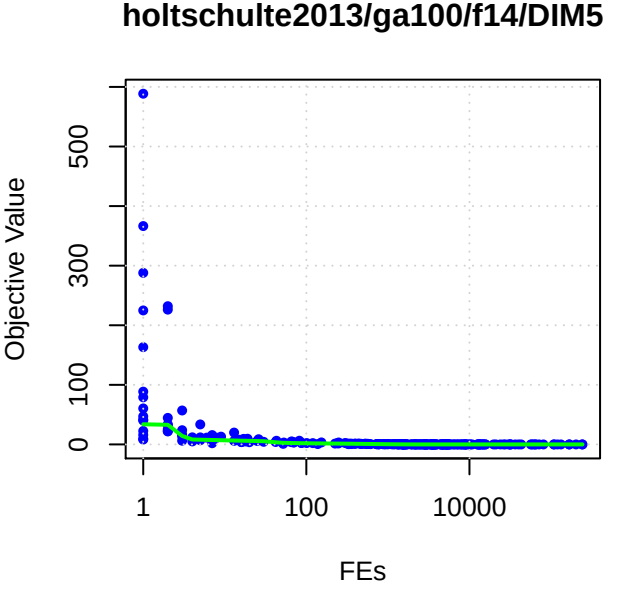
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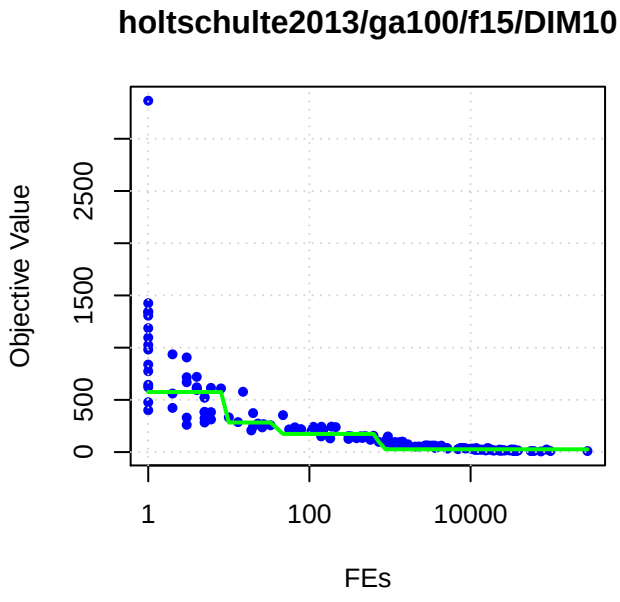
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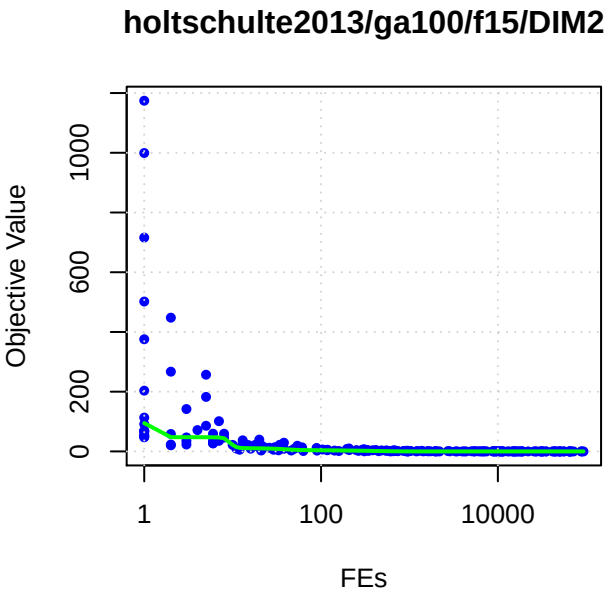
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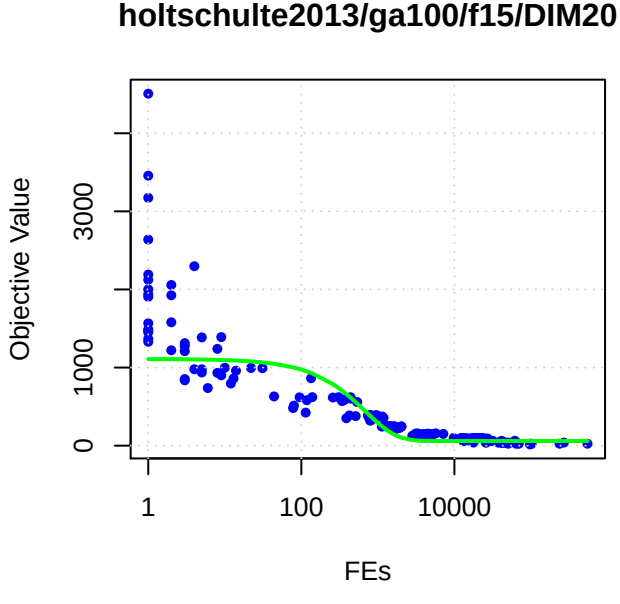
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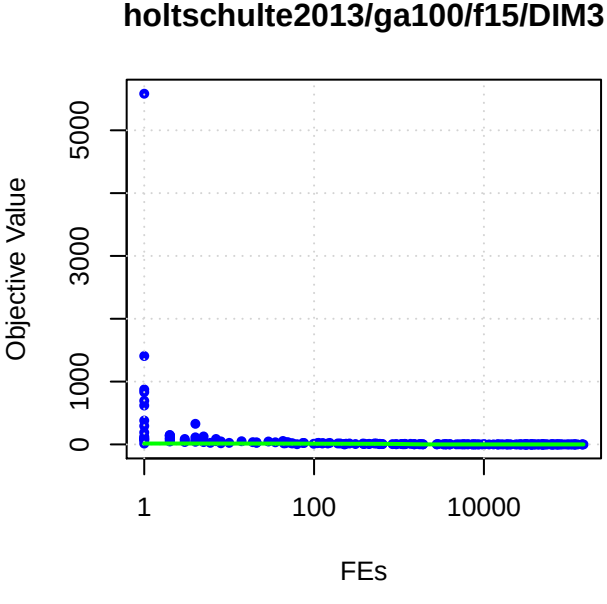
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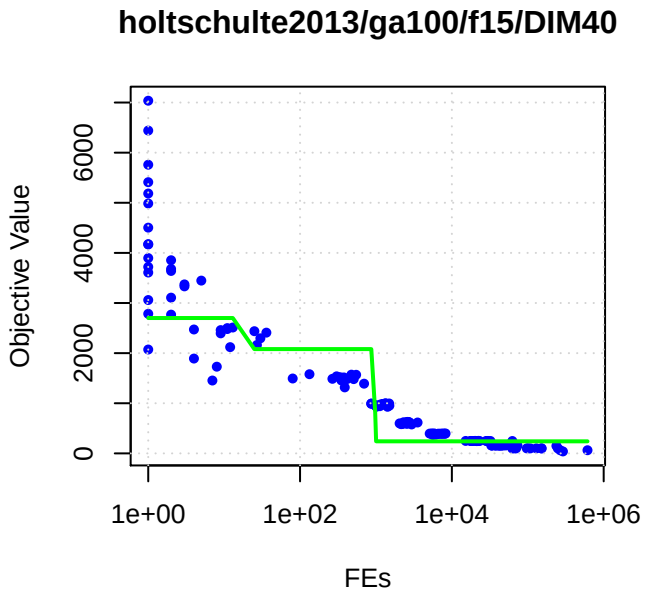
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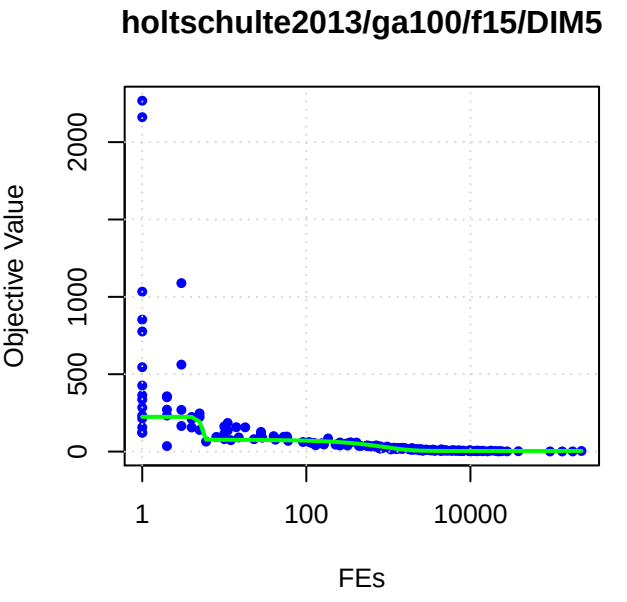
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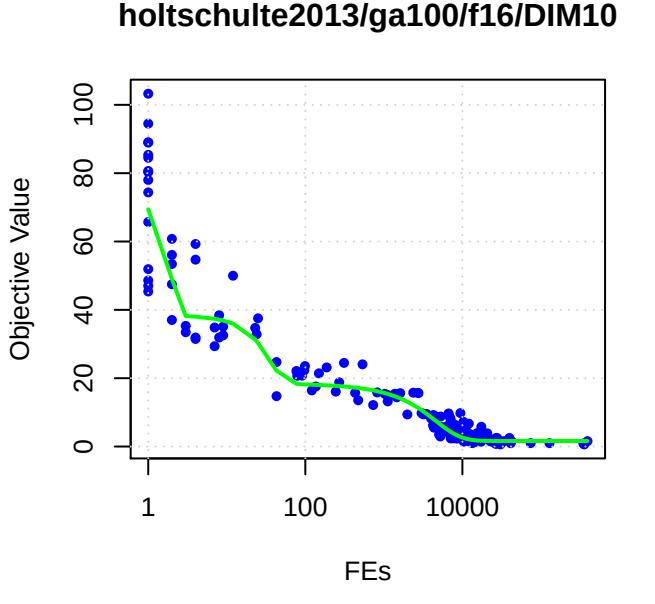
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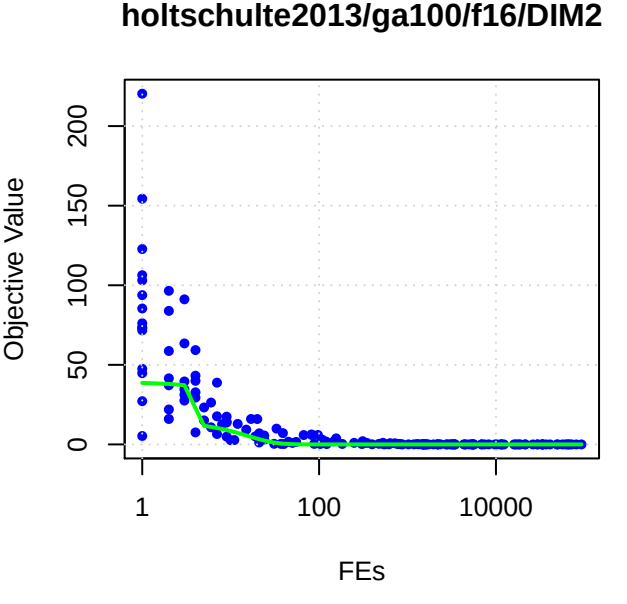
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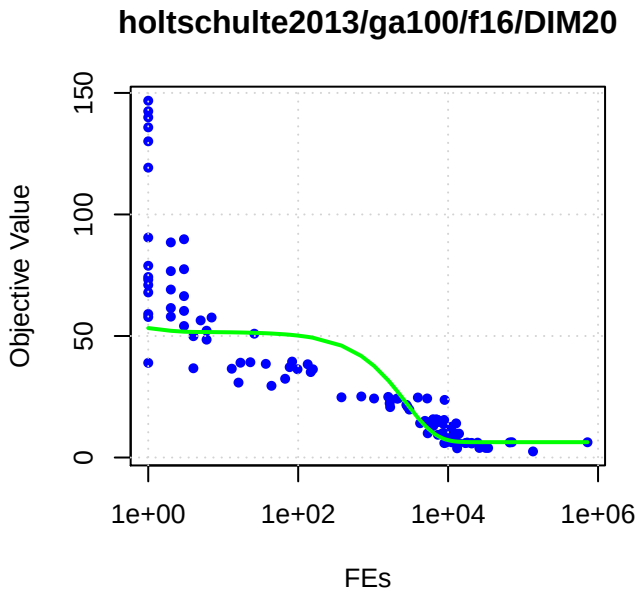
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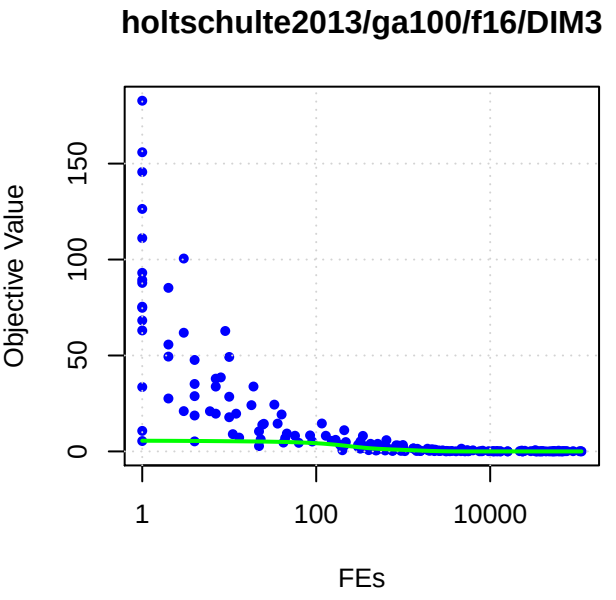
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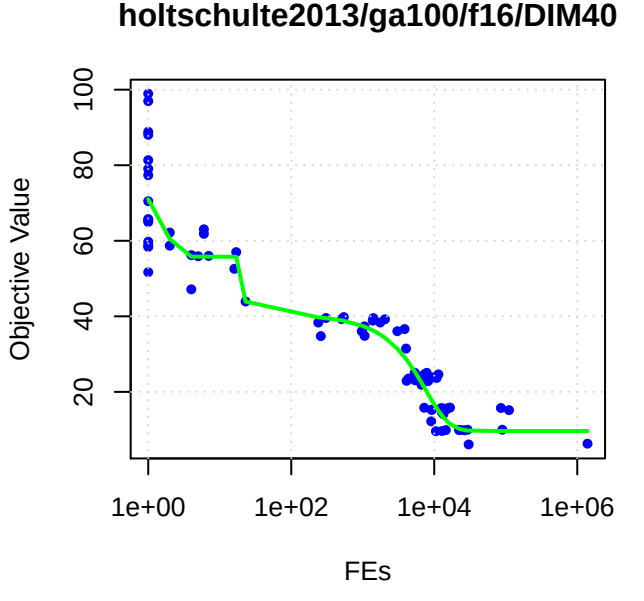
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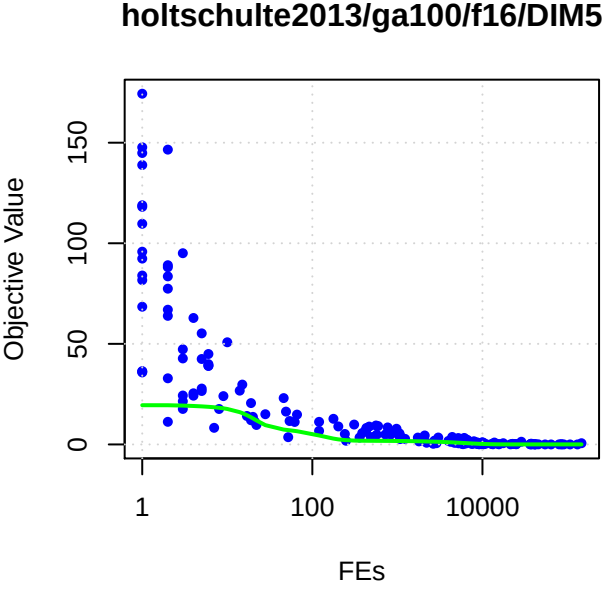
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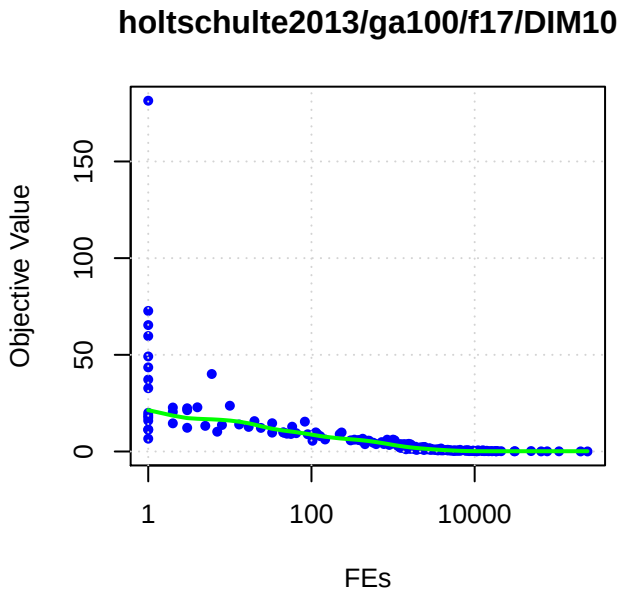
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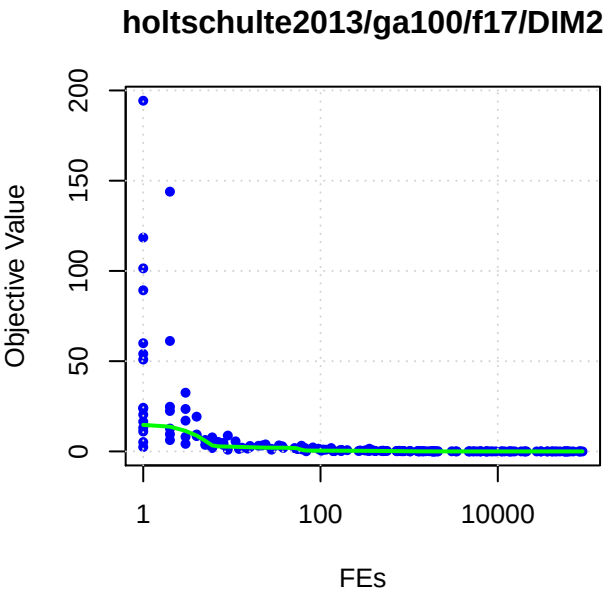
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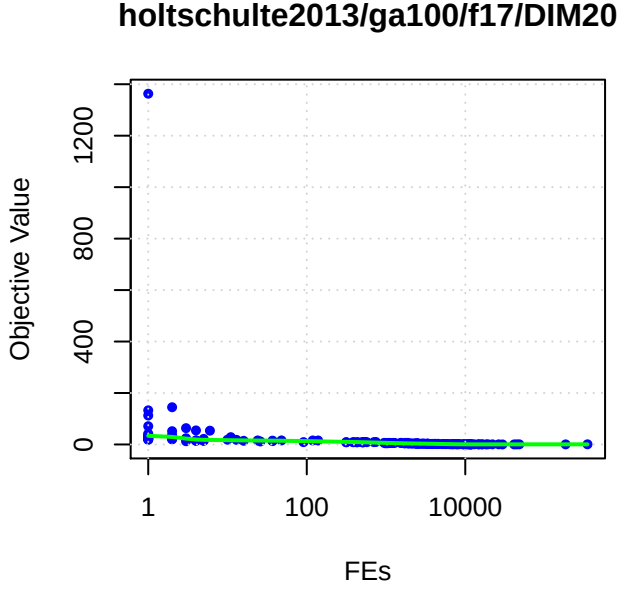
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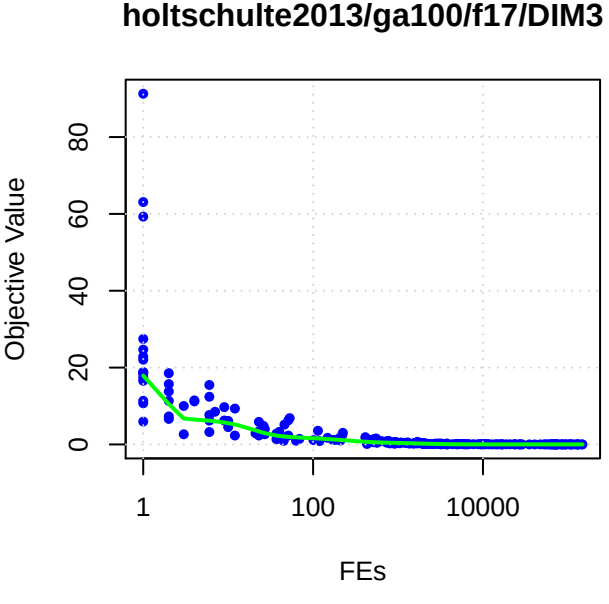
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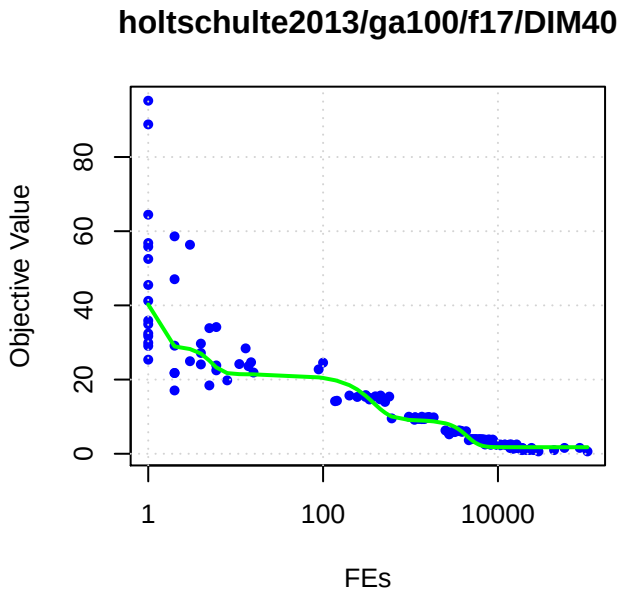
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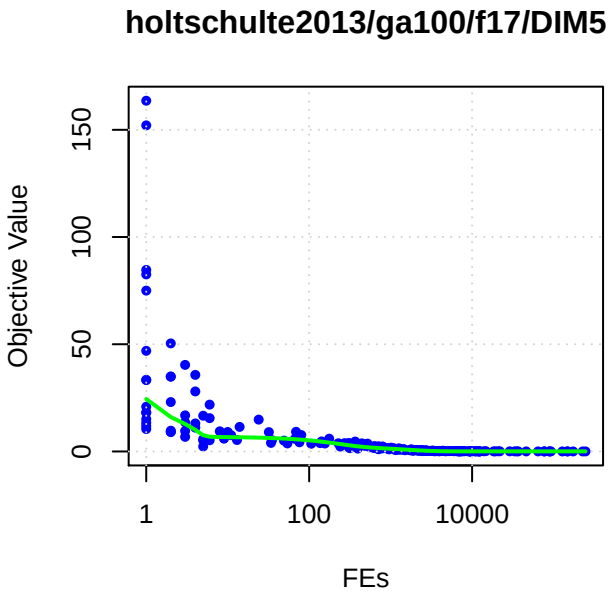
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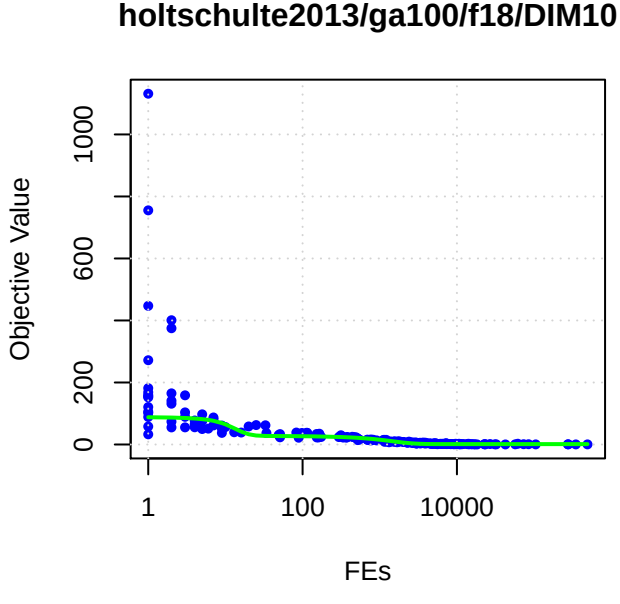
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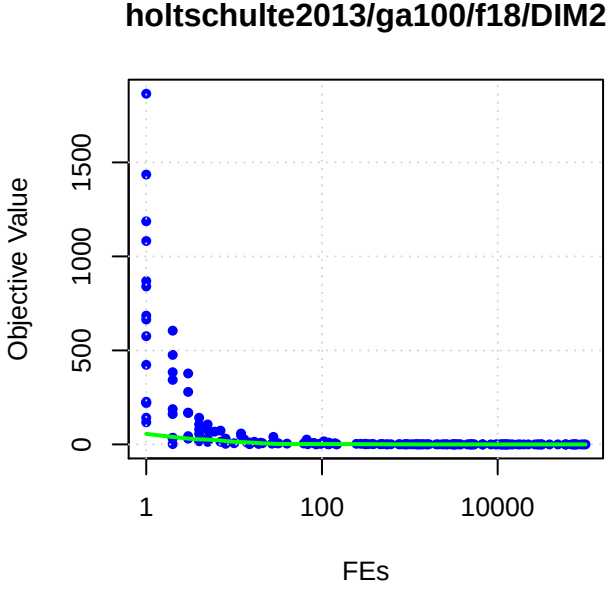
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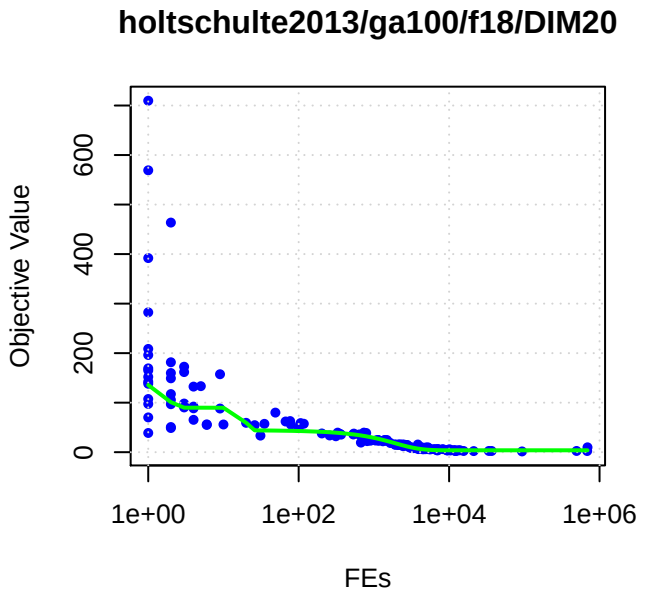
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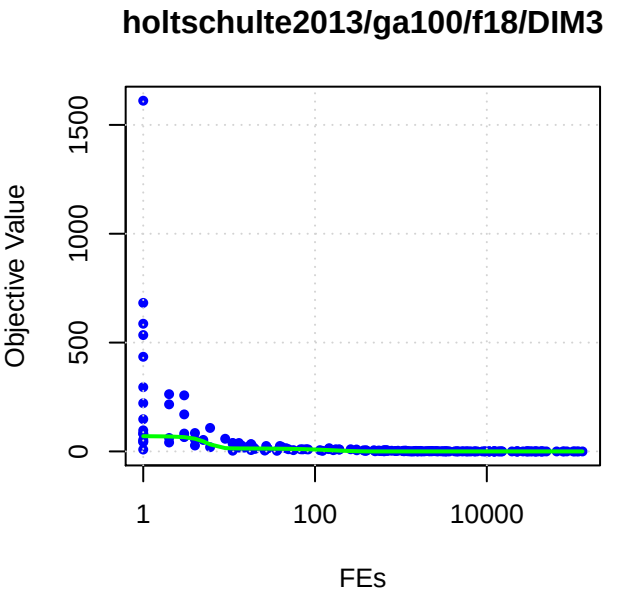
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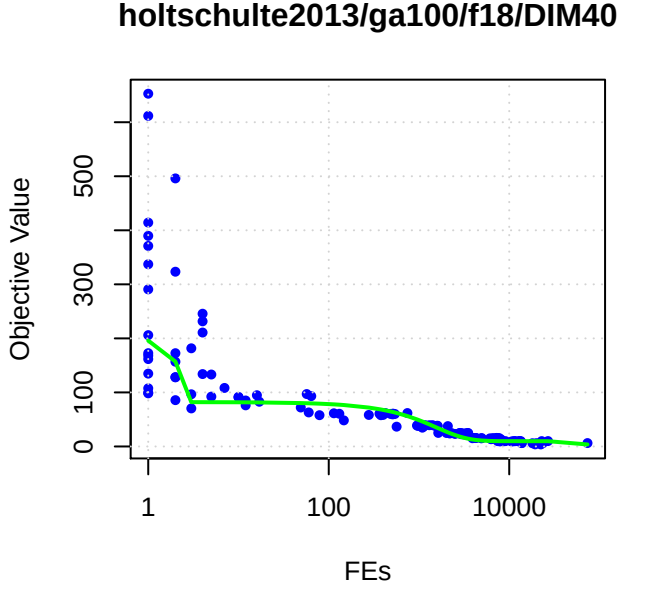
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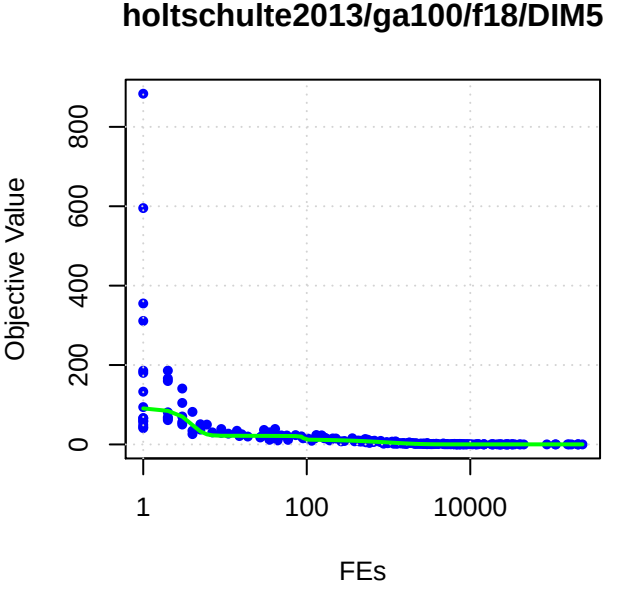
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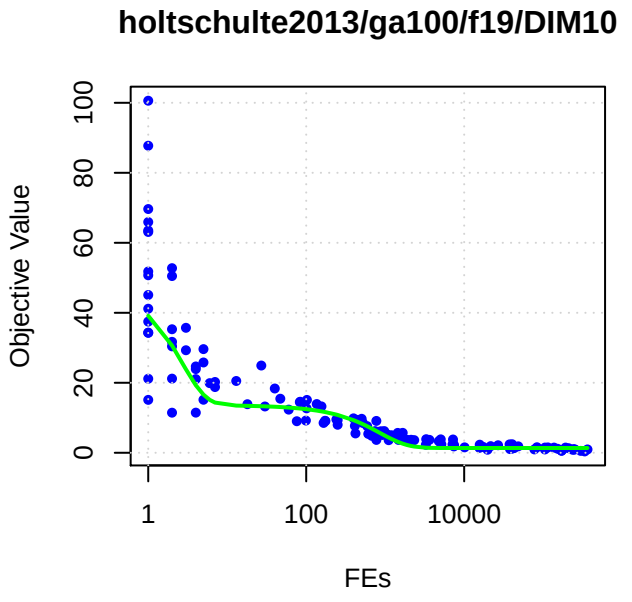
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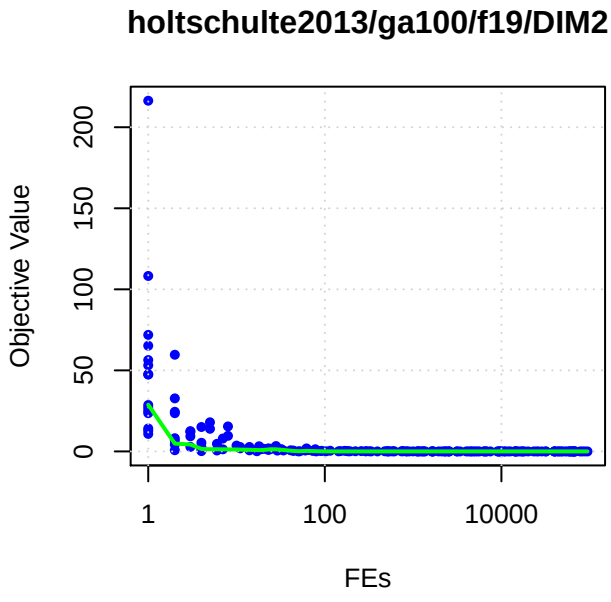
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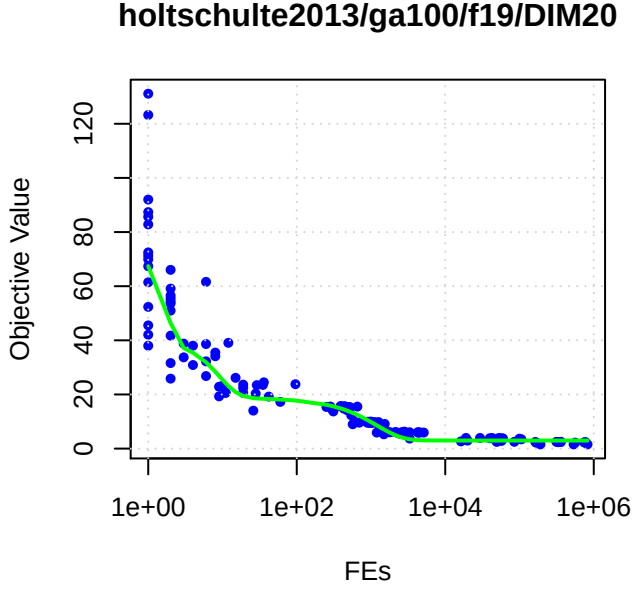
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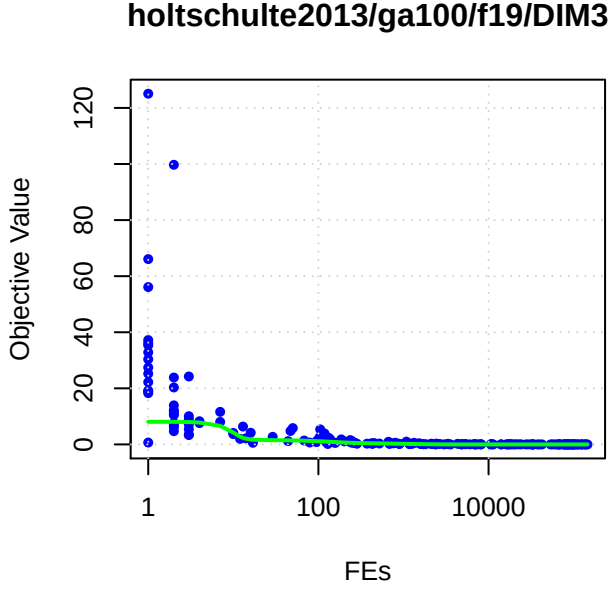
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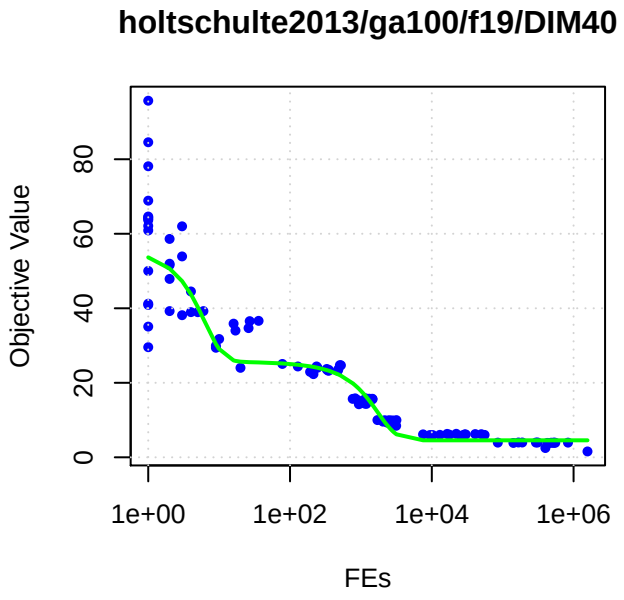
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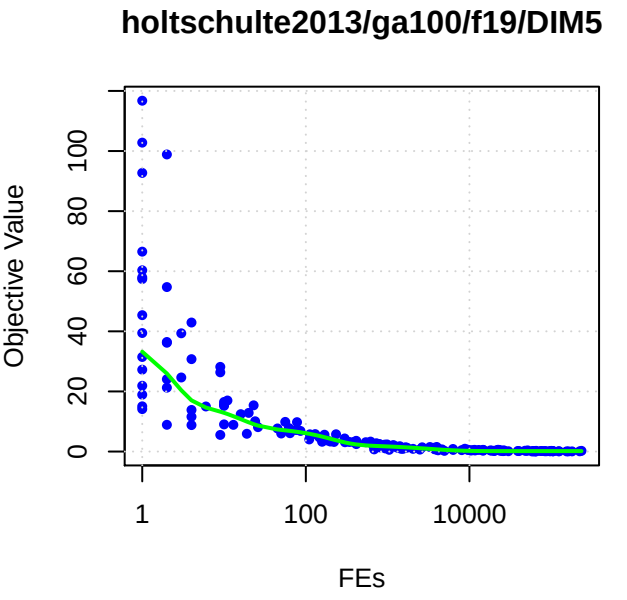
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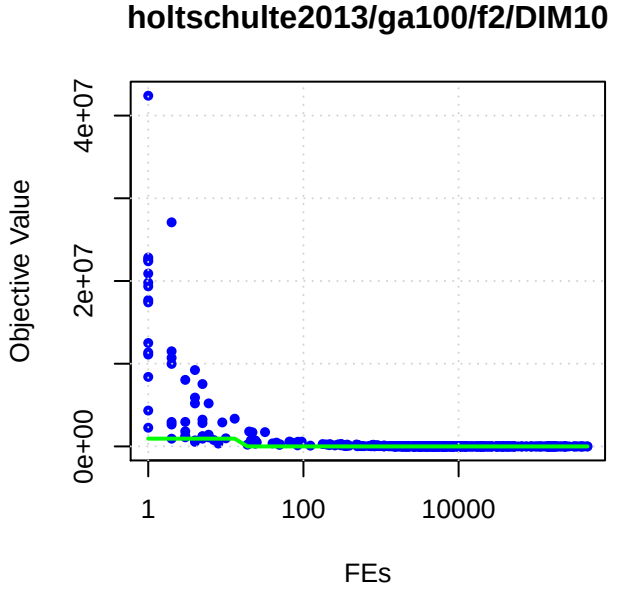
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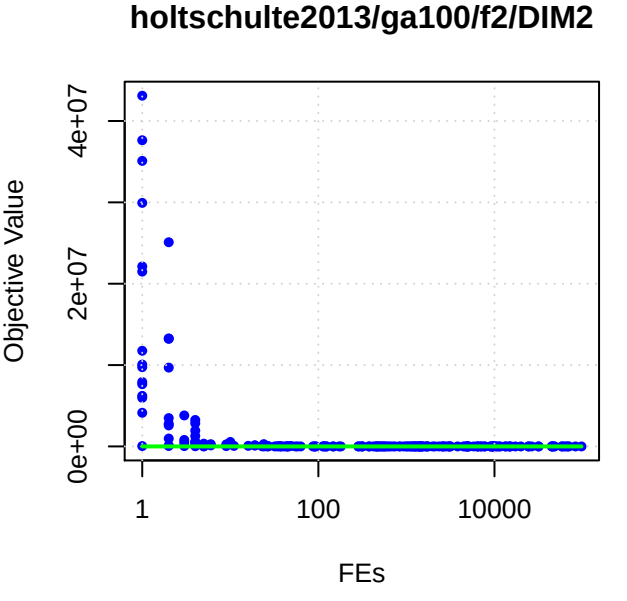
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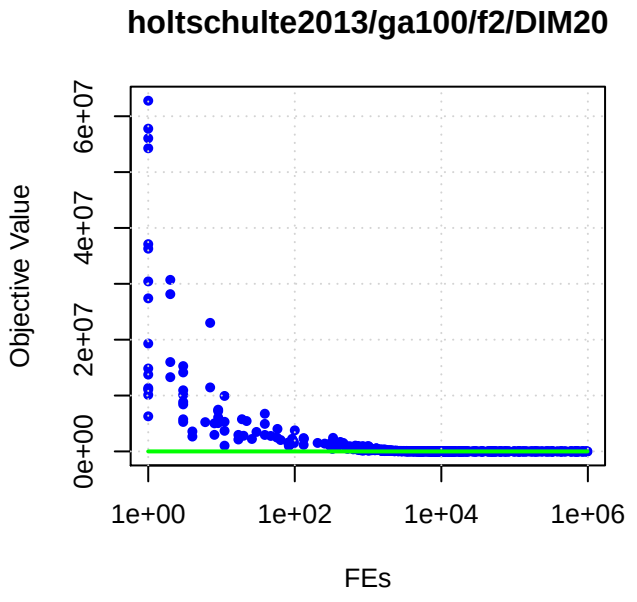
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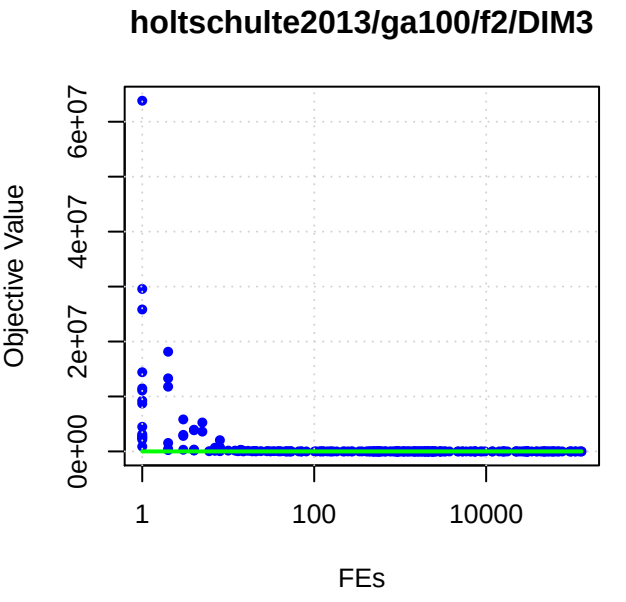
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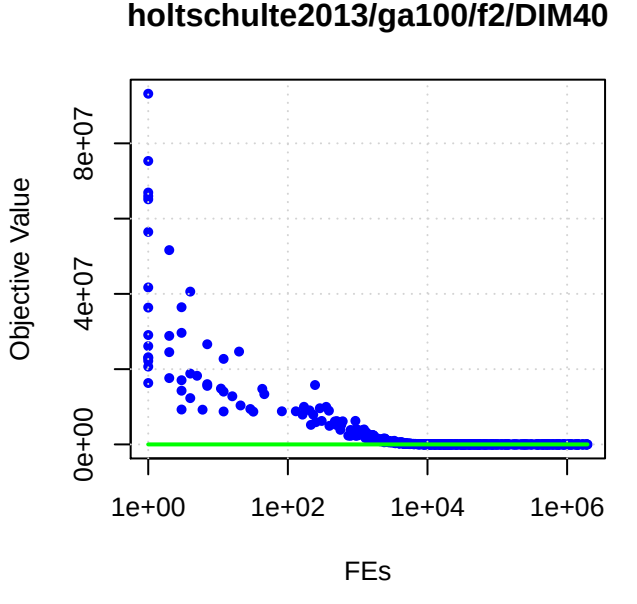
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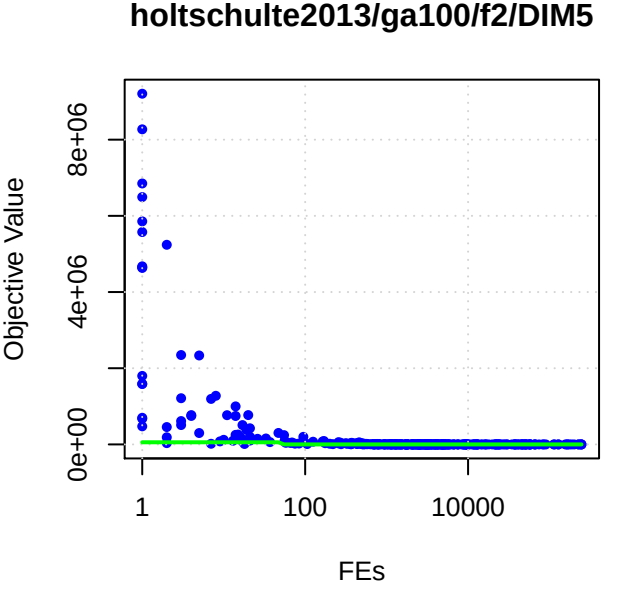
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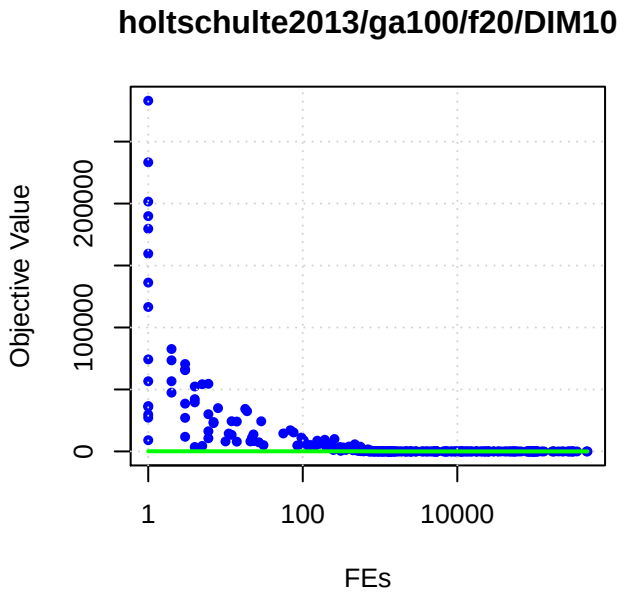
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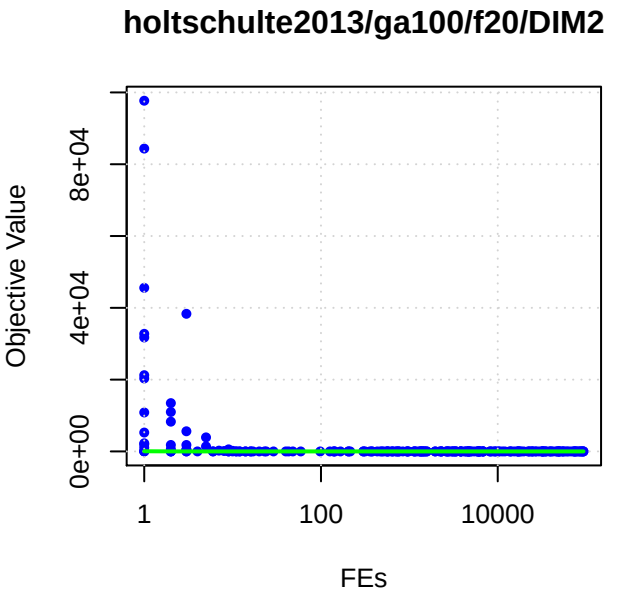
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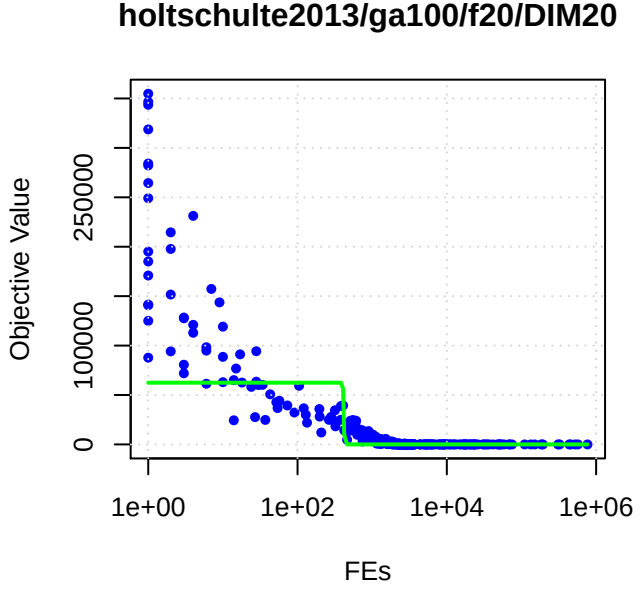
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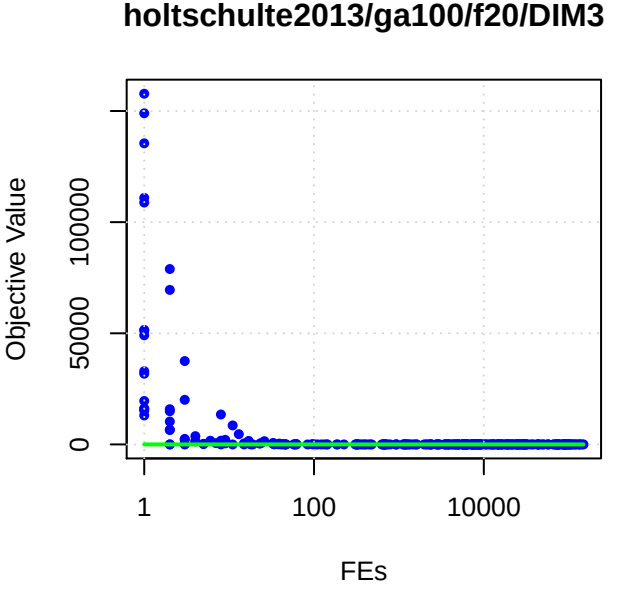
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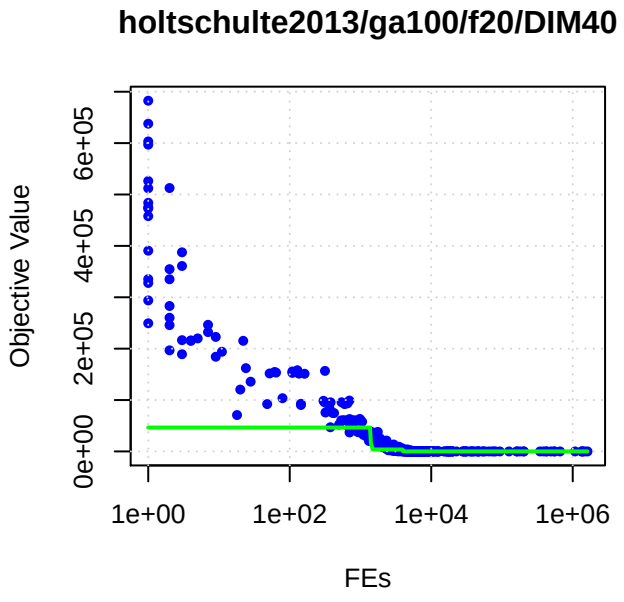
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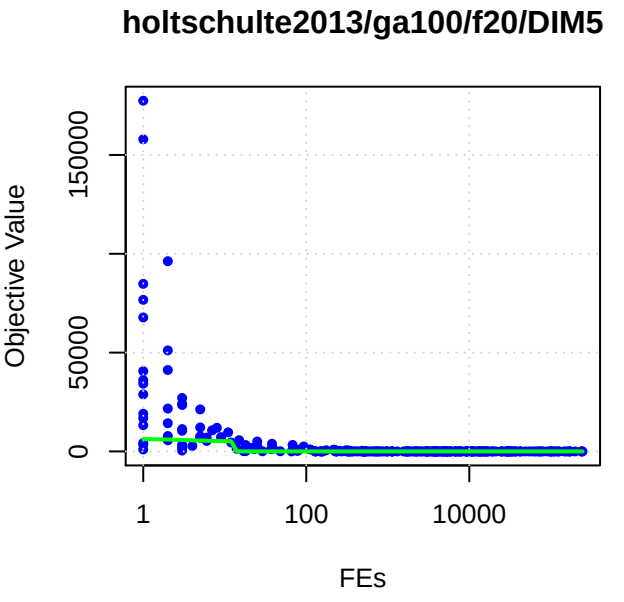
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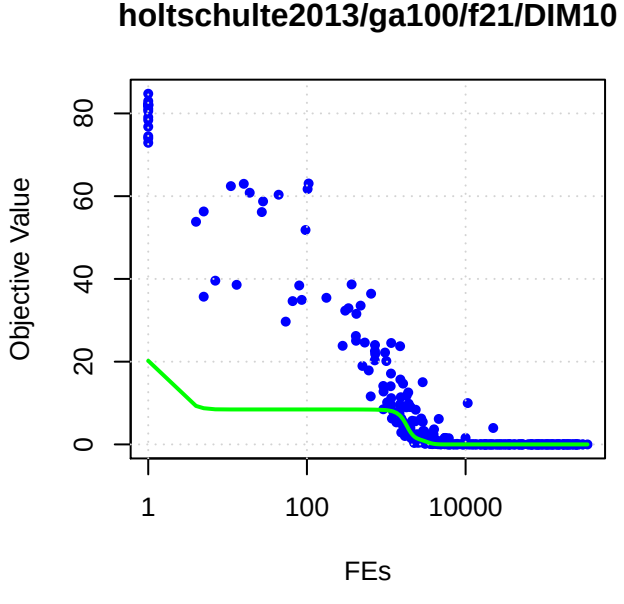
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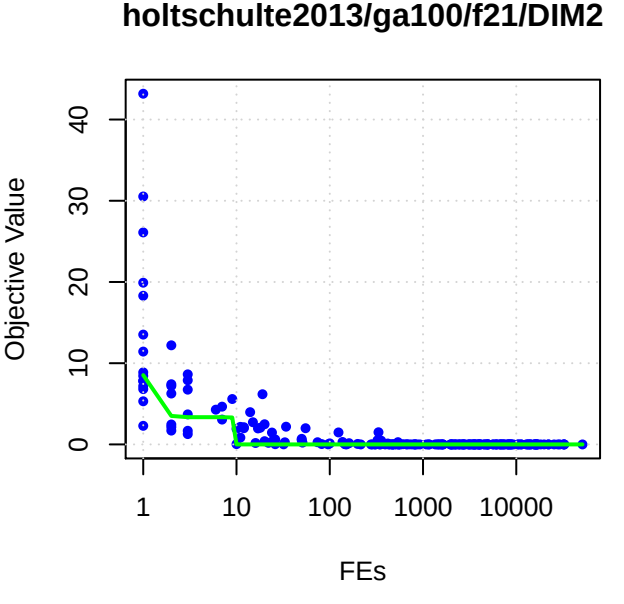
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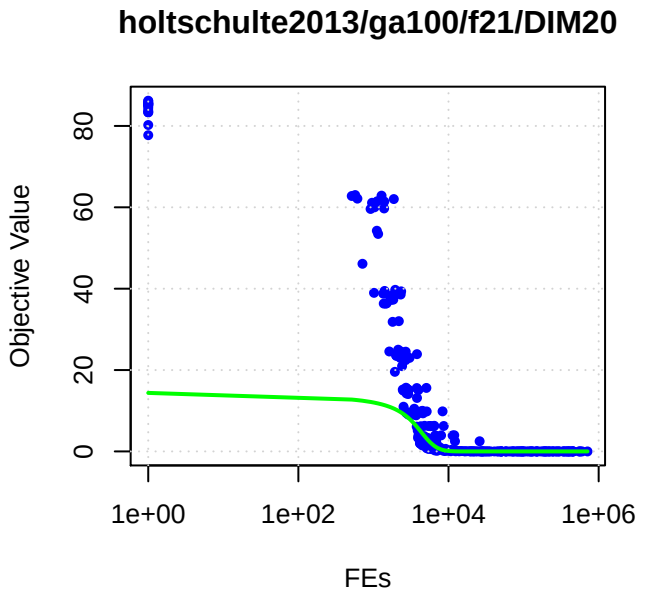
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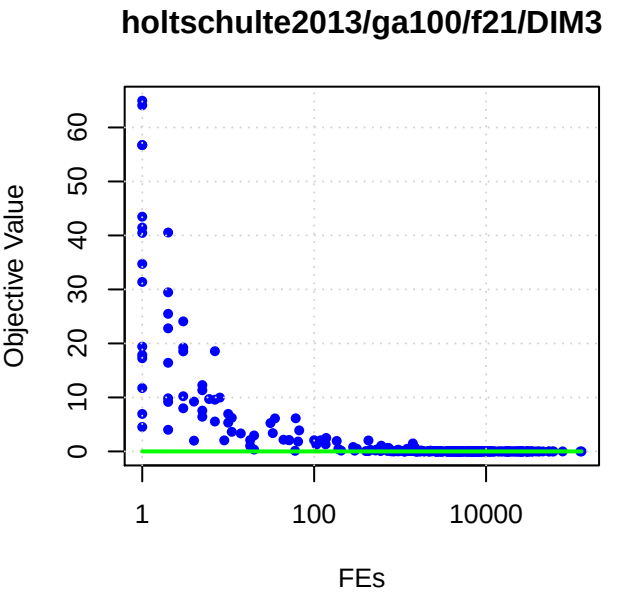
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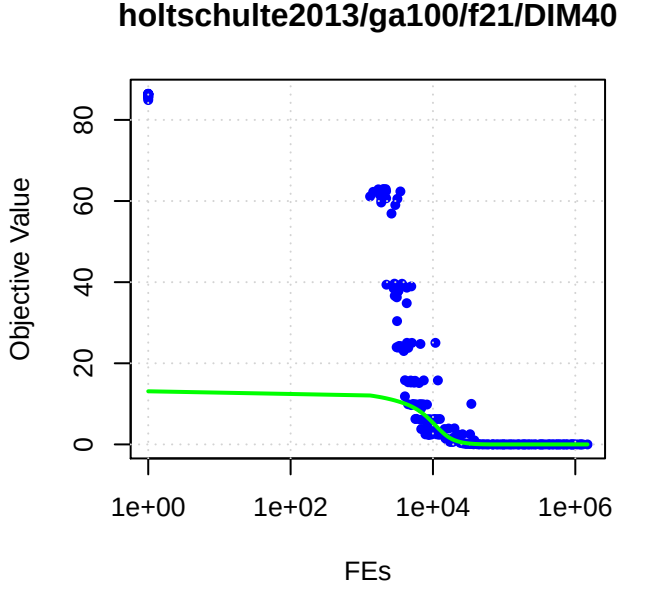
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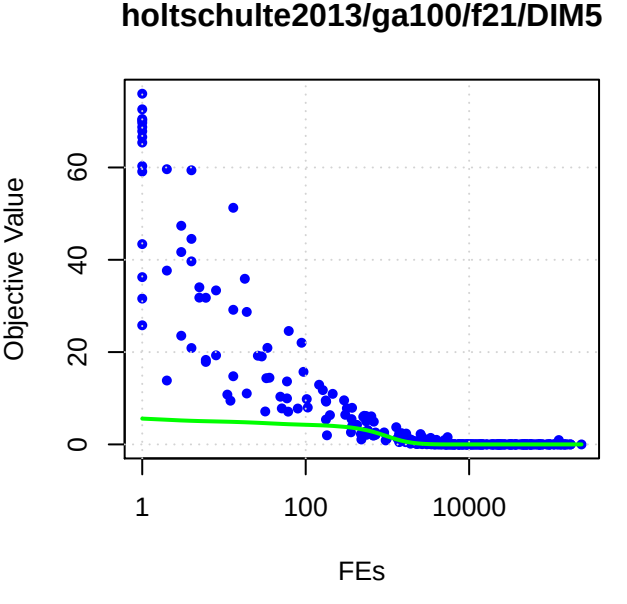
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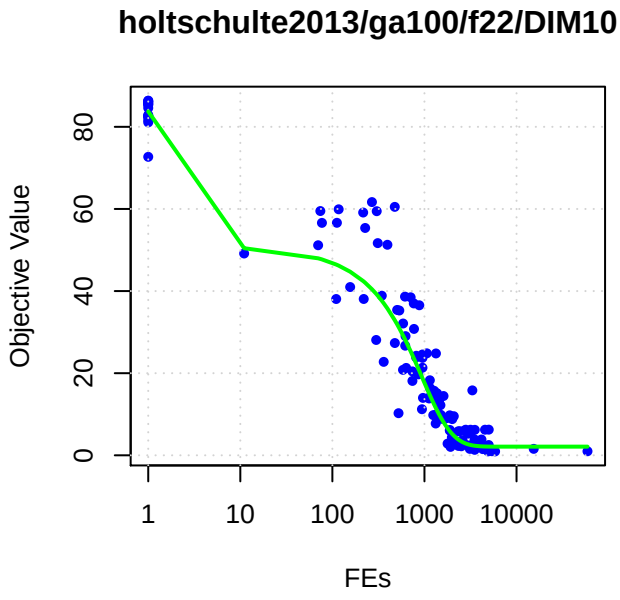
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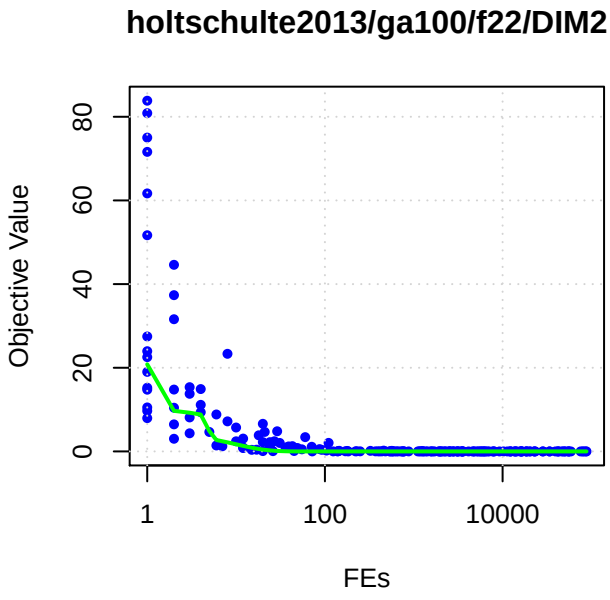
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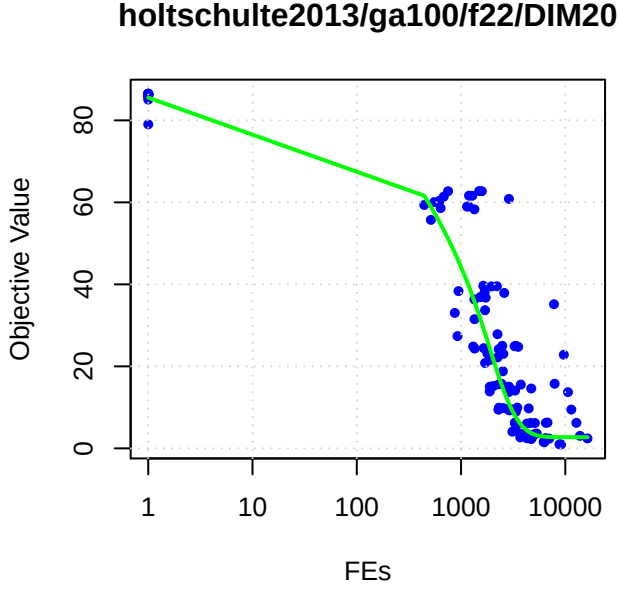
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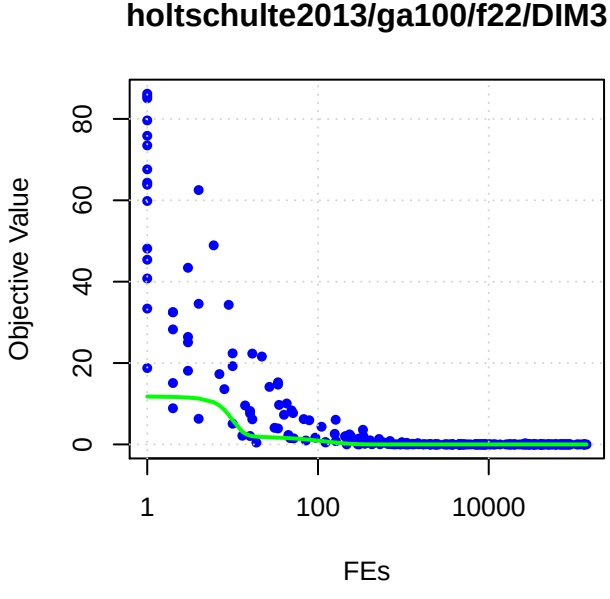
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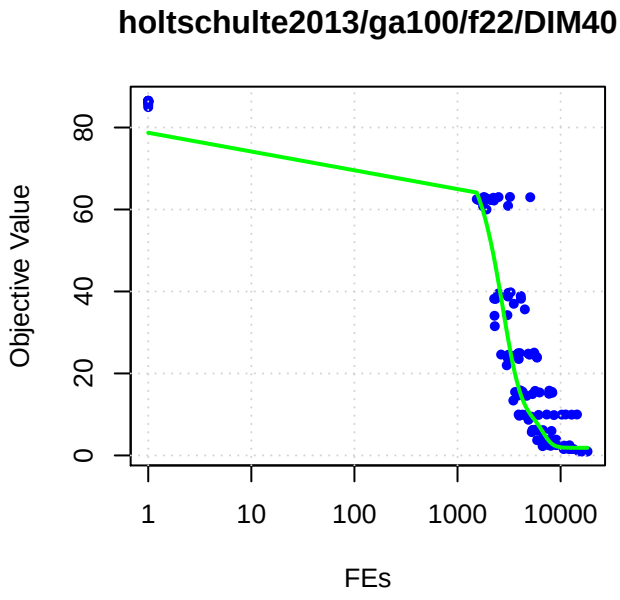
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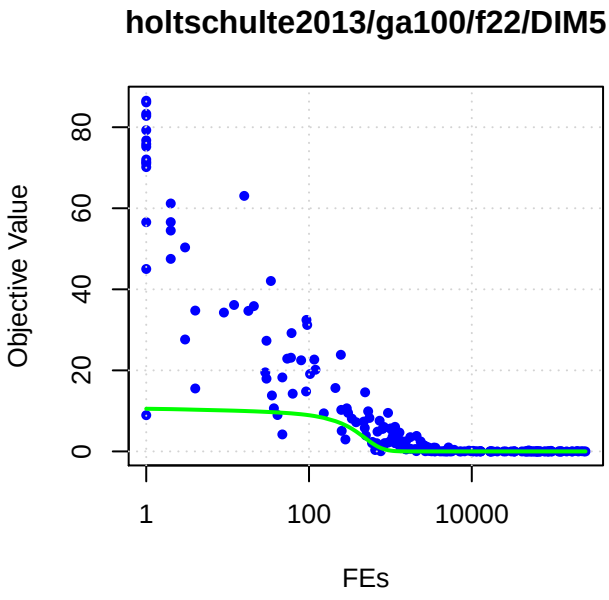
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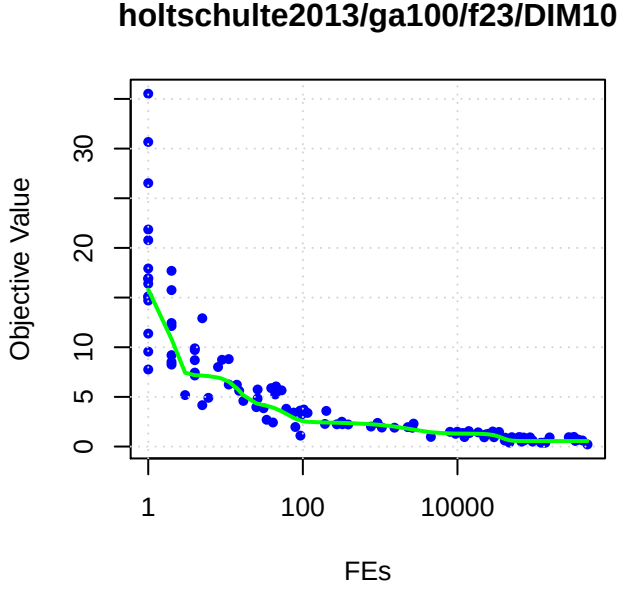
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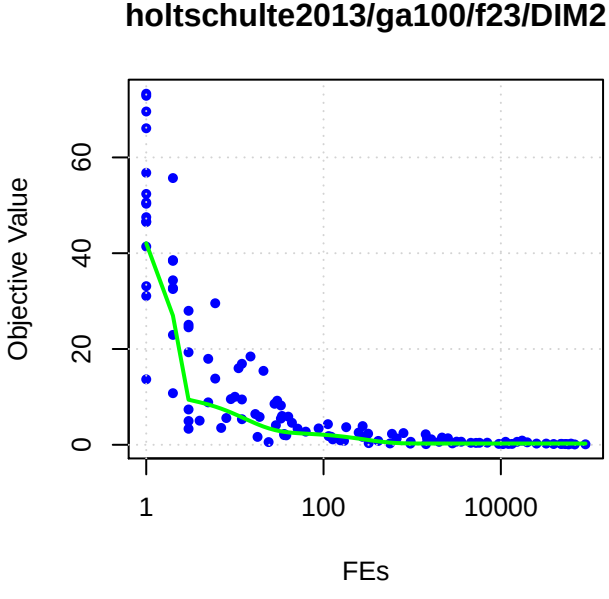
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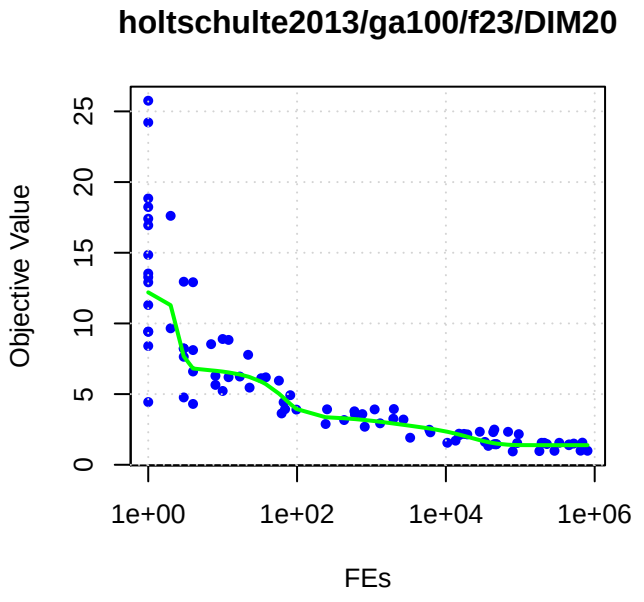
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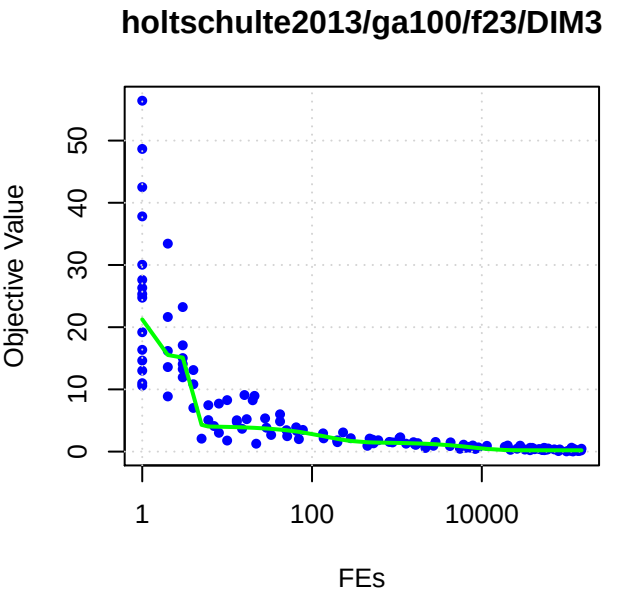
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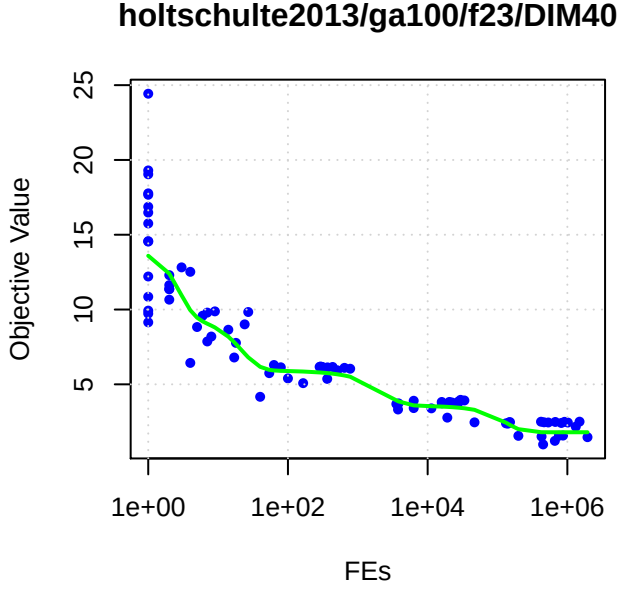
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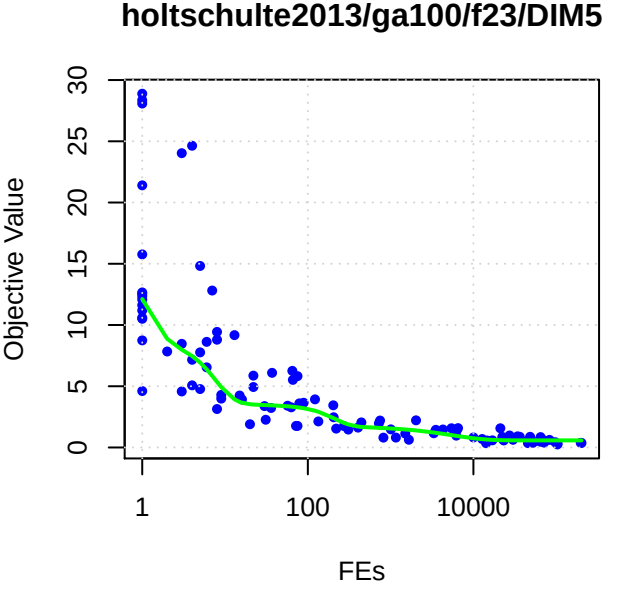
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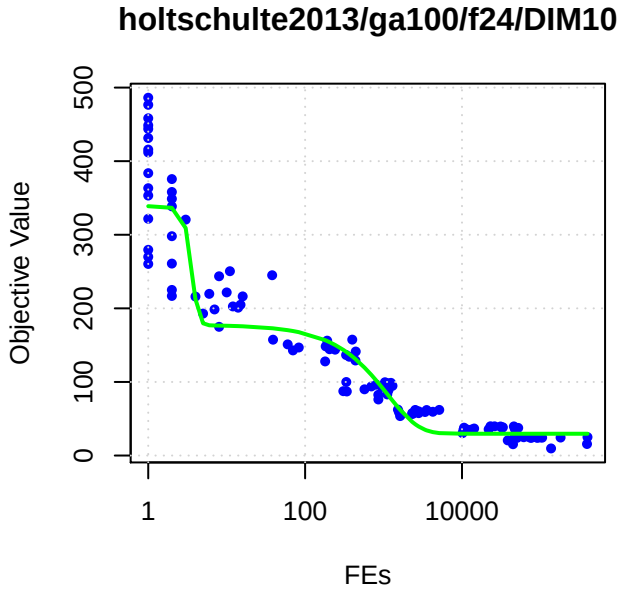
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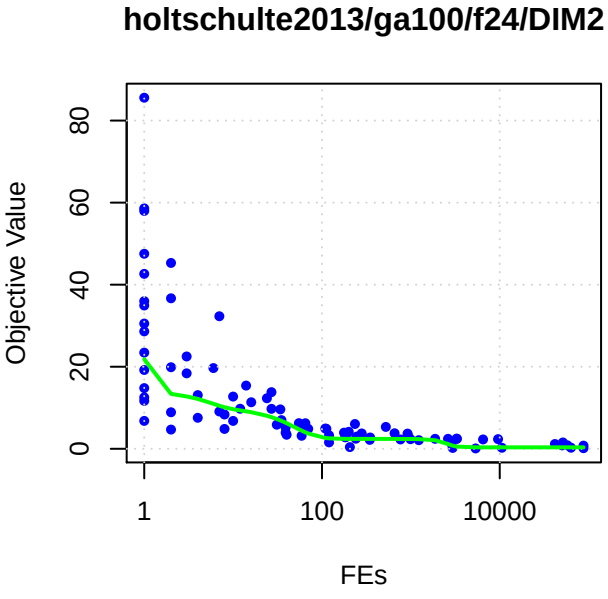
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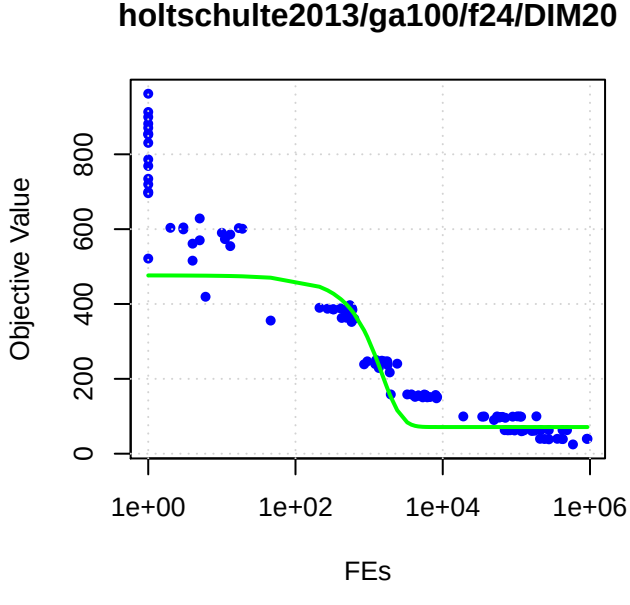
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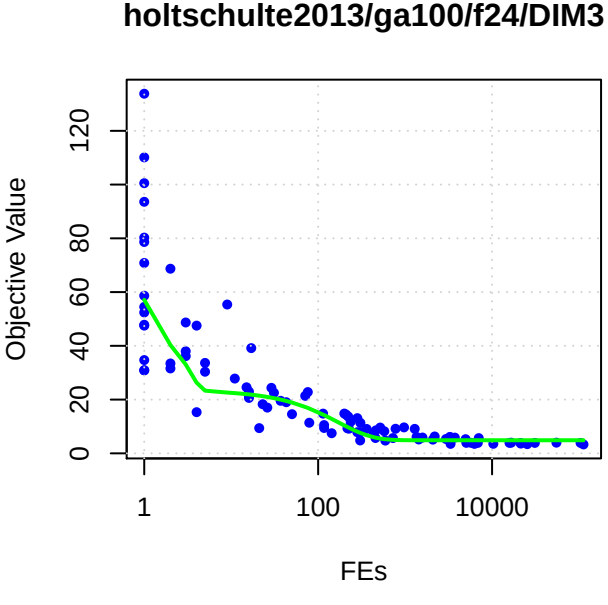
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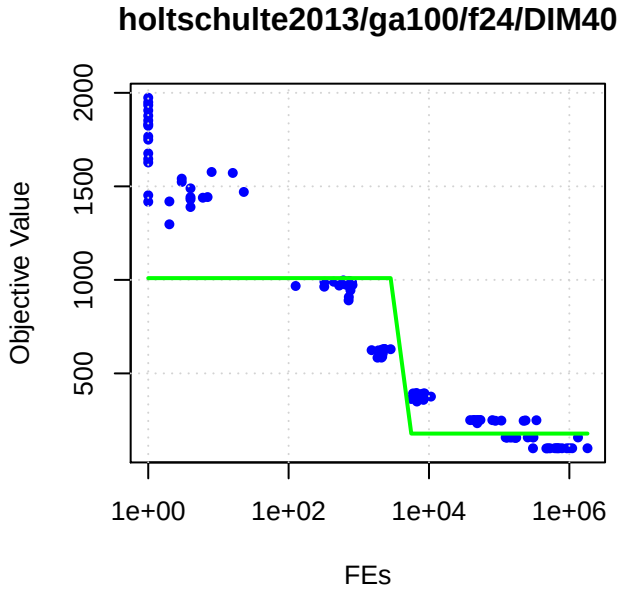
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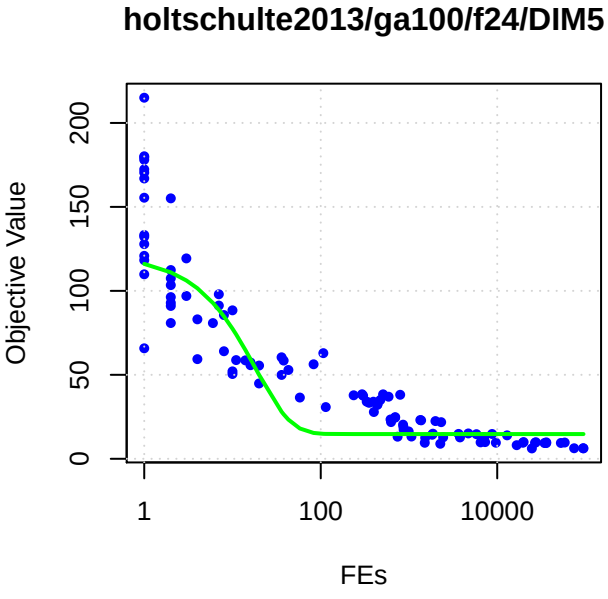
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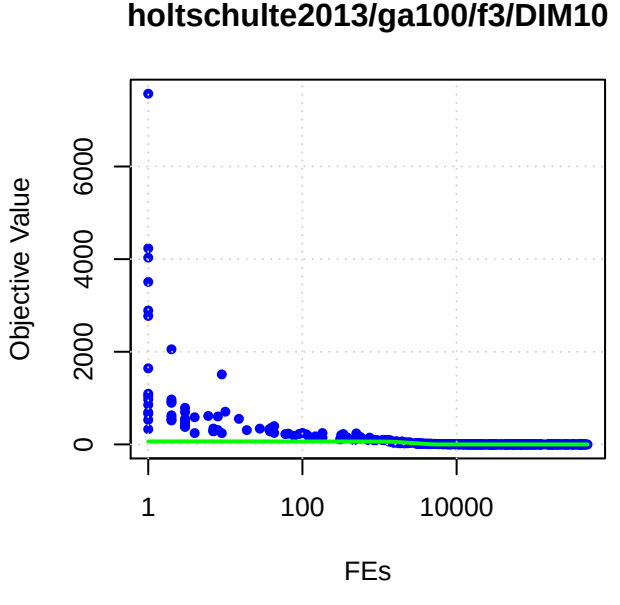
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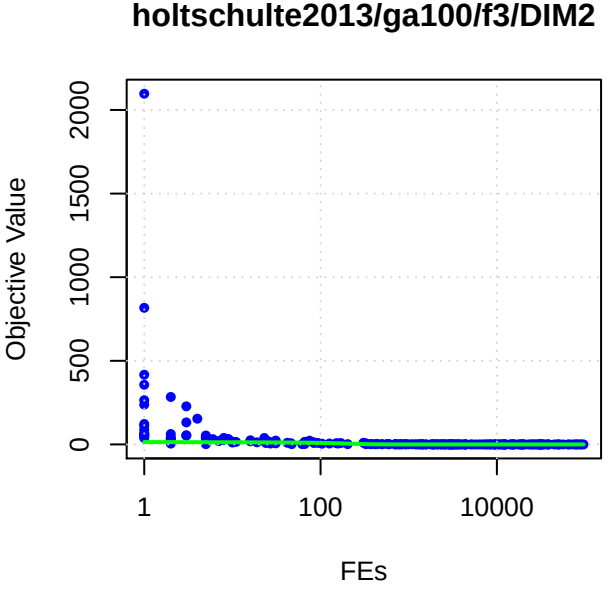
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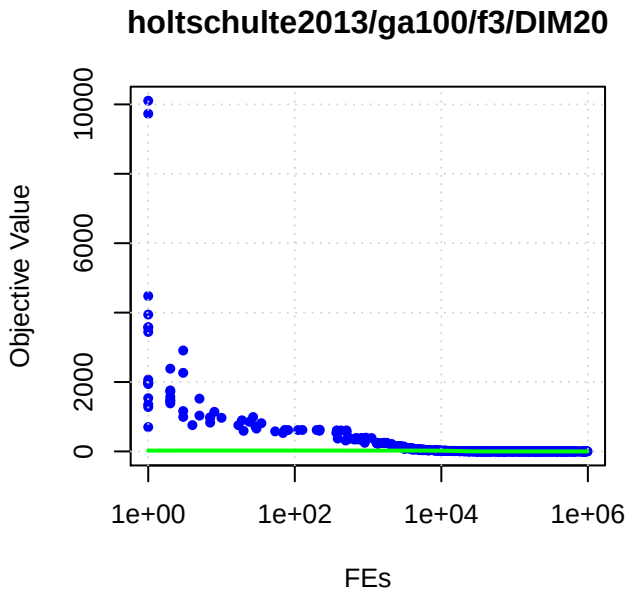
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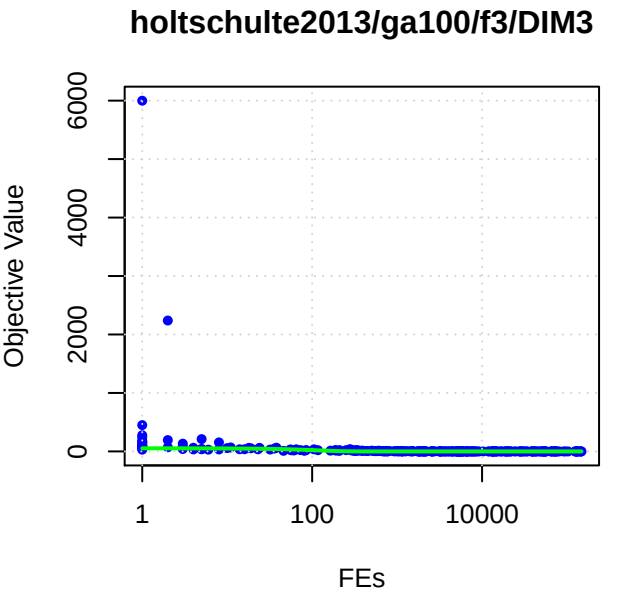
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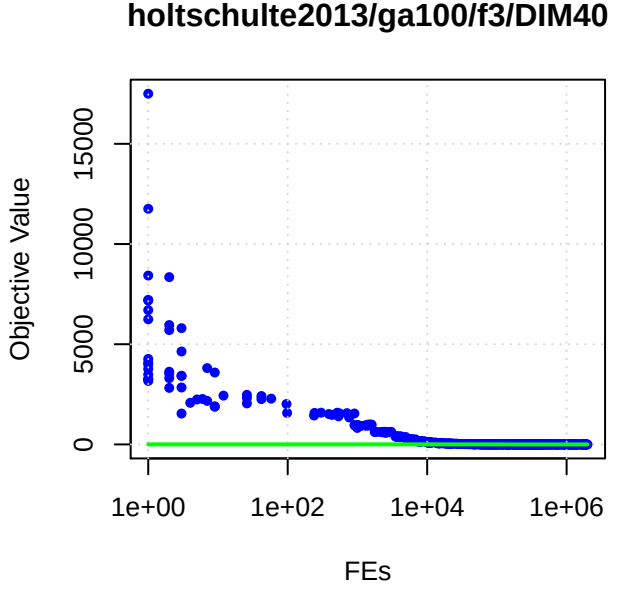
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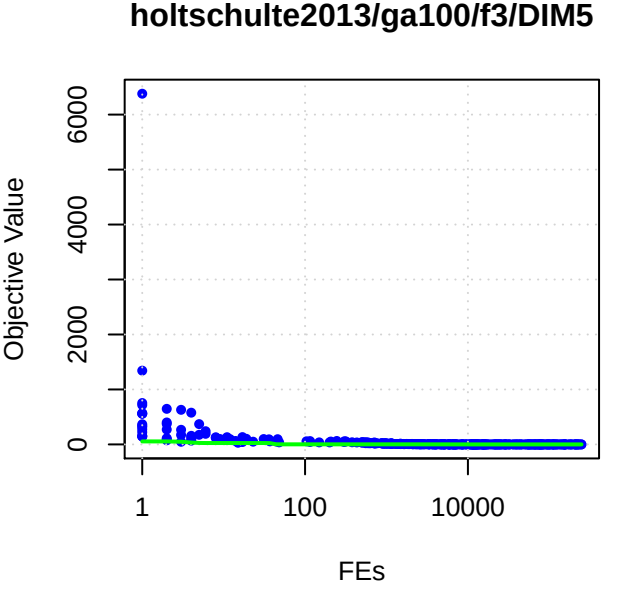
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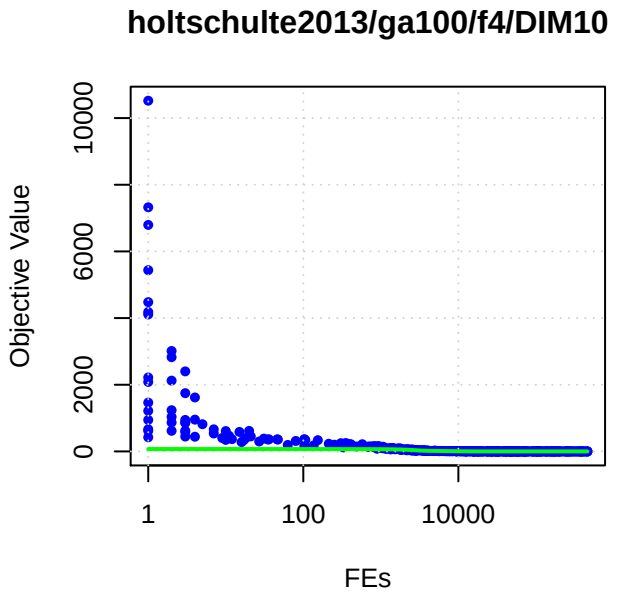
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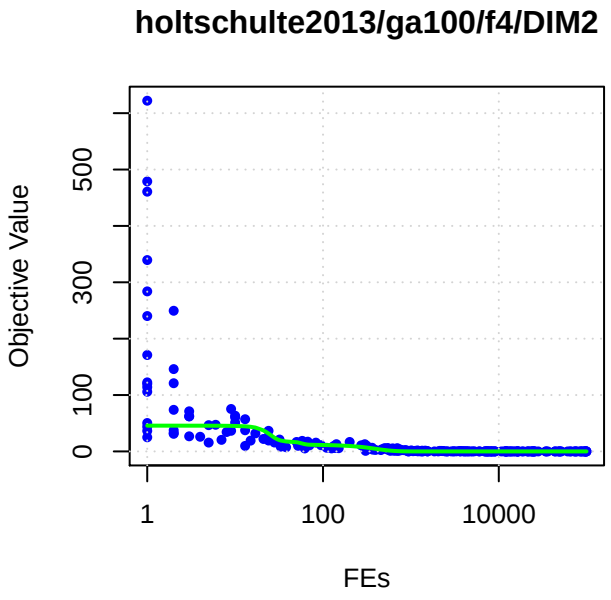
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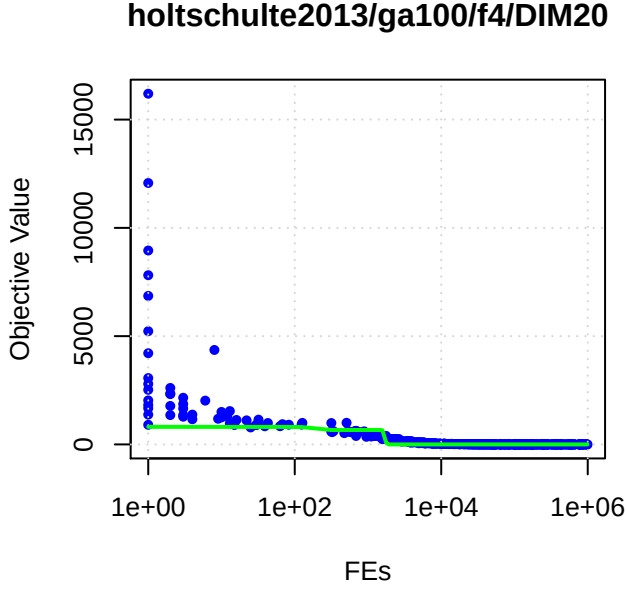
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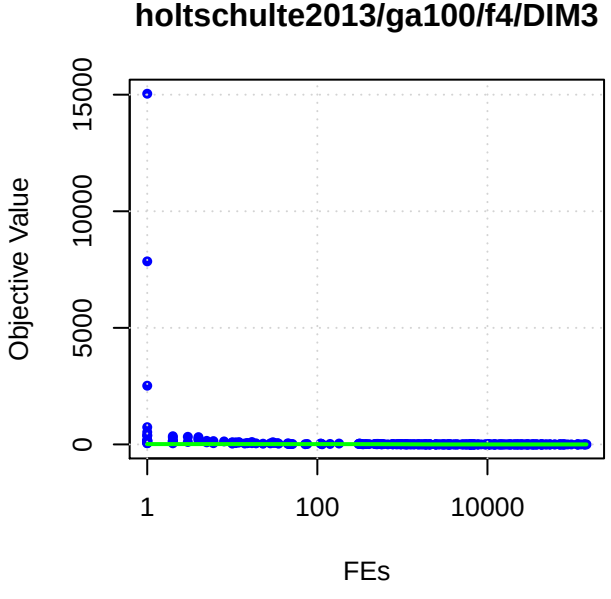
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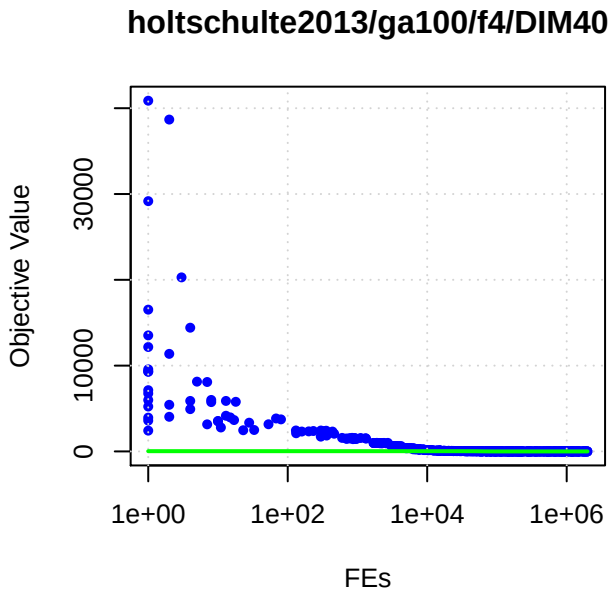
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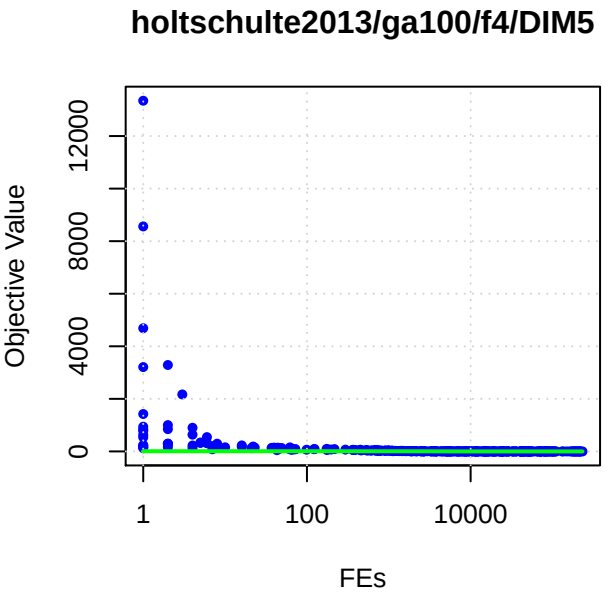
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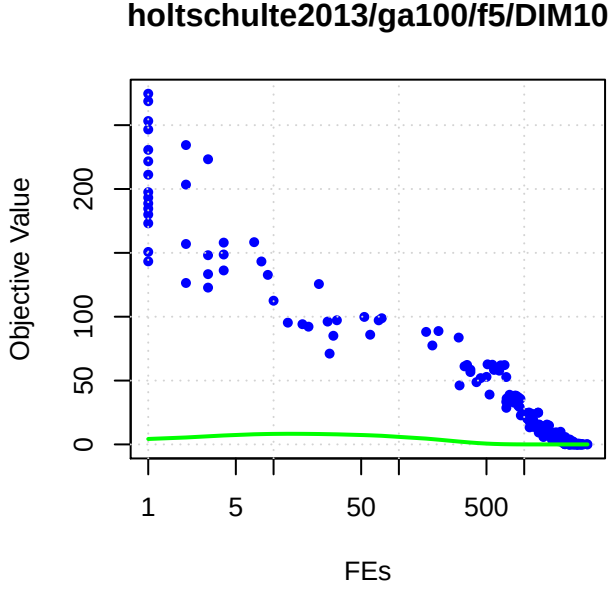
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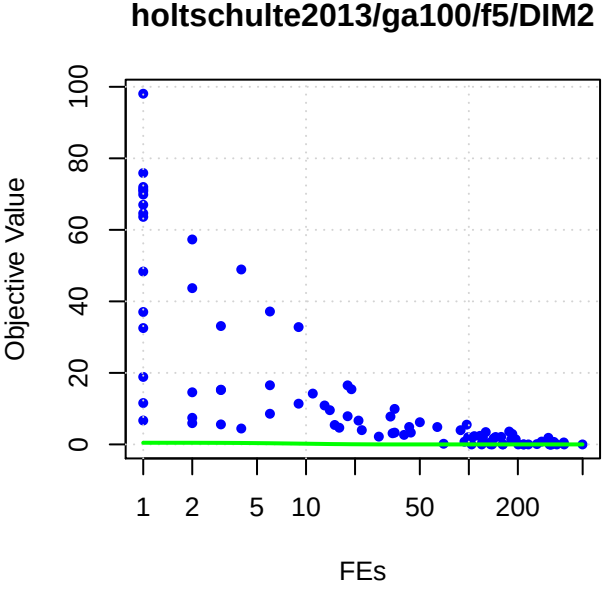
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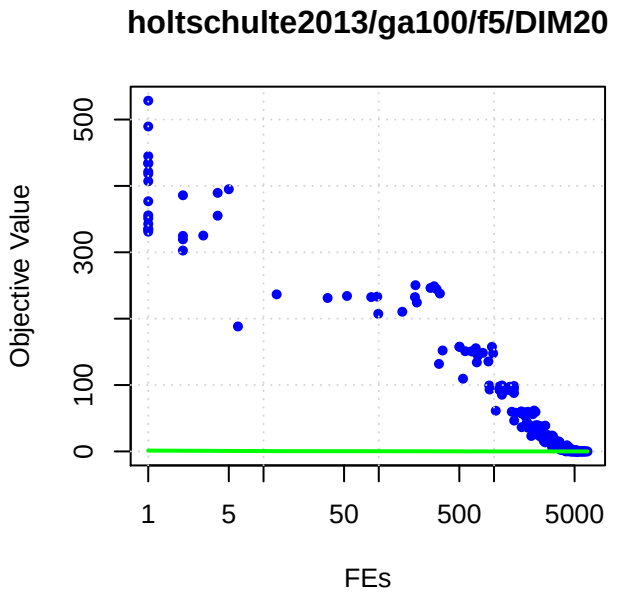
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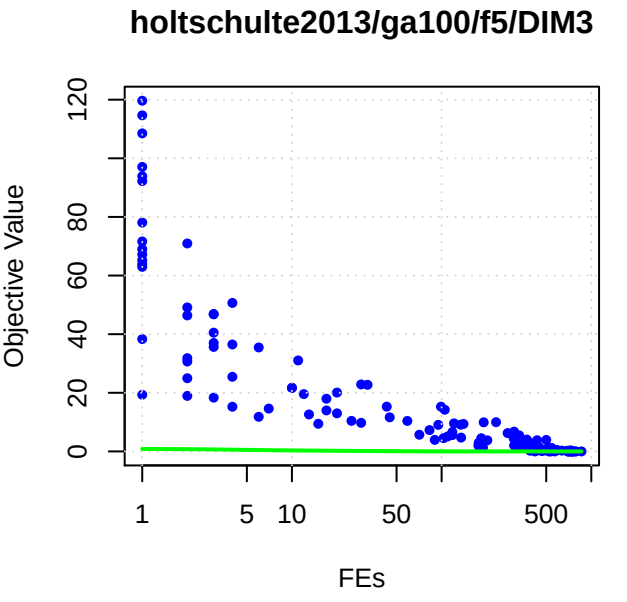
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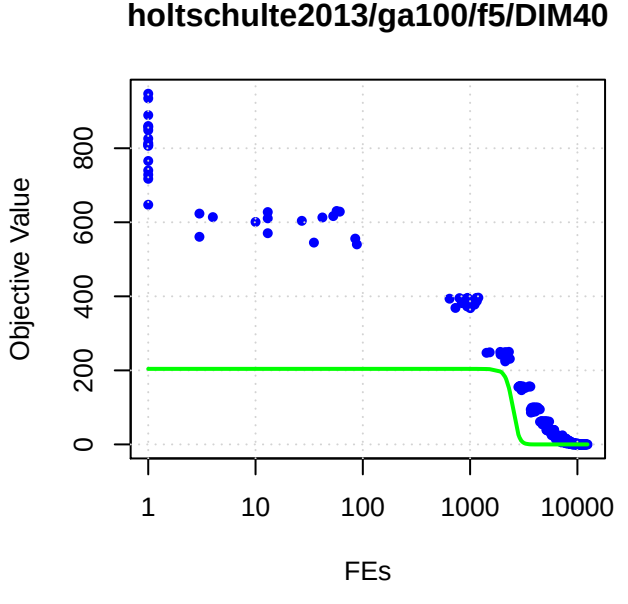
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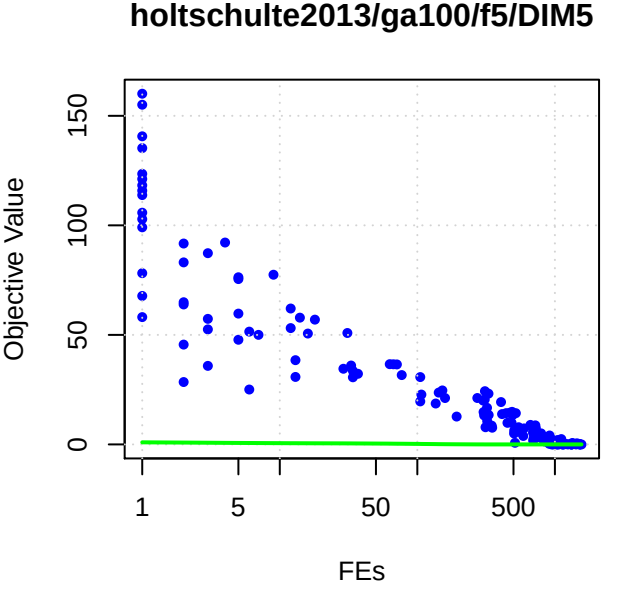
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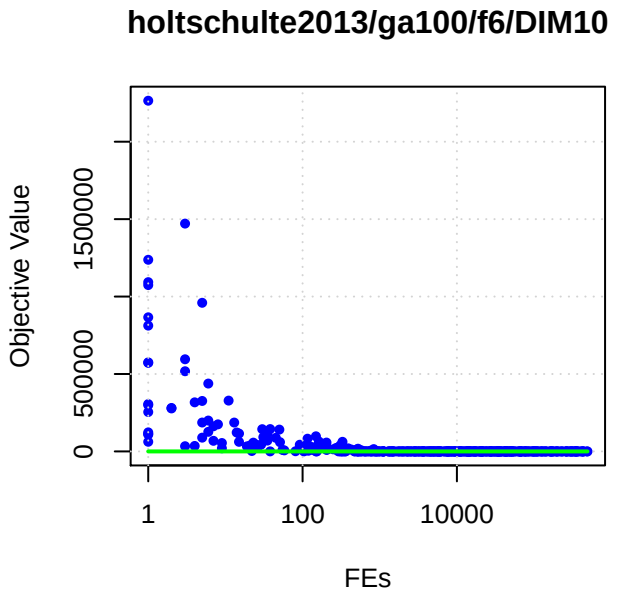
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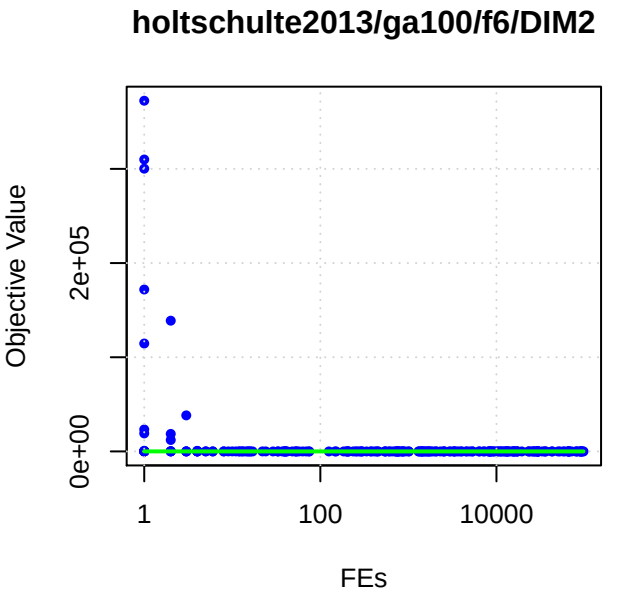
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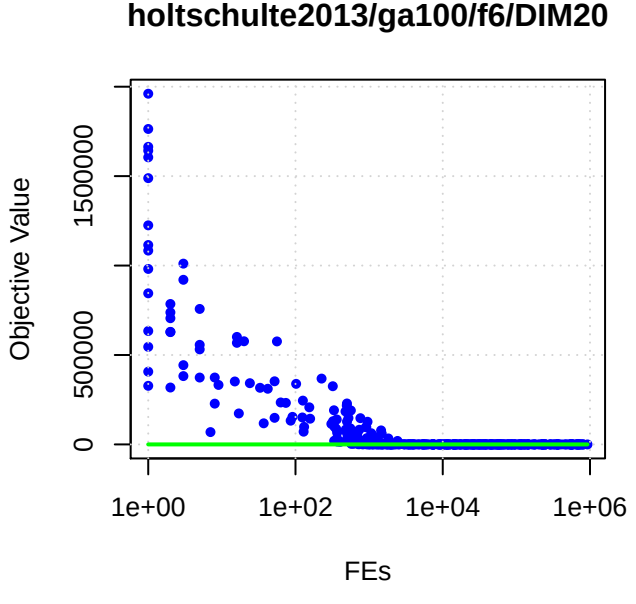
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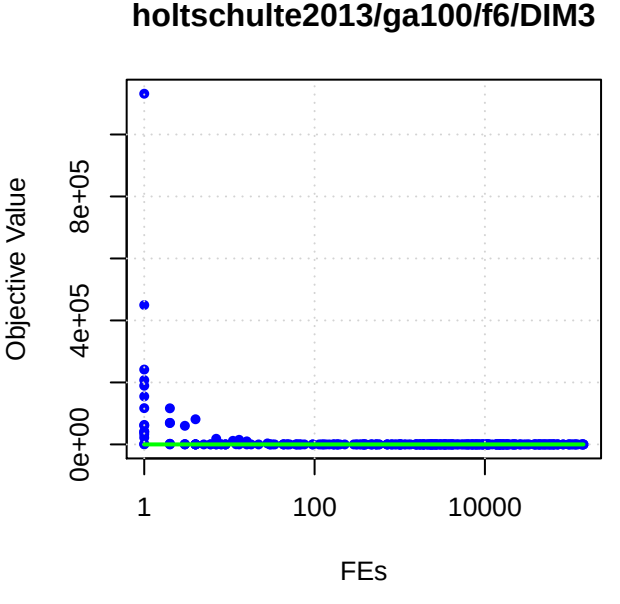
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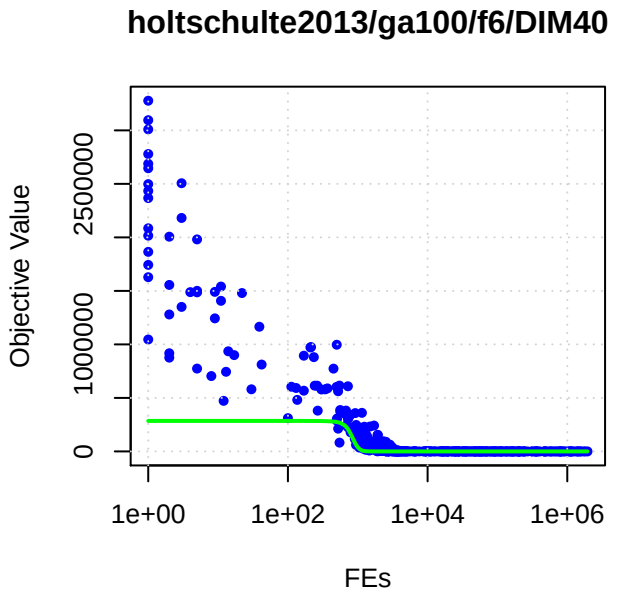
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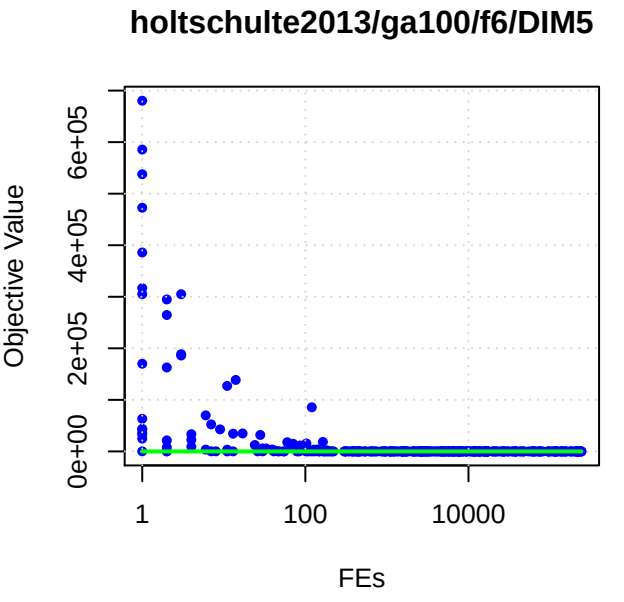
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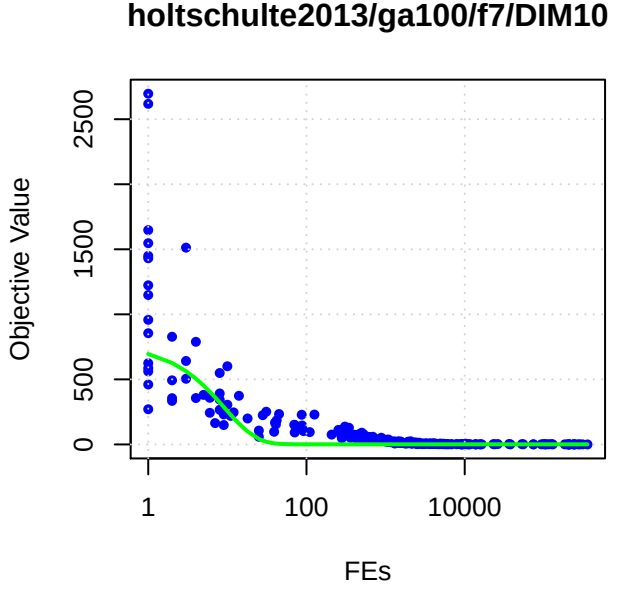
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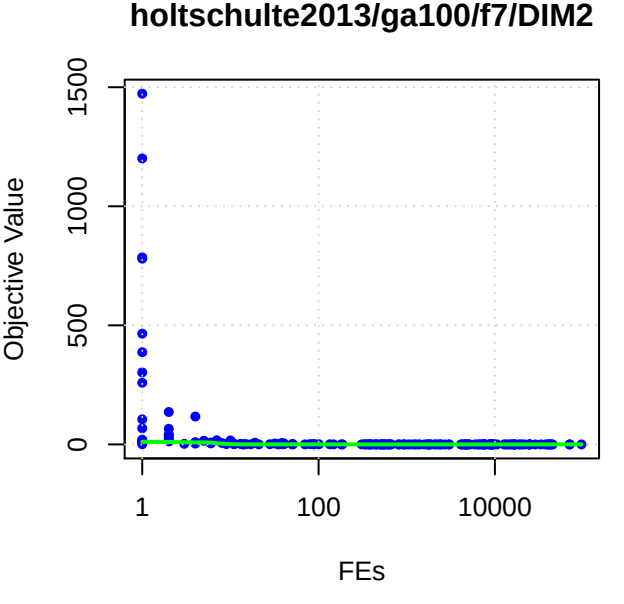
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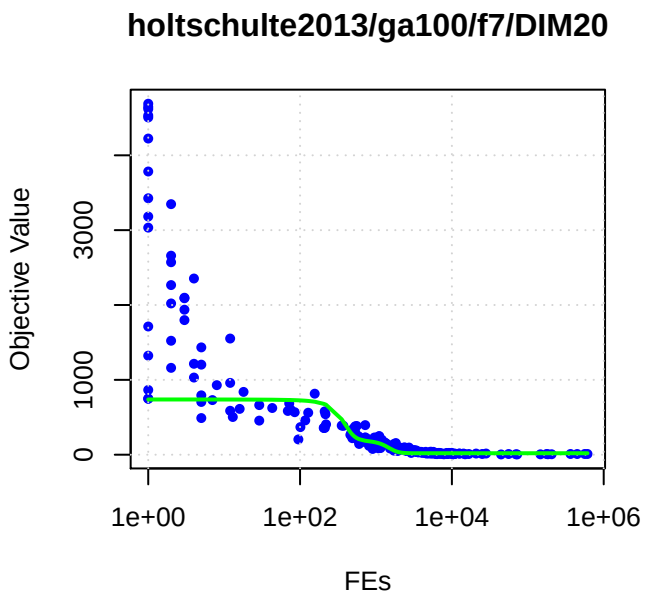
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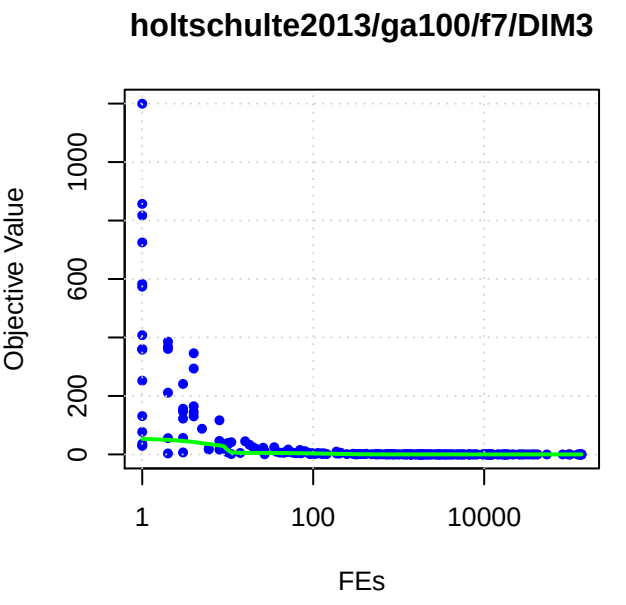
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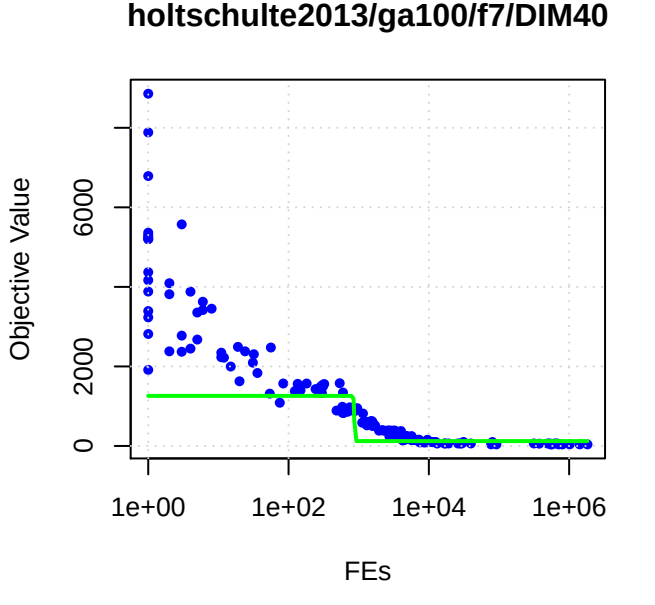
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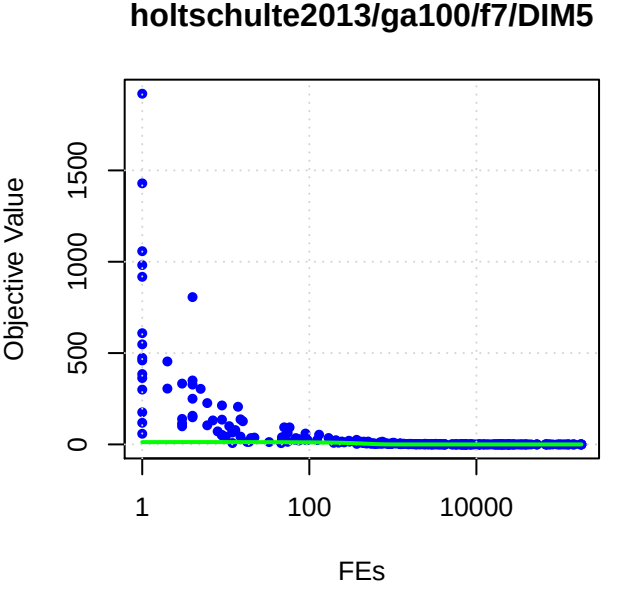
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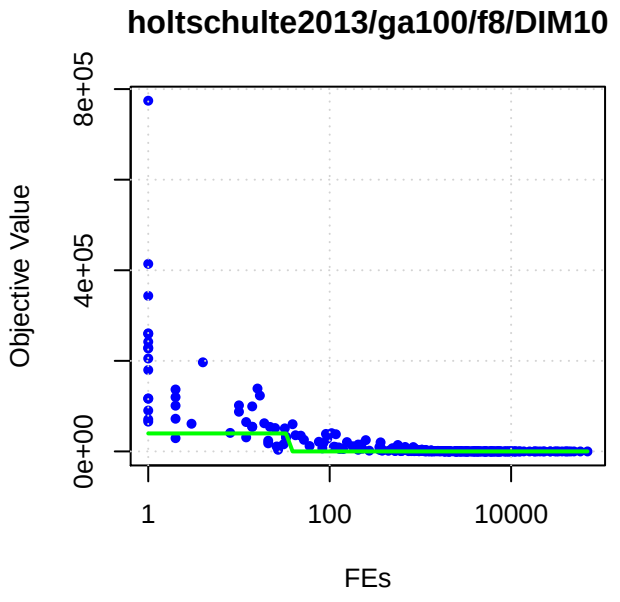
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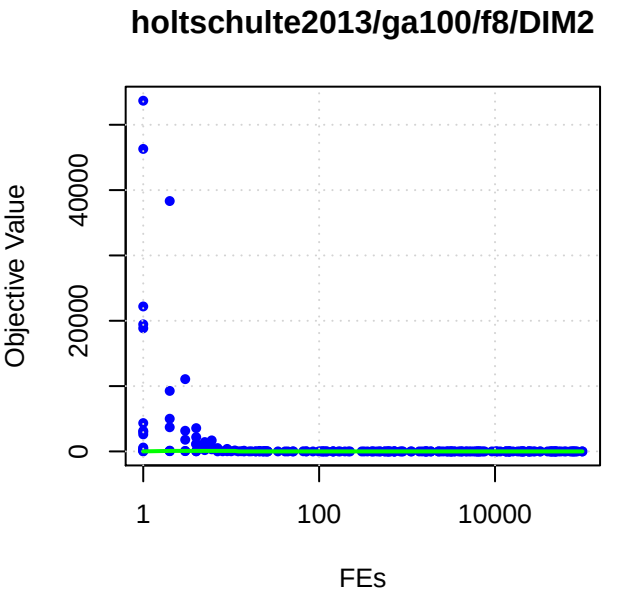
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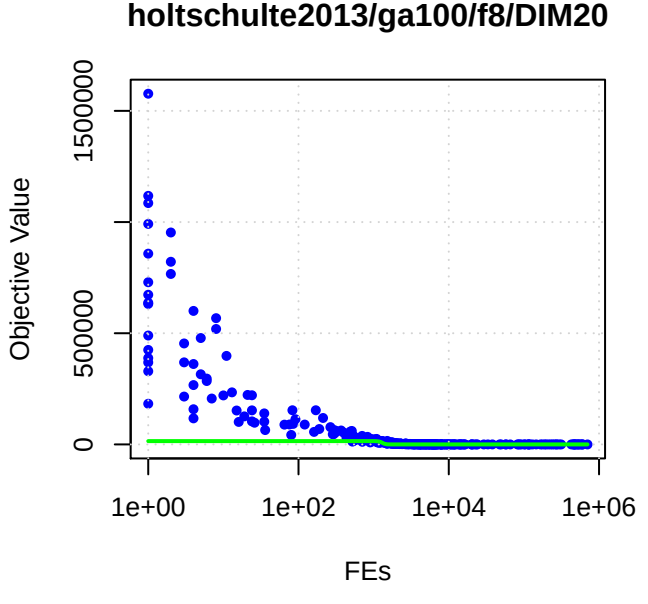
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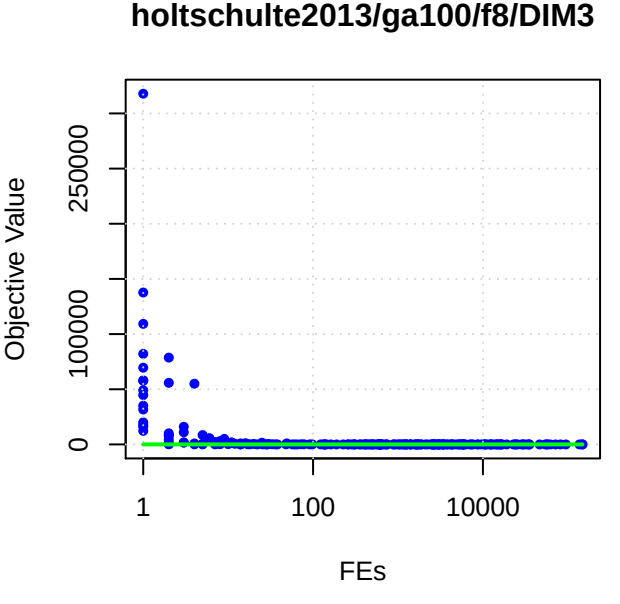
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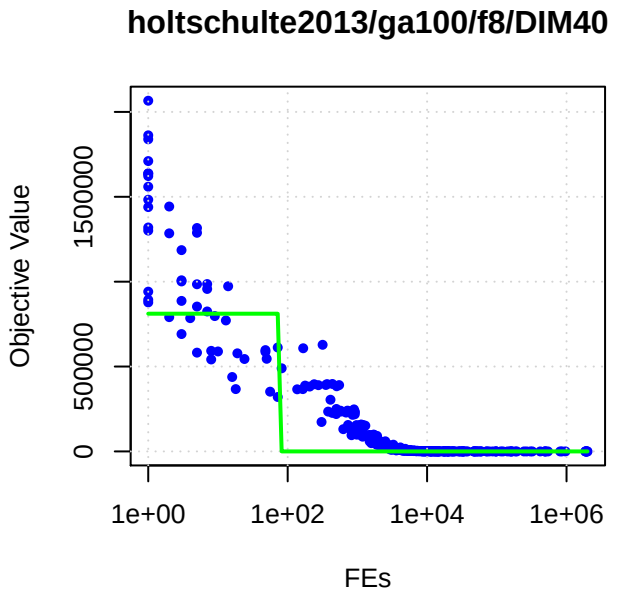
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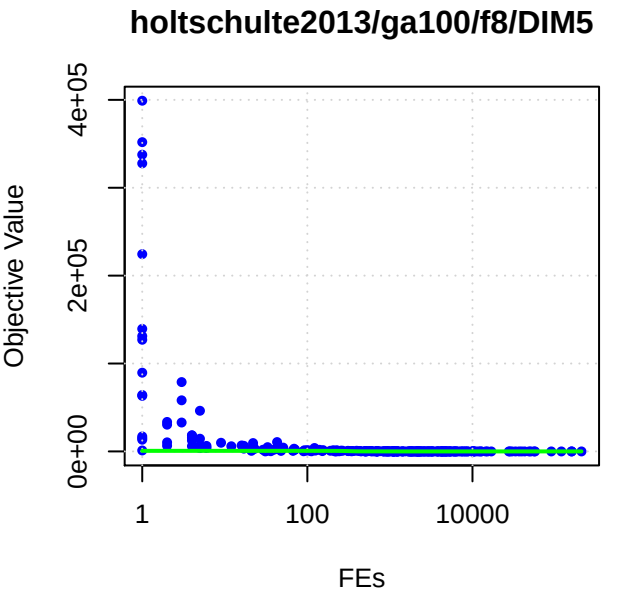
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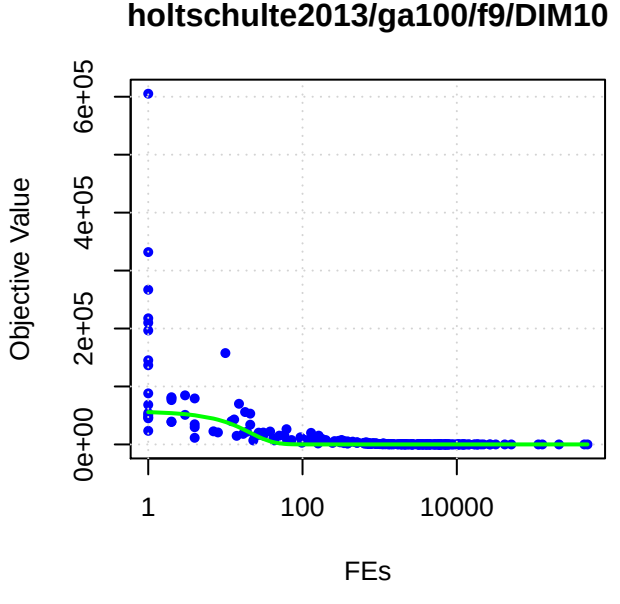
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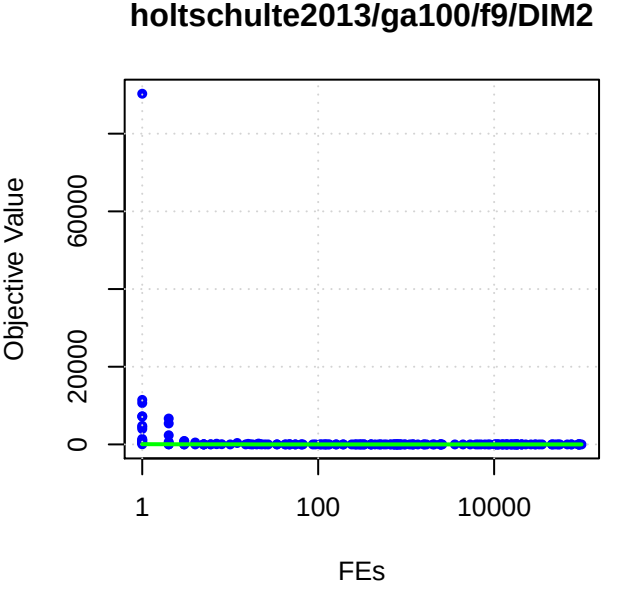
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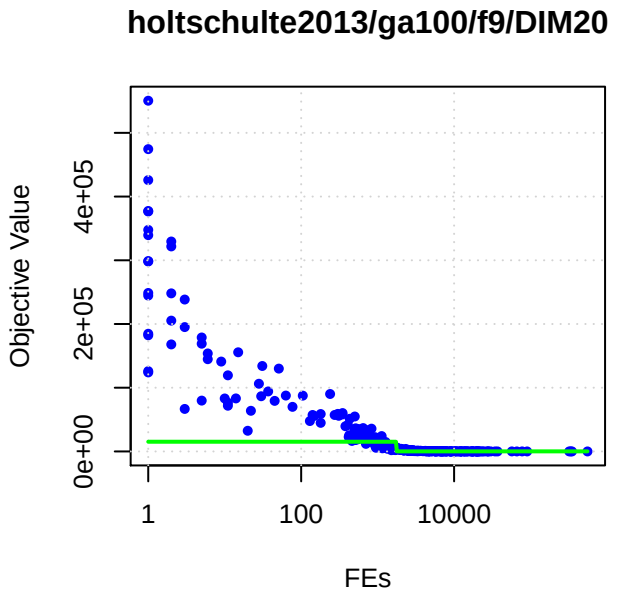
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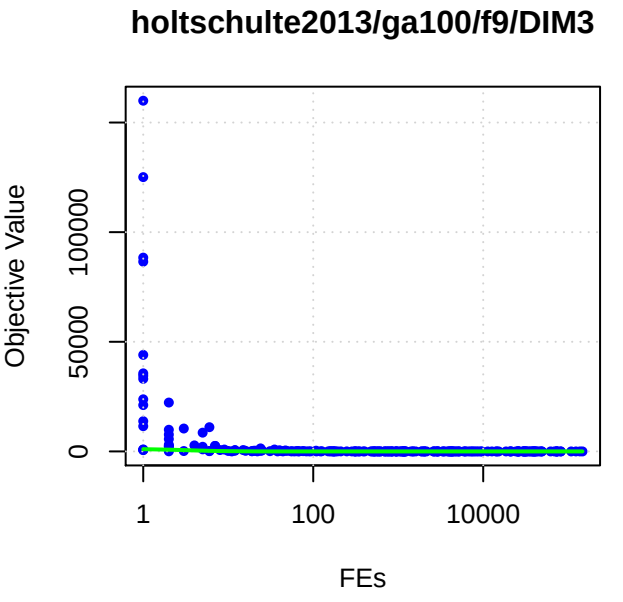
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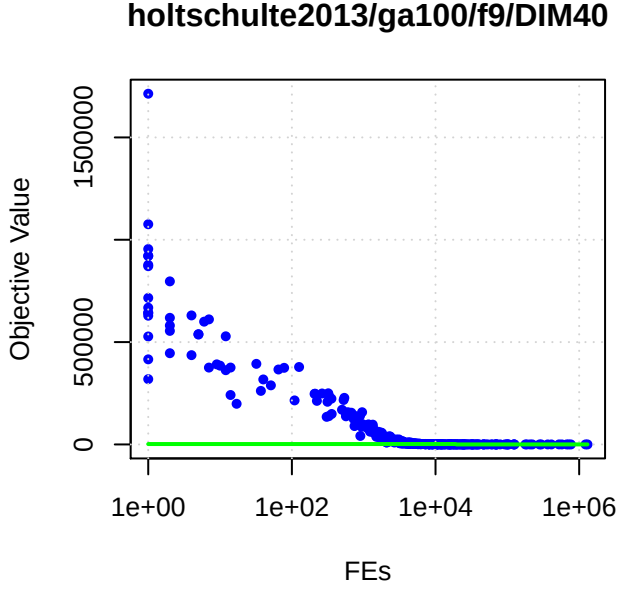
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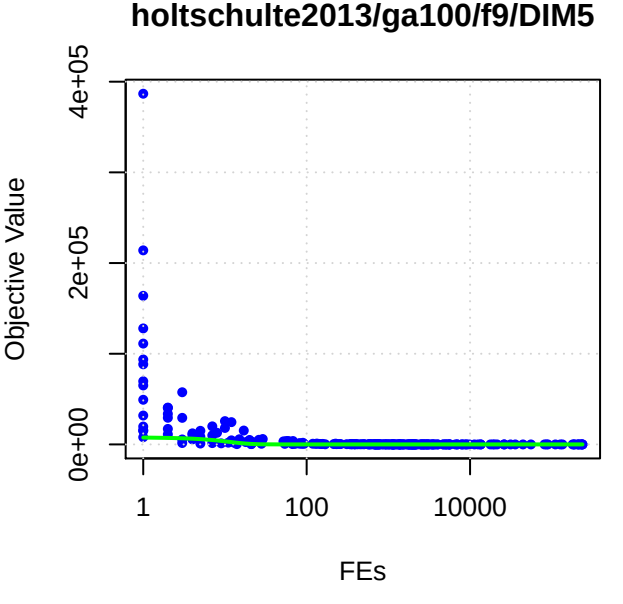
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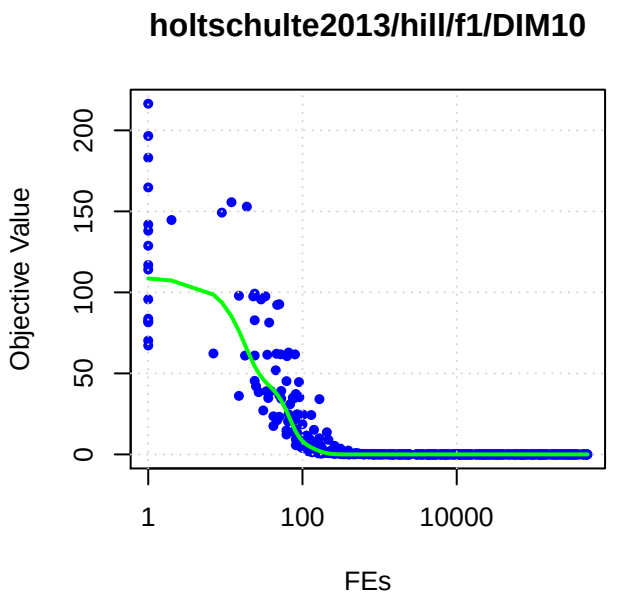
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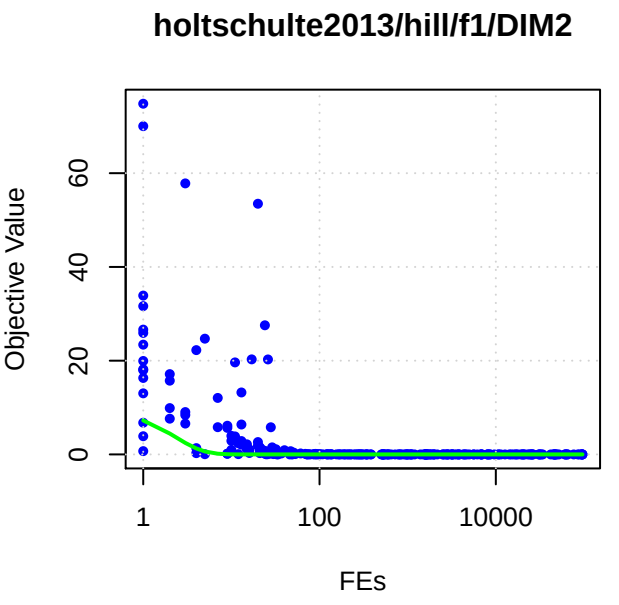
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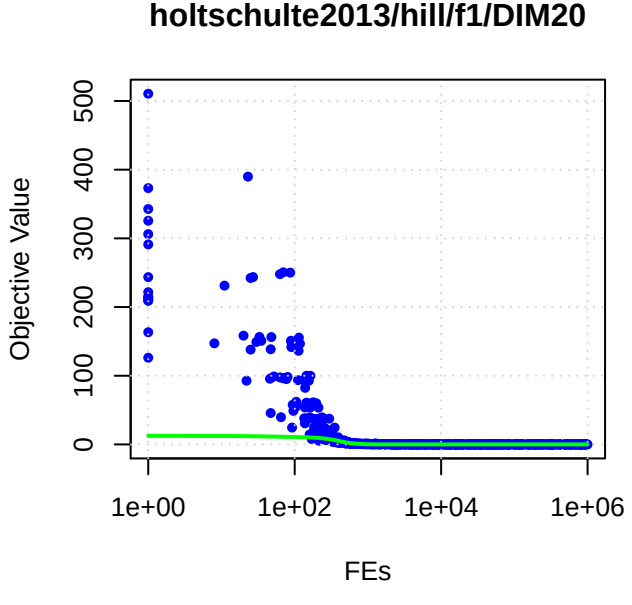
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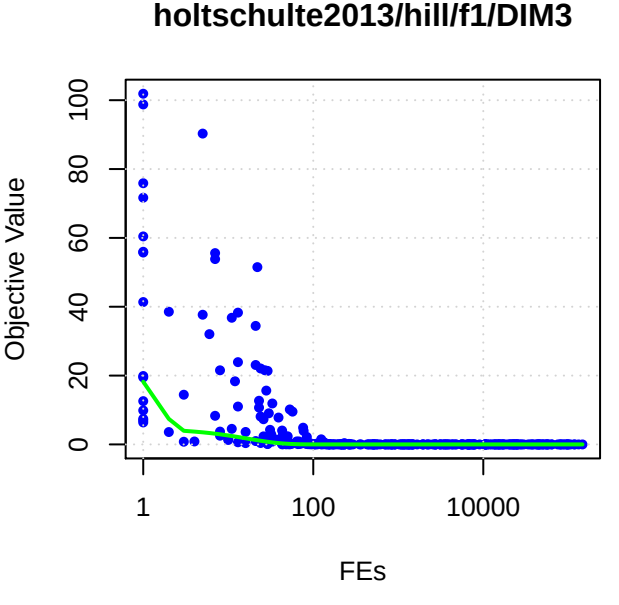
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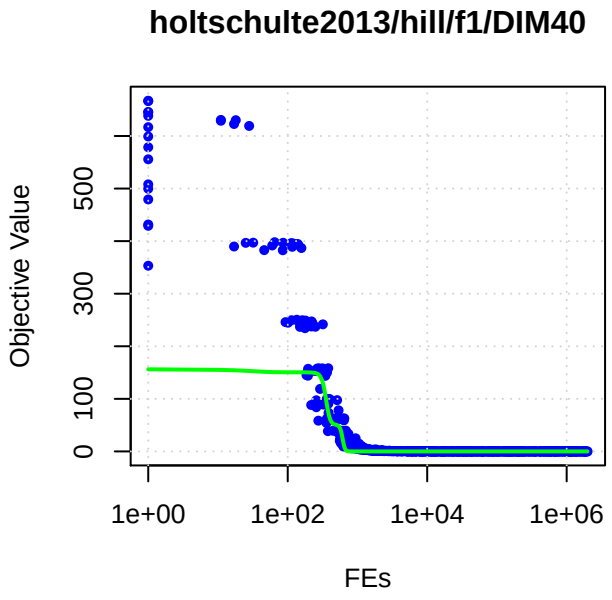
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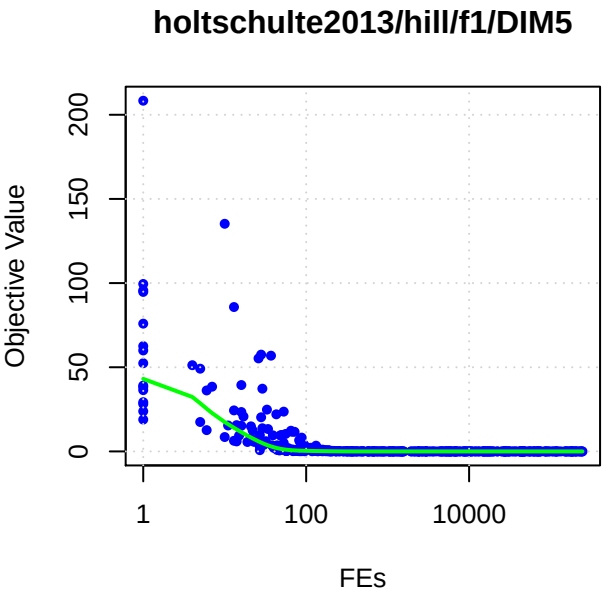
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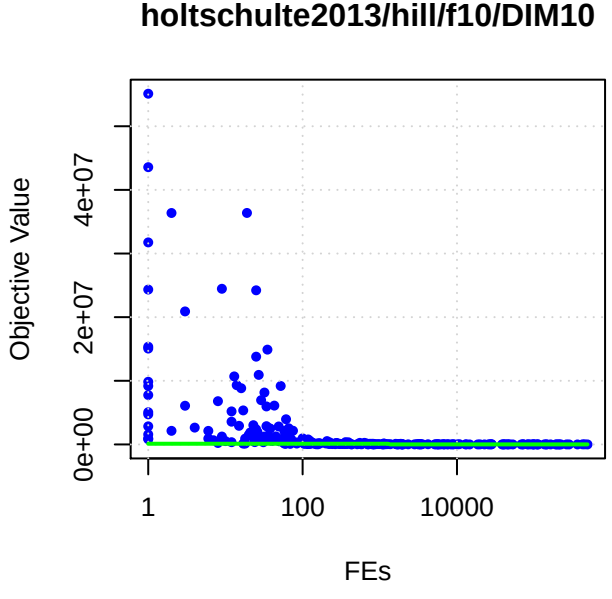
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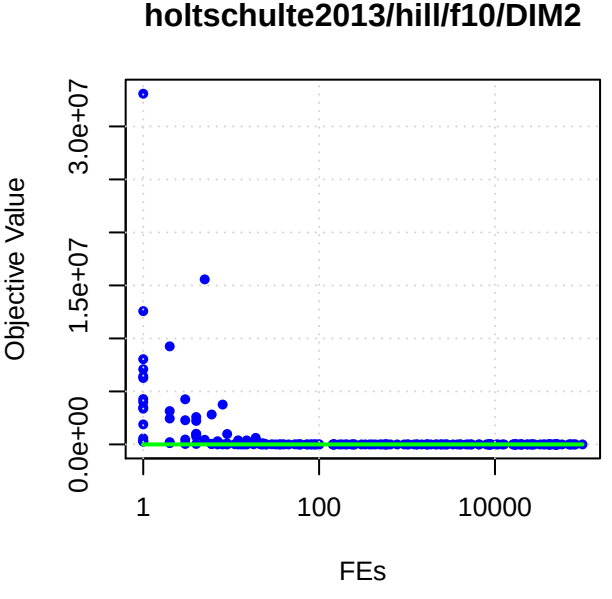
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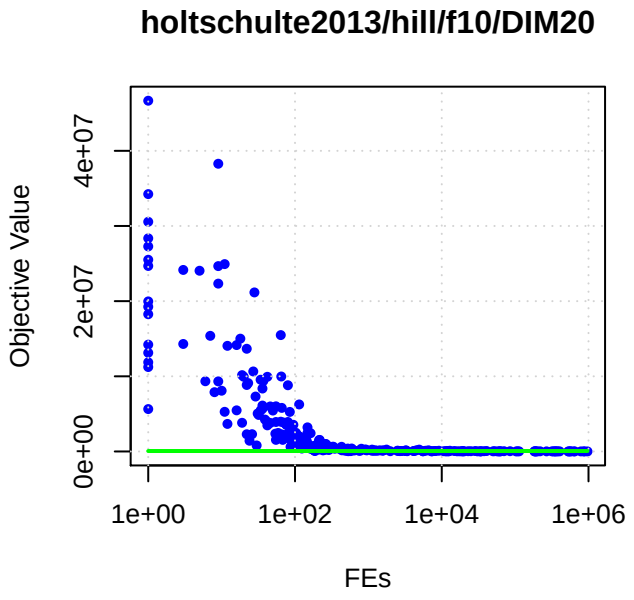
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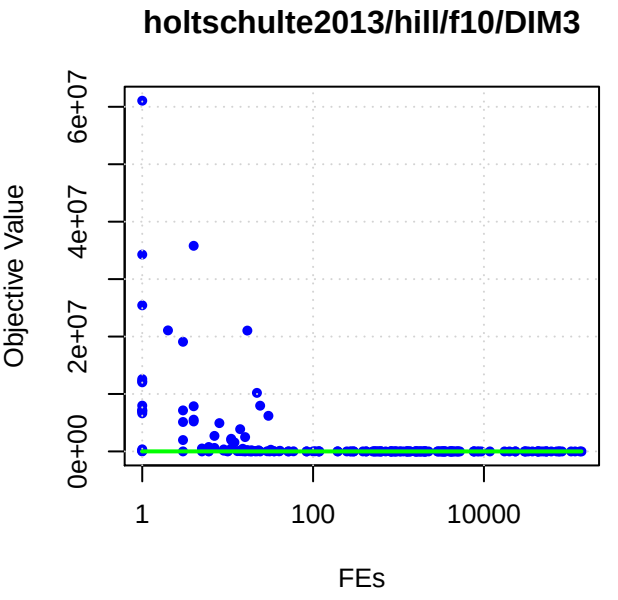
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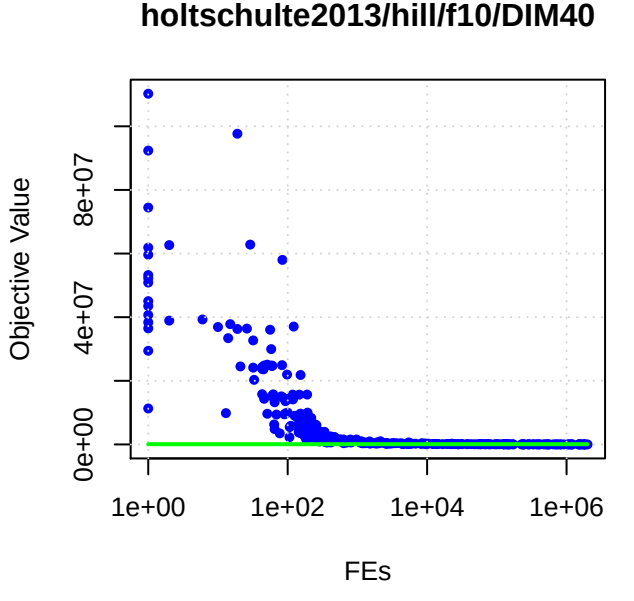
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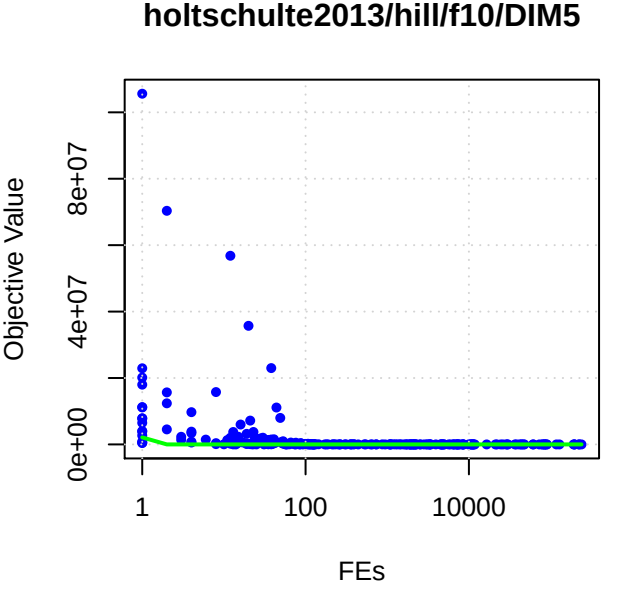
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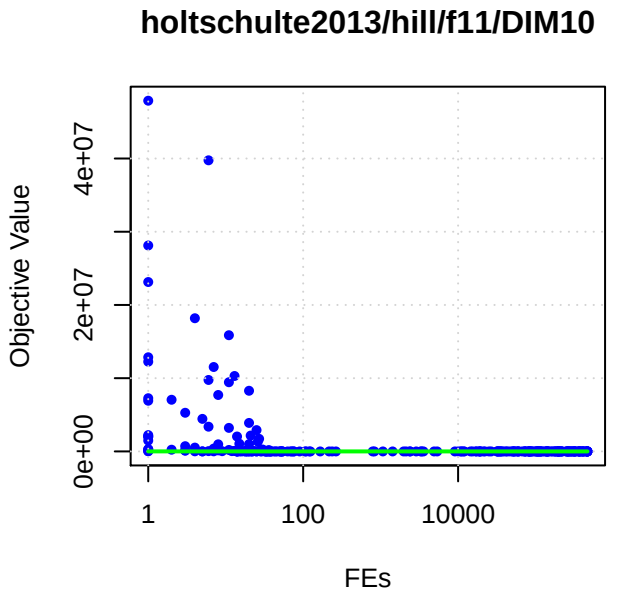
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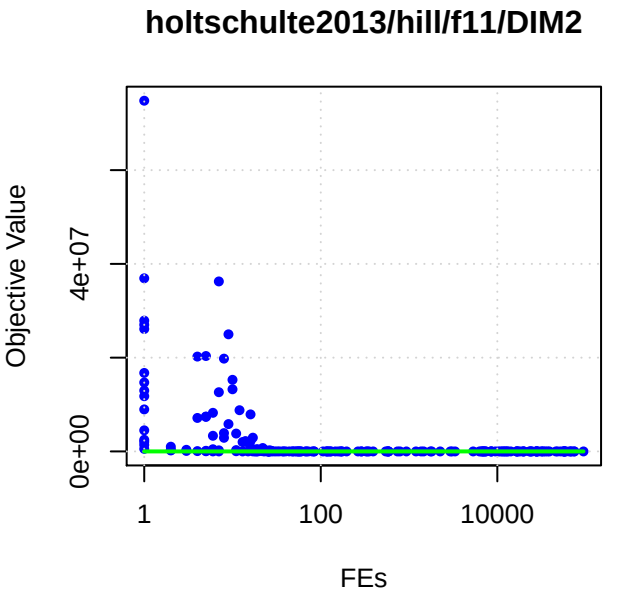
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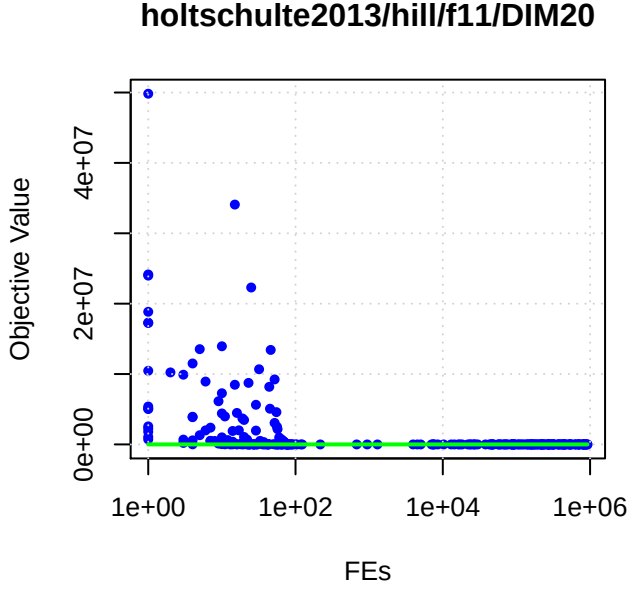
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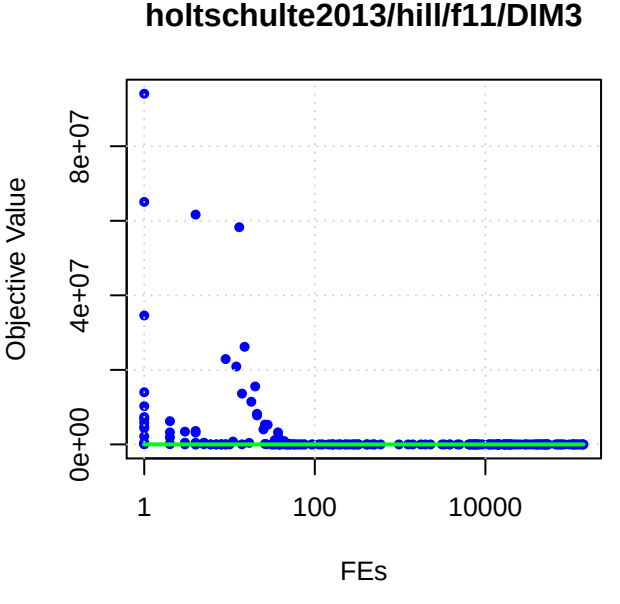
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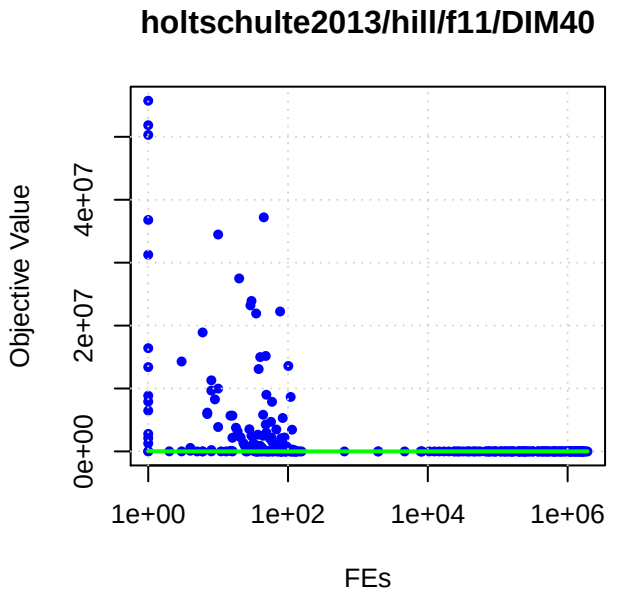
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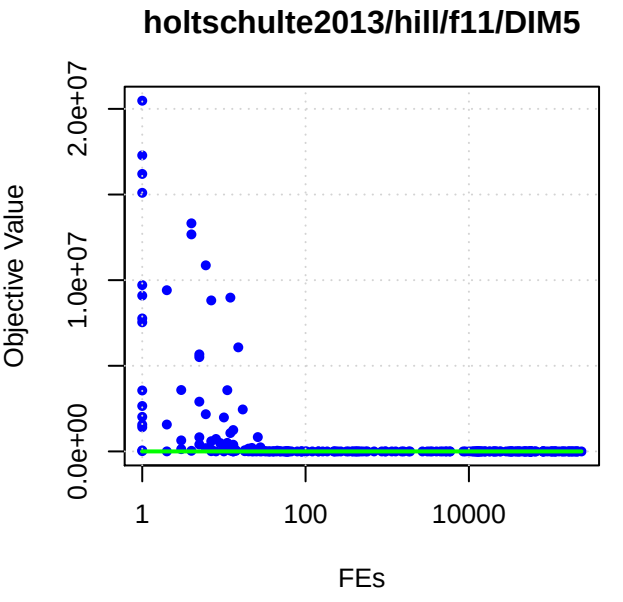
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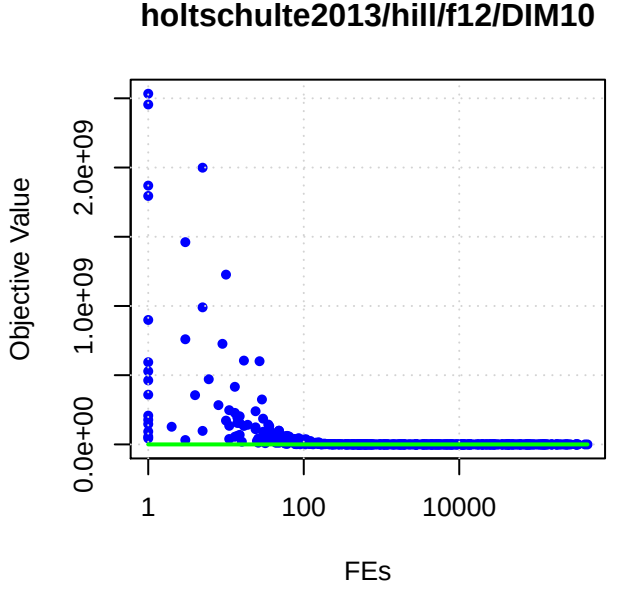
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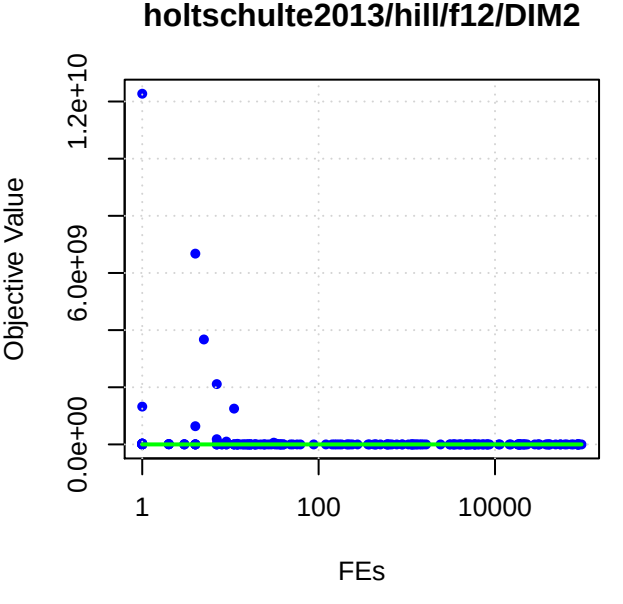
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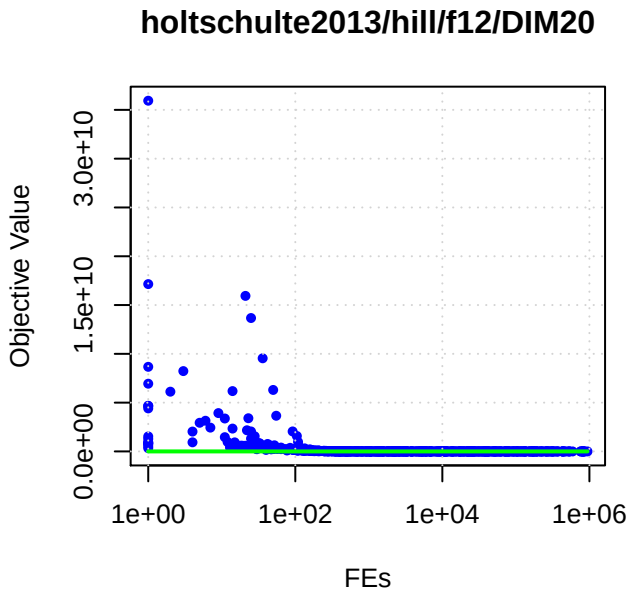
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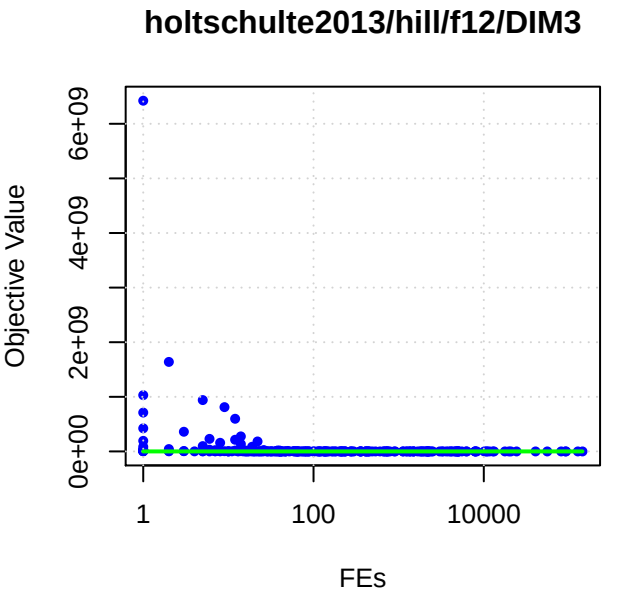
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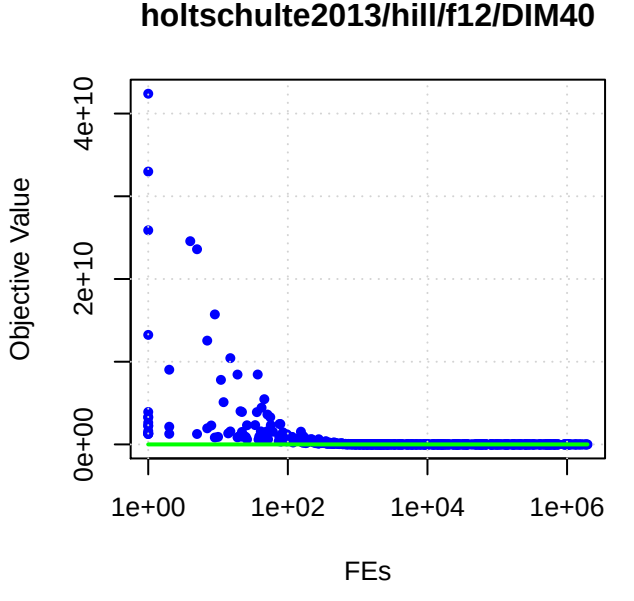
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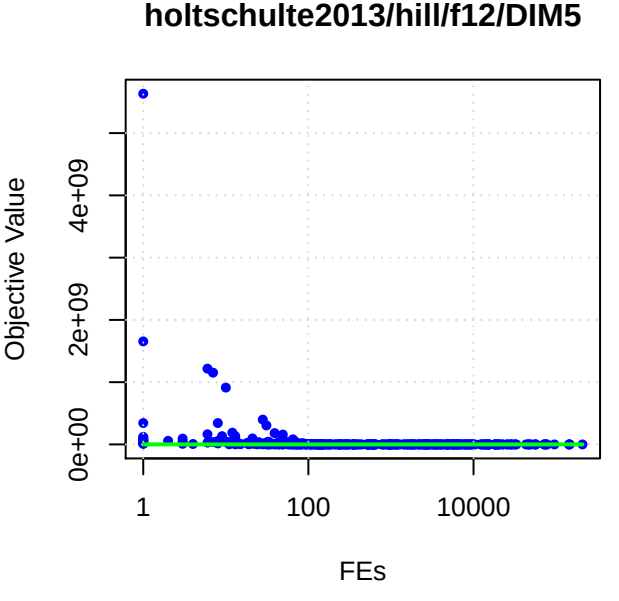
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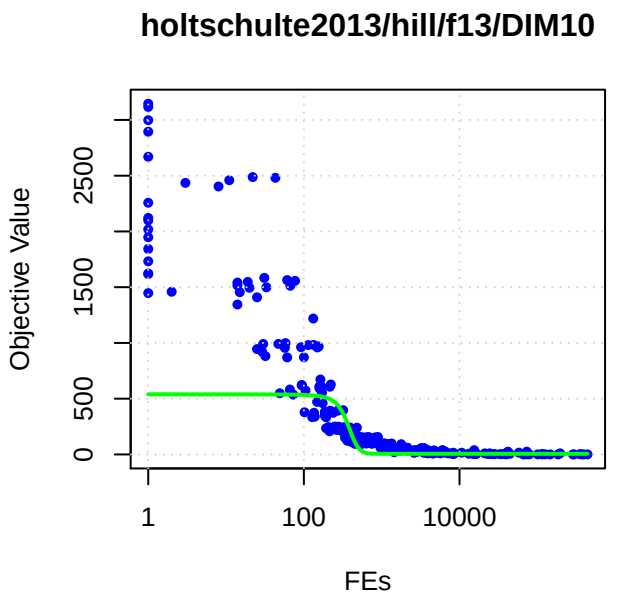
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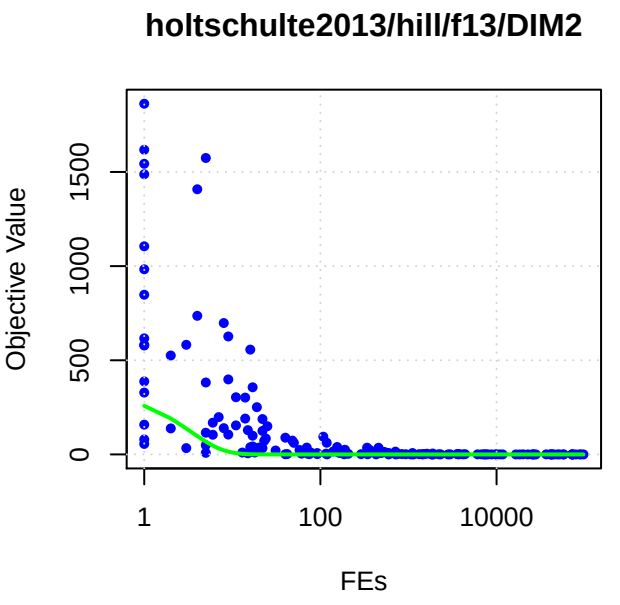
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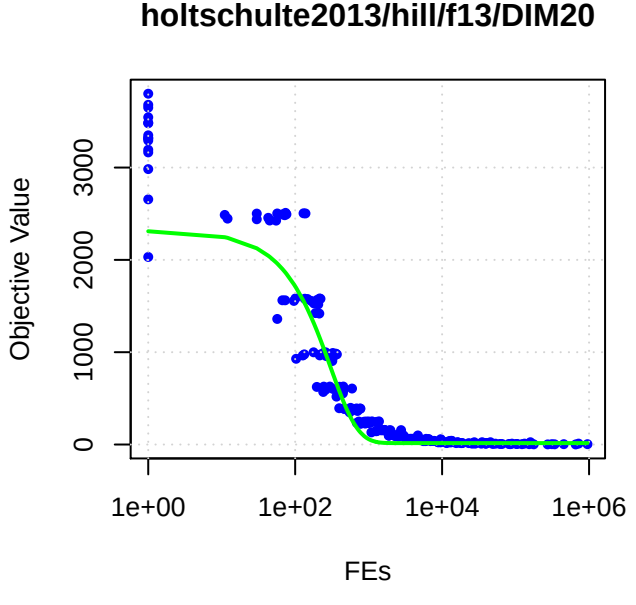
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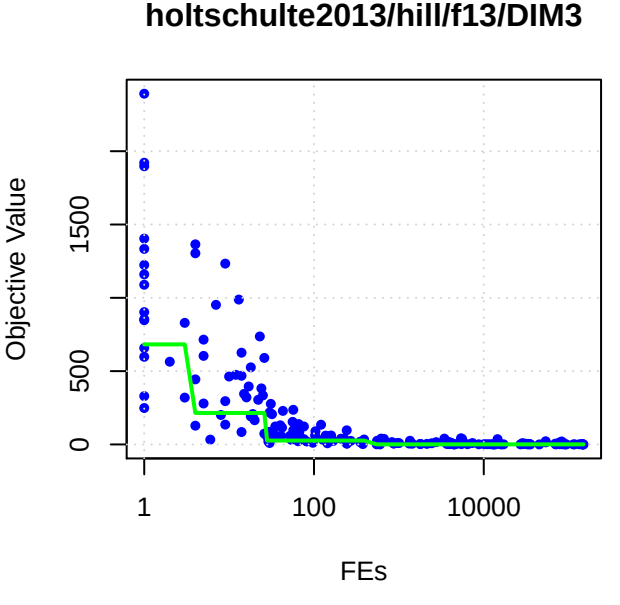
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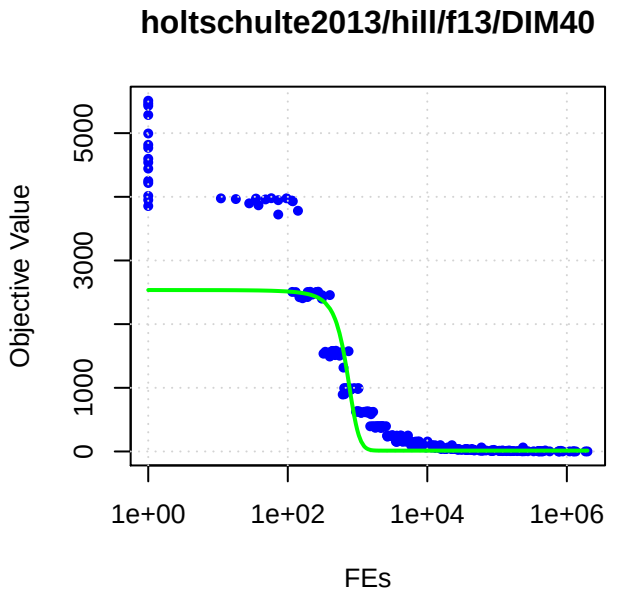
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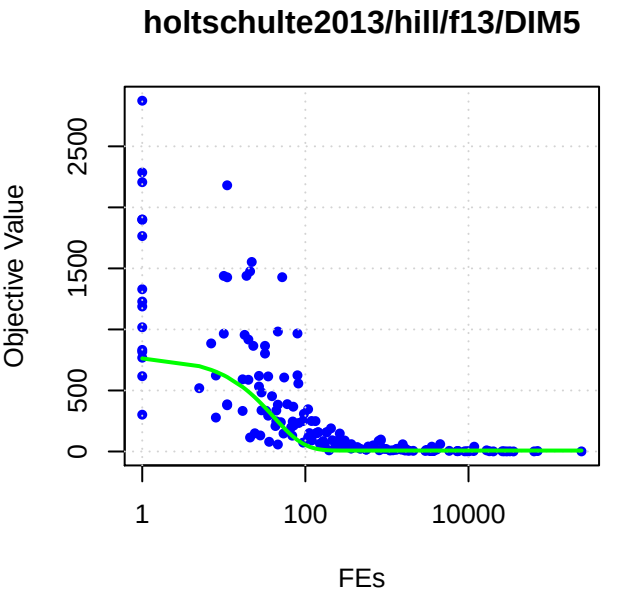
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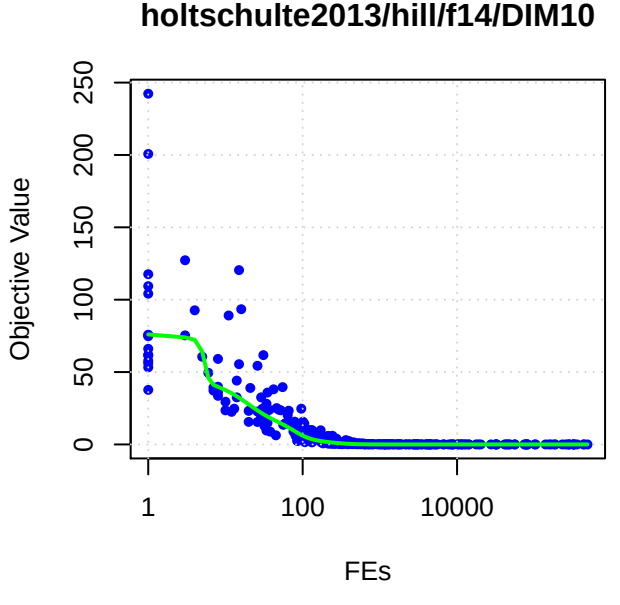
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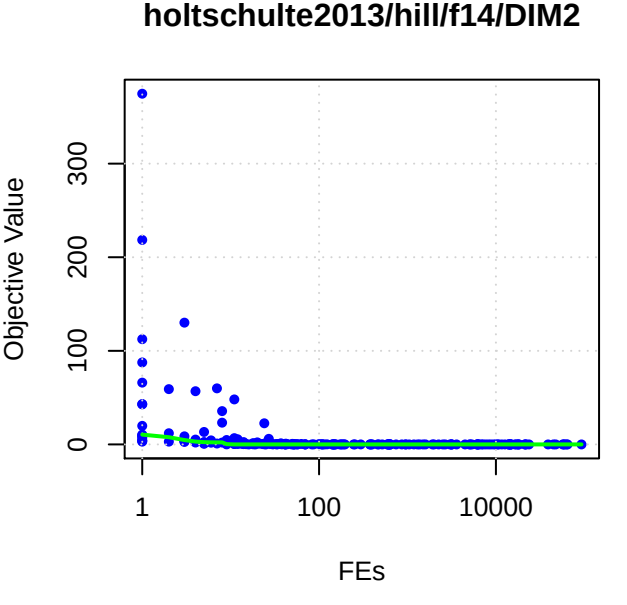
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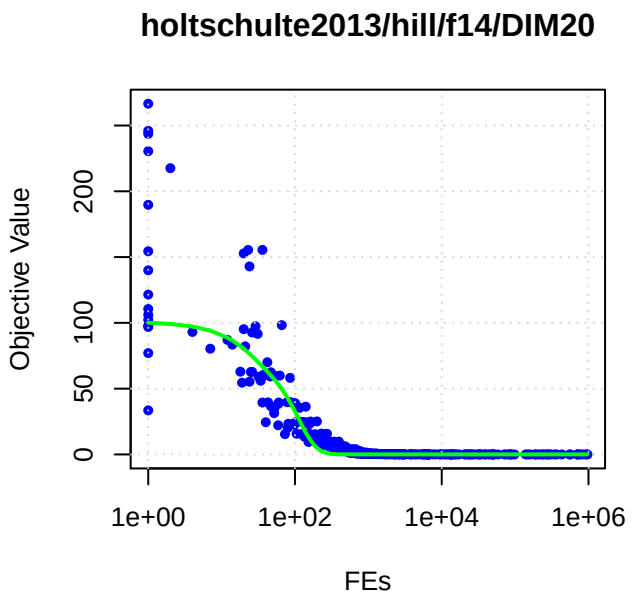
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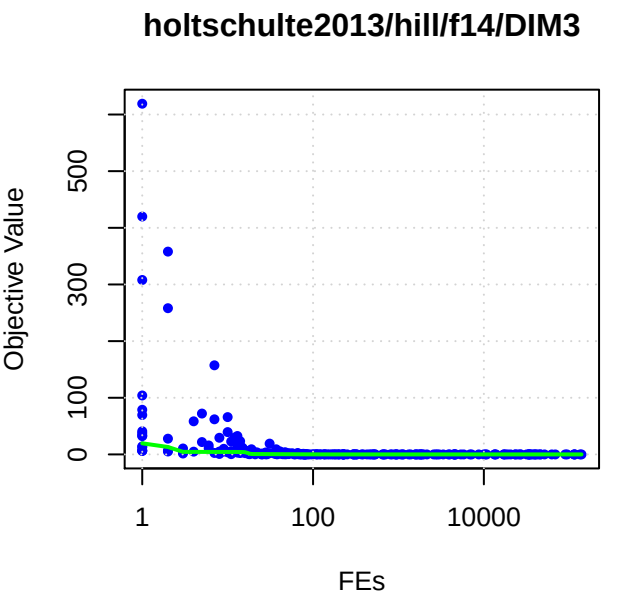
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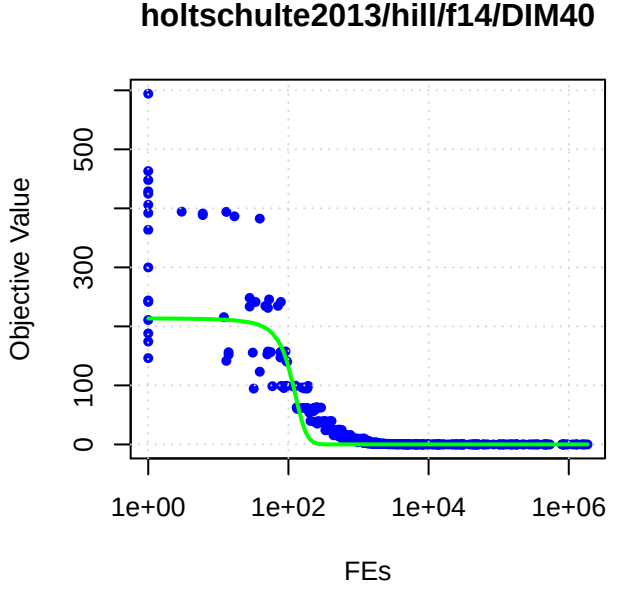
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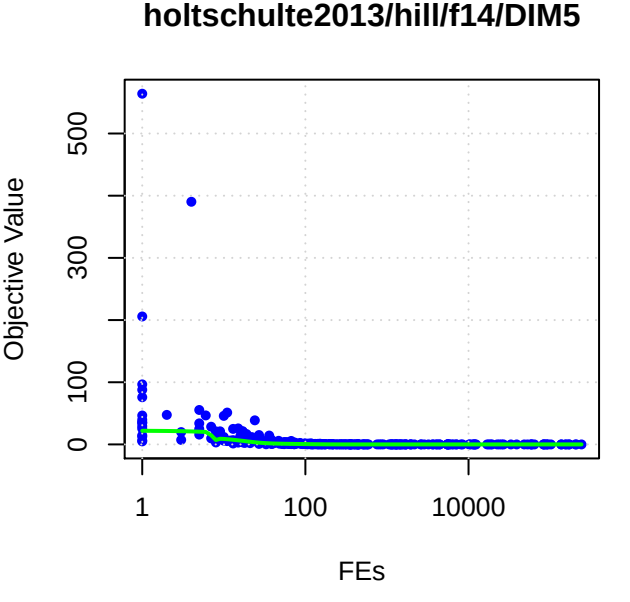
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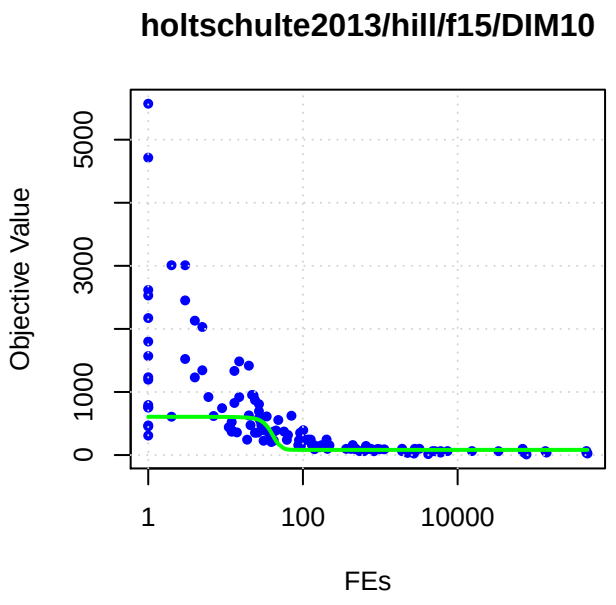
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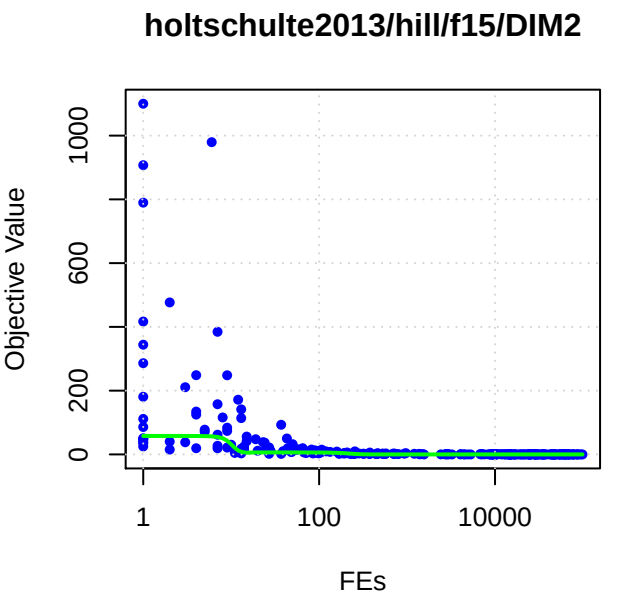
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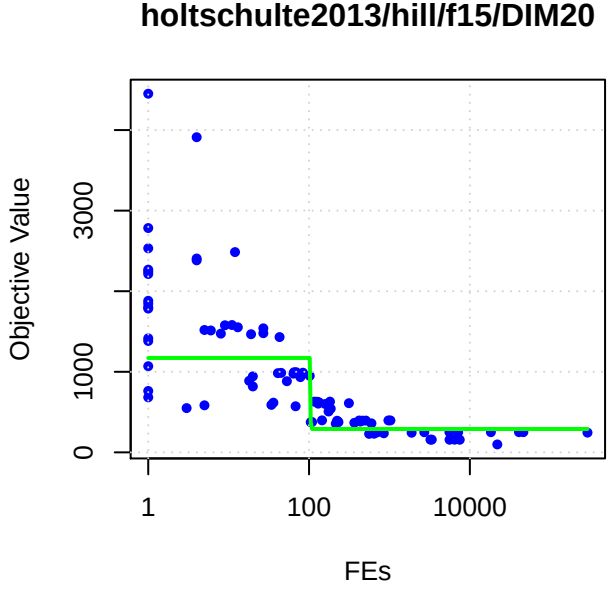
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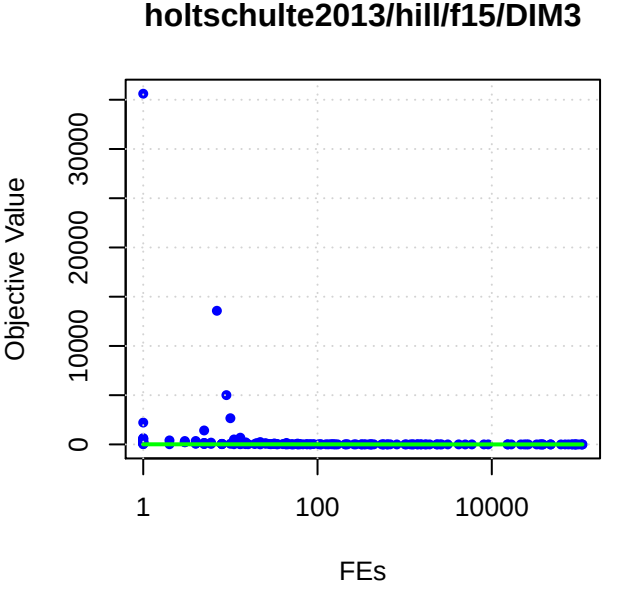
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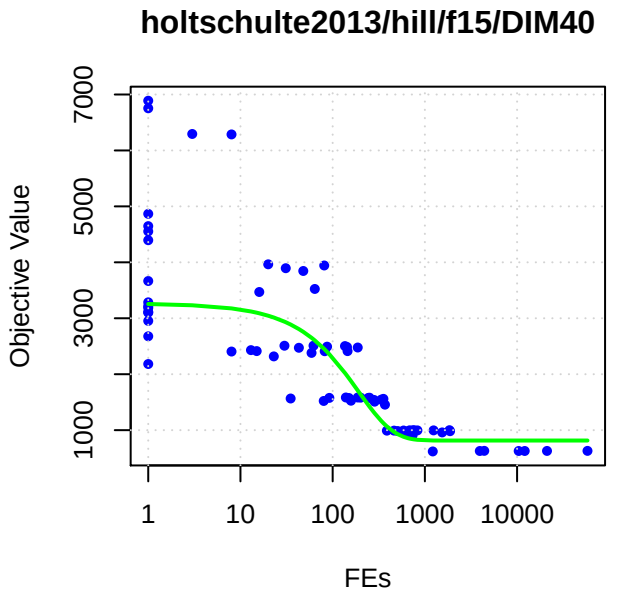
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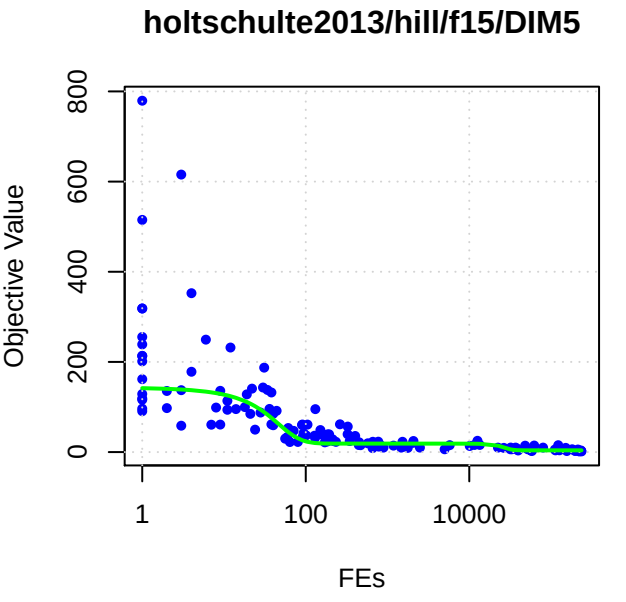
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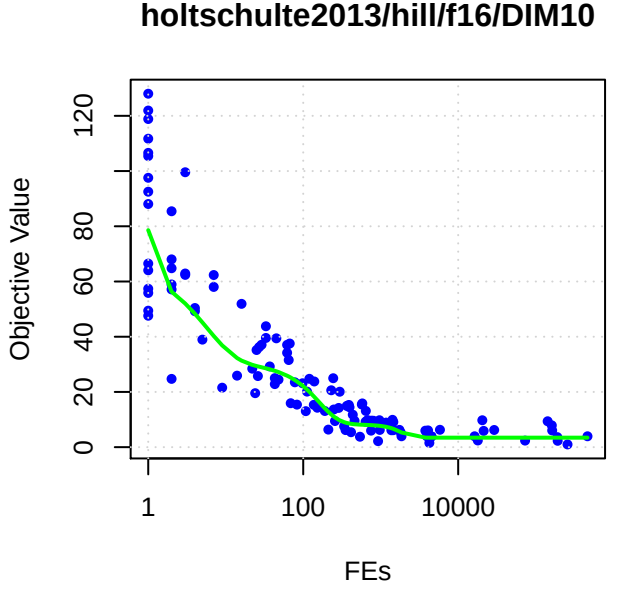
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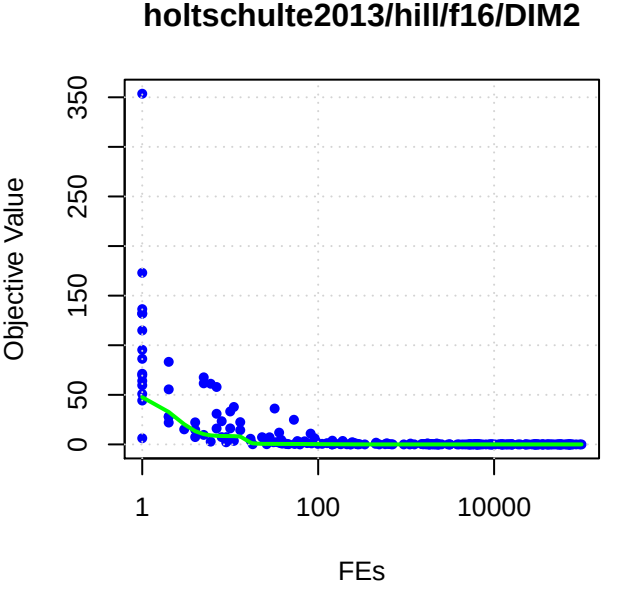
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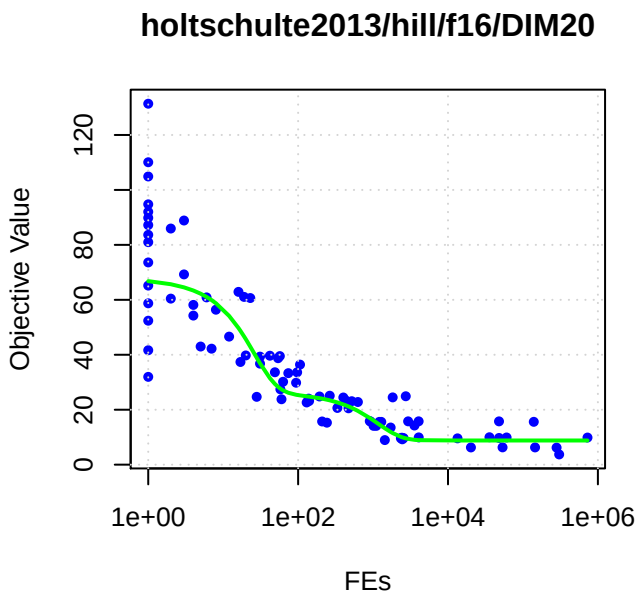
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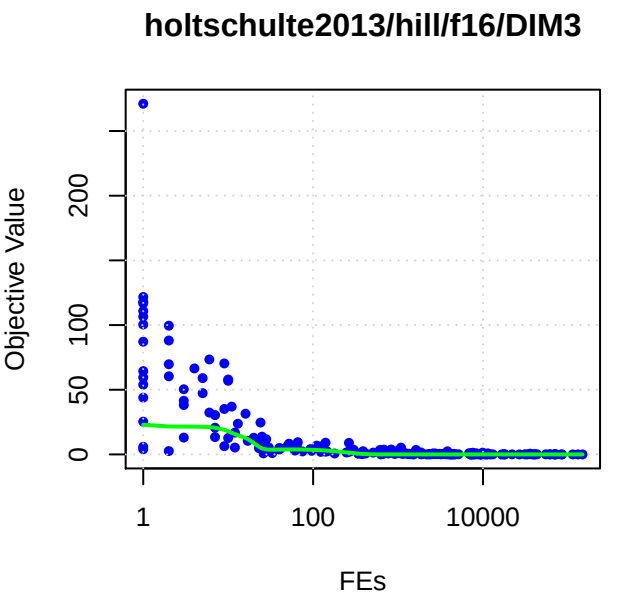
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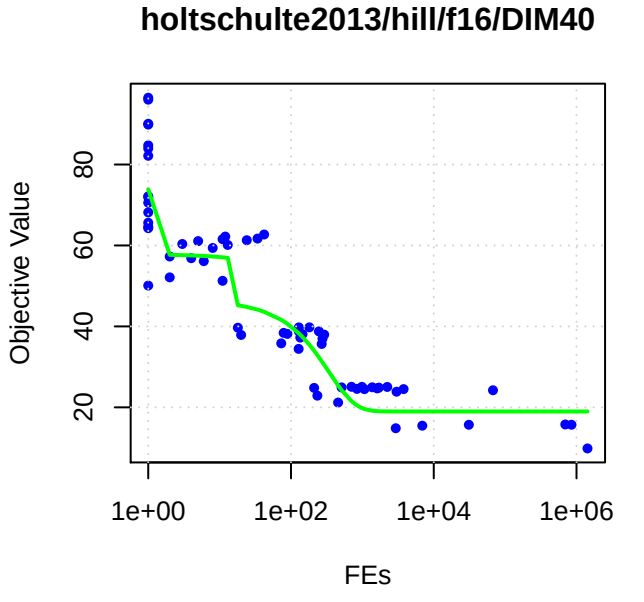
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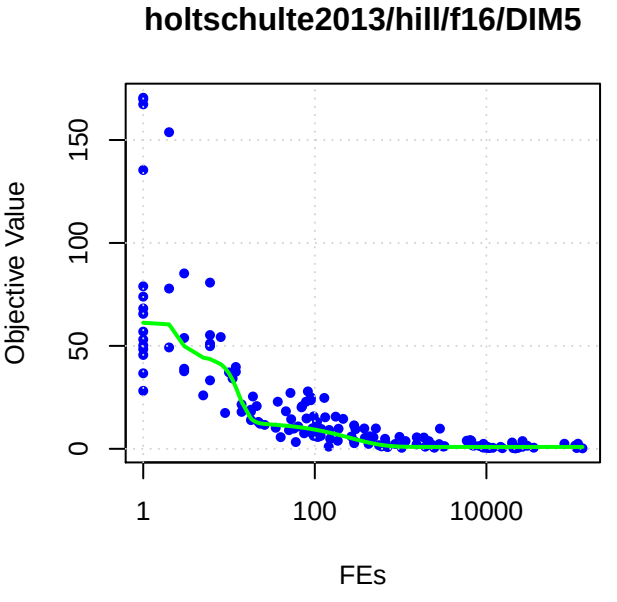
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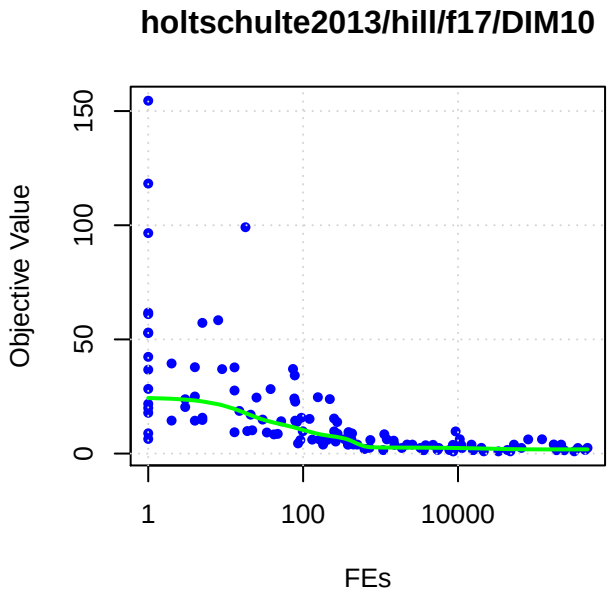
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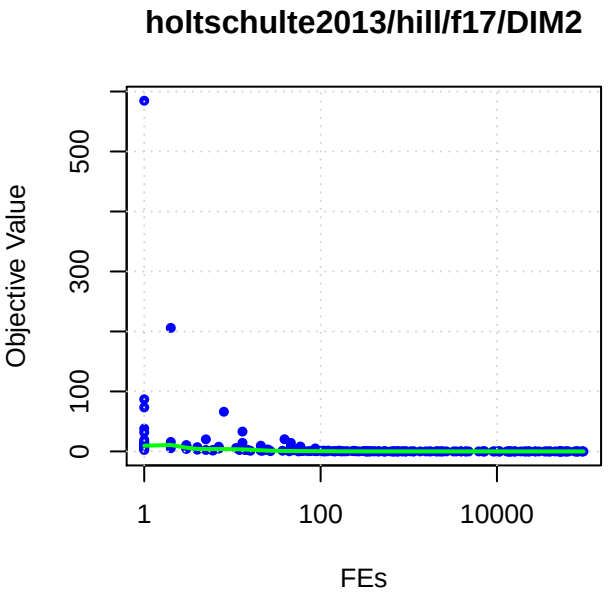
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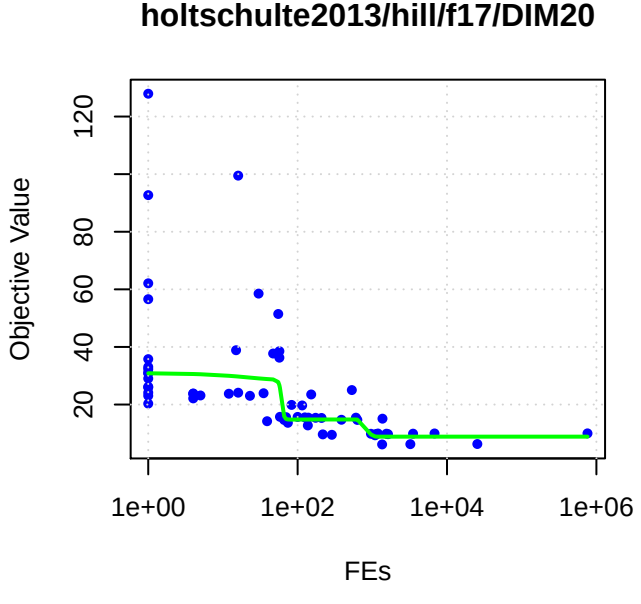
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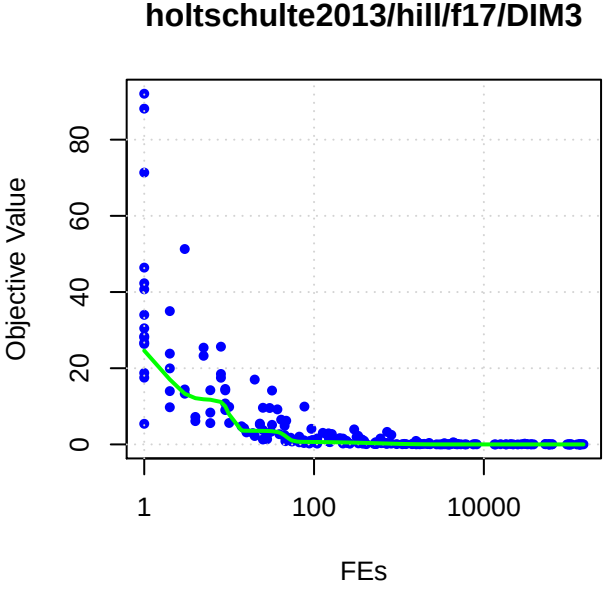
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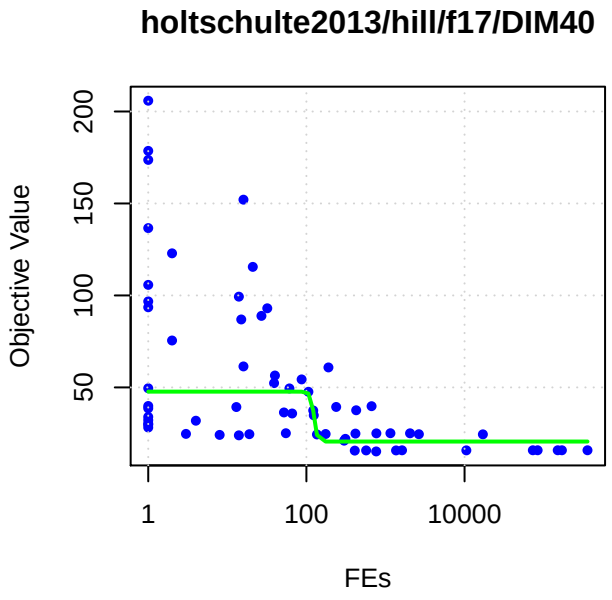
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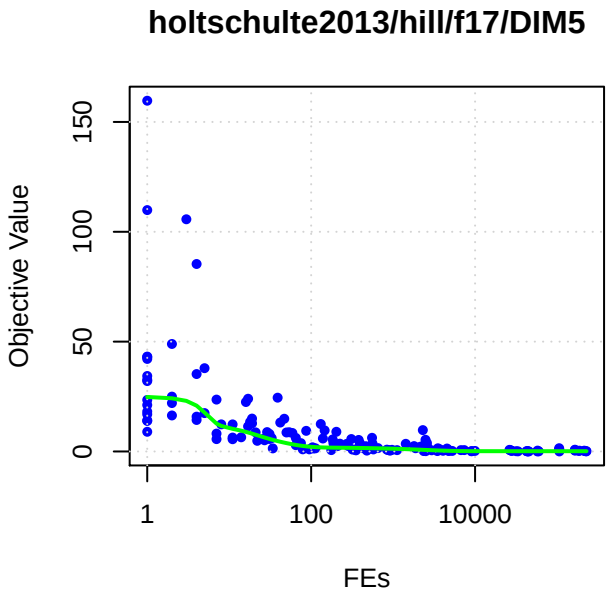
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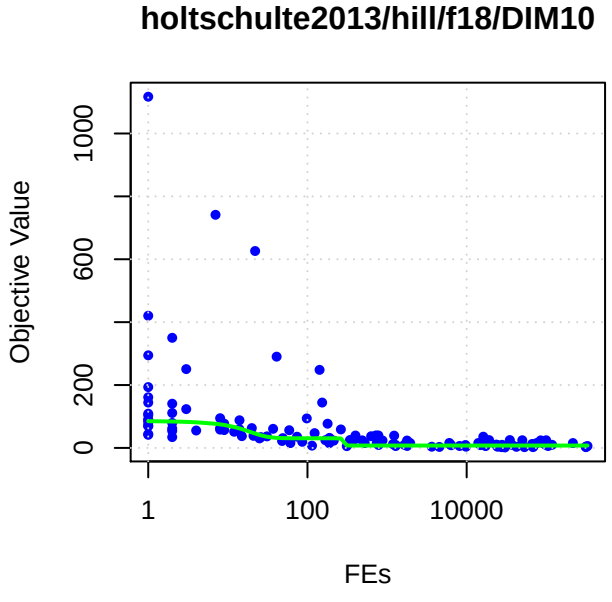
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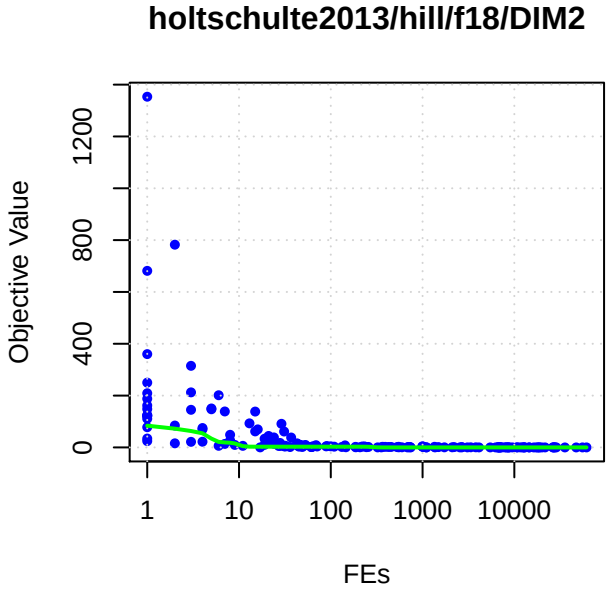
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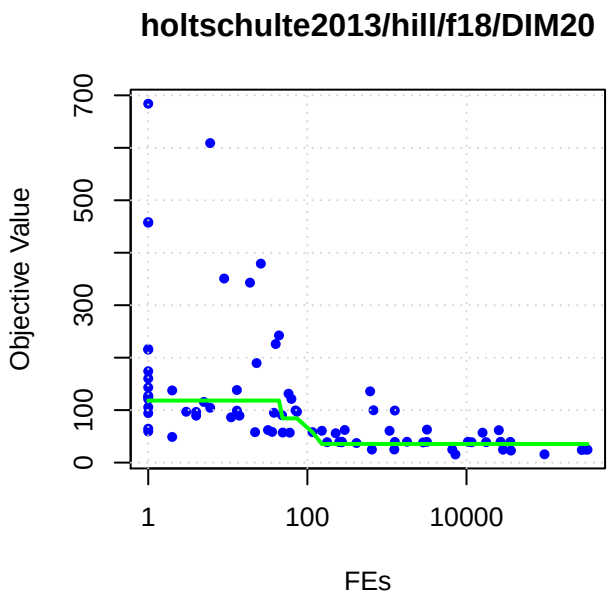
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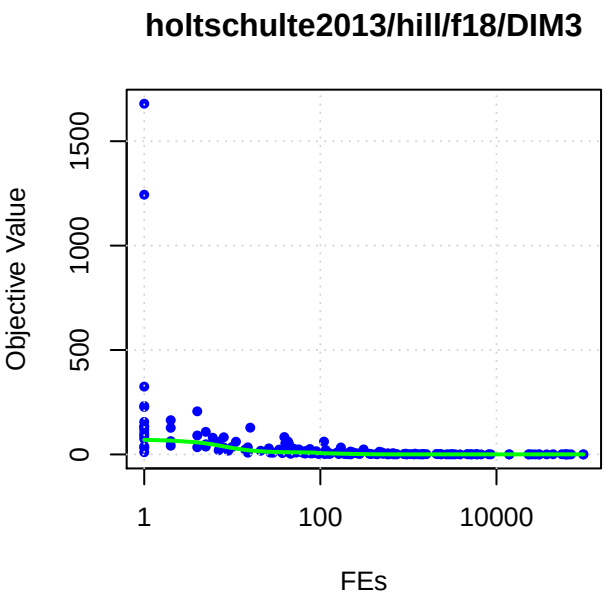
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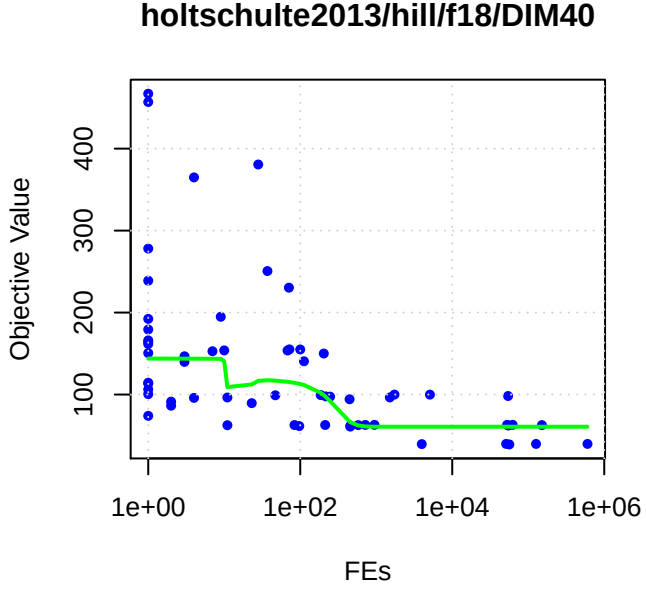
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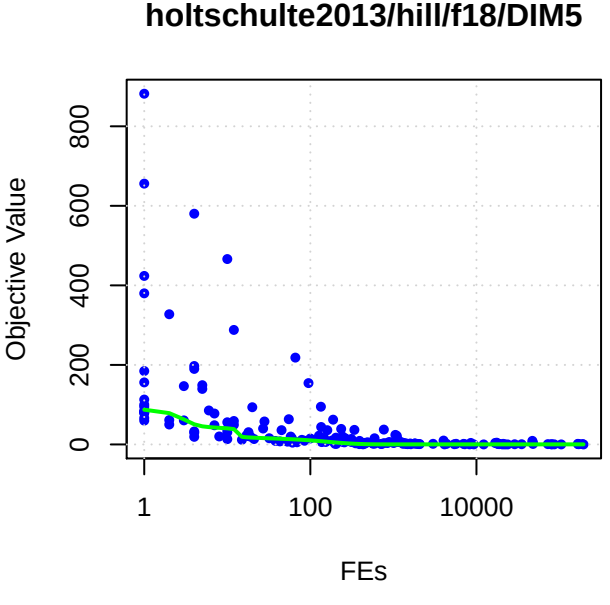
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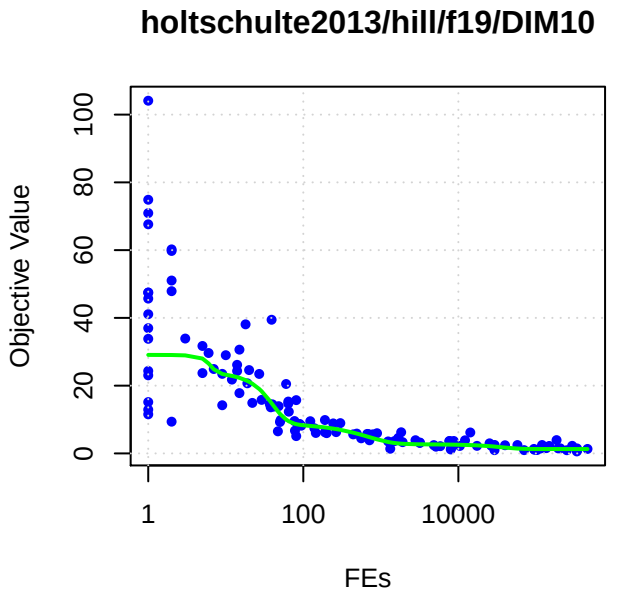
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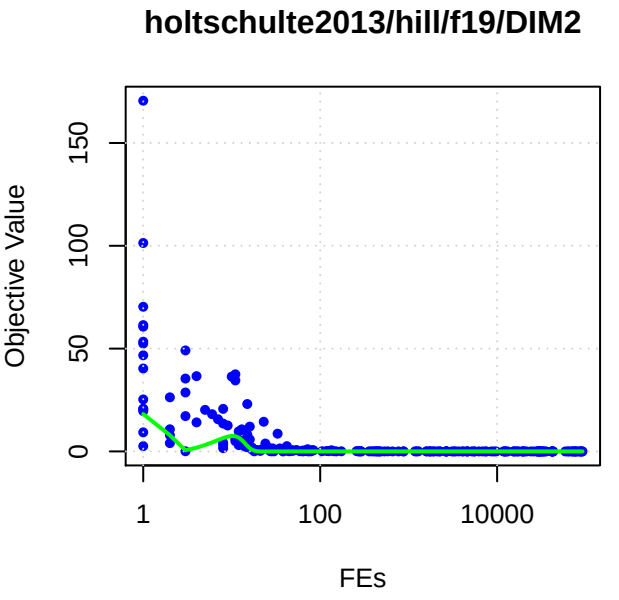
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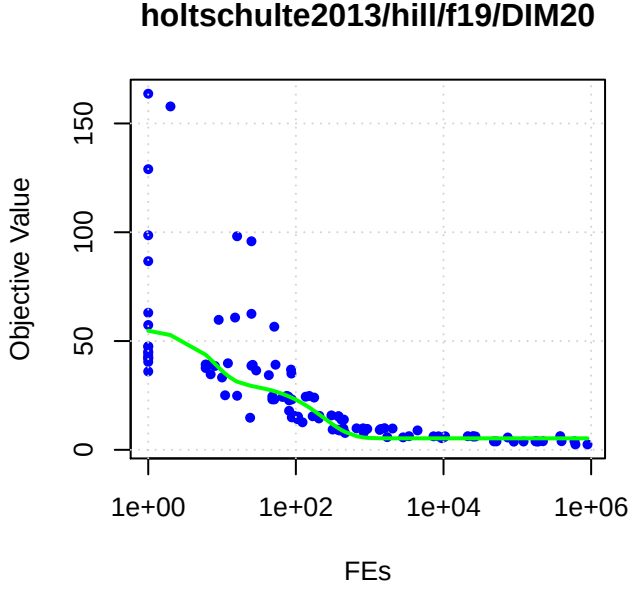
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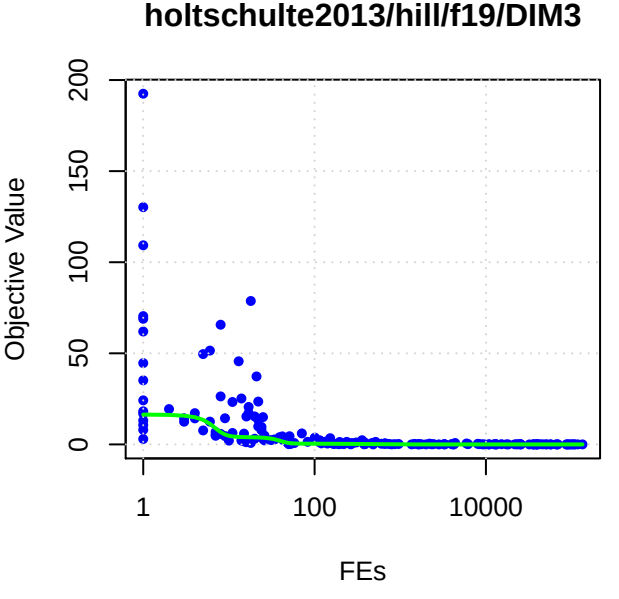
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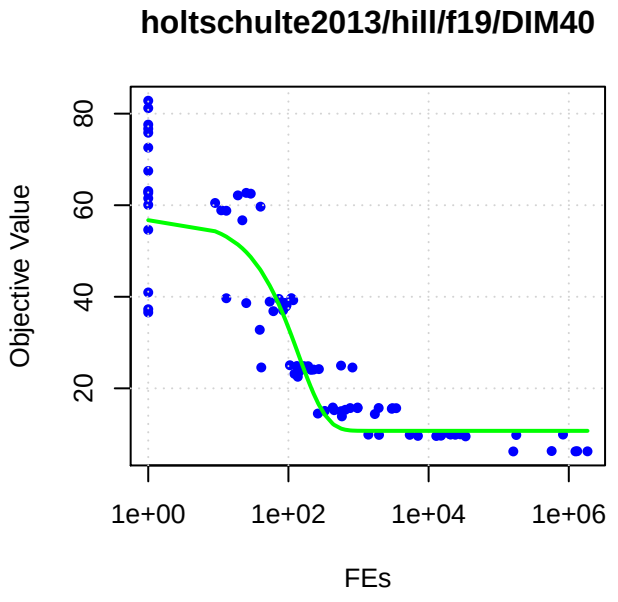
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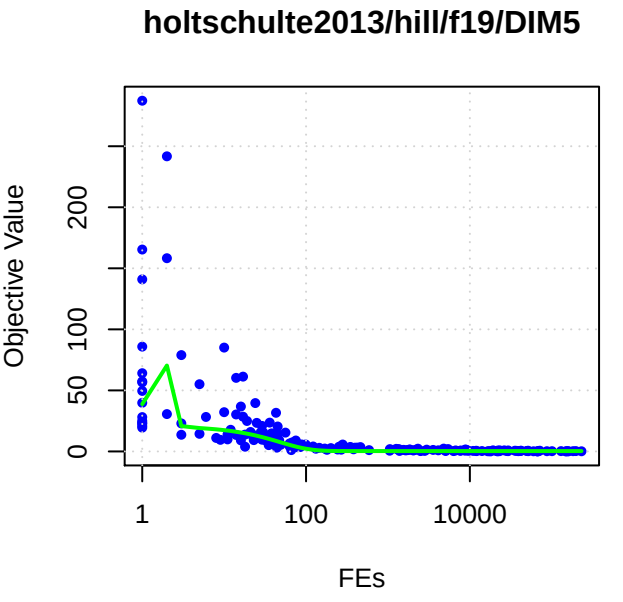
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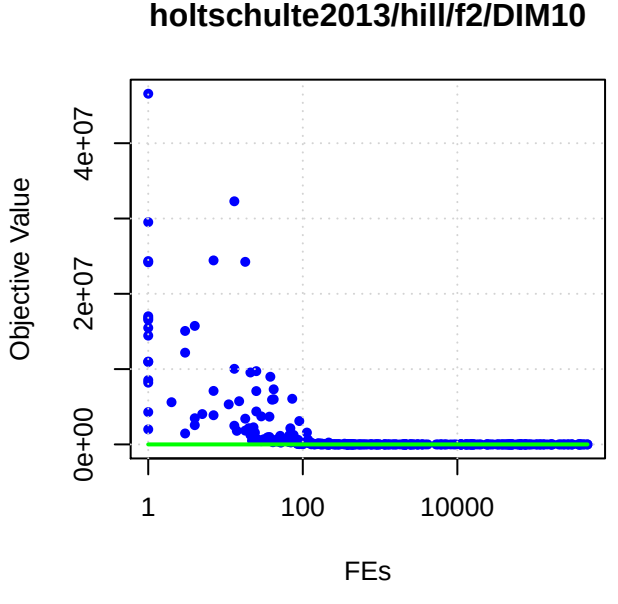
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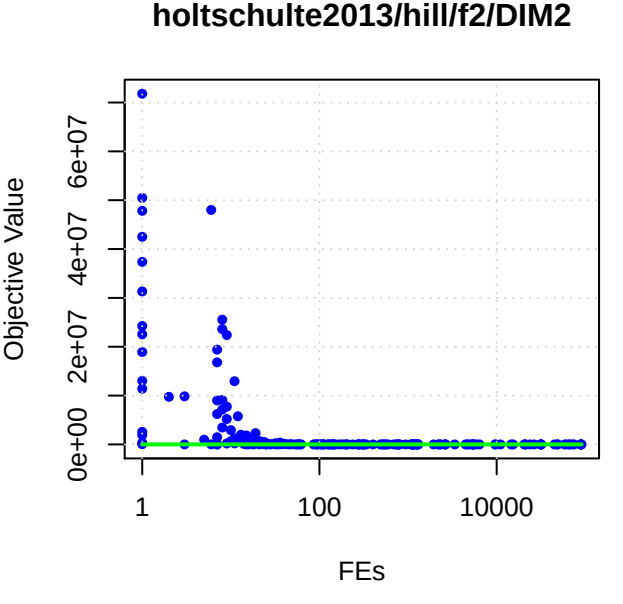
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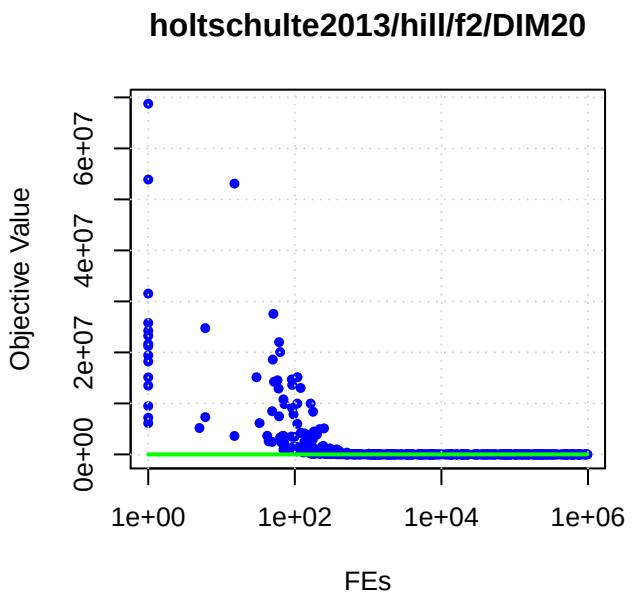
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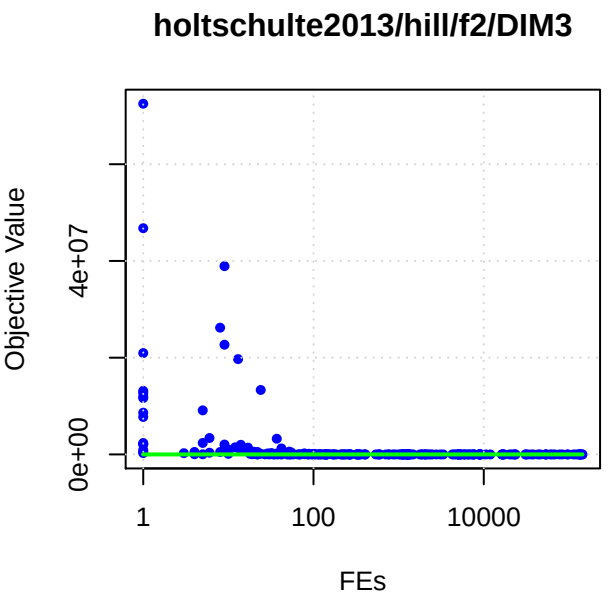
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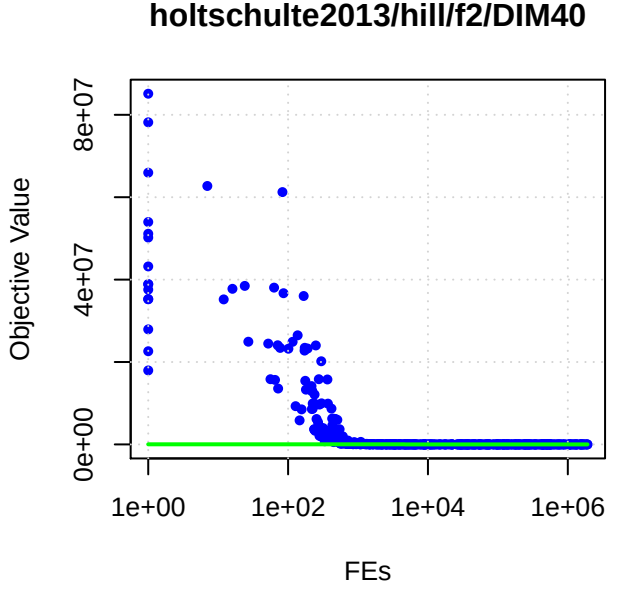
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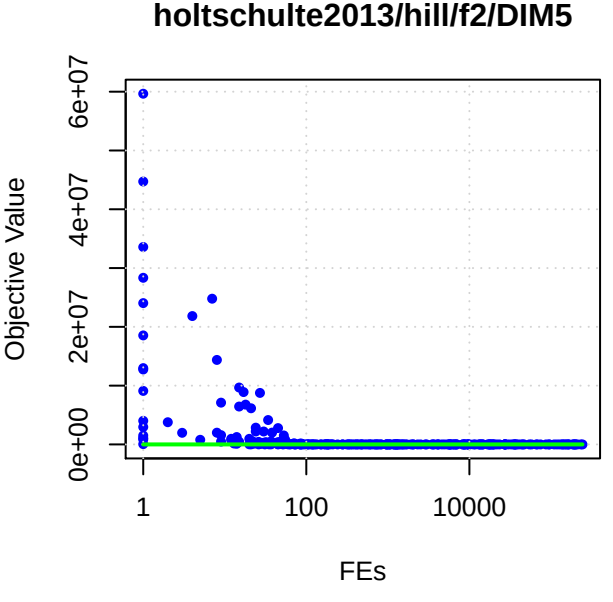
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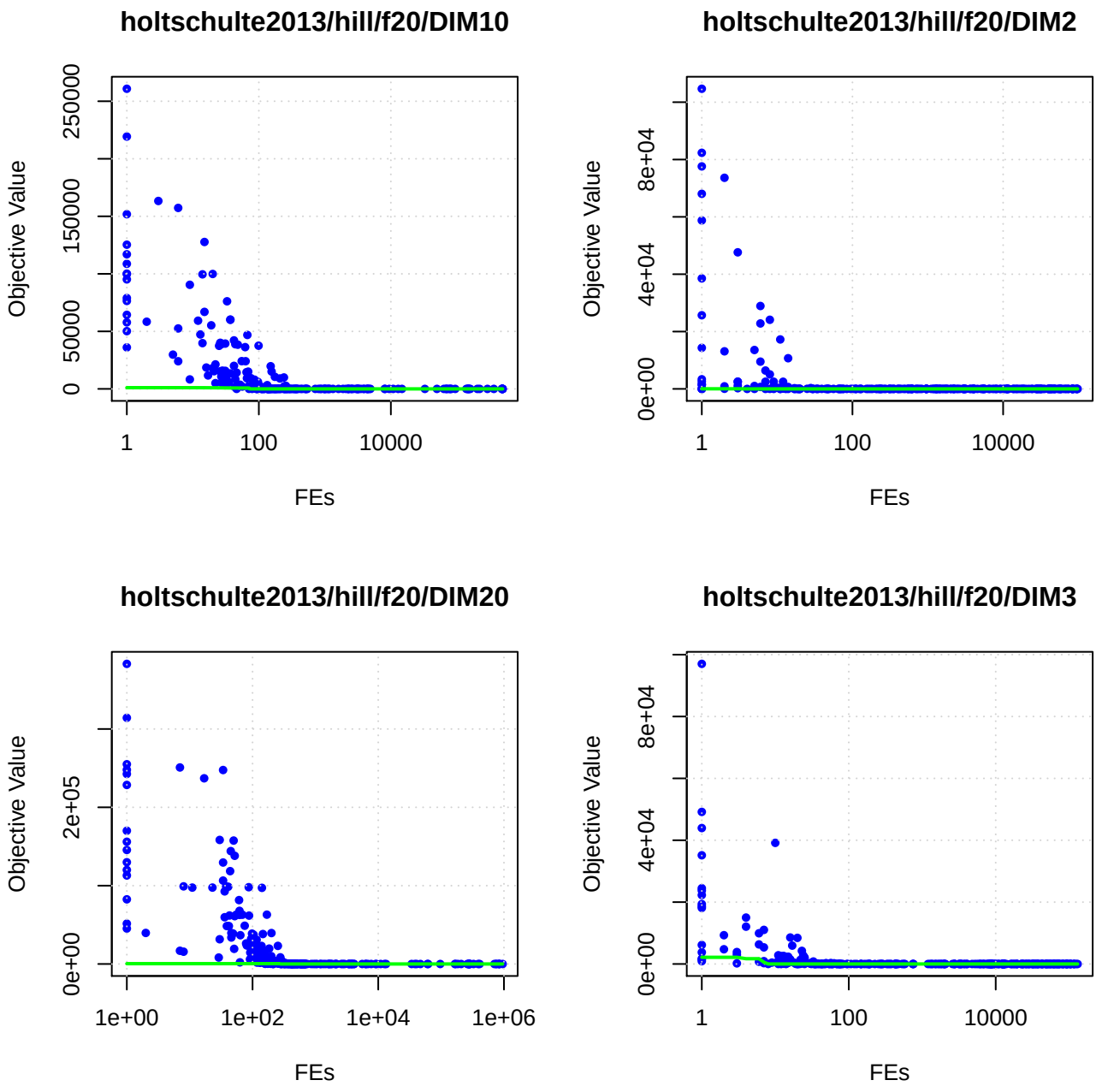
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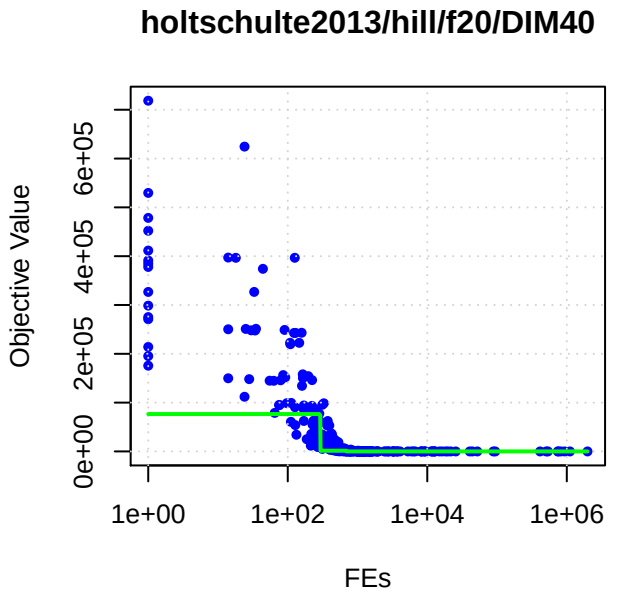
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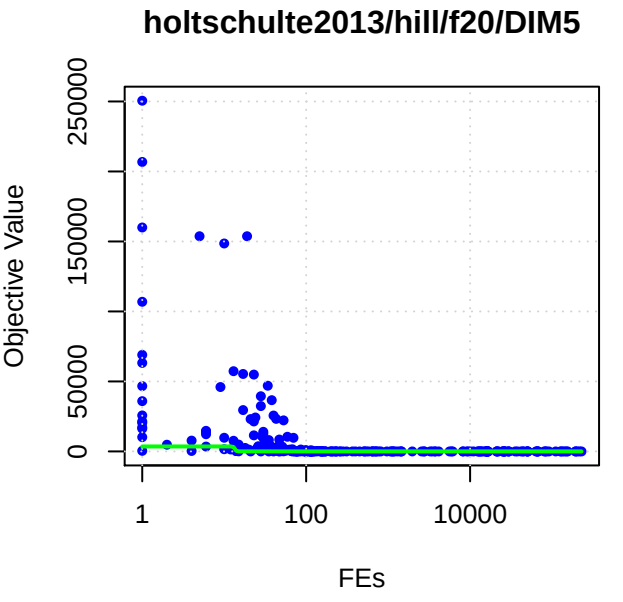
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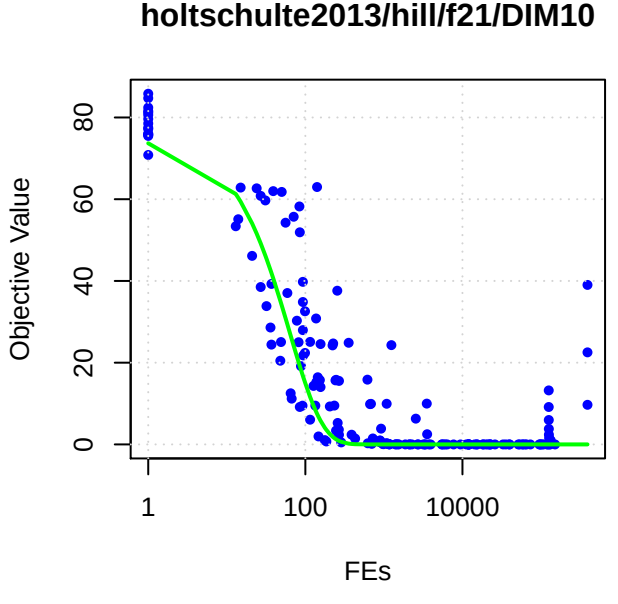
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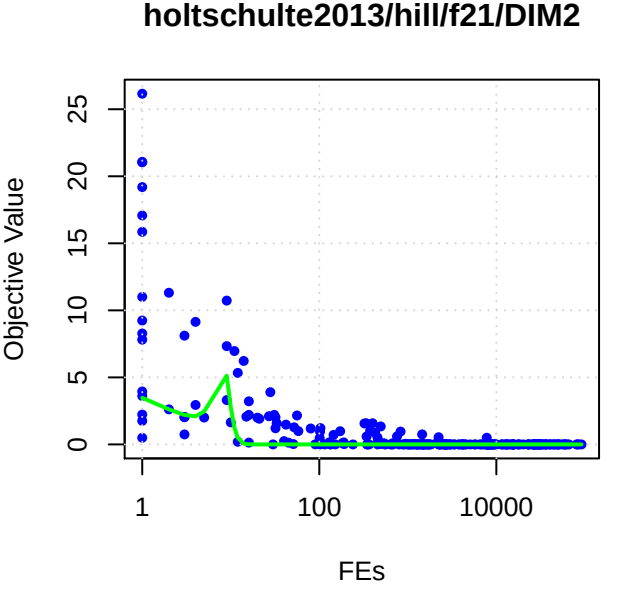
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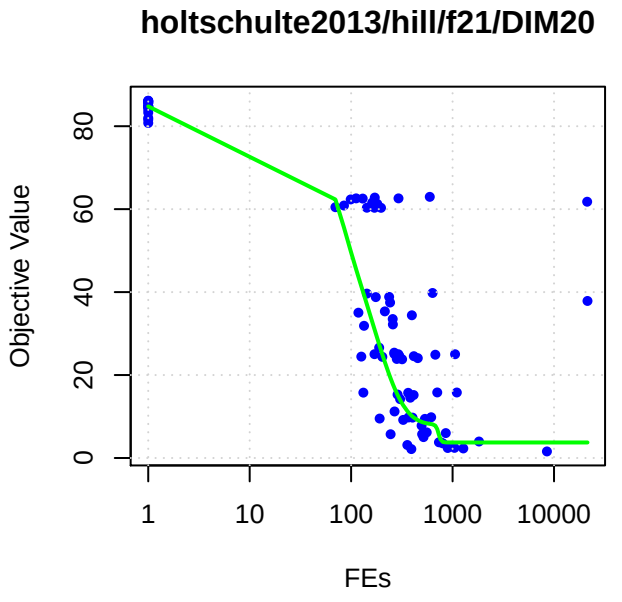
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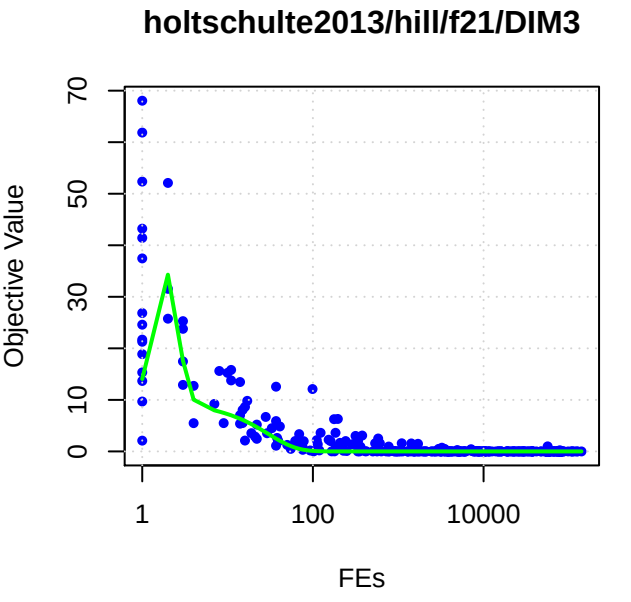
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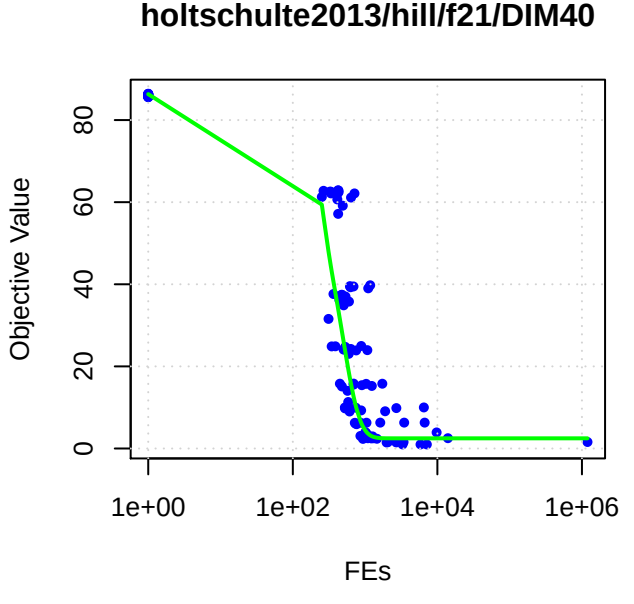
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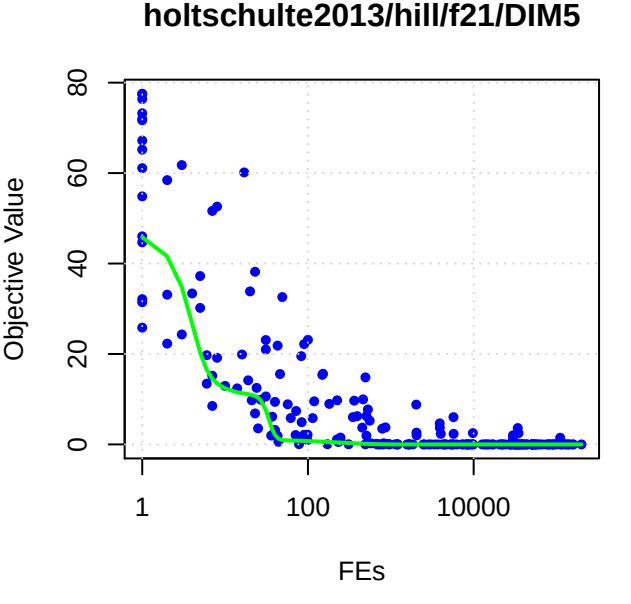
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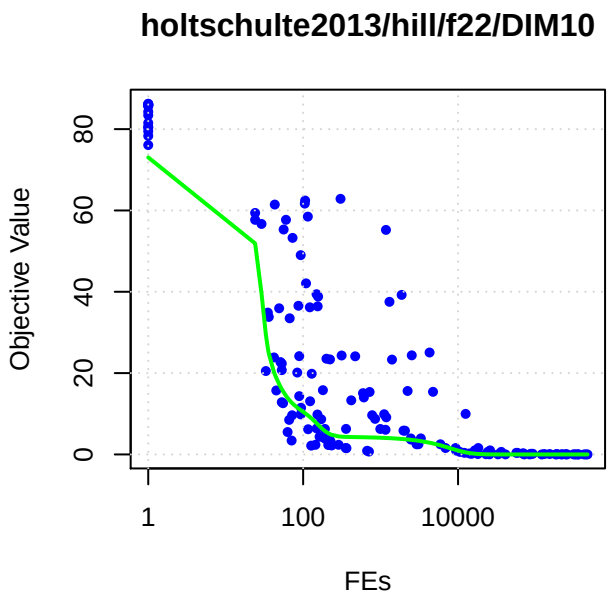
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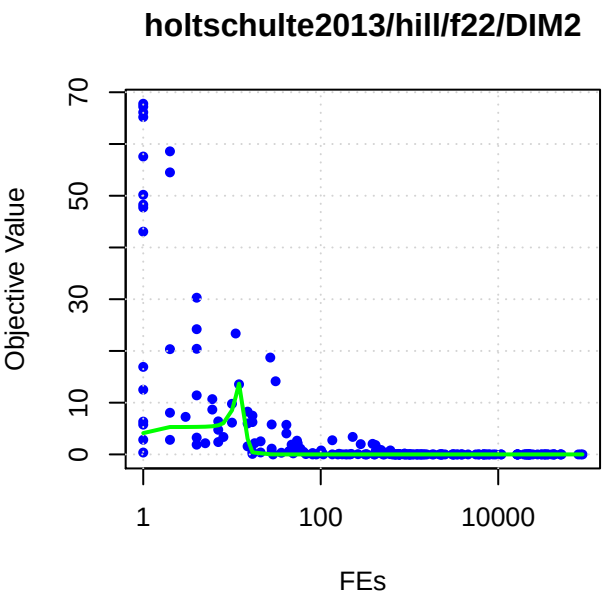
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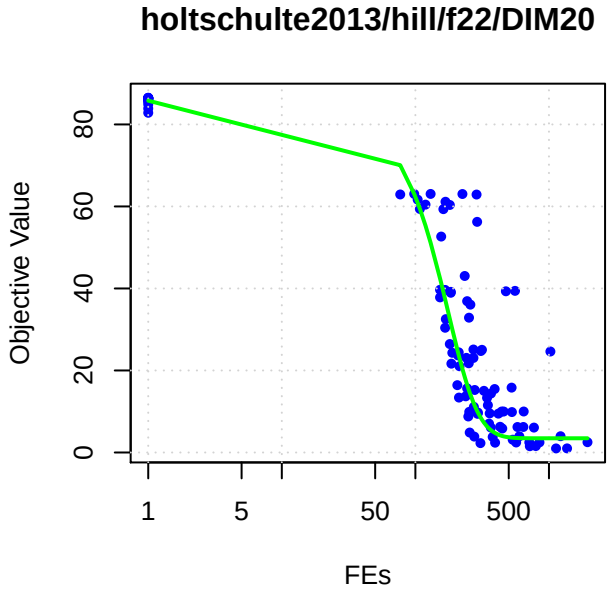
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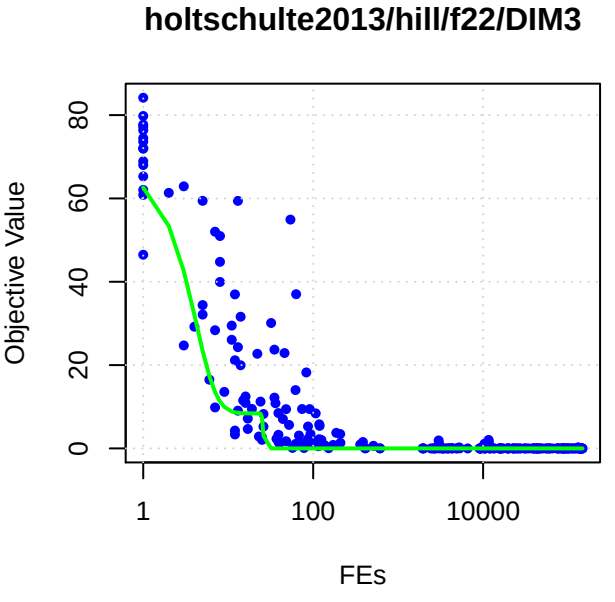
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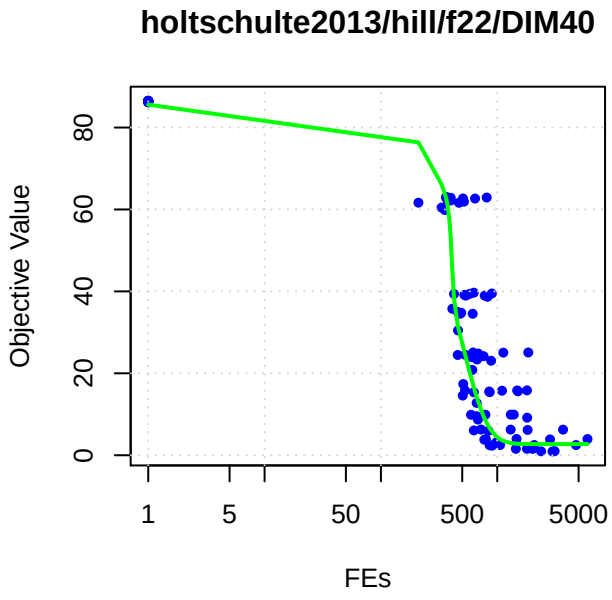
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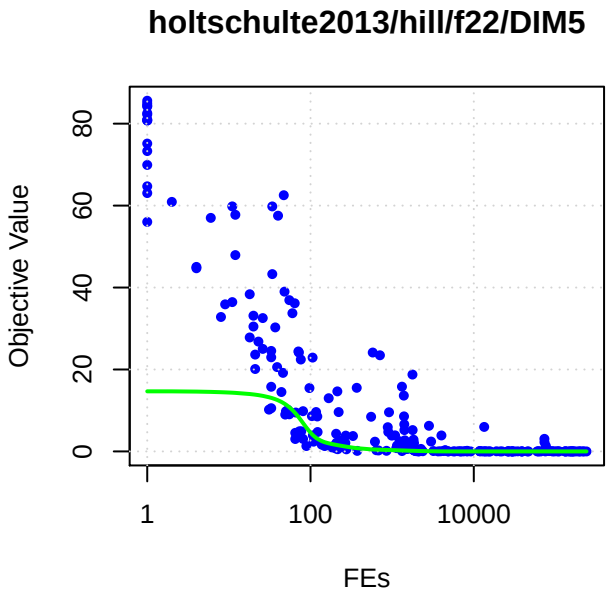
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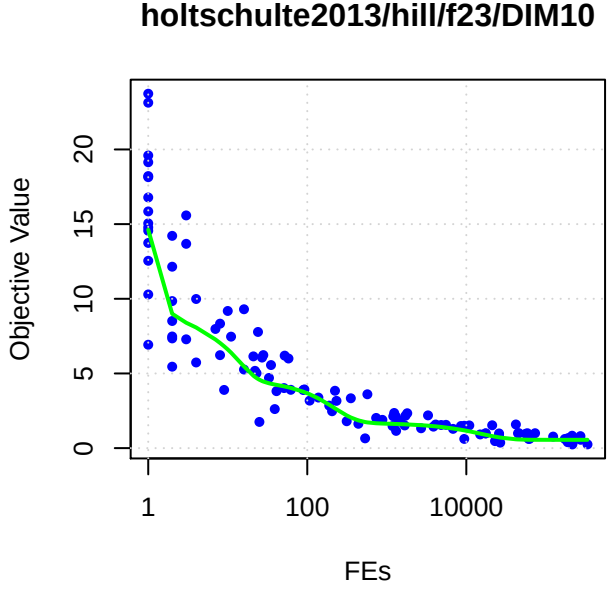
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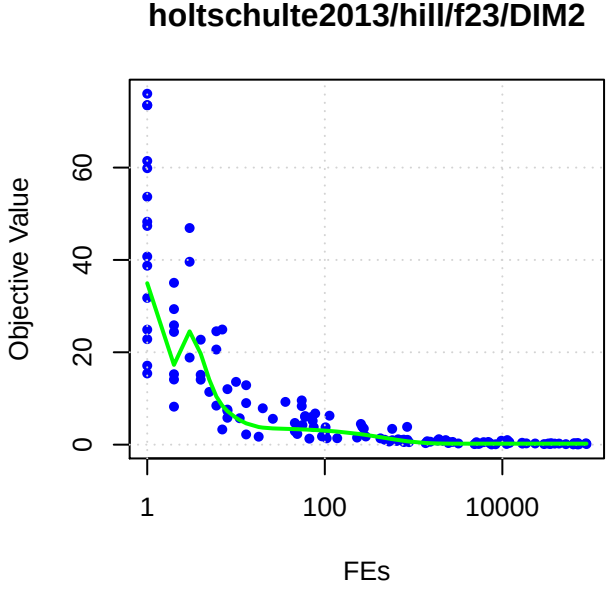
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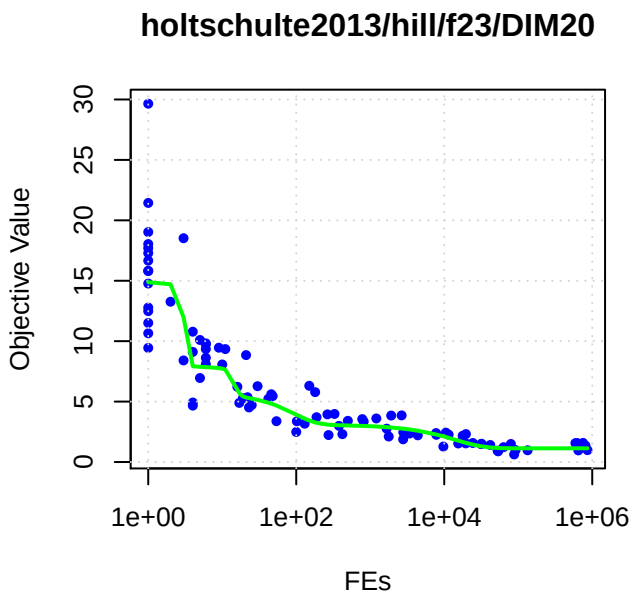
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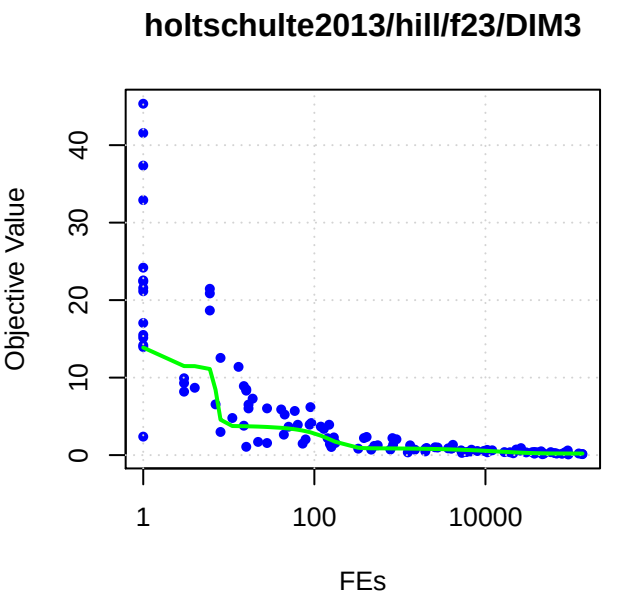
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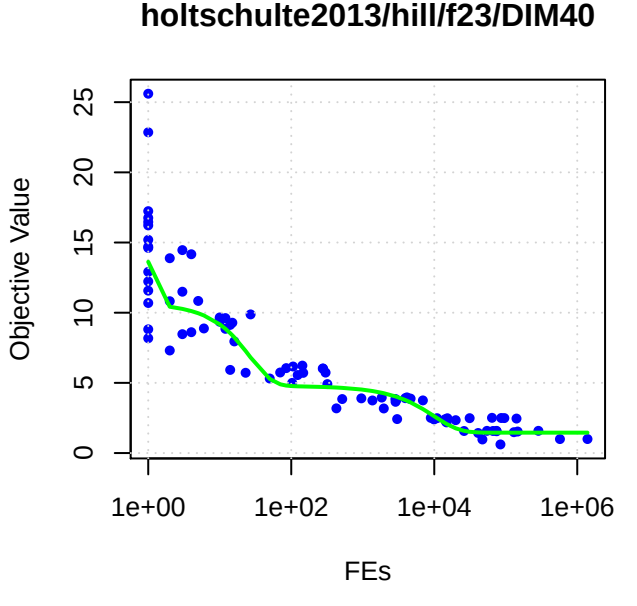
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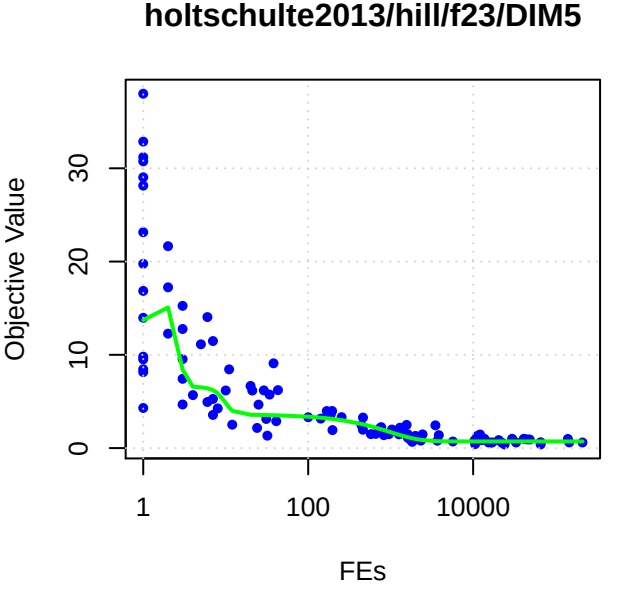
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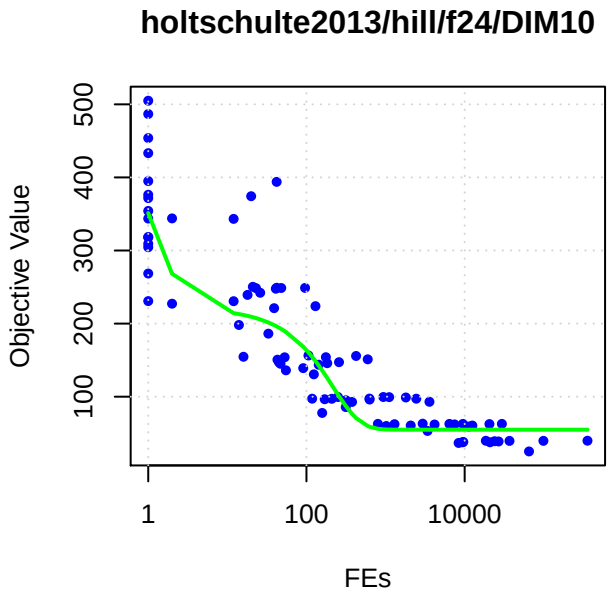
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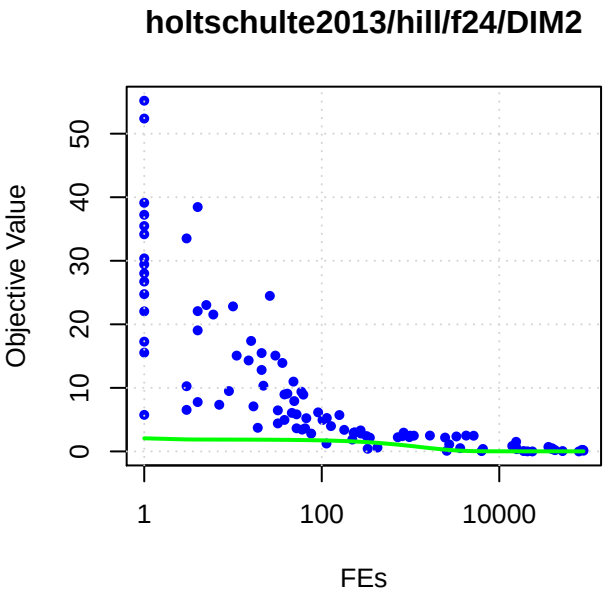
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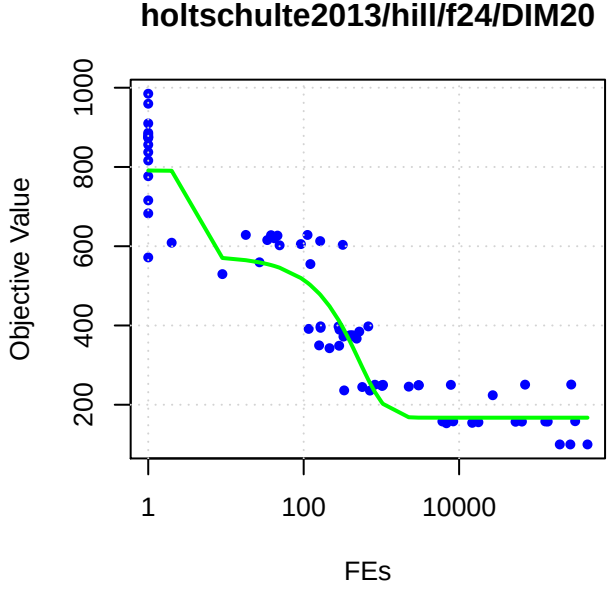
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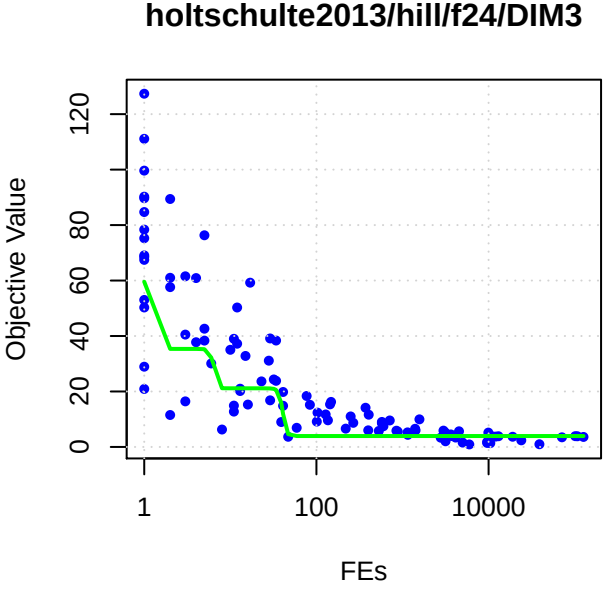
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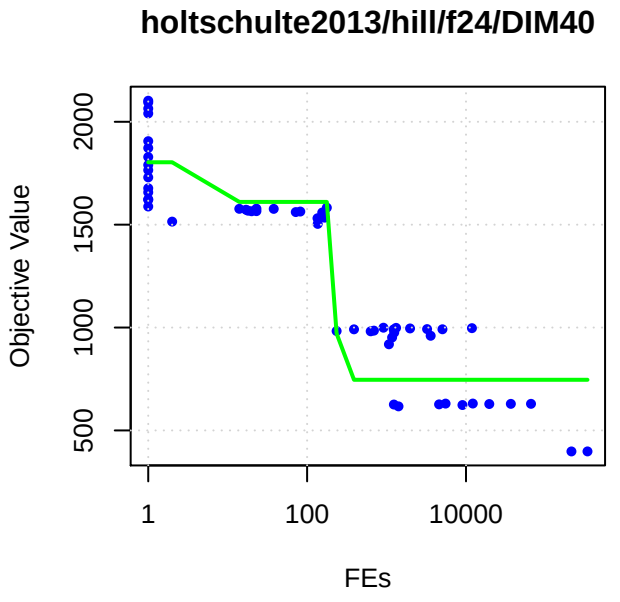
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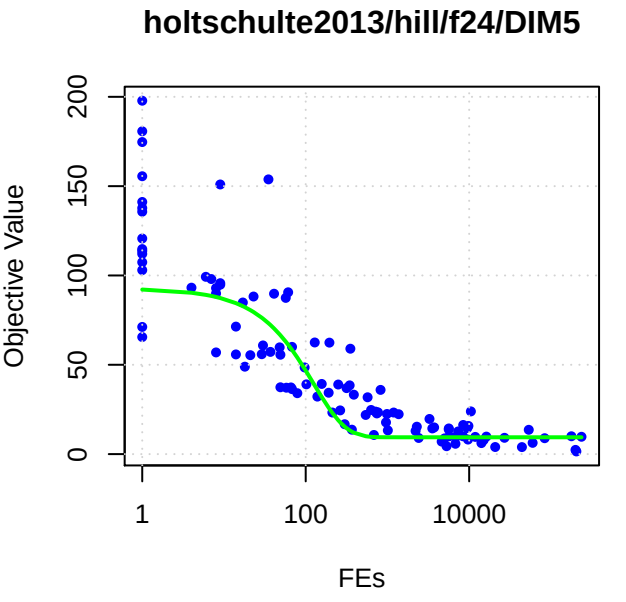
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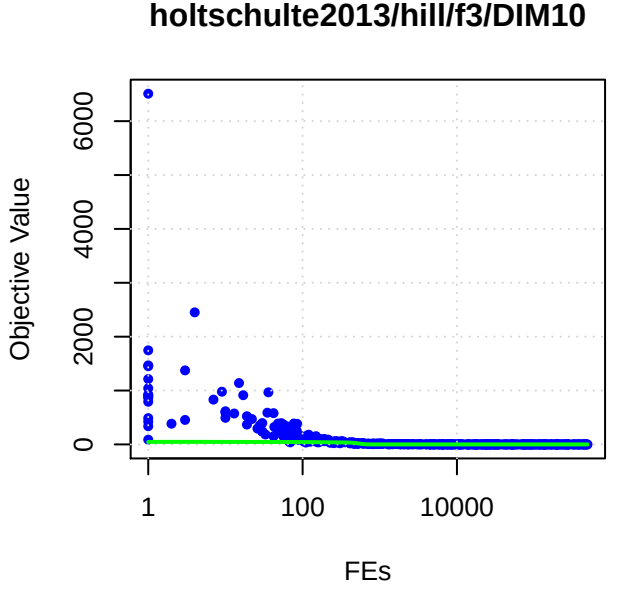
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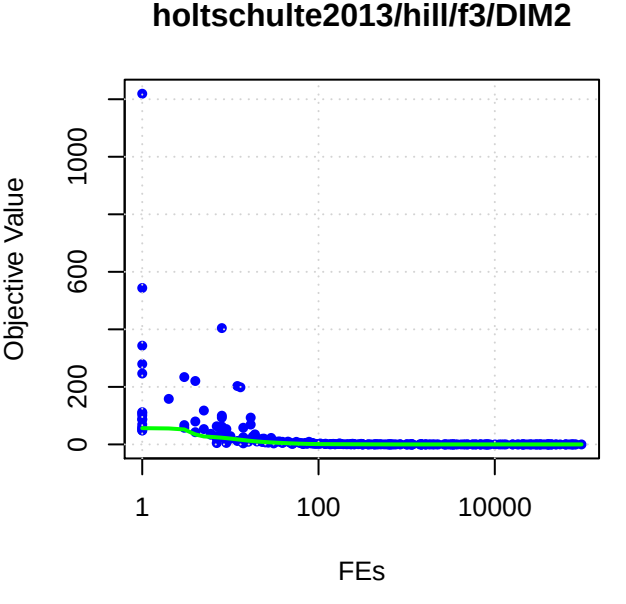
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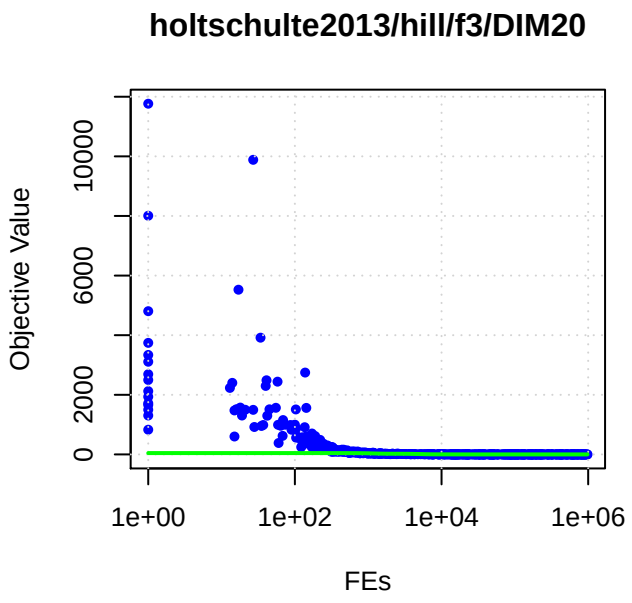
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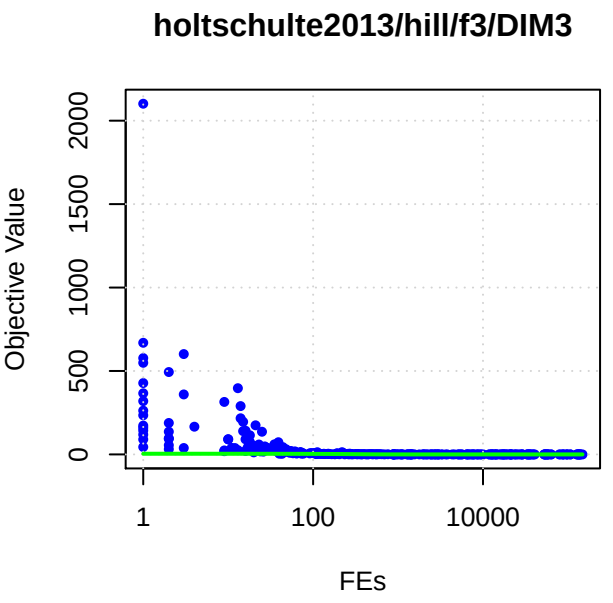
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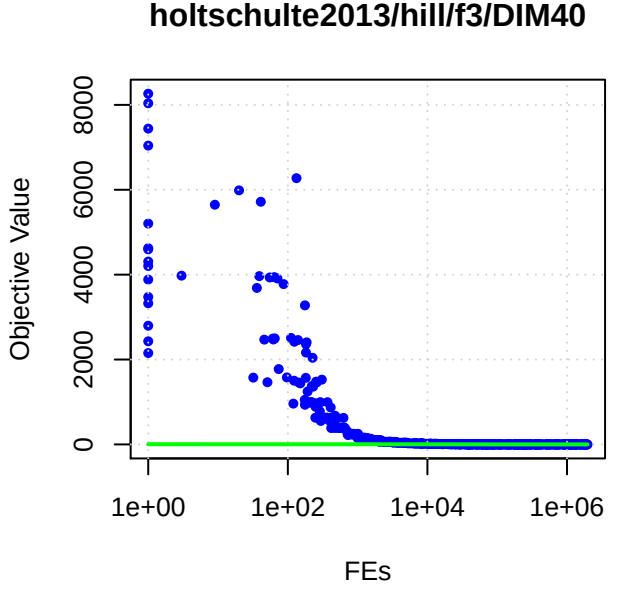
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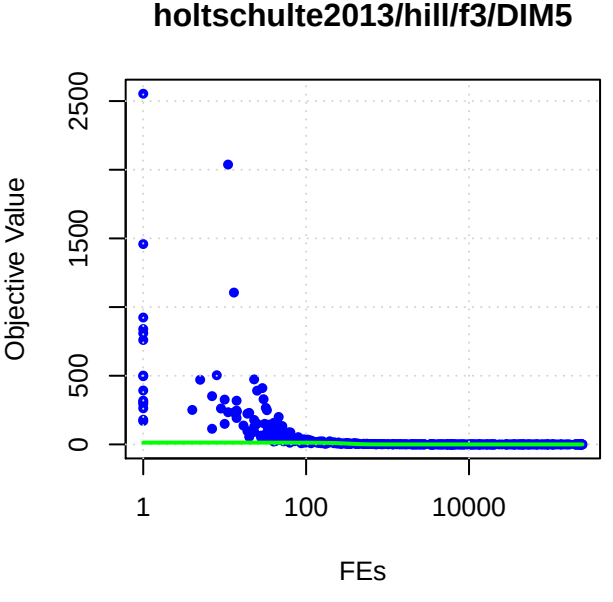
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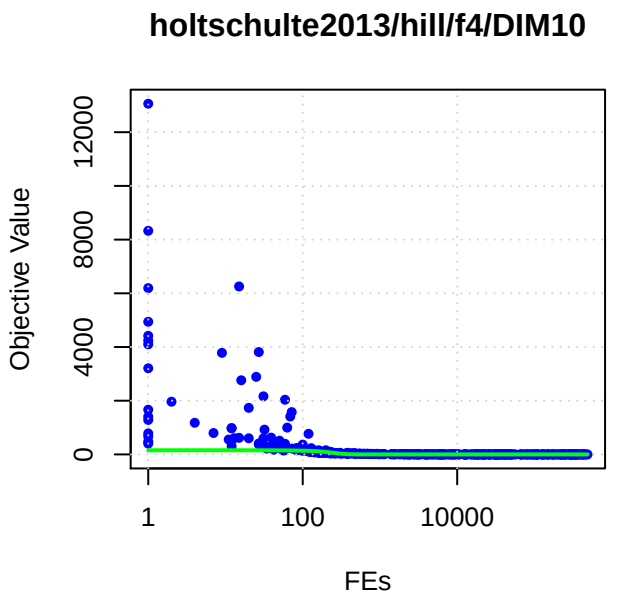
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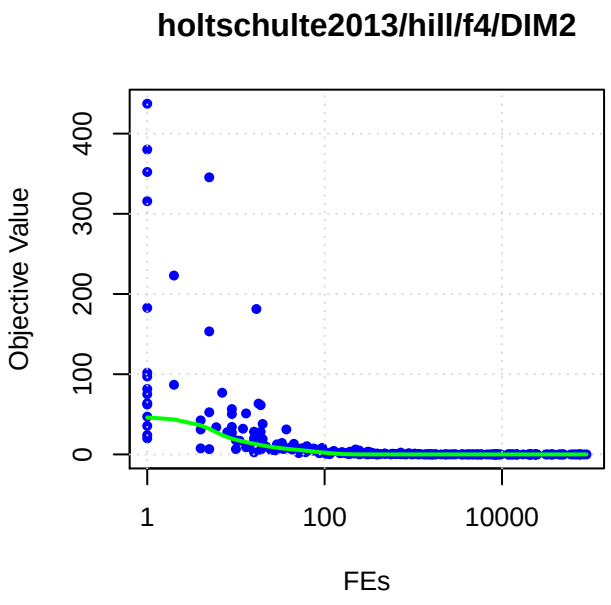
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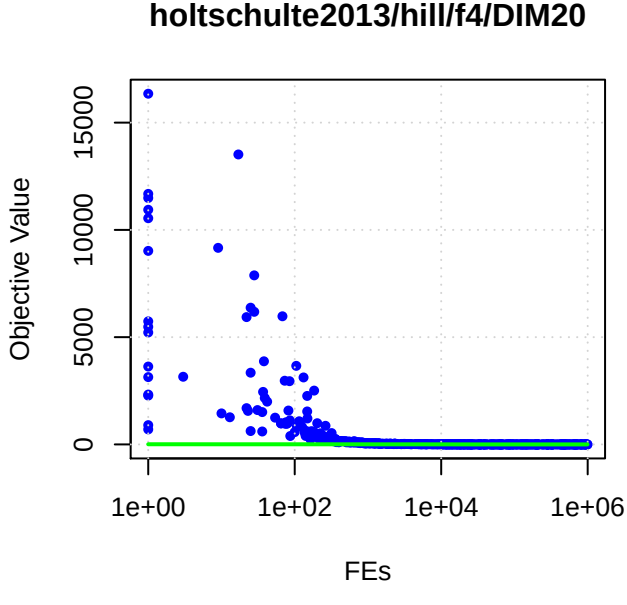
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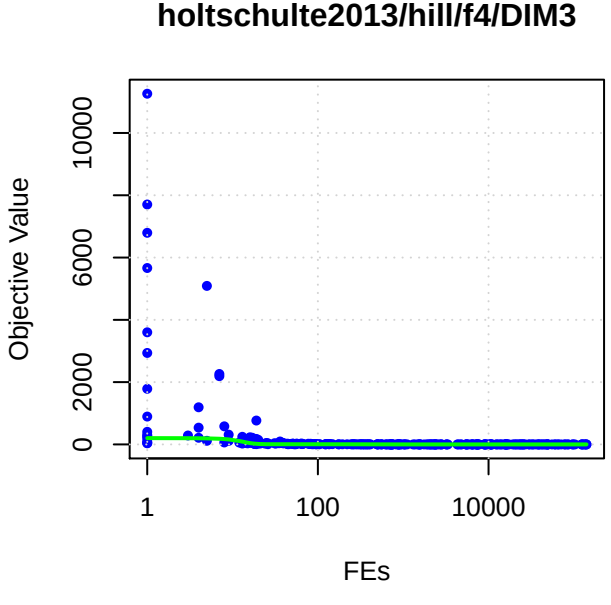
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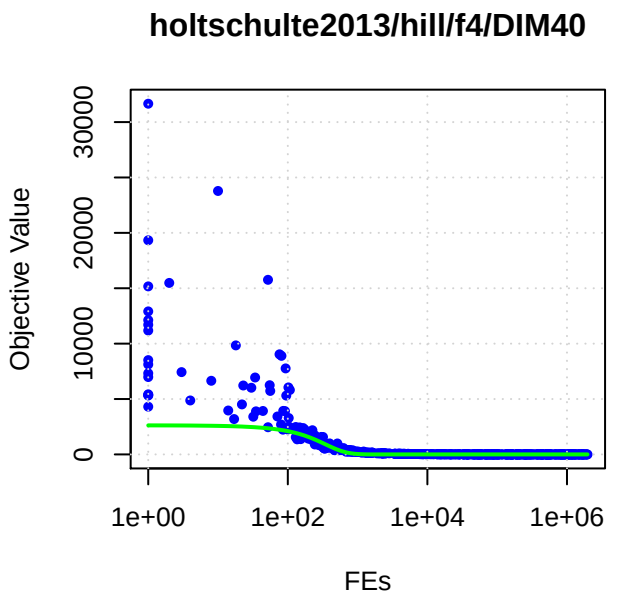
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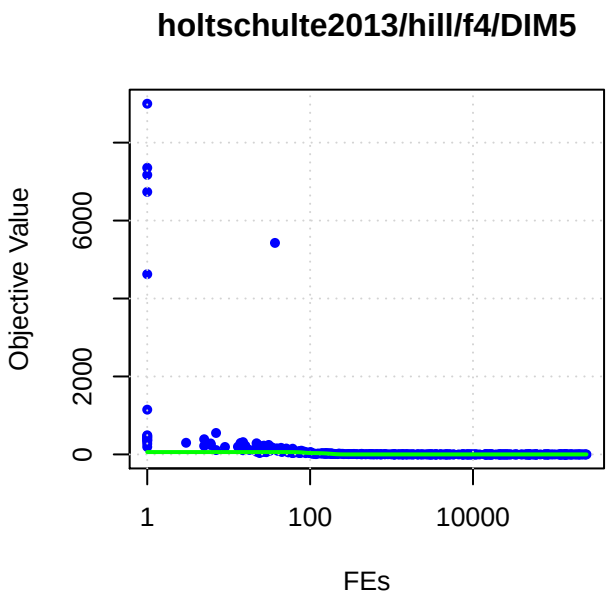
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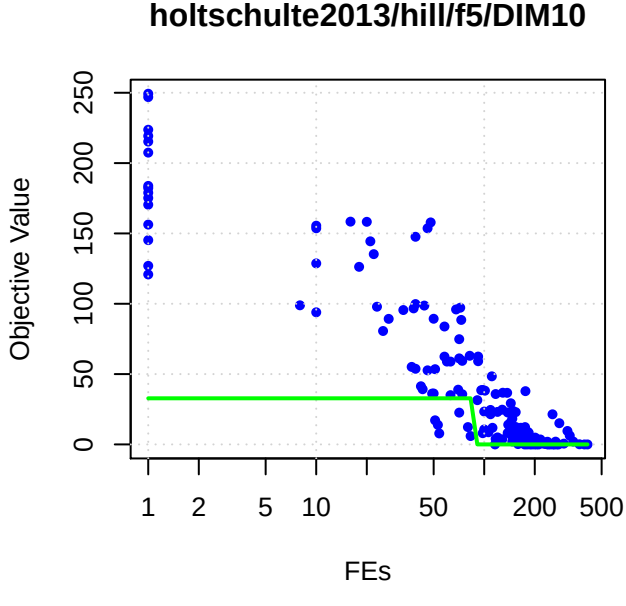
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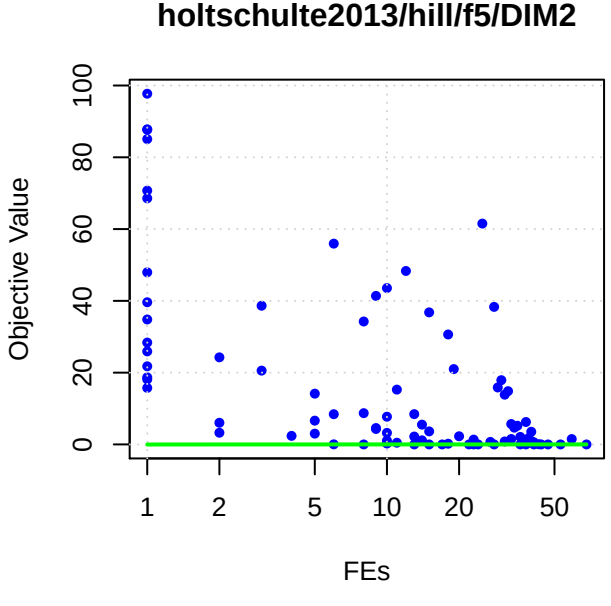
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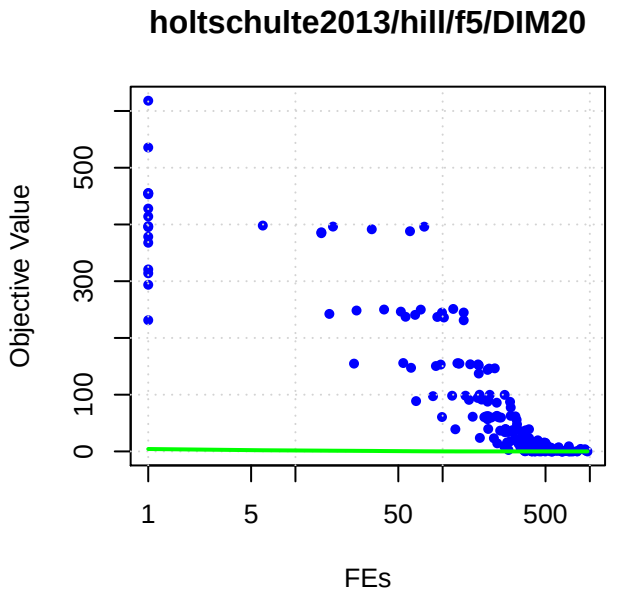
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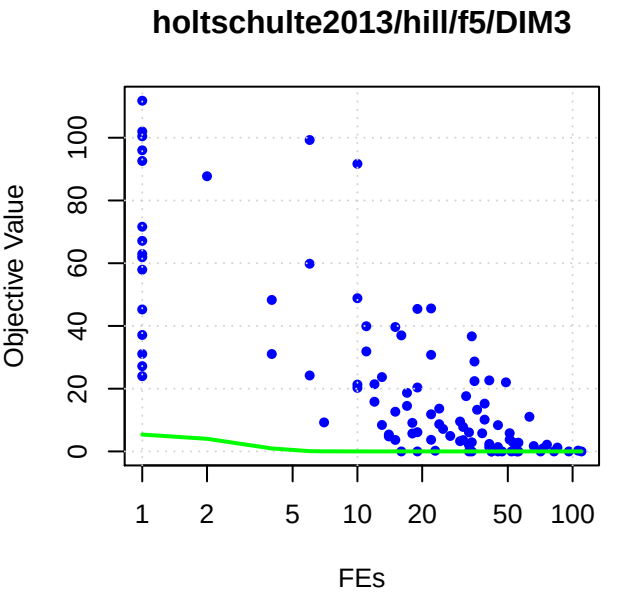
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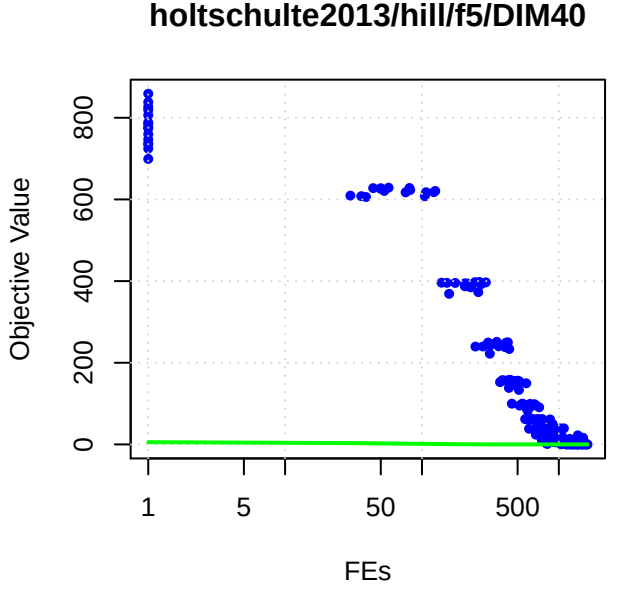
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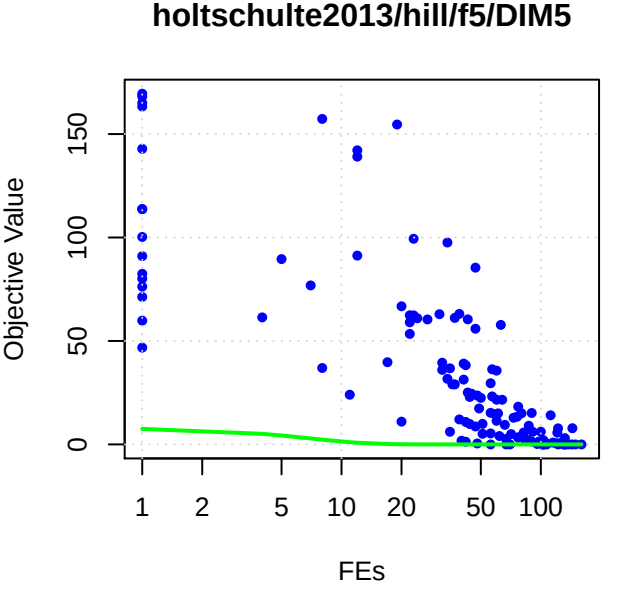
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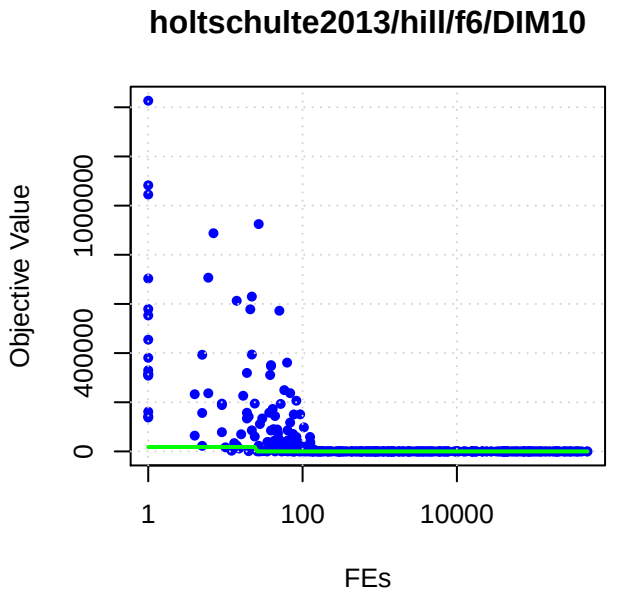
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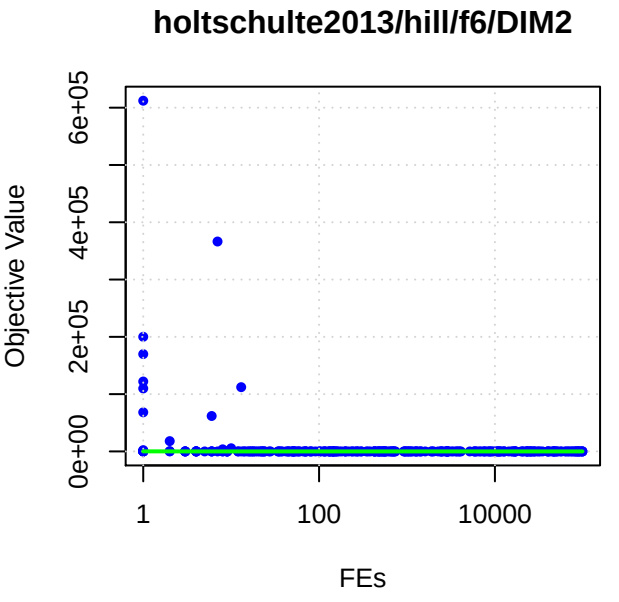
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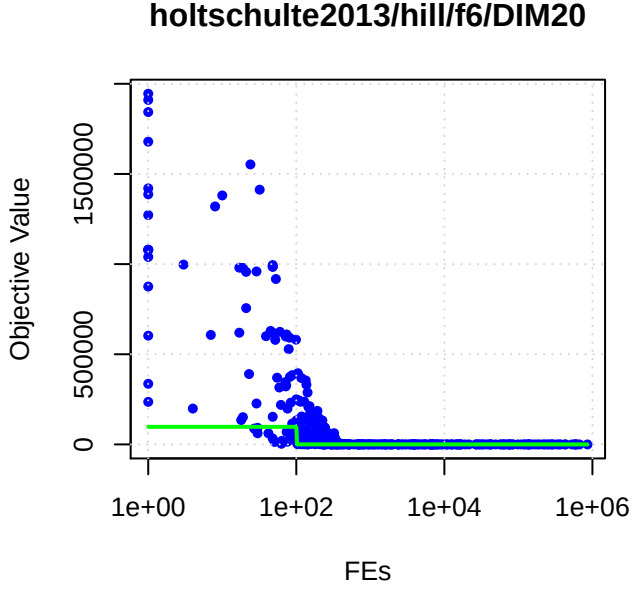
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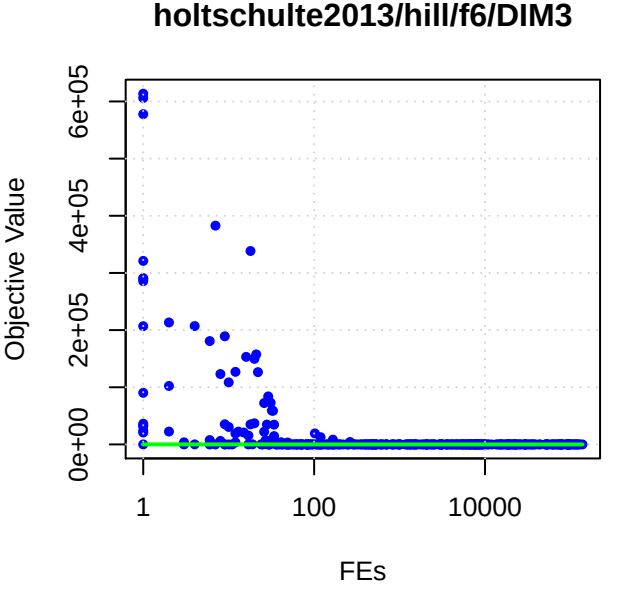
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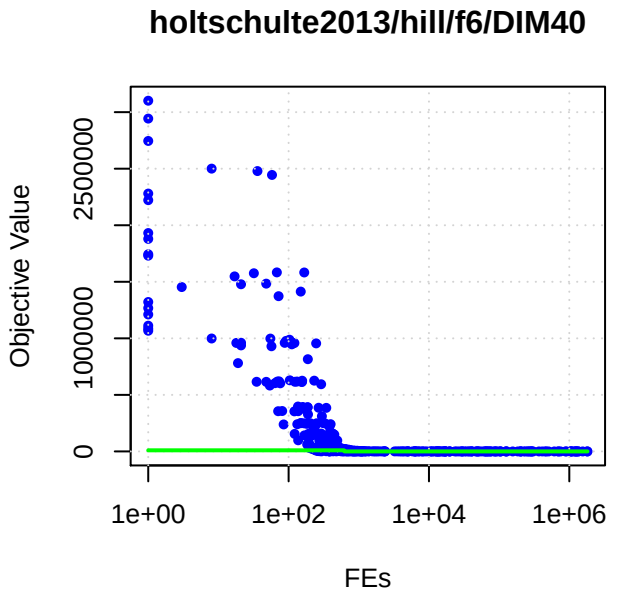
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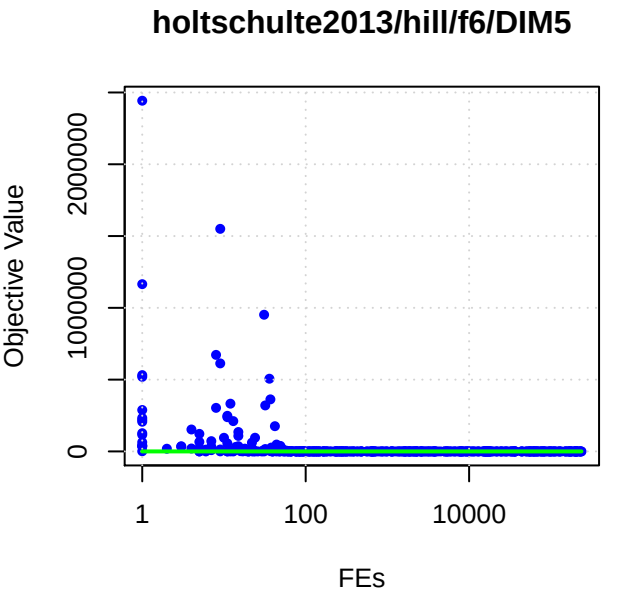
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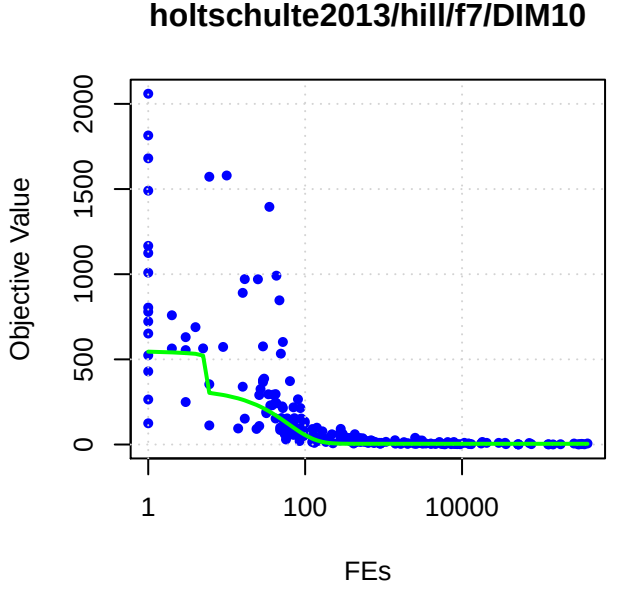
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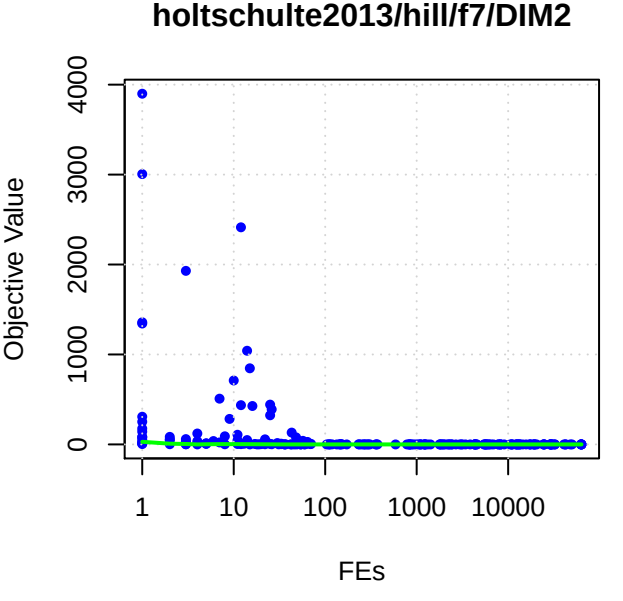
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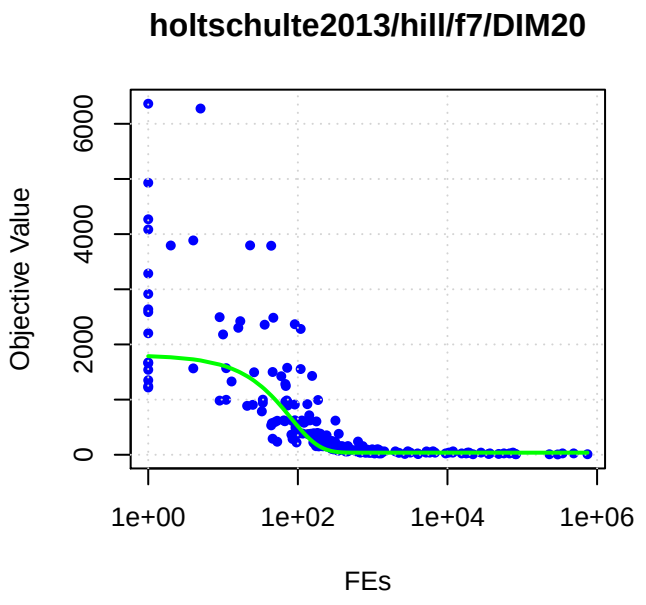
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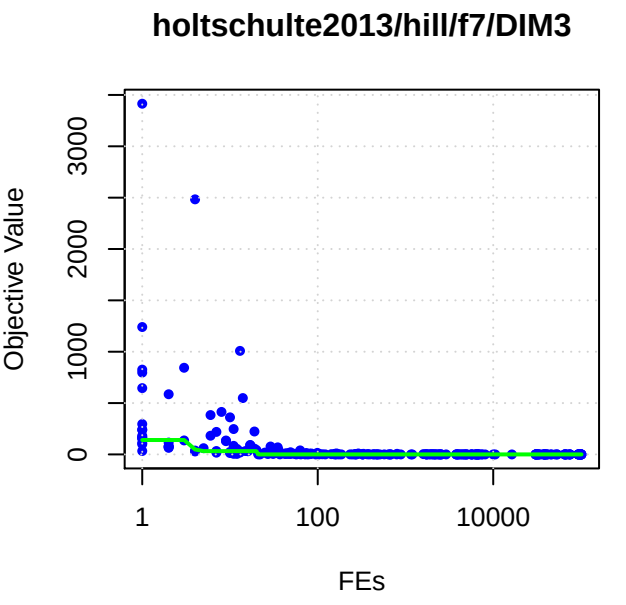
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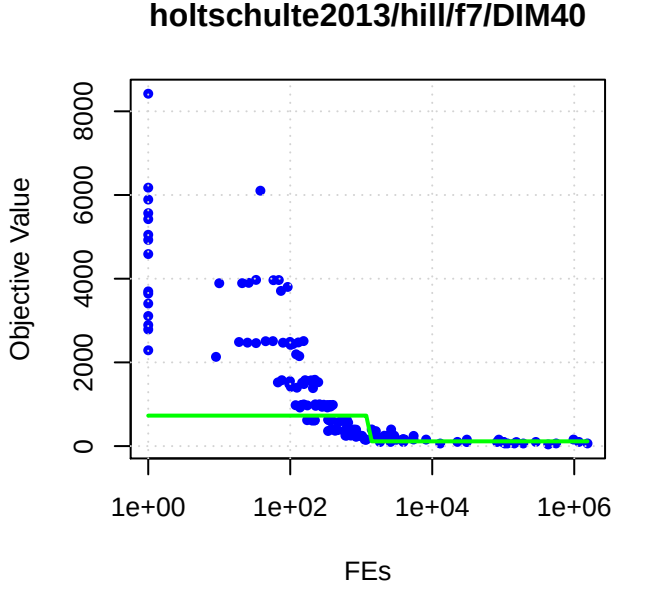
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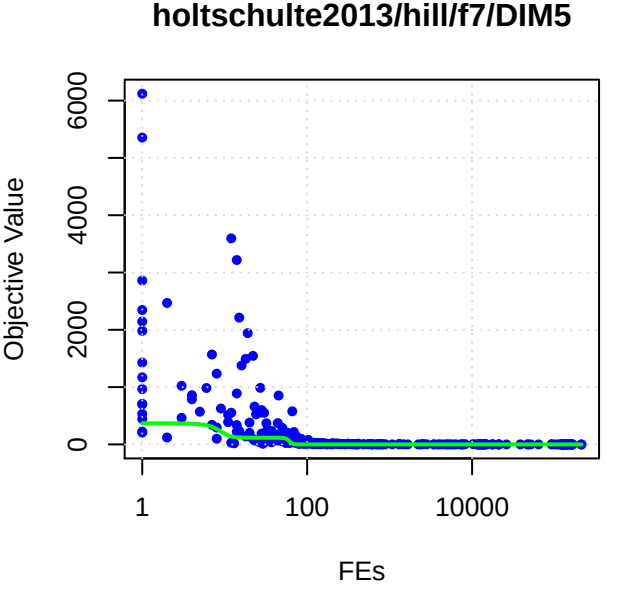
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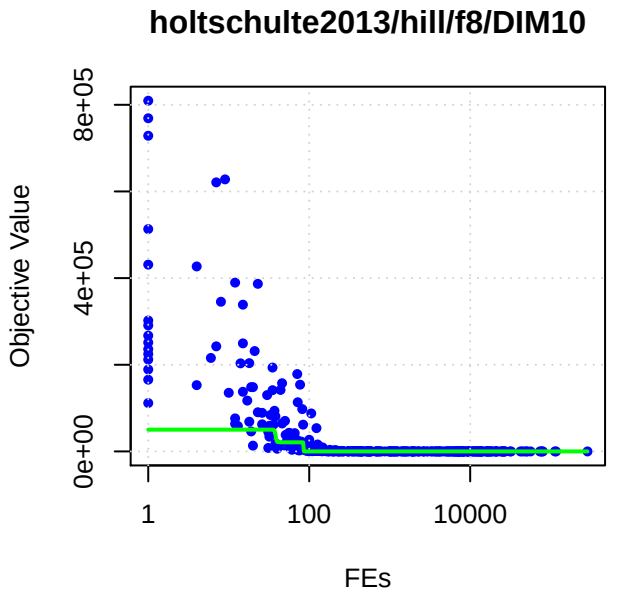
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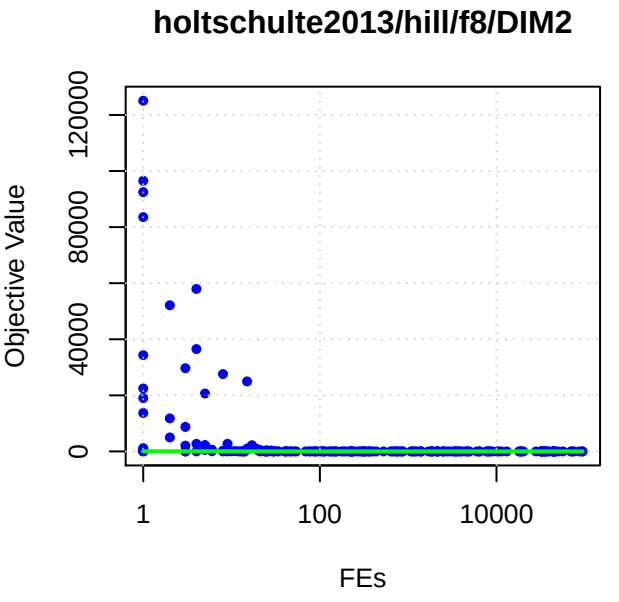
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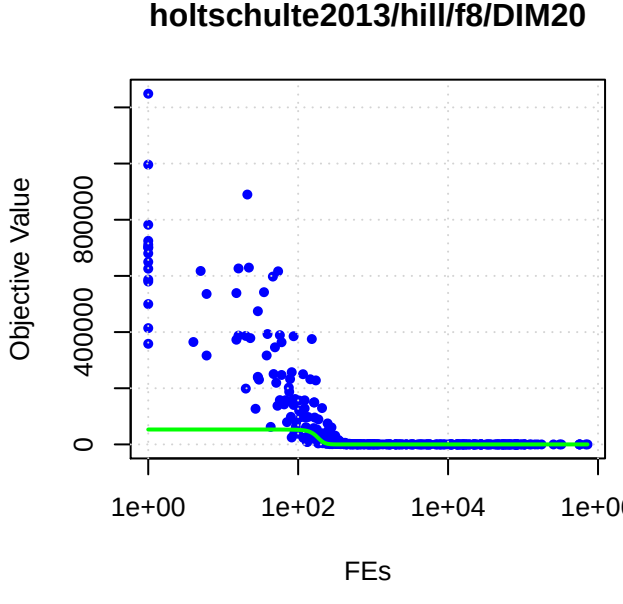
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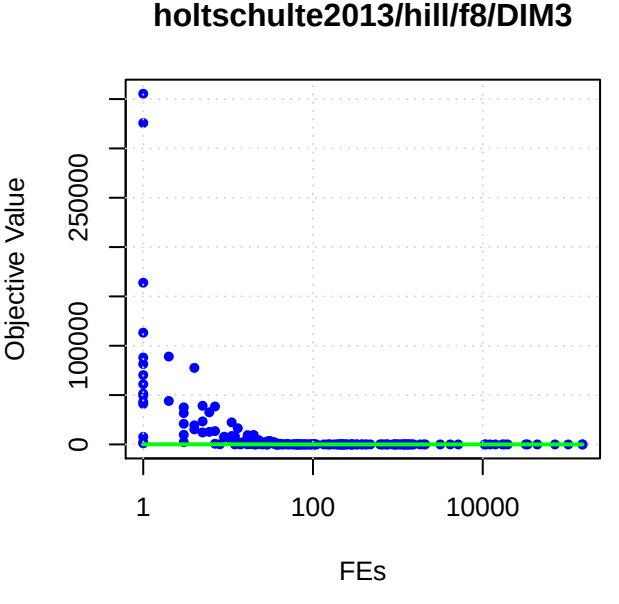
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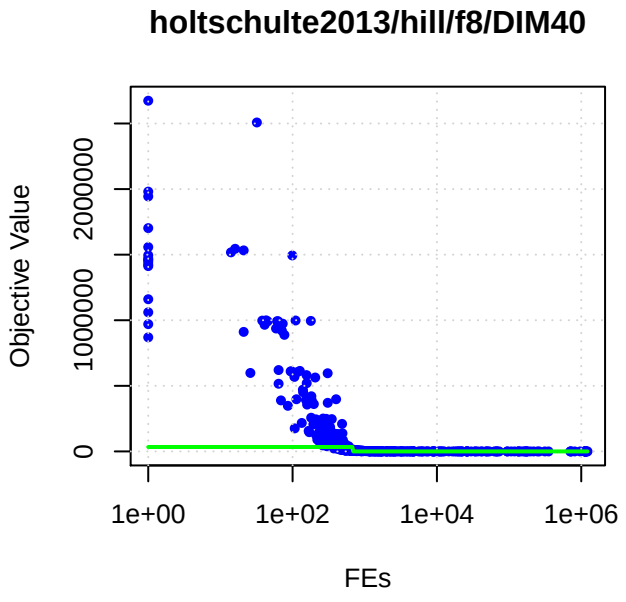
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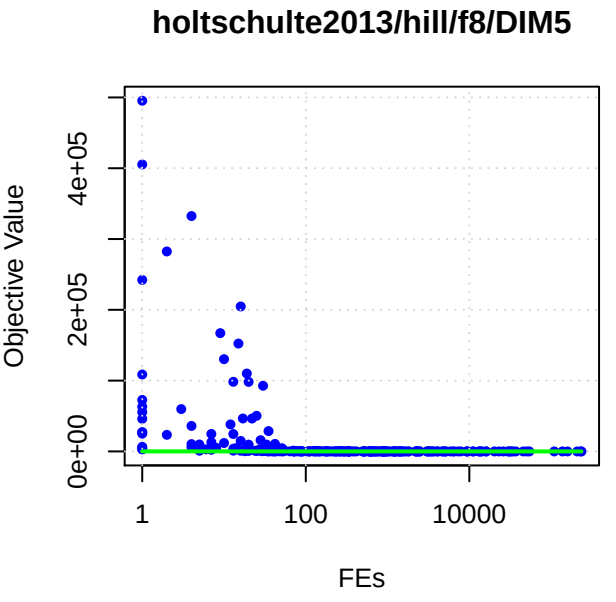
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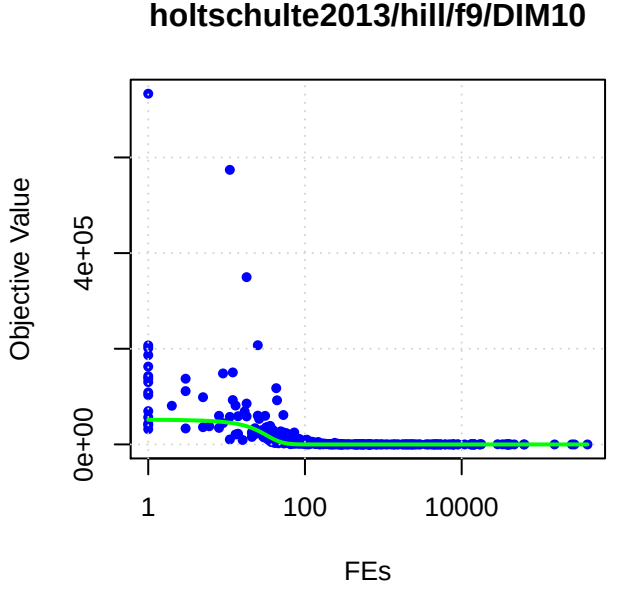
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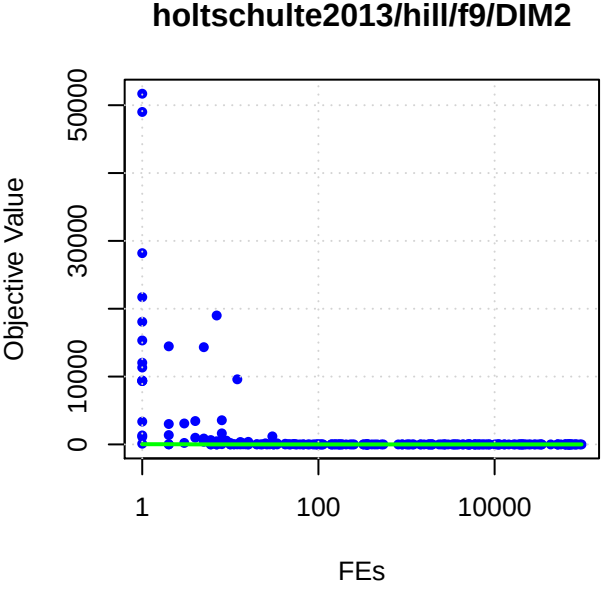
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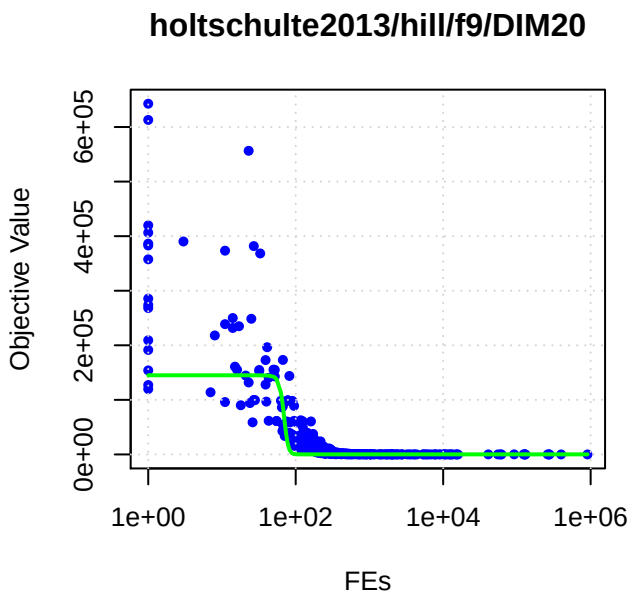
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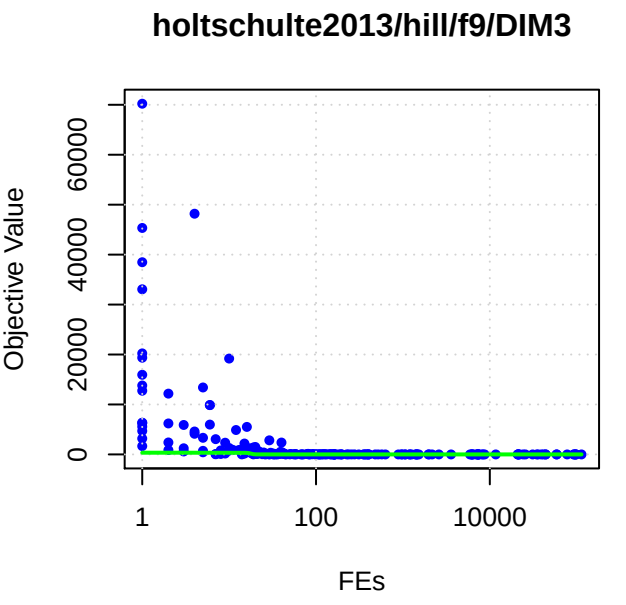
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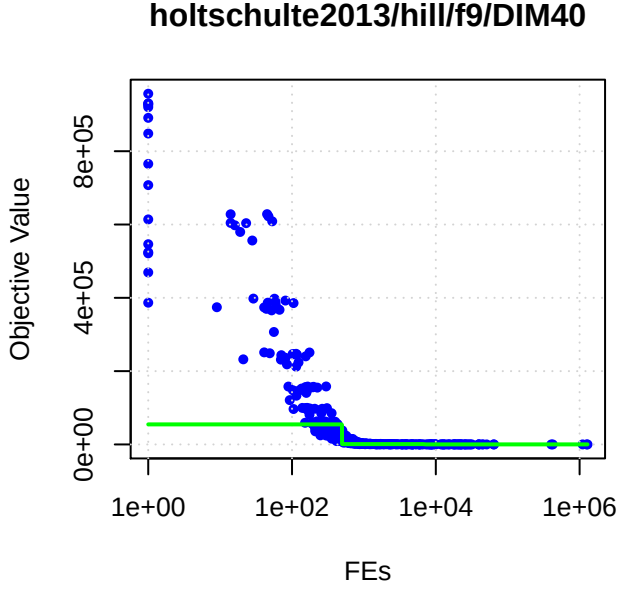
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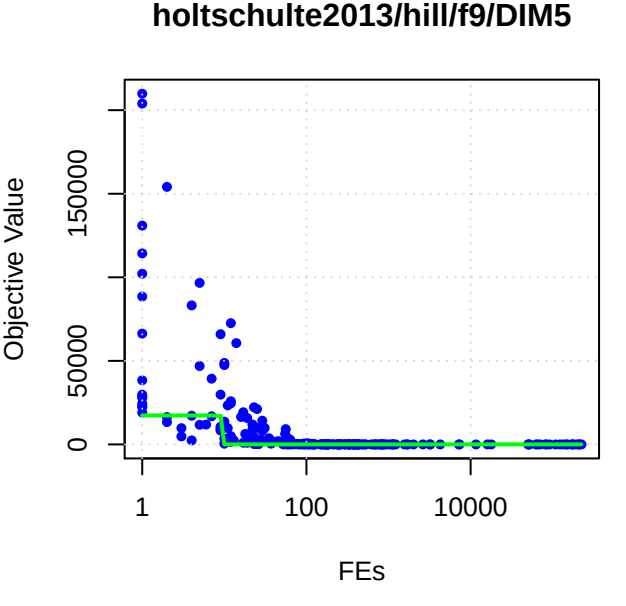
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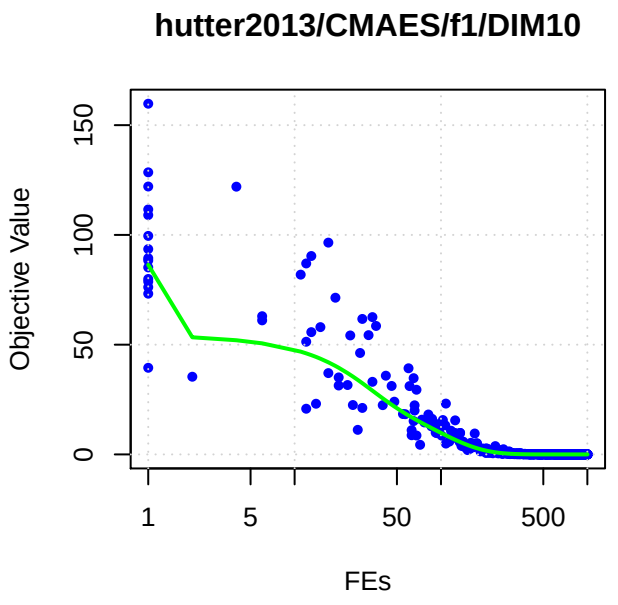
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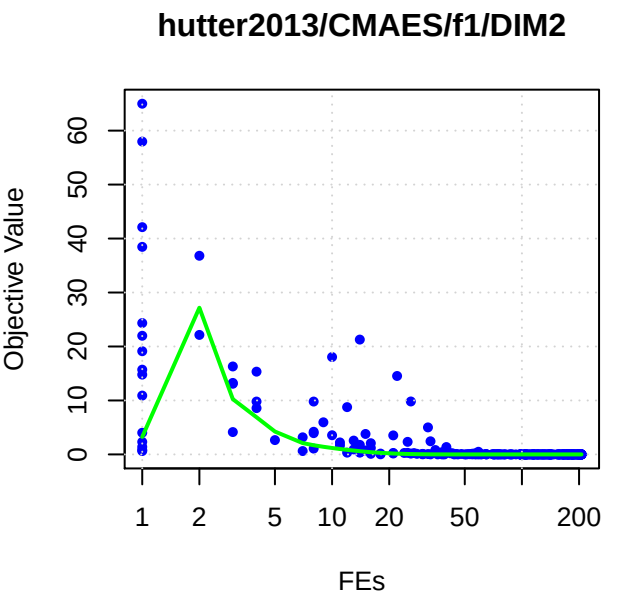
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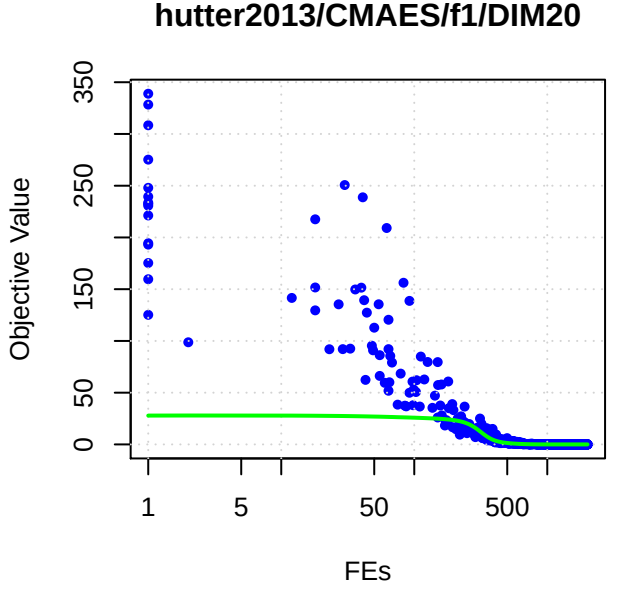
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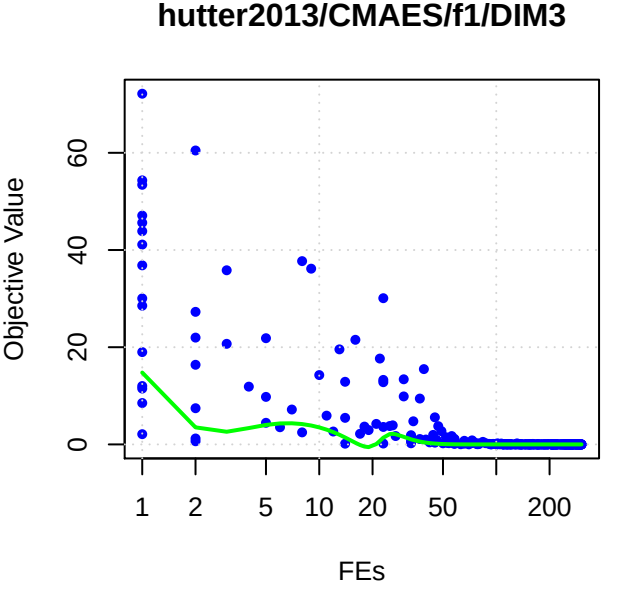
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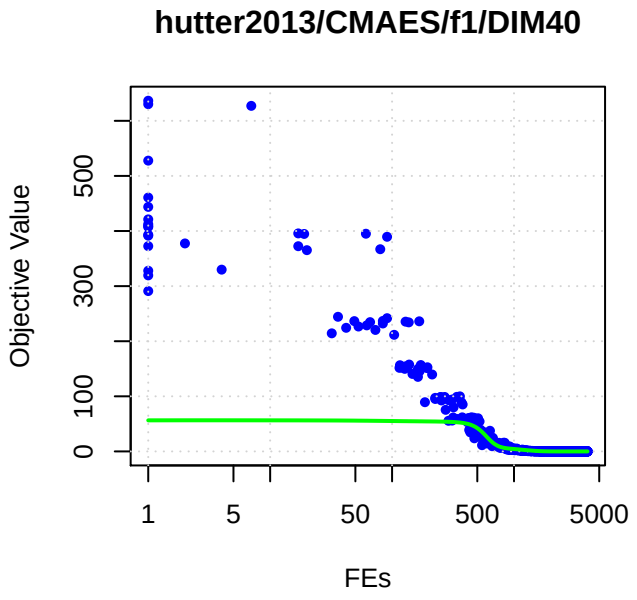
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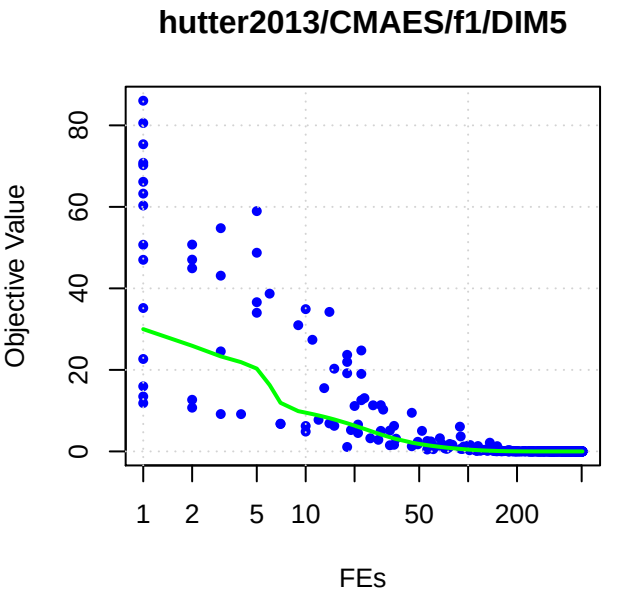
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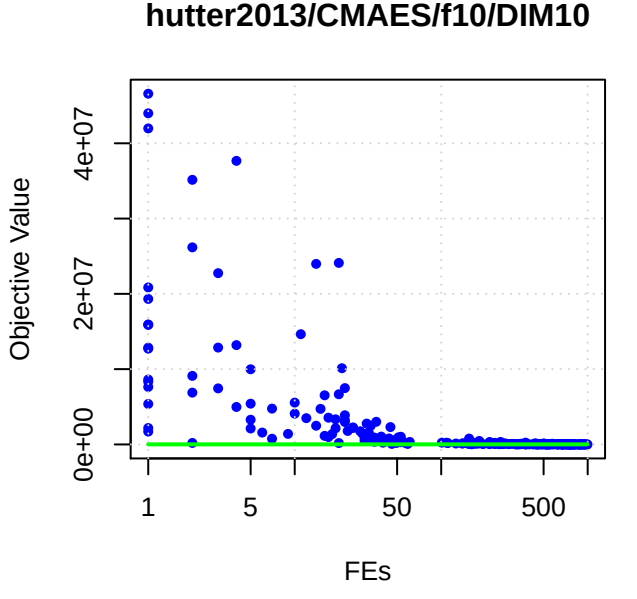
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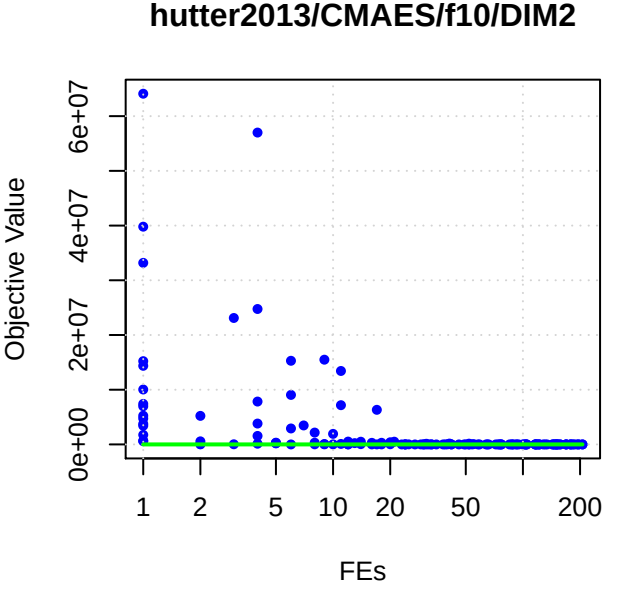
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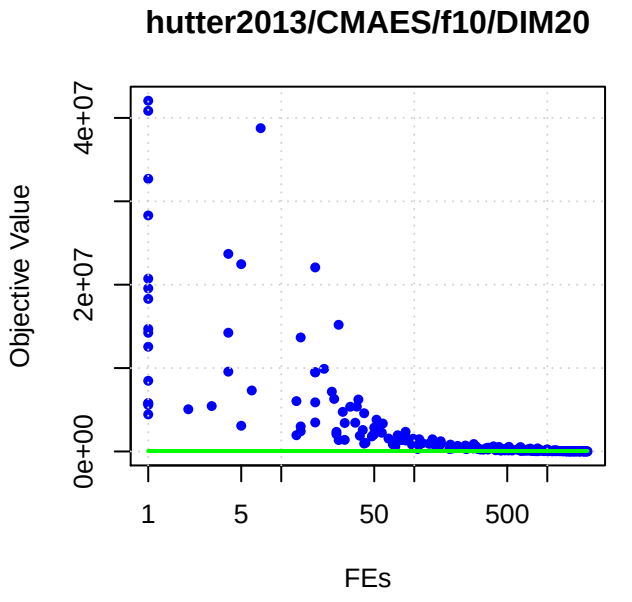
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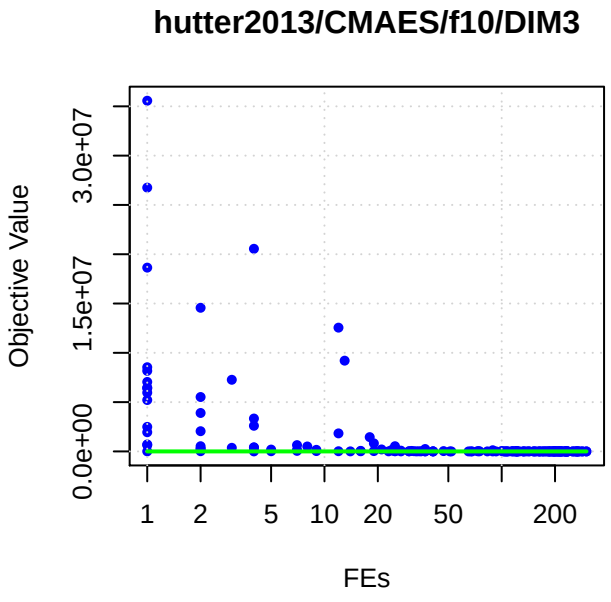
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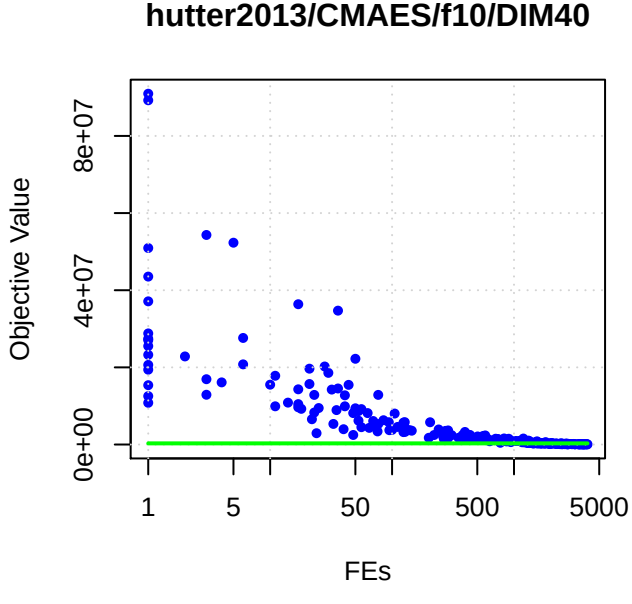
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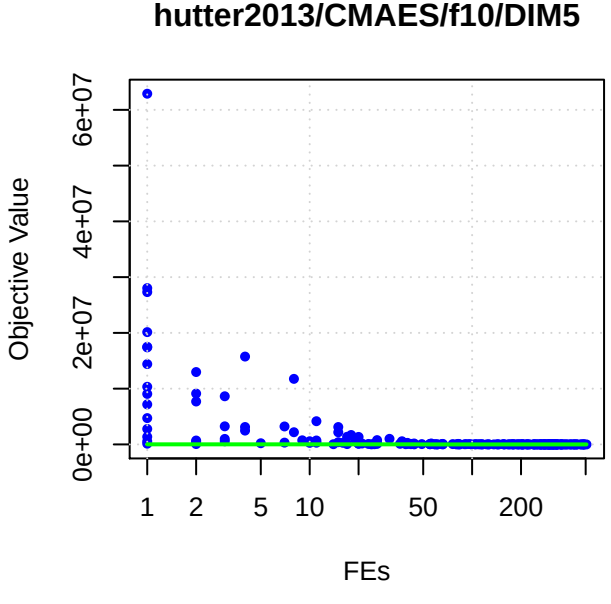
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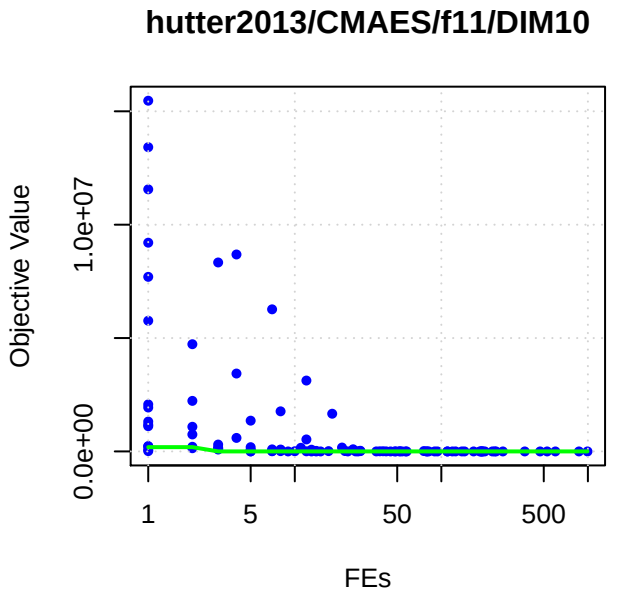
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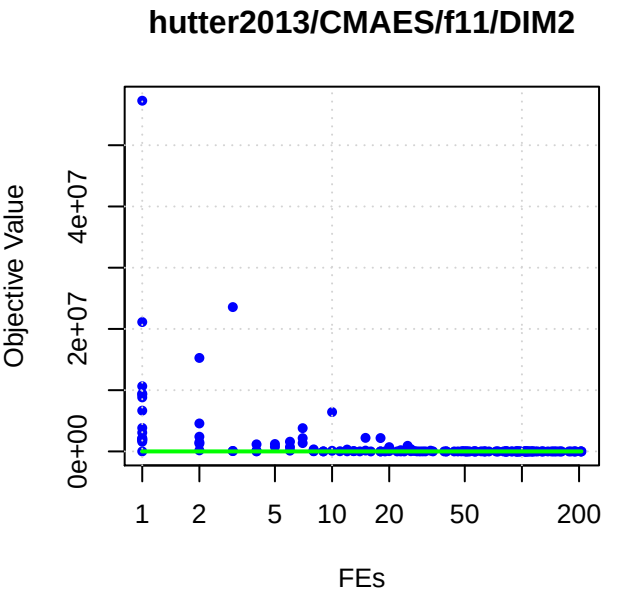
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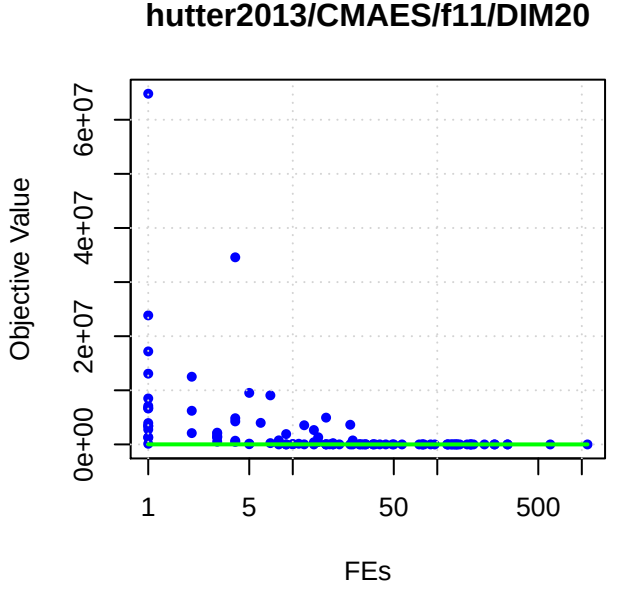
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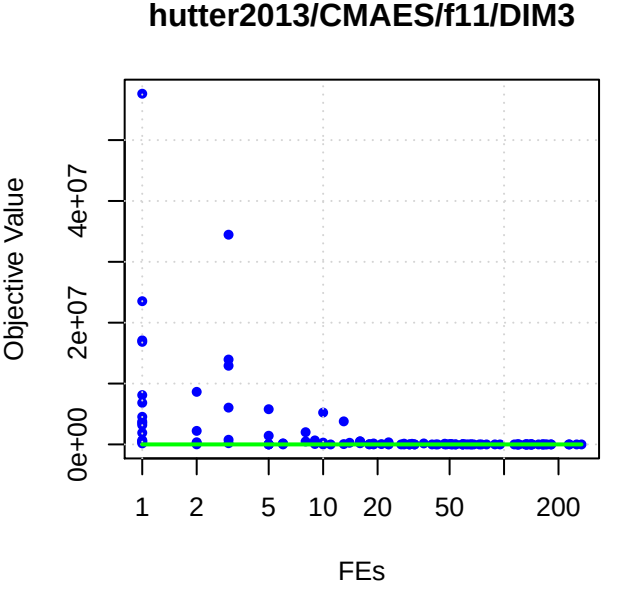
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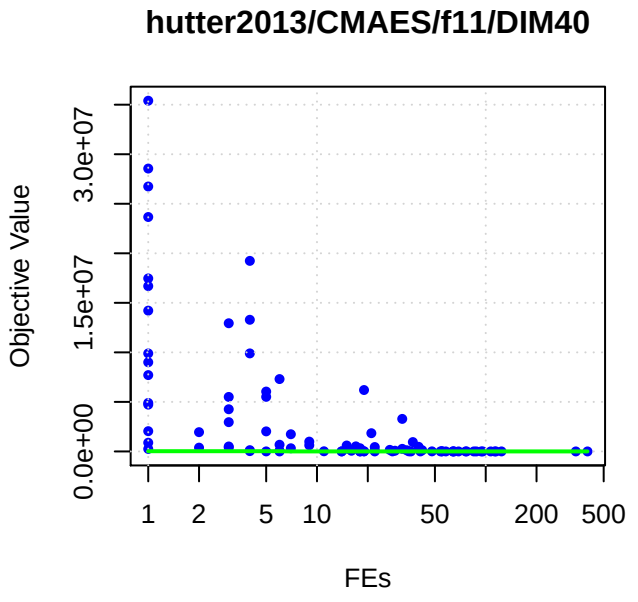
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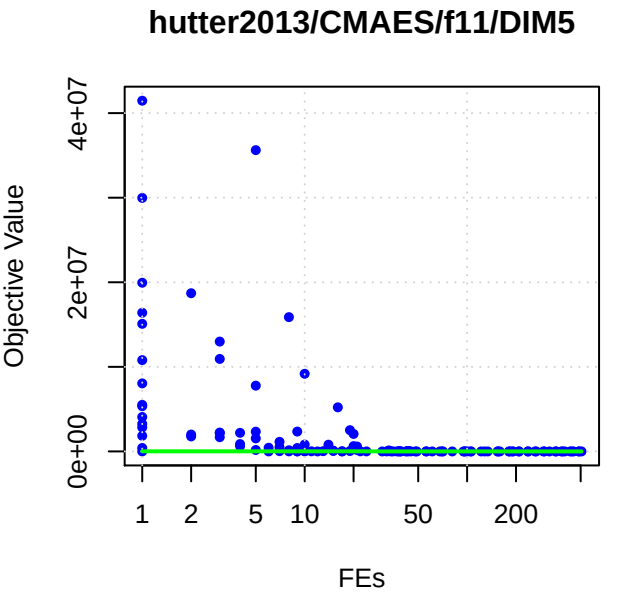
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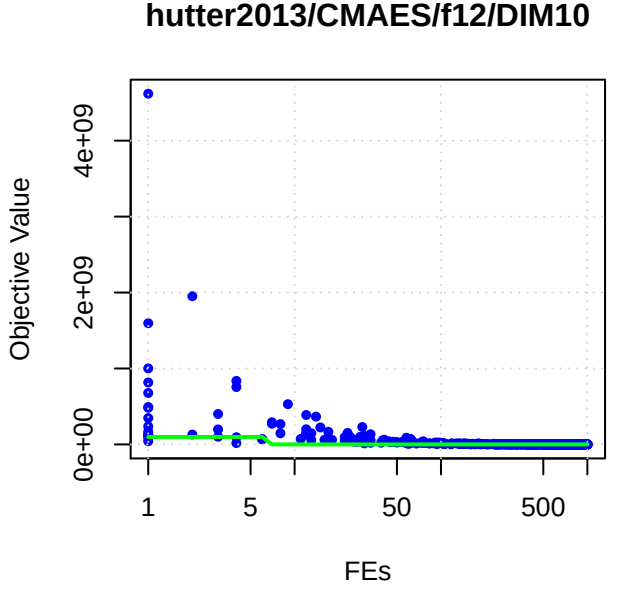
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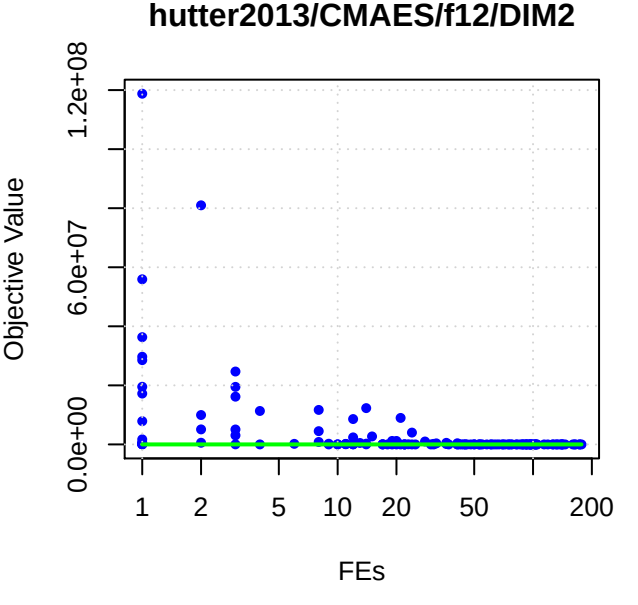
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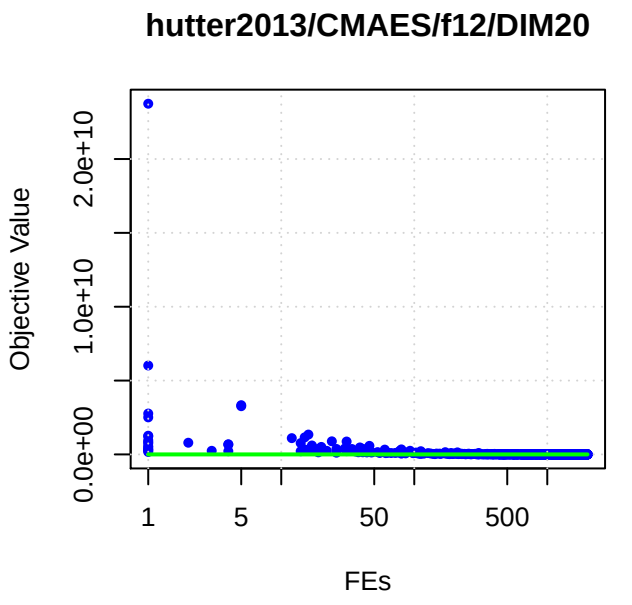
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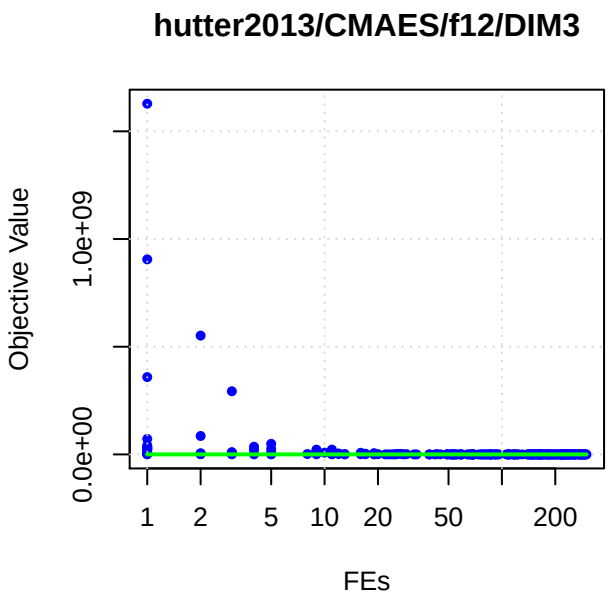
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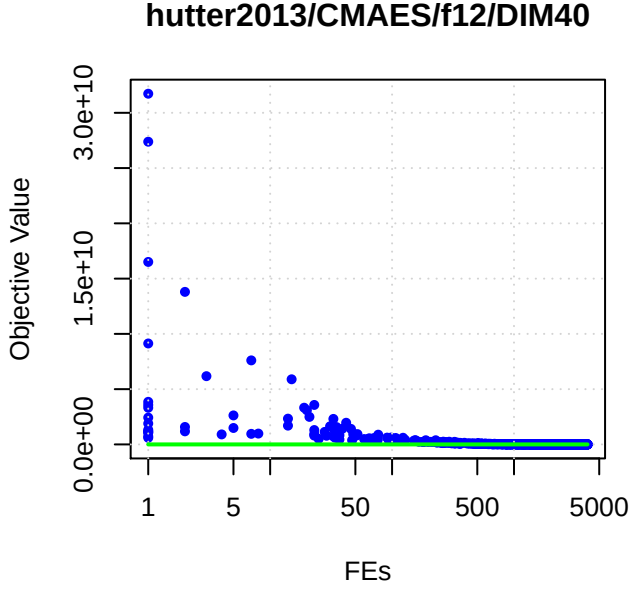
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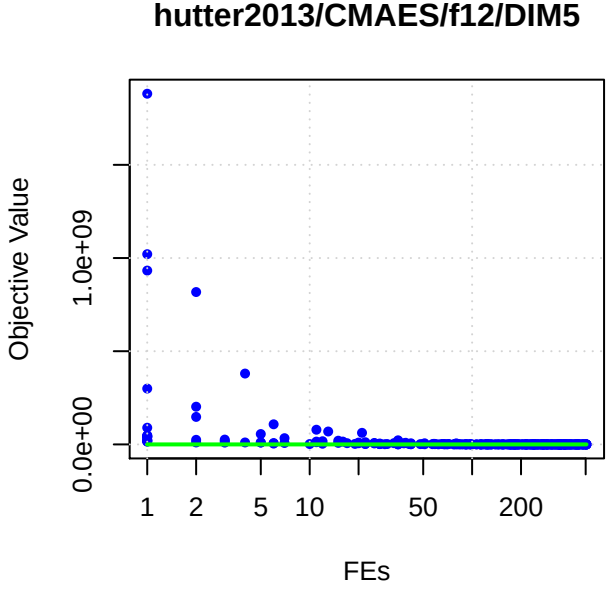
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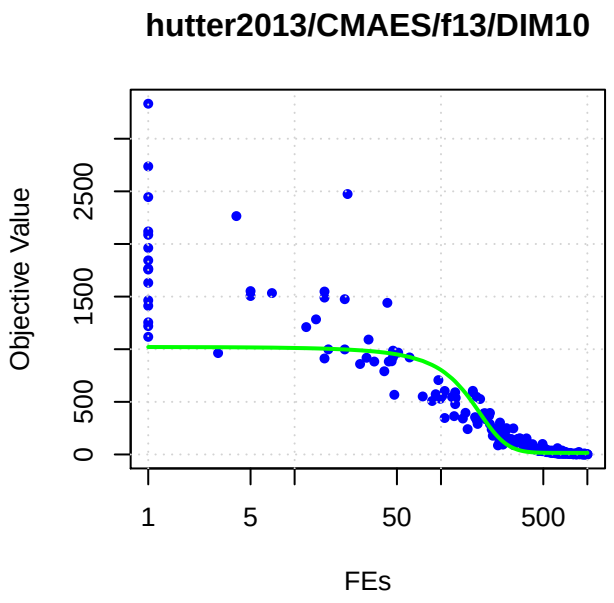
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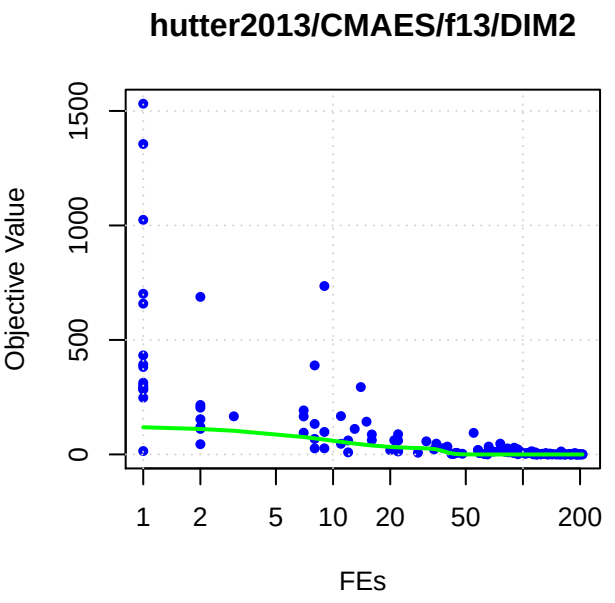
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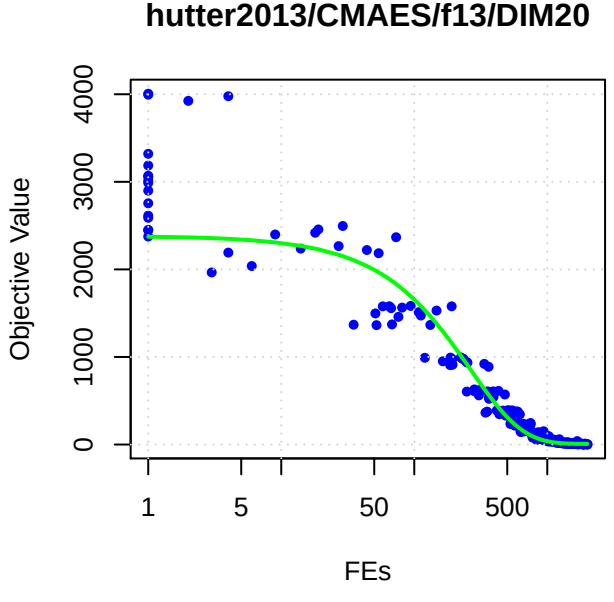
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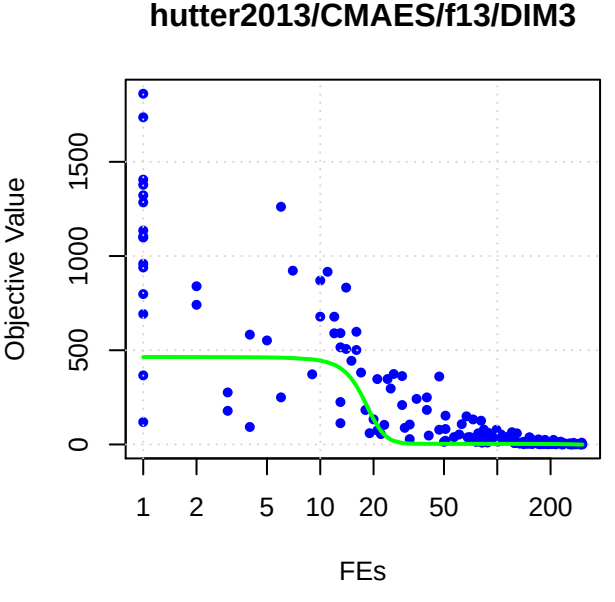
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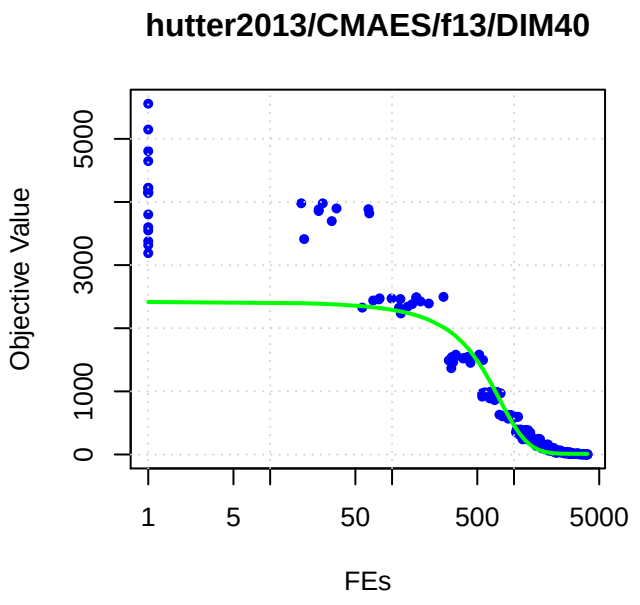
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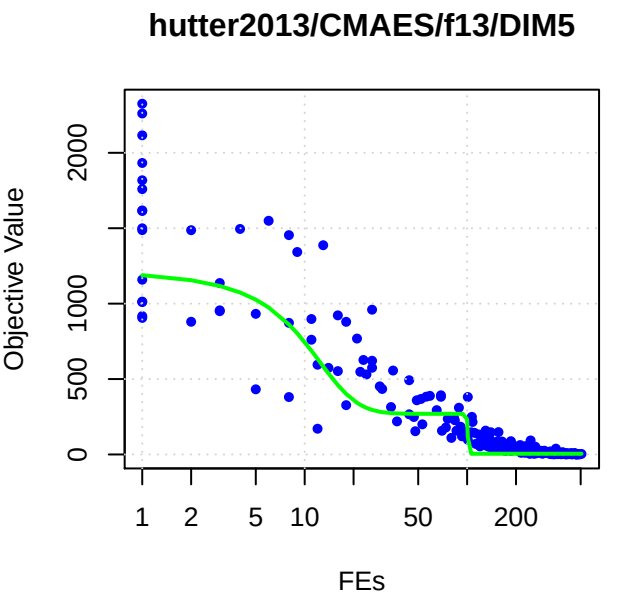
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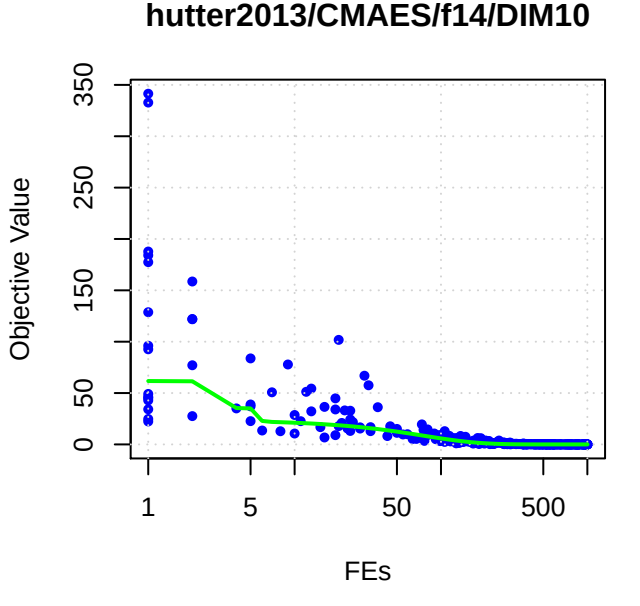
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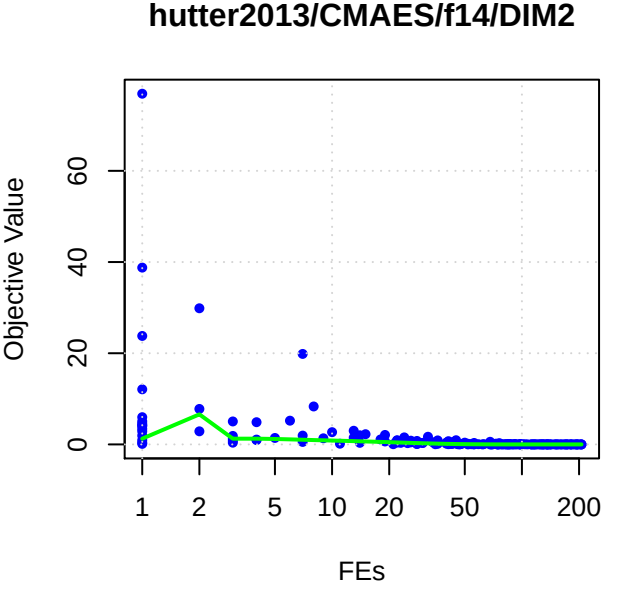
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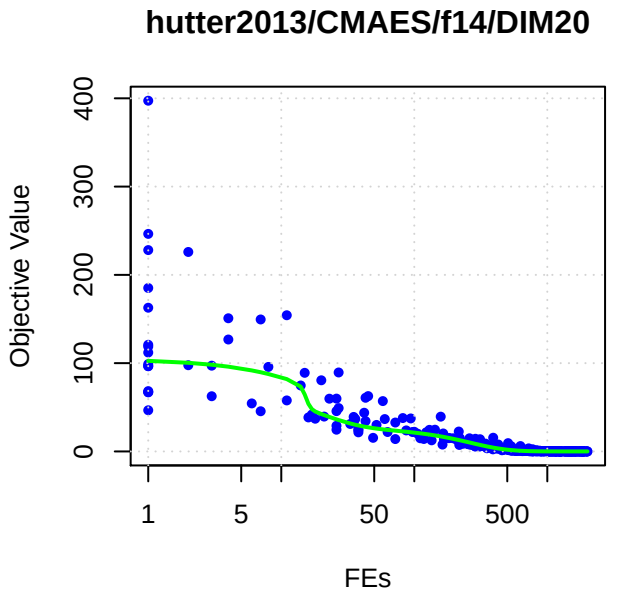
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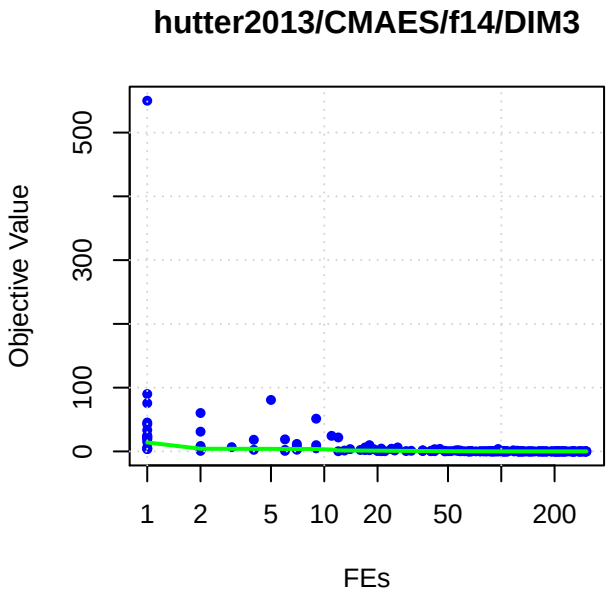
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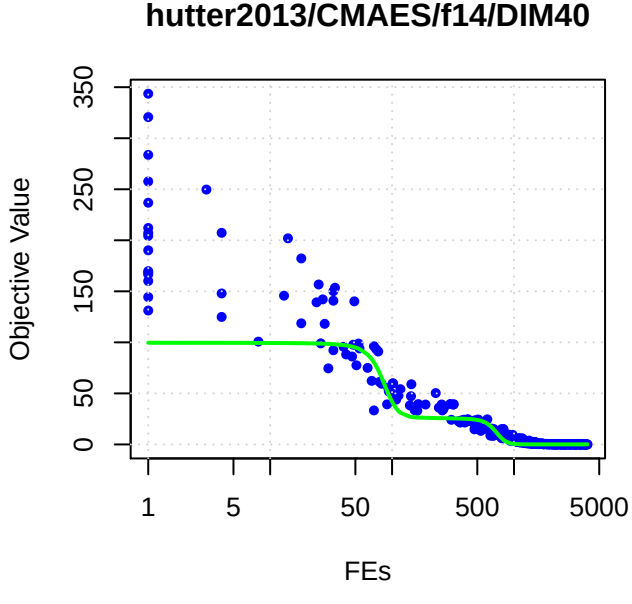
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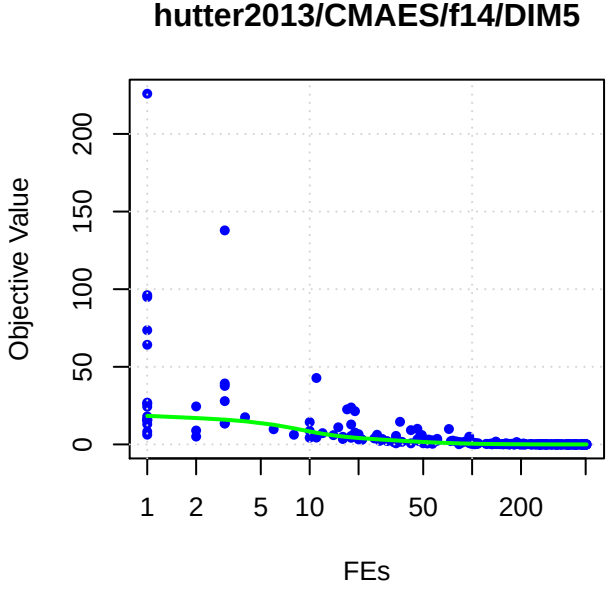
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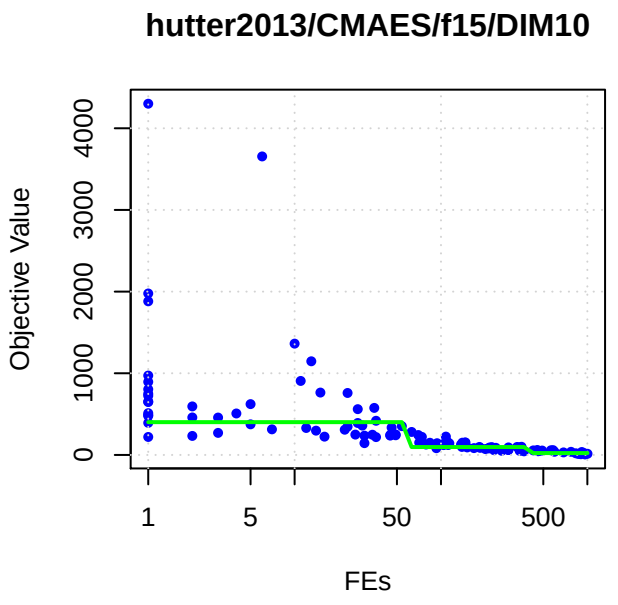
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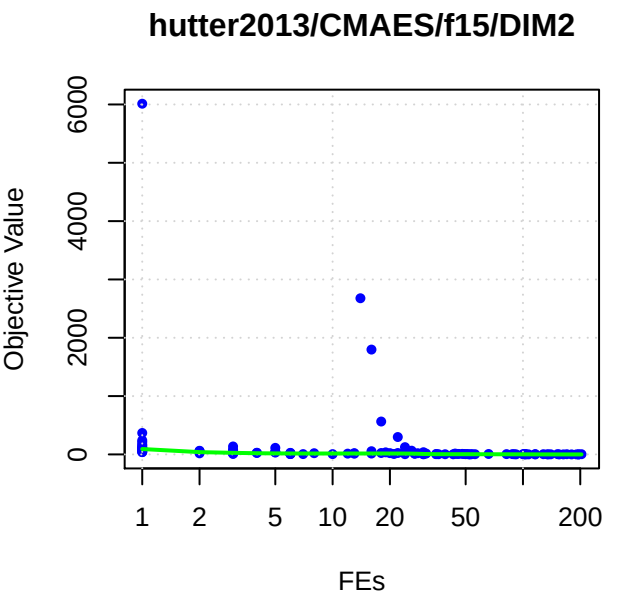
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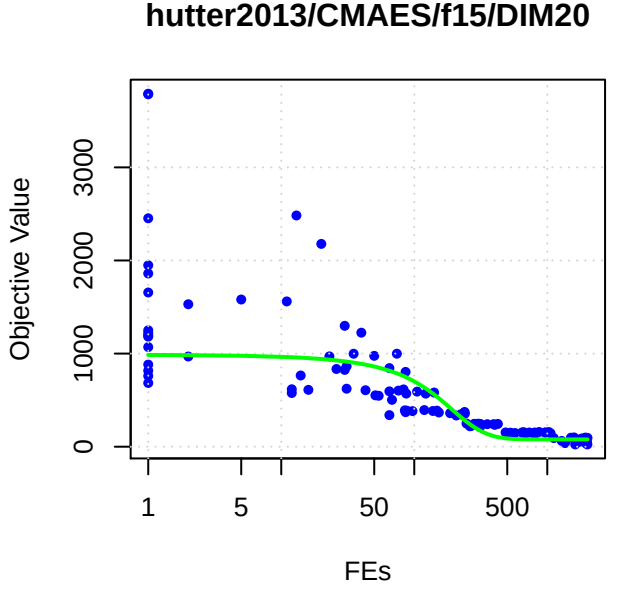
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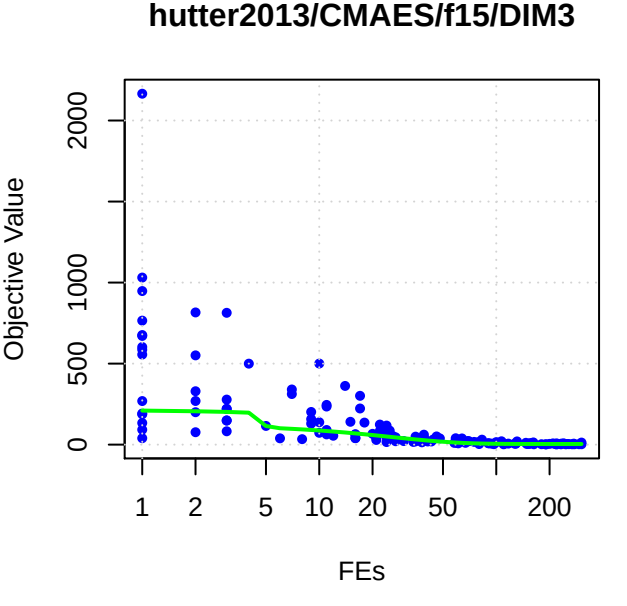
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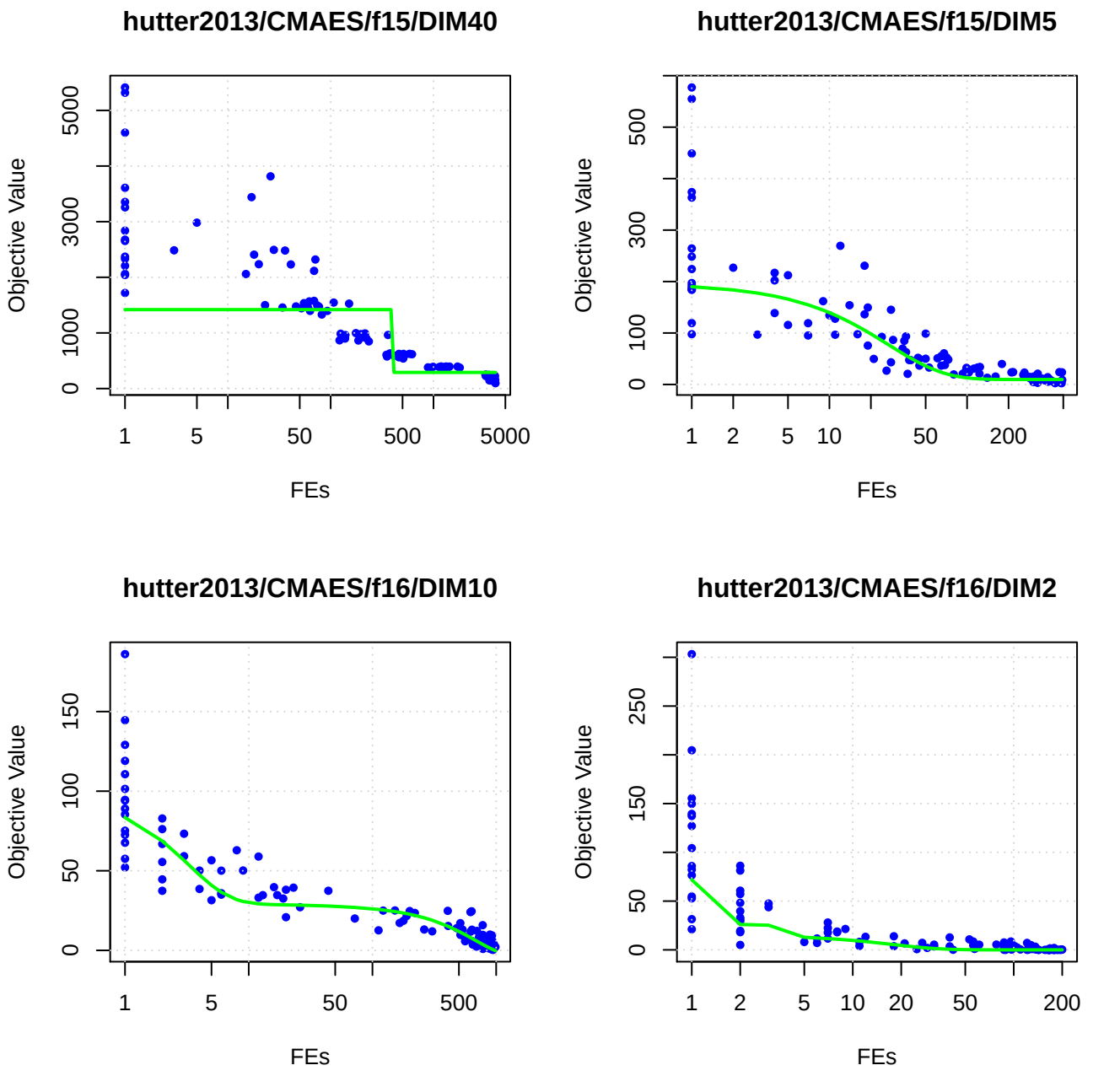
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FEs
hutter2013/CMAES/f16/DIM10
Objective Value
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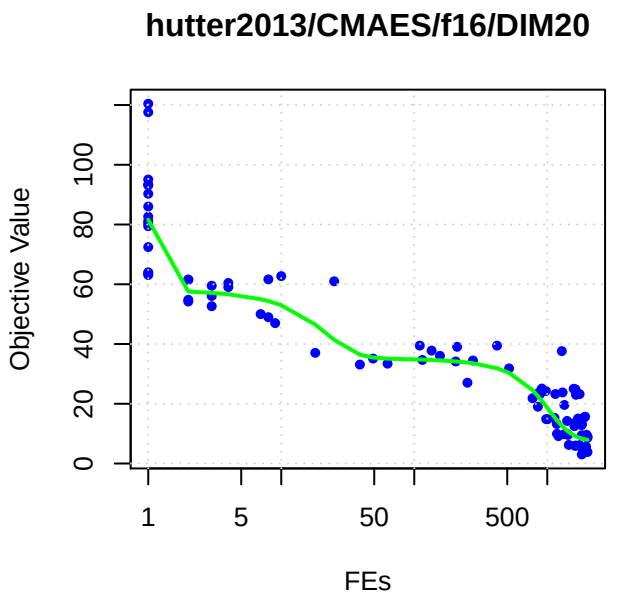
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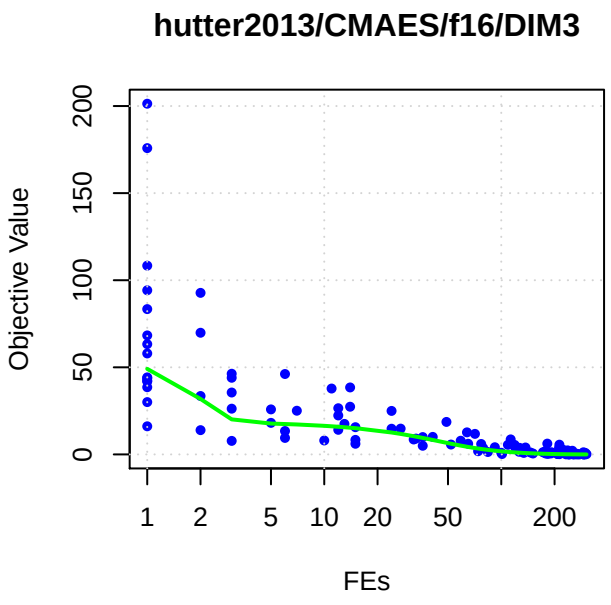
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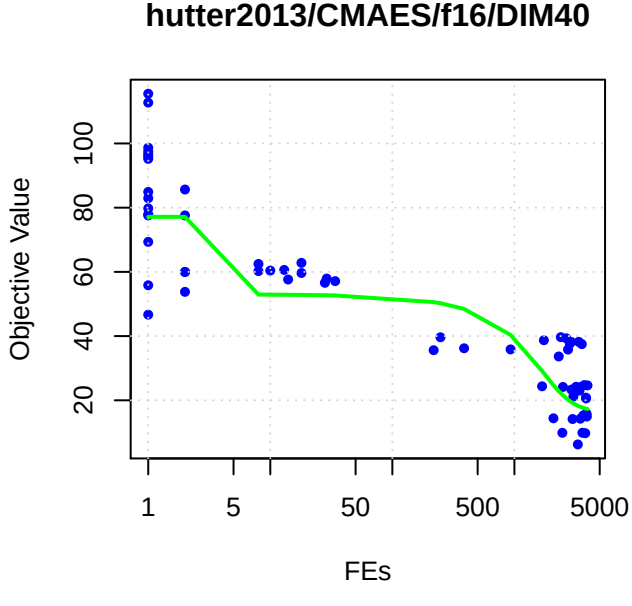
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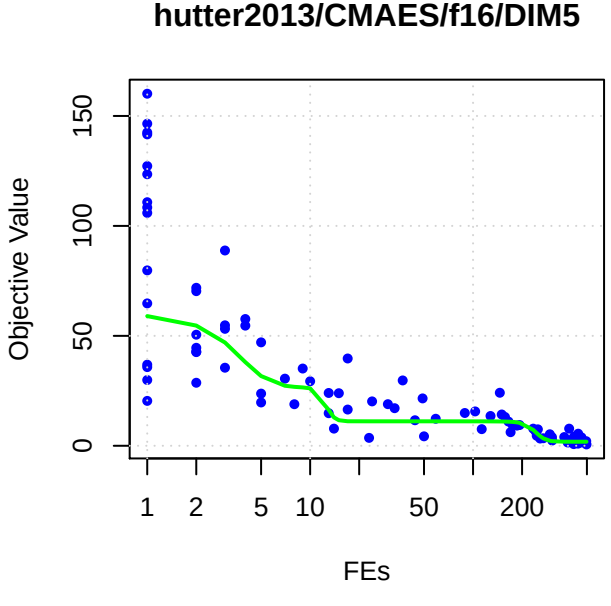
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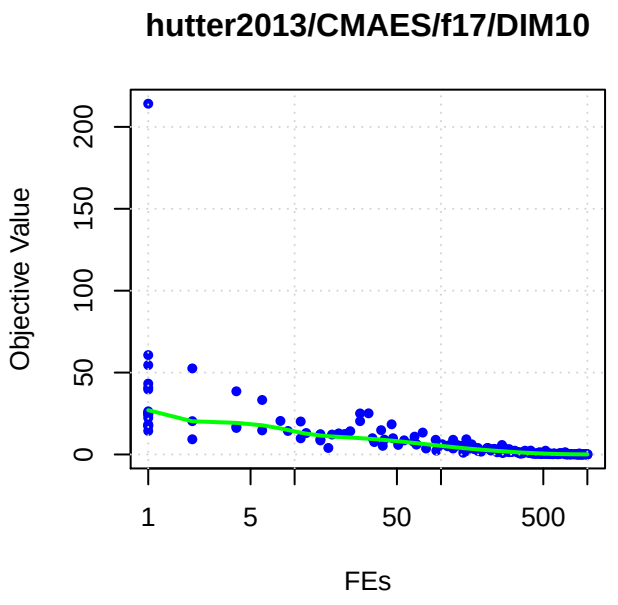
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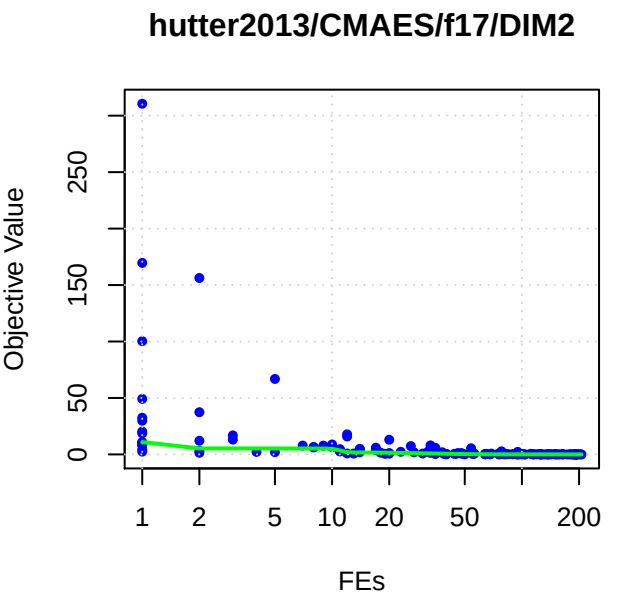
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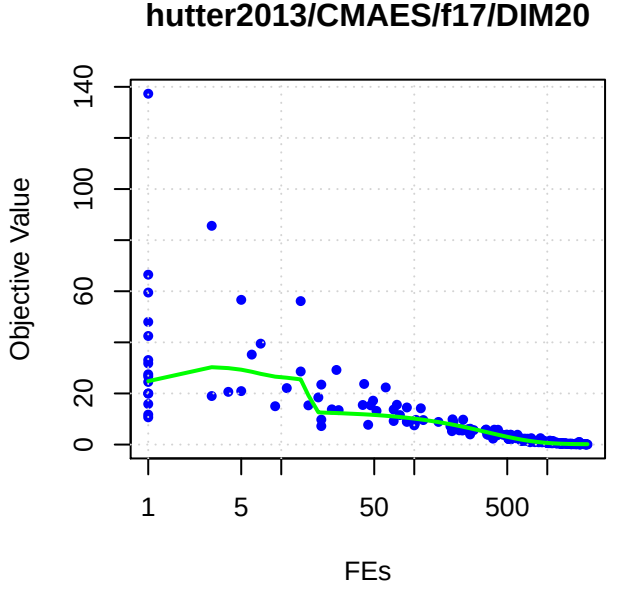
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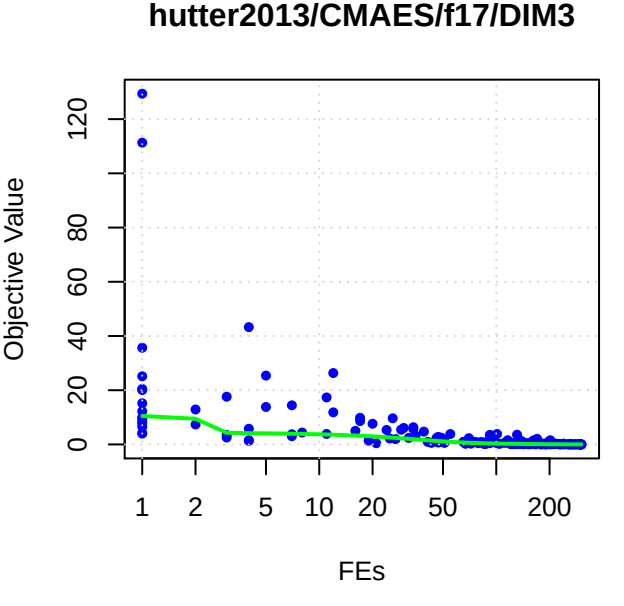
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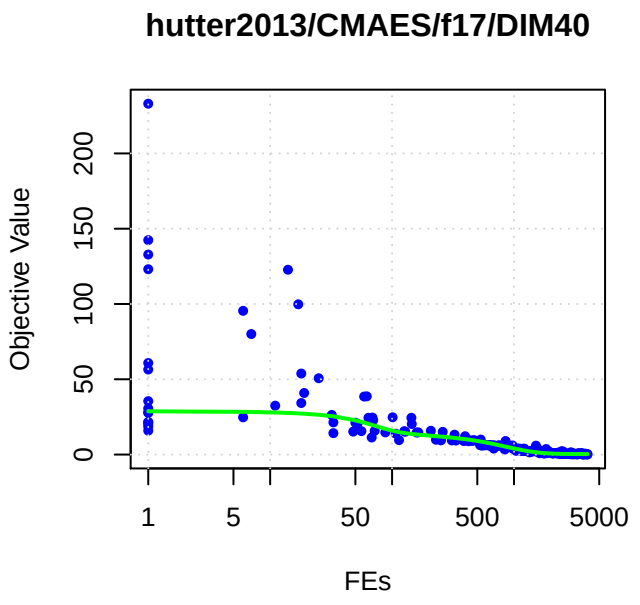
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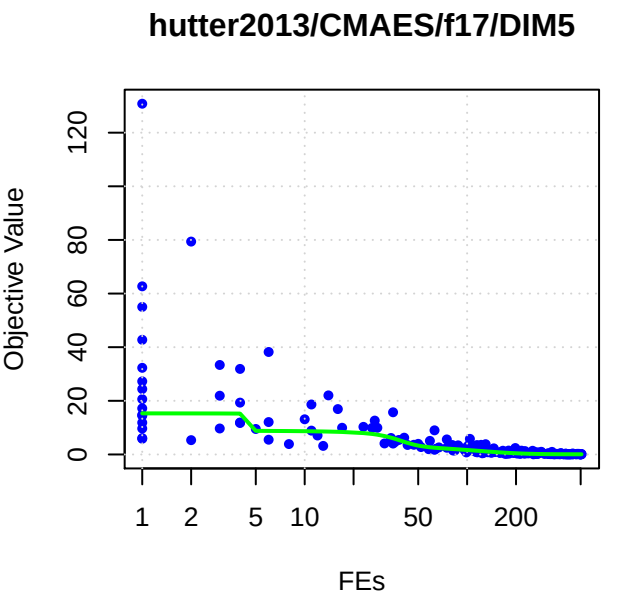
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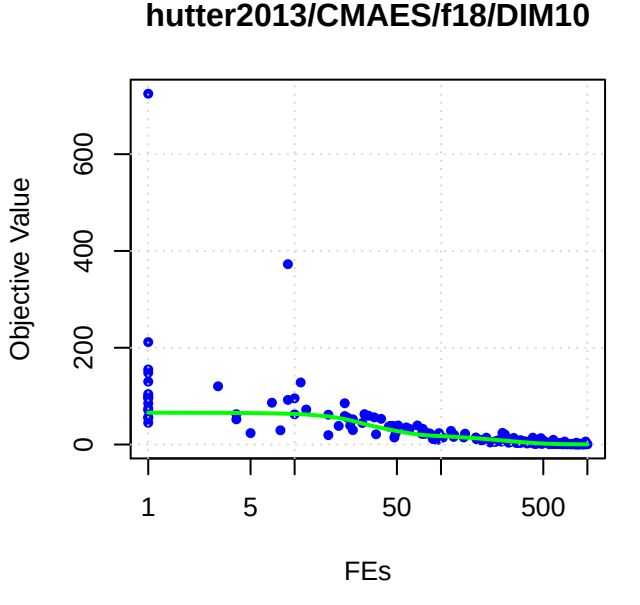
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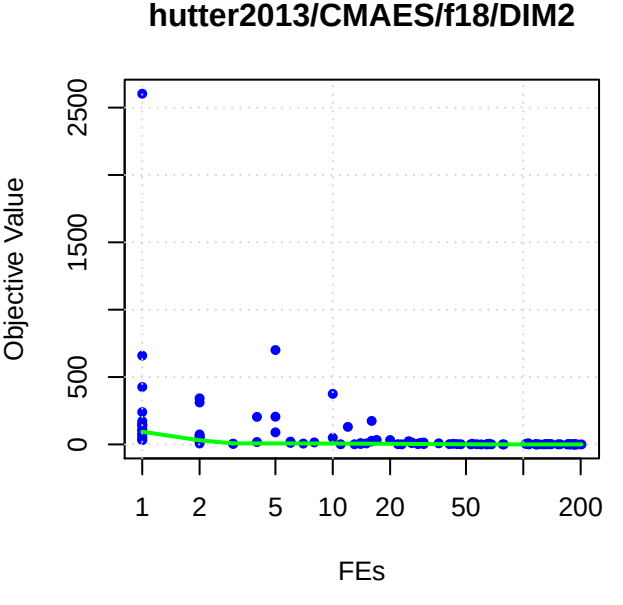
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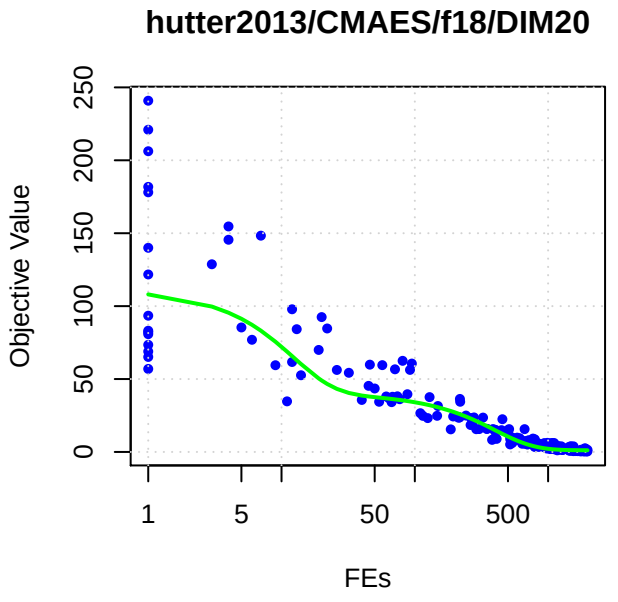
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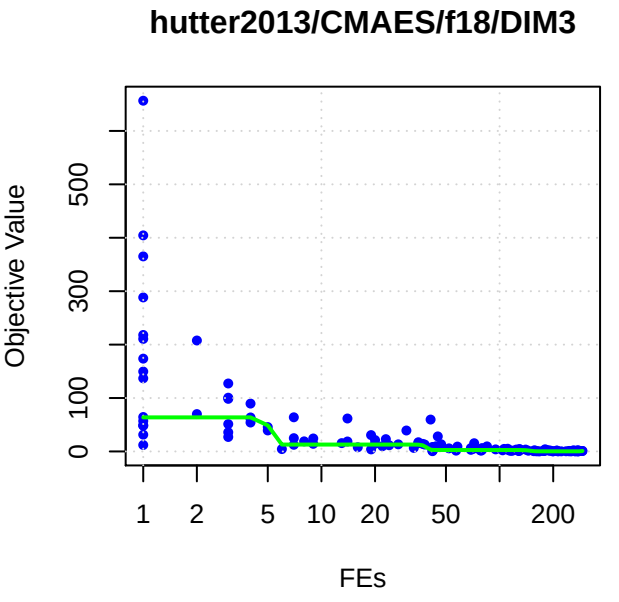
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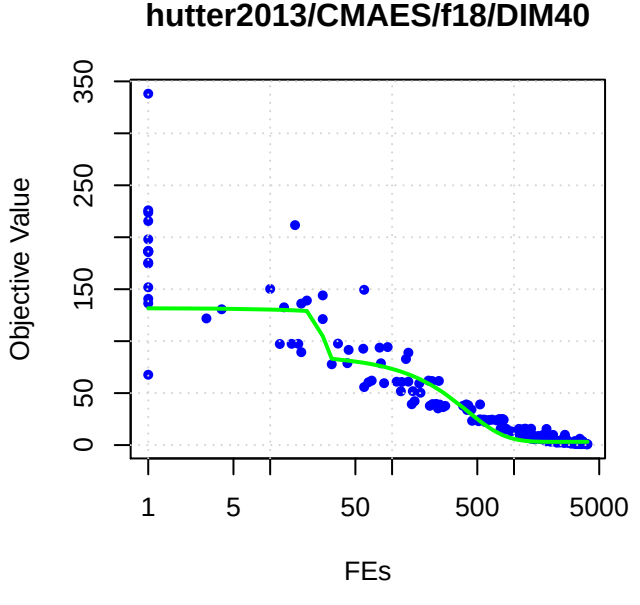
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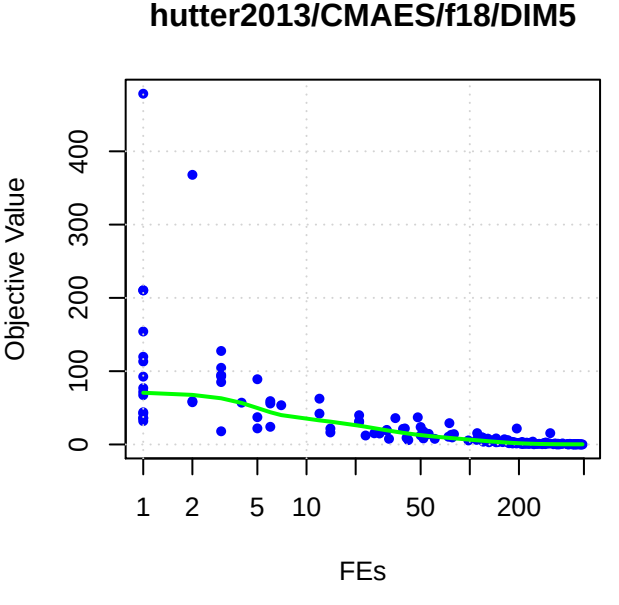
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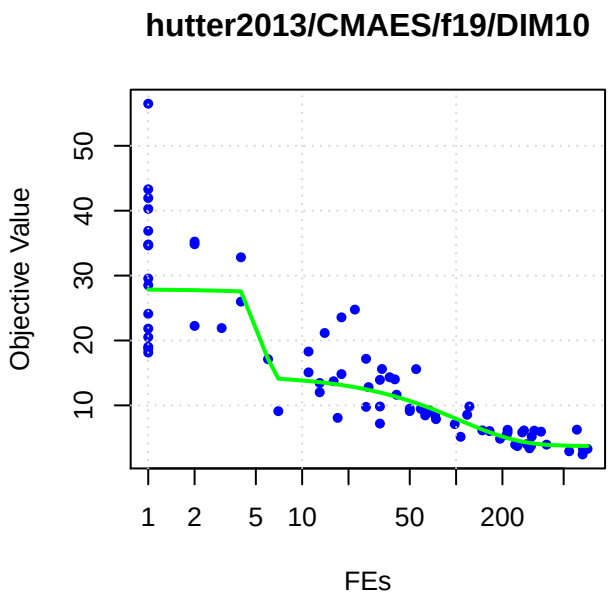
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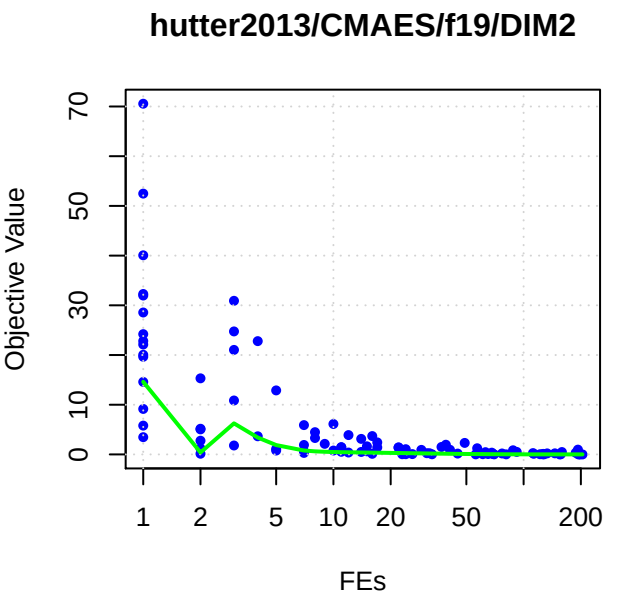
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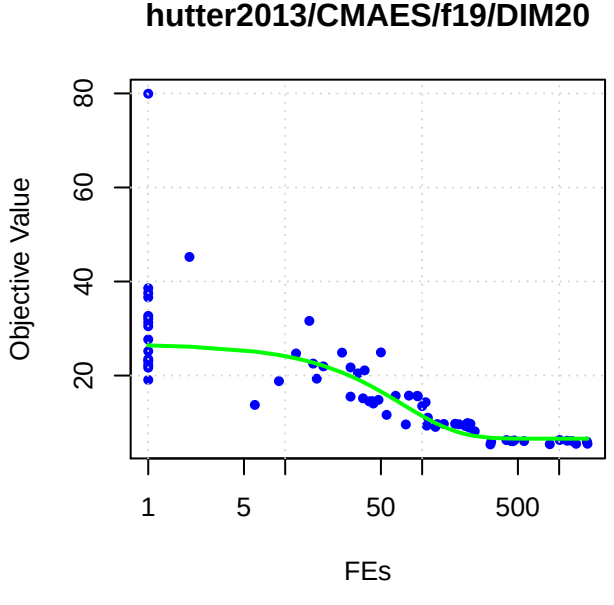
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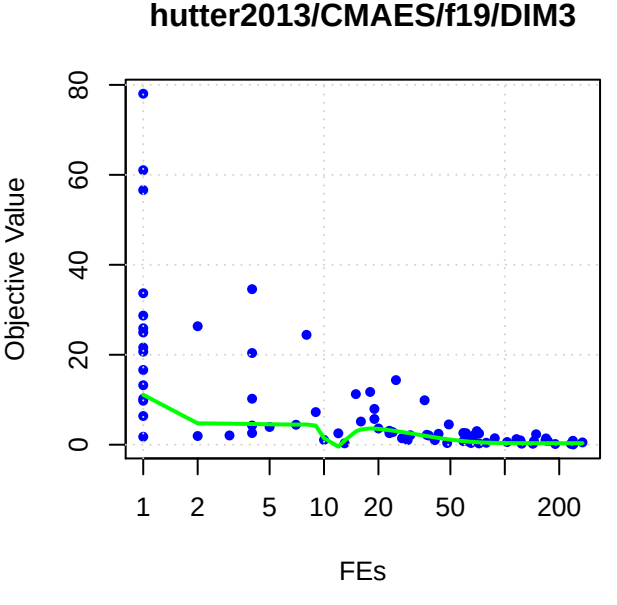
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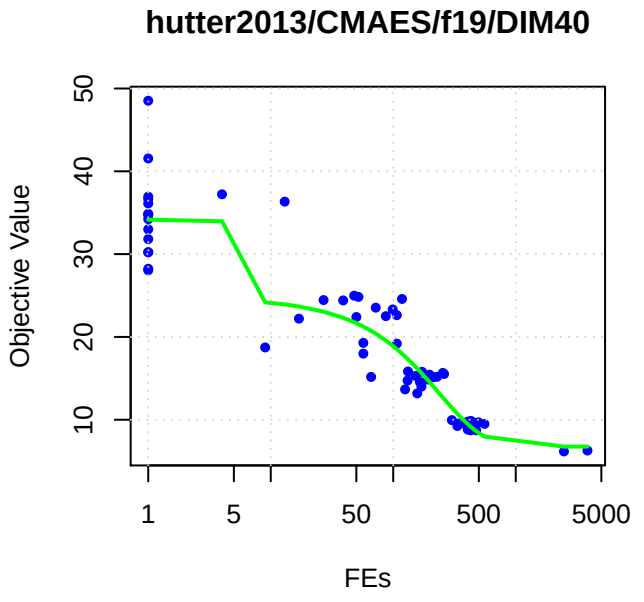
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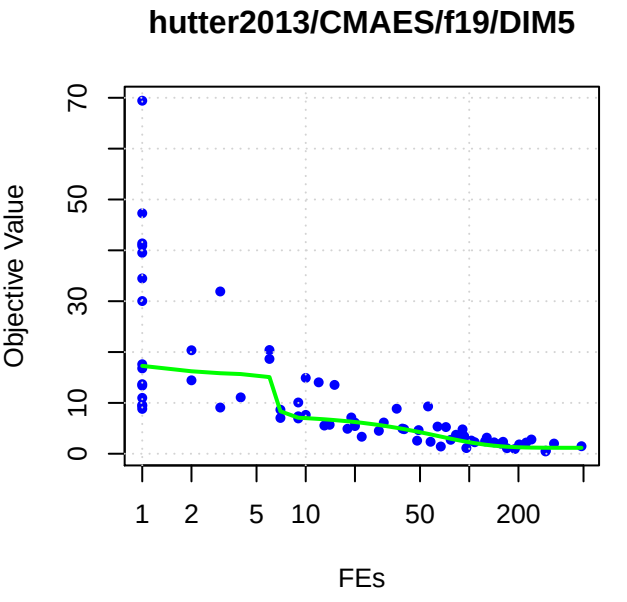
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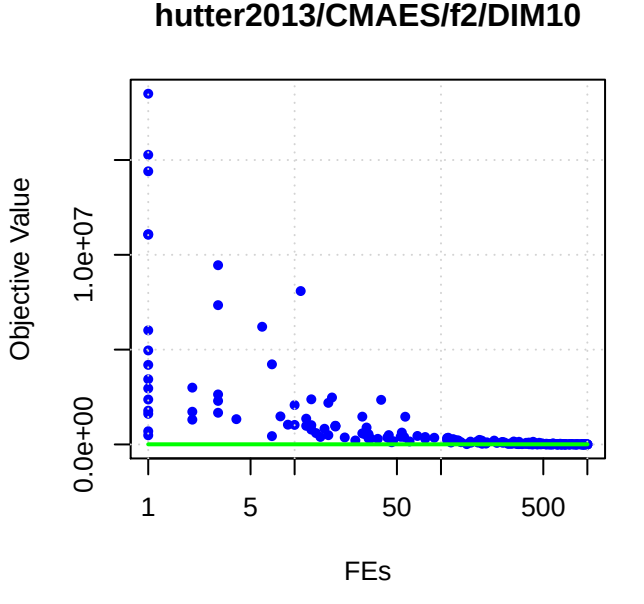
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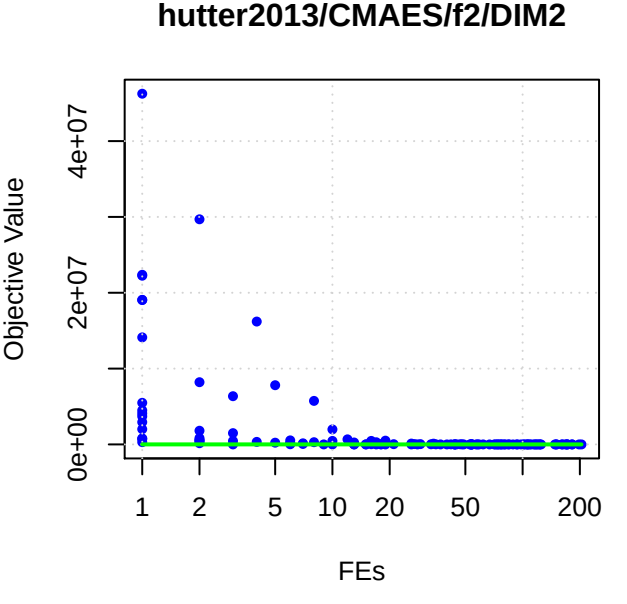
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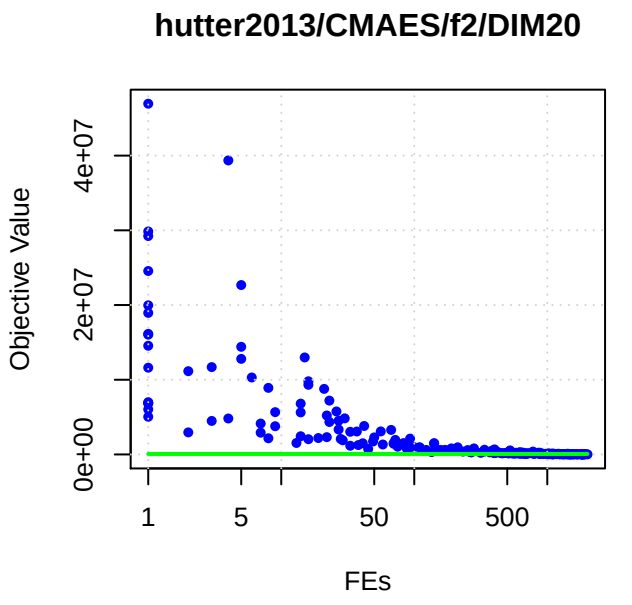
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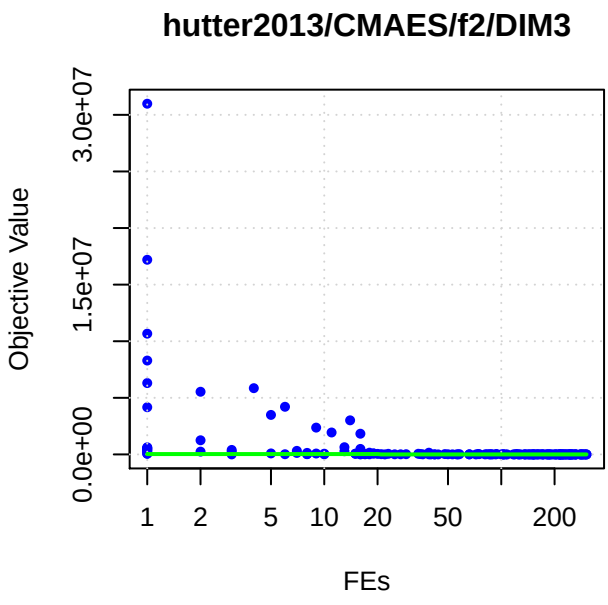
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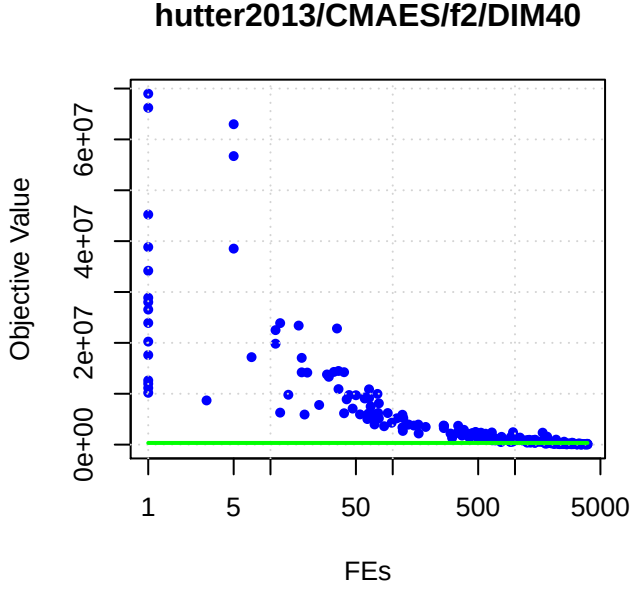
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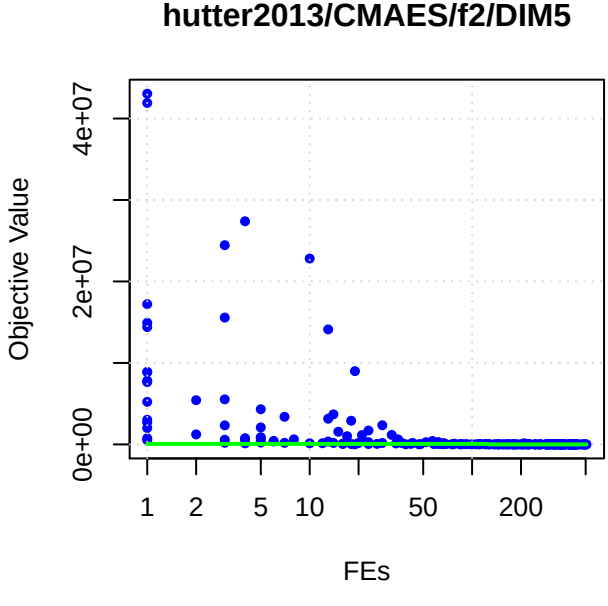
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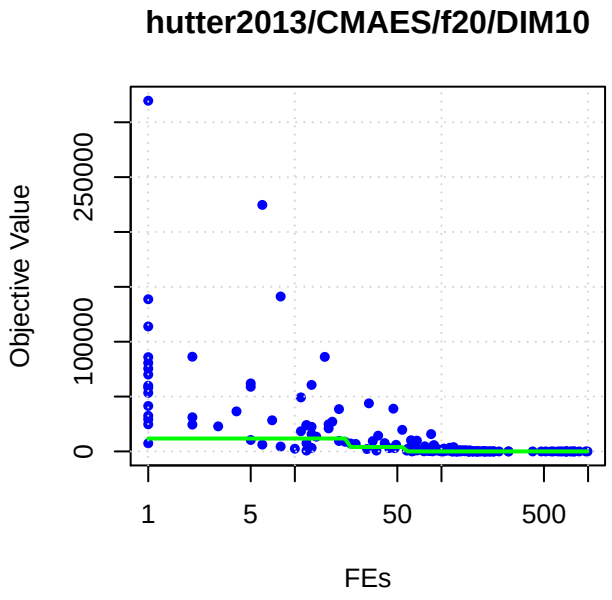
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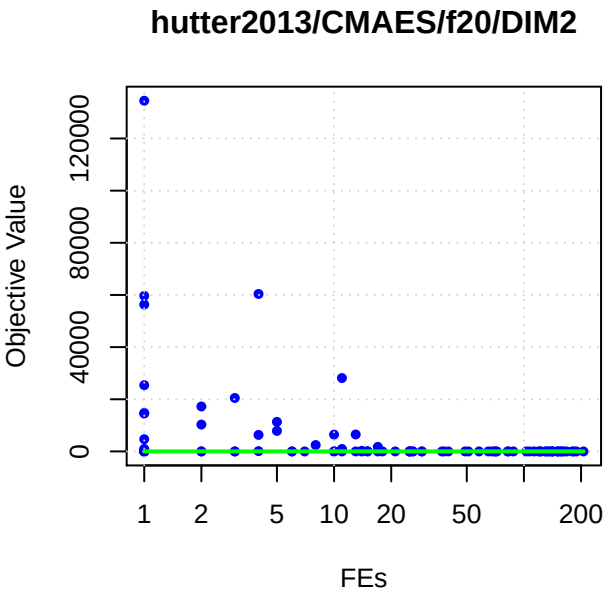
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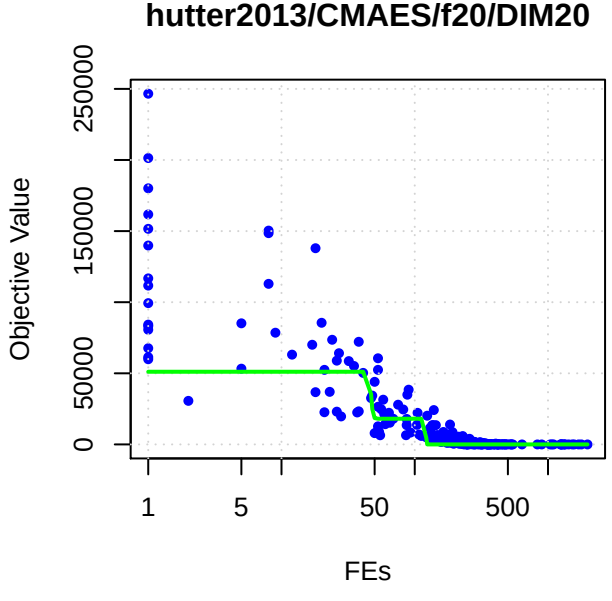
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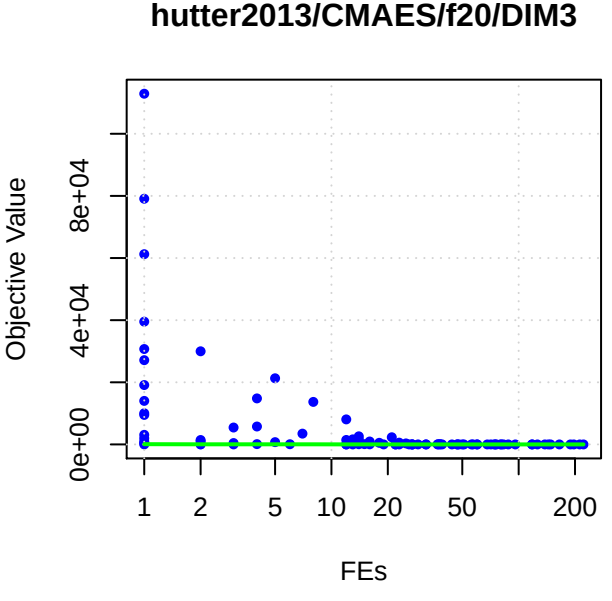
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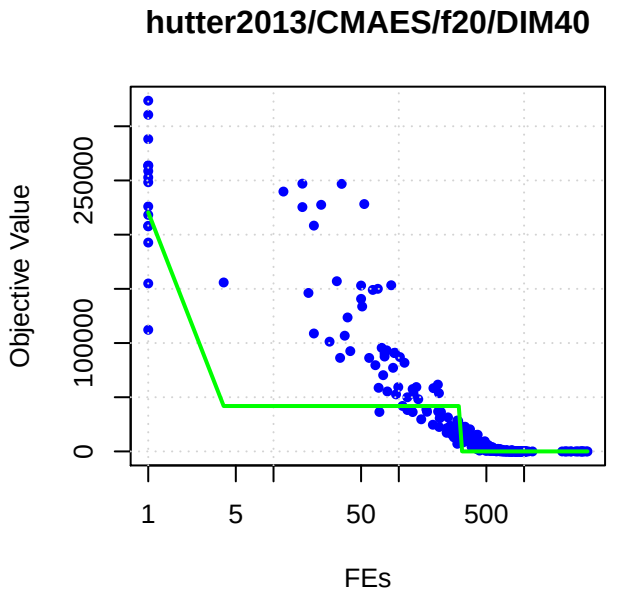
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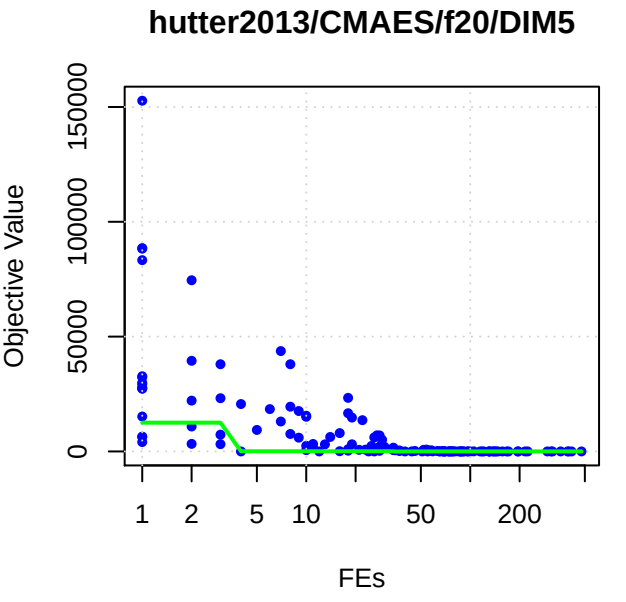
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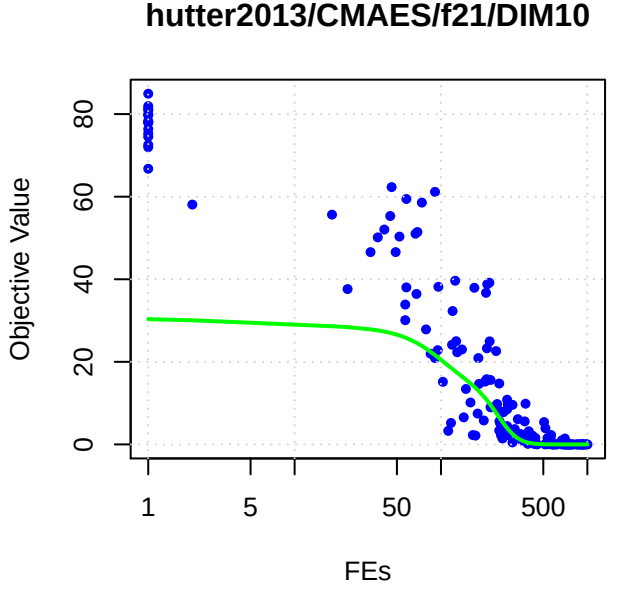
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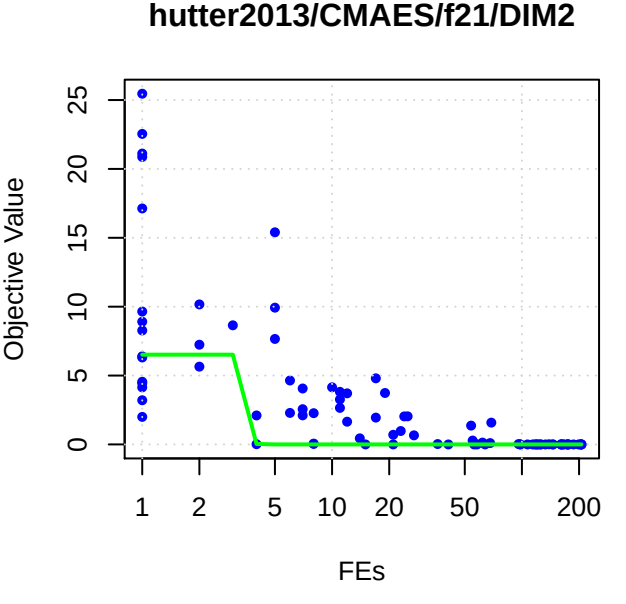
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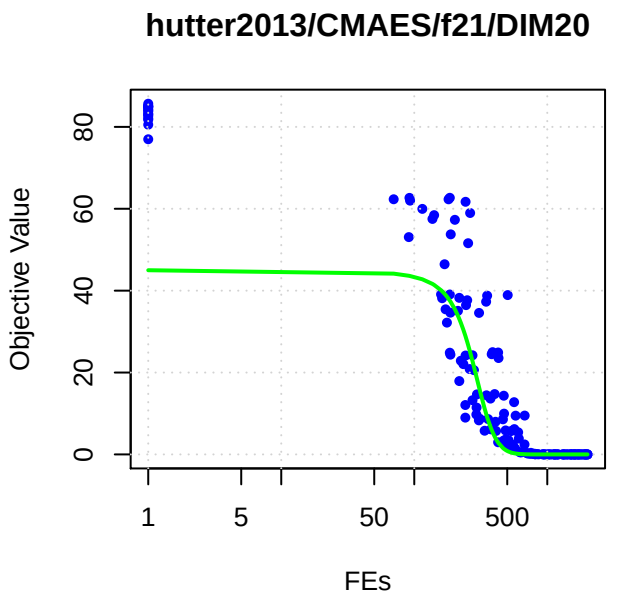
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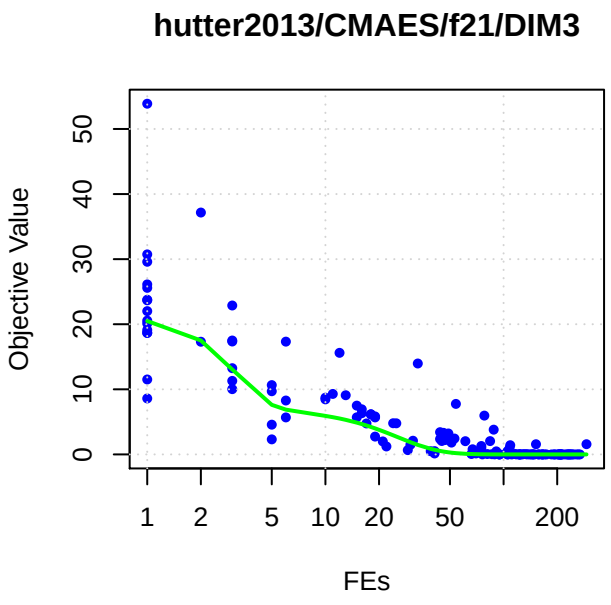
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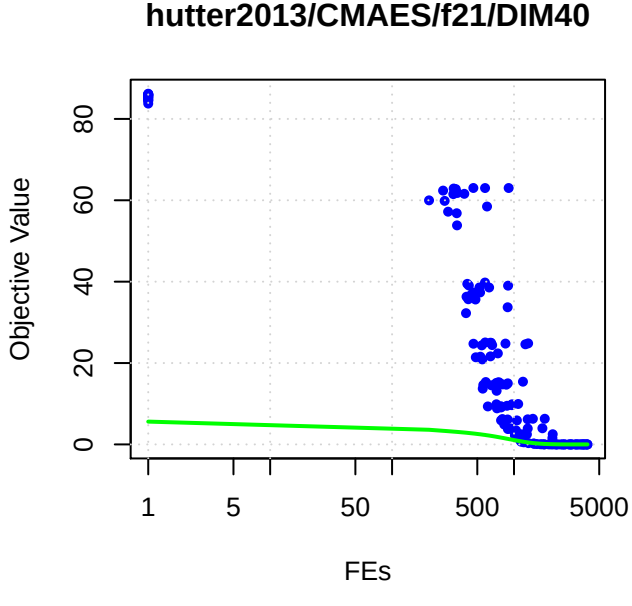
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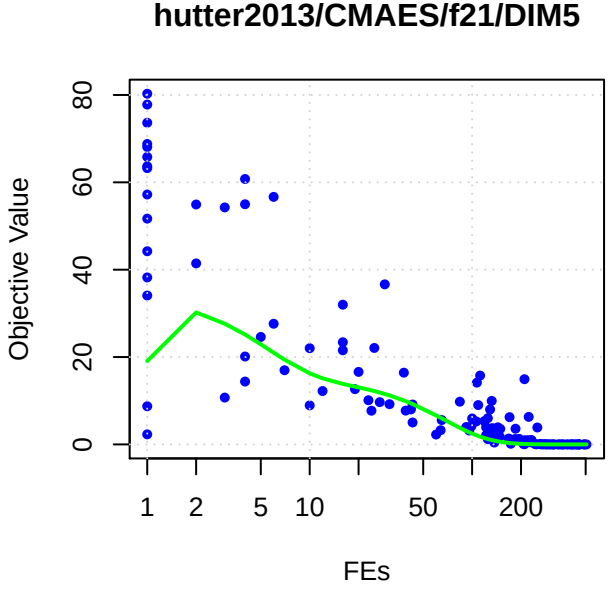
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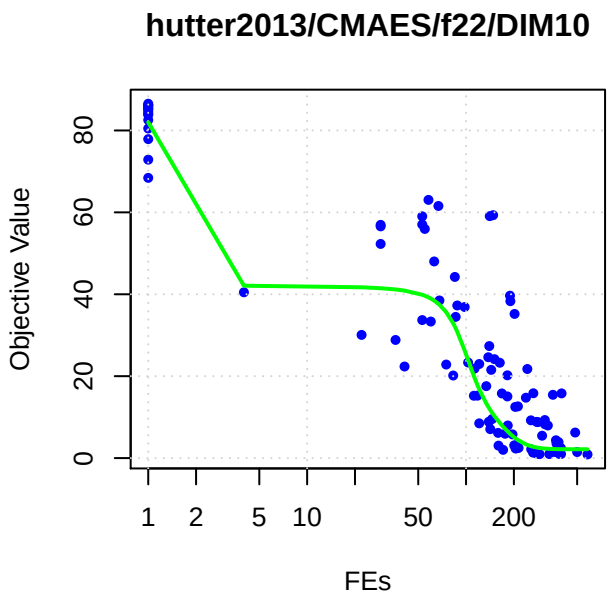
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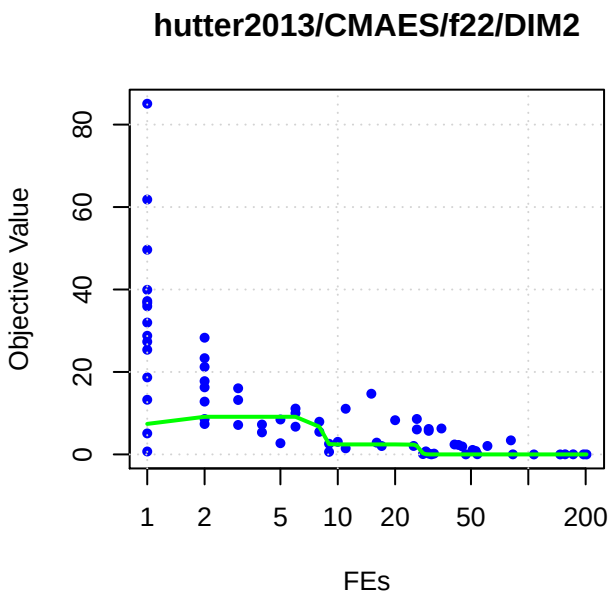
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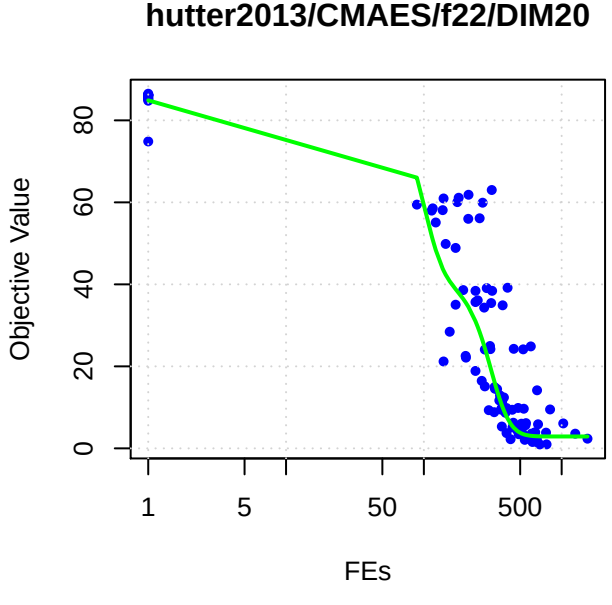
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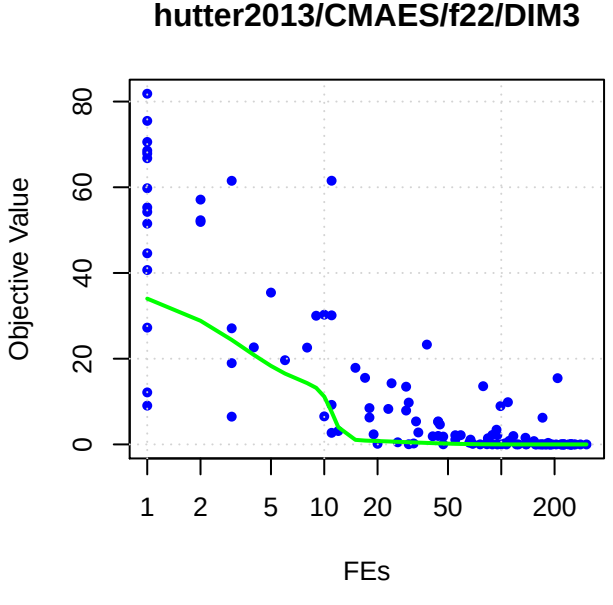
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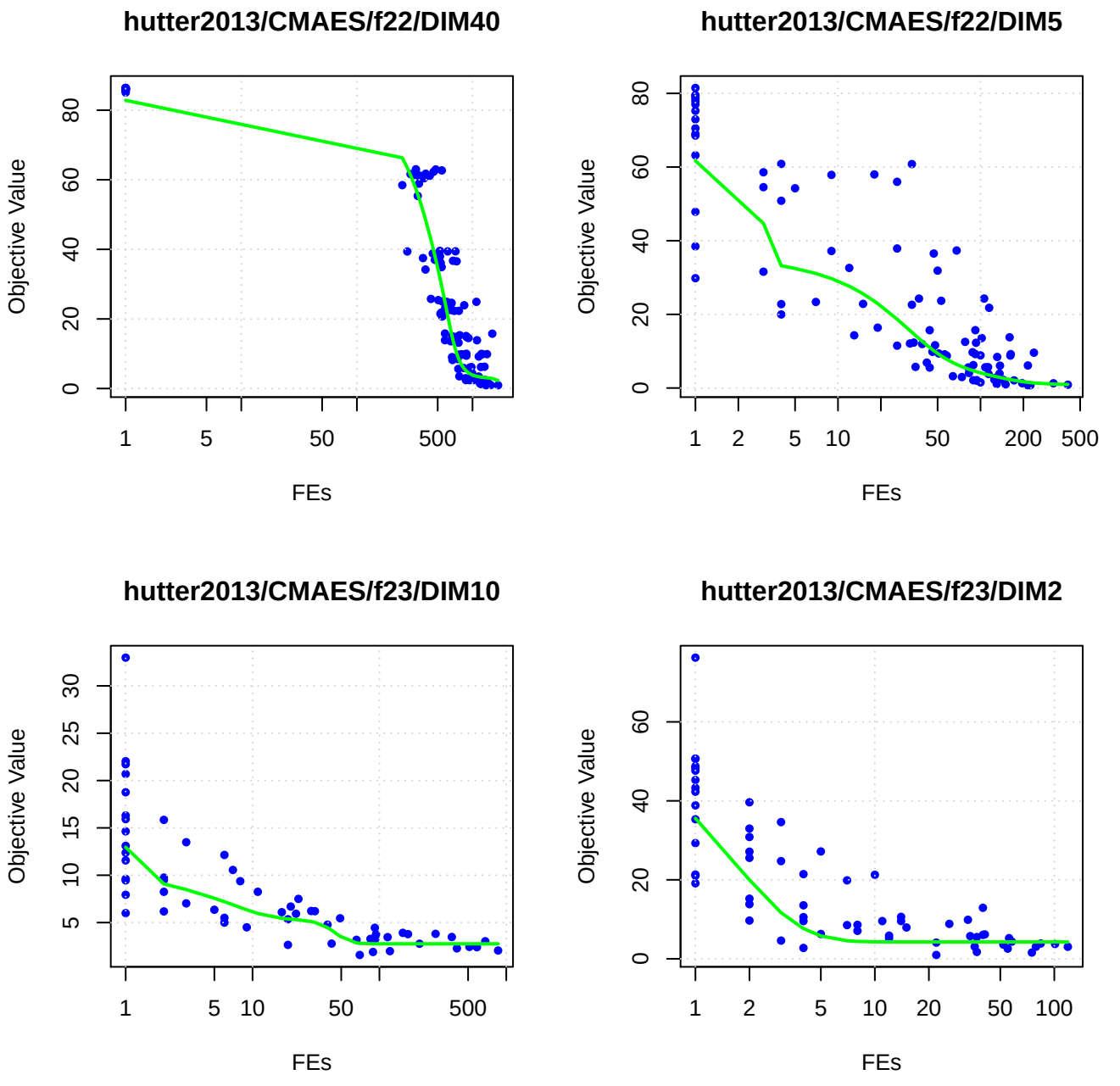
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FEs
hutter2013/CMAES/f23/DIM10
Objective Value
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Objective Value
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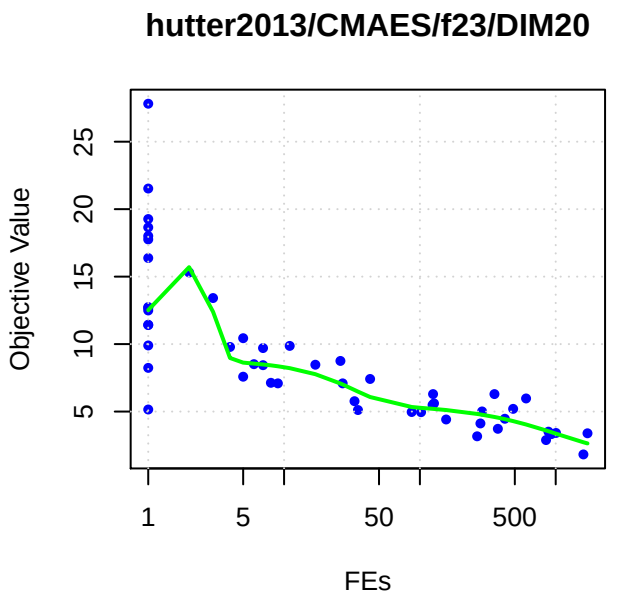
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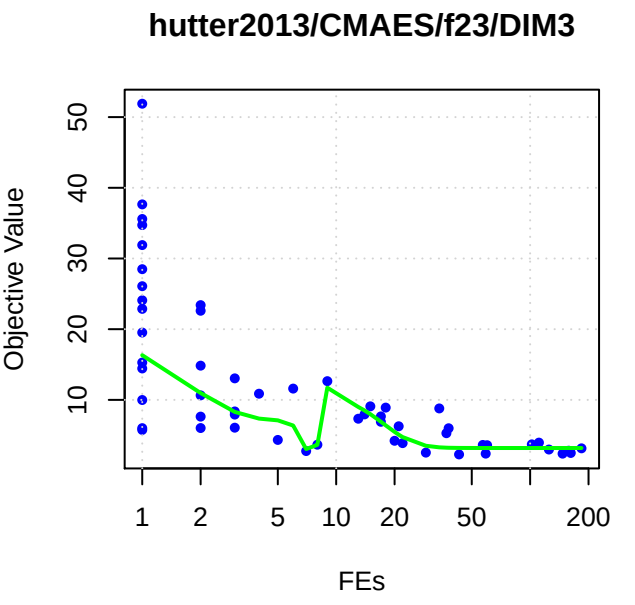
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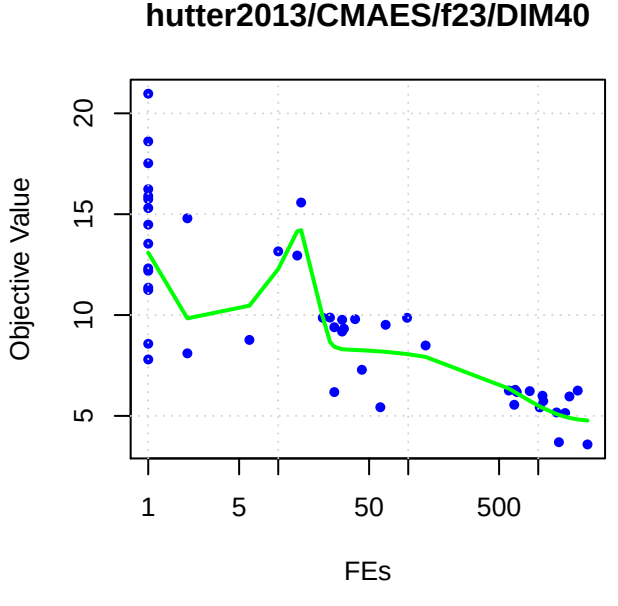
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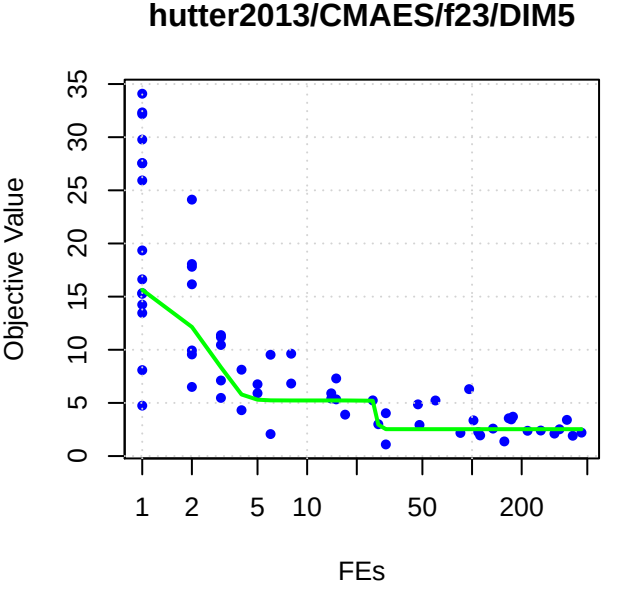
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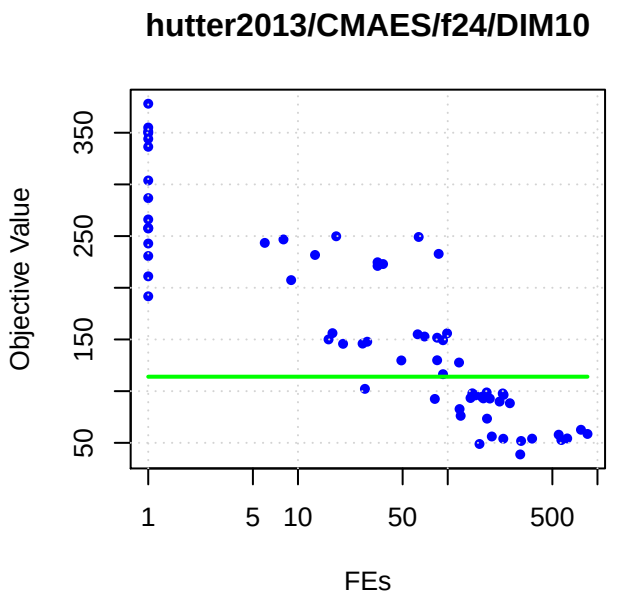
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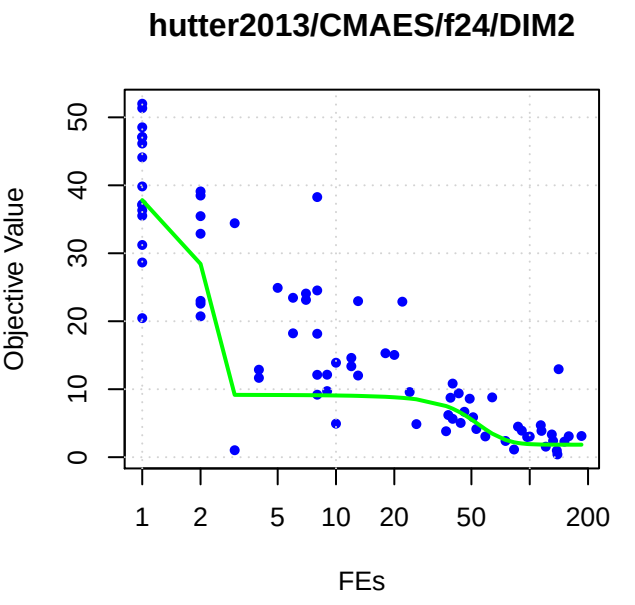
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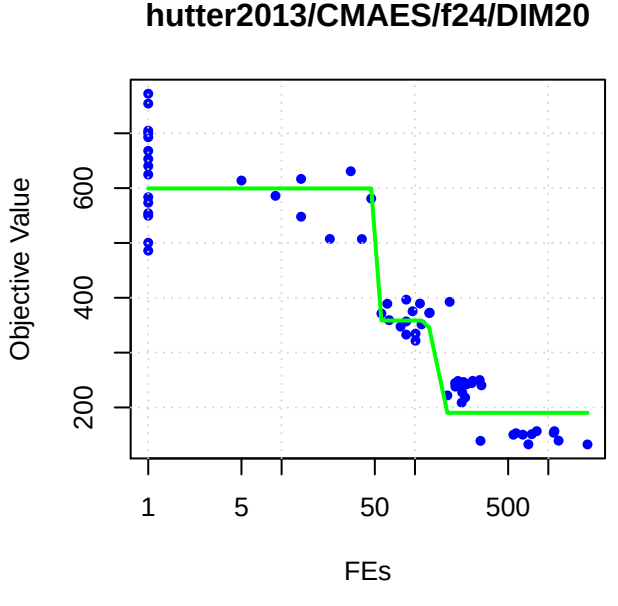
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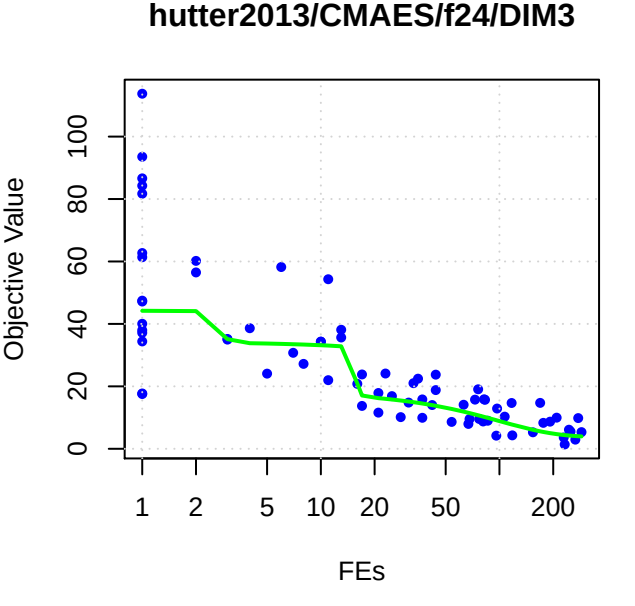
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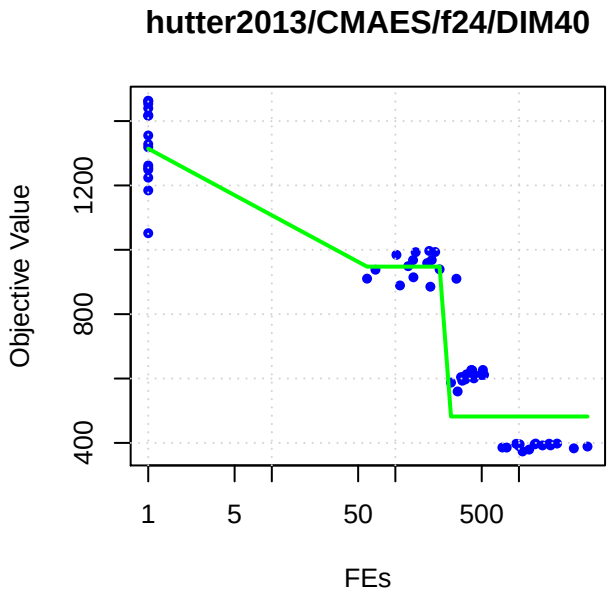
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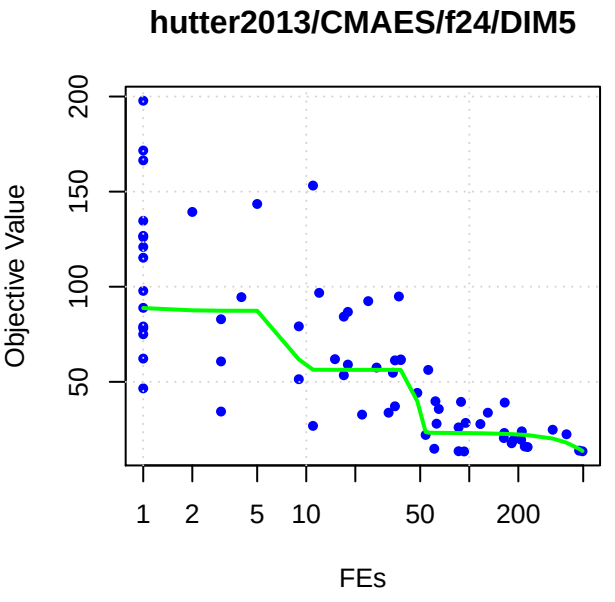
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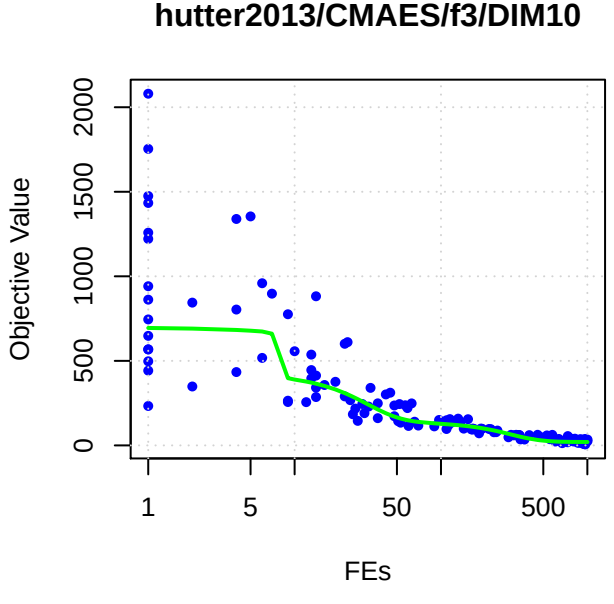
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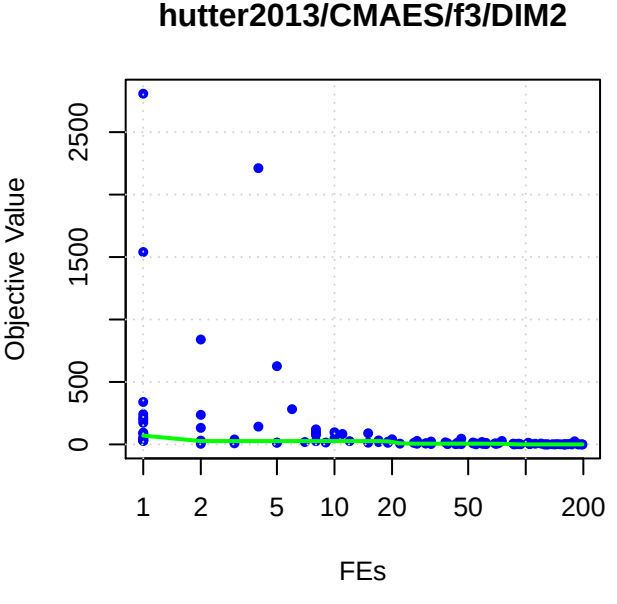
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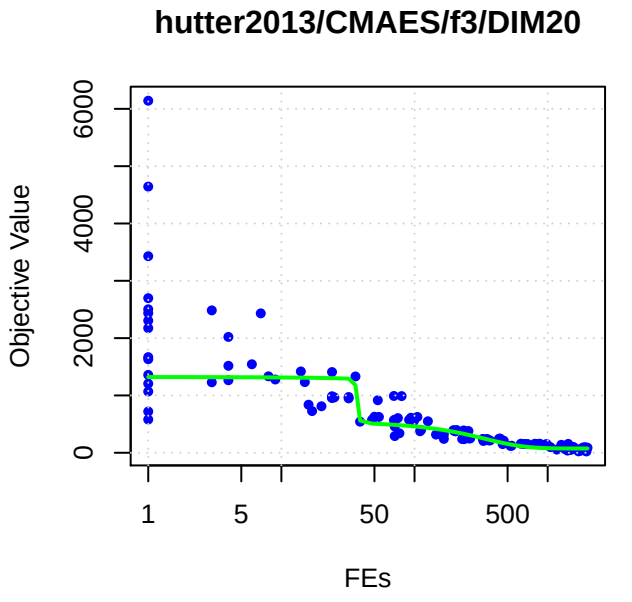
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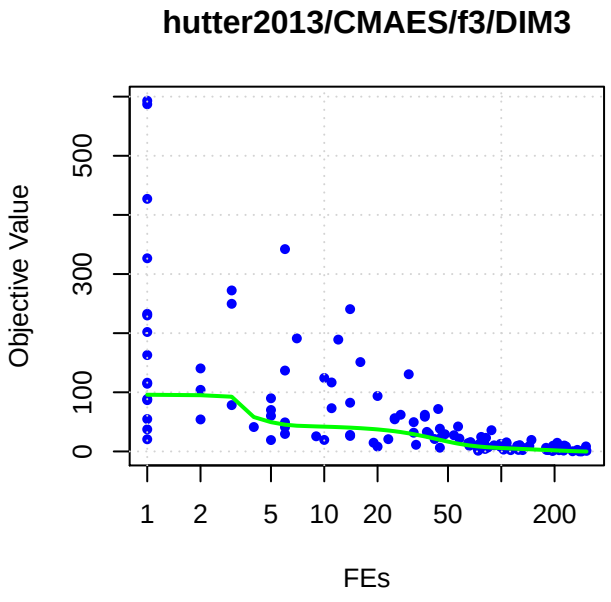
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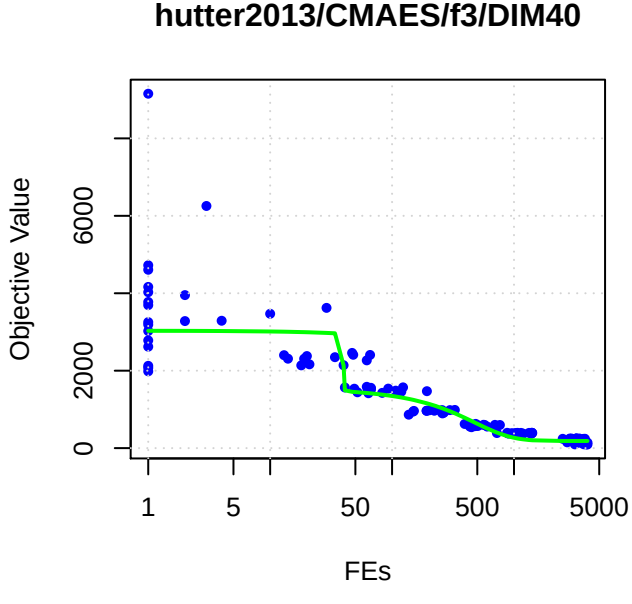
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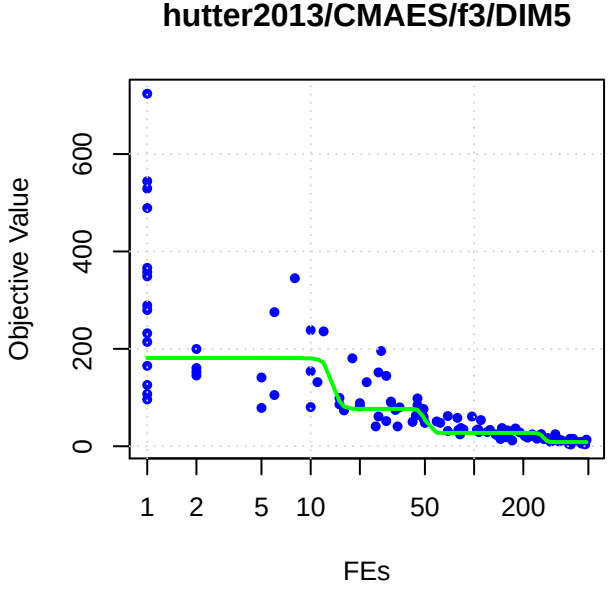
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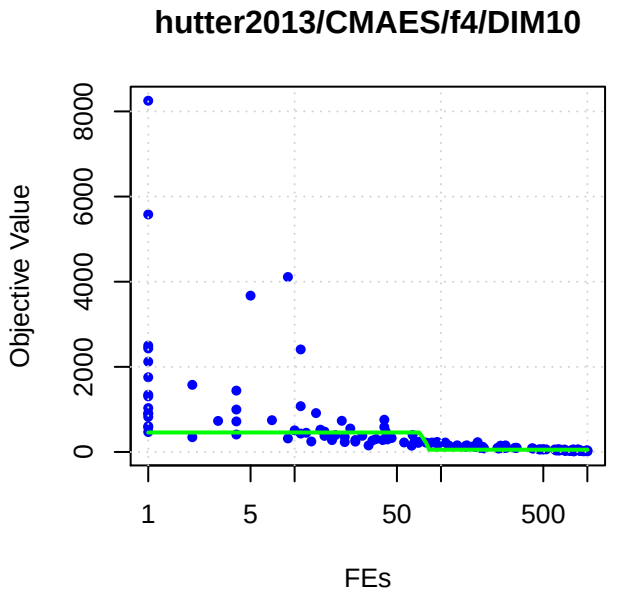
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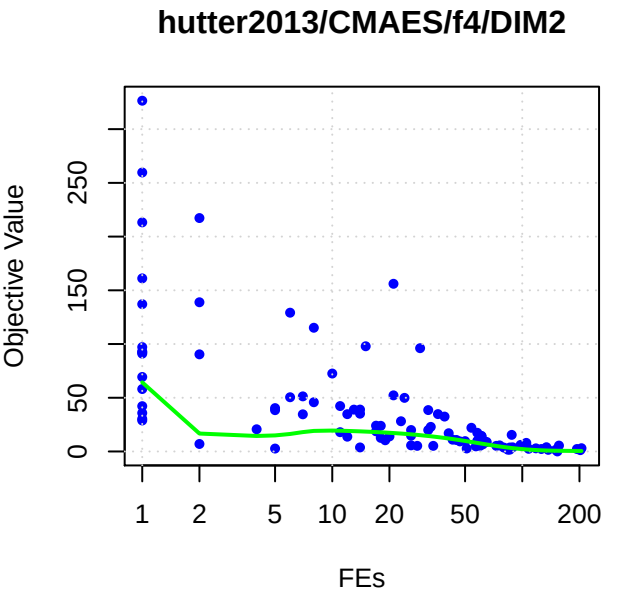
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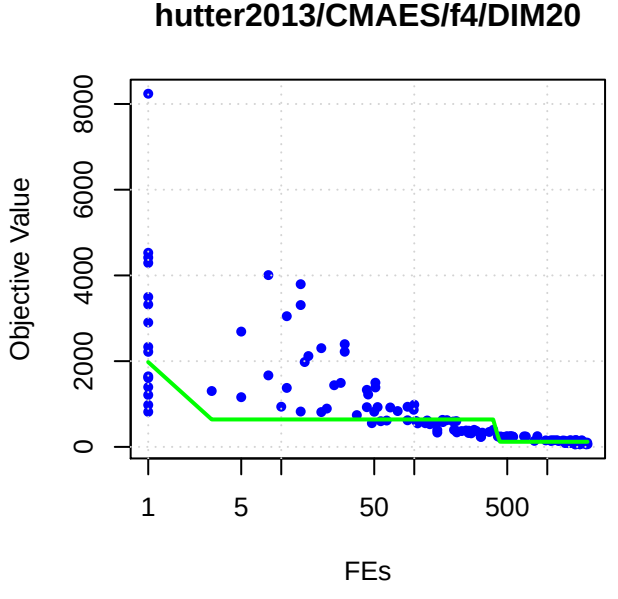
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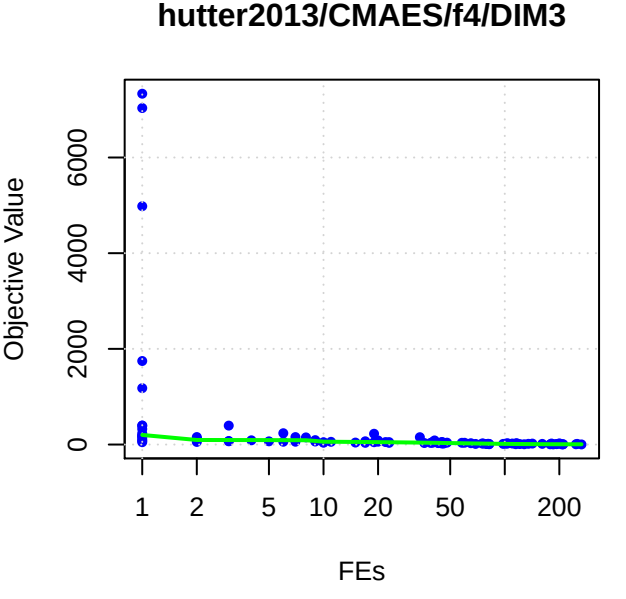
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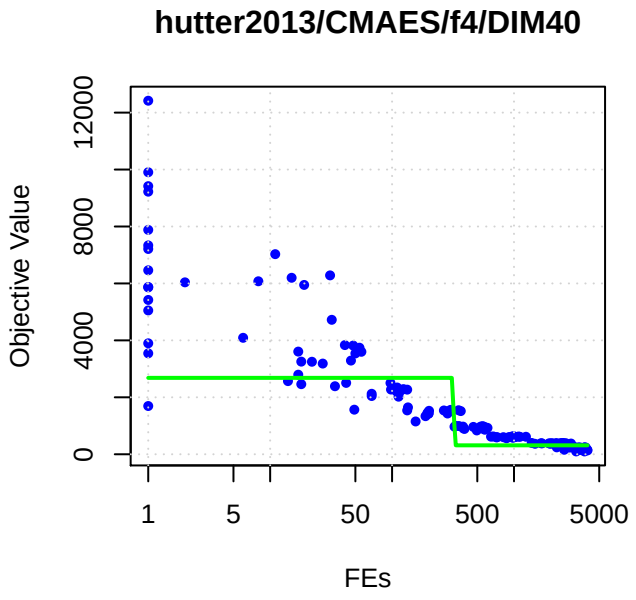
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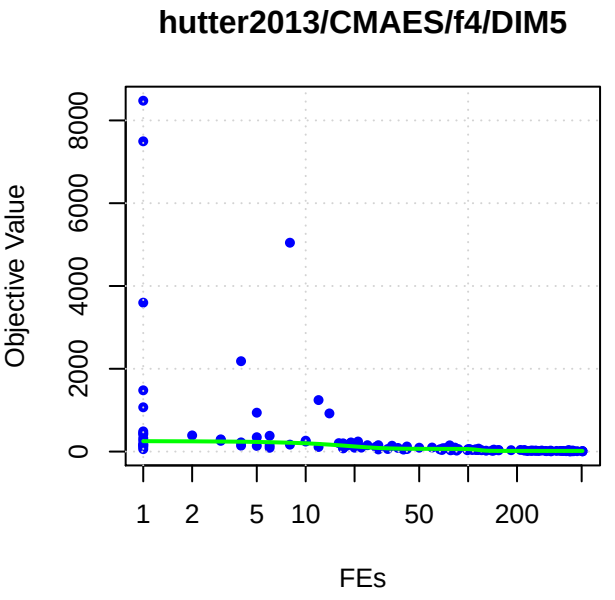
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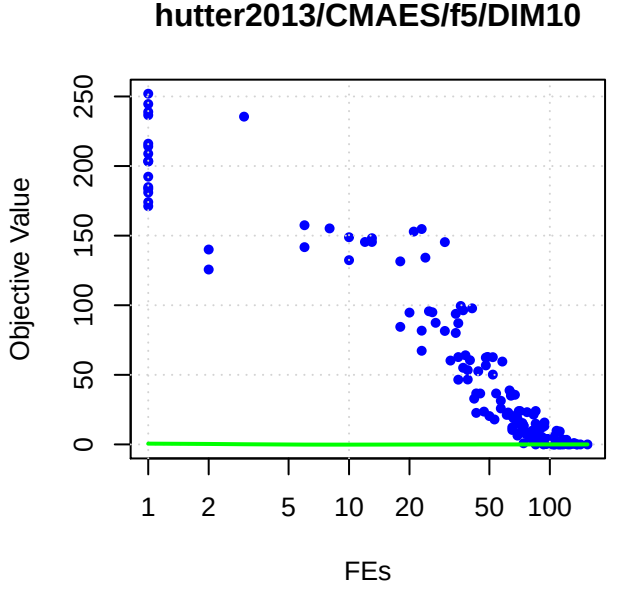
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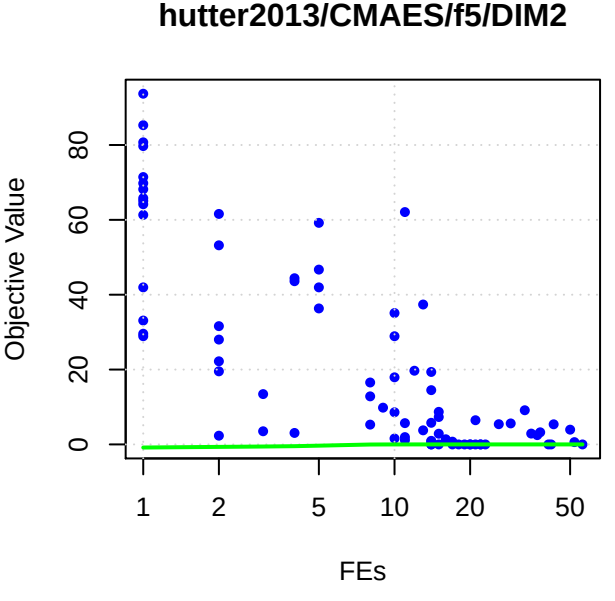
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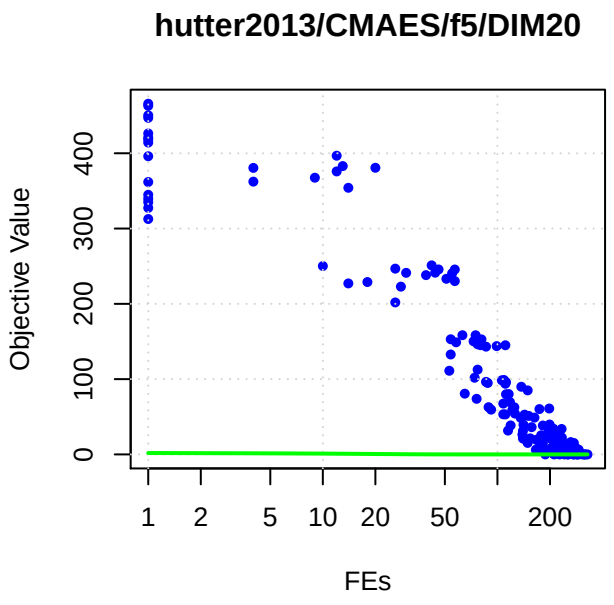
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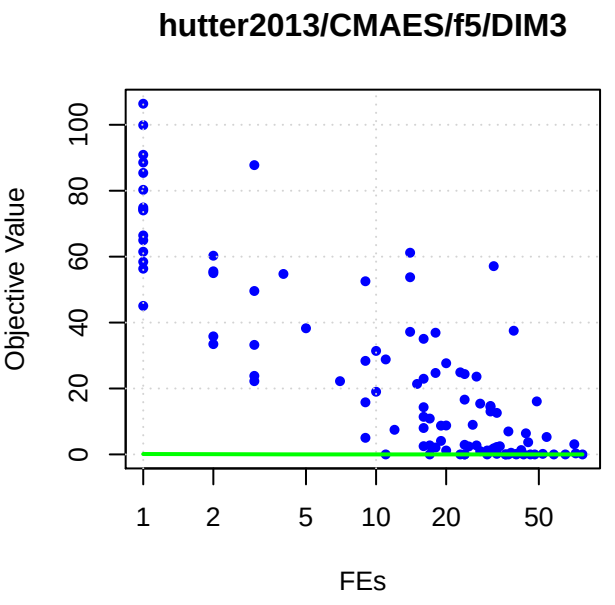
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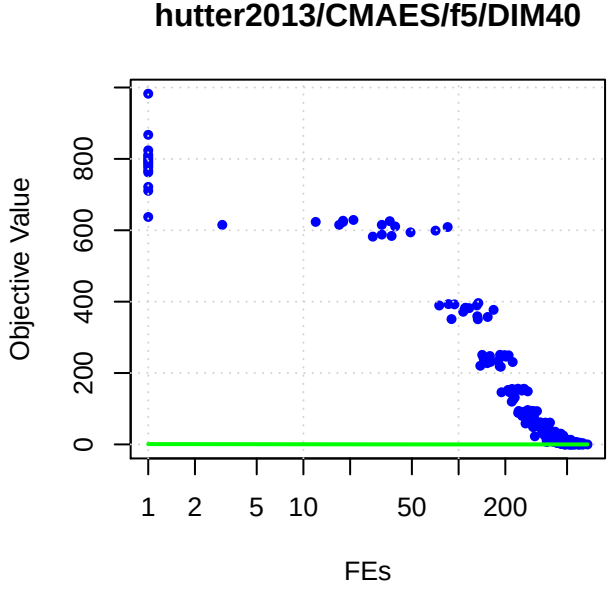
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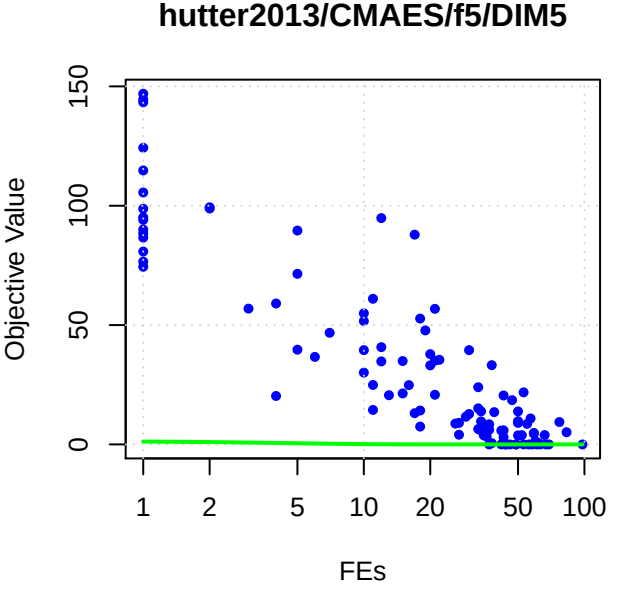
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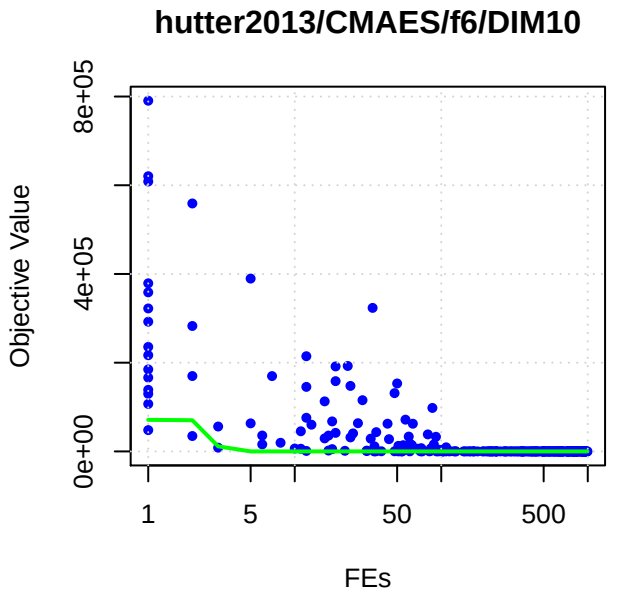
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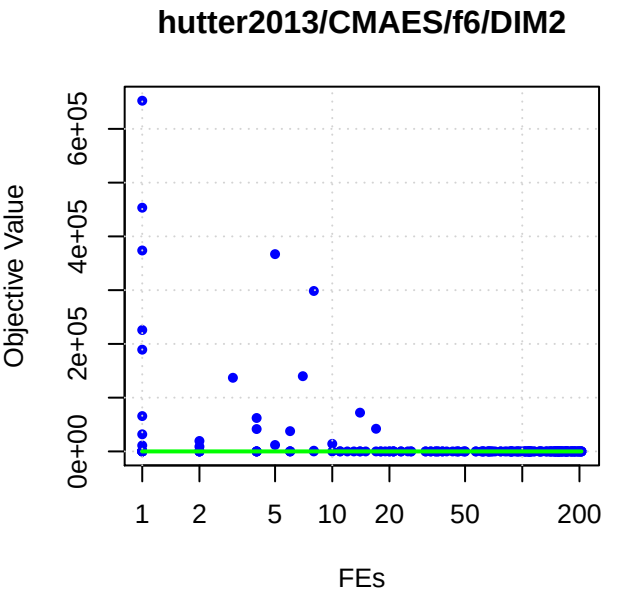
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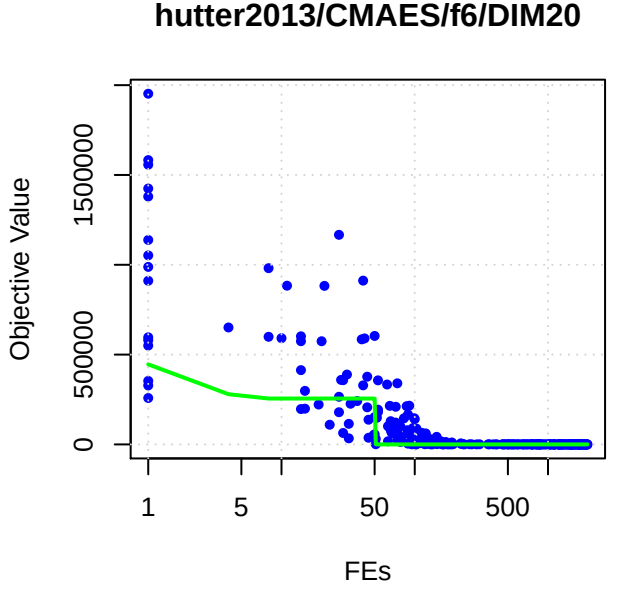
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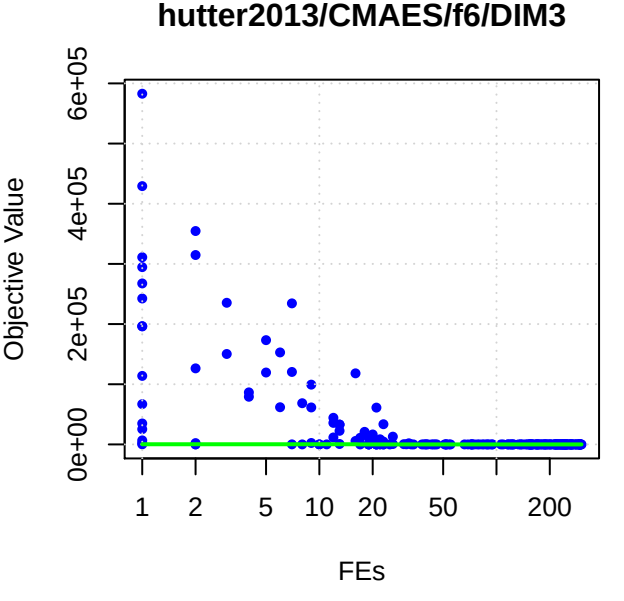
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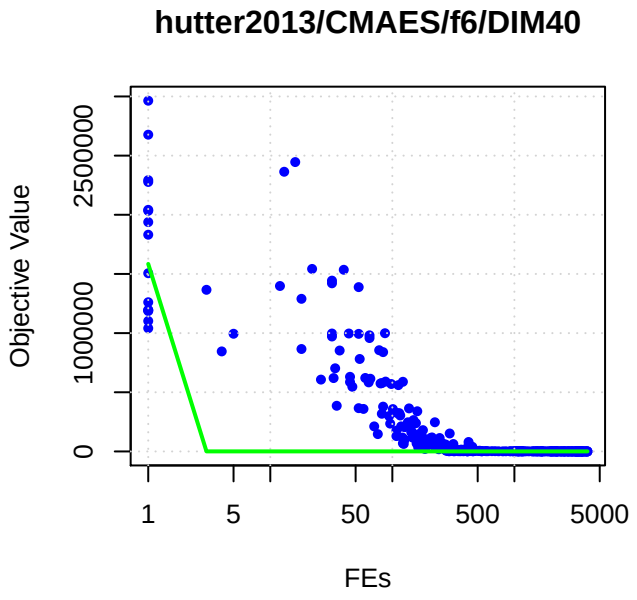
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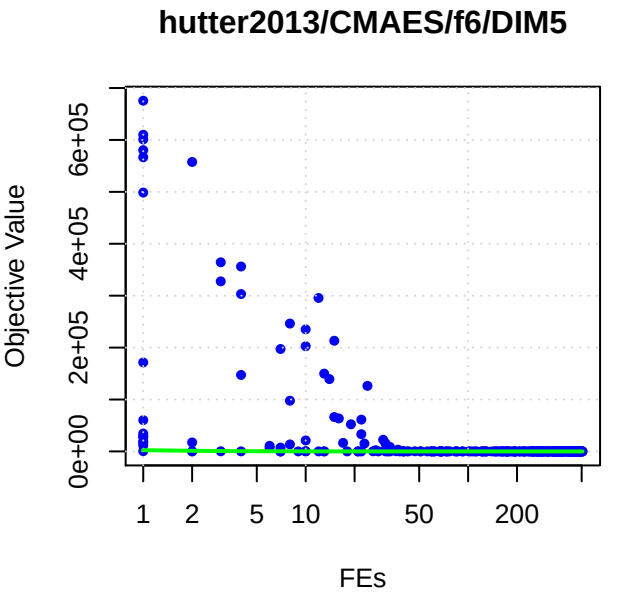
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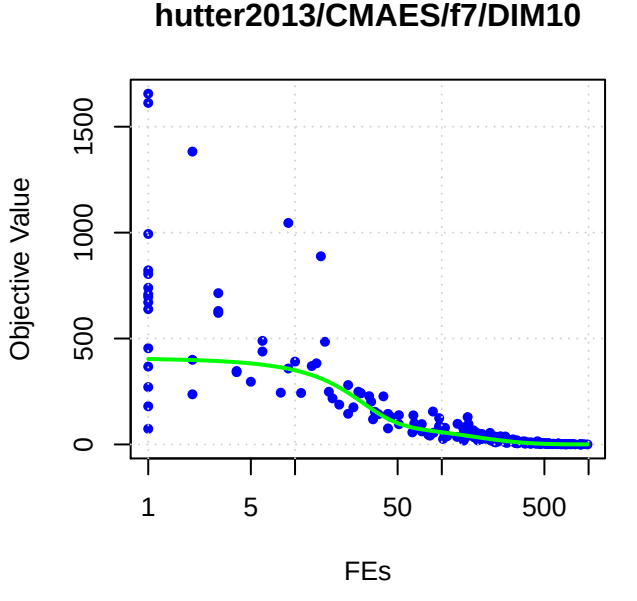
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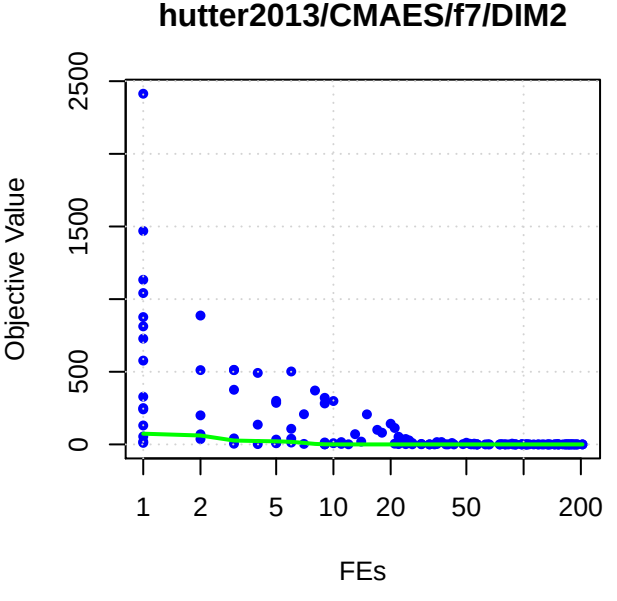
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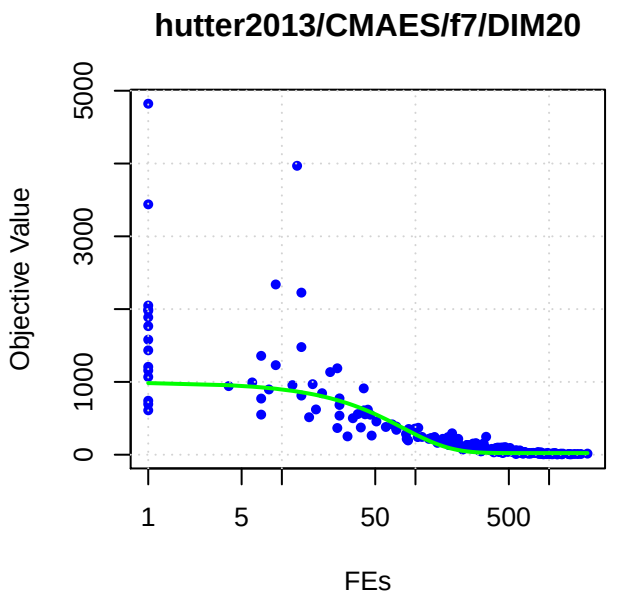
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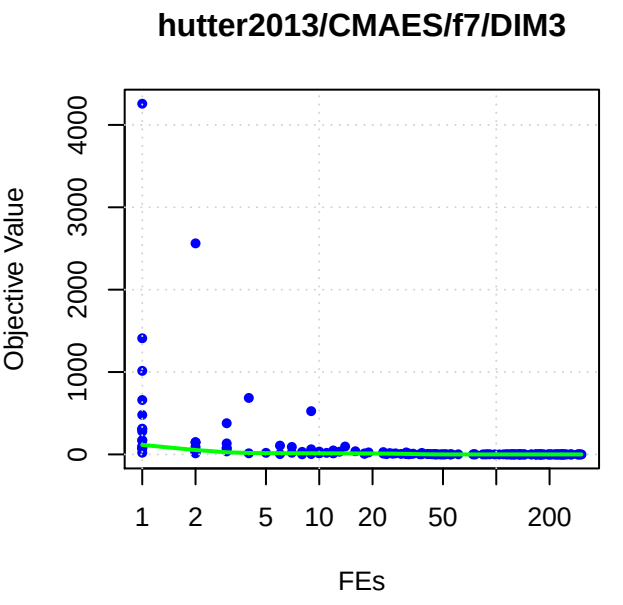
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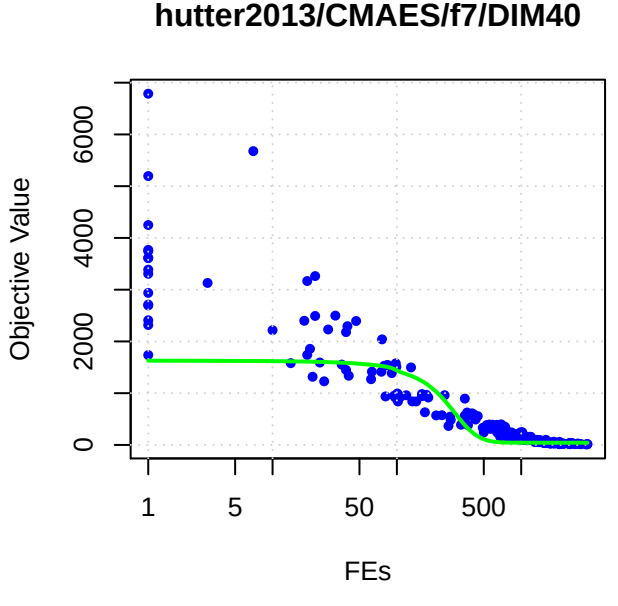
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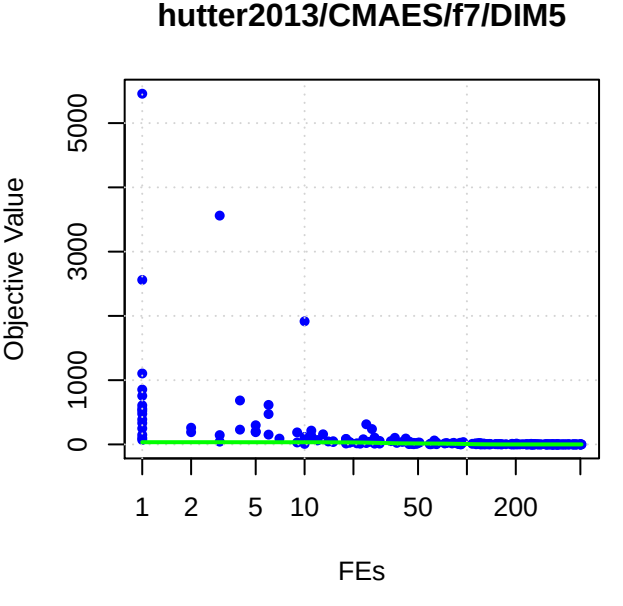
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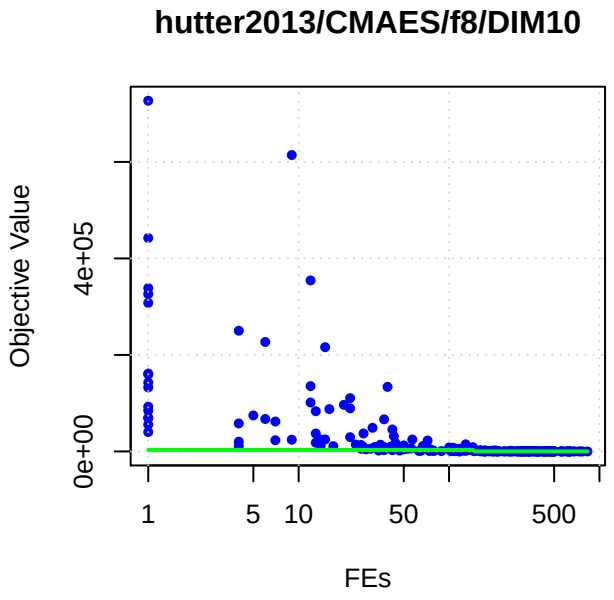
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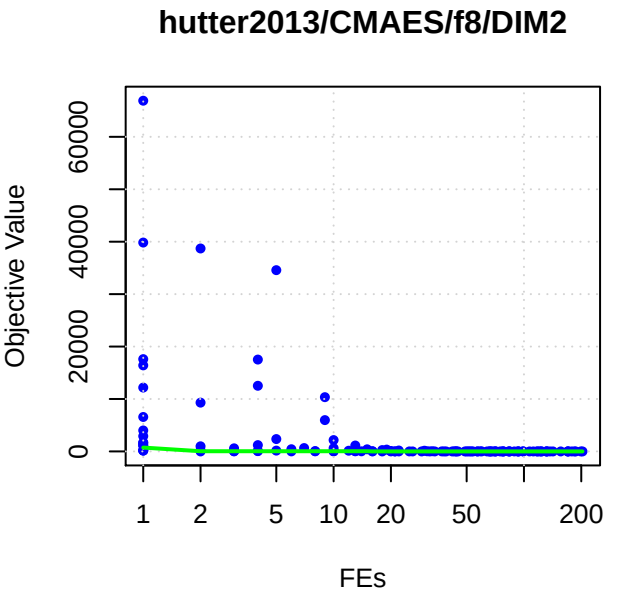
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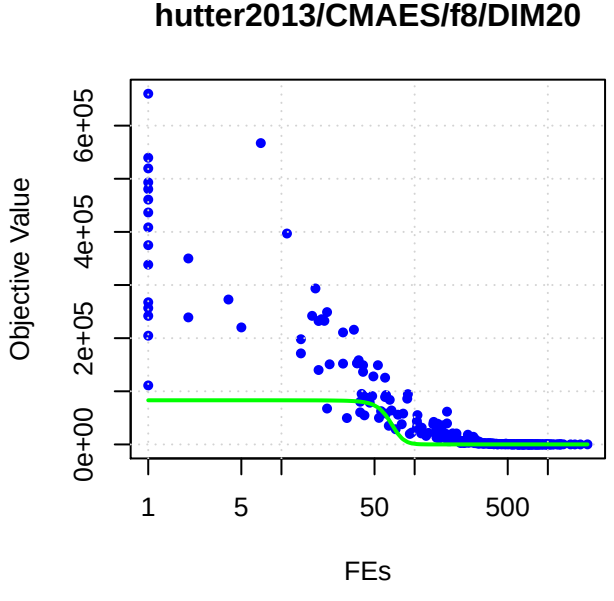
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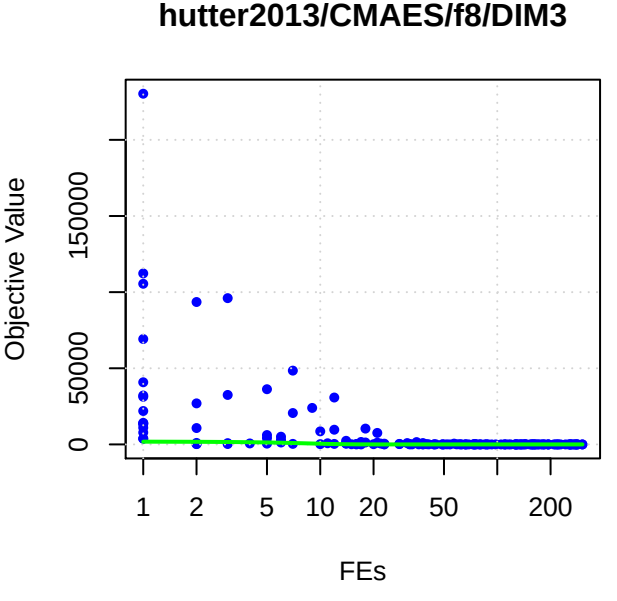
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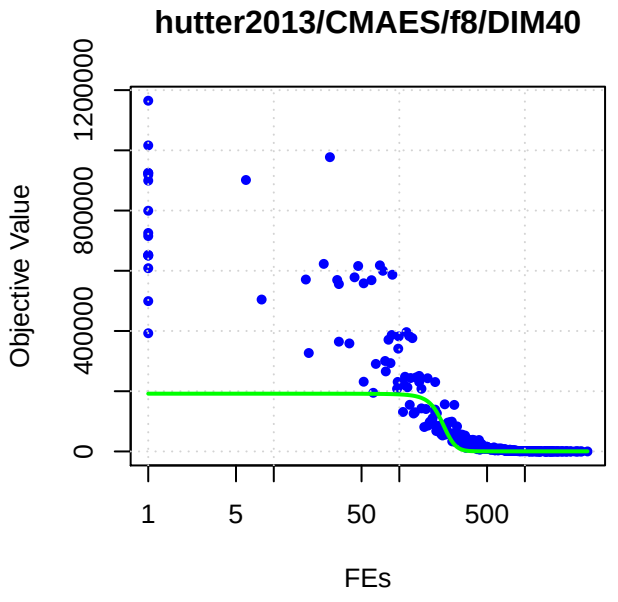
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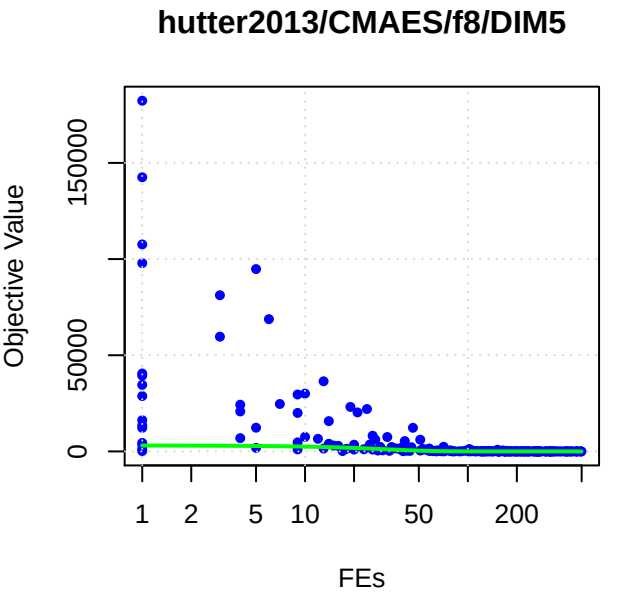
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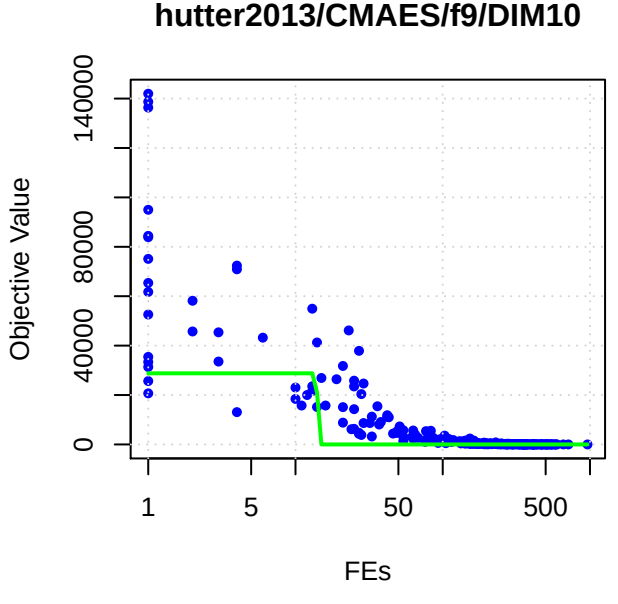
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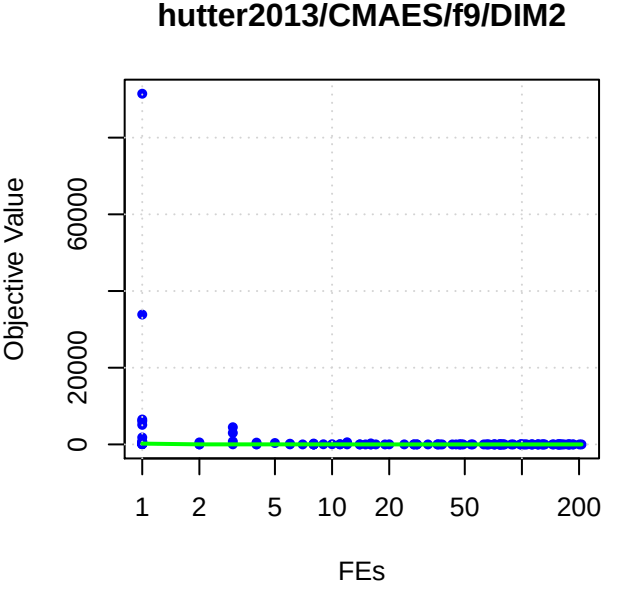
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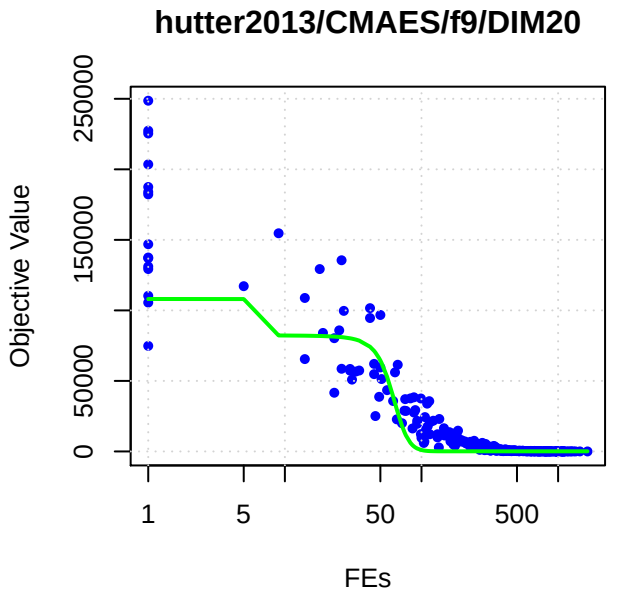
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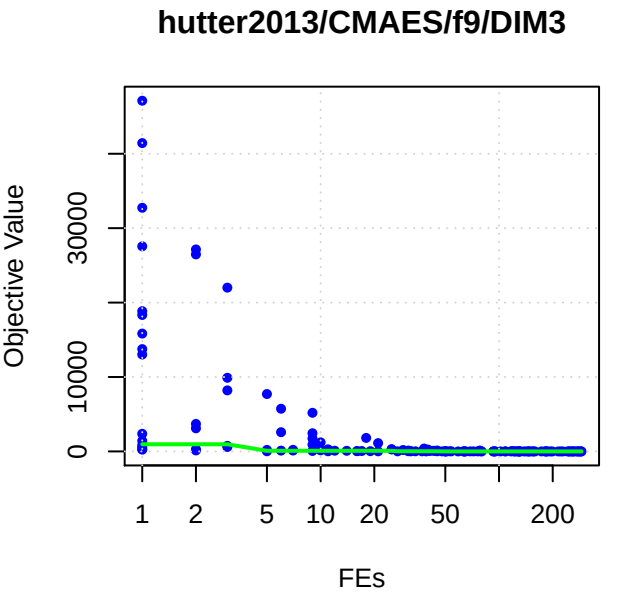
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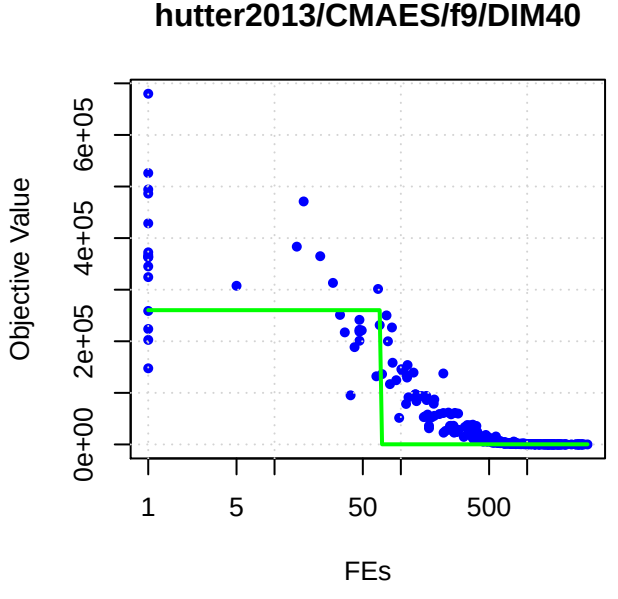
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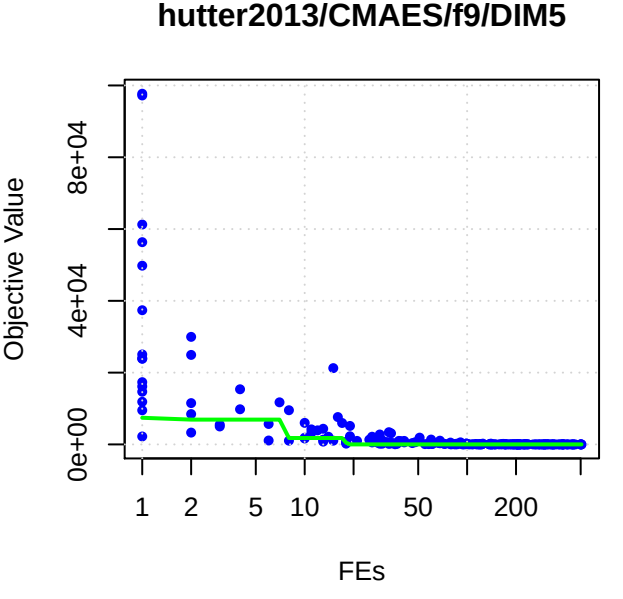
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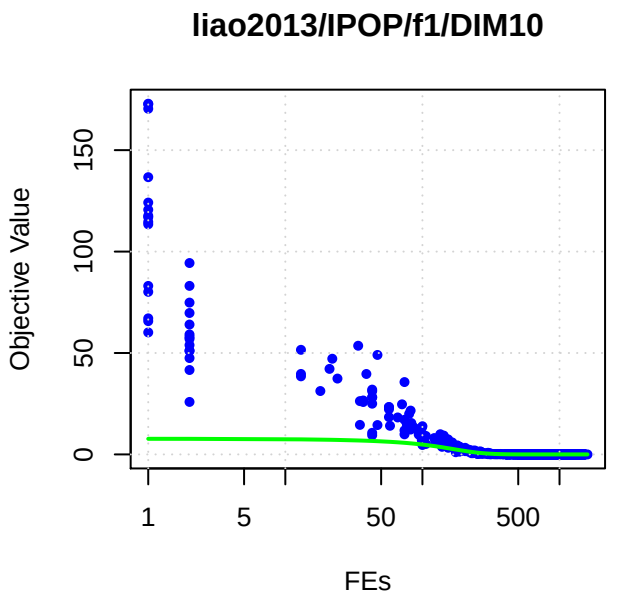
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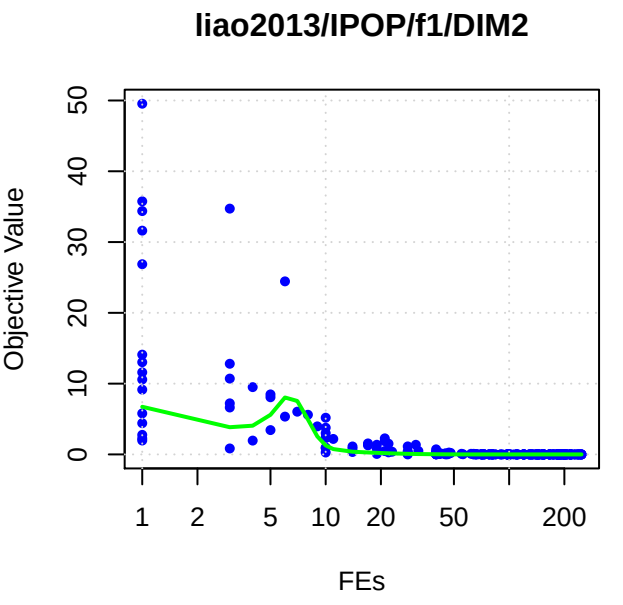
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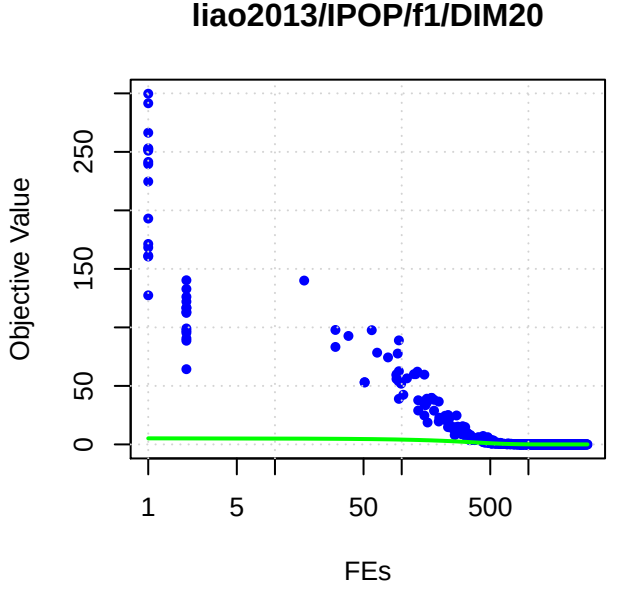
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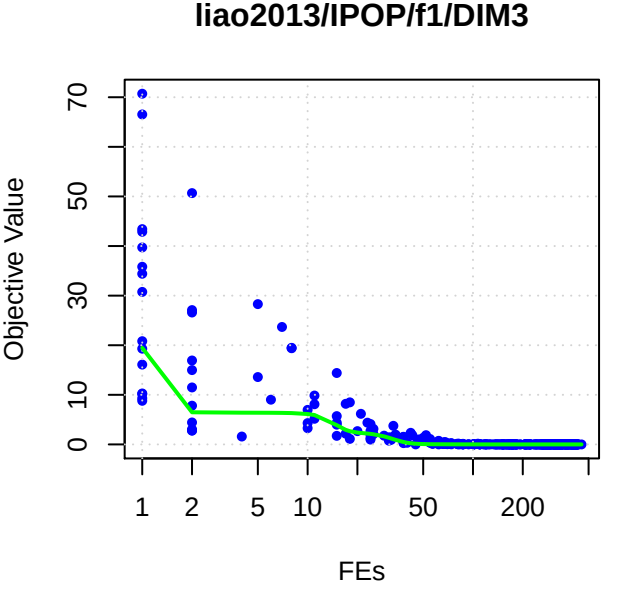
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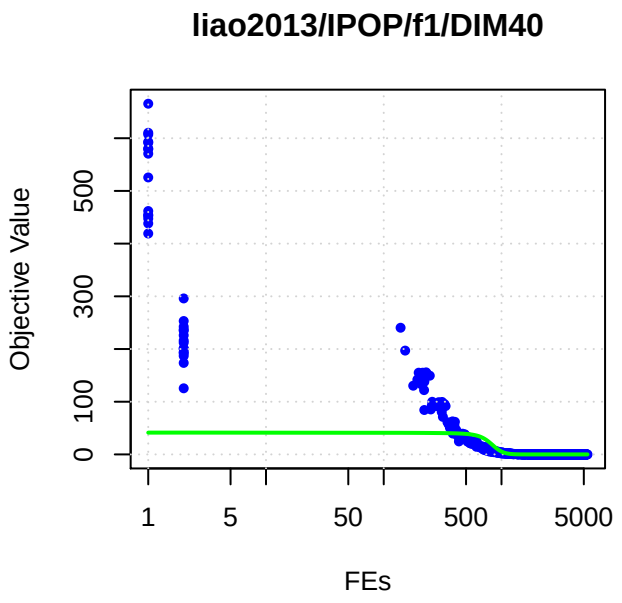
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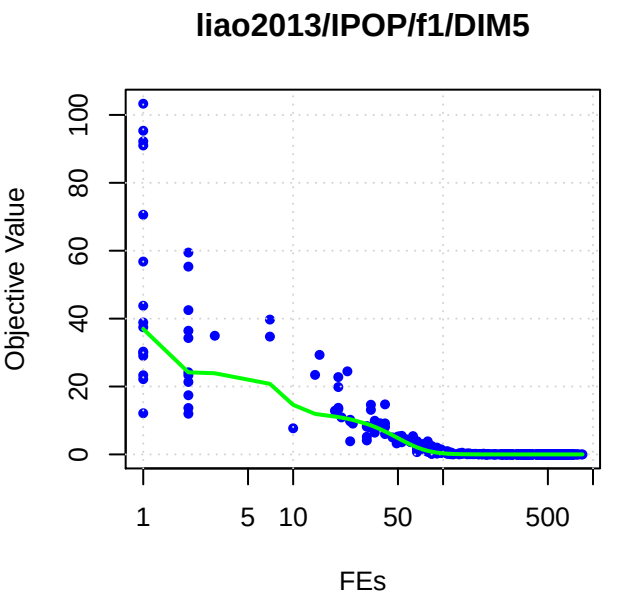
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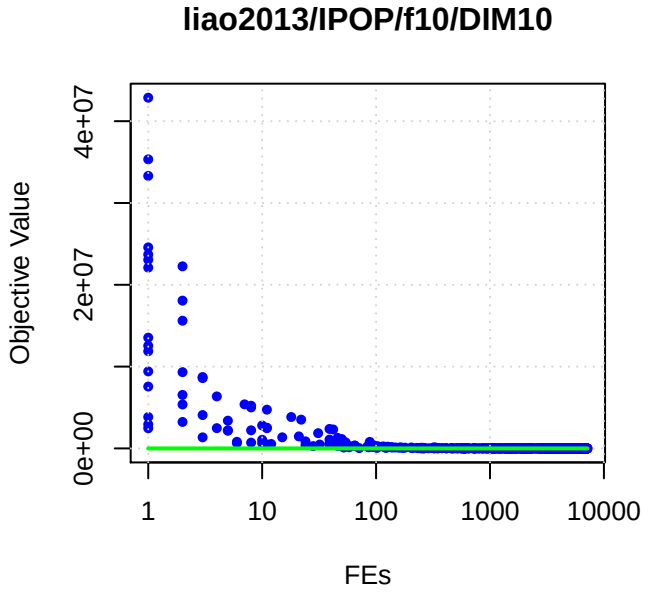
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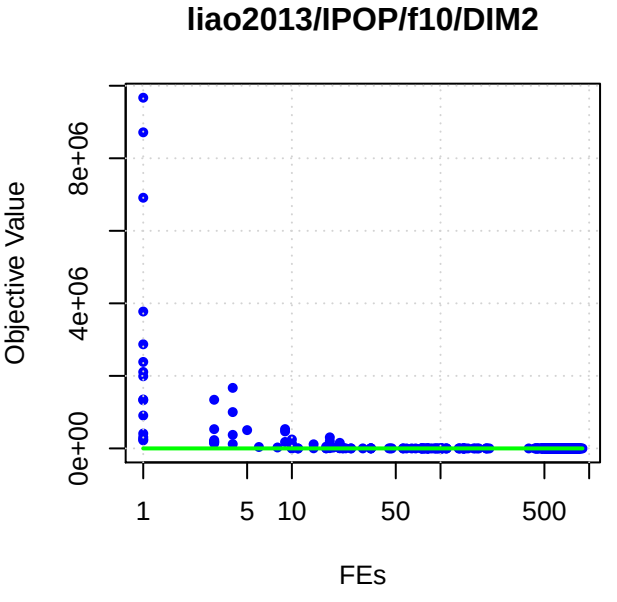
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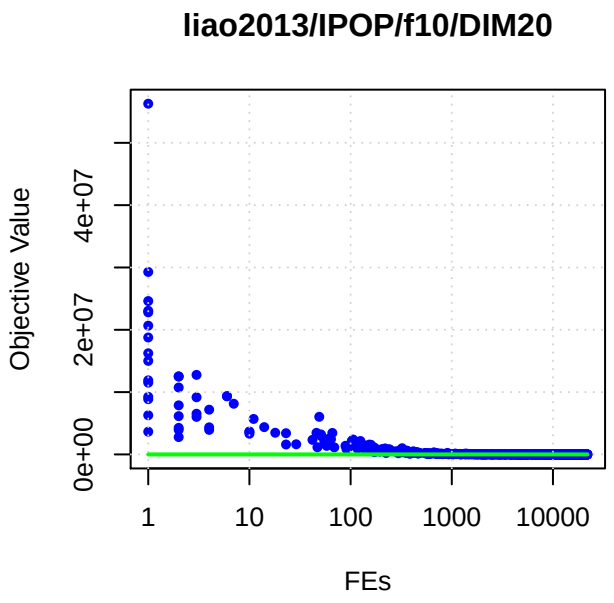
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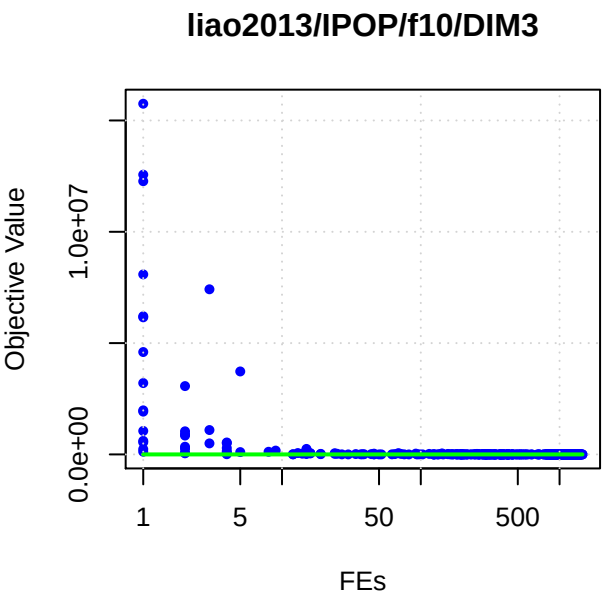
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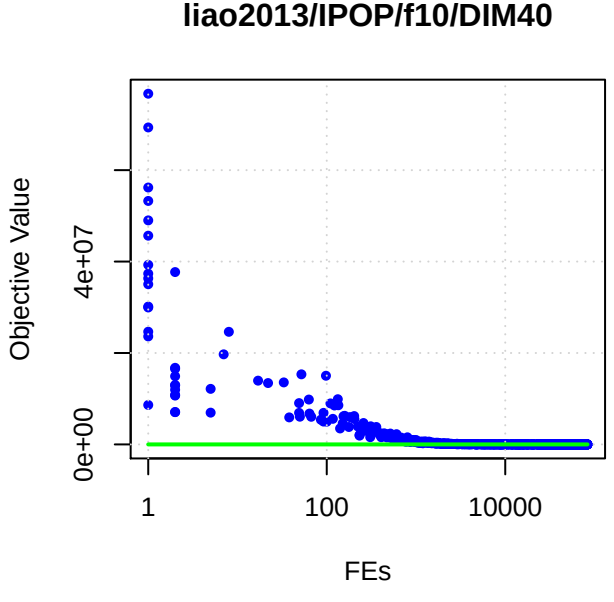
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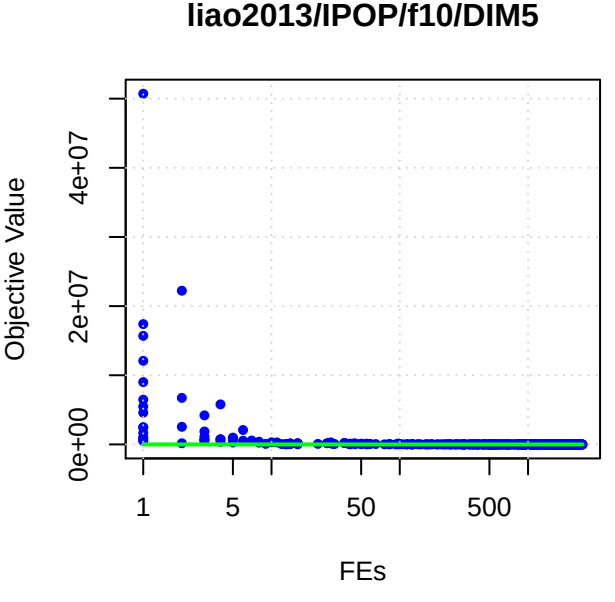
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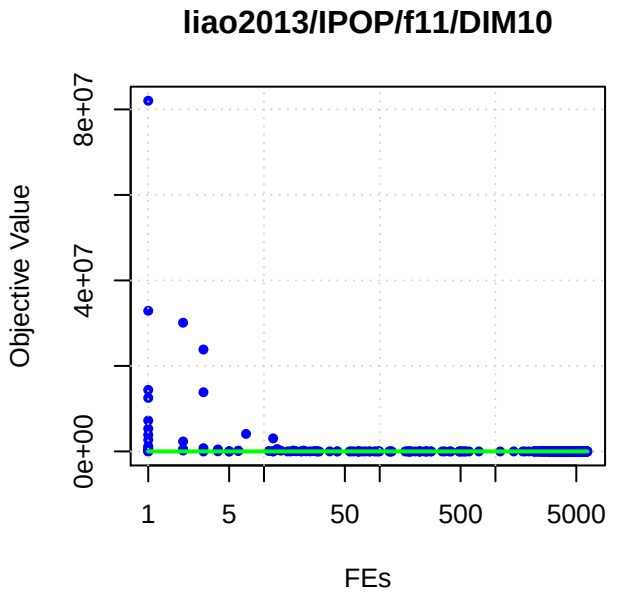
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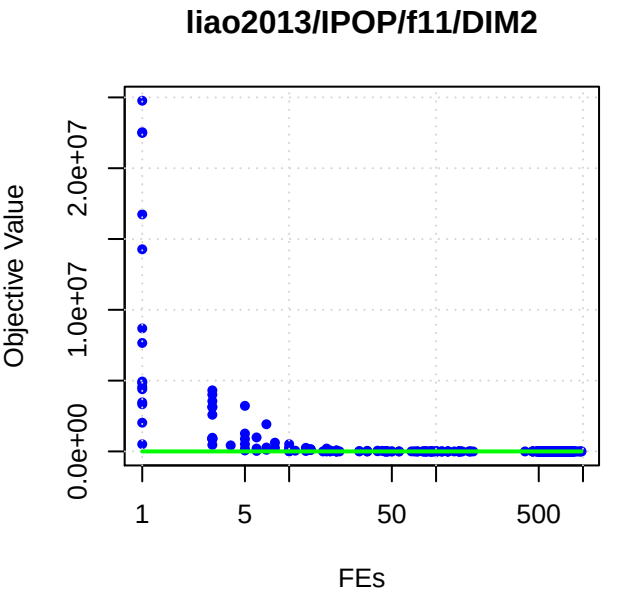
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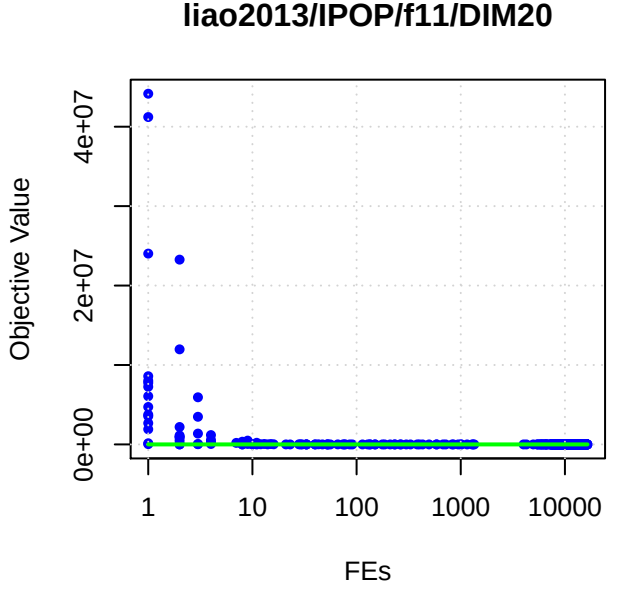
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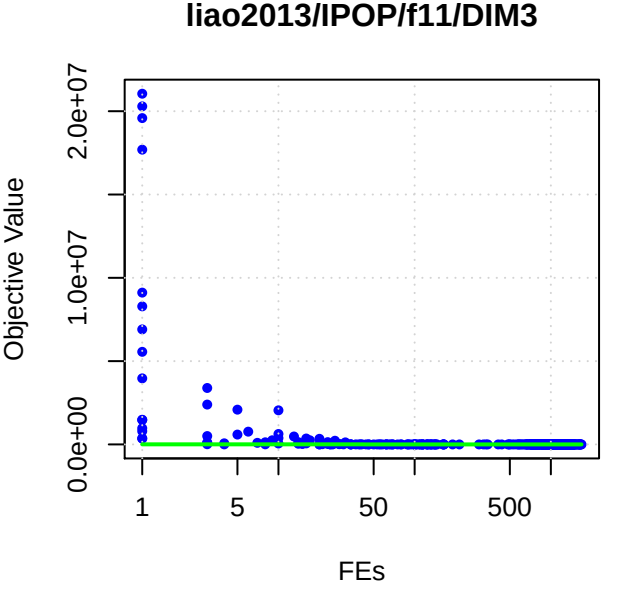
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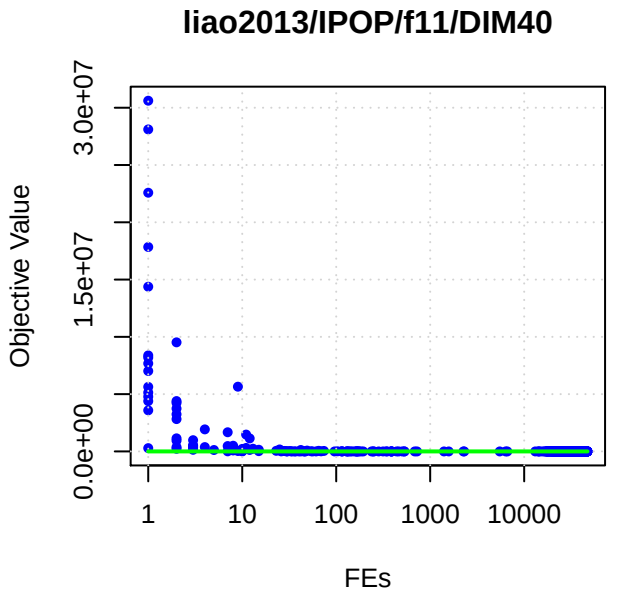
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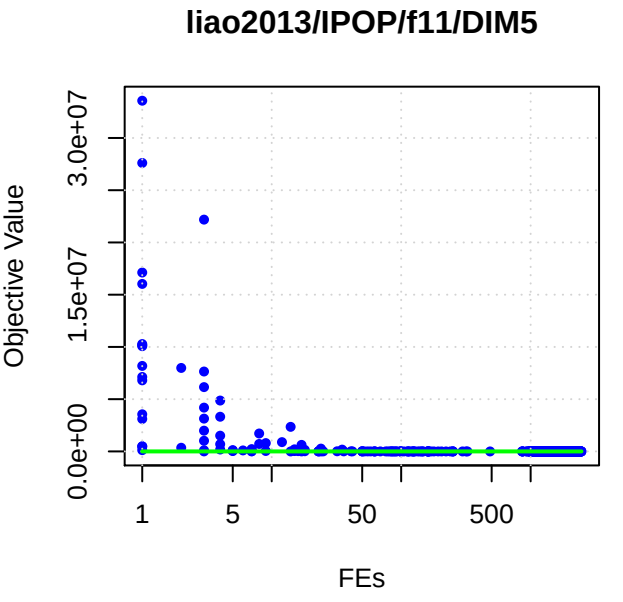
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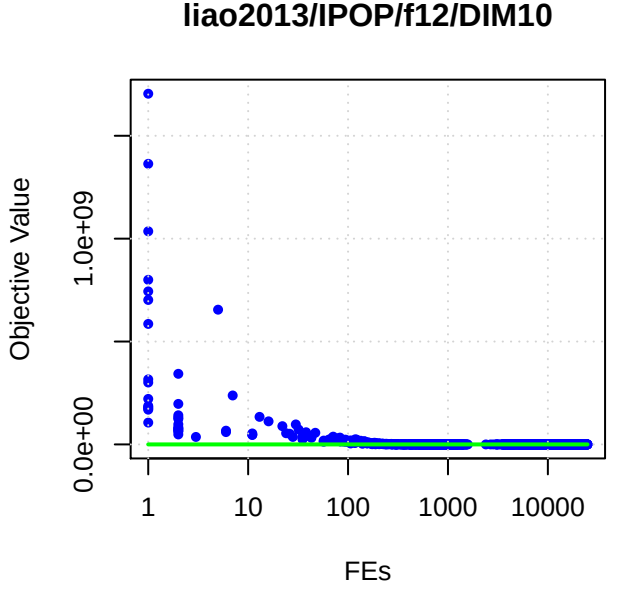
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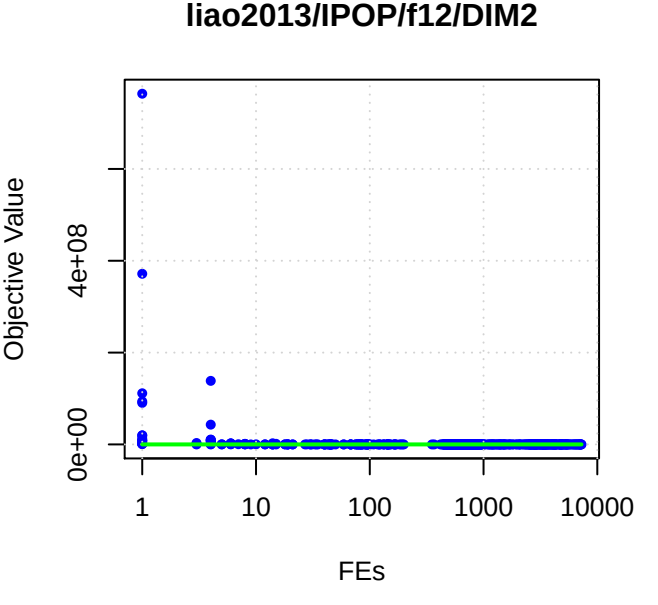
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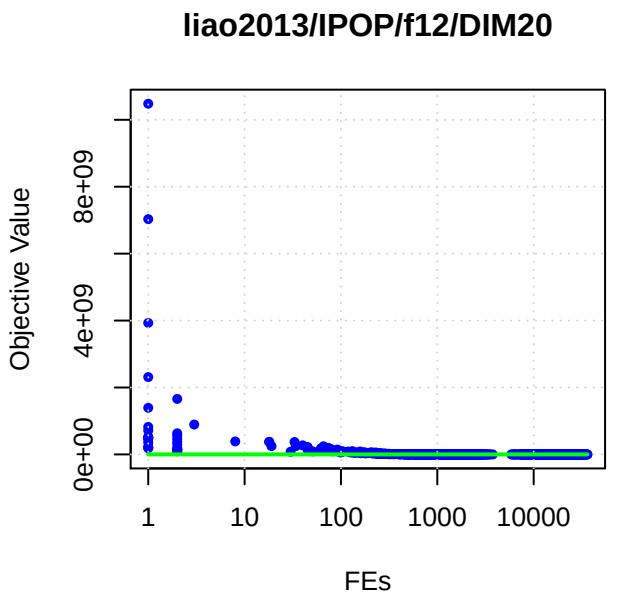
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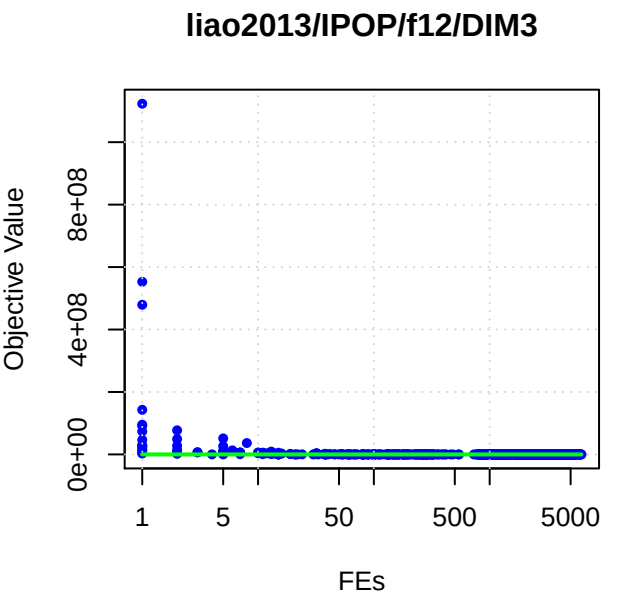
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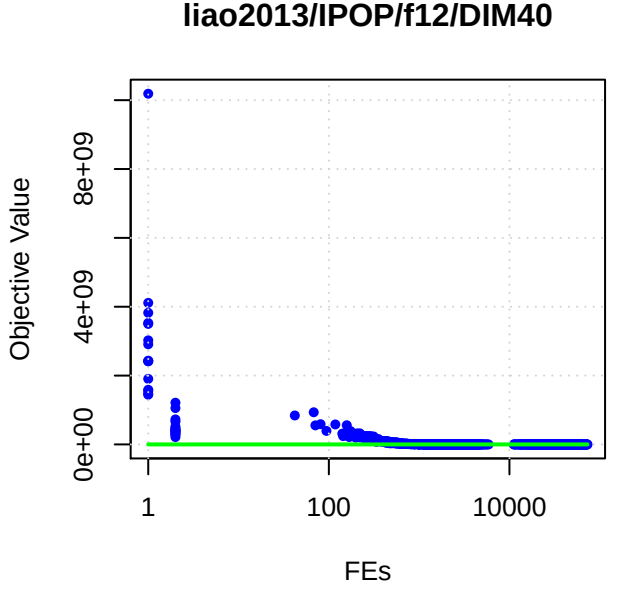
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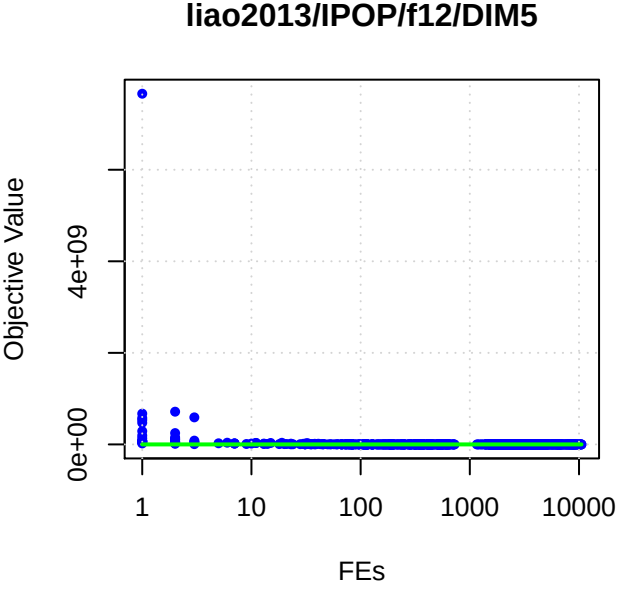
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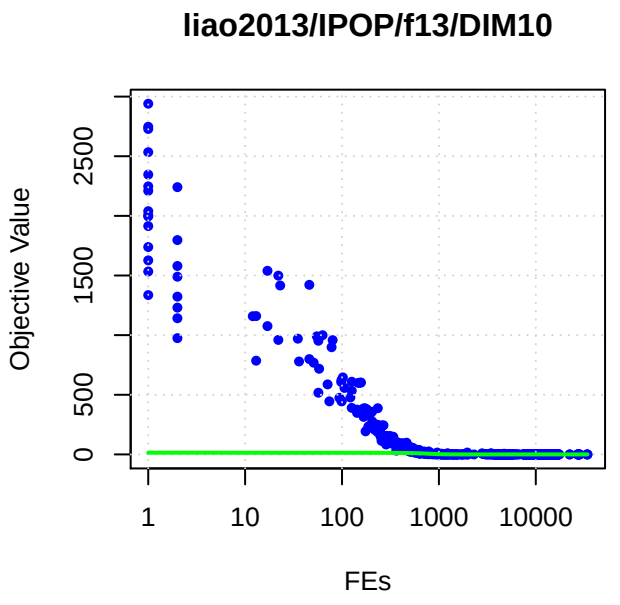
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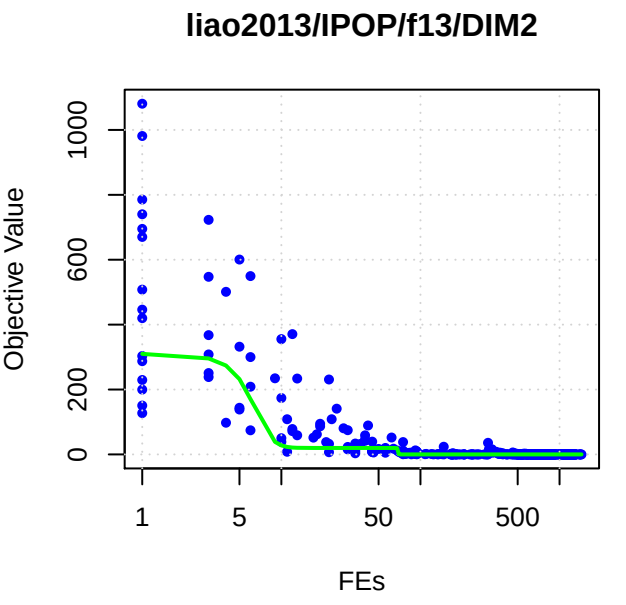
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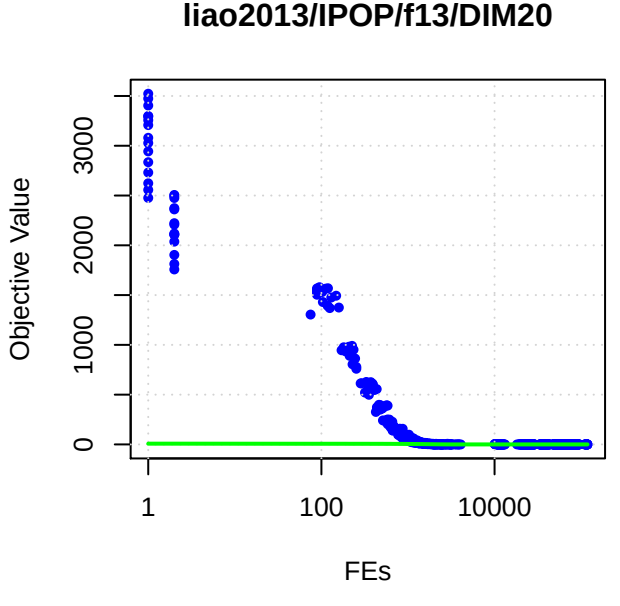
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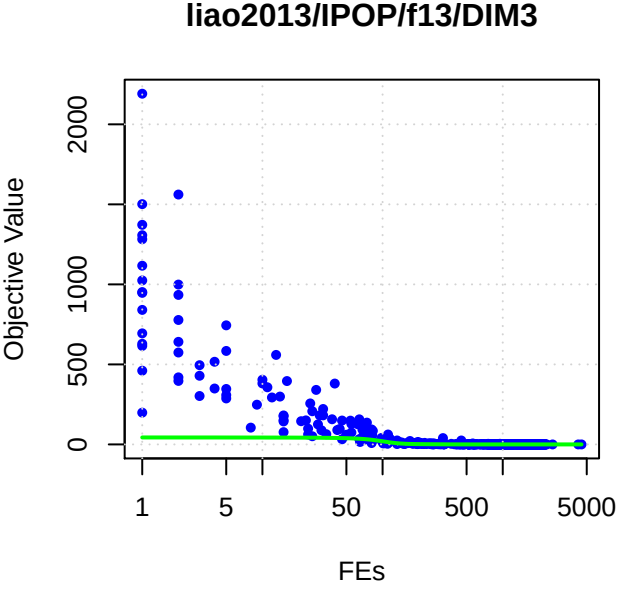
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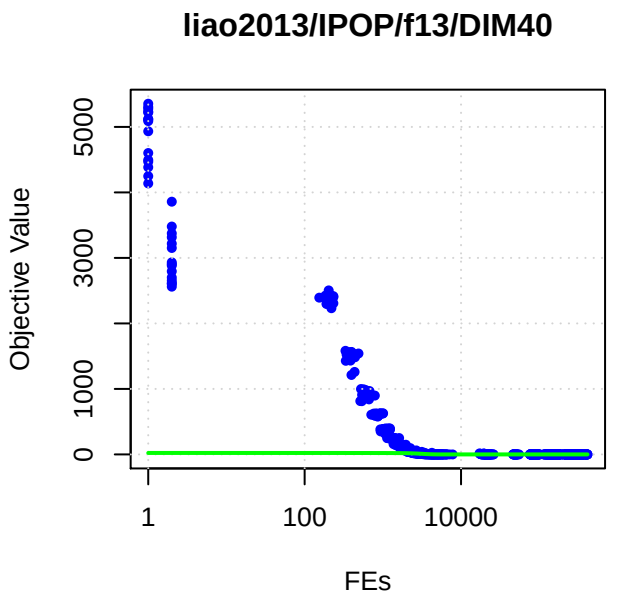
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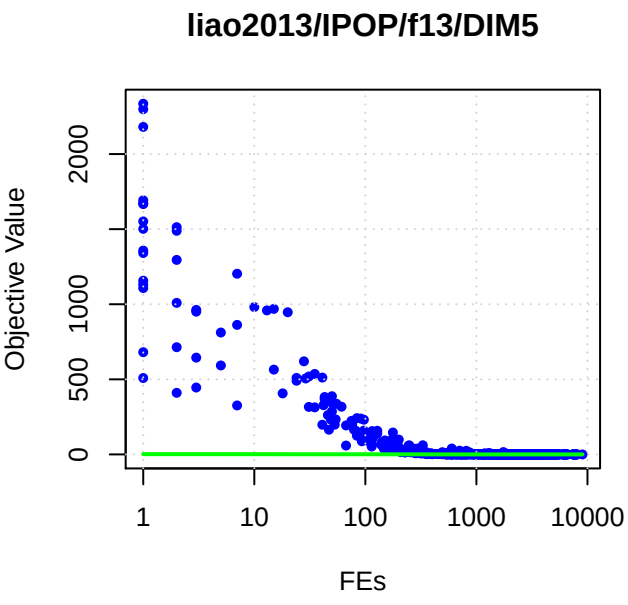
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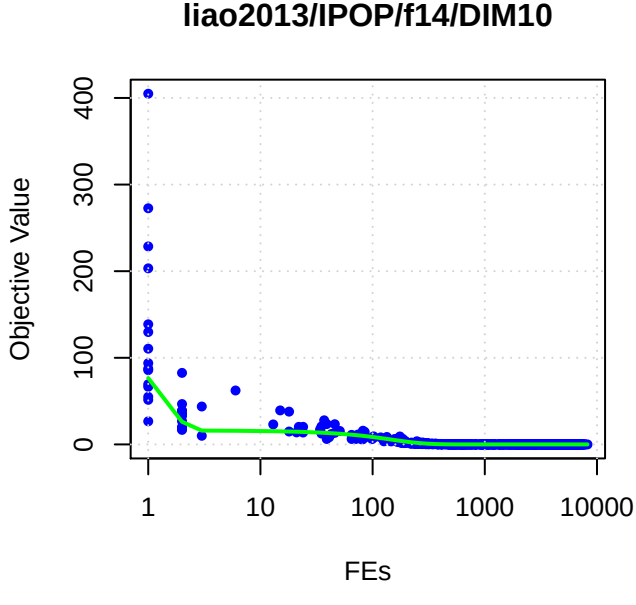
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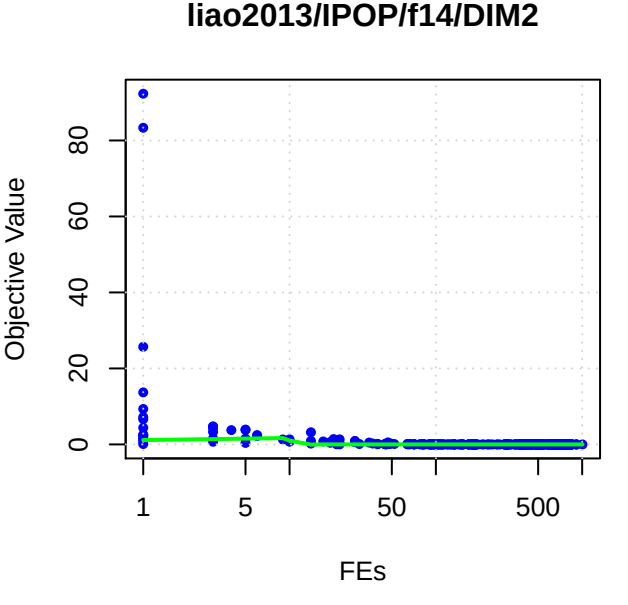
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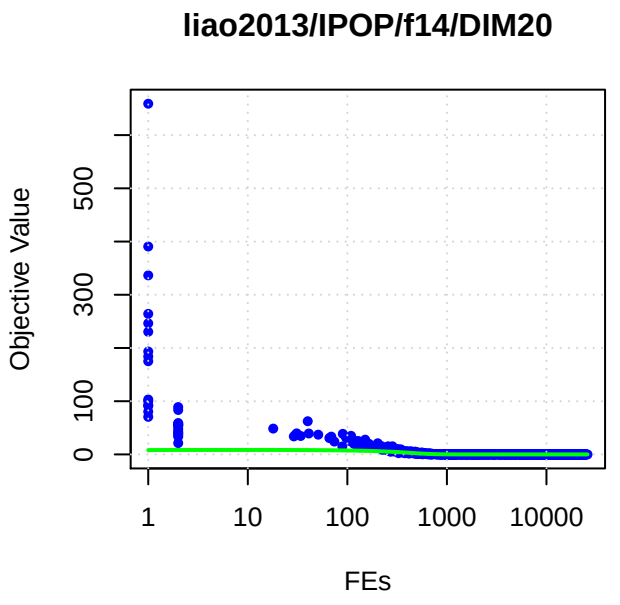
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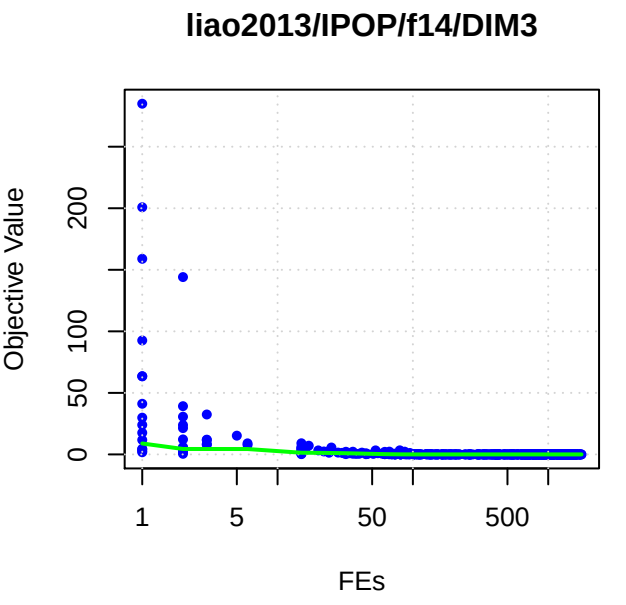
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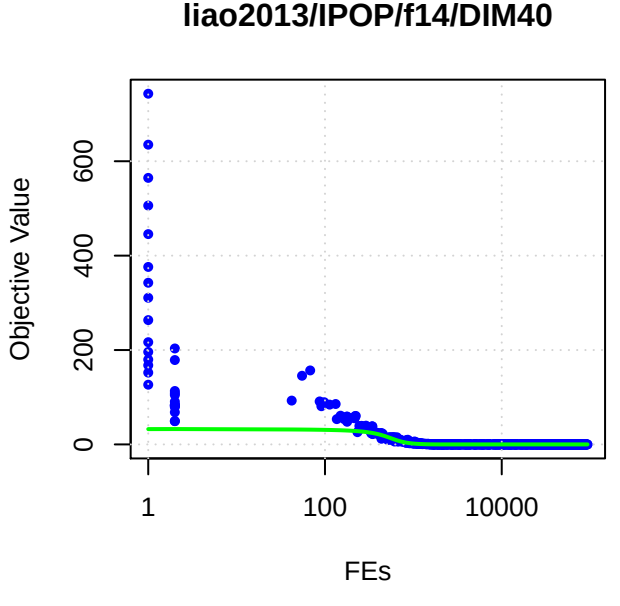
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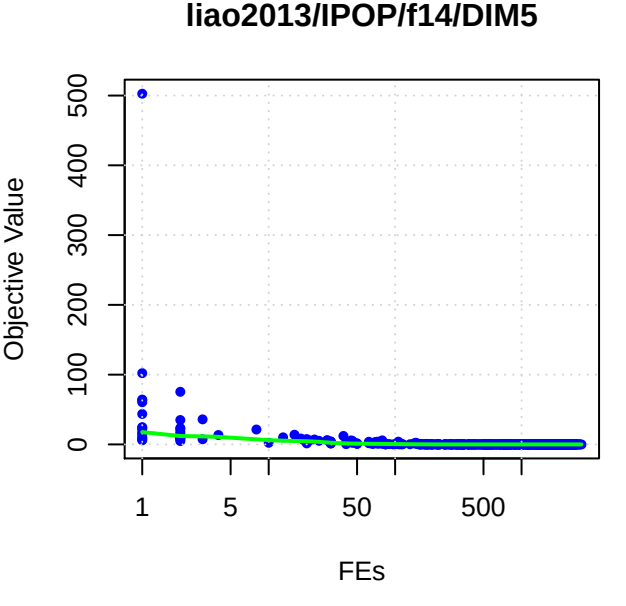
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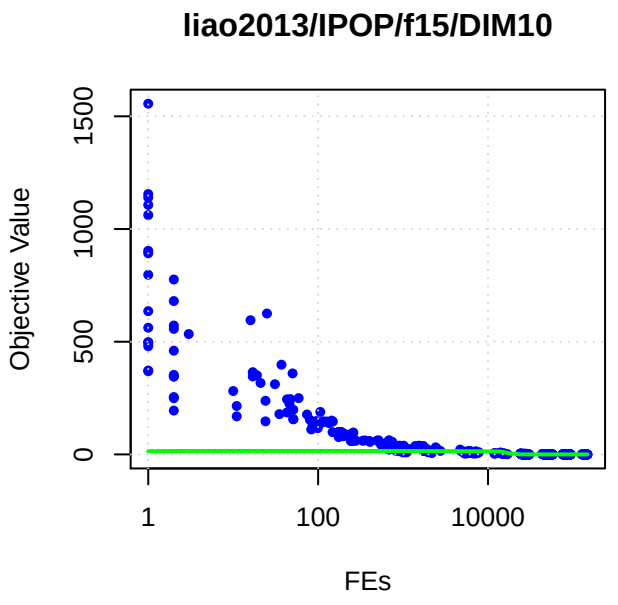
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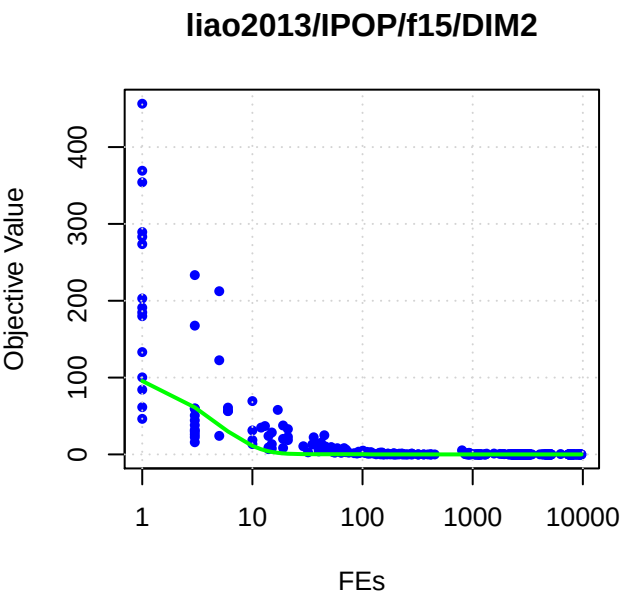
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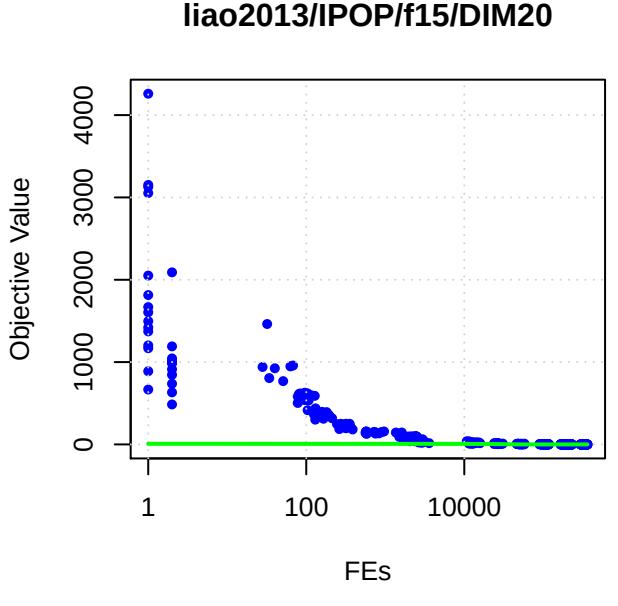
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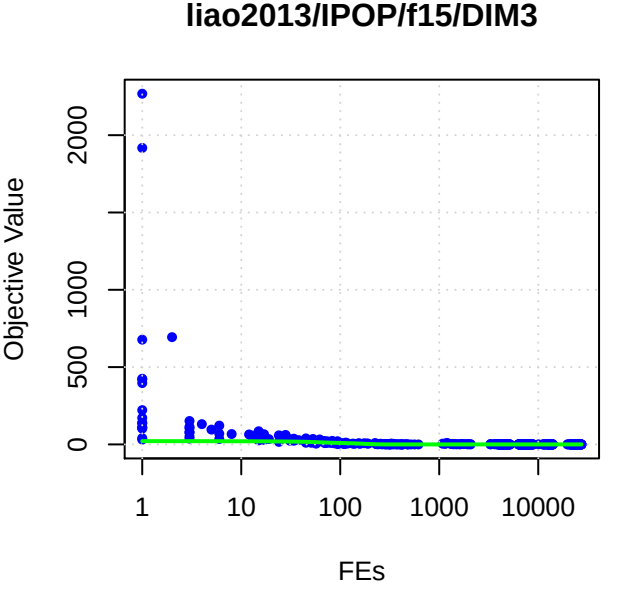
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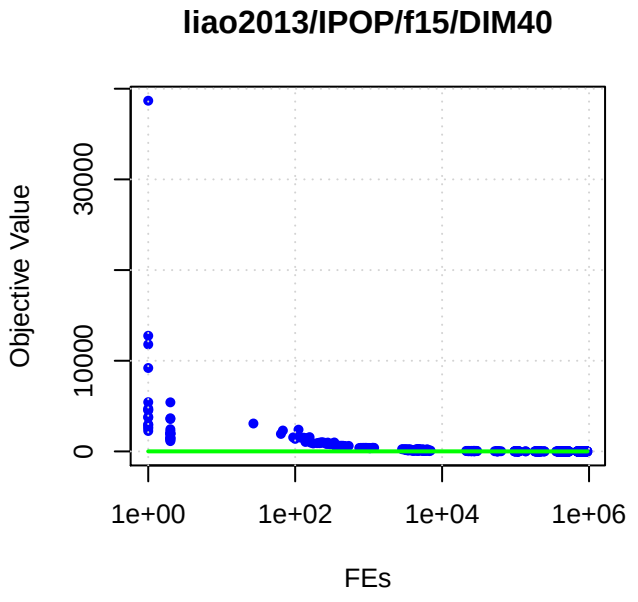
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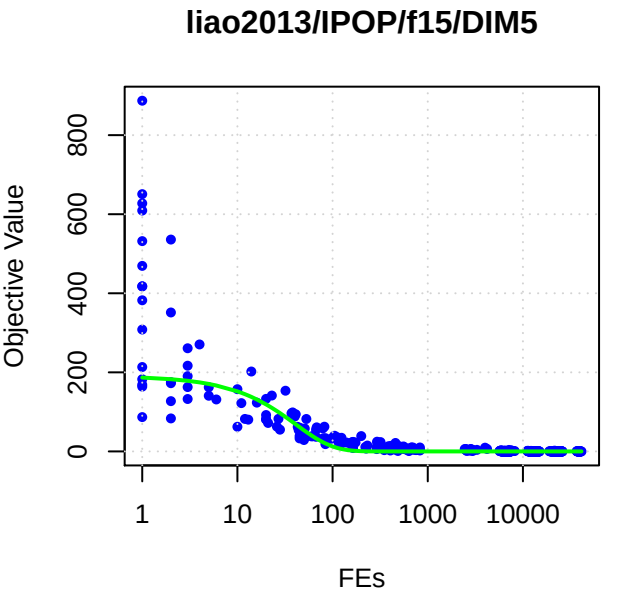
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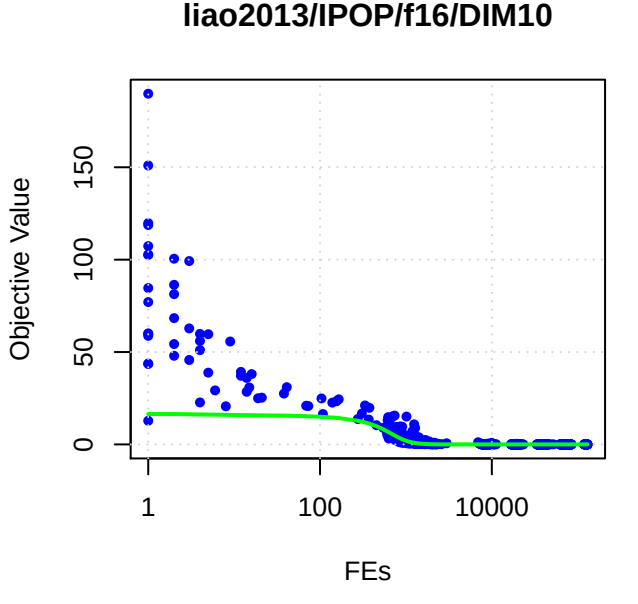
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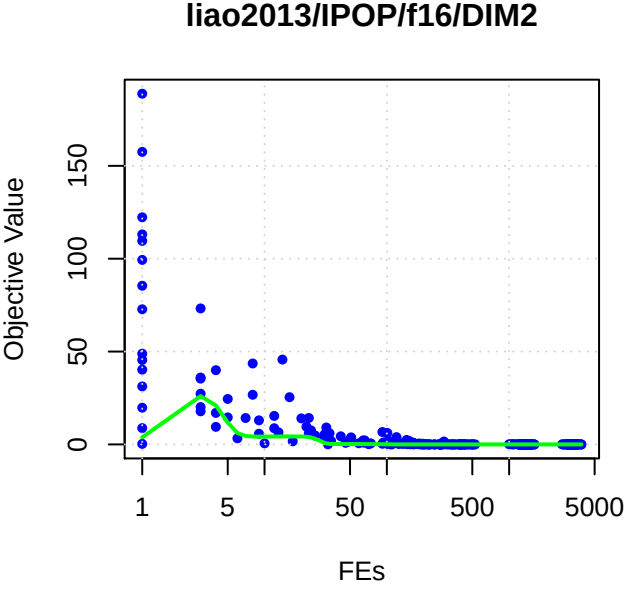
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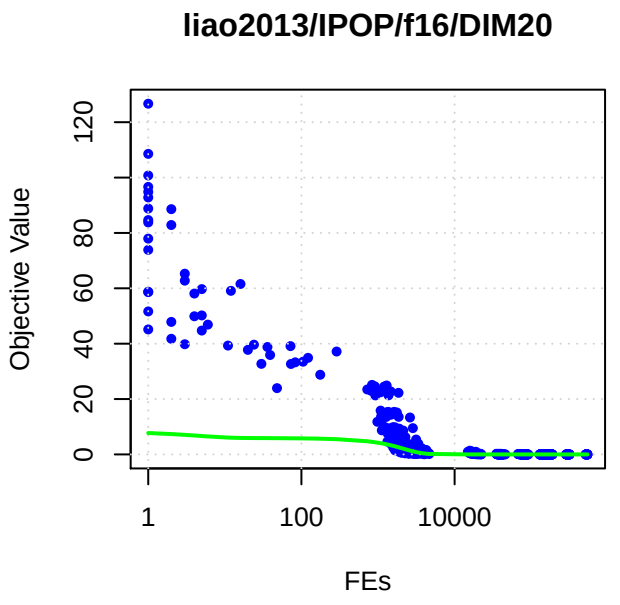
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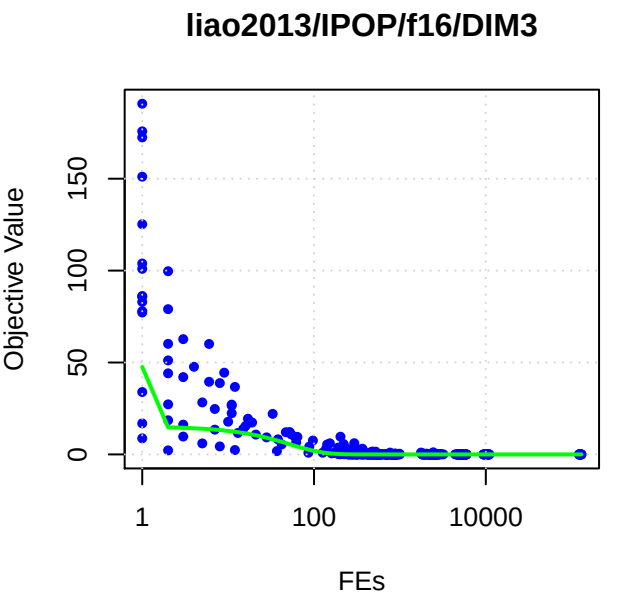
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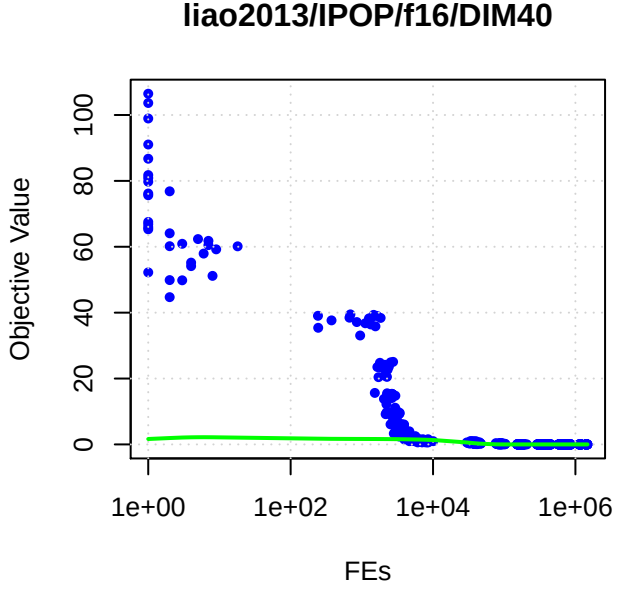
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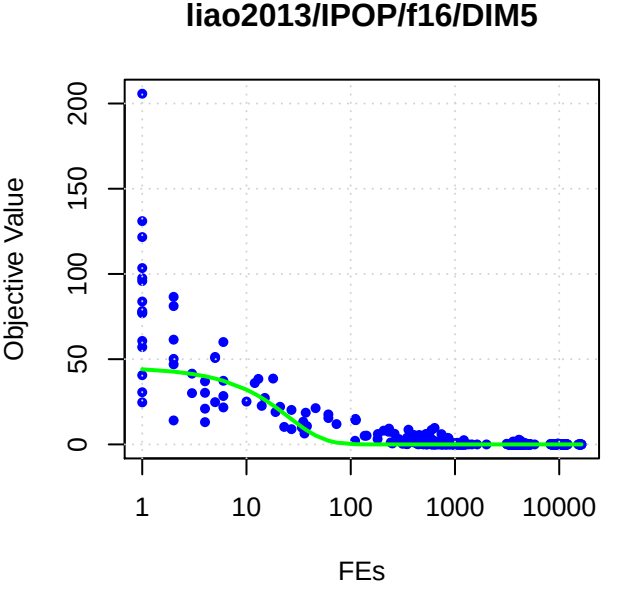
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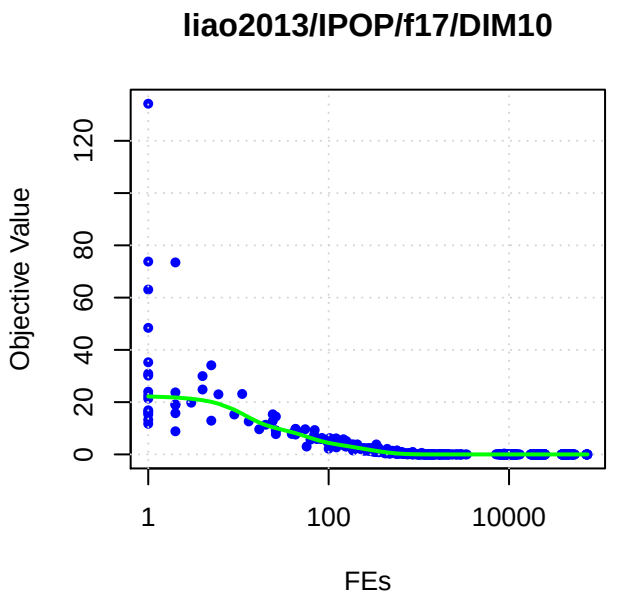
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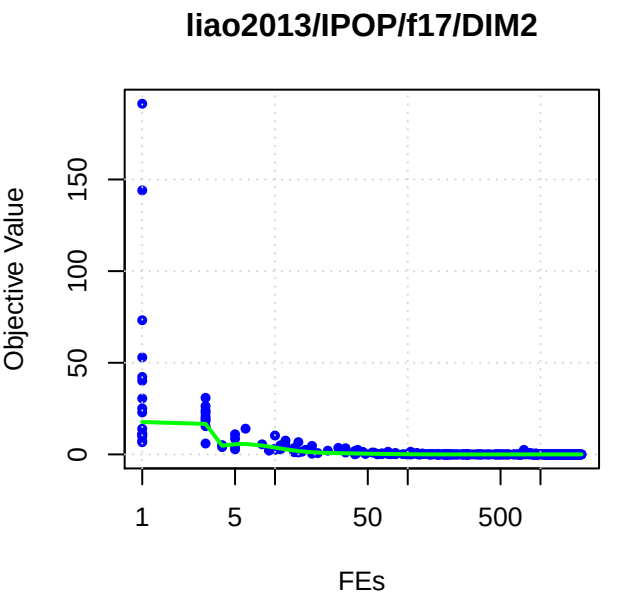
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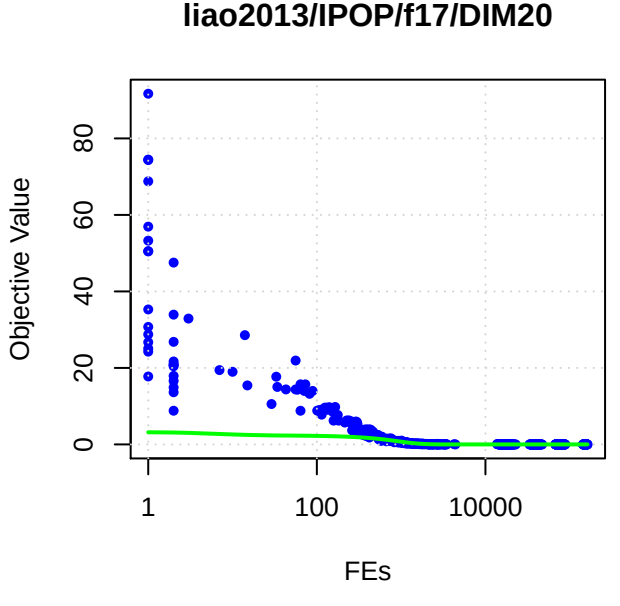
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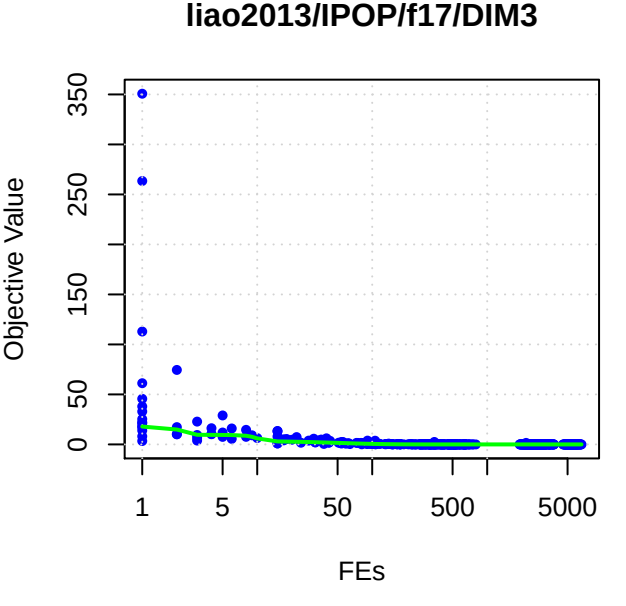
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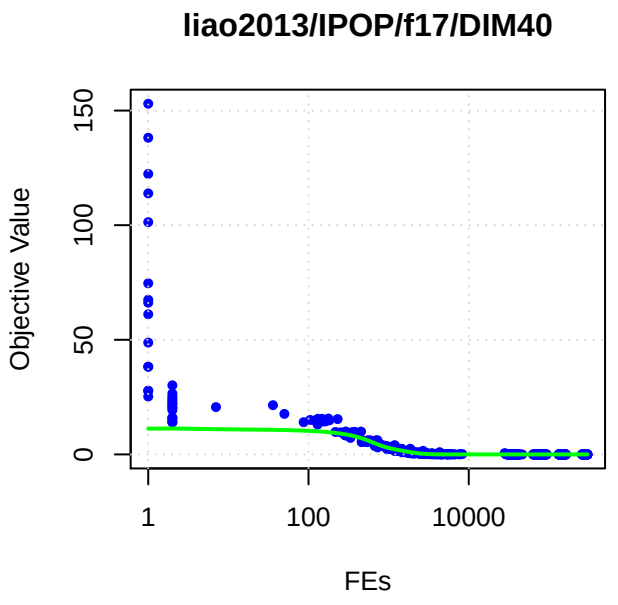
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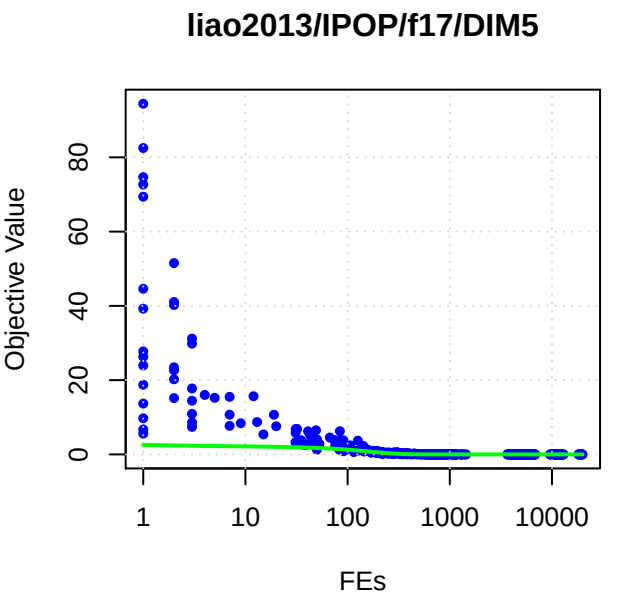
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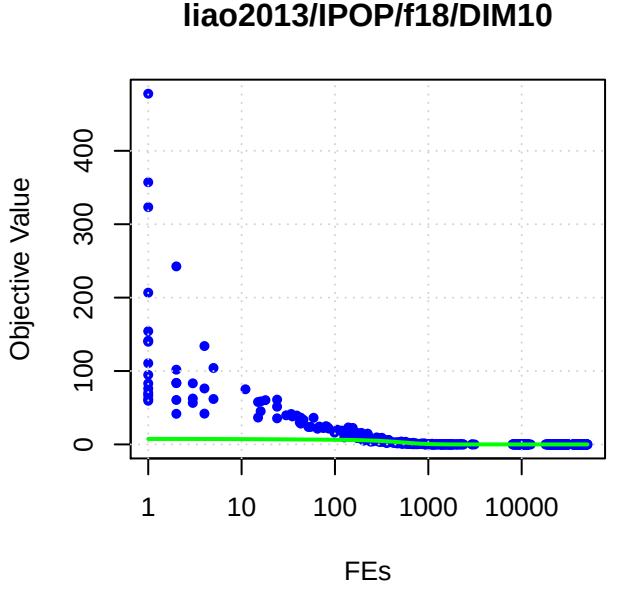
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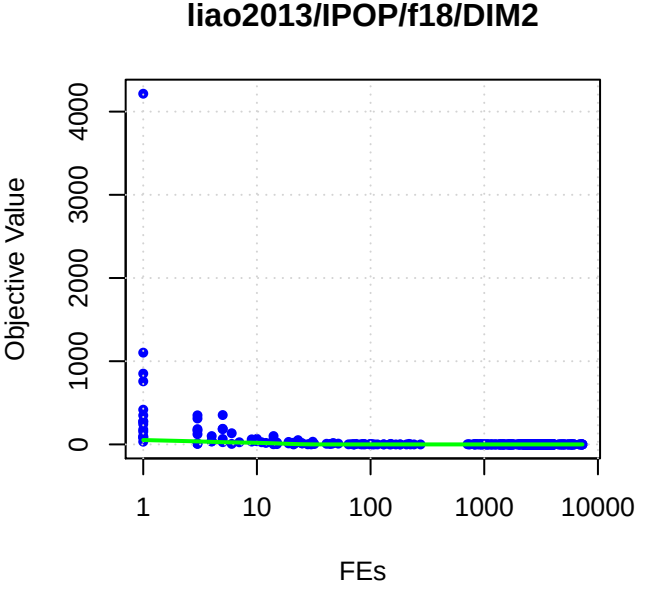
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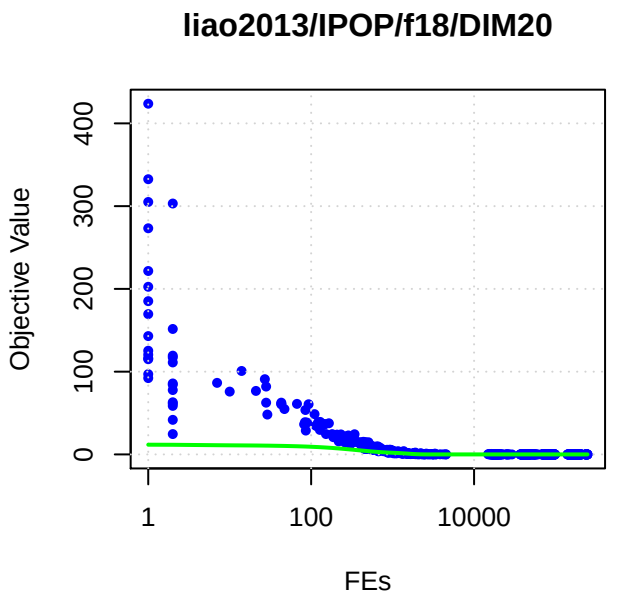
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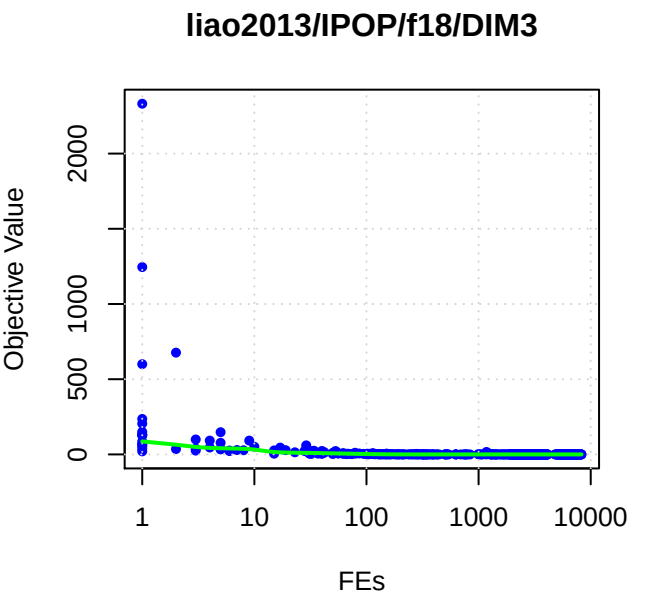
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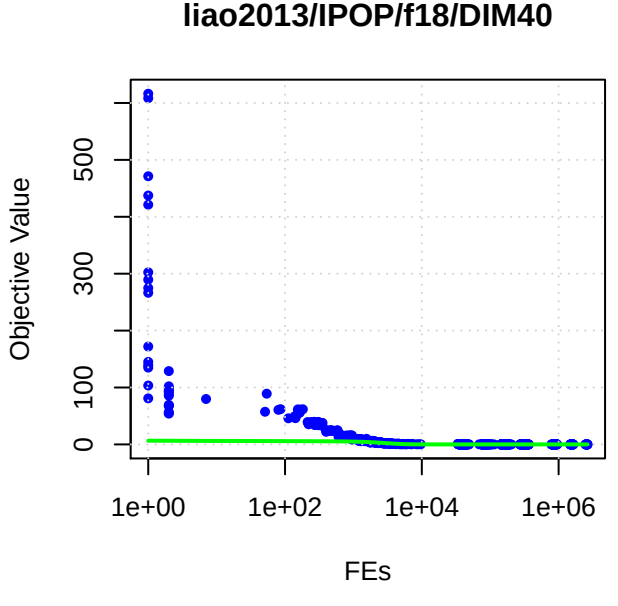
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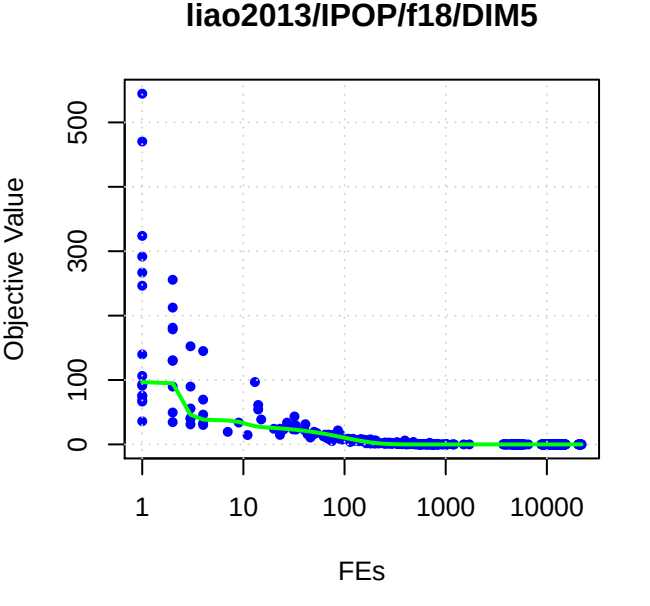
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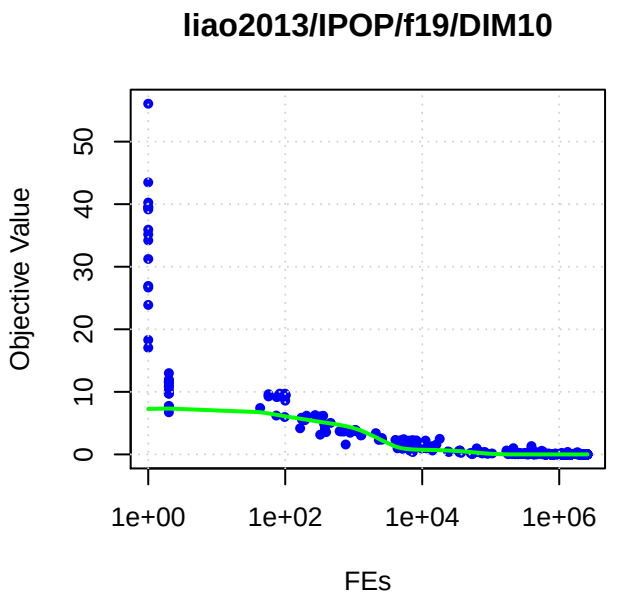
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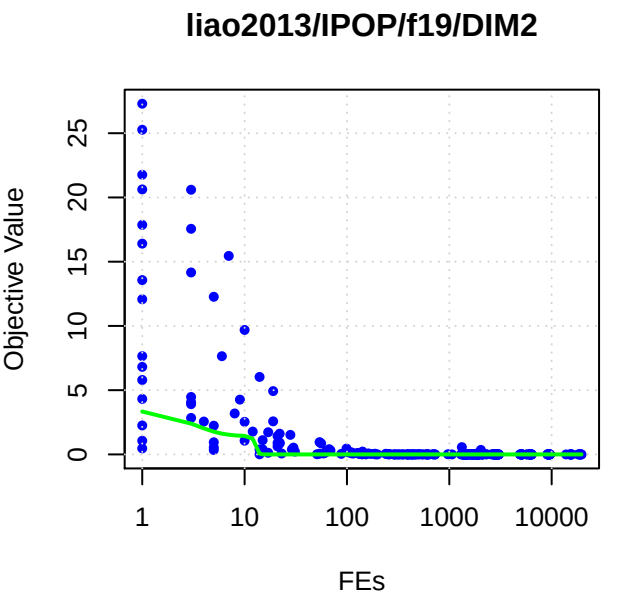
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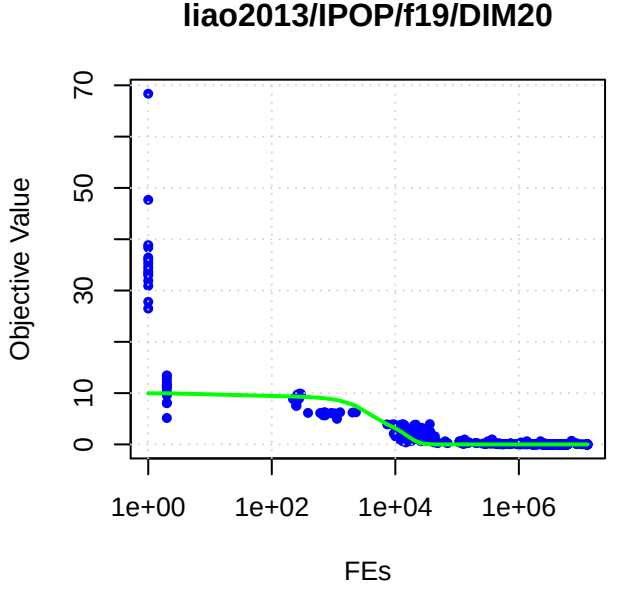
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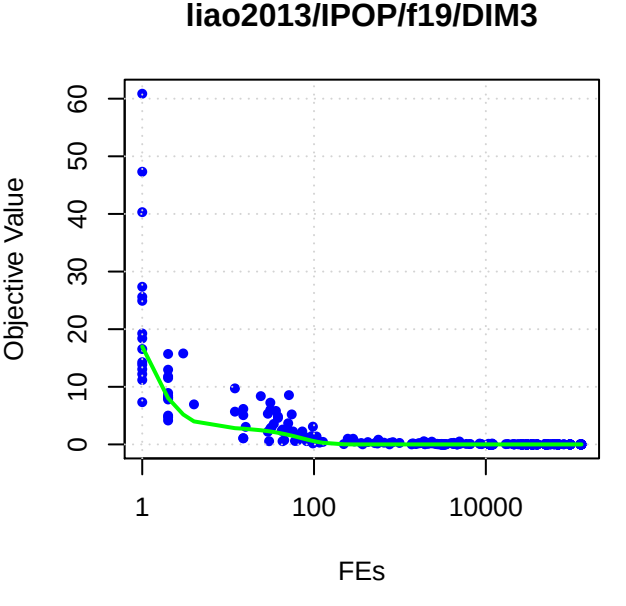
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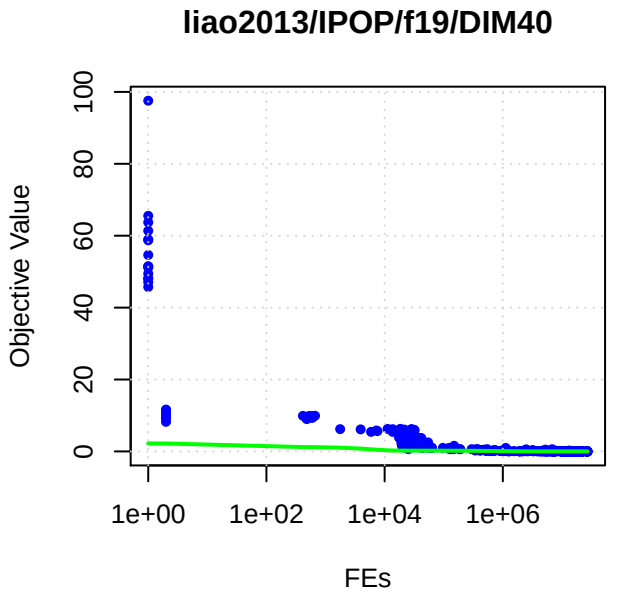
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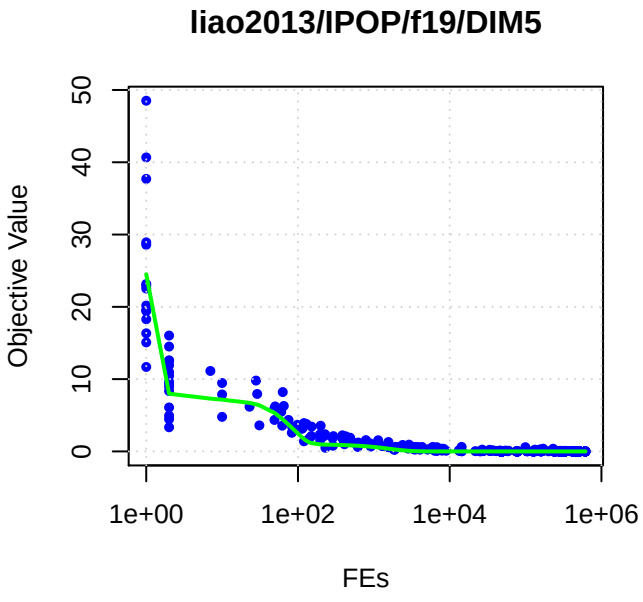
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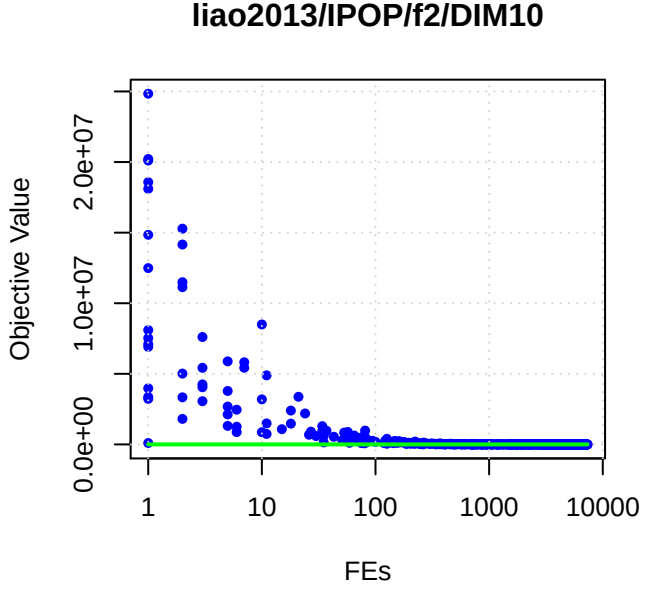
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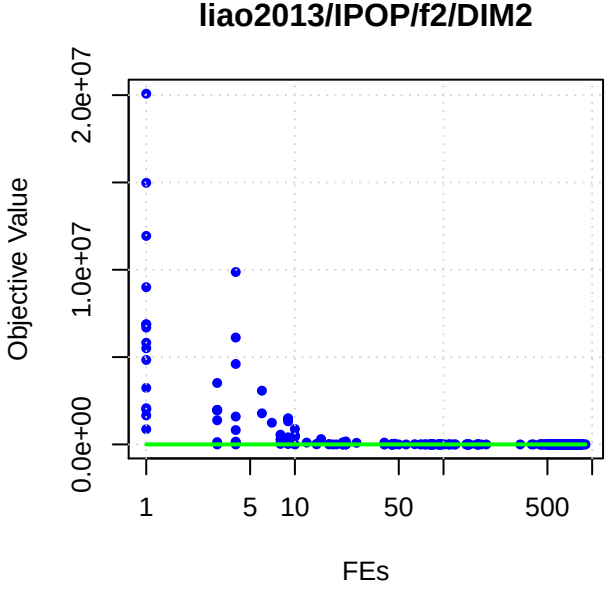
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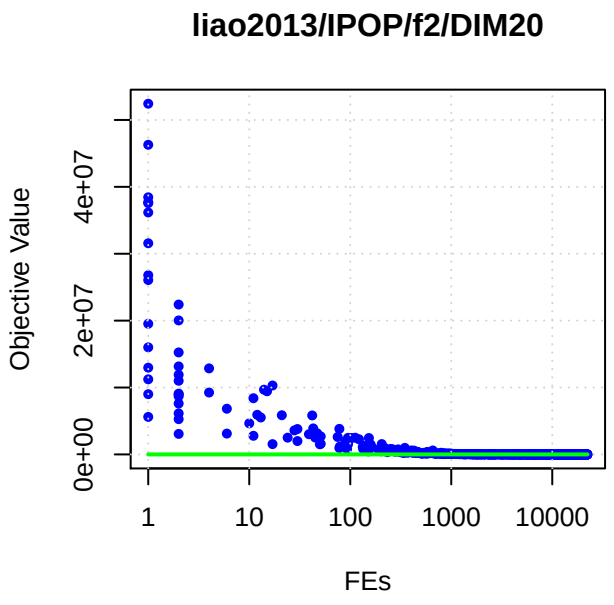
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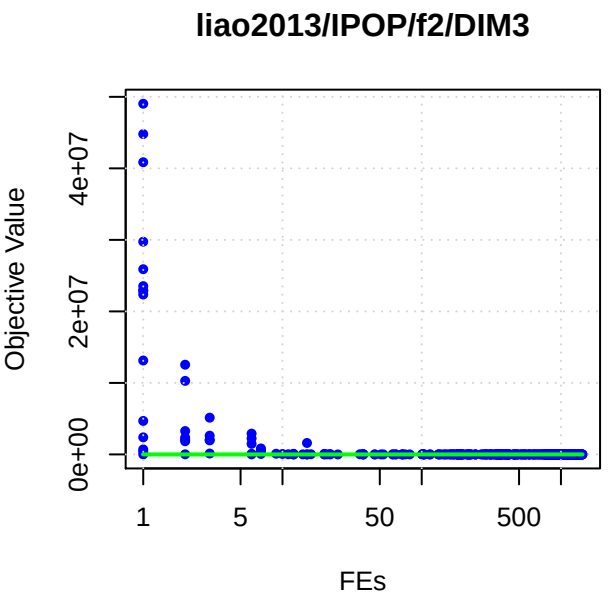
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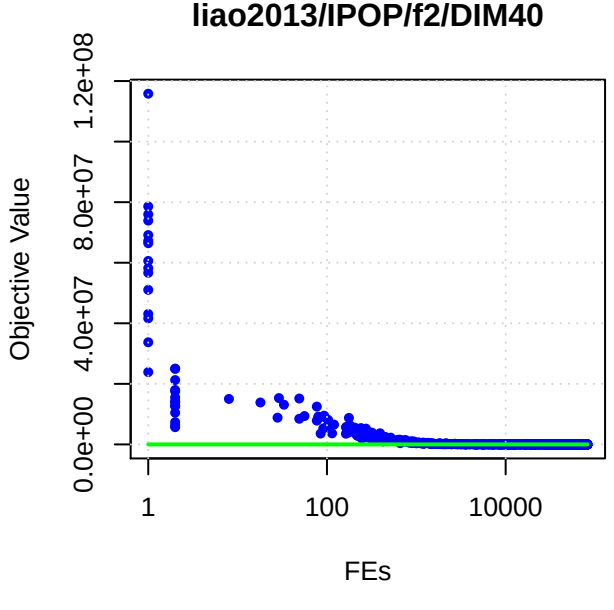
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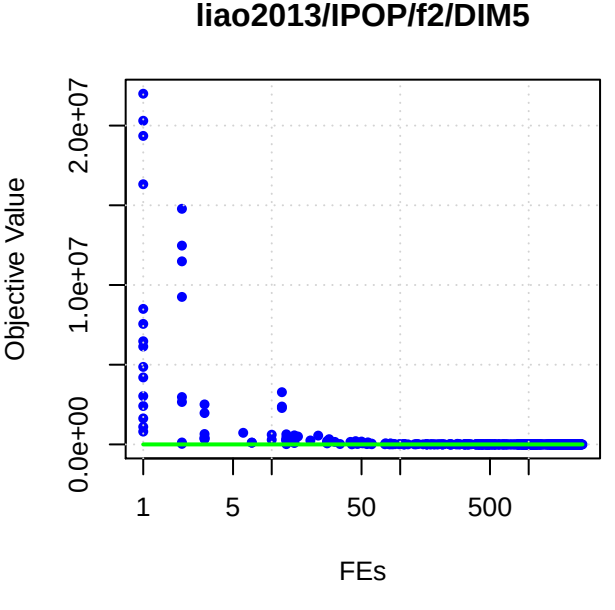
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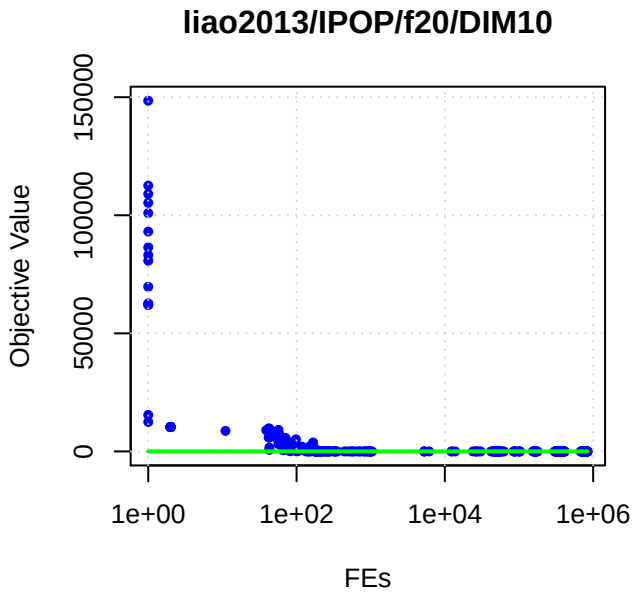
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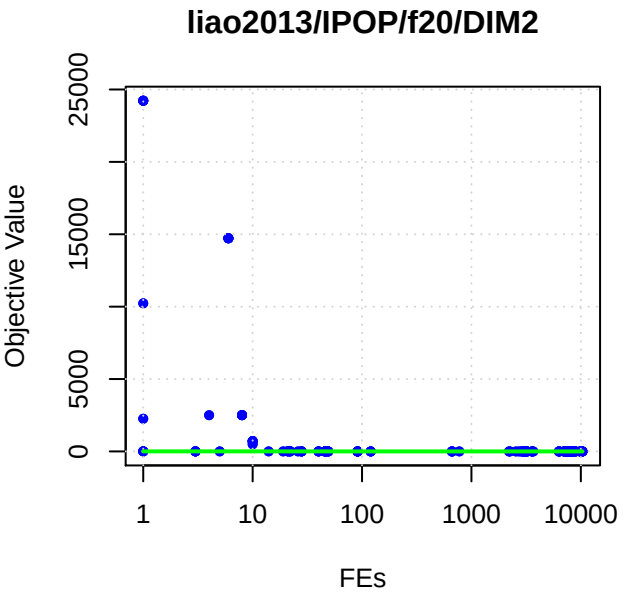
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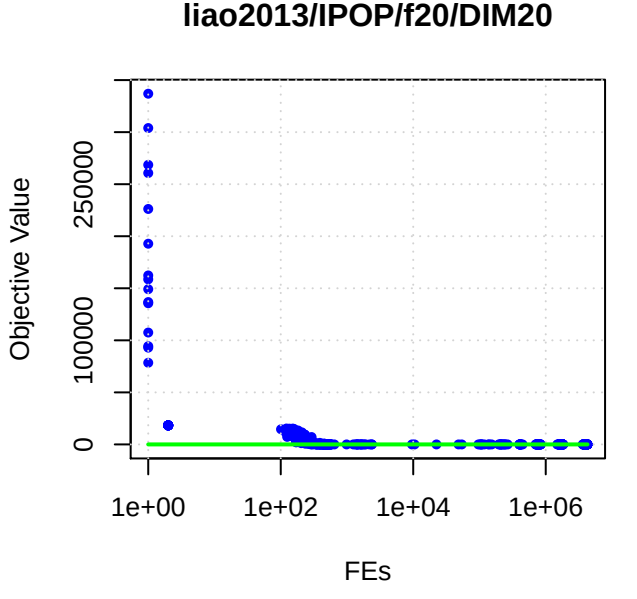
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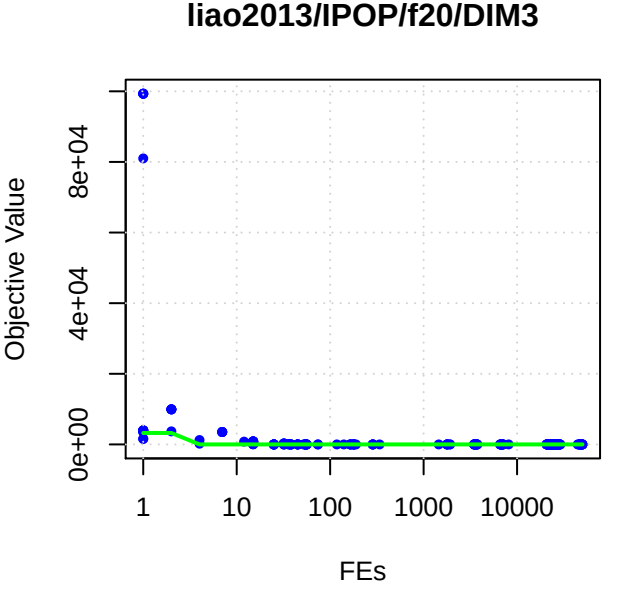
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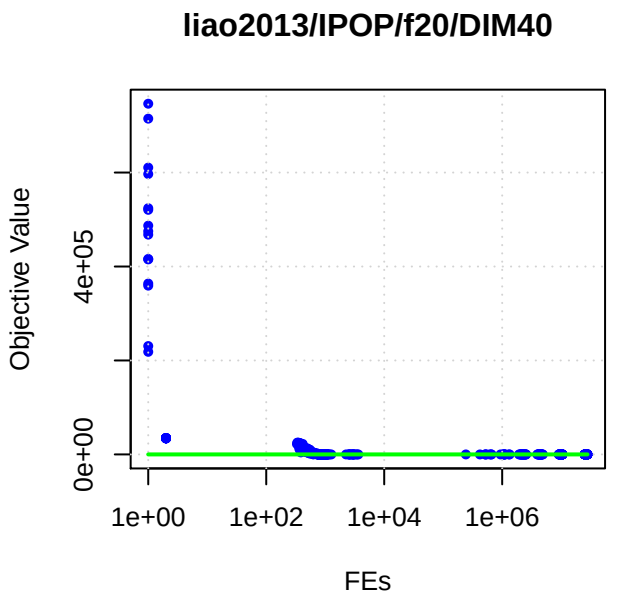
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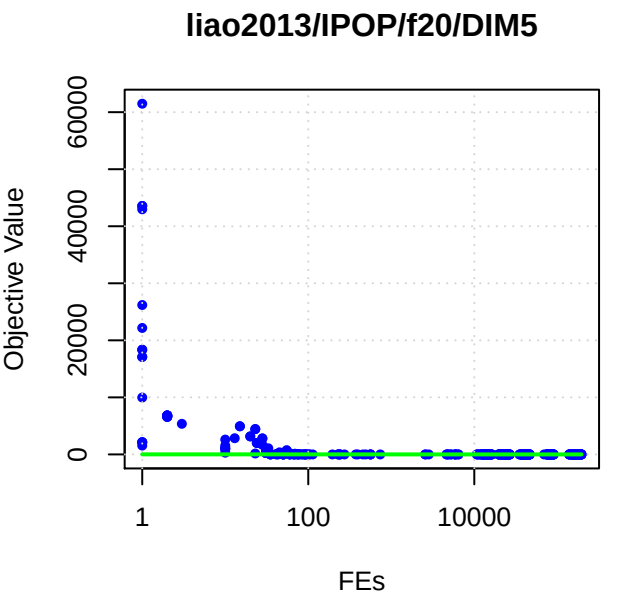
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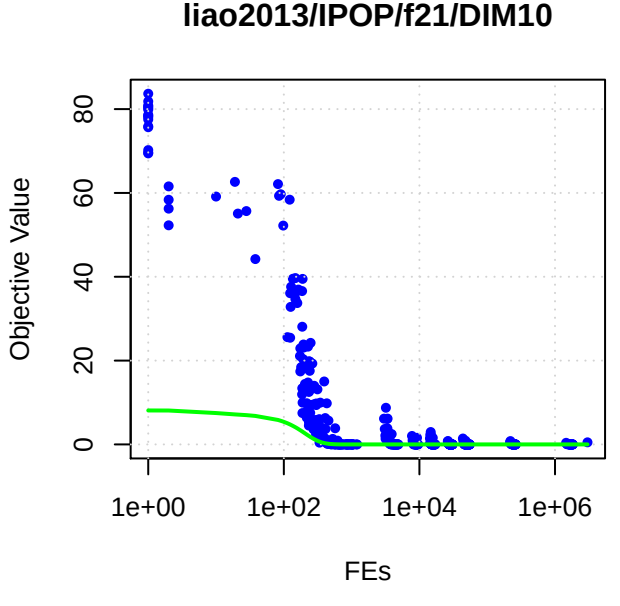
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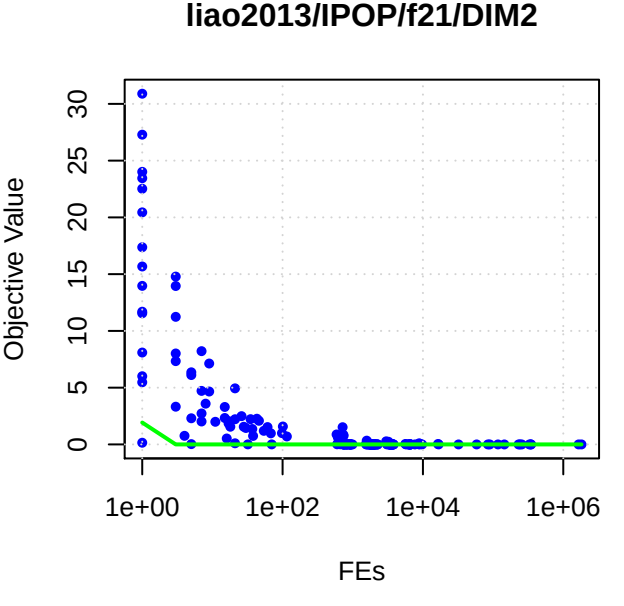
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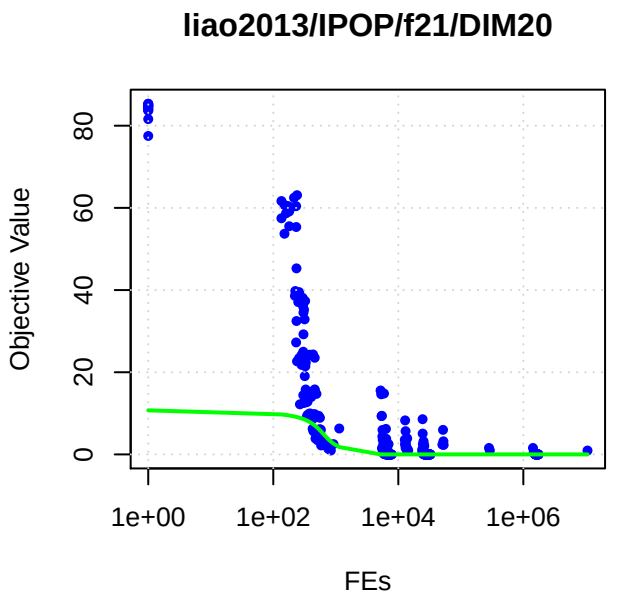
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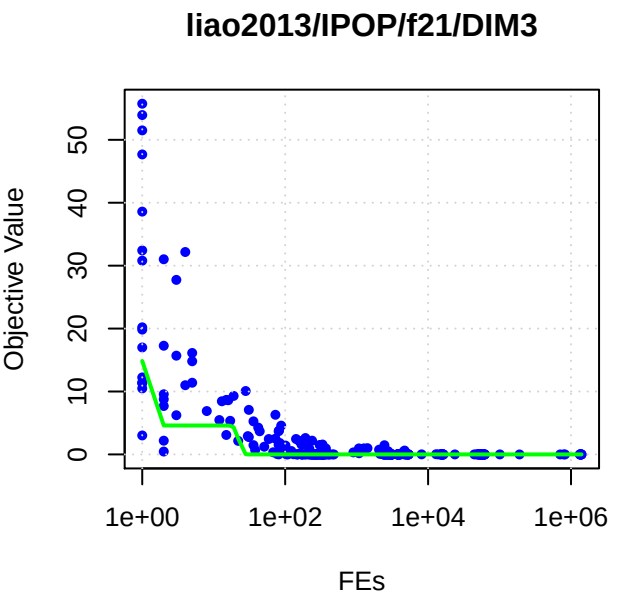
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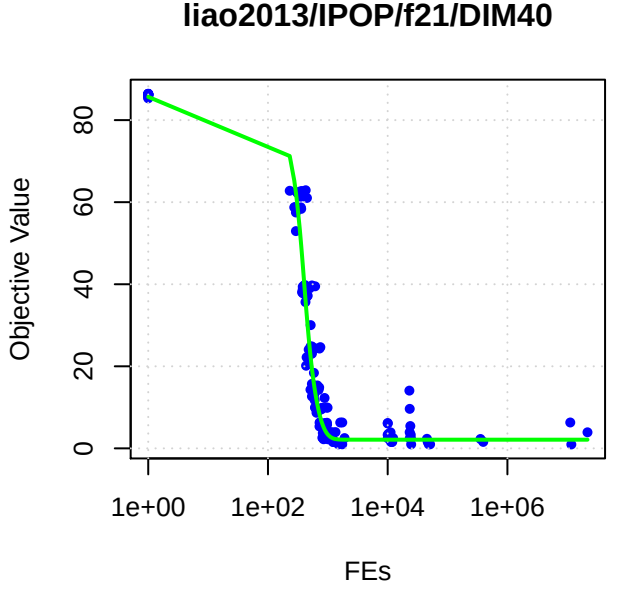
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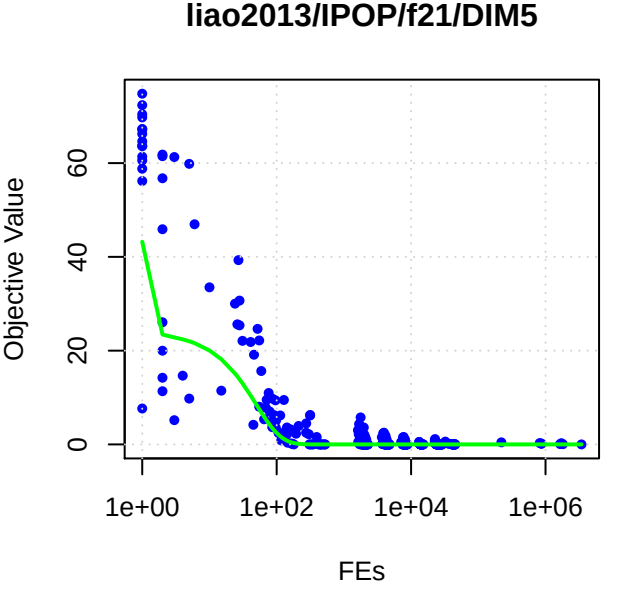
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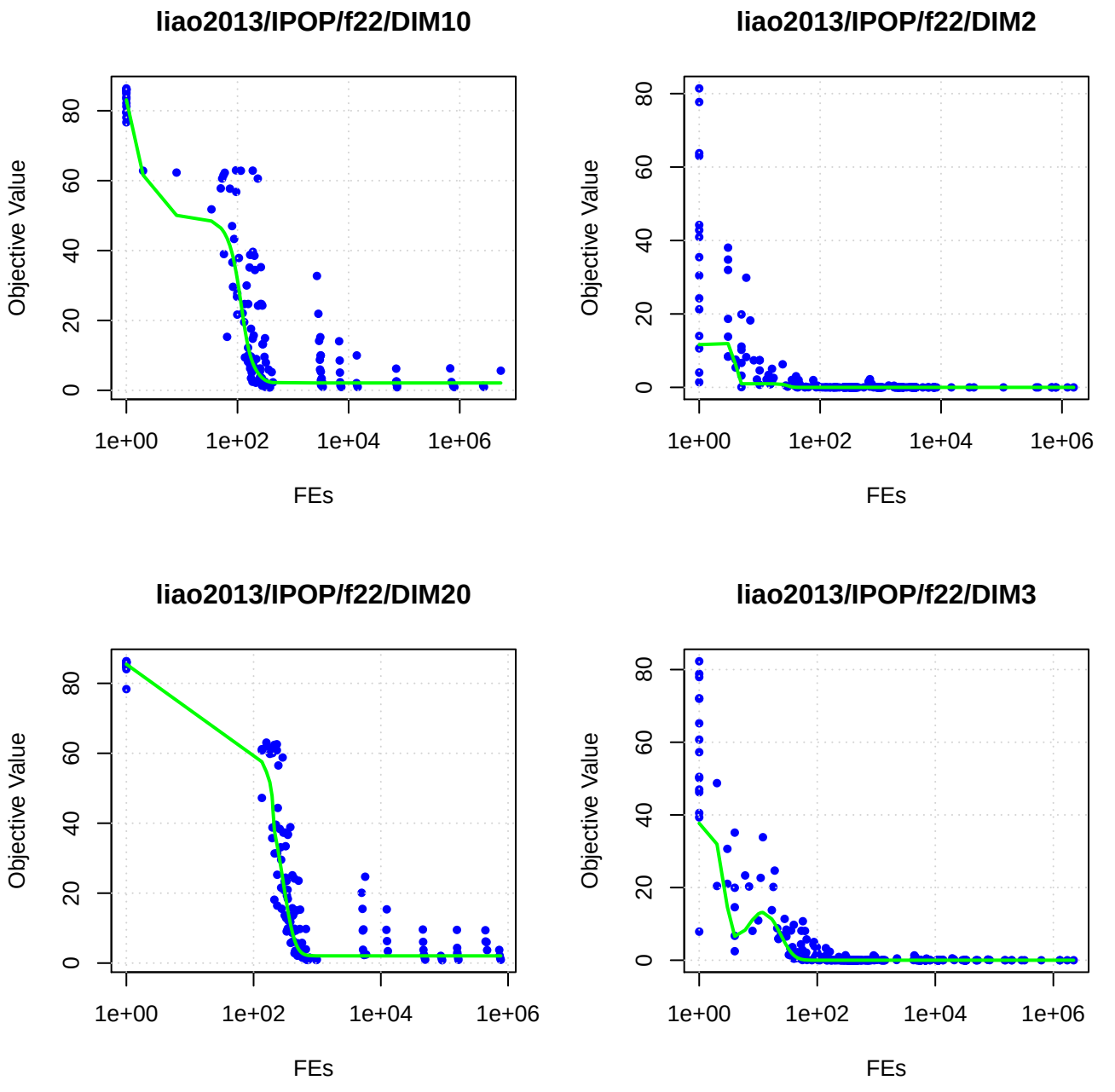
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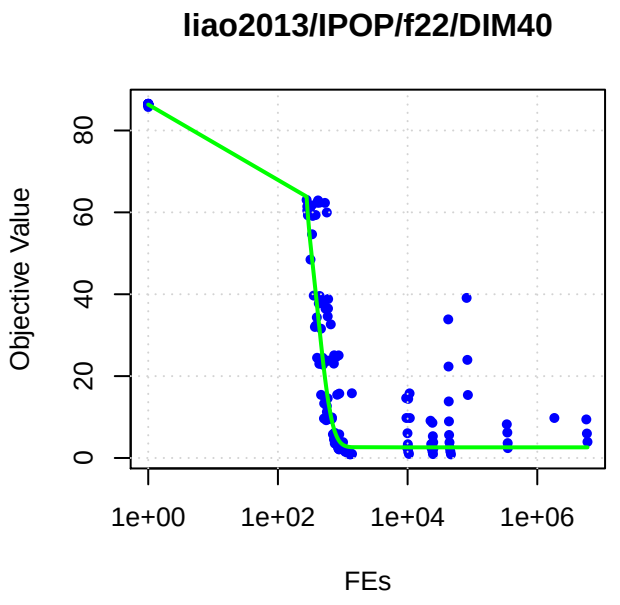
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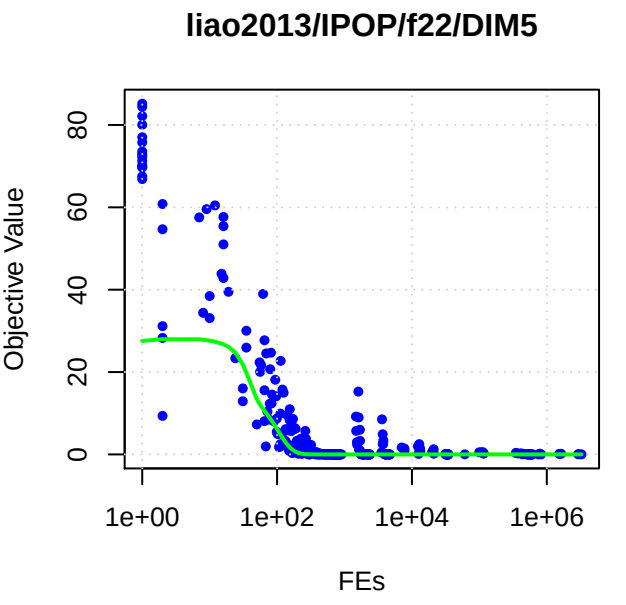
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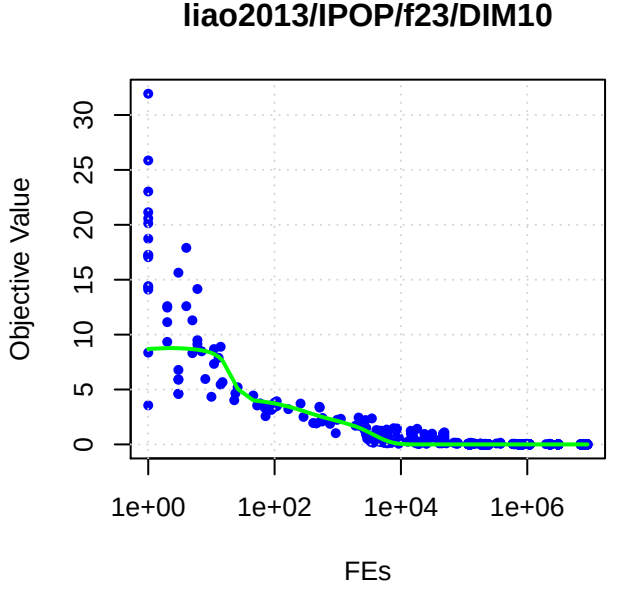
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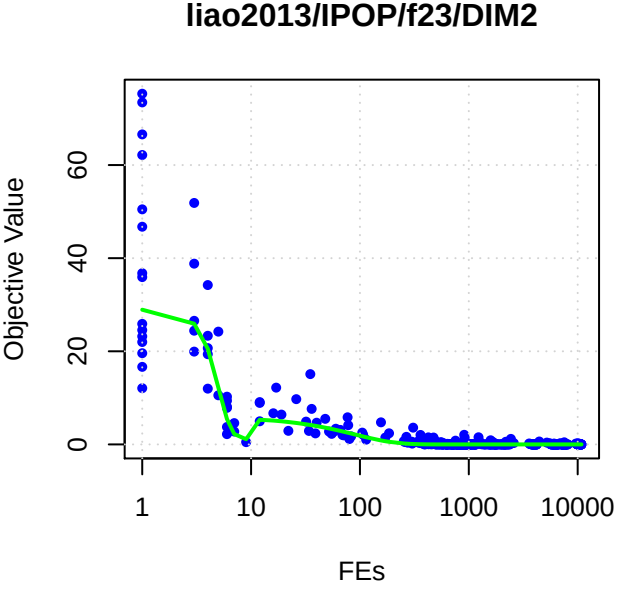
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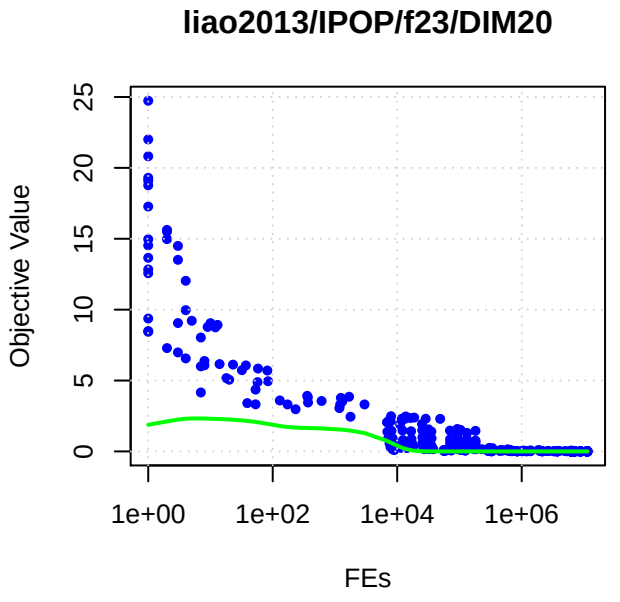
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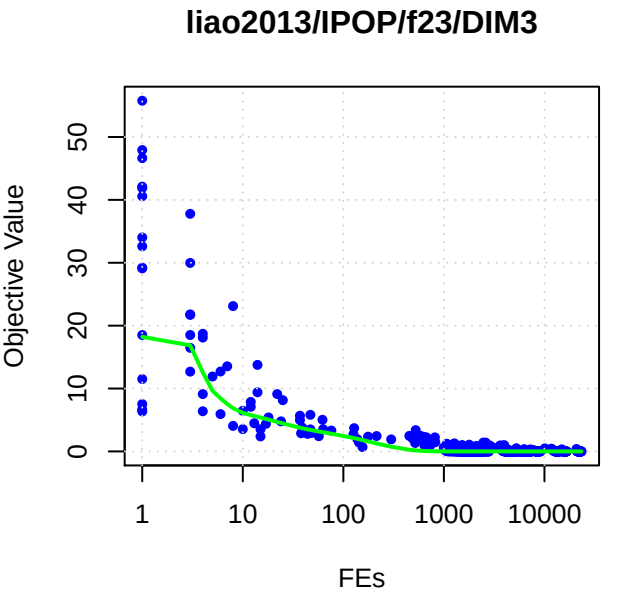
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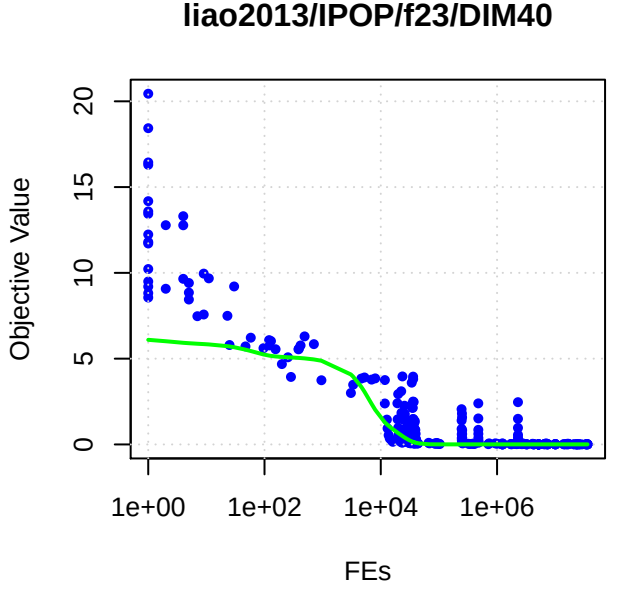
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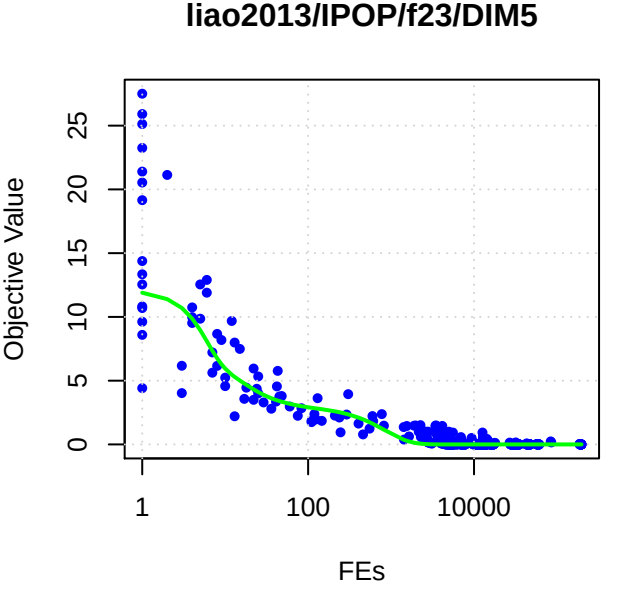
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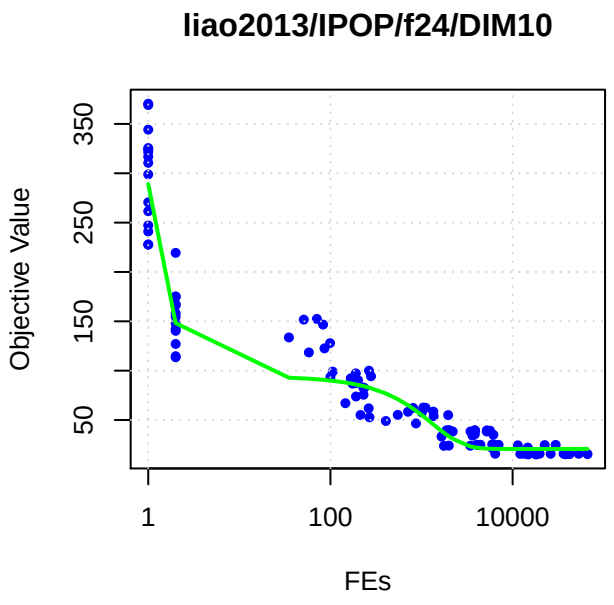
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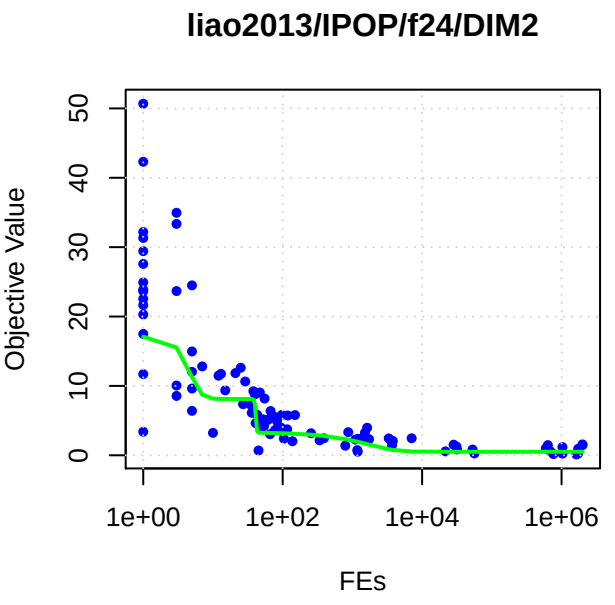
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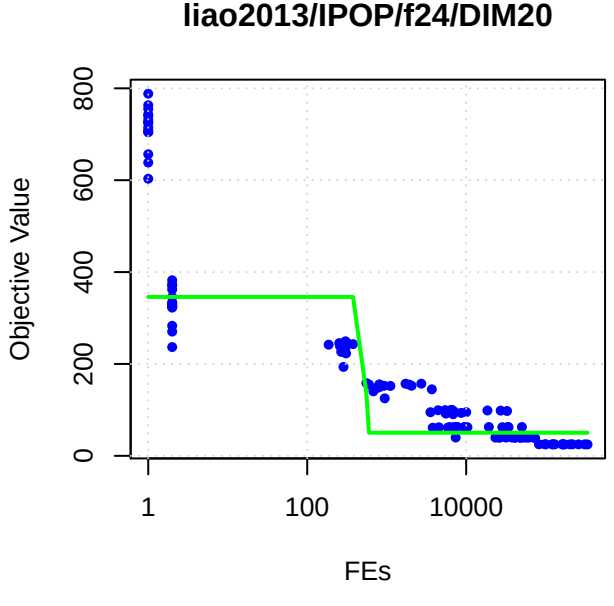
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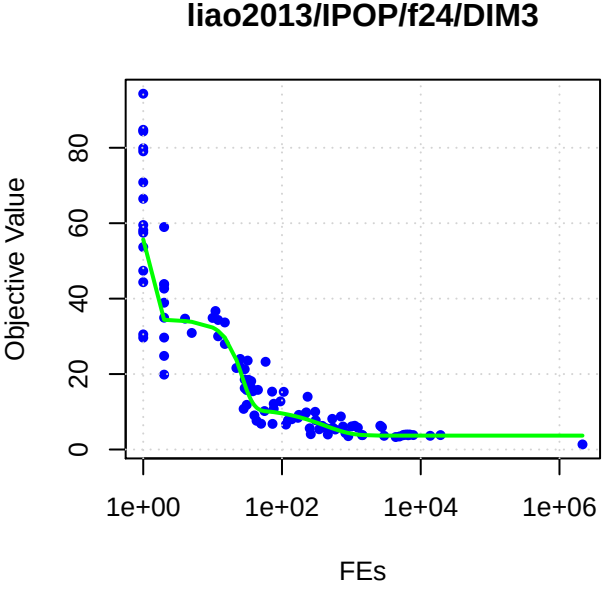
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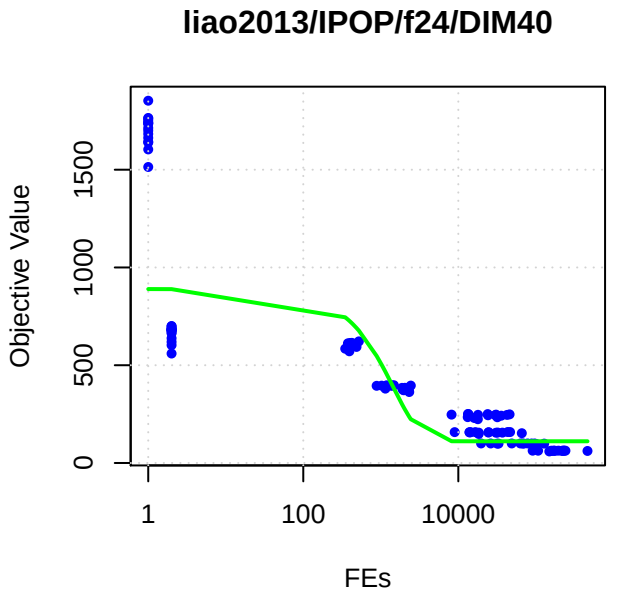
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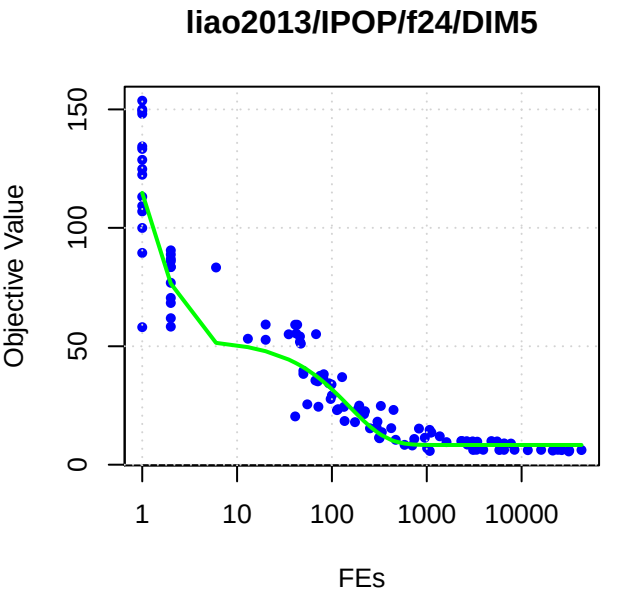
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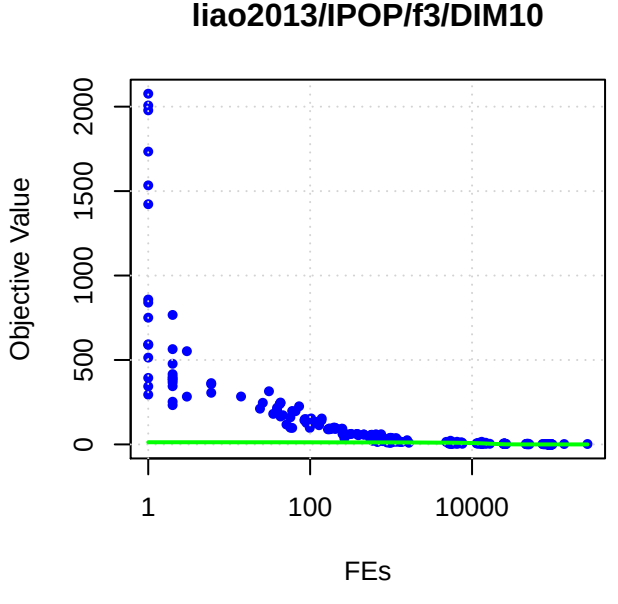
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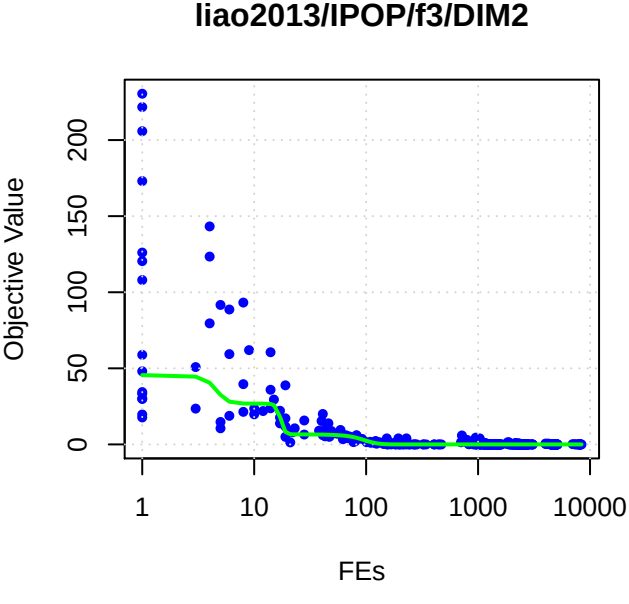
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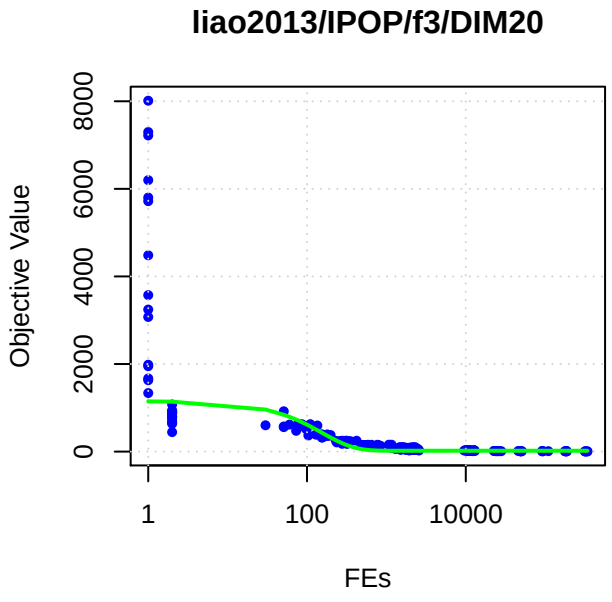
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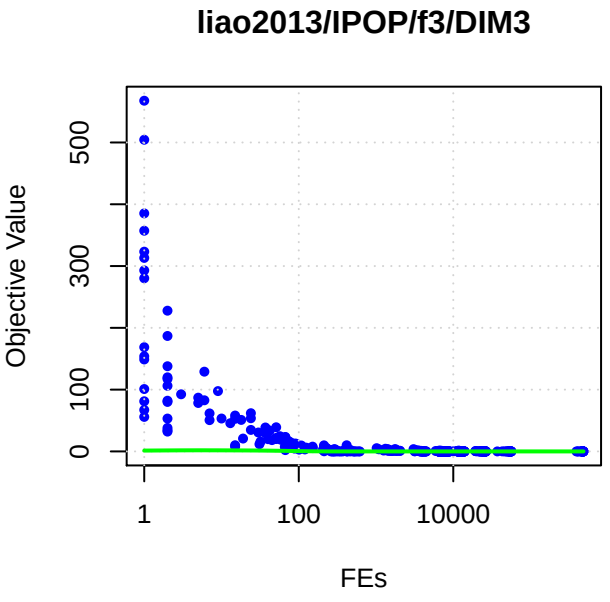
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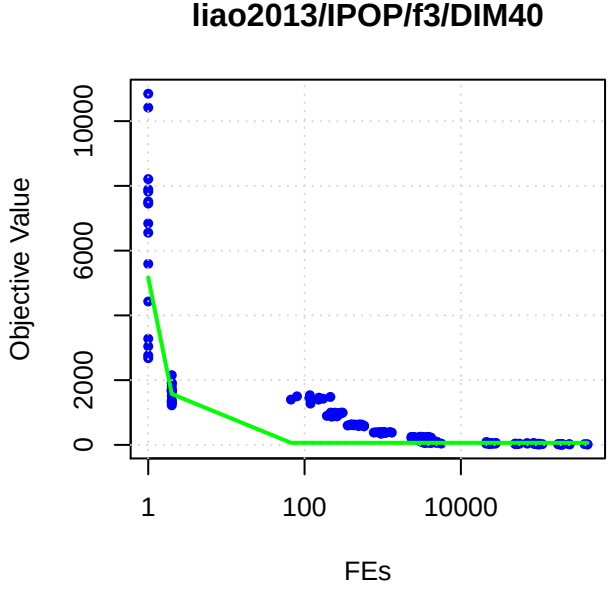
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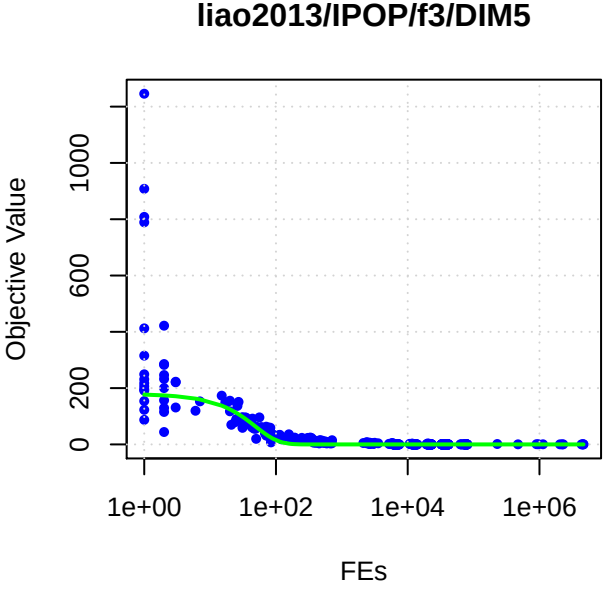
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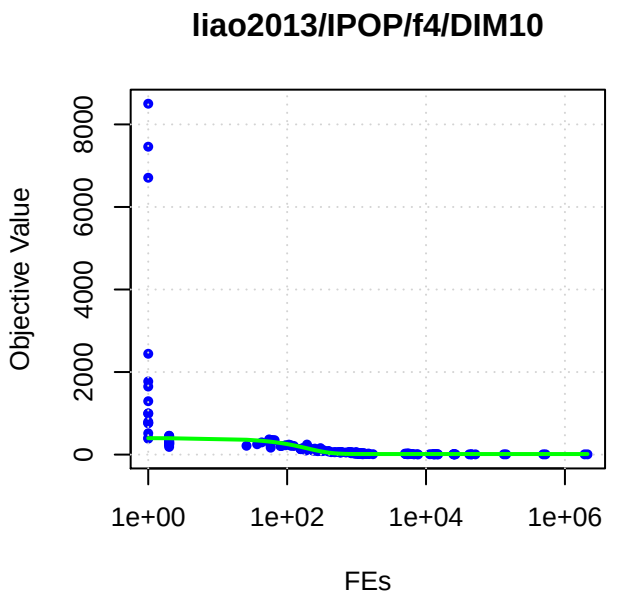
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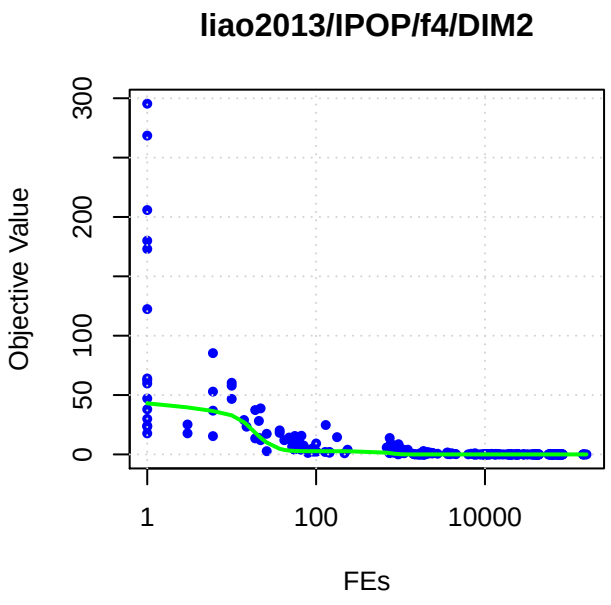
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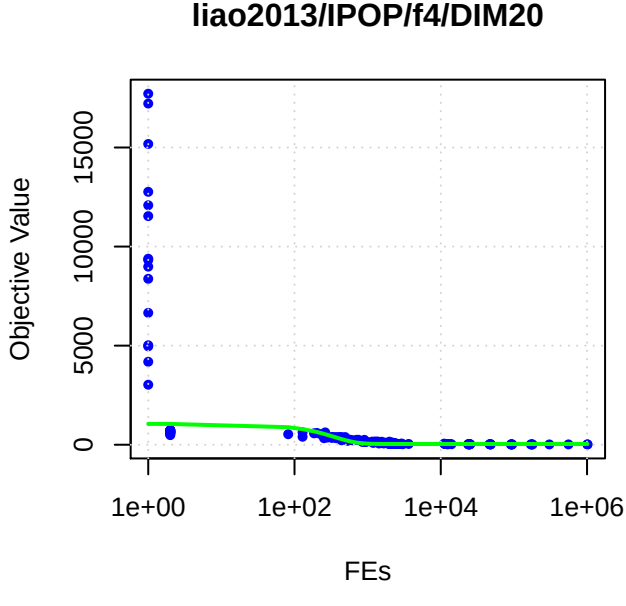
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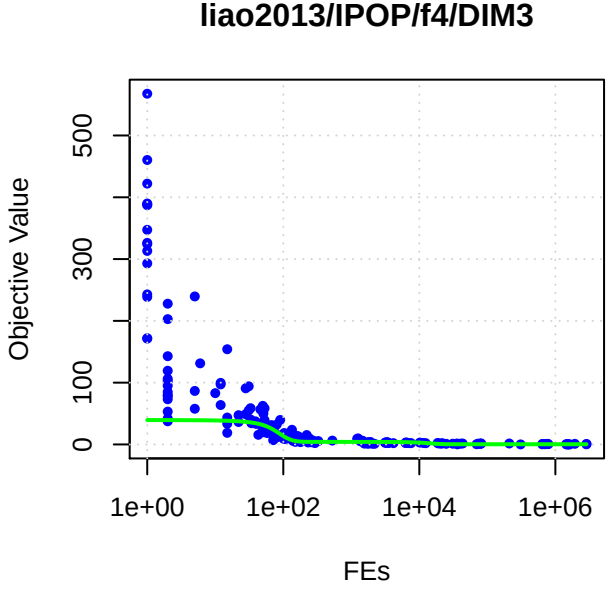
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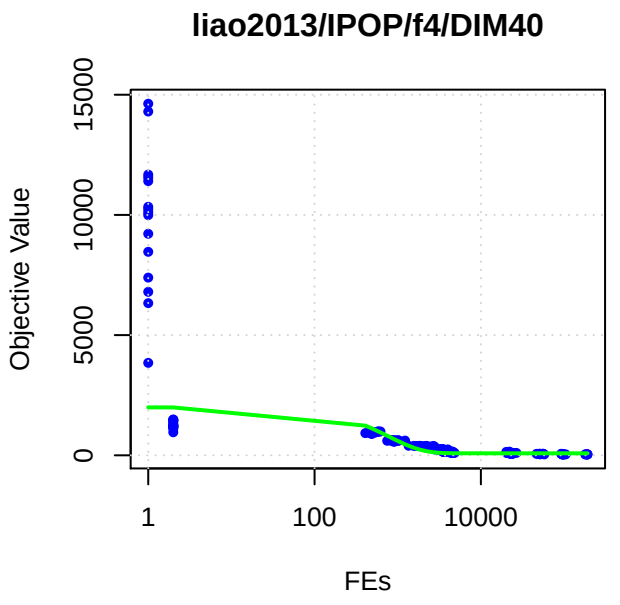
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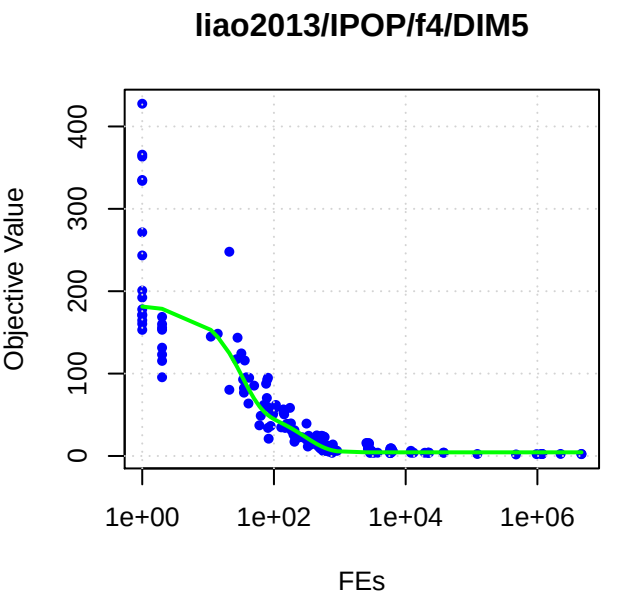
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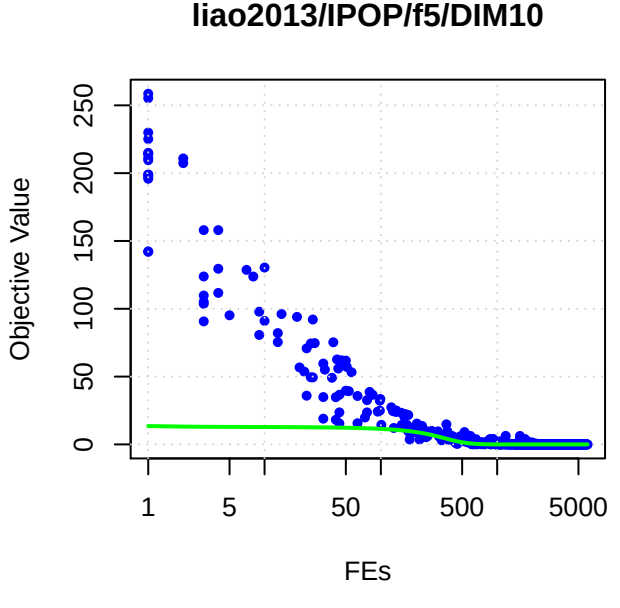
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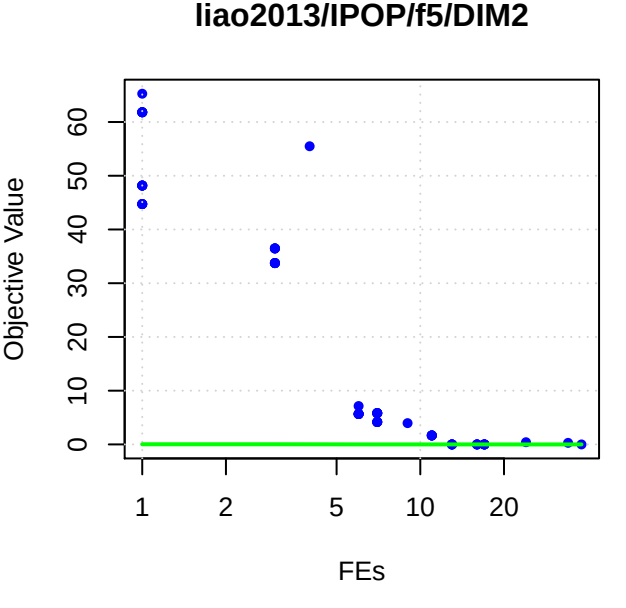
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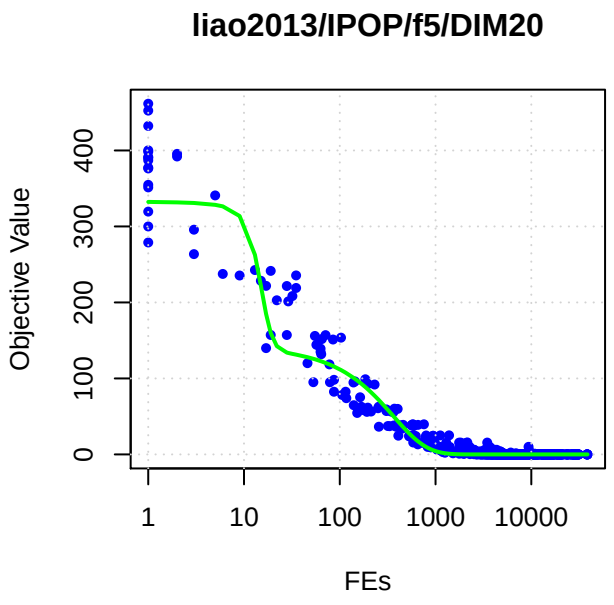
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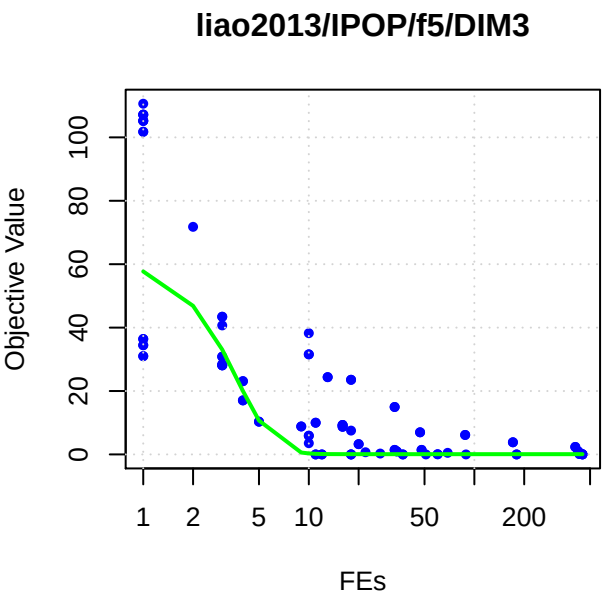
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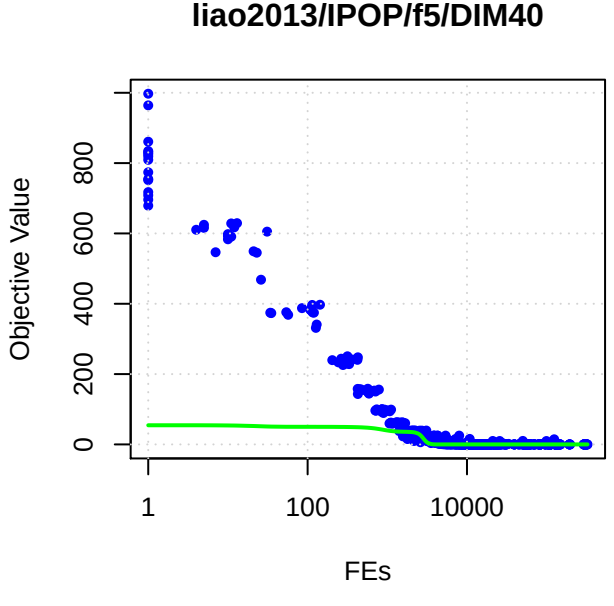
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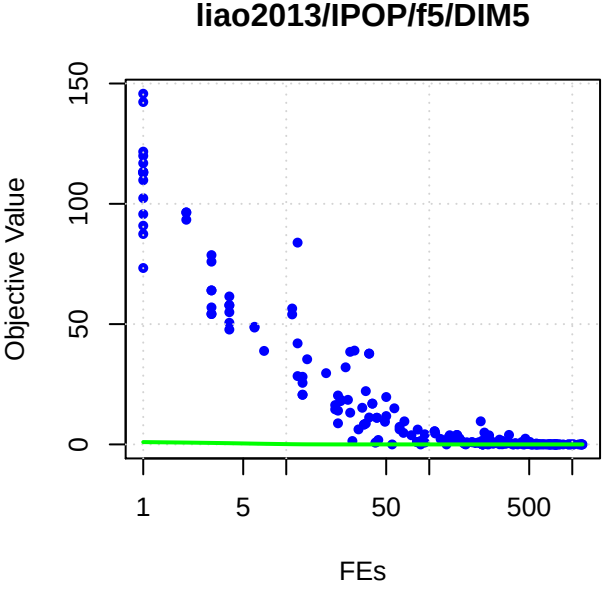
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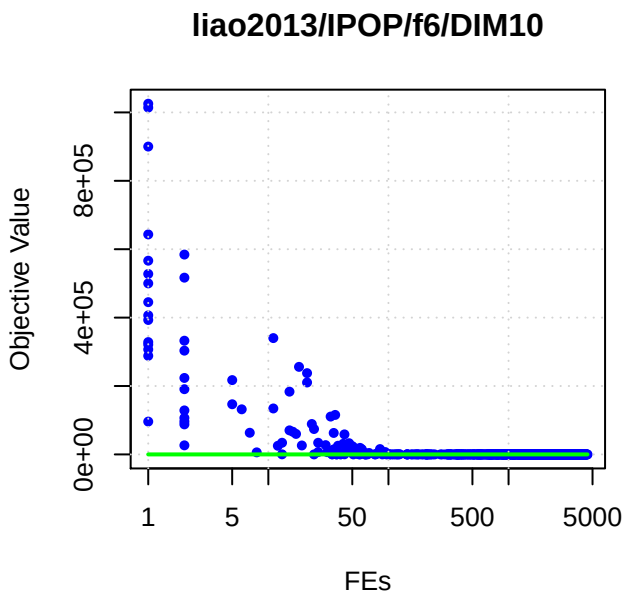
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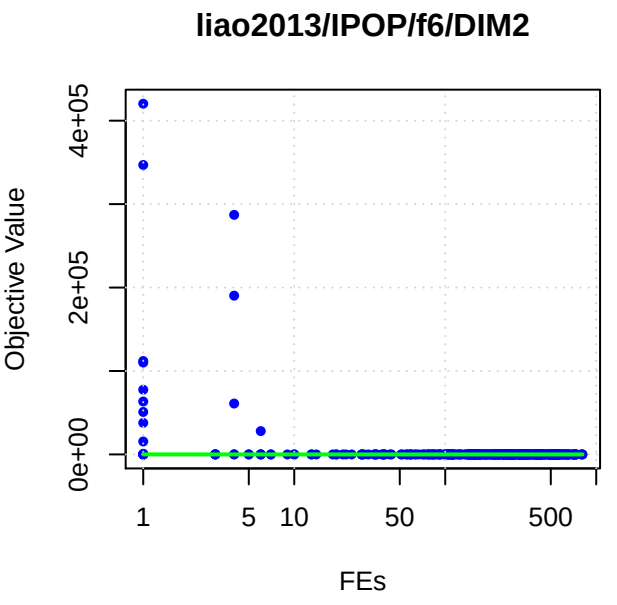
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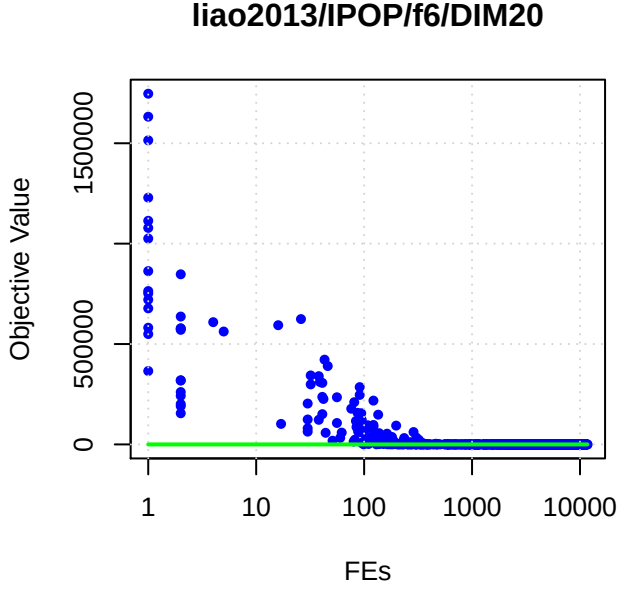
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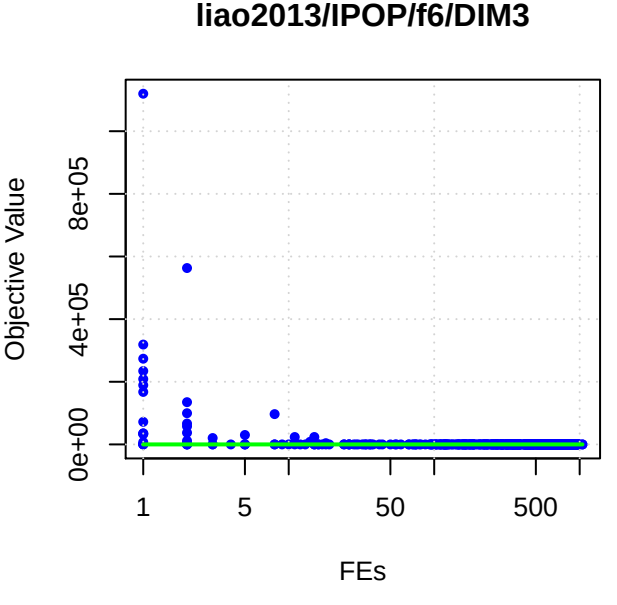
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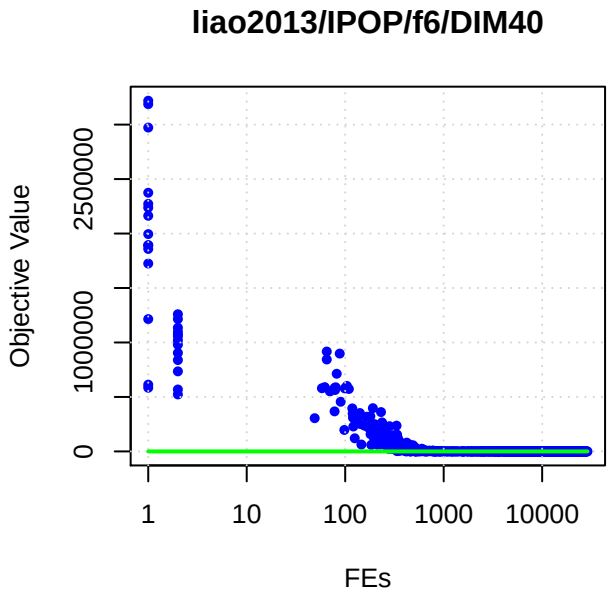
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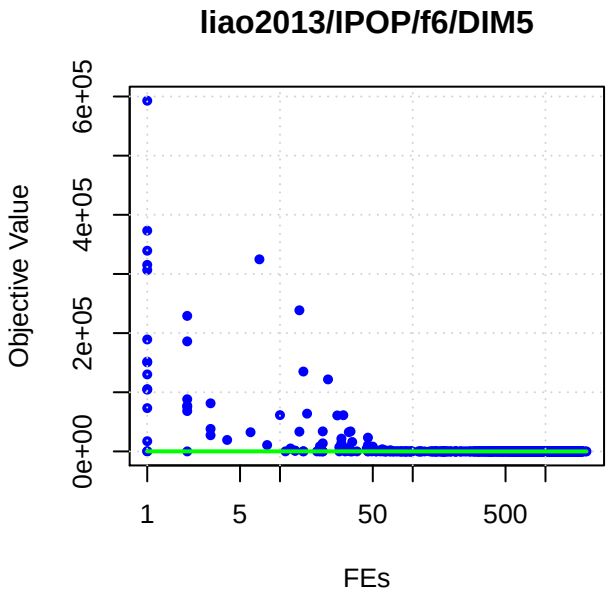
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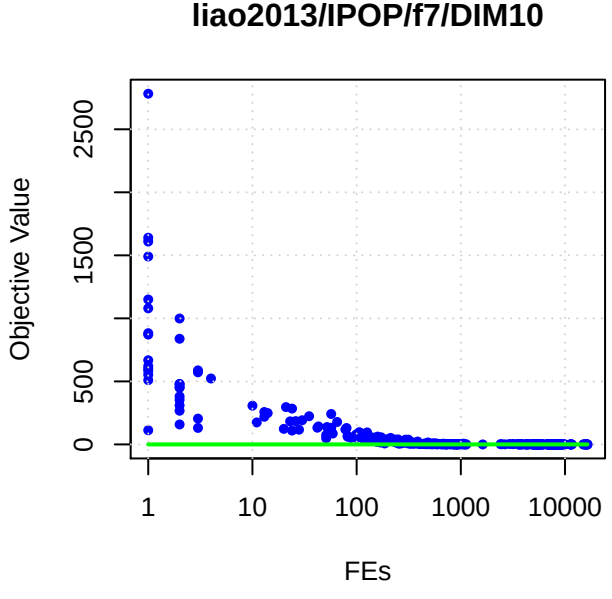
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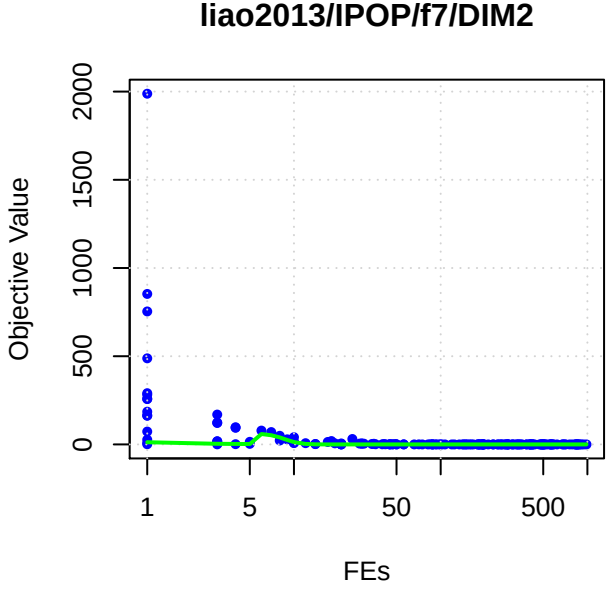
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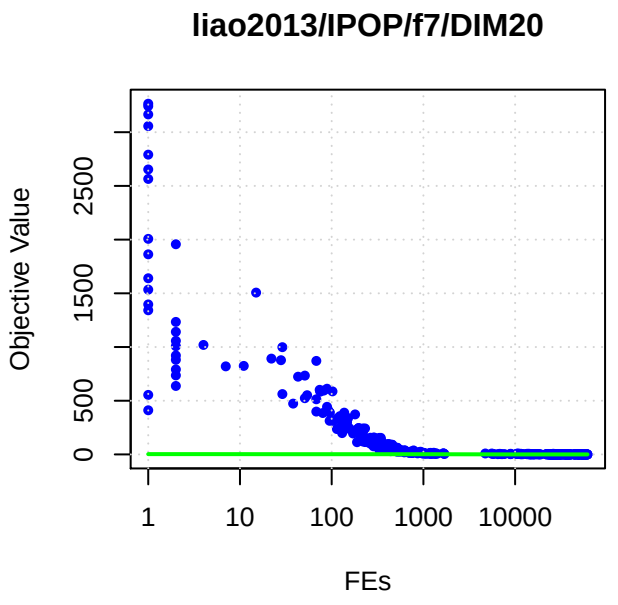
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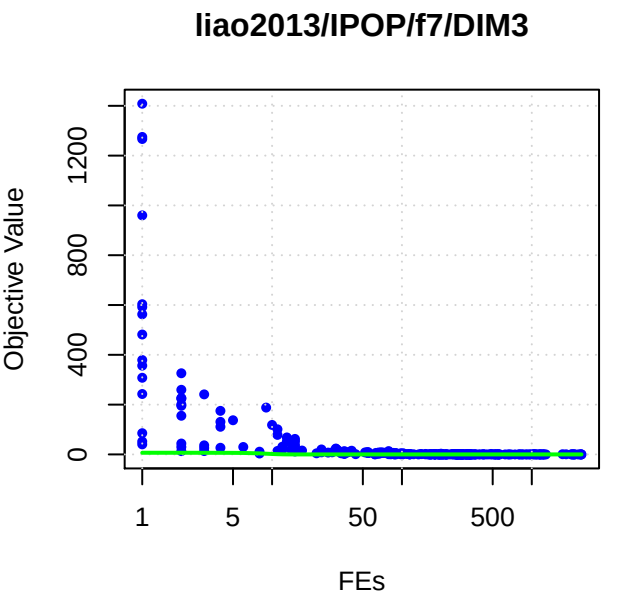
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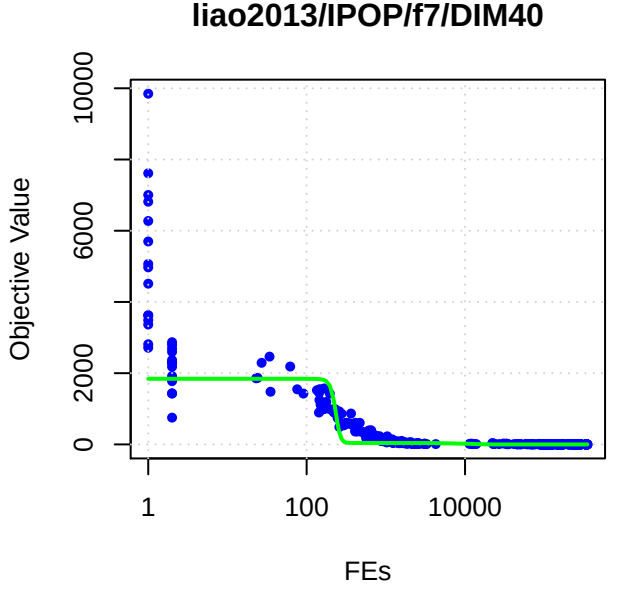
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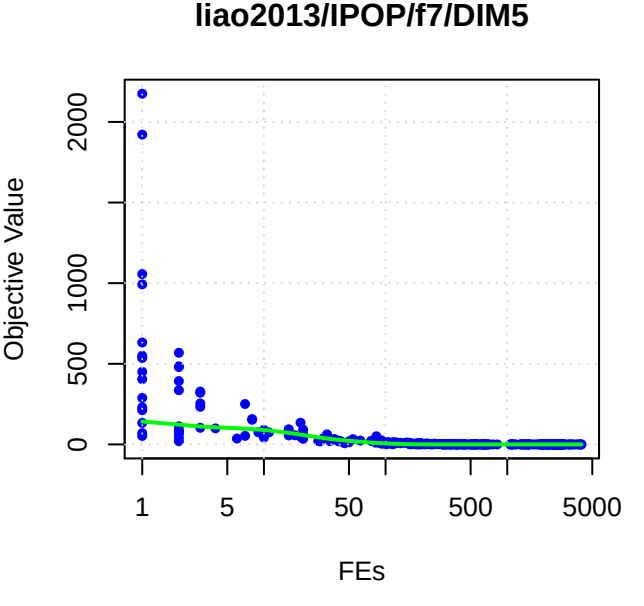
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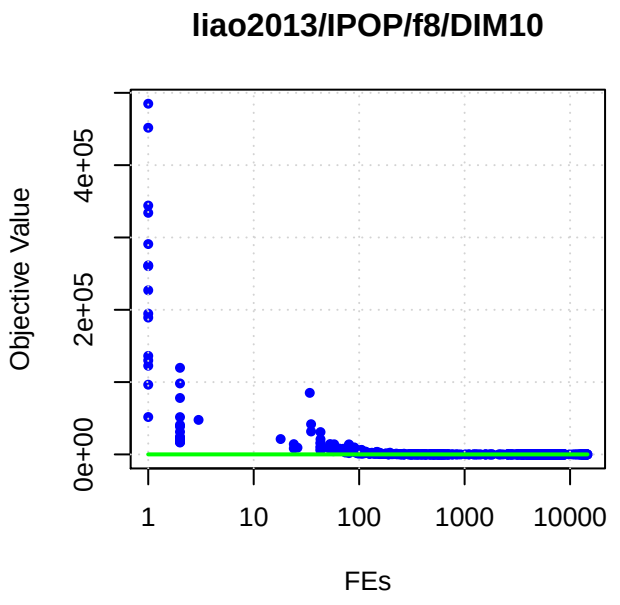
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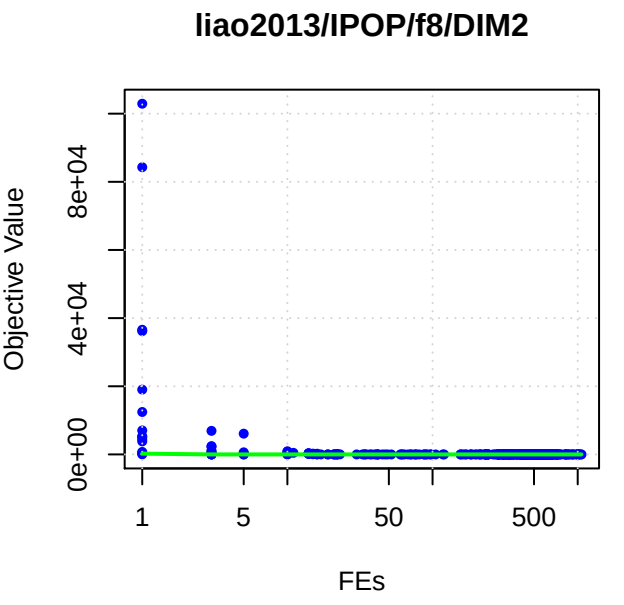
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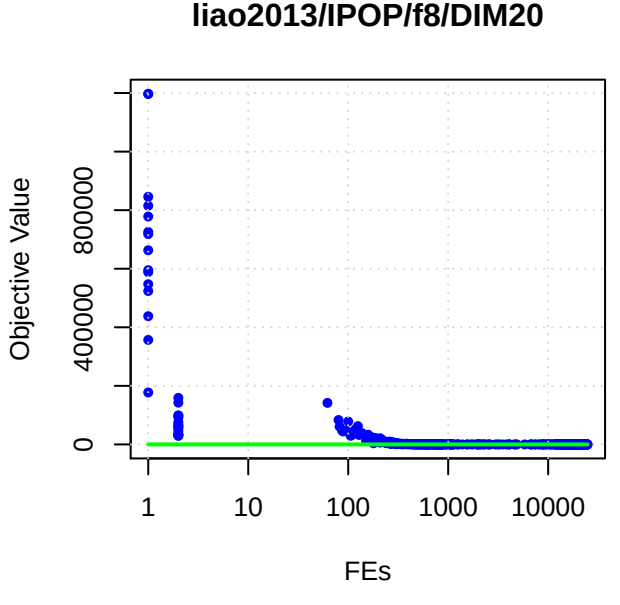
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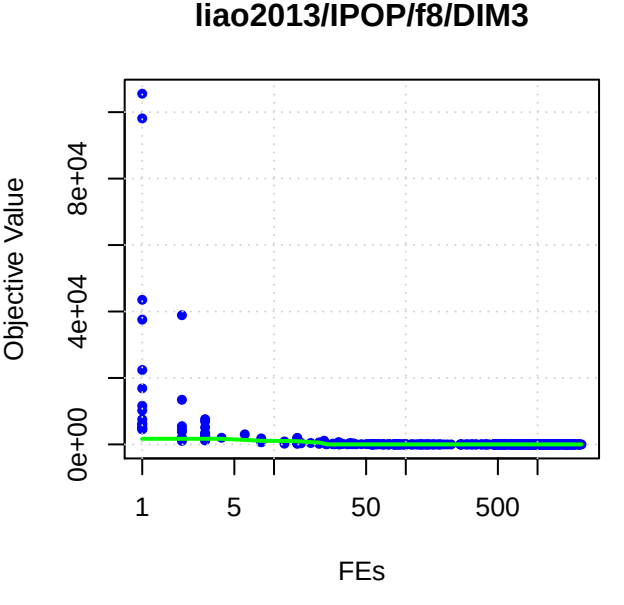
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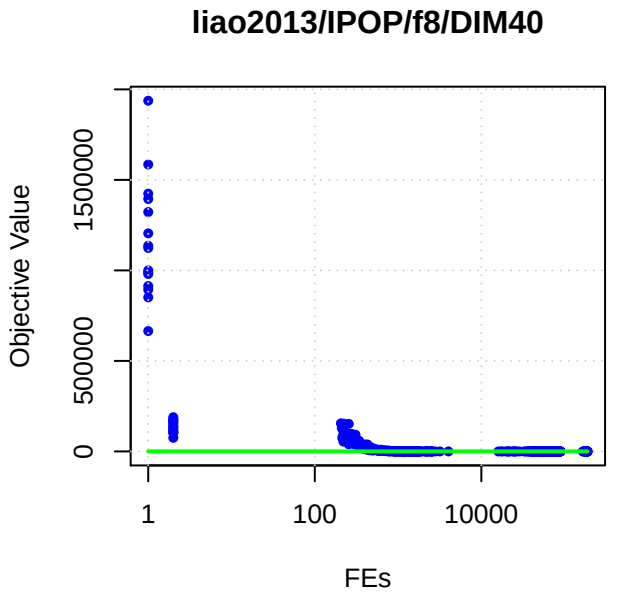
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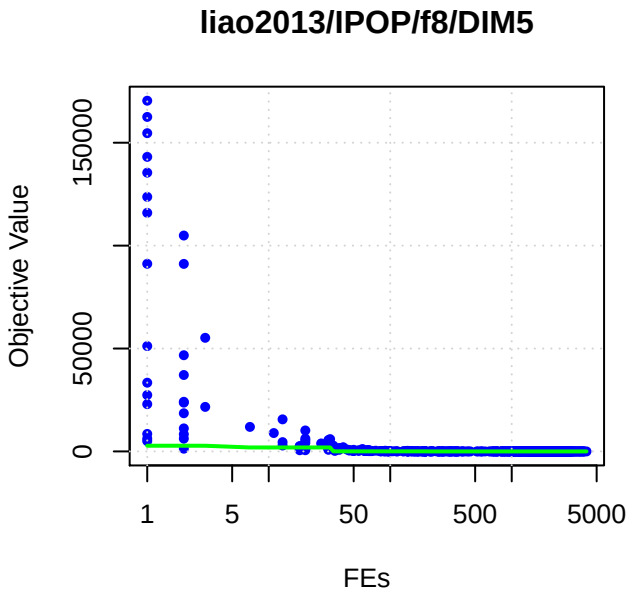
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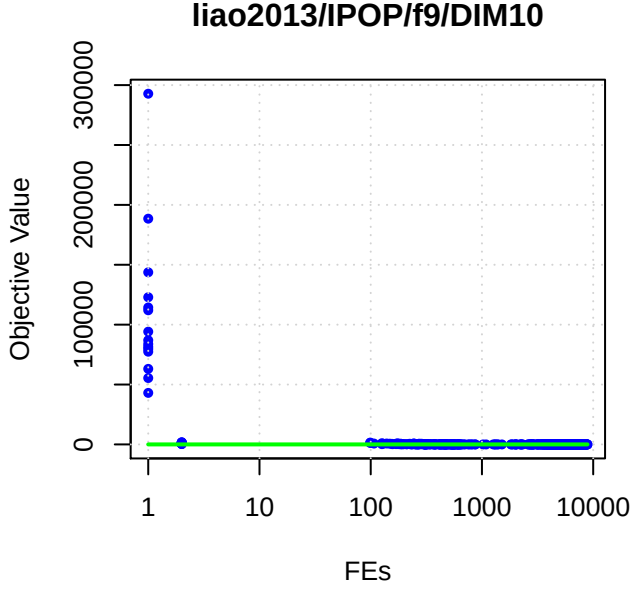
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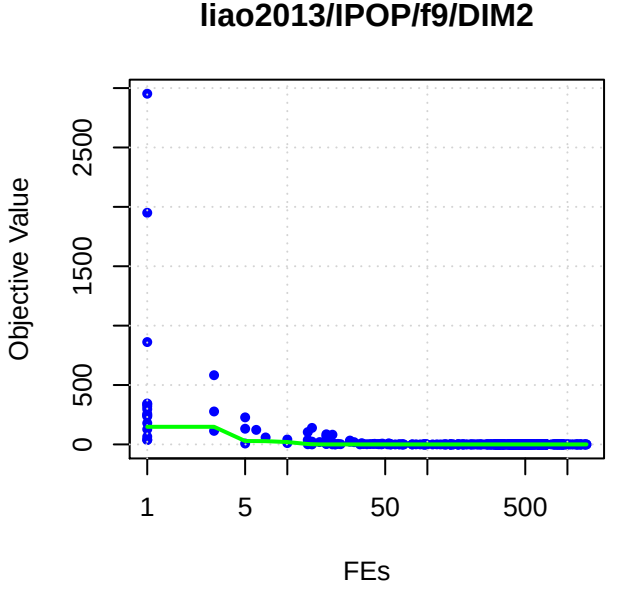
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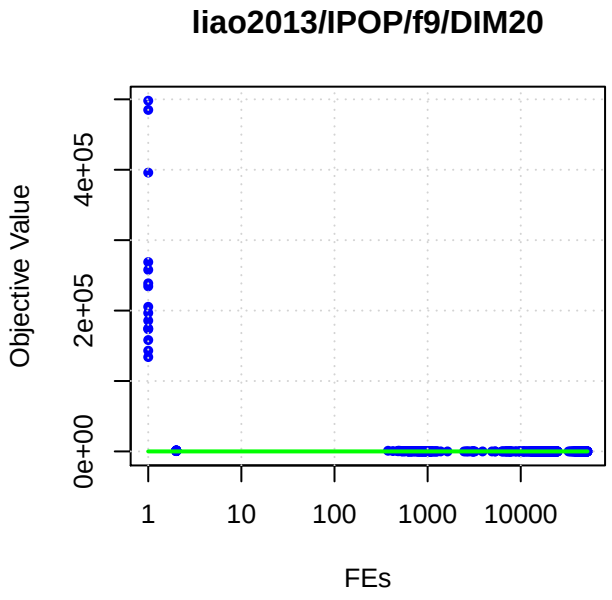
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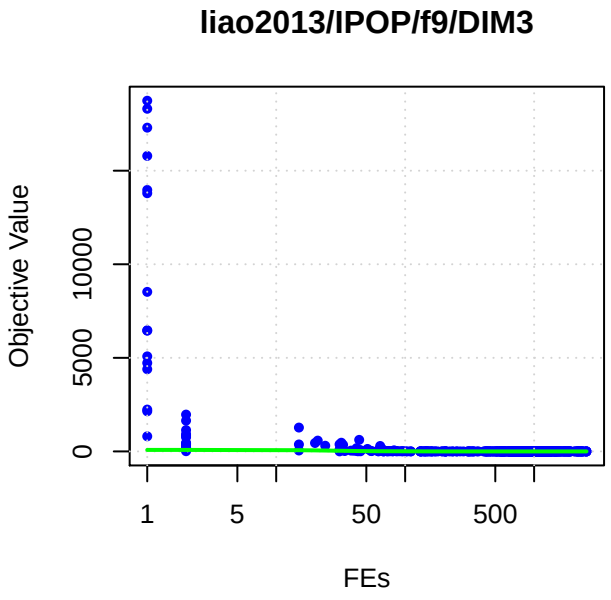
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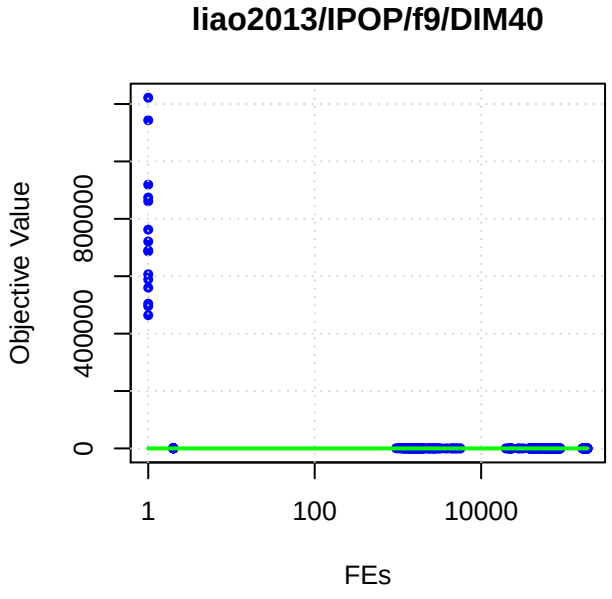
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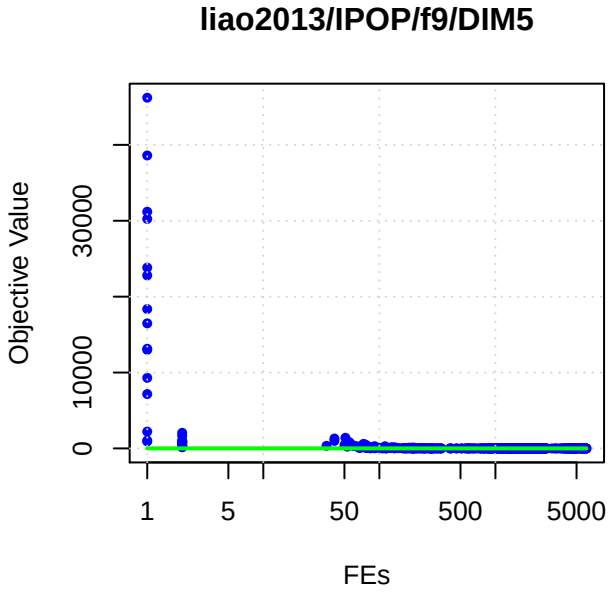
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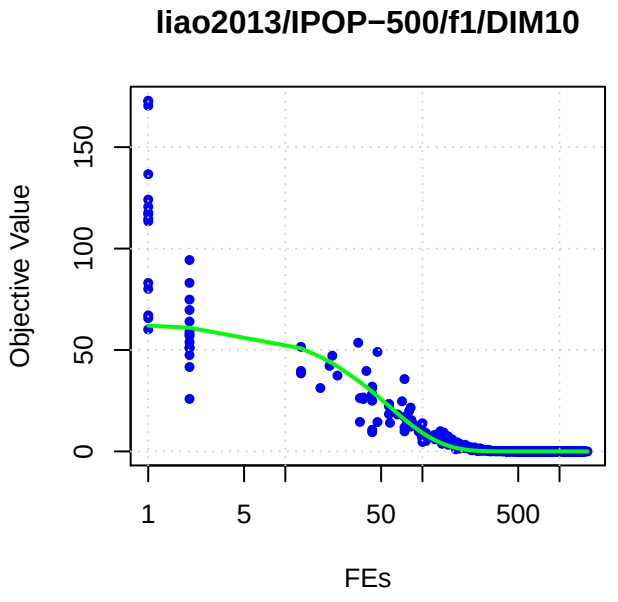
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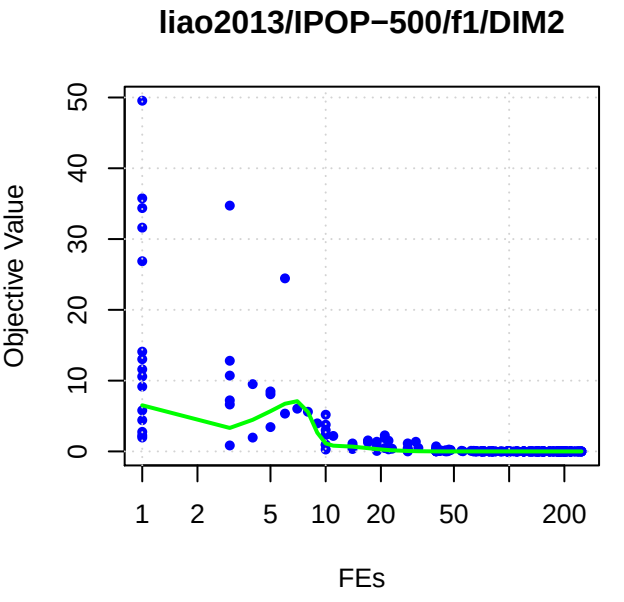
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20
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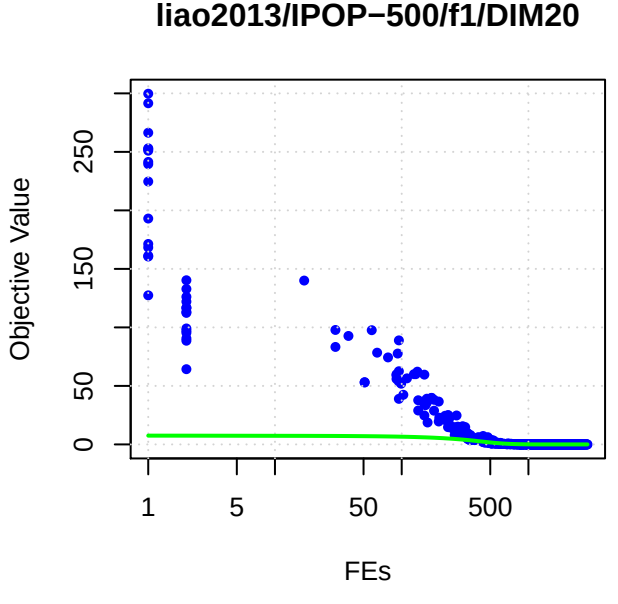
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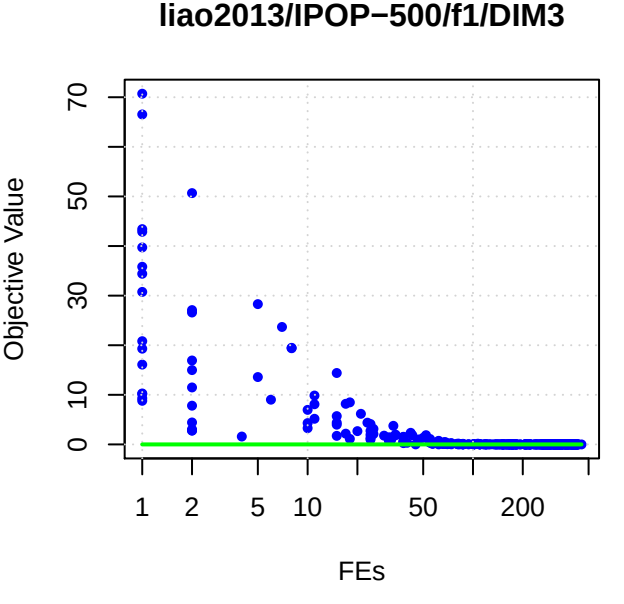
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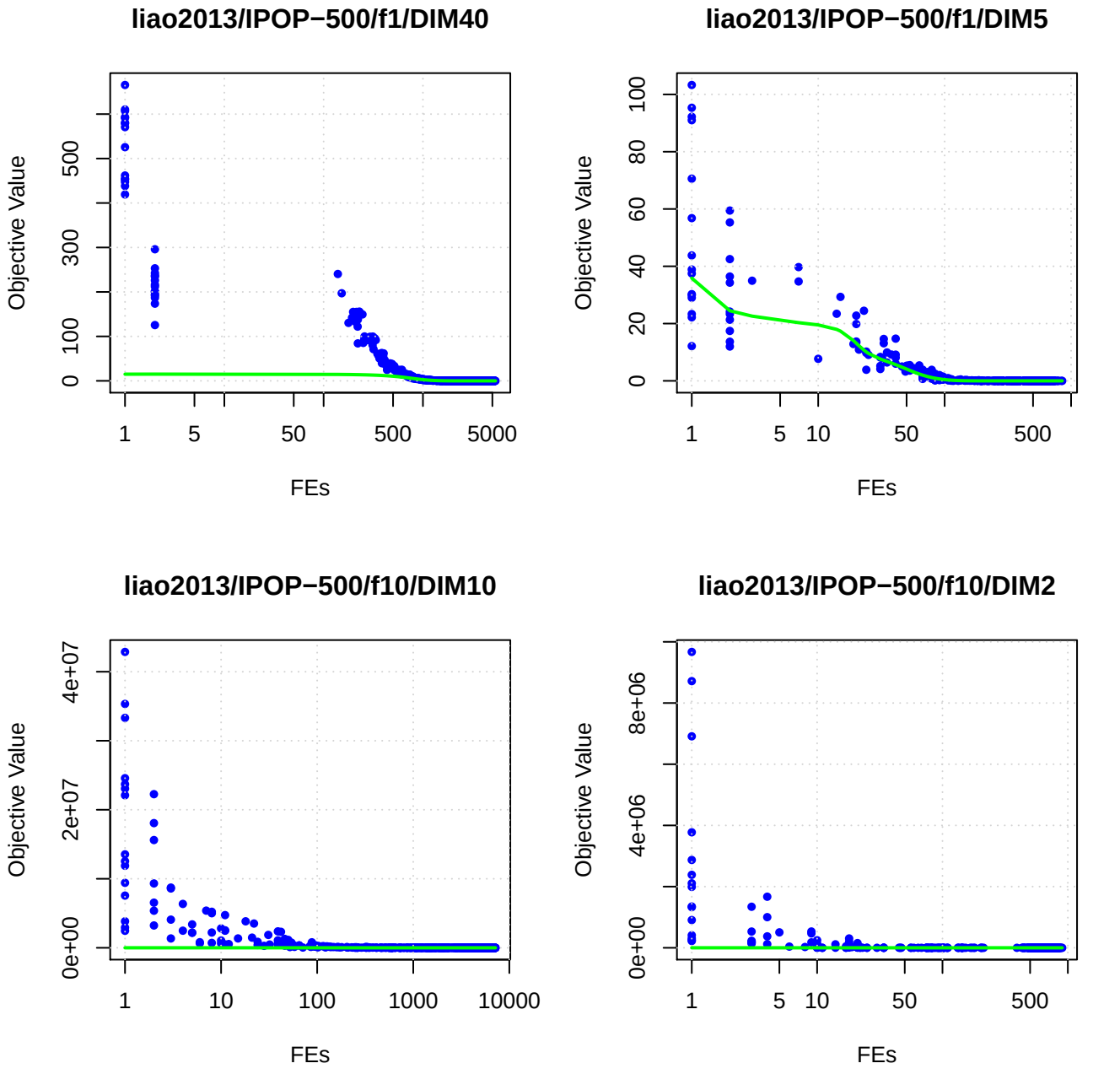
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300
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1
5
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500
5000
FEs
liao2013/IPOP−500/f1/DIM5
Objective Value
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20
40
60
80
100
1
5
10
50
500
FEs
liao2013/IPOP−500/f10/DIM10
Objective Value
0e+00
2e+07
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1000
10000
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8e+06
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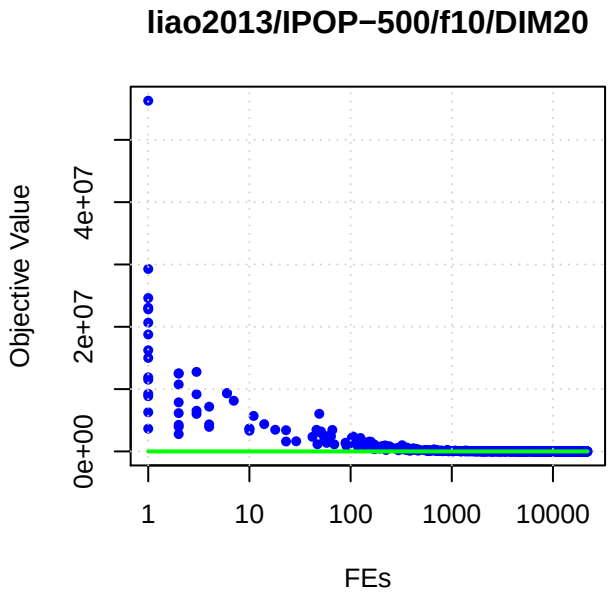
50
500
FEs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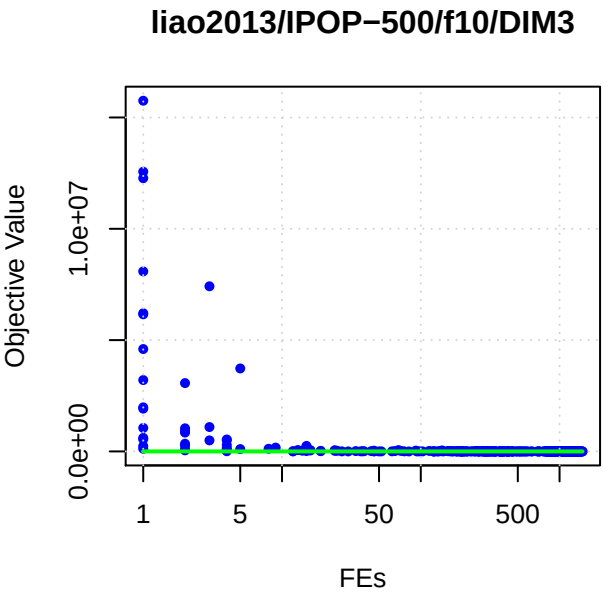
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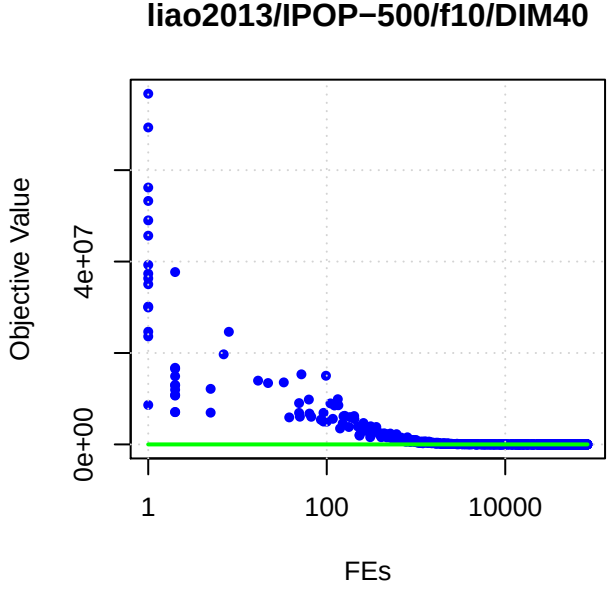
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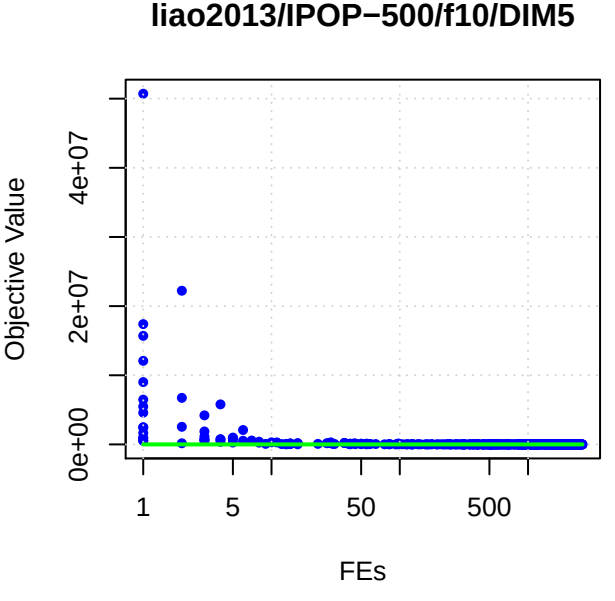
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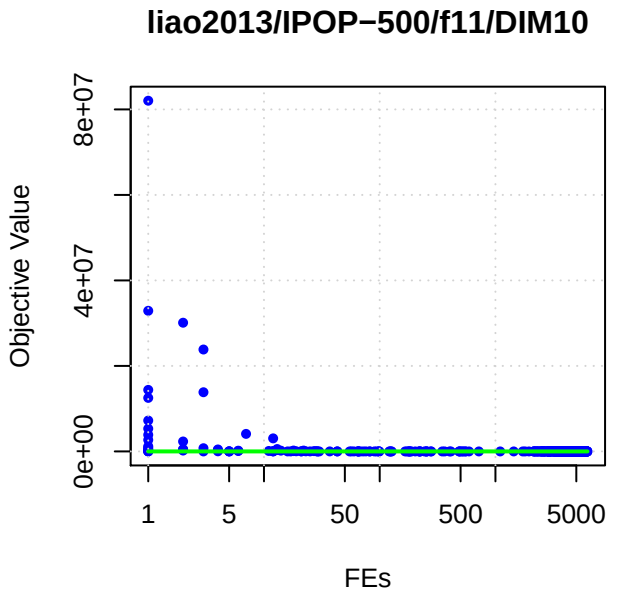
FEs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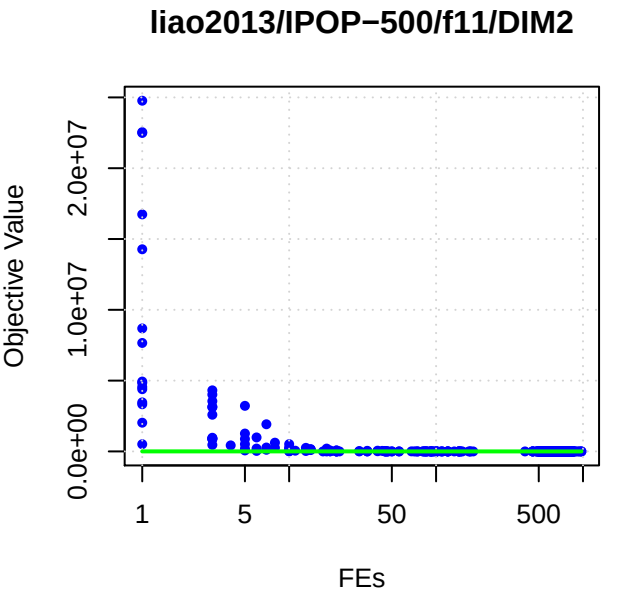
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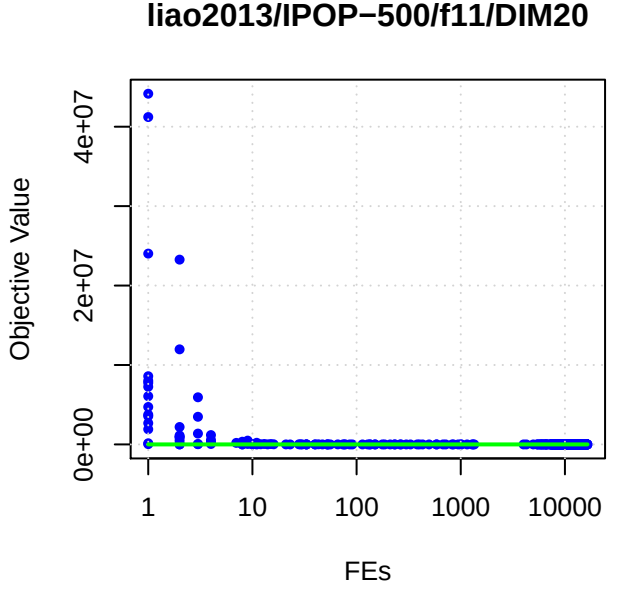
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4e+07
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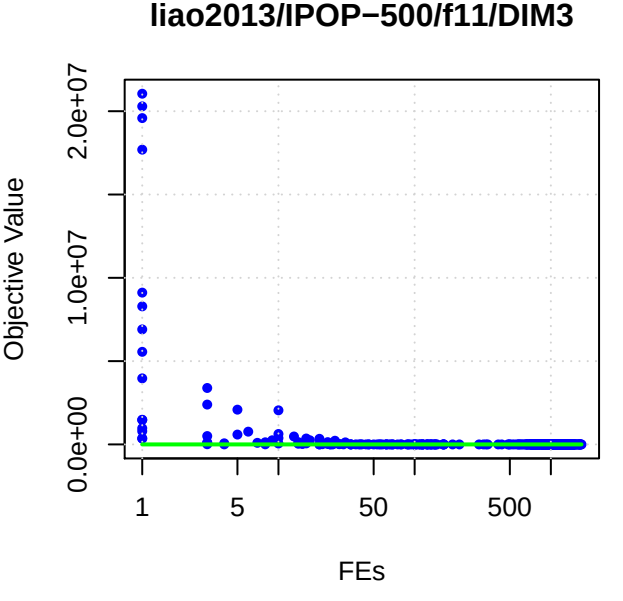
FEs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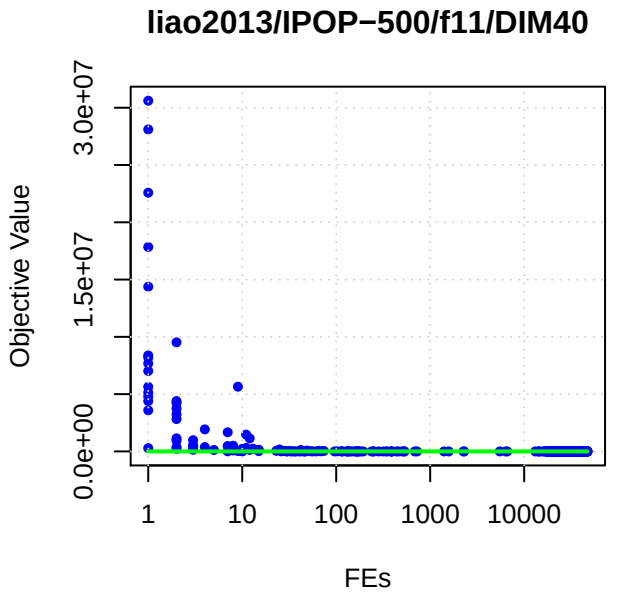
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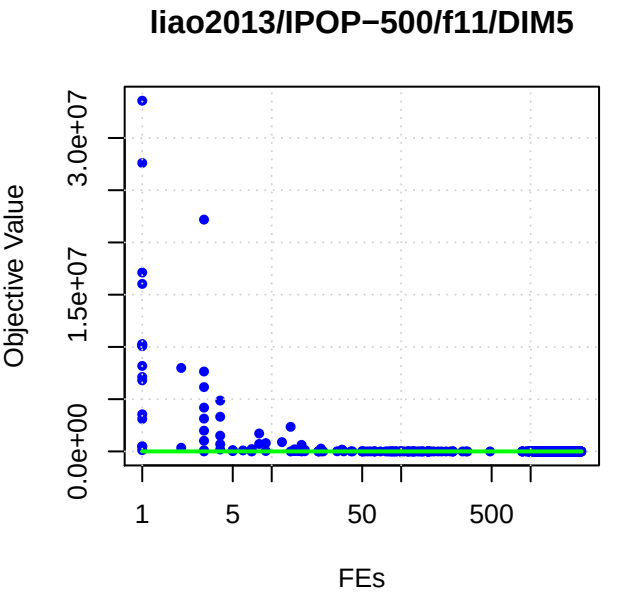
FEs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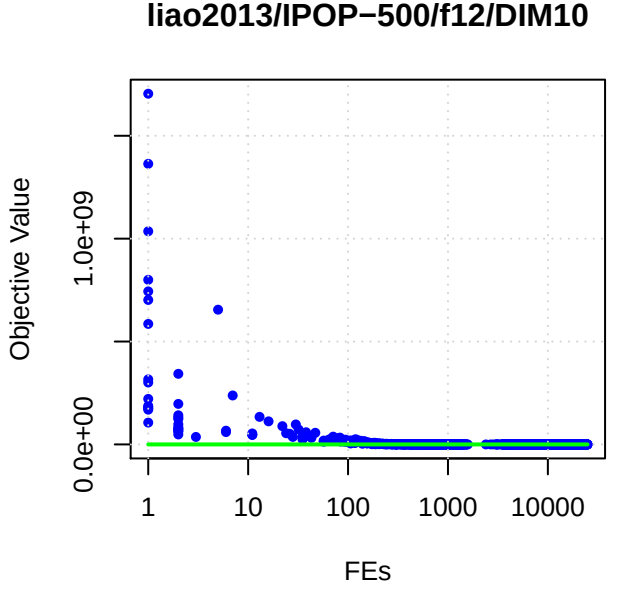
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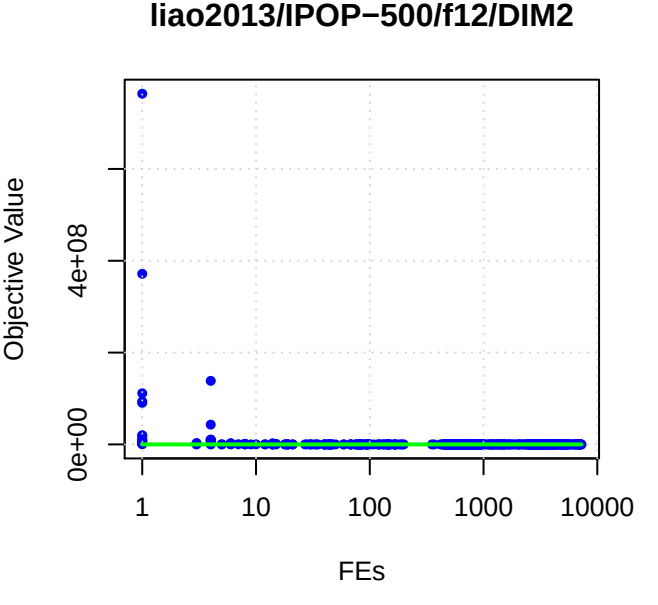
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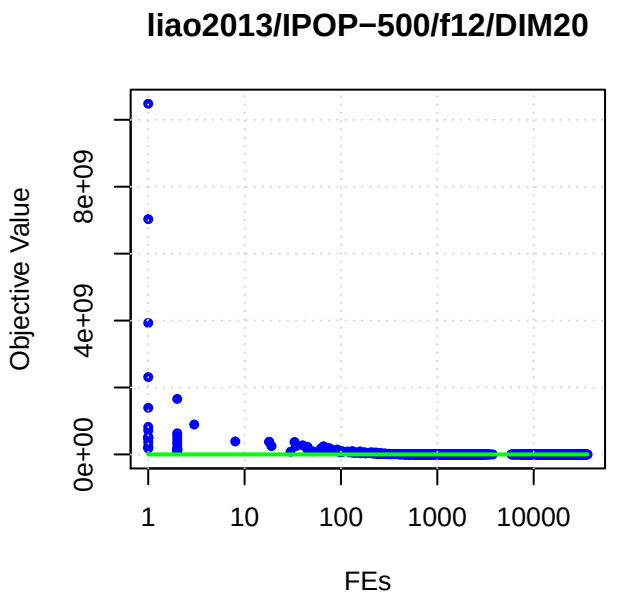
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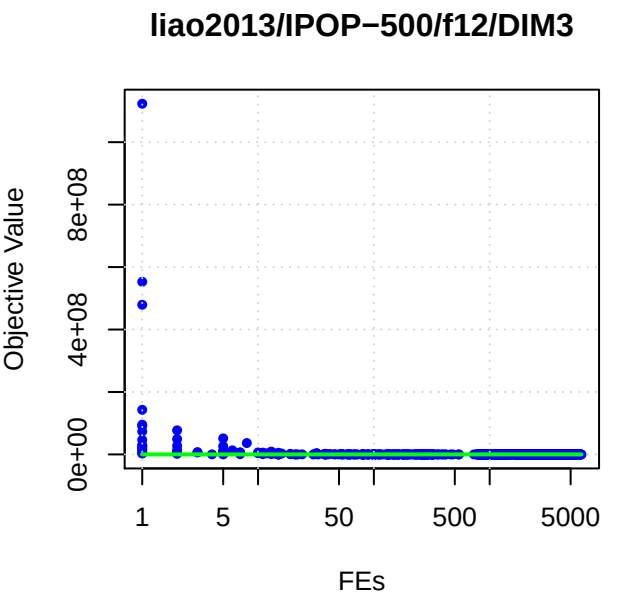
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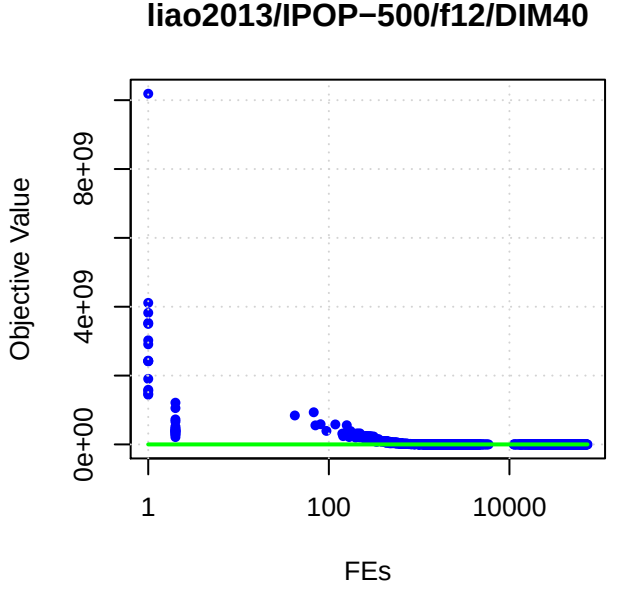
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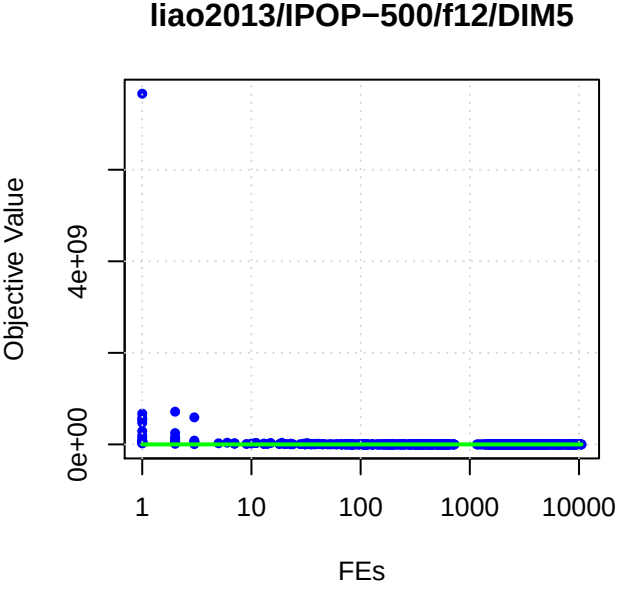
FEs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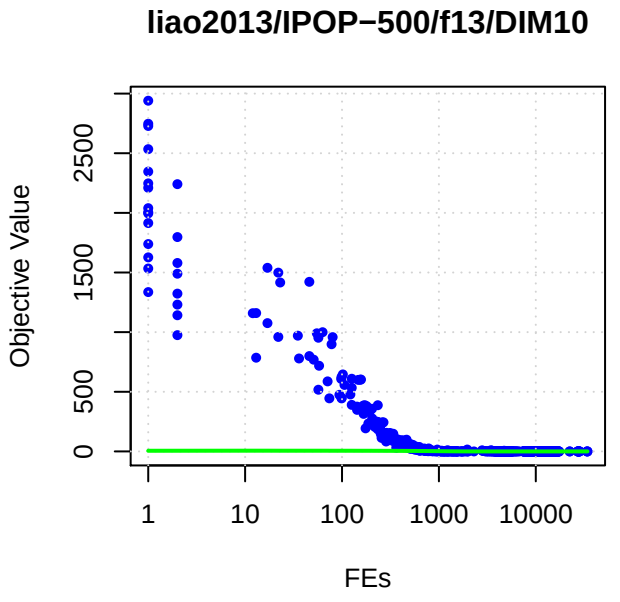
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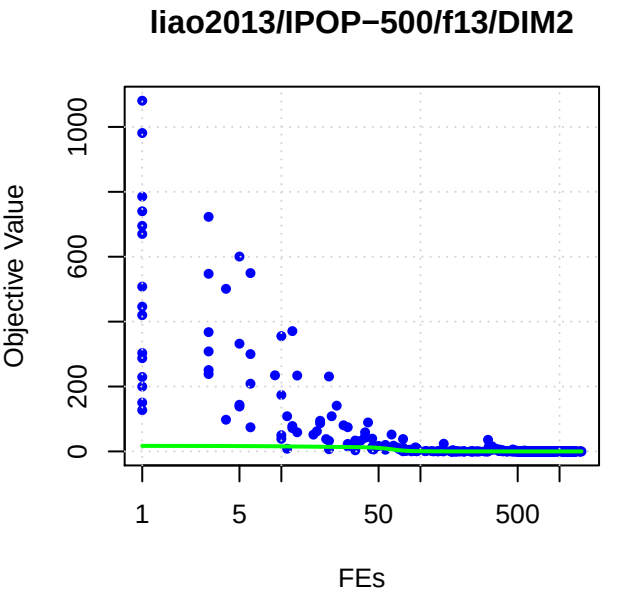
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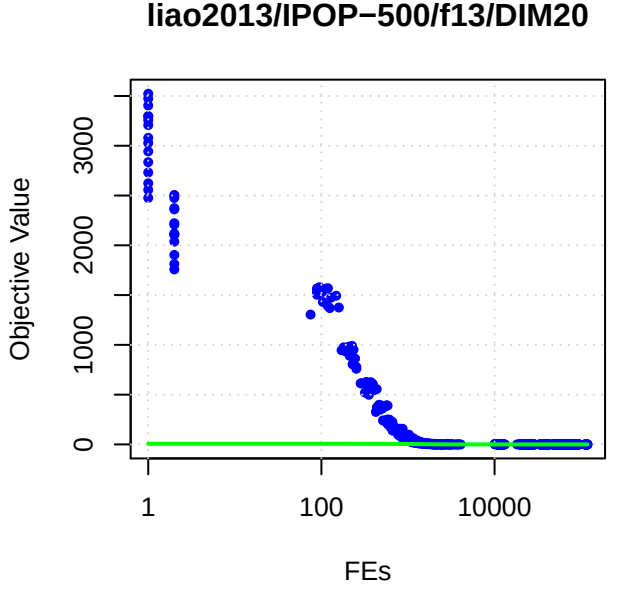
FEs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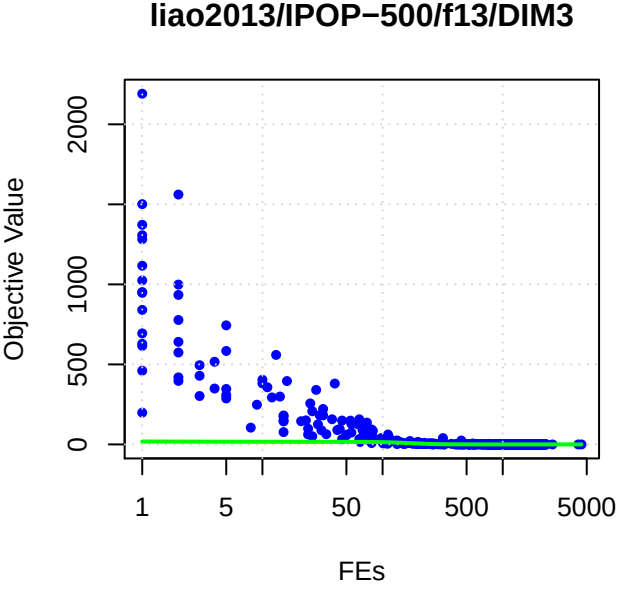
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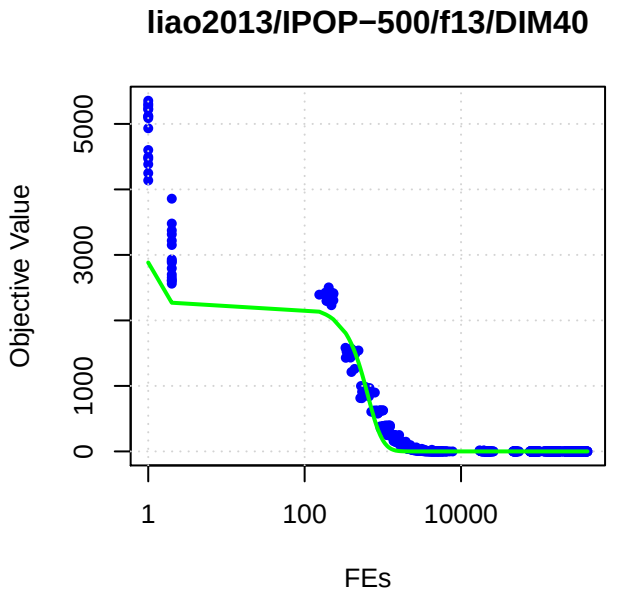
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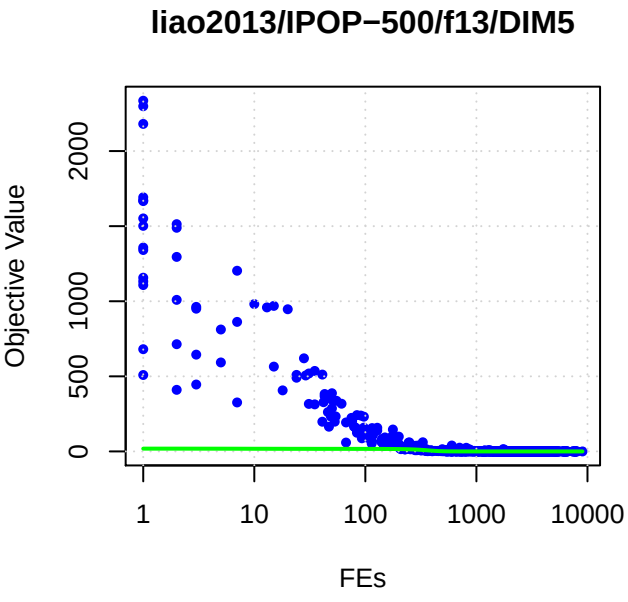
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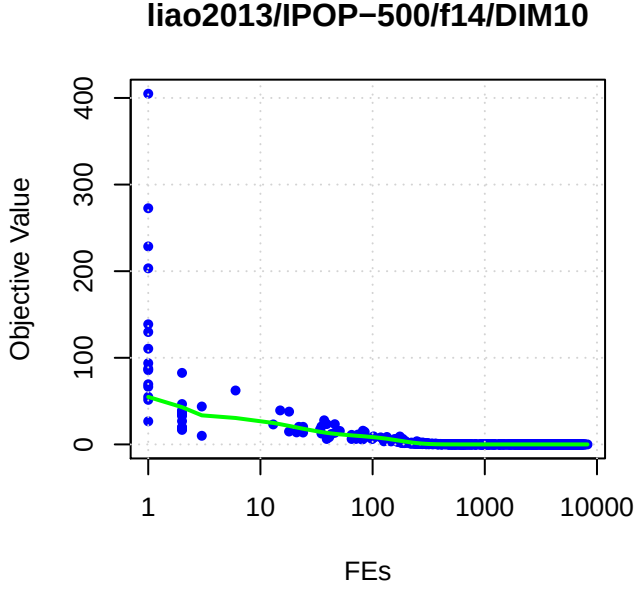
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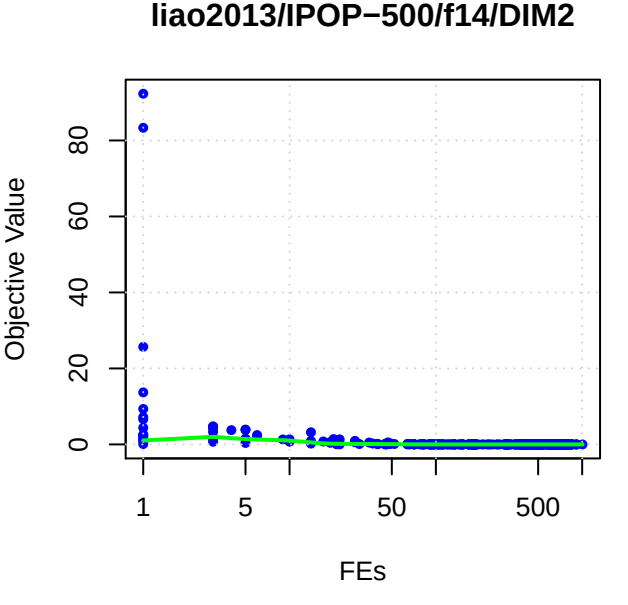
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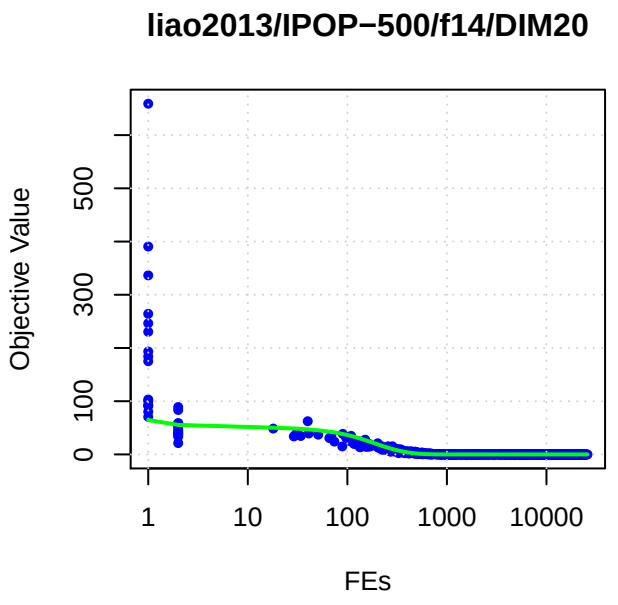
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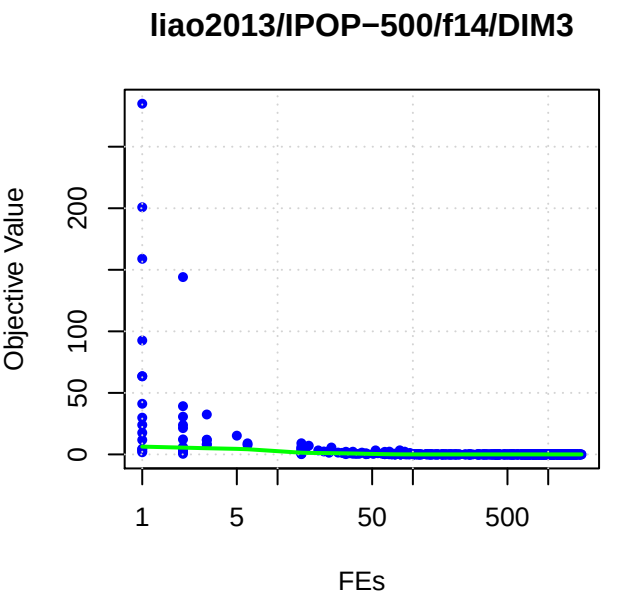
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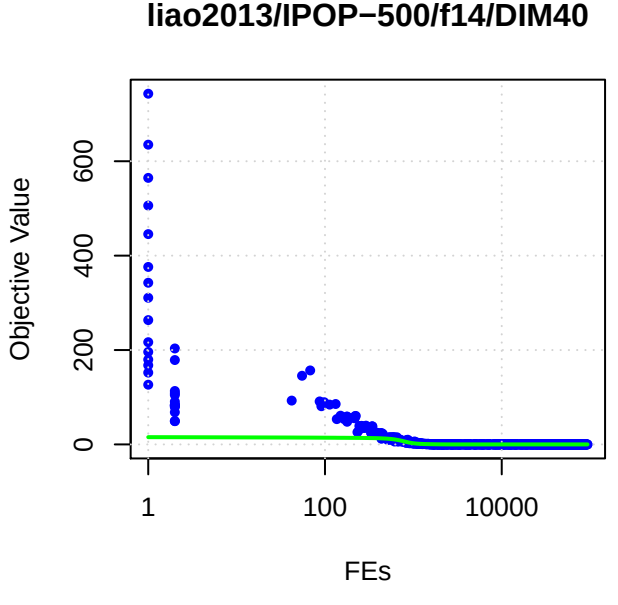
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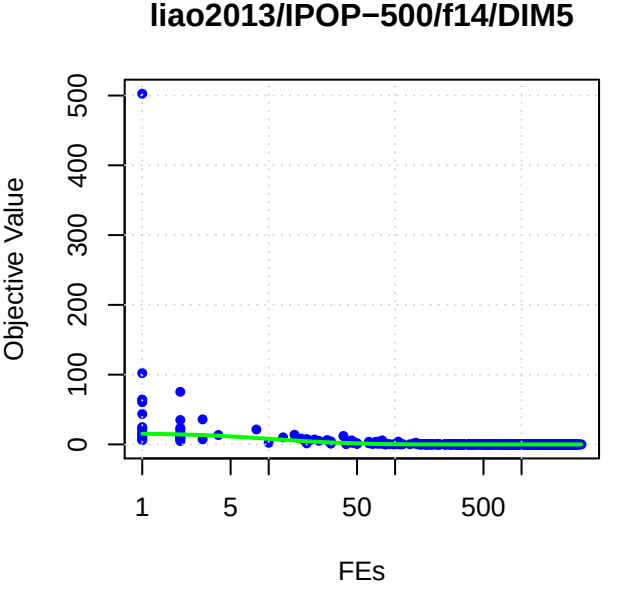
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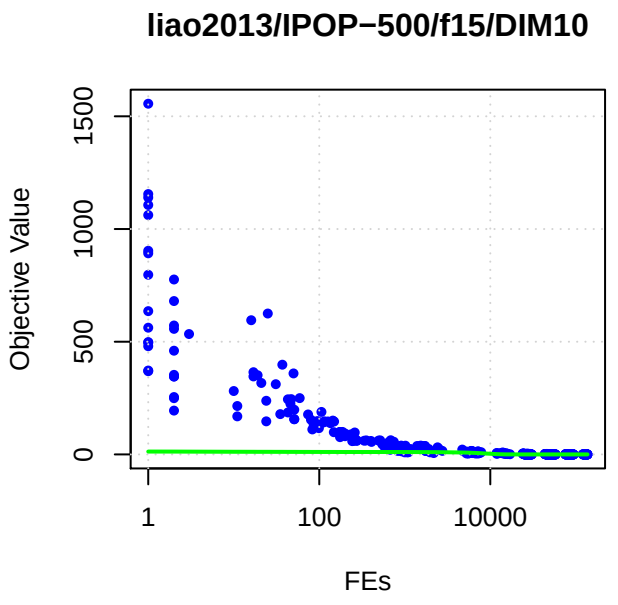
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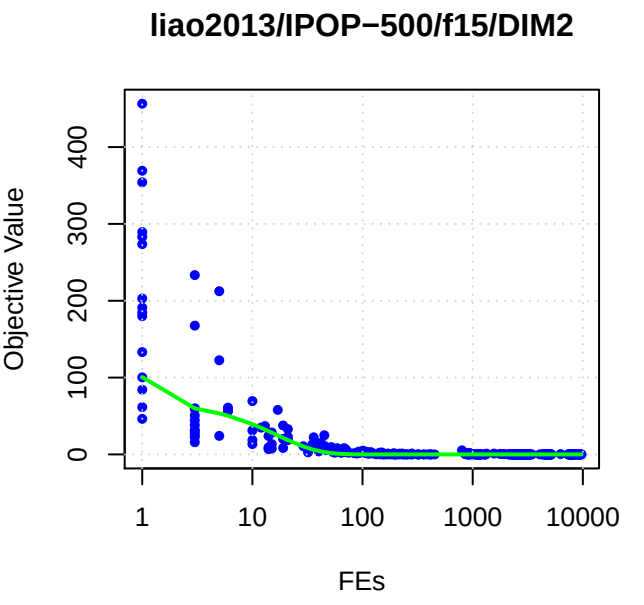
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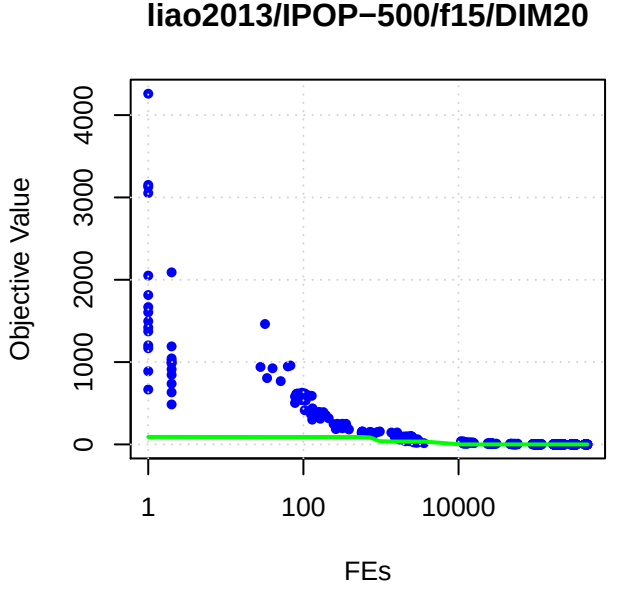
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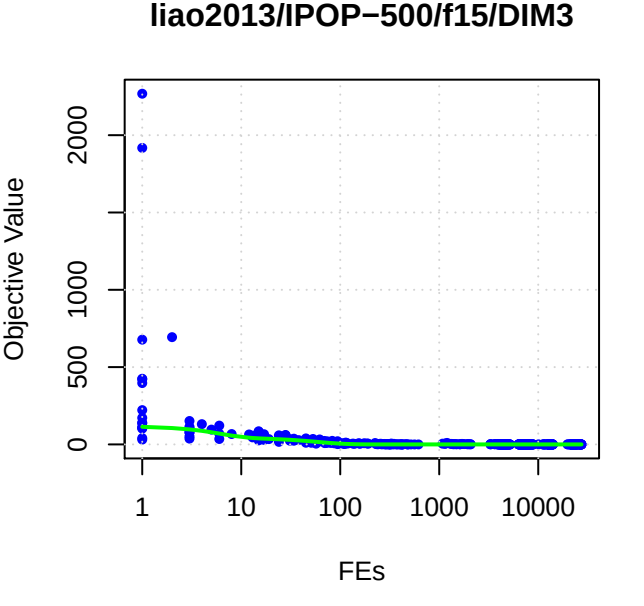
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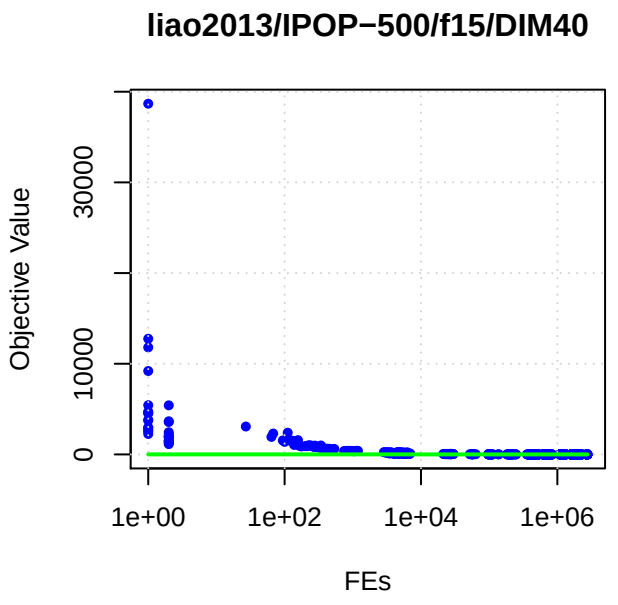
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1e+06
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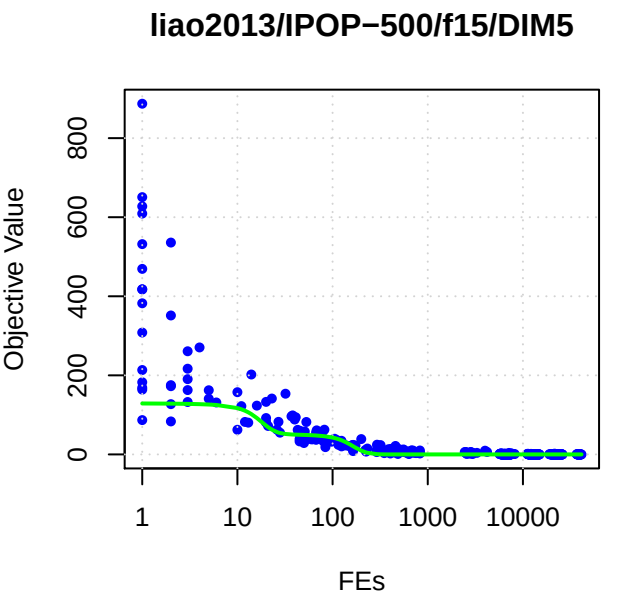
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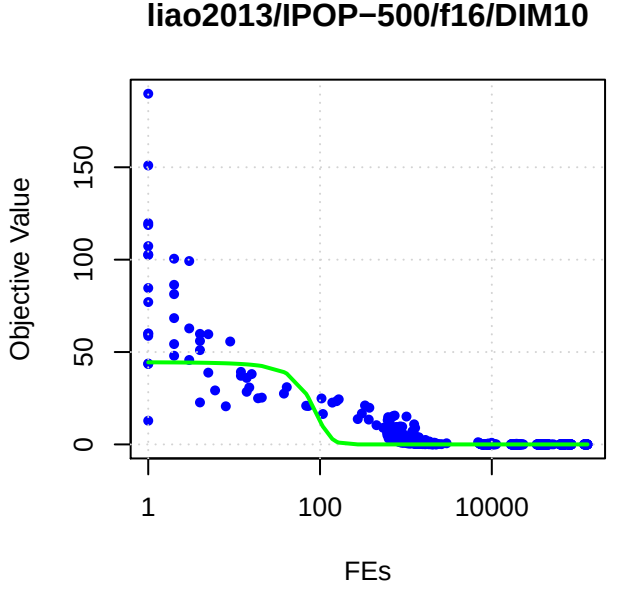
FEs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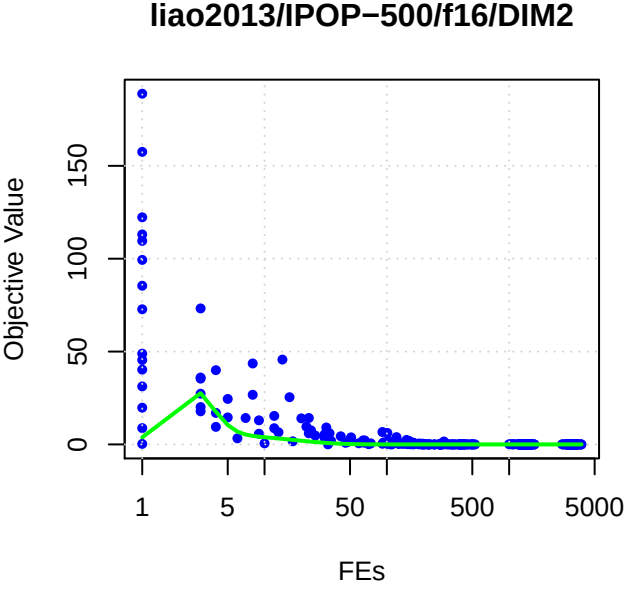
FEs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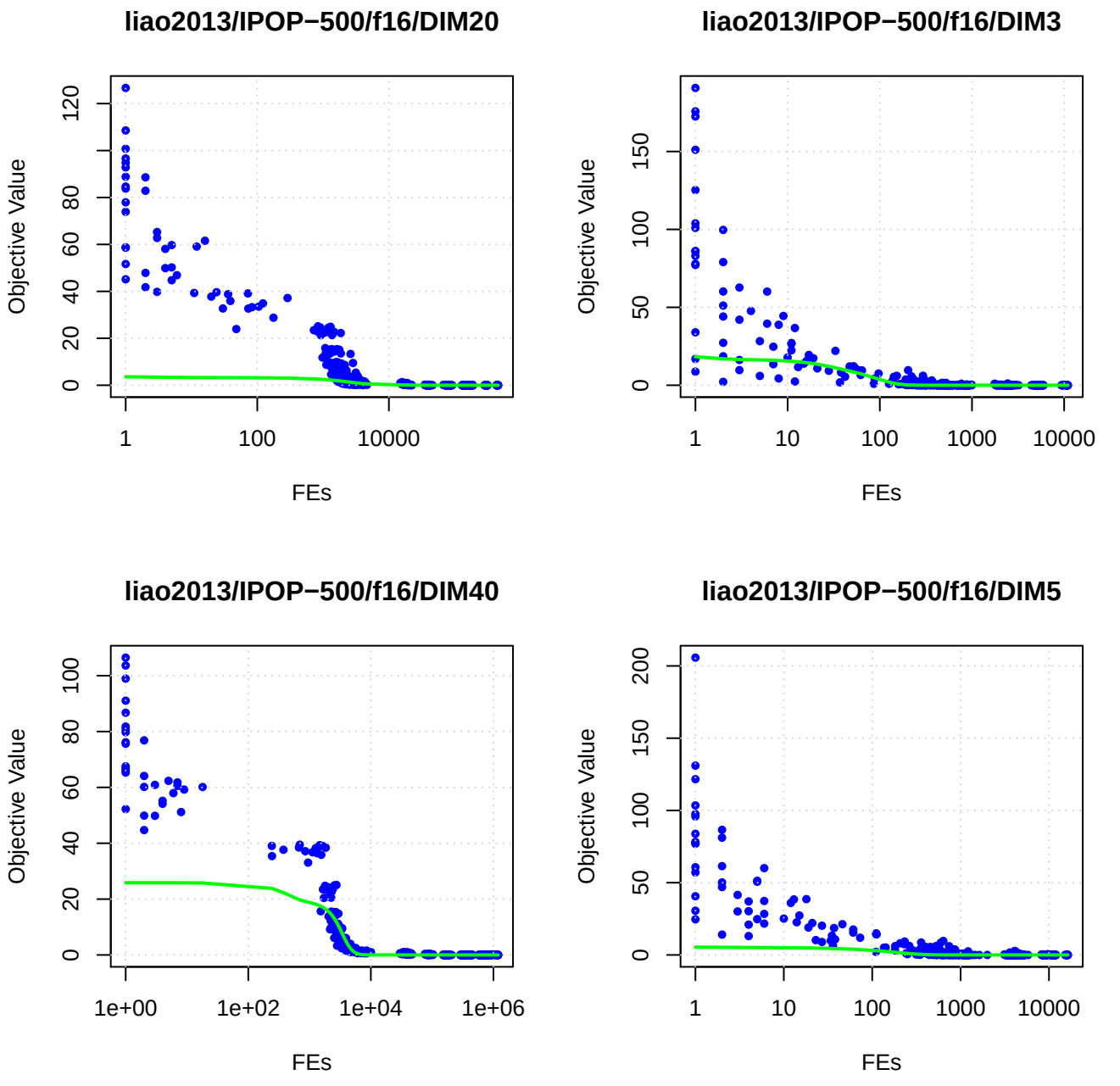
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120
1
100
10000
FEs
liao2013/IPOP−500/f16/DIM3
Objective Value
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100
150
1
10
100
1000
10000
FEs
liao2013/IPOP−500/f16/DIM40
Objective Value
0
20
40
60
80
100
1e+00
1e+02
1e+04
1e+06
FEs
liao2013/IPOP−500/f16/DIM5
Objective Value
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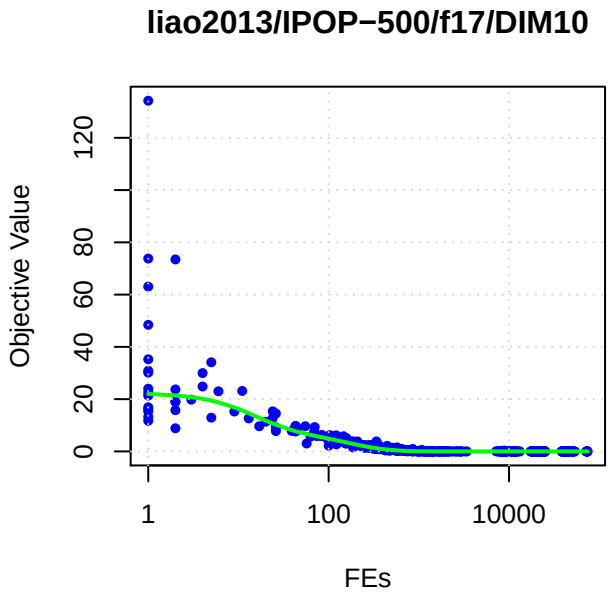
FEs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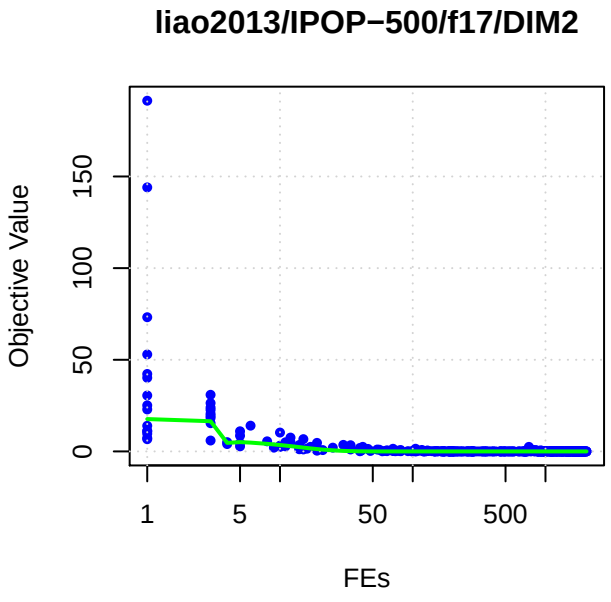
FEs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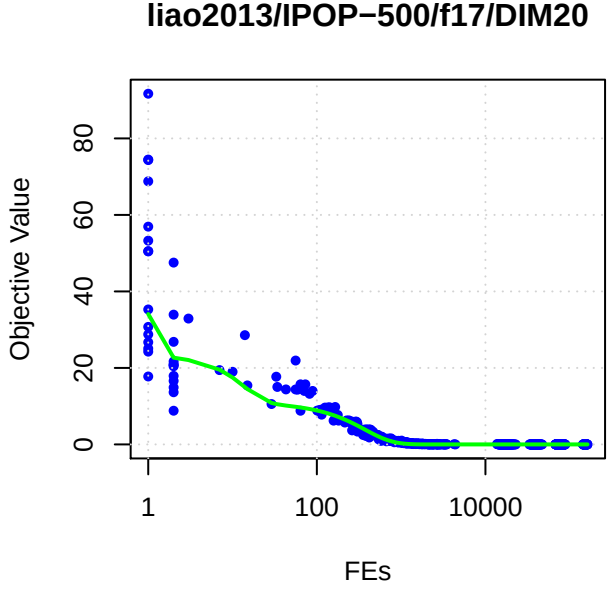
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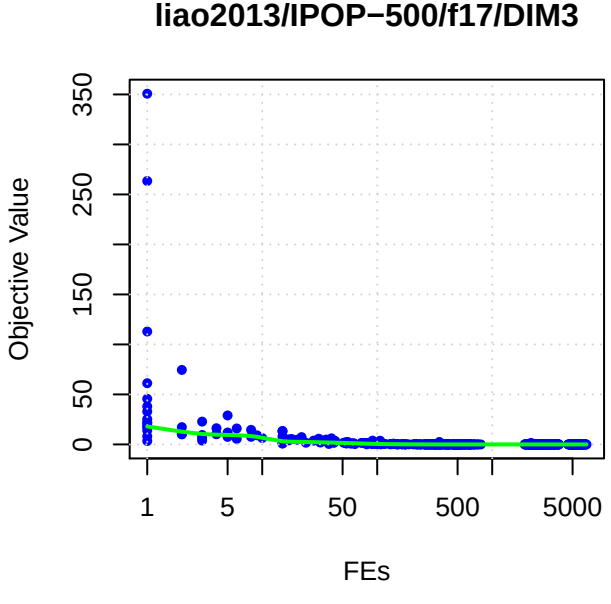
FEs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1
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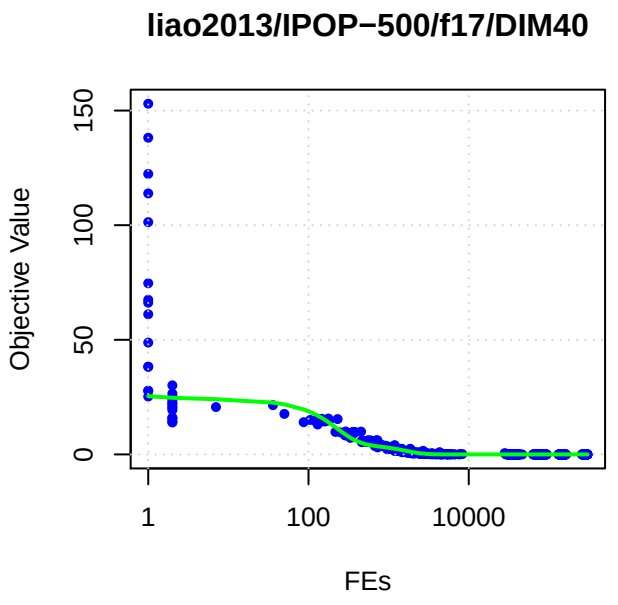
50
500
5000
FEs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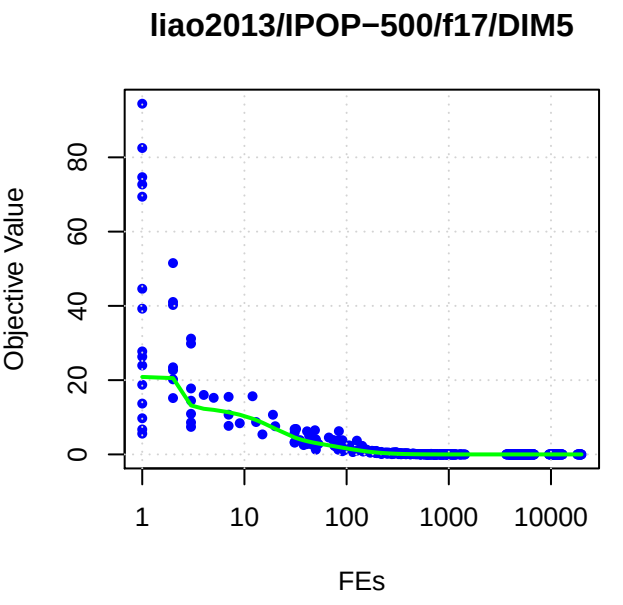
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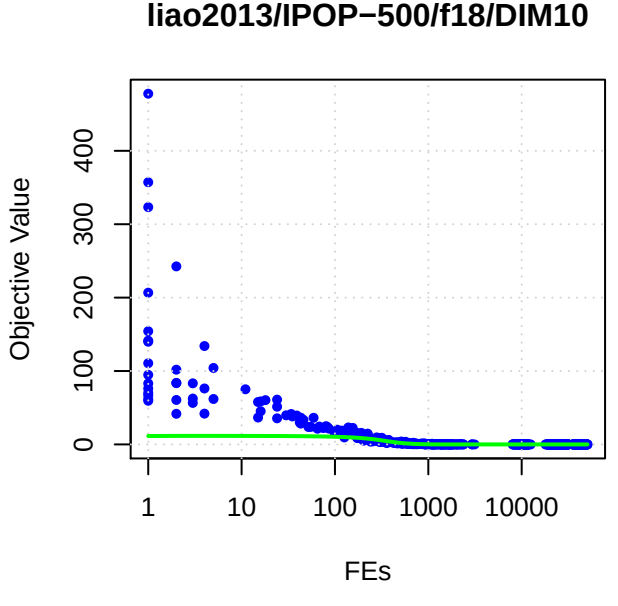
1000
10000
FEs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Objective Value
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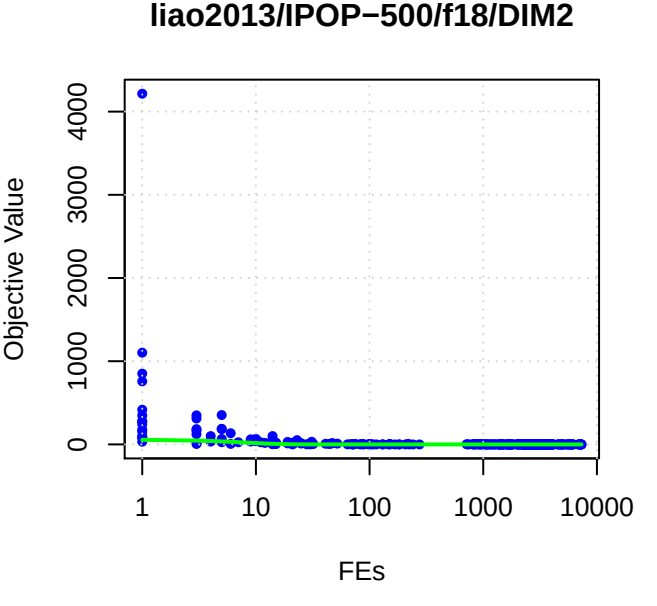
100
1000
10000
FEs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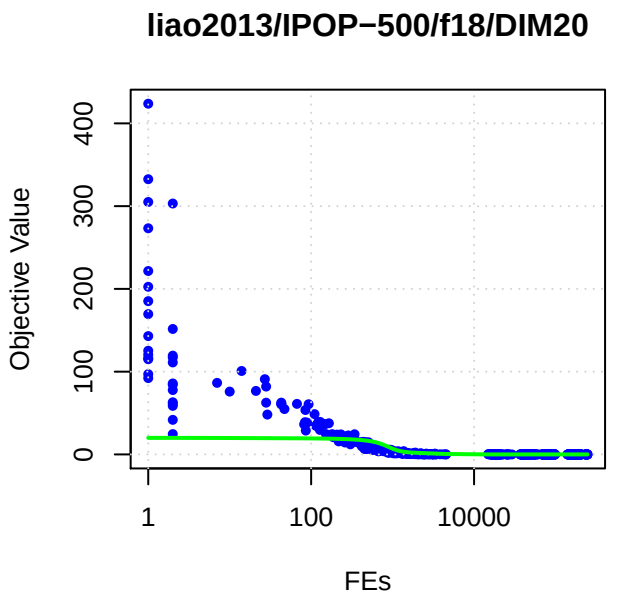
100
1000
10000
FEs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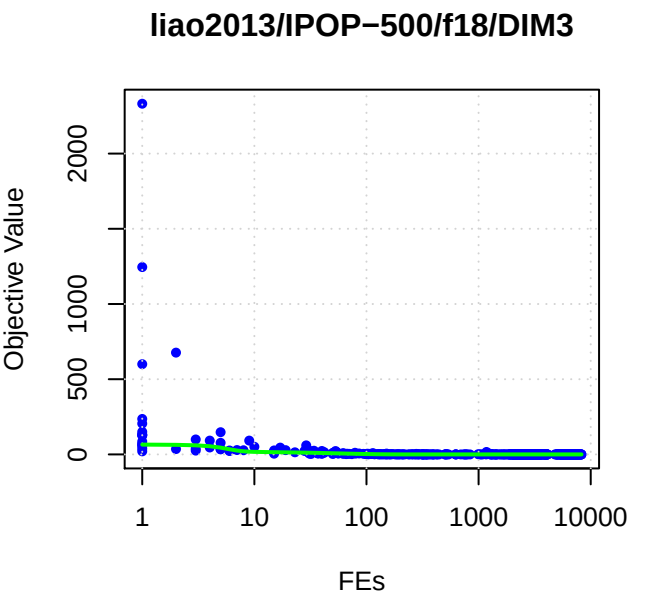
FEs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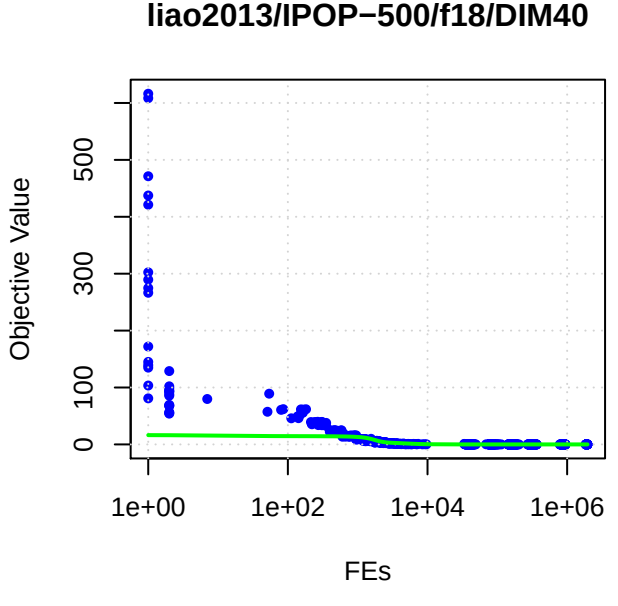
FEs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500
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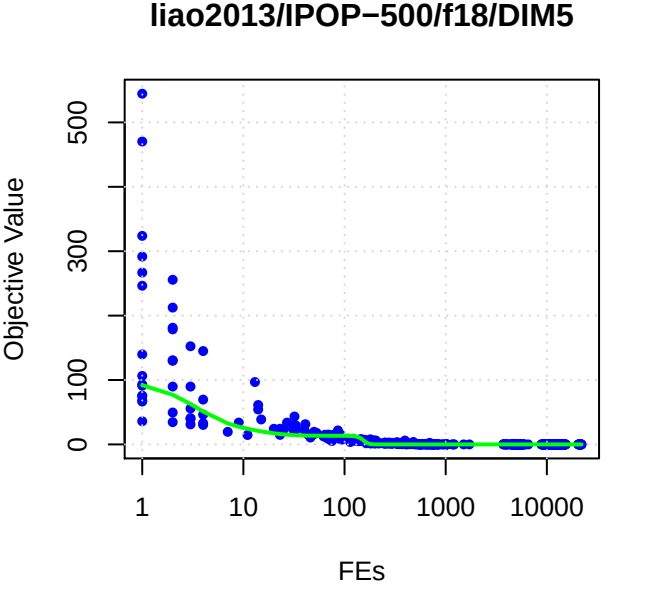
1e+06
FEs


liao2013/IPOP−500/f18/DIM5
Objective Value
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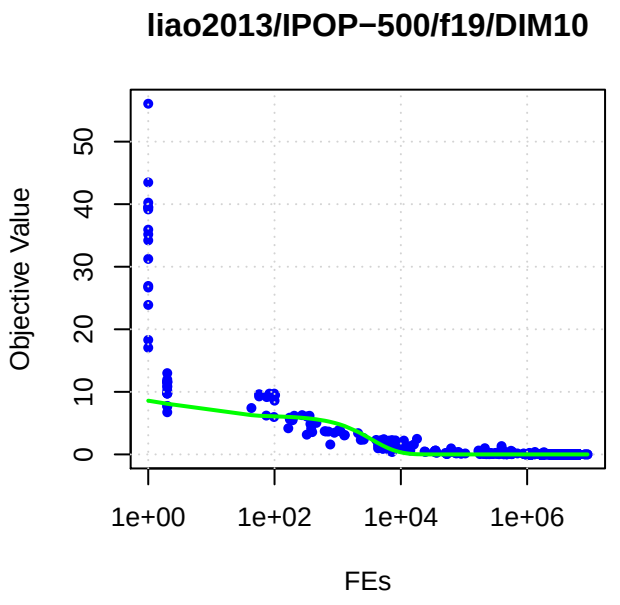
500
1
10
100
1000
10000
FEs


liao2013/IPOP−500/f19/DIM10
Objective Value
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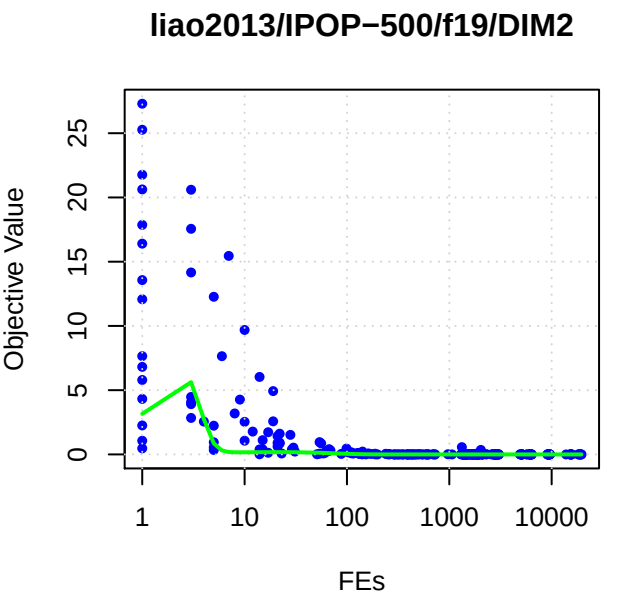
1e+06
FEs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Objective Value
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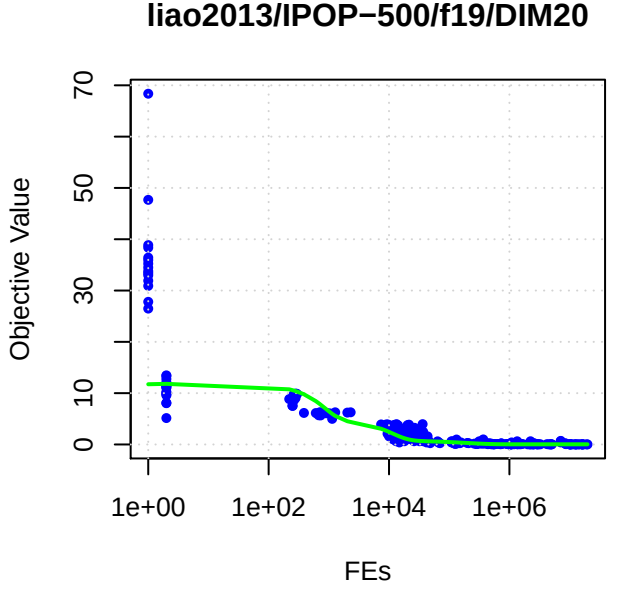
100
1000
10000
FEs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Objective Value
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70
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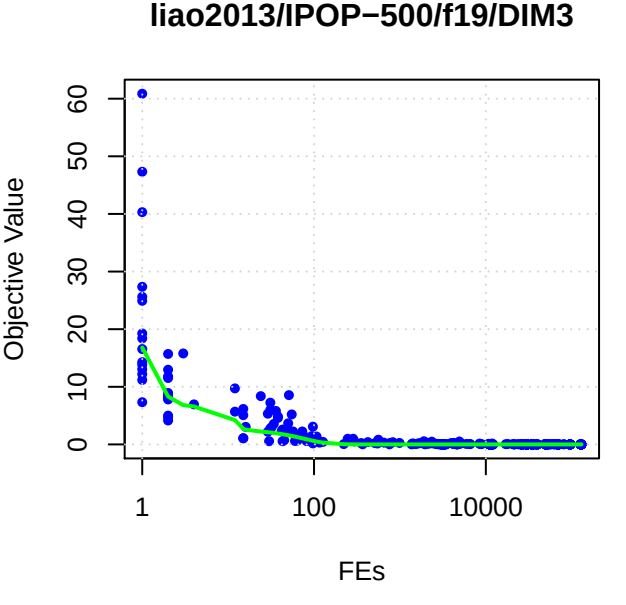
1e+02
1e+04
1e+06
FEs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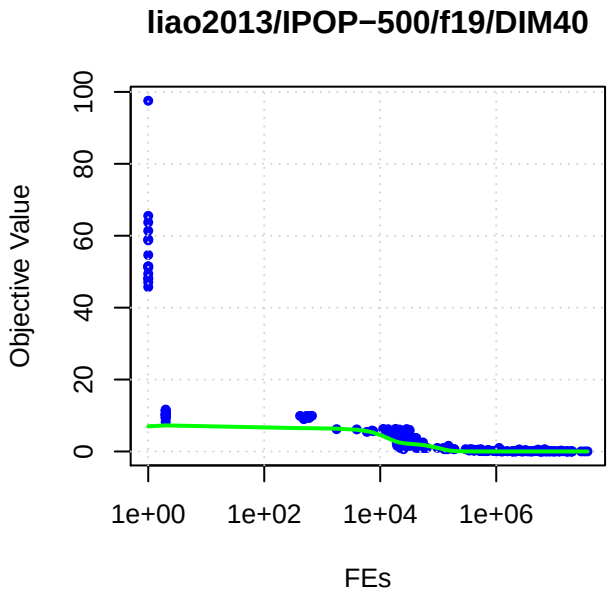
1
100
10000
FEs


liao2013/IPOP−500/f19/DIM40
Objective Value
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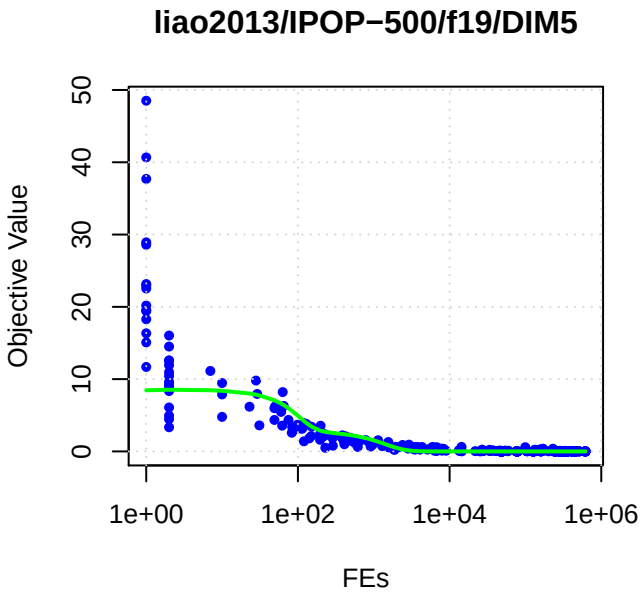
1e+06
FEs


liao2013/IPOP−500/f19/DIM5
Objective Value
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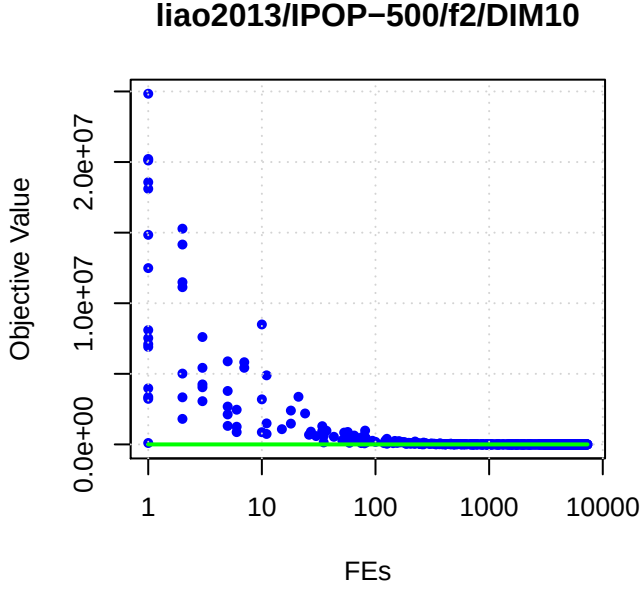
1e+06
FEs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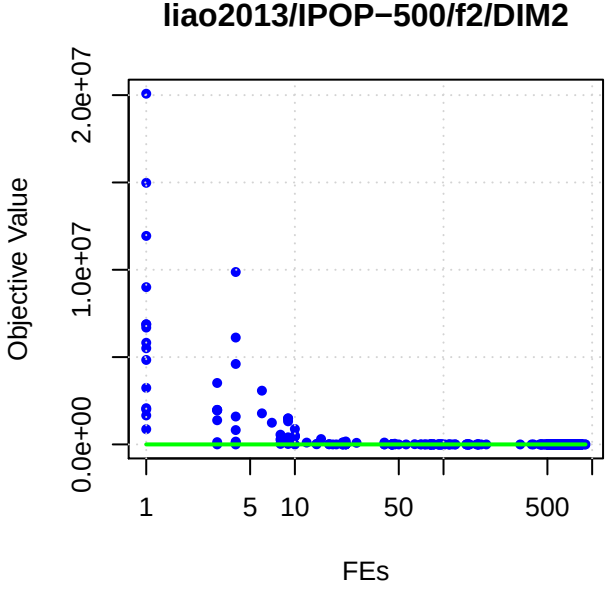
FEs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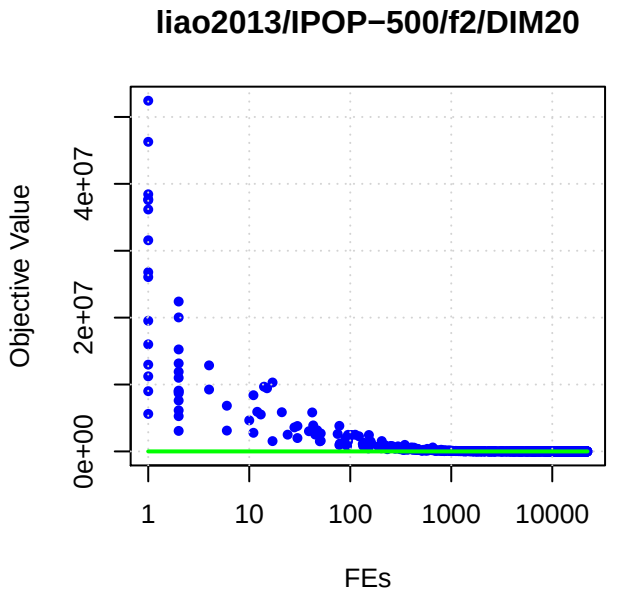
10
50
500
FEs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Objective Value
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100
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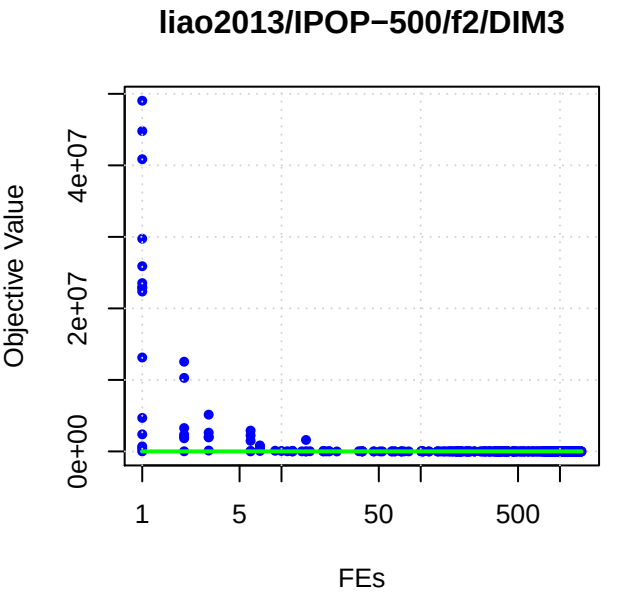
10000
FEs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500
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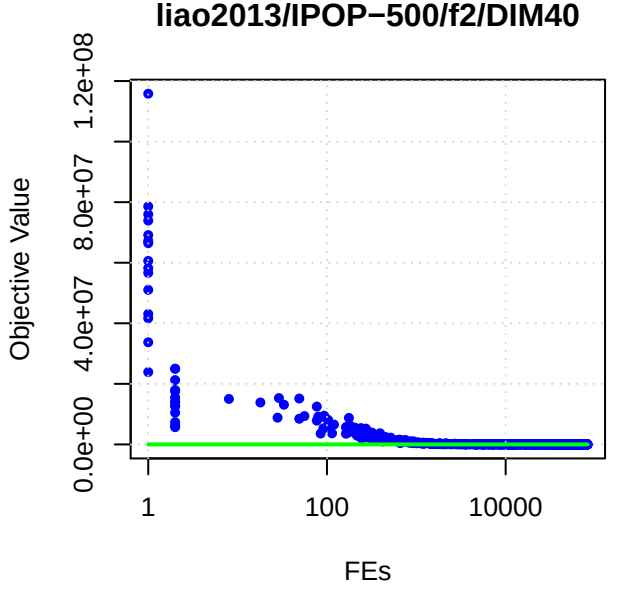
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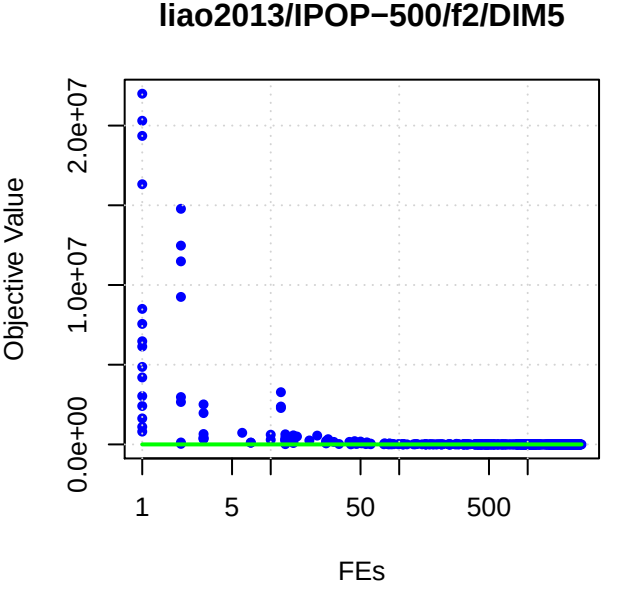
1.2e+08
1
100
10000
FEs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500
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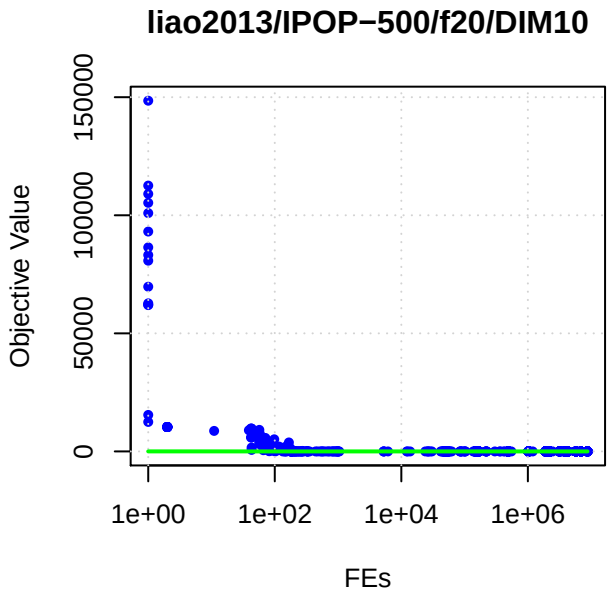
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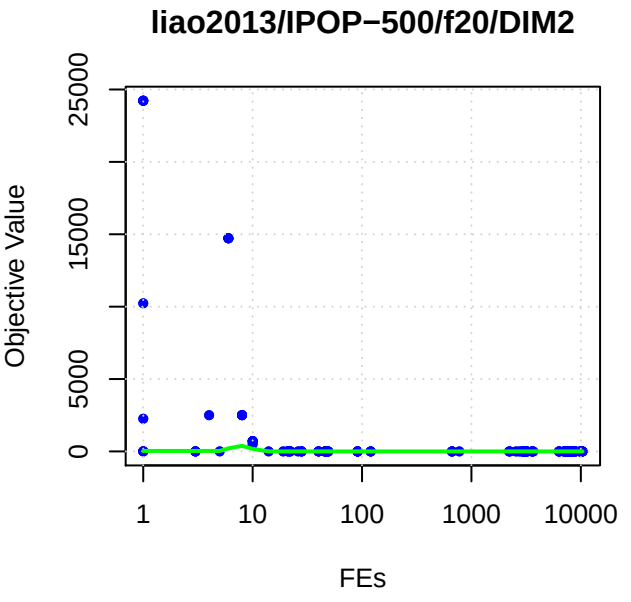
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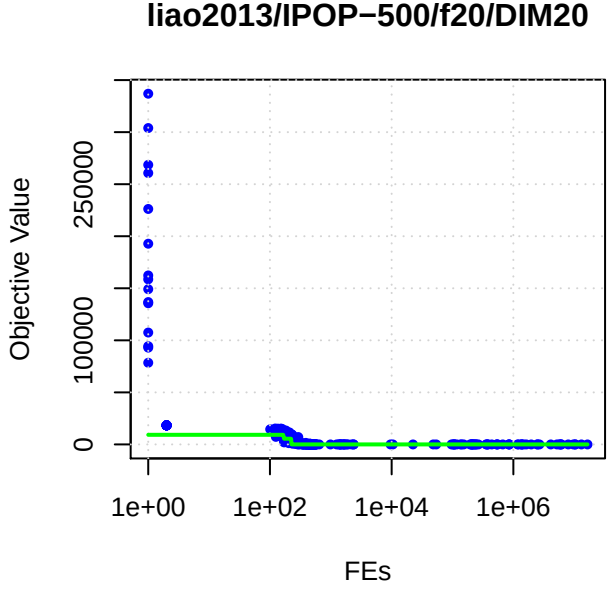
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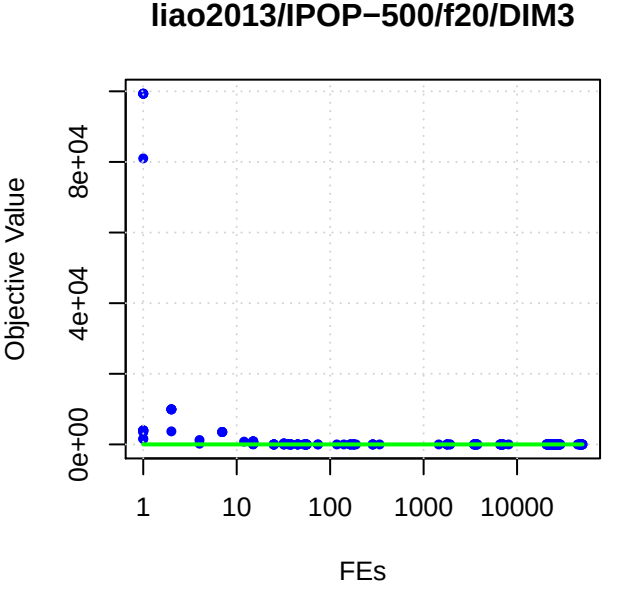
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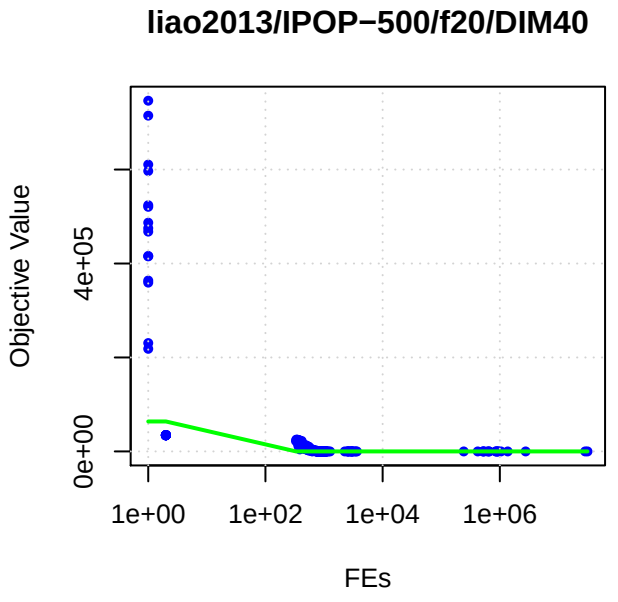
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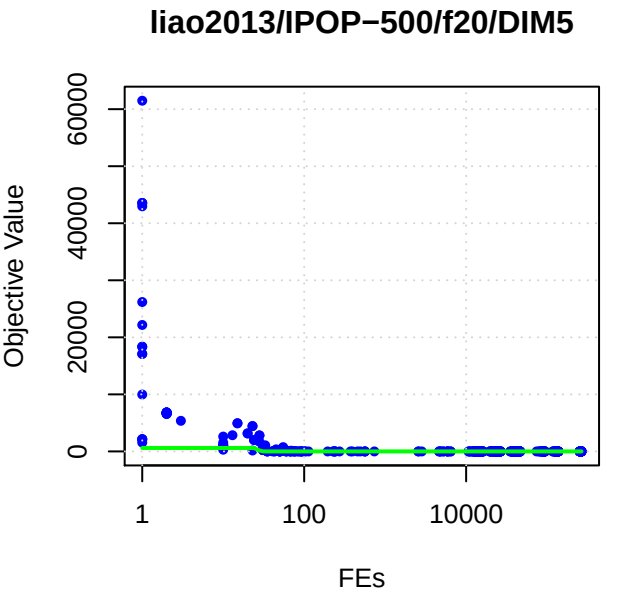
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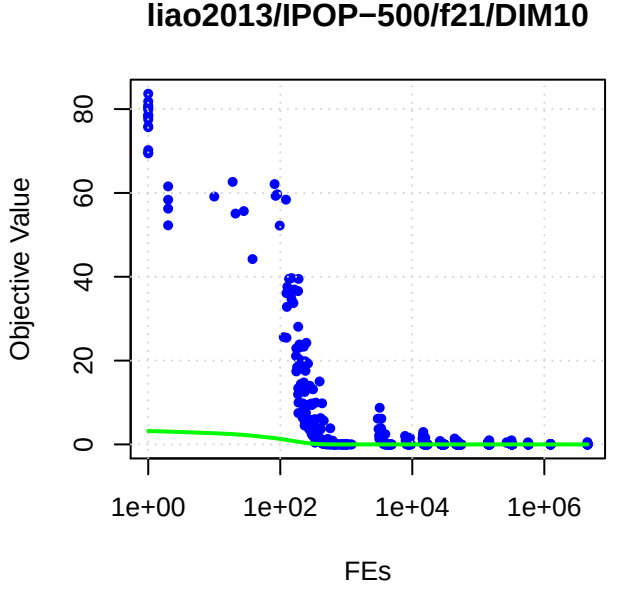
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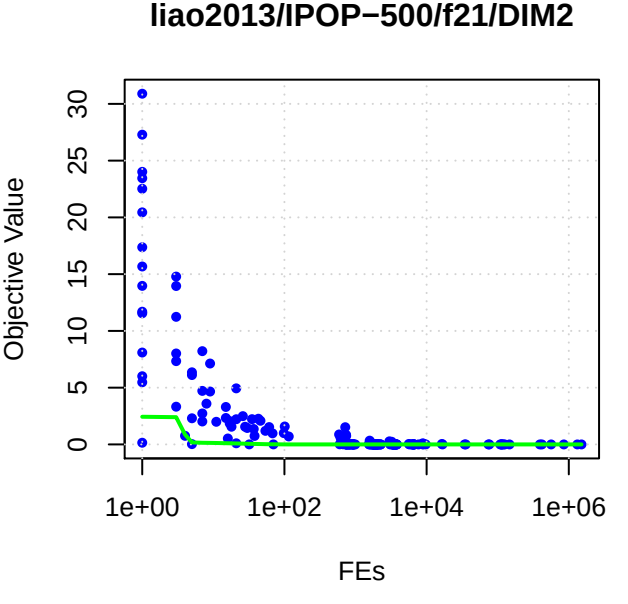
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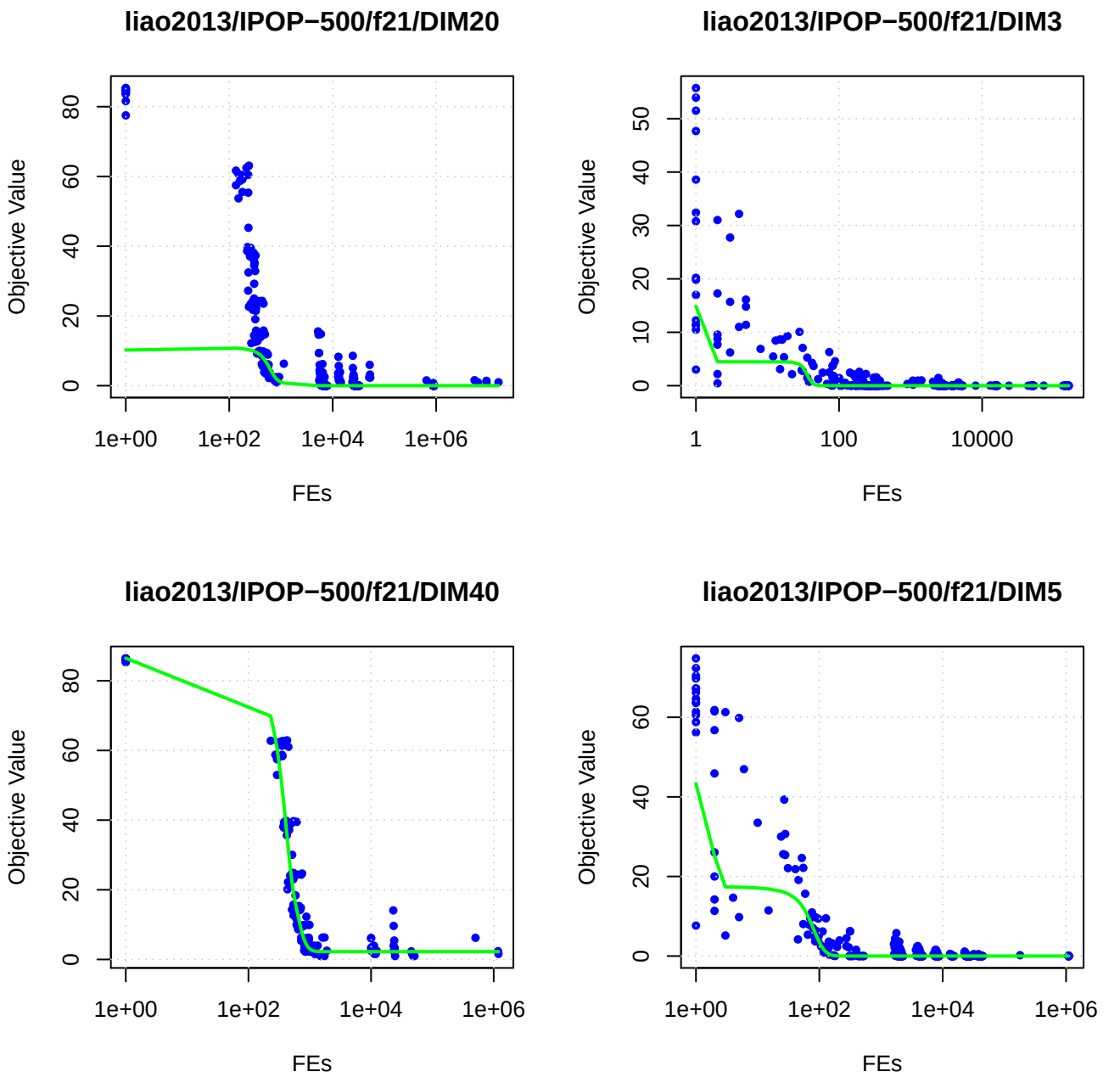
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FEs
liao2013/IPOP−500/f21/DIM3
Objective Value
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FEs
liao2013/IPOP−500/f21/DIM40
Objective Value
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FEs
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Objective Value
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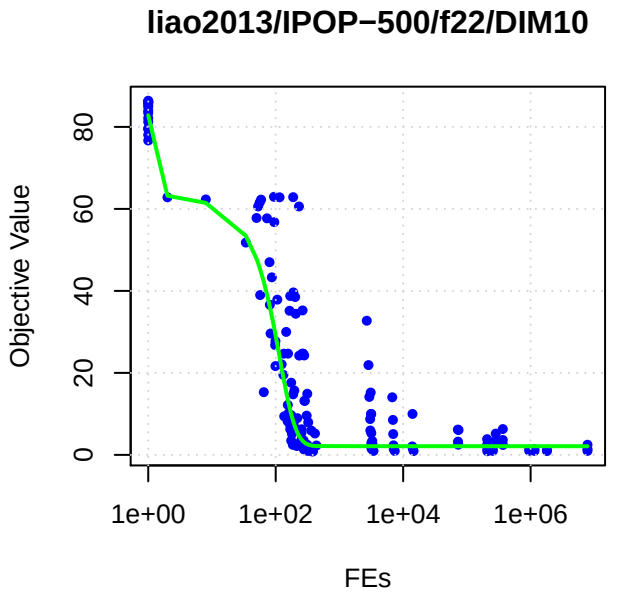
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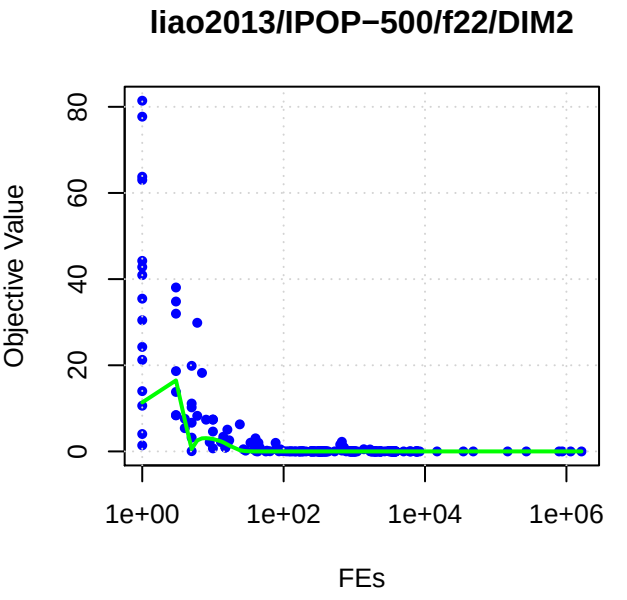
FEs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Objective Value
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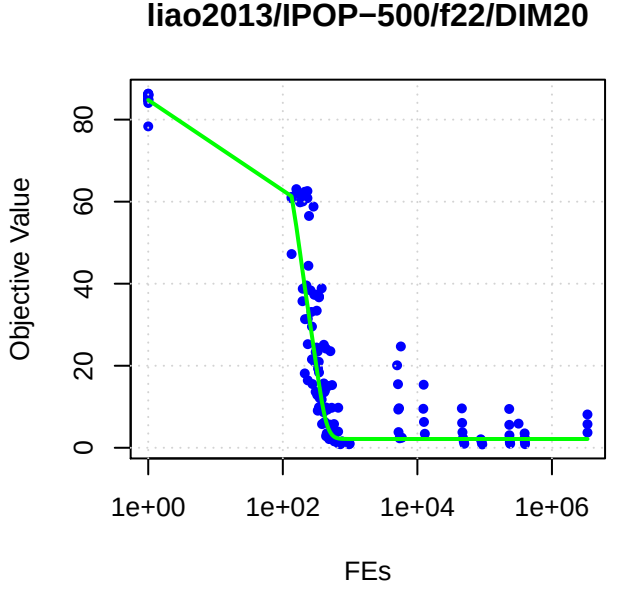
FEs


liao2013/IPOP−500/f22/DIM20
Objective Value
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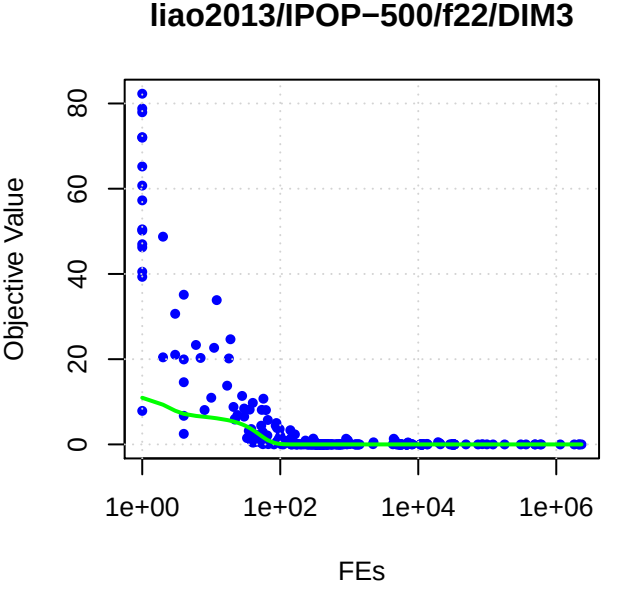
liao2013/IPOP−500/f22/DIM3
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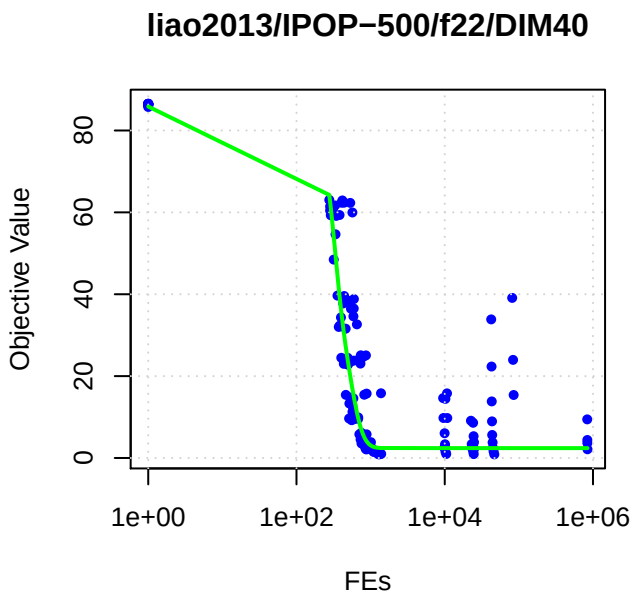
liao2013/IPOP−500/f22/DIM40
Objective Value
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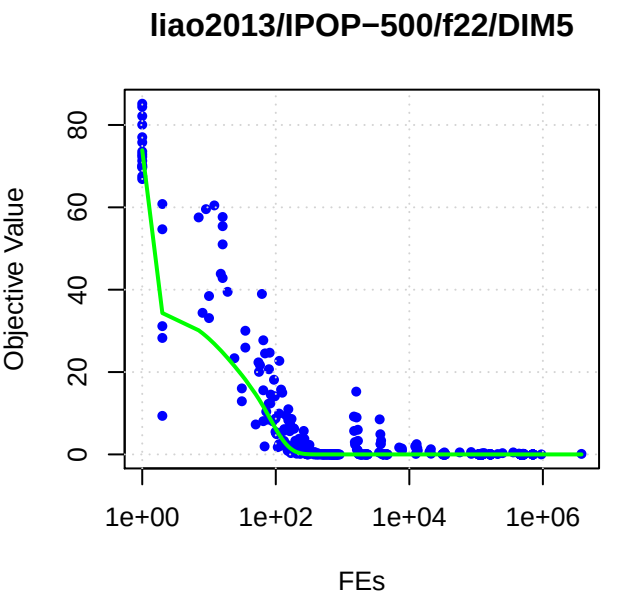
1e+04
1e+06
FEs


liao2013/IPOP−500/f22/DIM5
Objective Value
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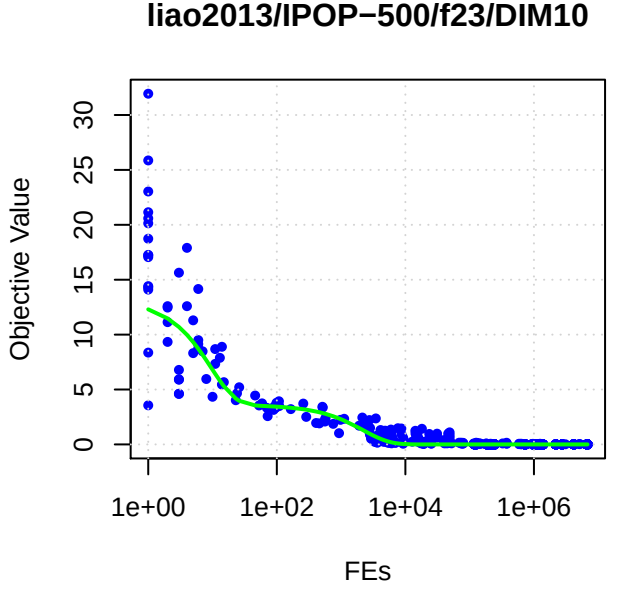
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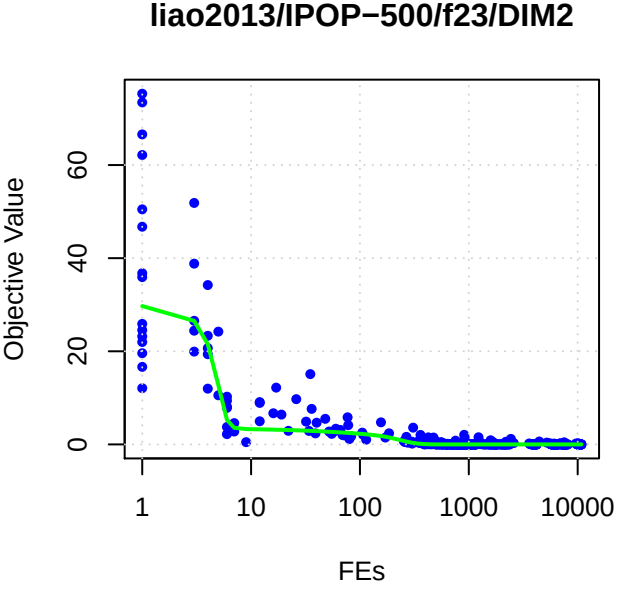
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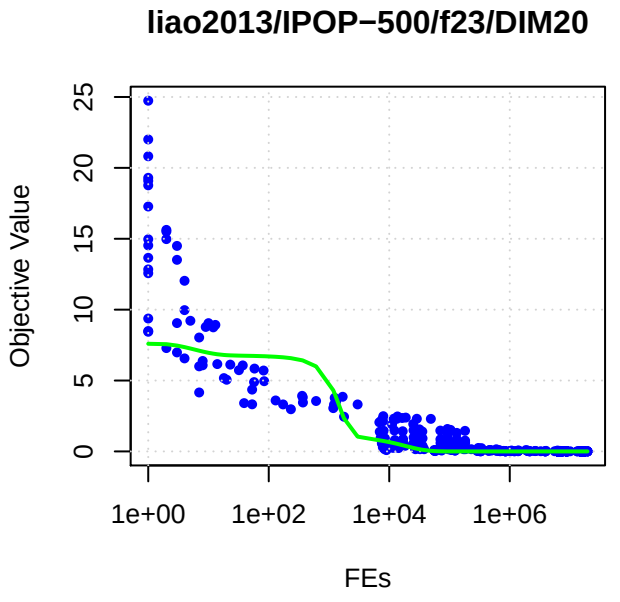
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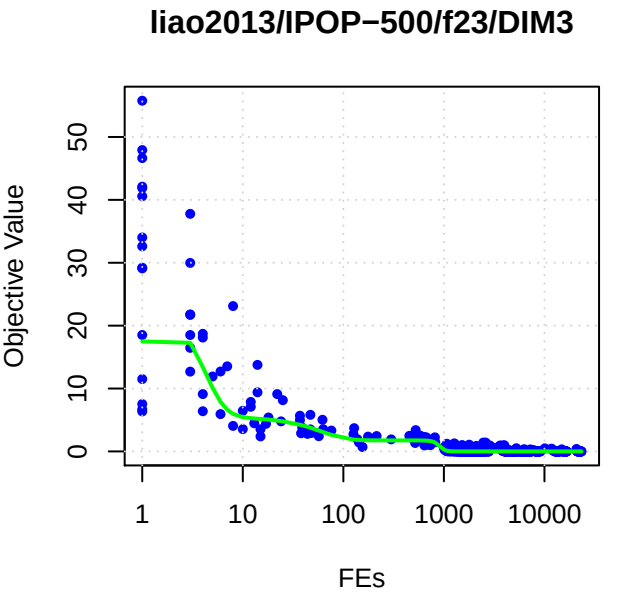
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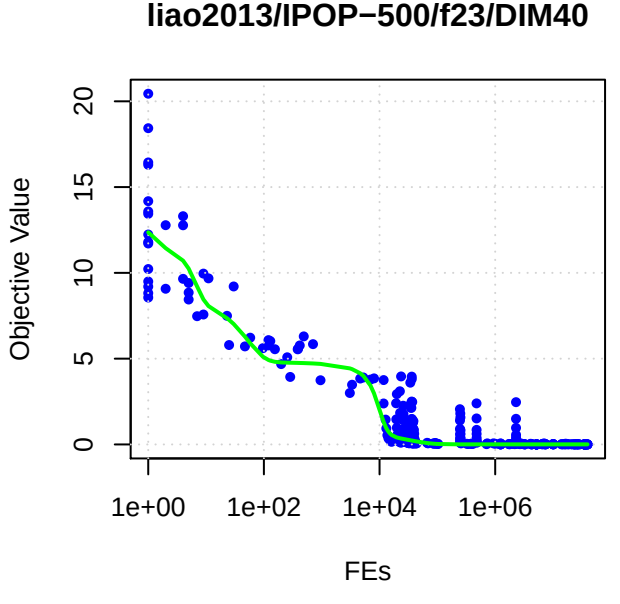
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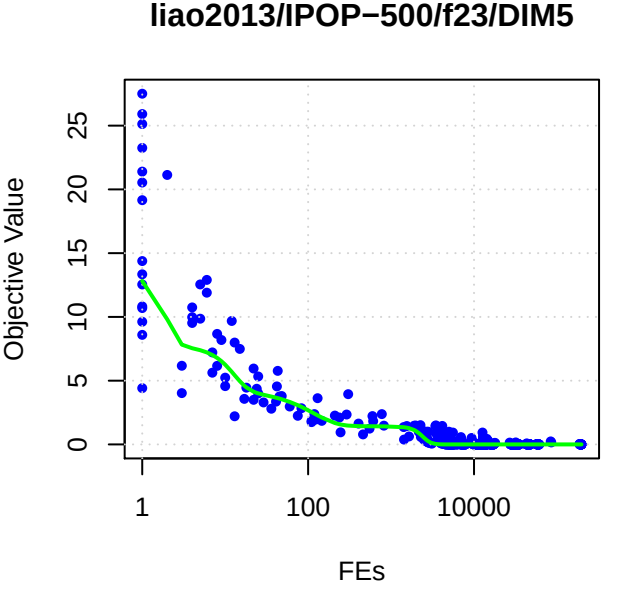
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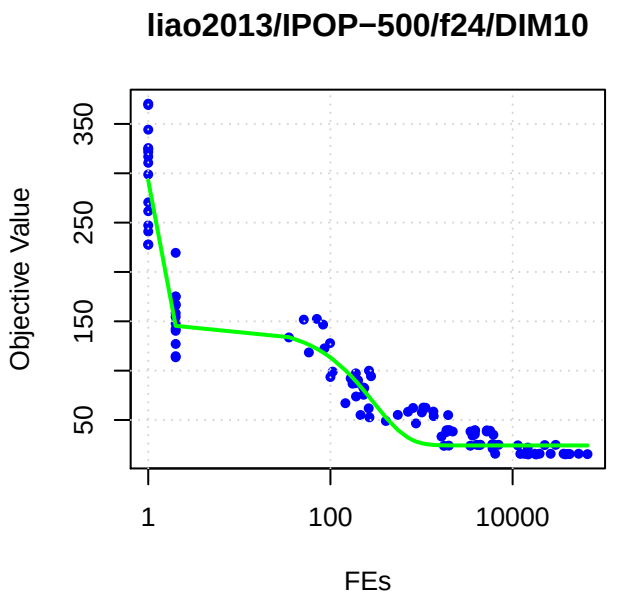
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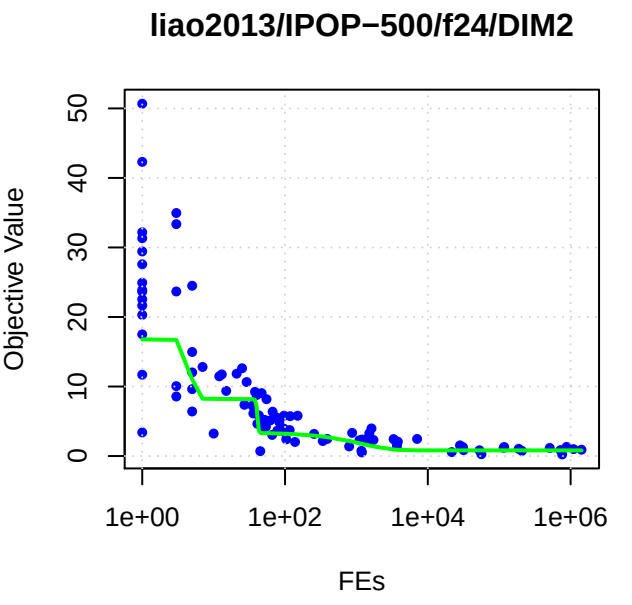
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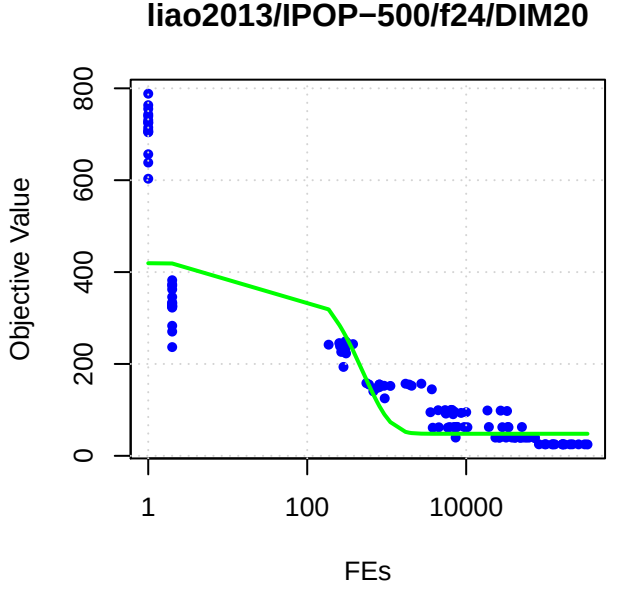
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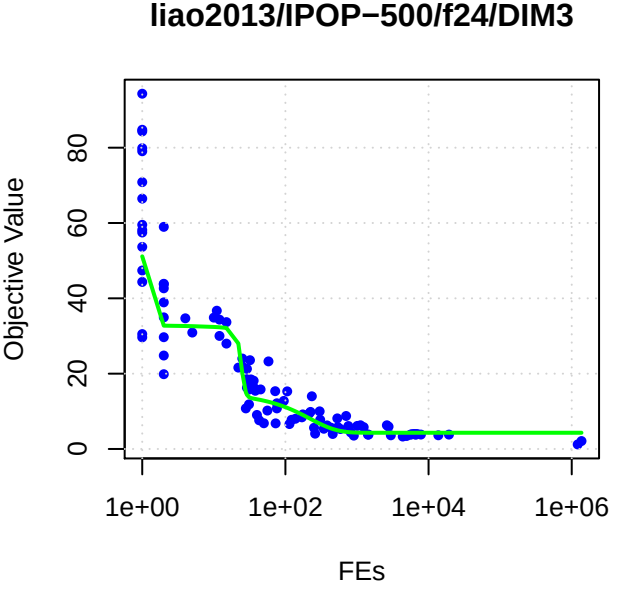
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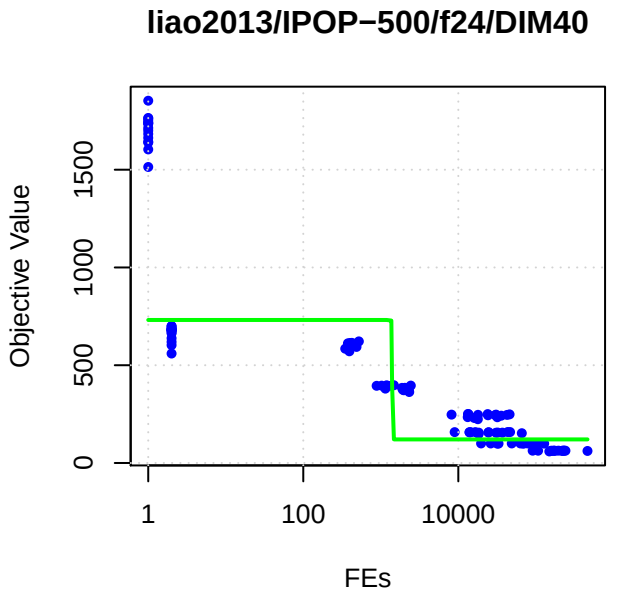
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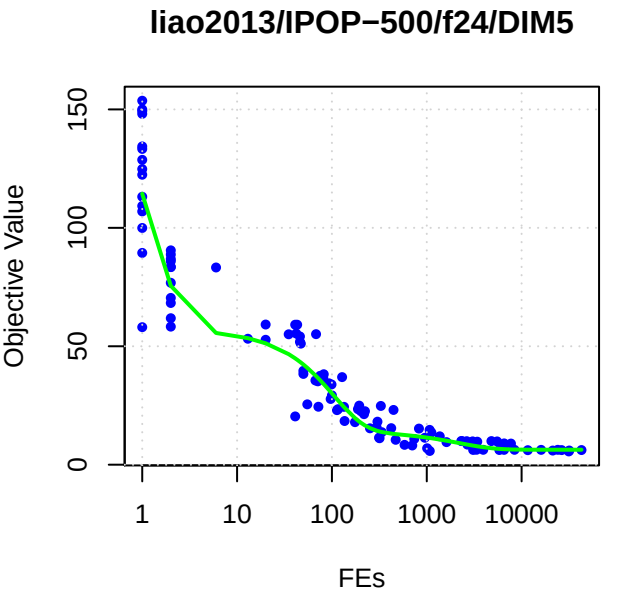
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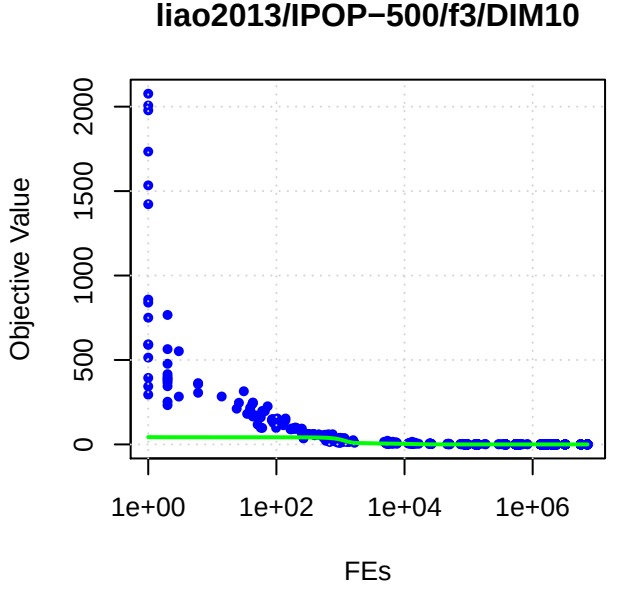
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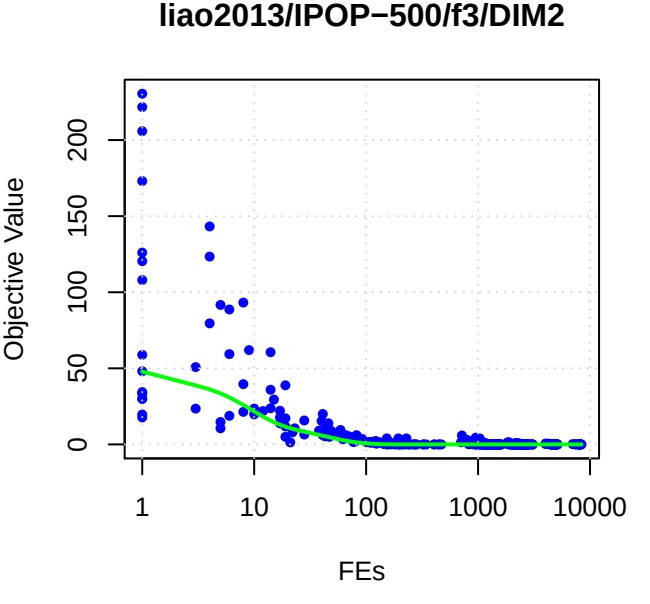
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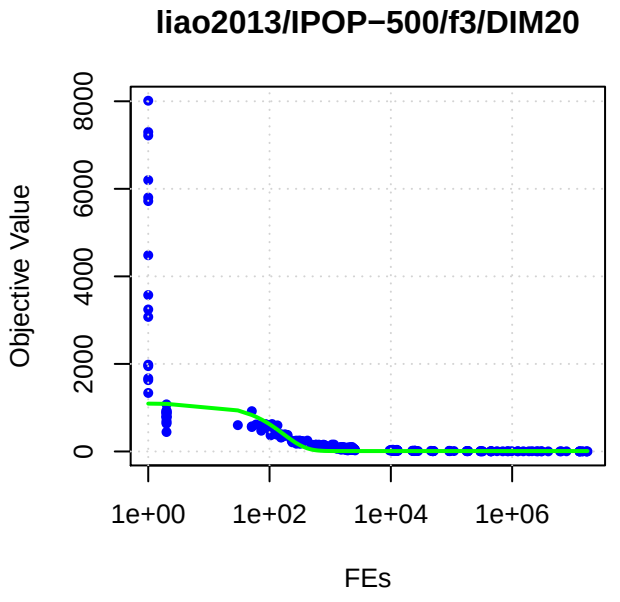
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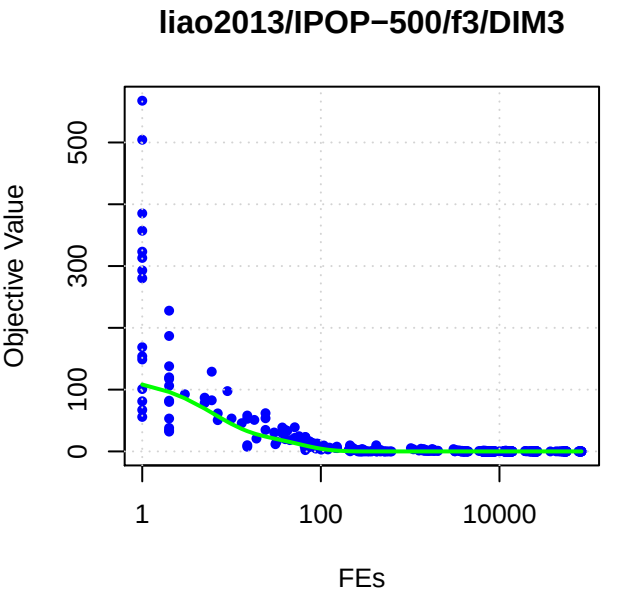
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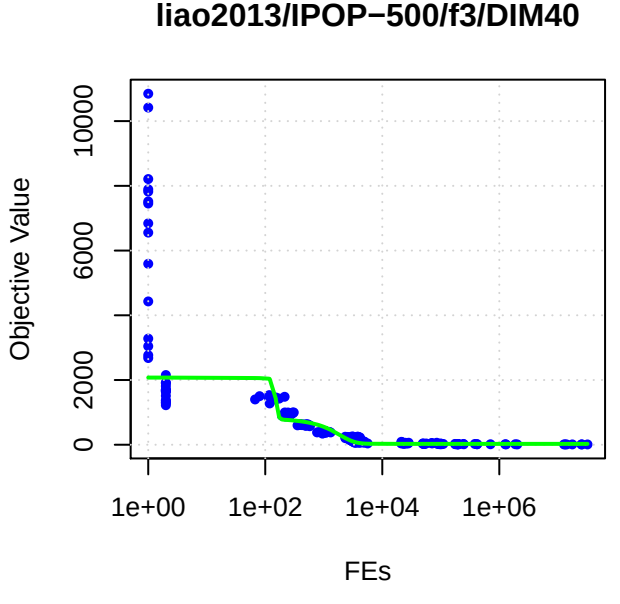
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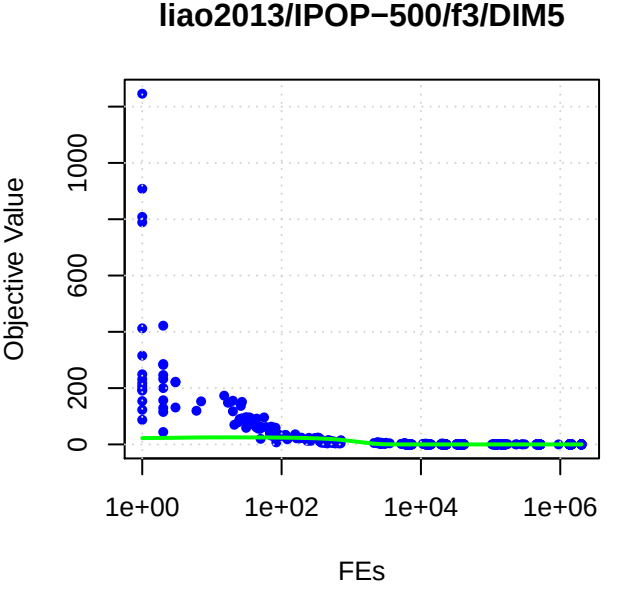
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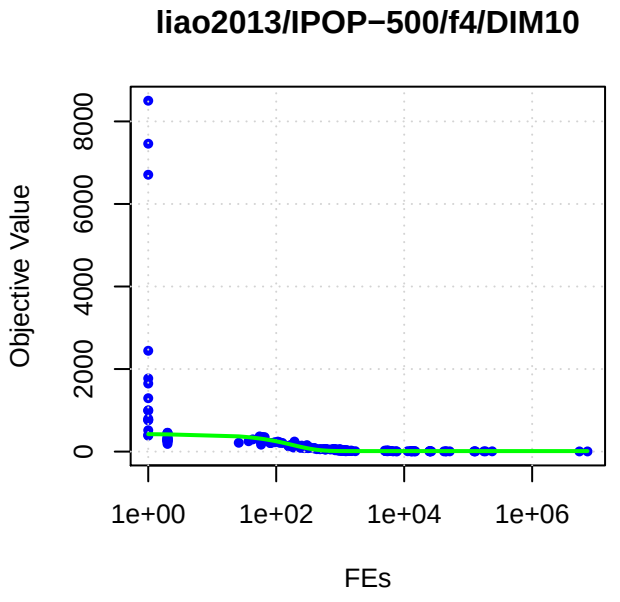
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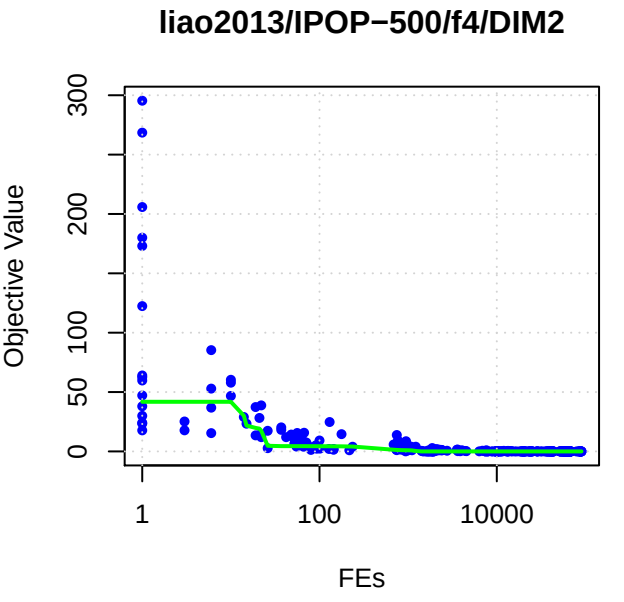
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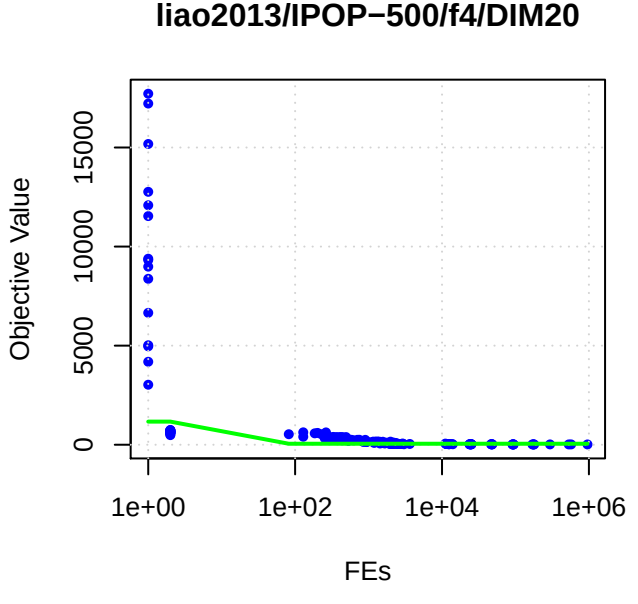
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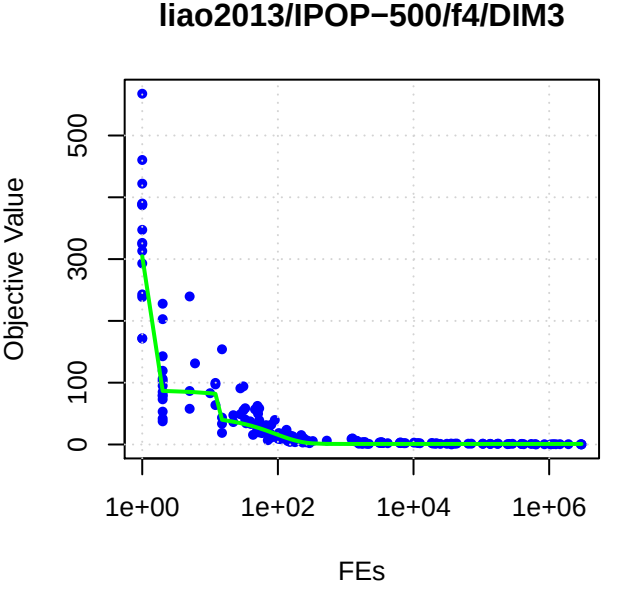
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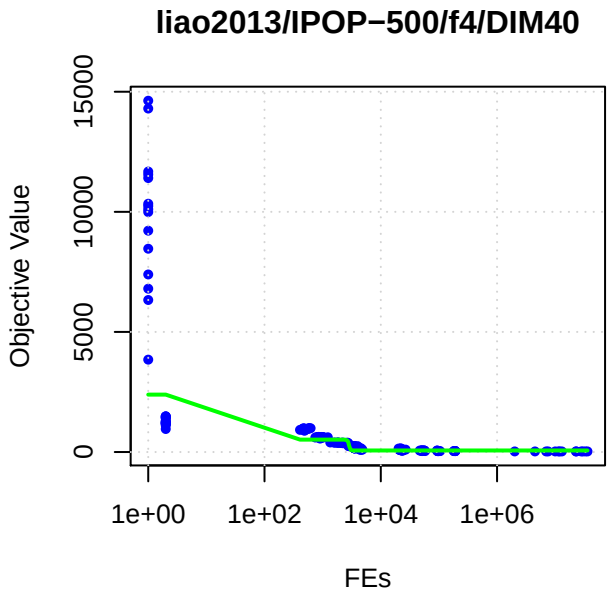
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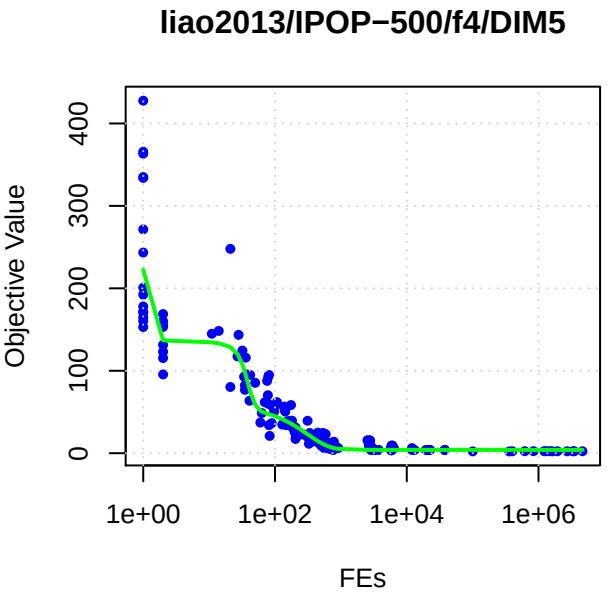
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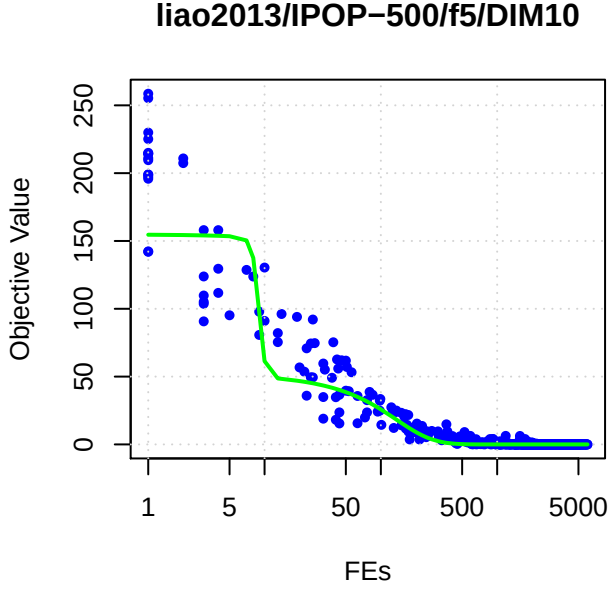
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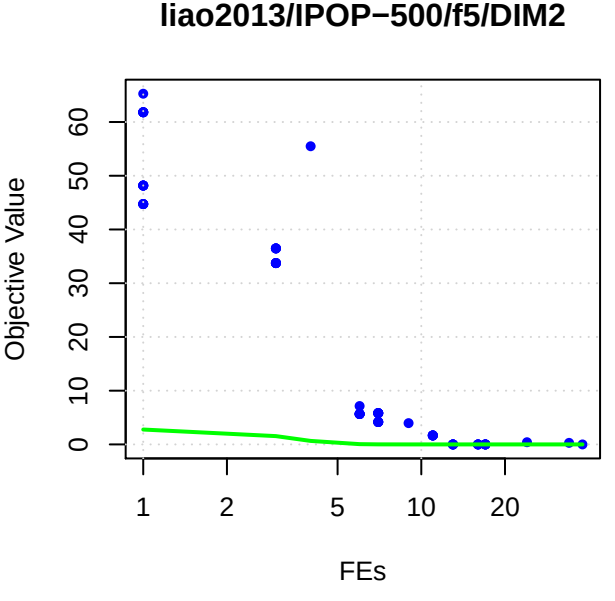
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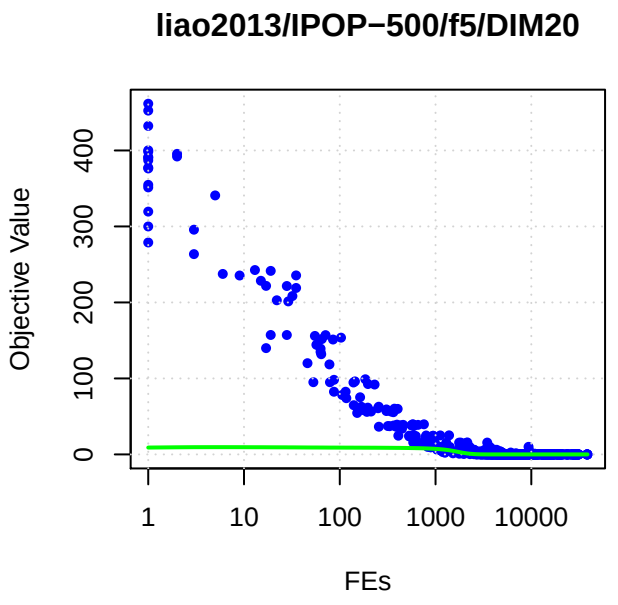
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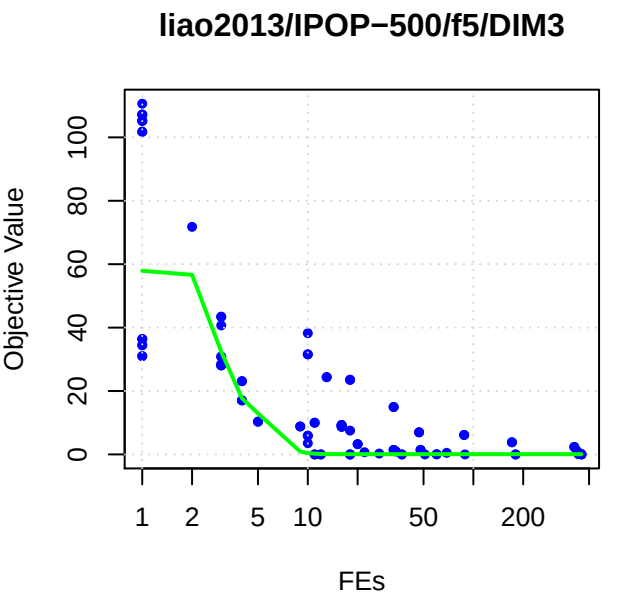
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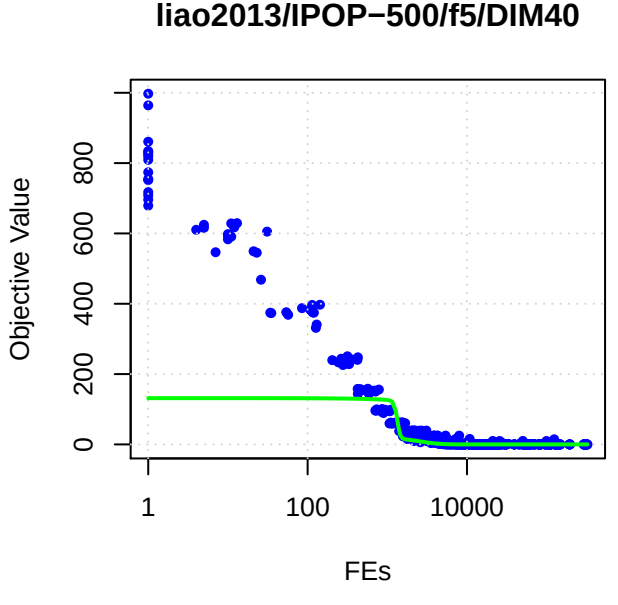
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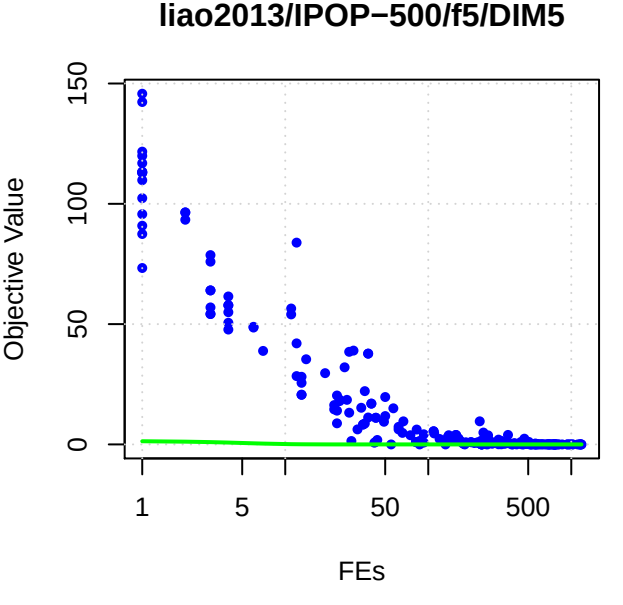
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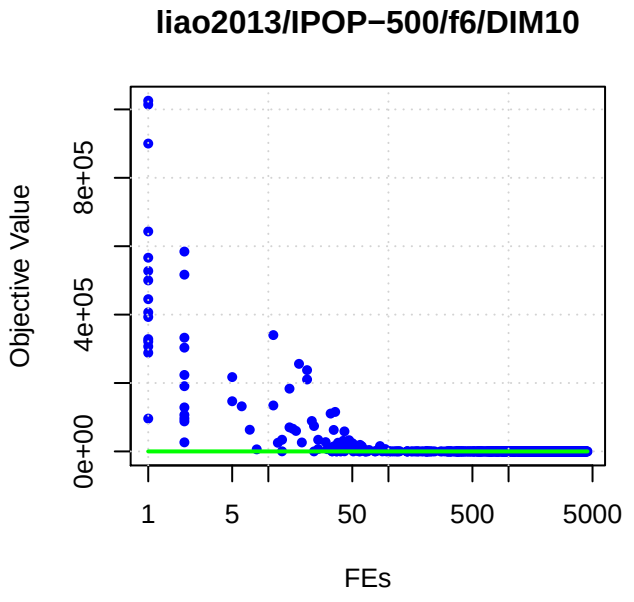
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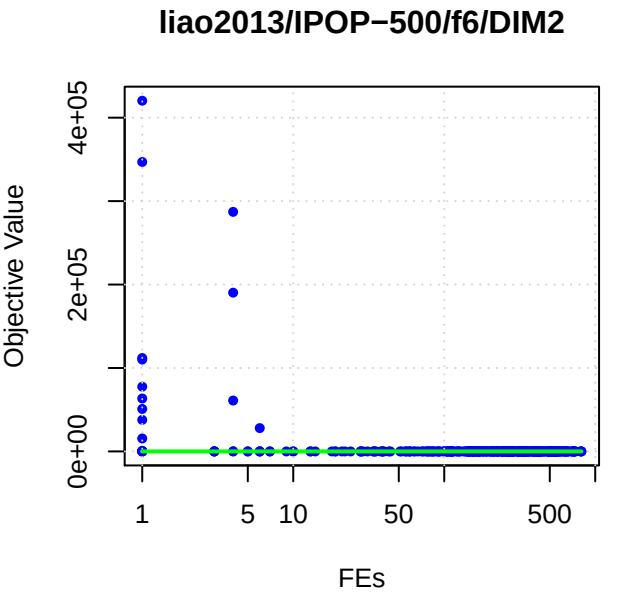
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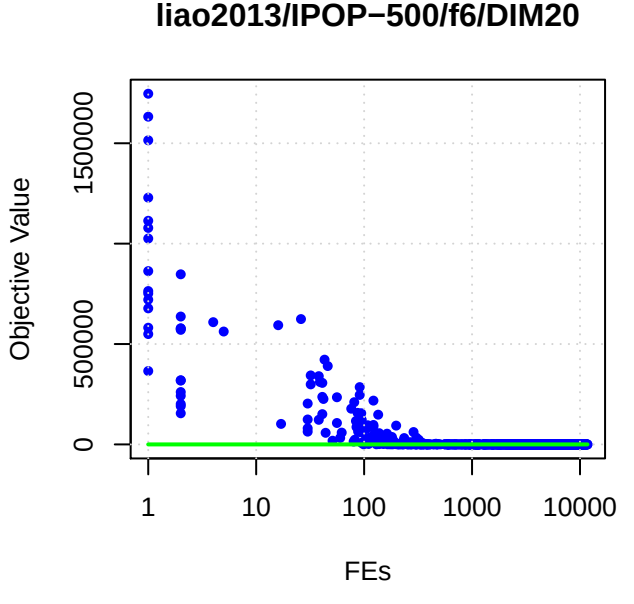
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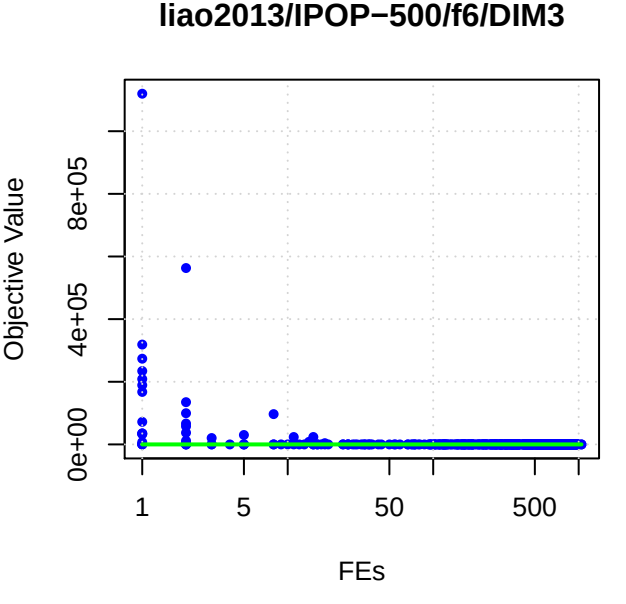
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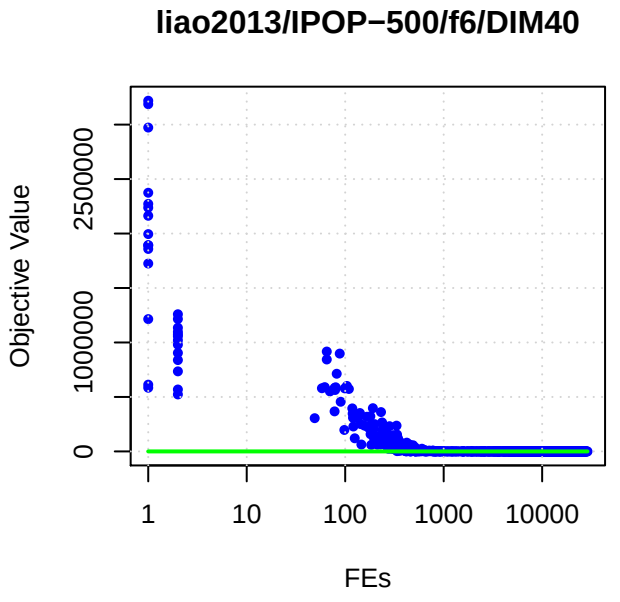
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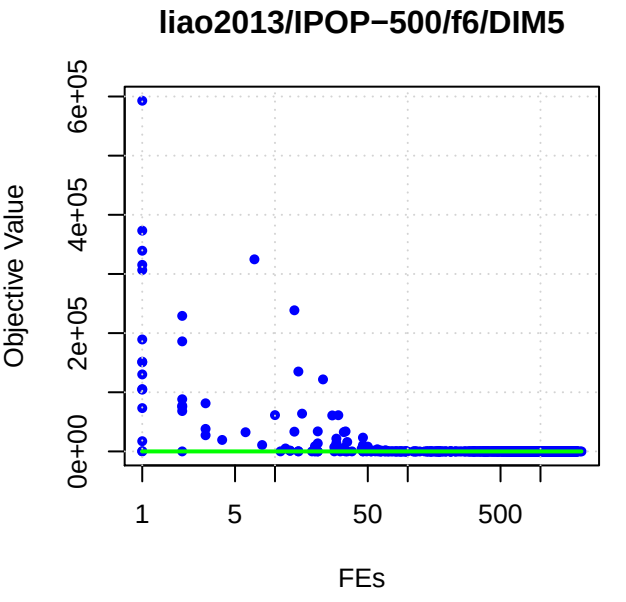
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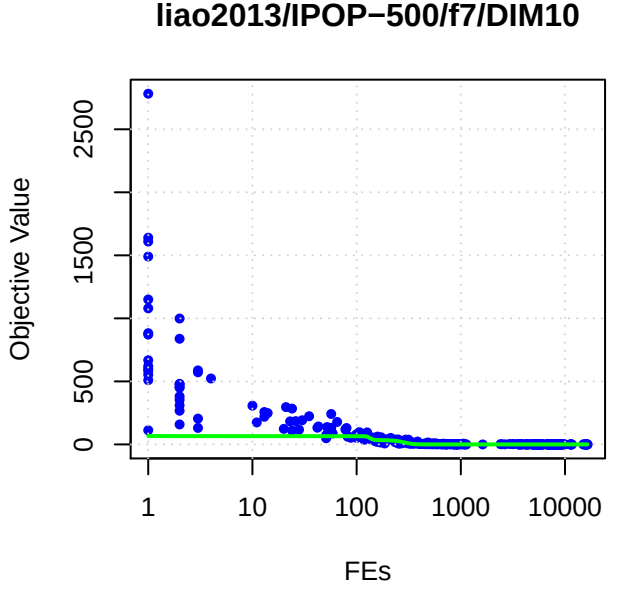
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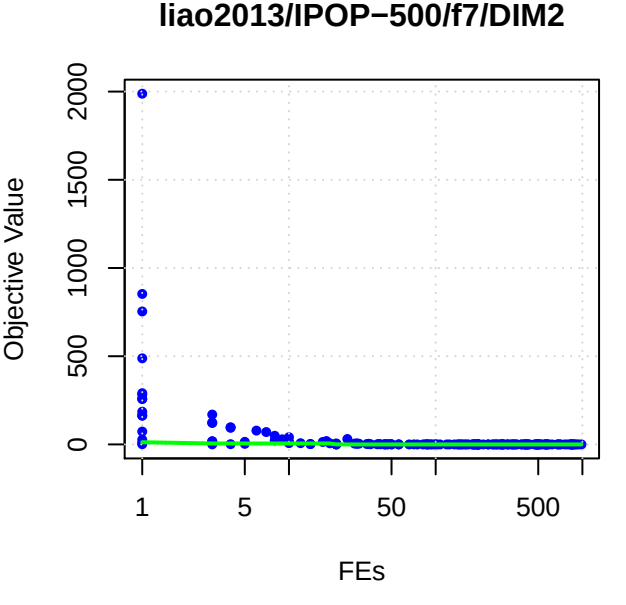
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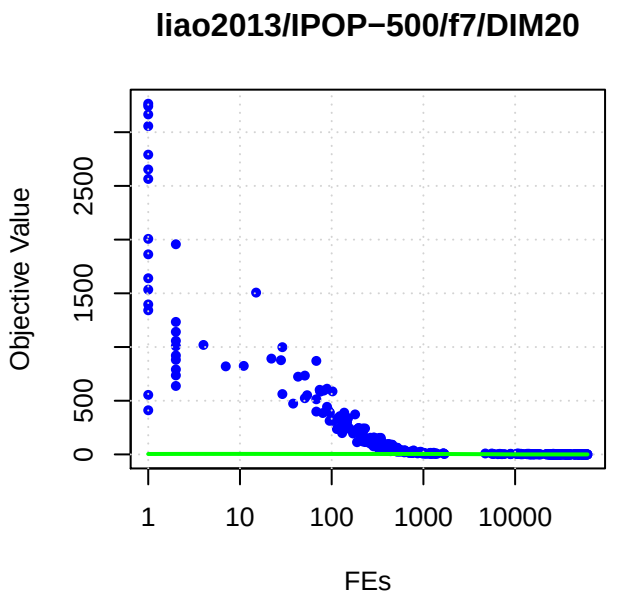
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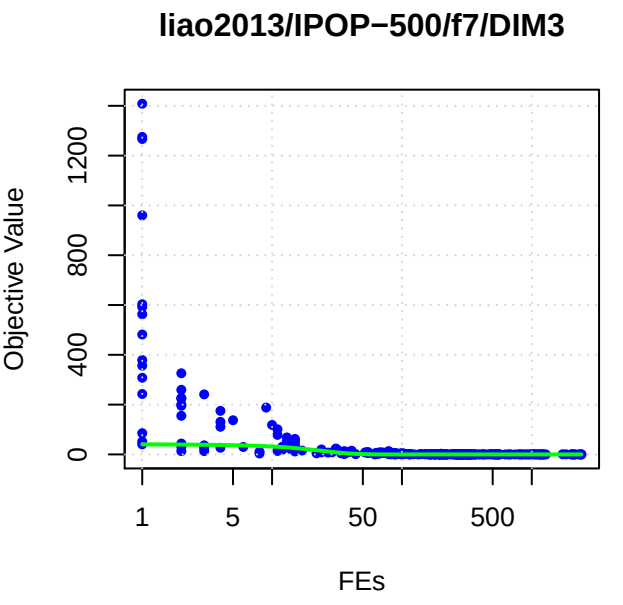
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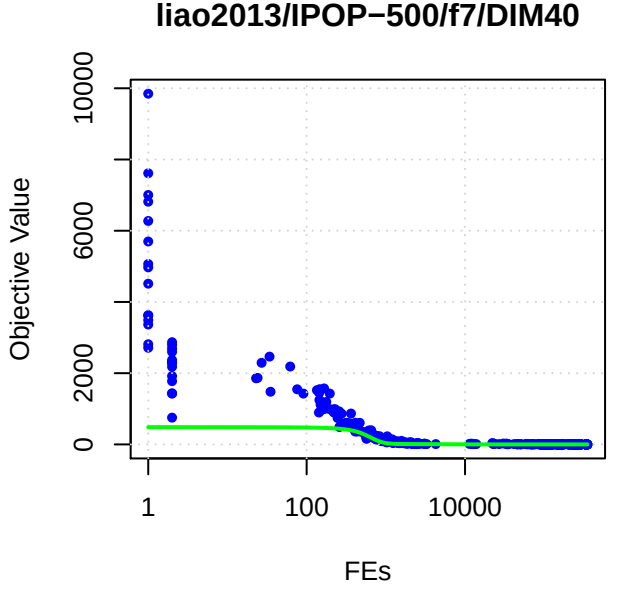
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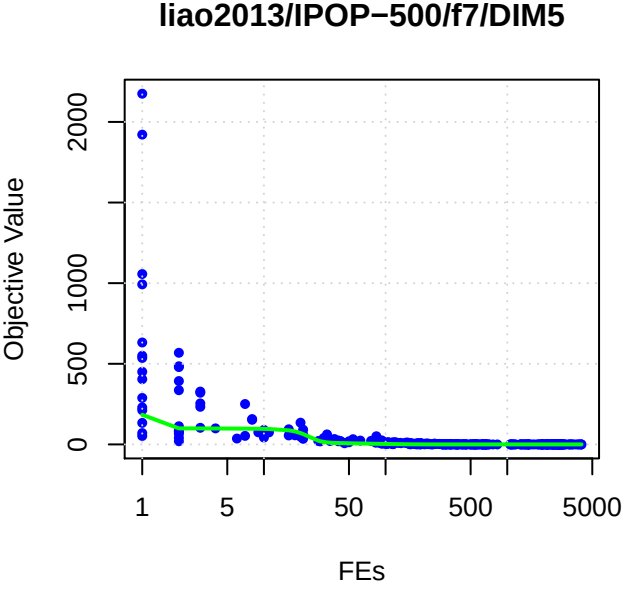
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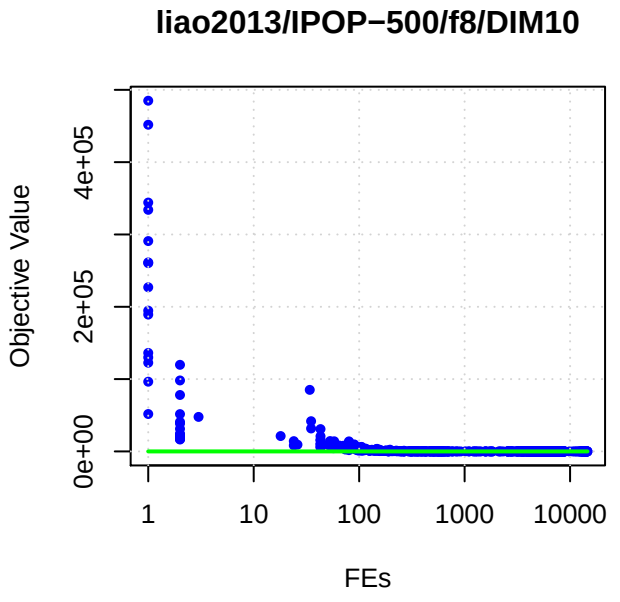
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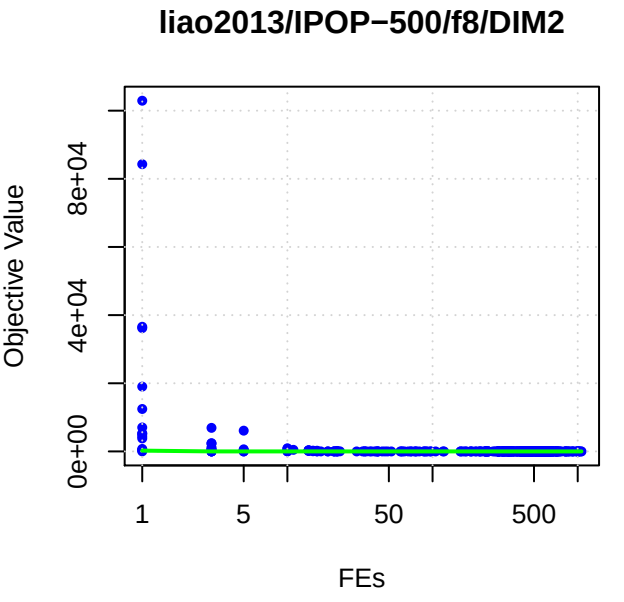
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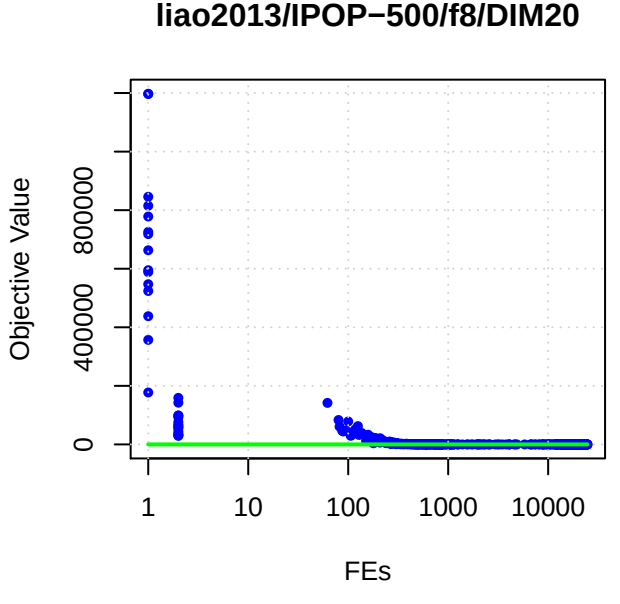
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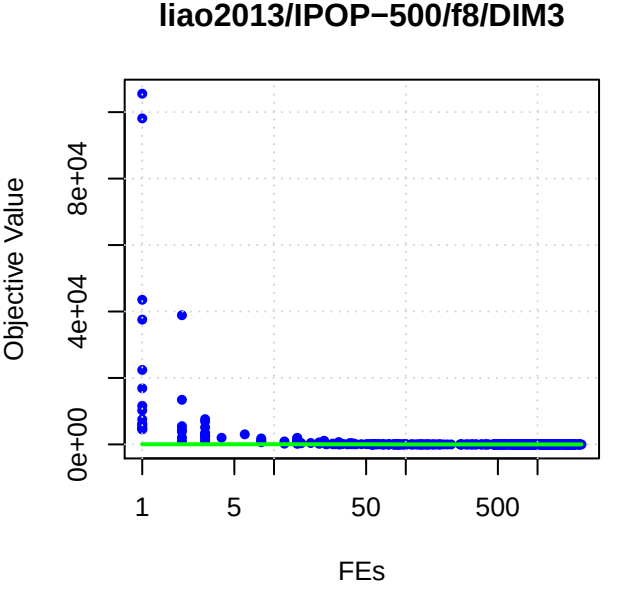
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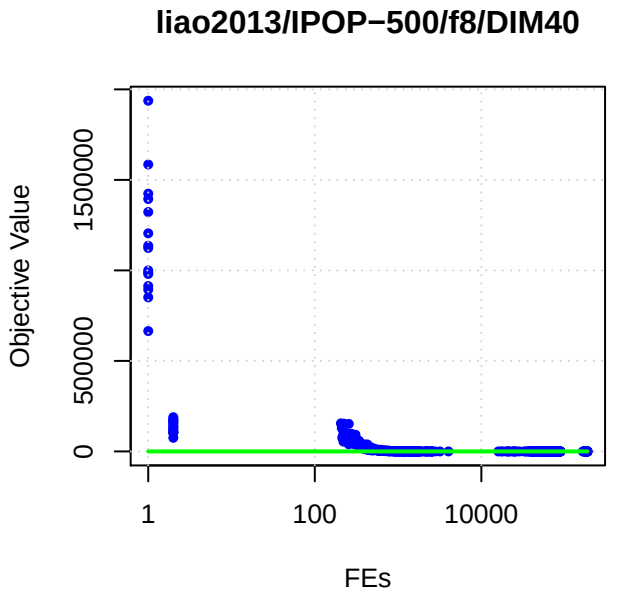
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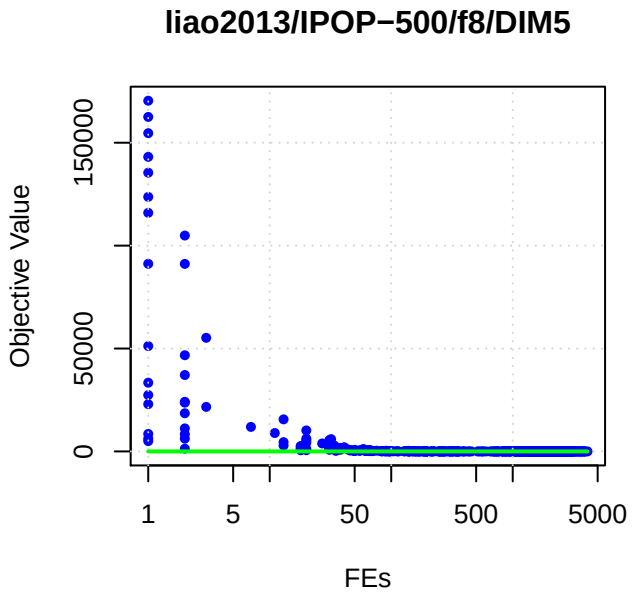
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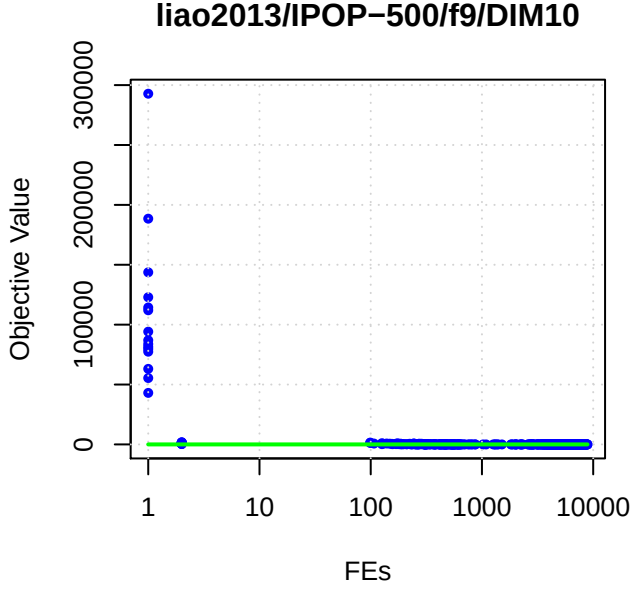
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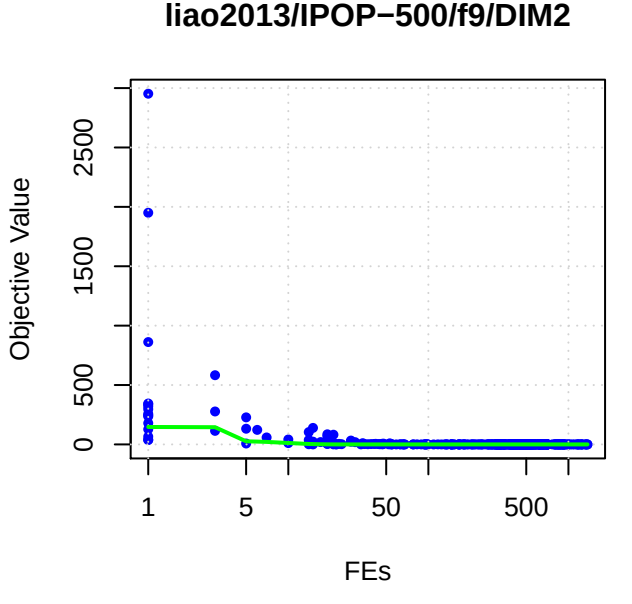
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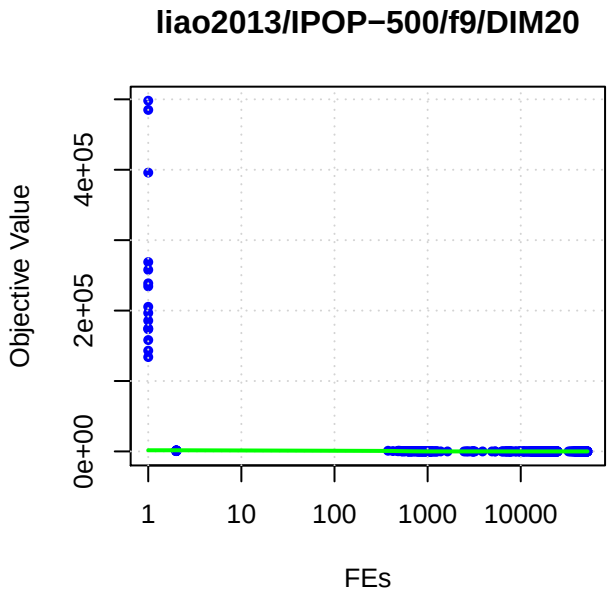
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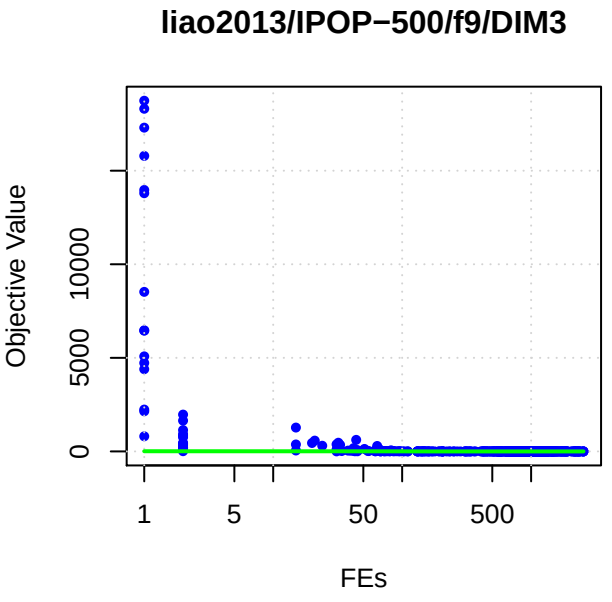
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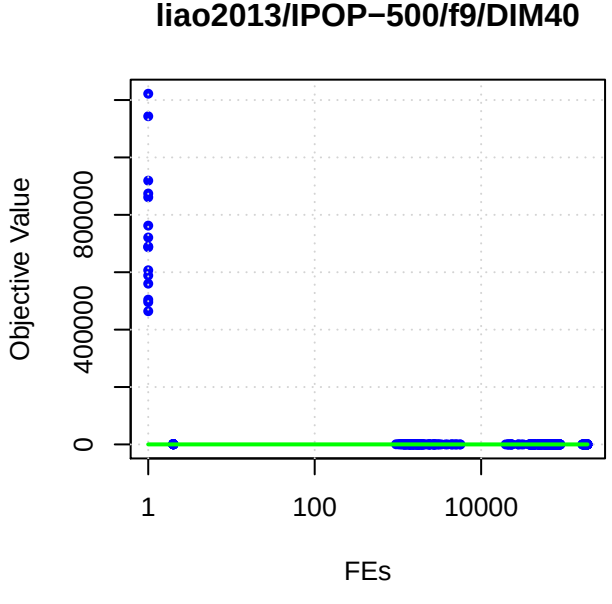
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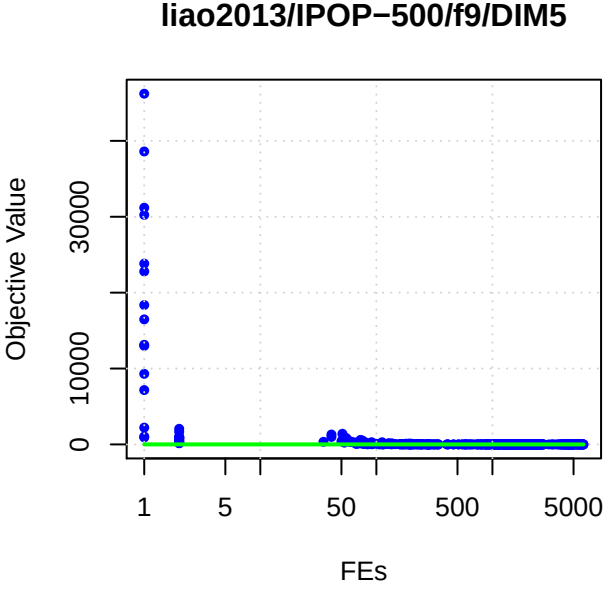
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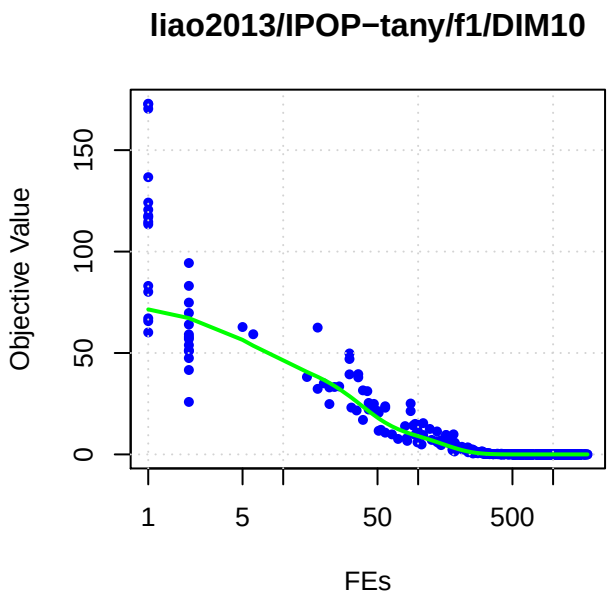
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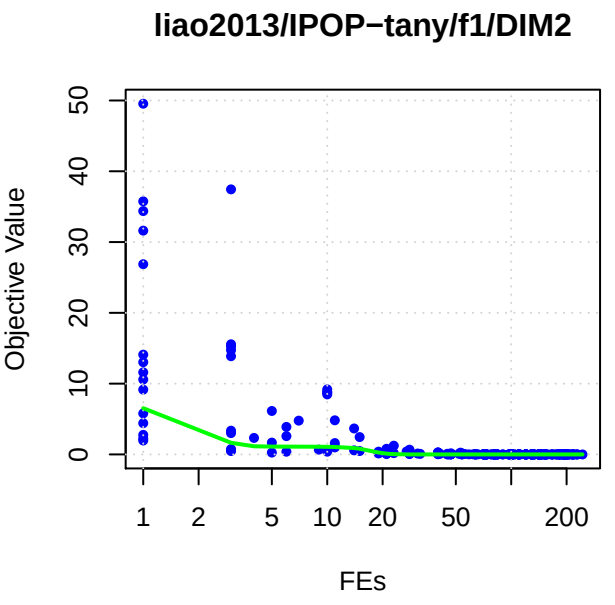
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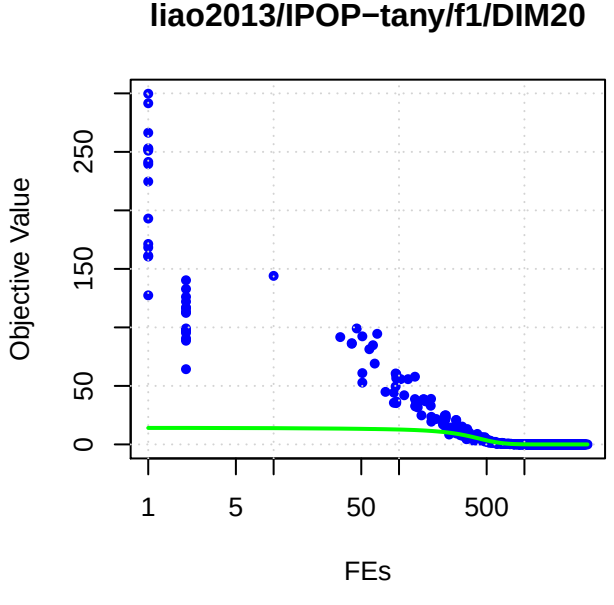
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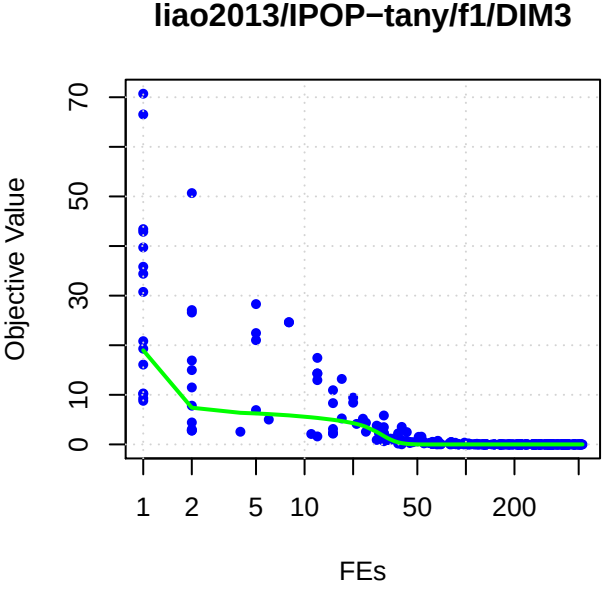
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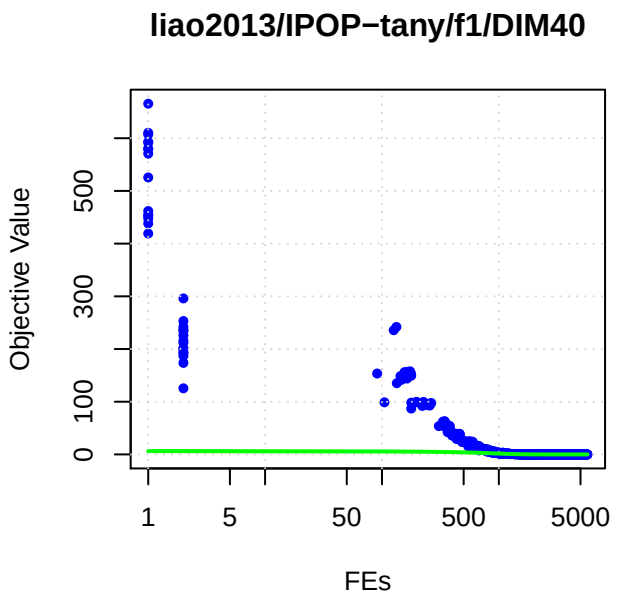
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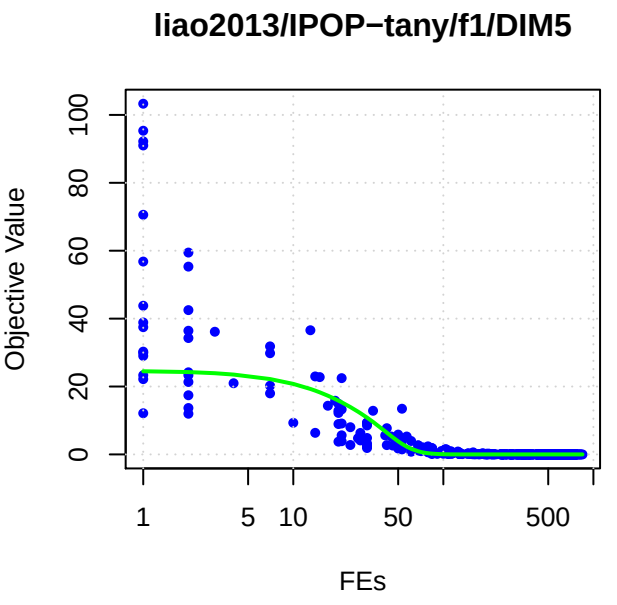
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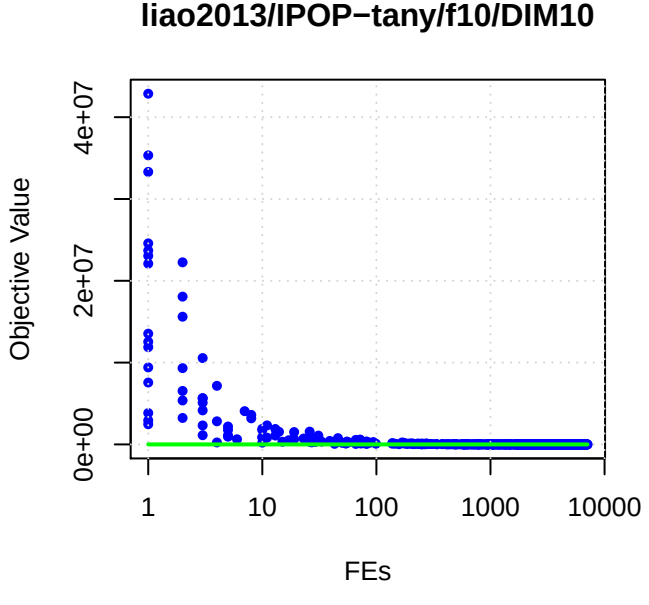
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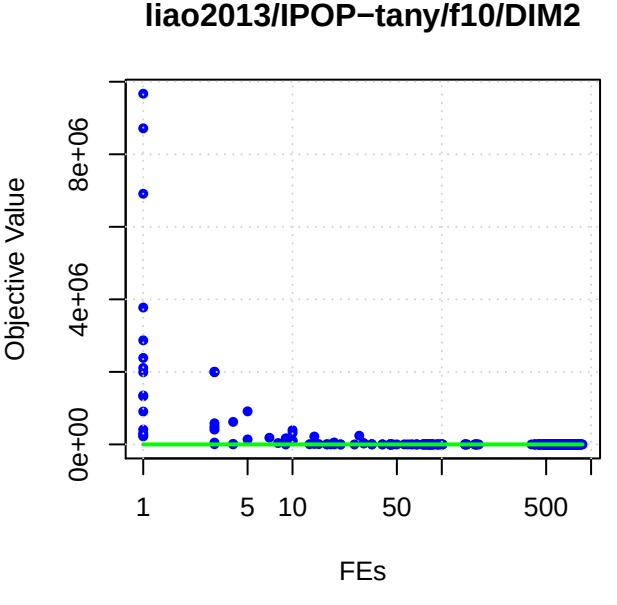
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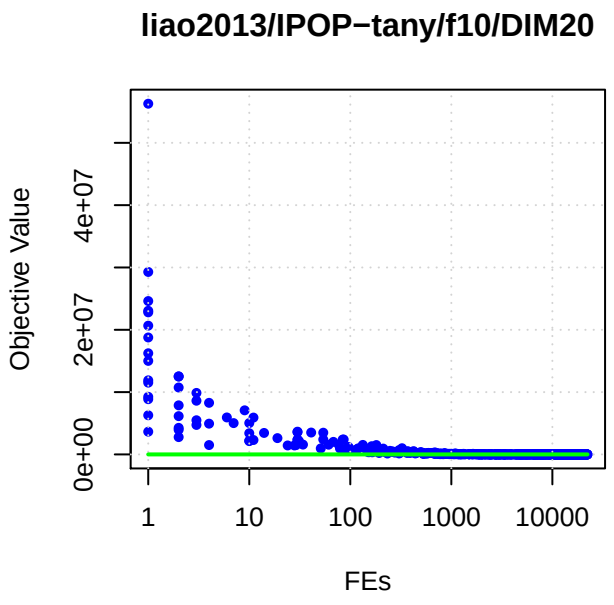
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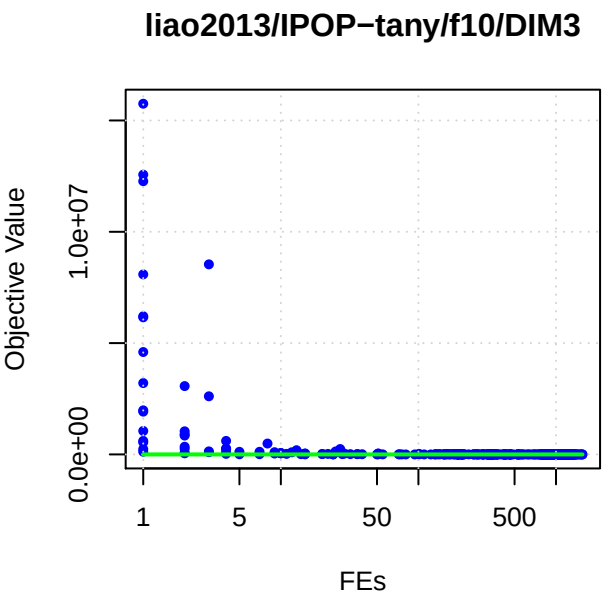
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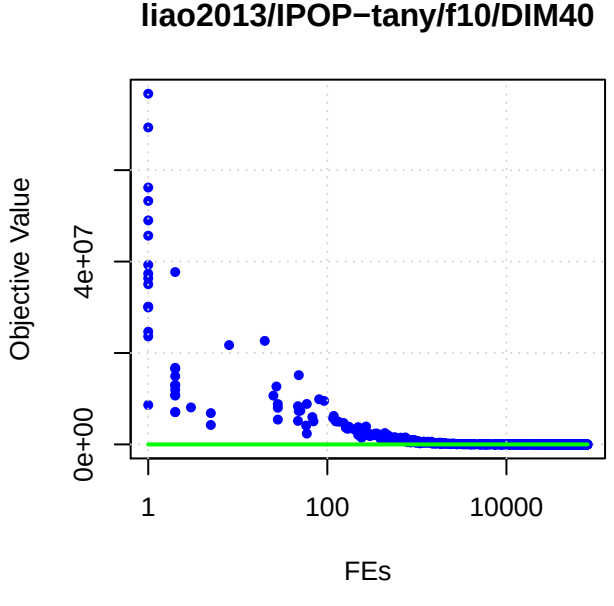
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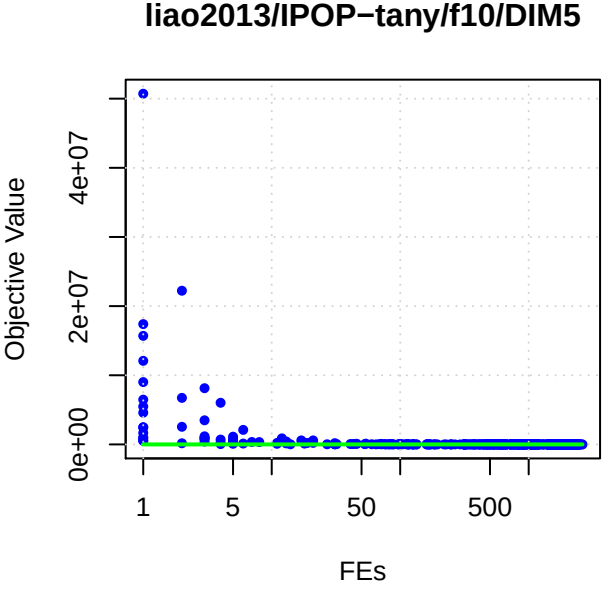
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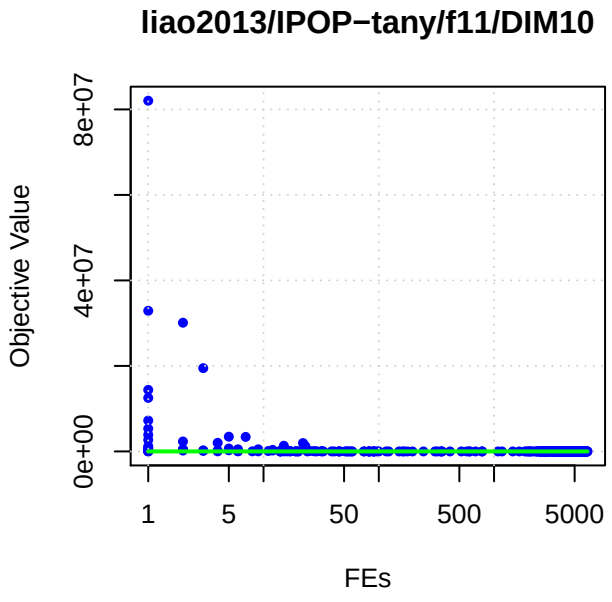
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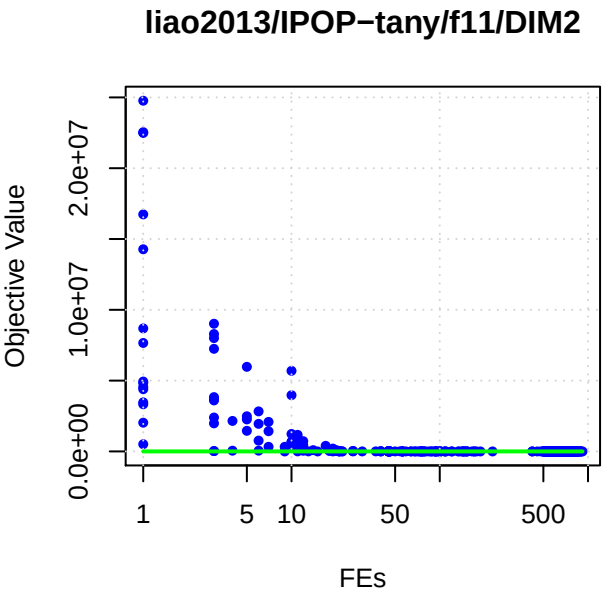
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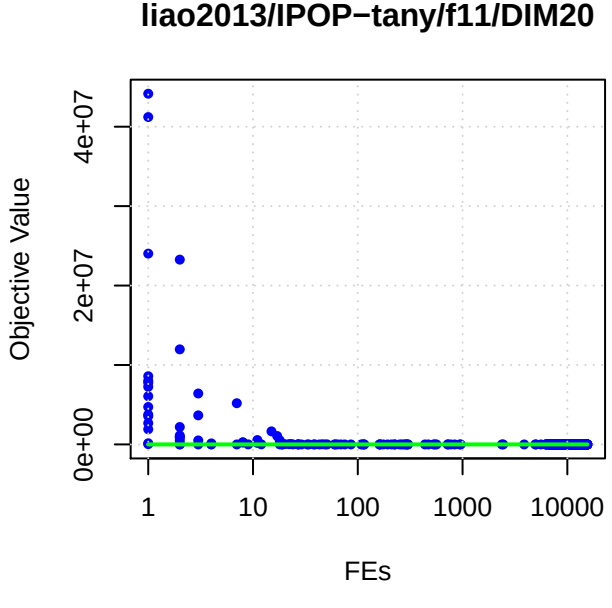
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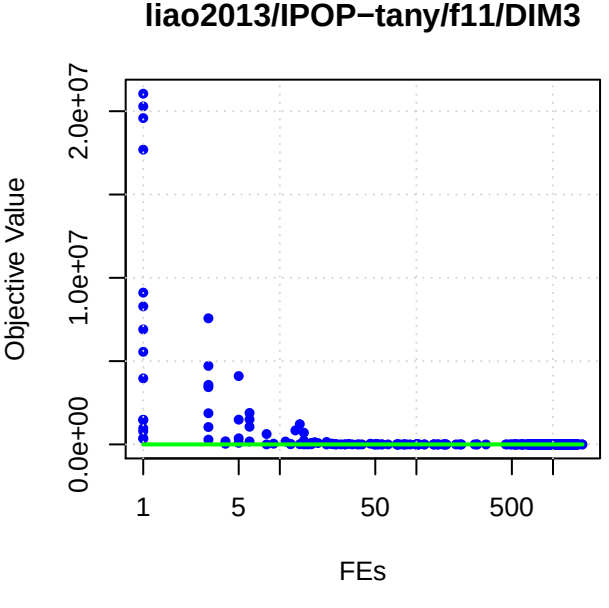
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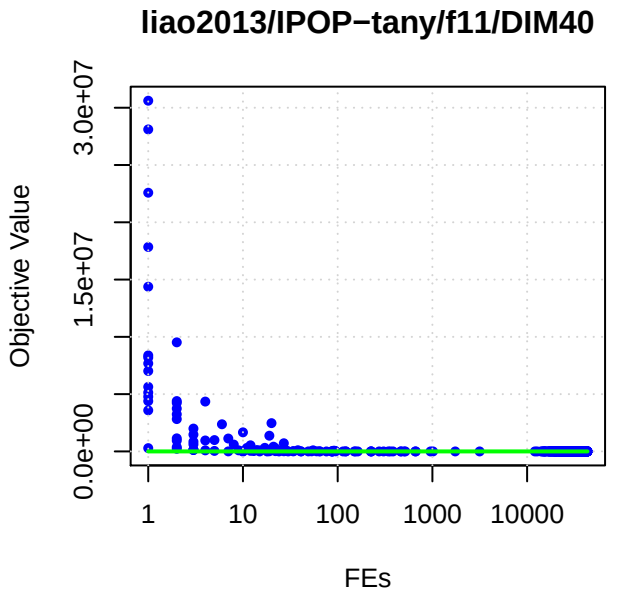
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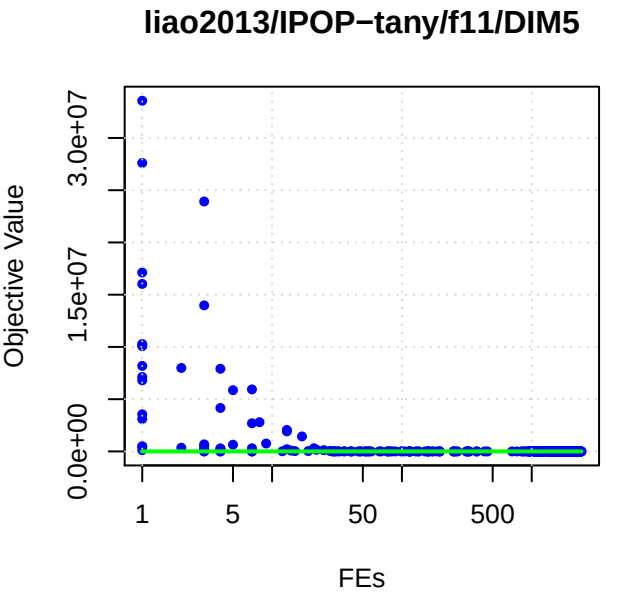
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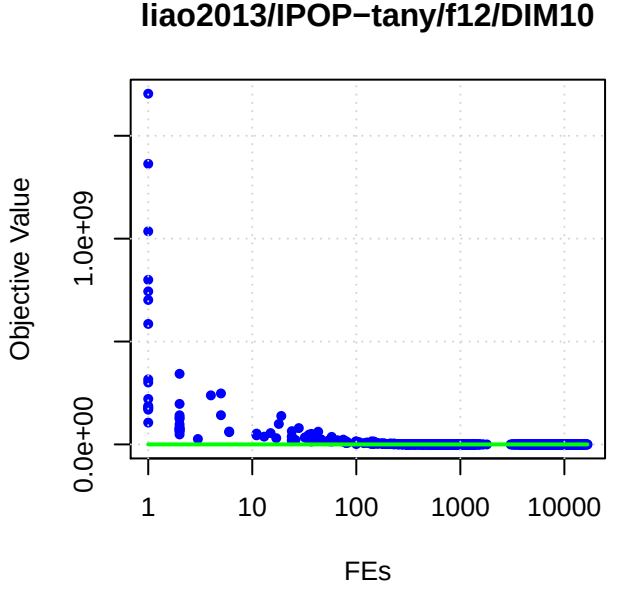
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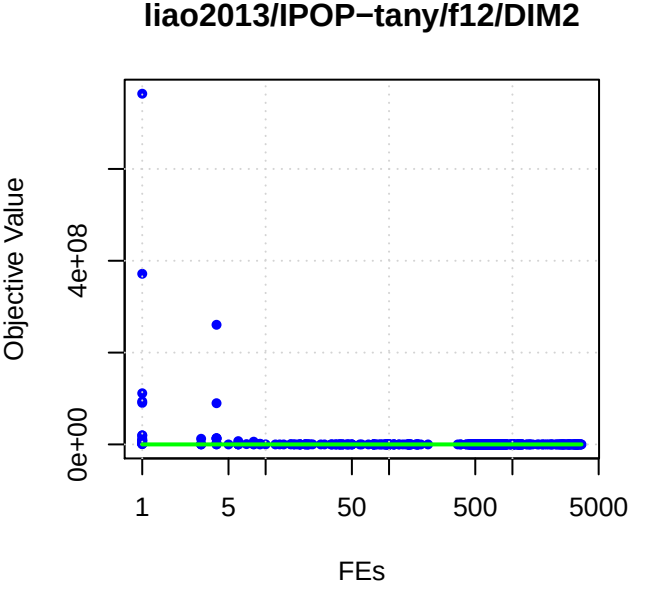
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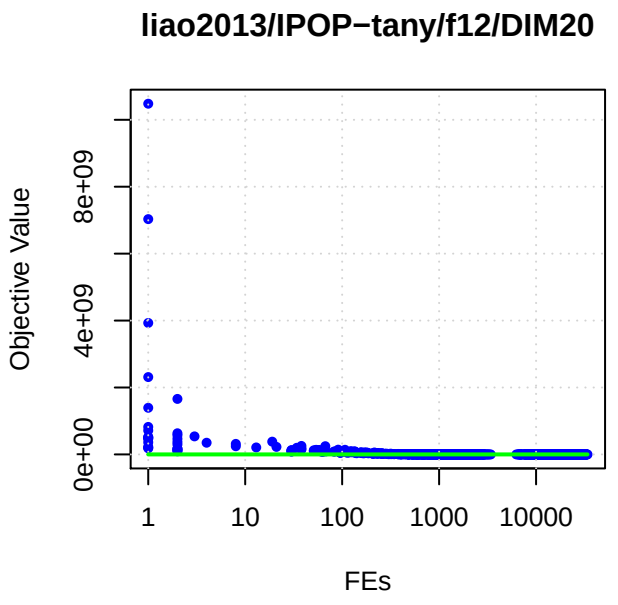
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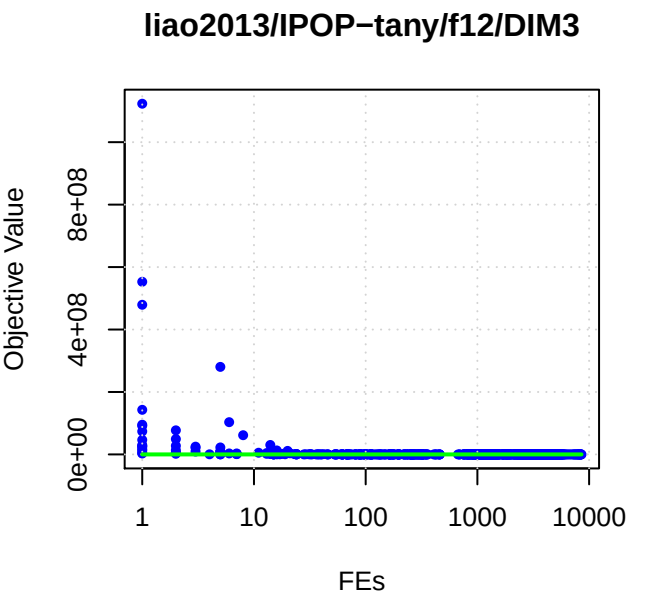
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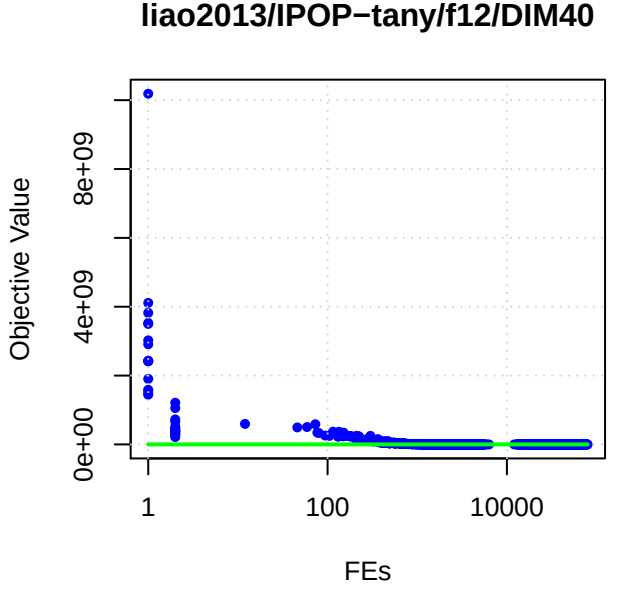
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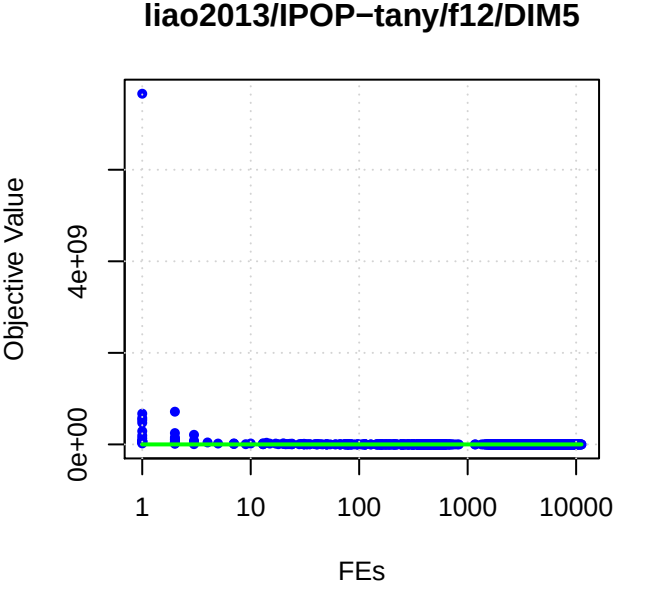
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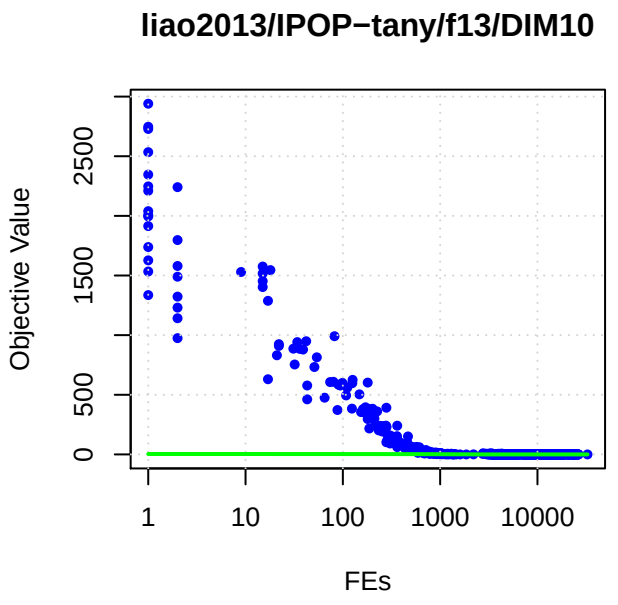
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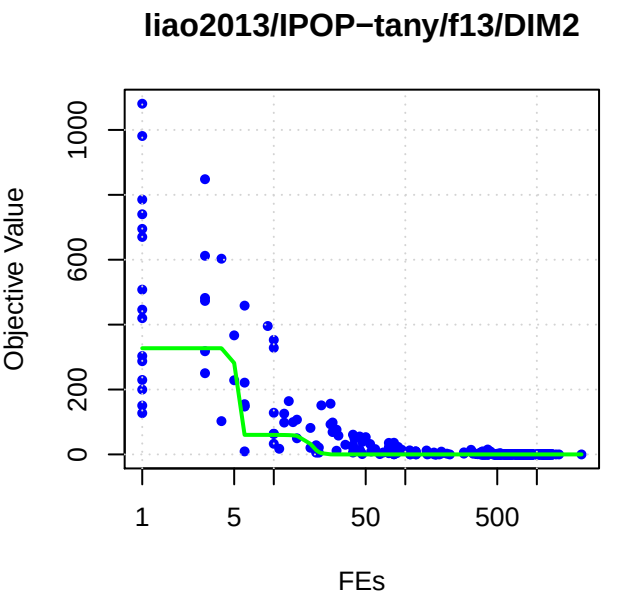
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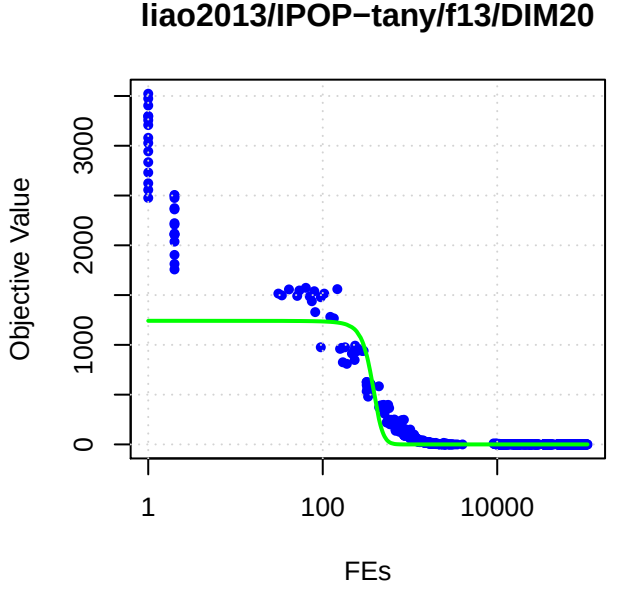
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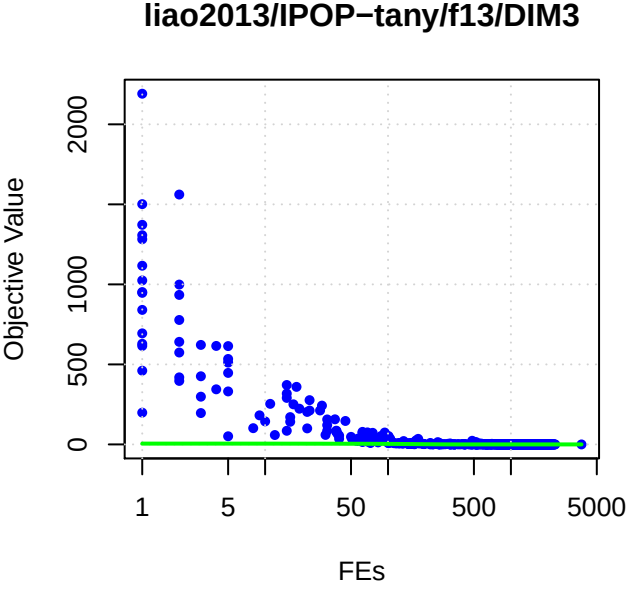
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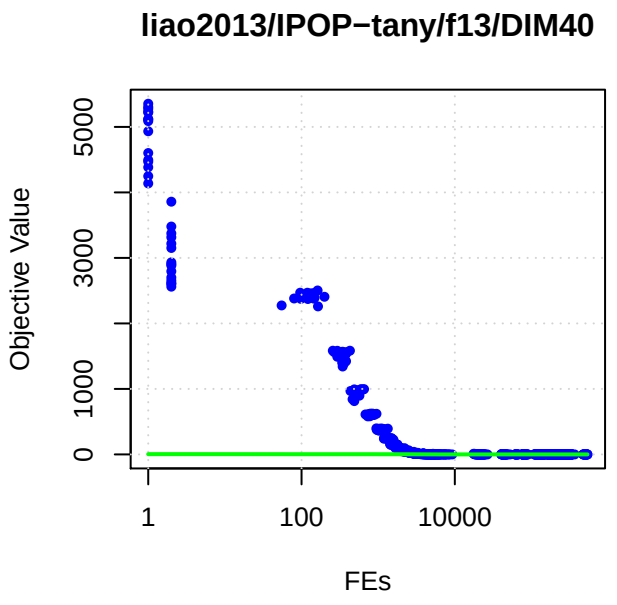
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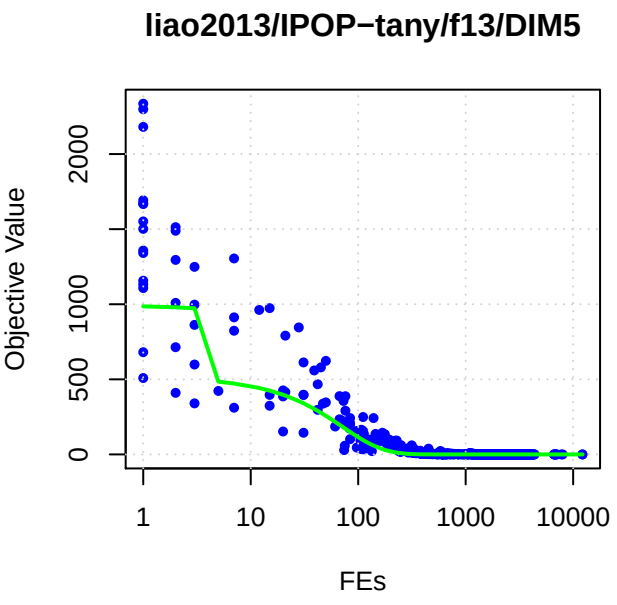
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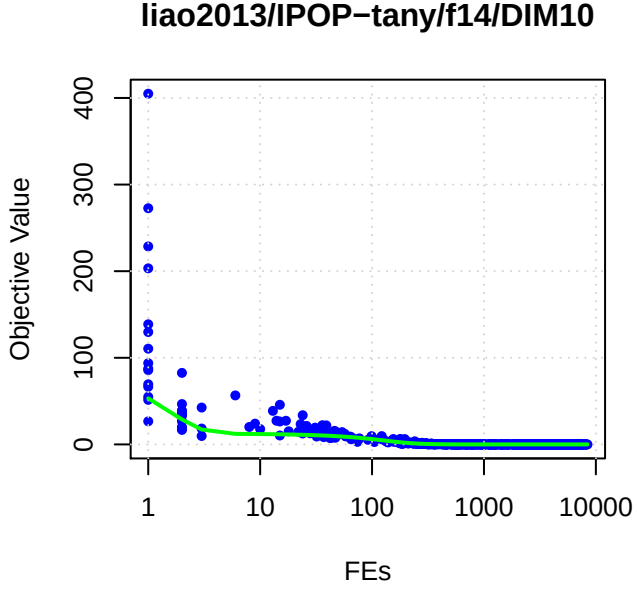
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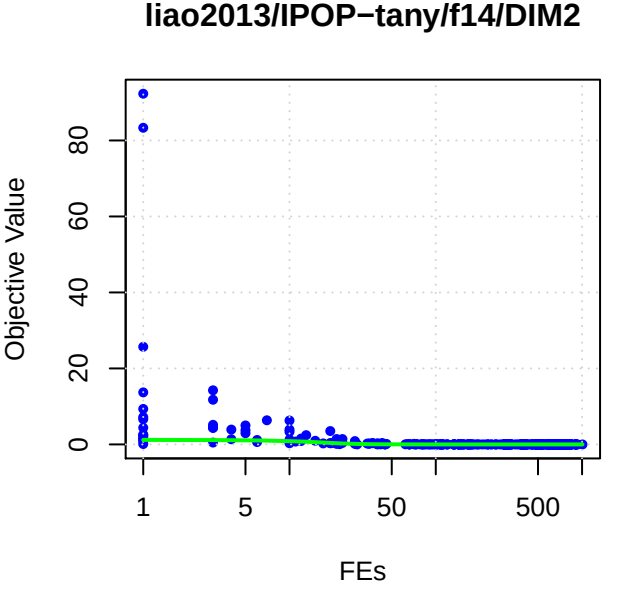
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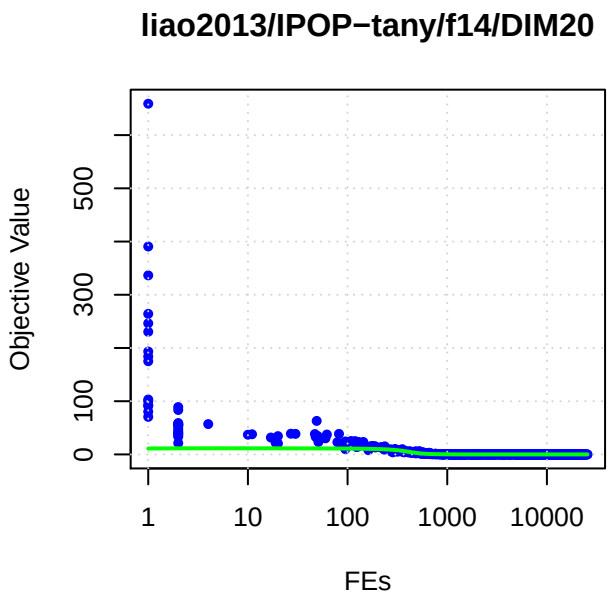
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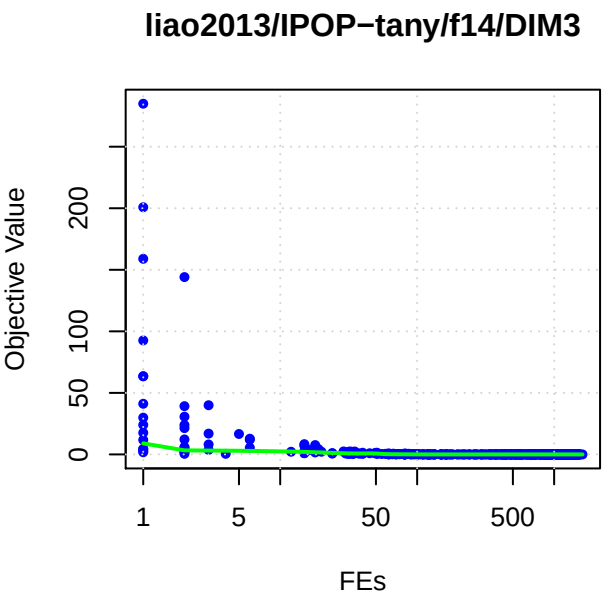
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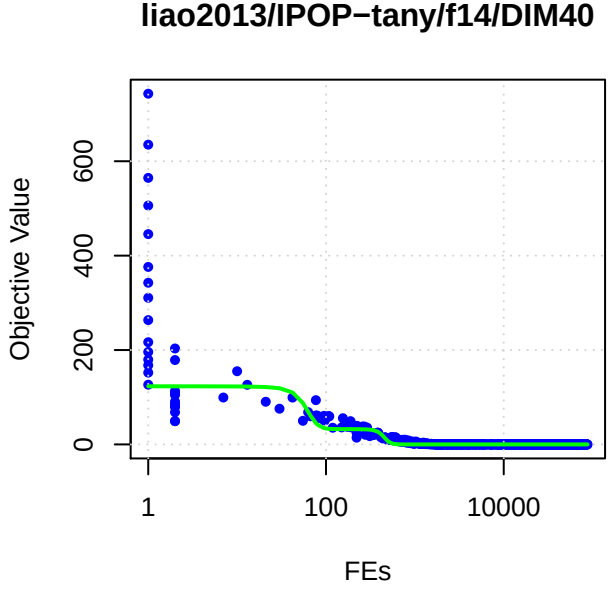
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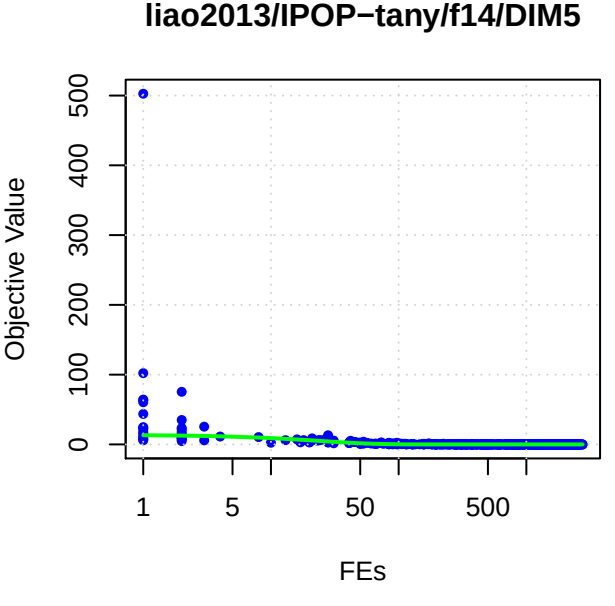
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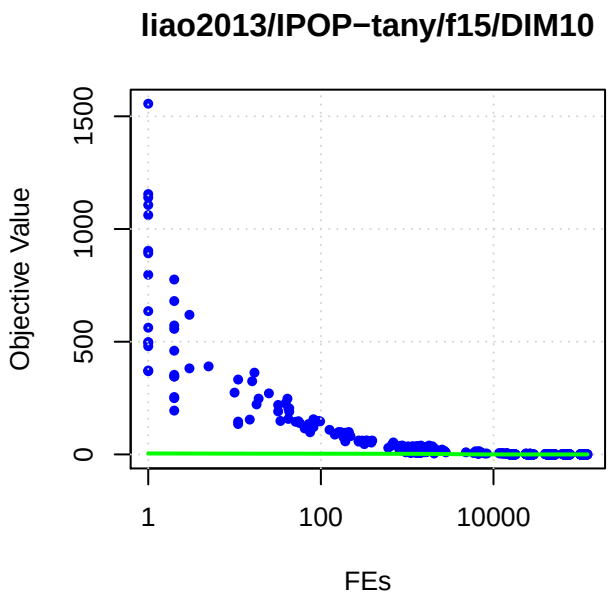
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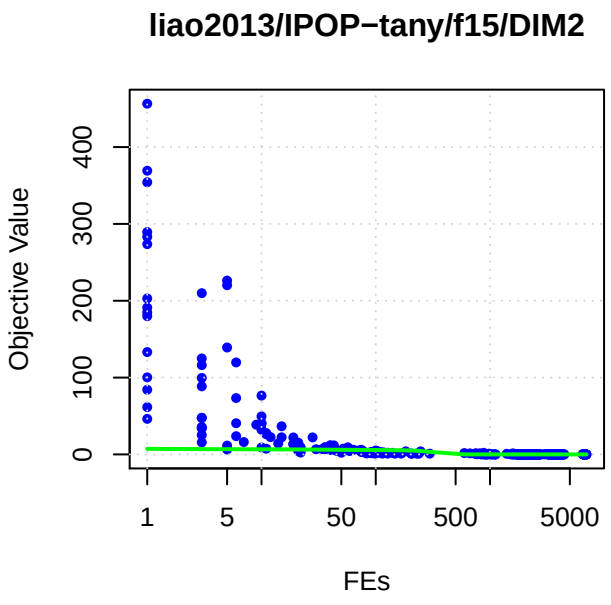
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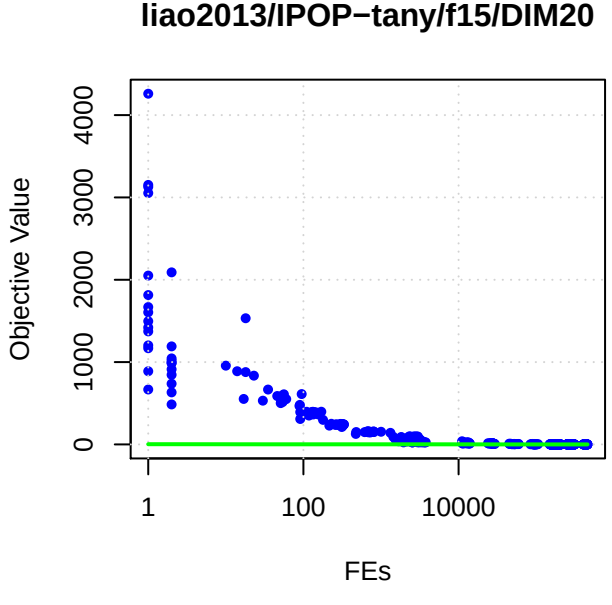
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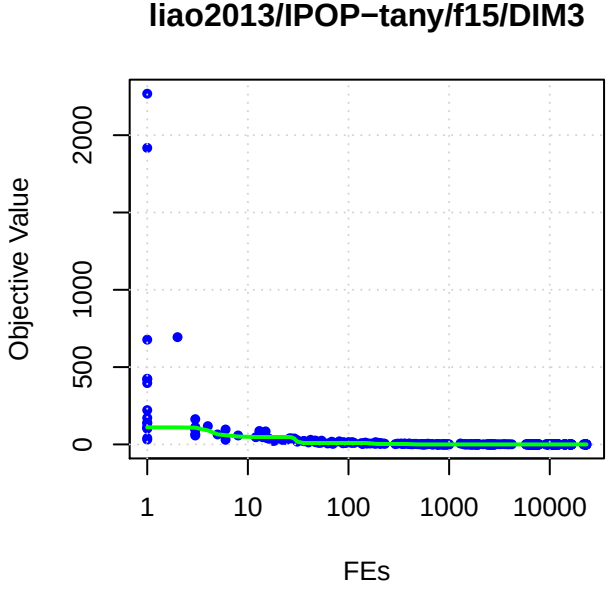
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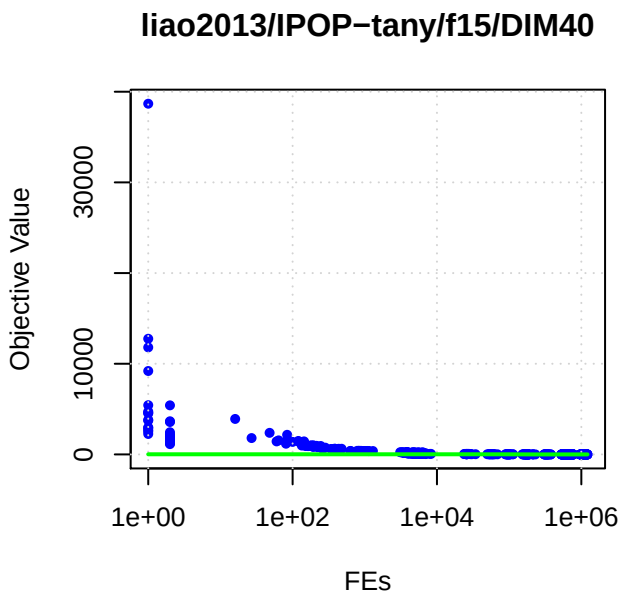
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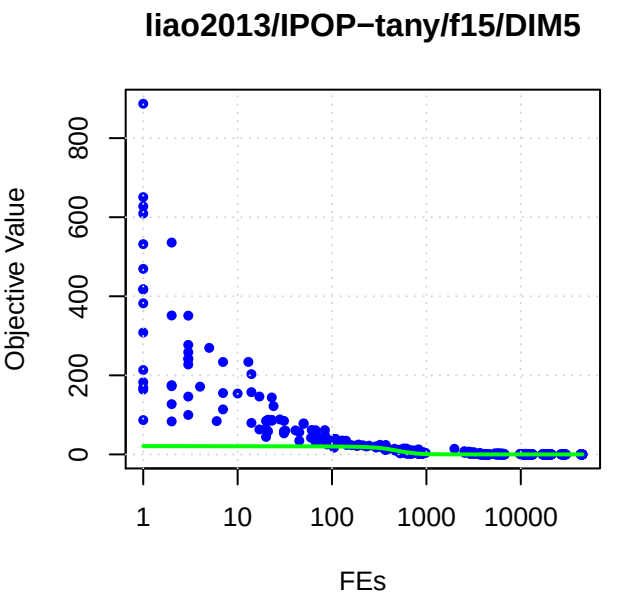
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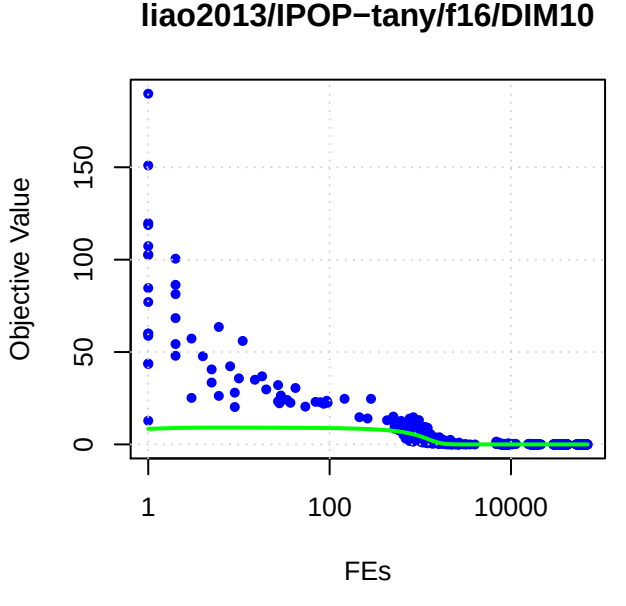
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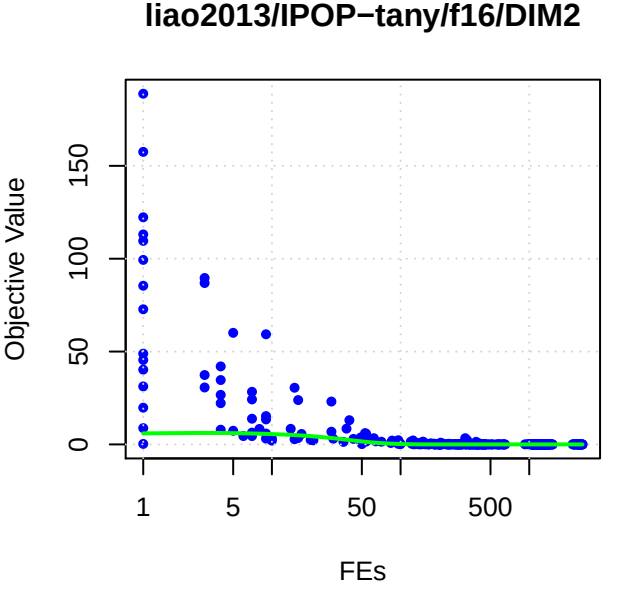
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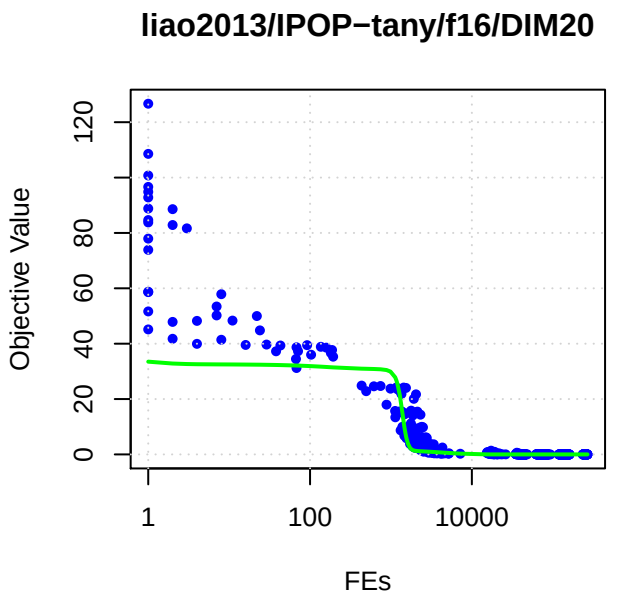
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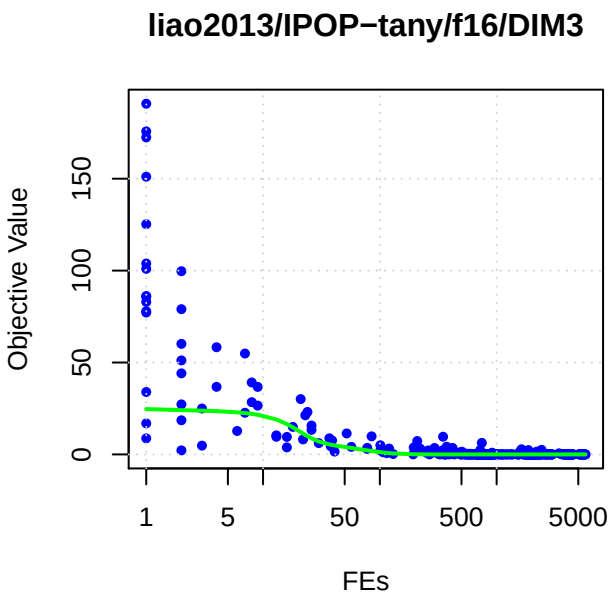
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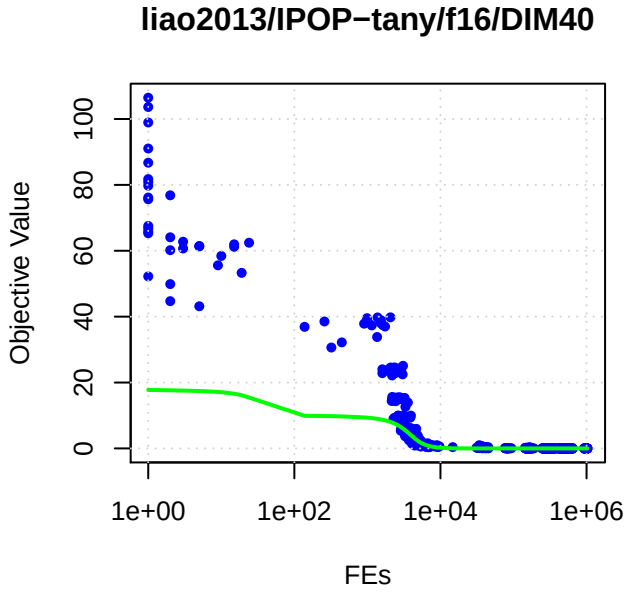
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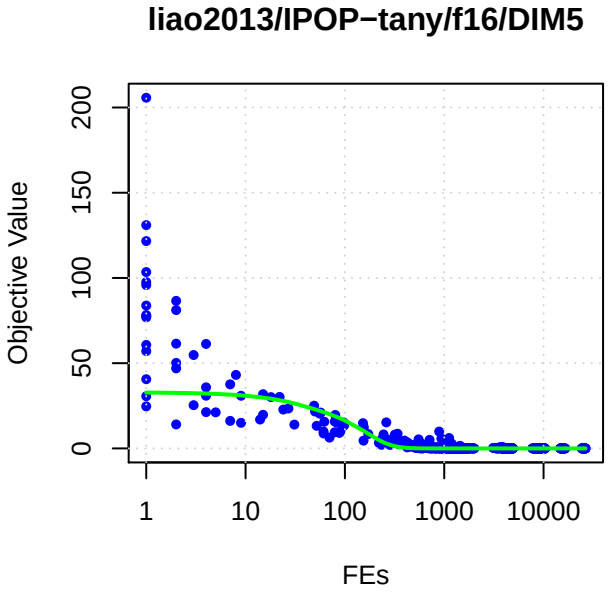
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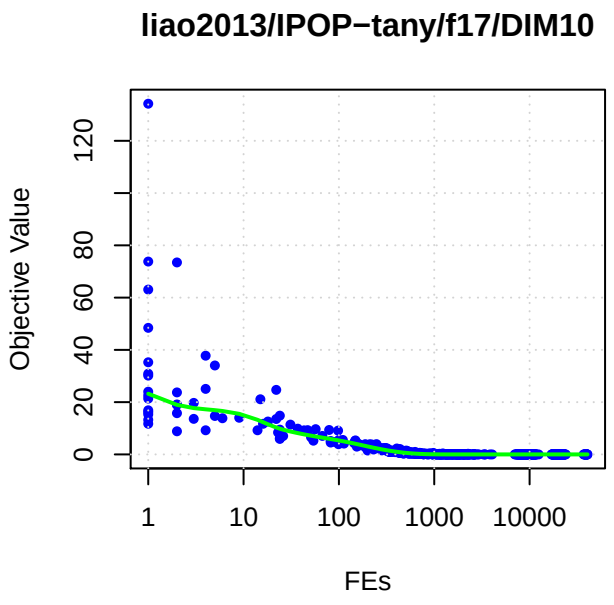
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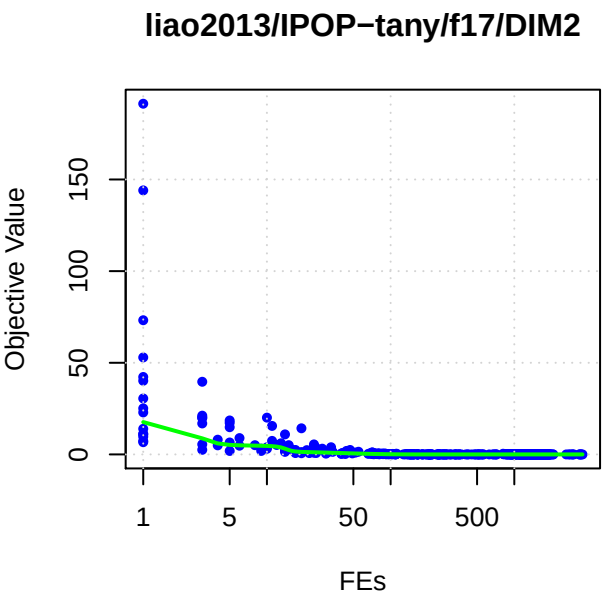
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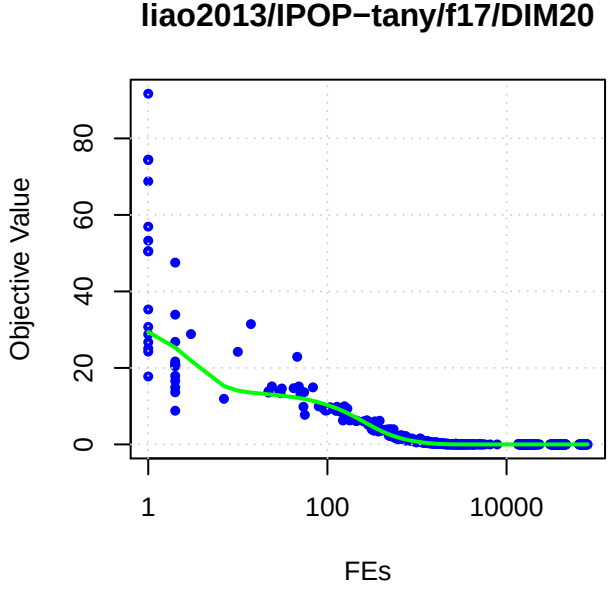
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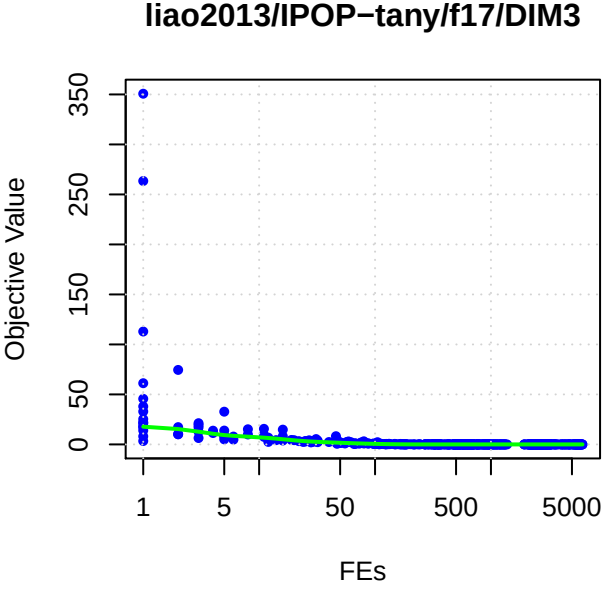
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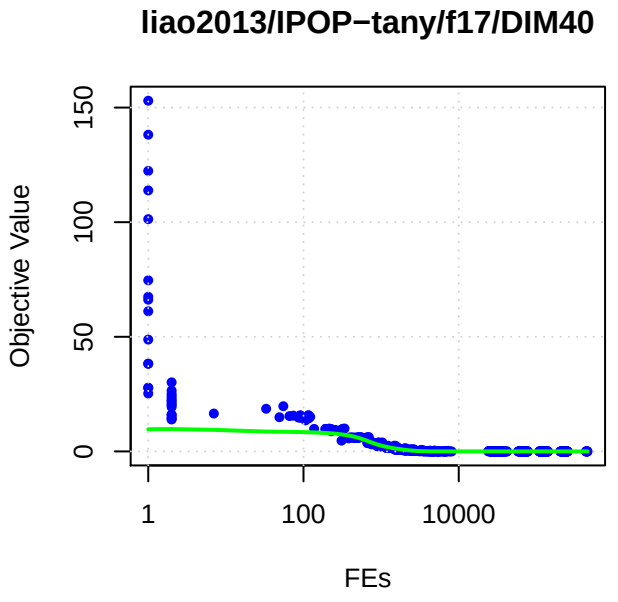
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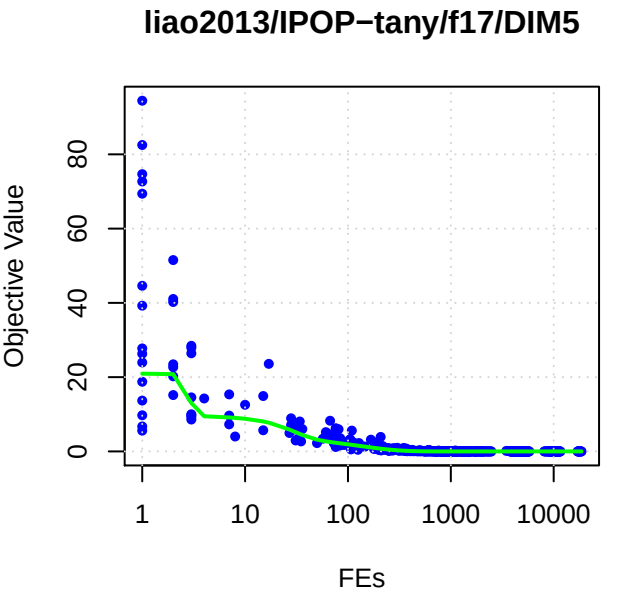
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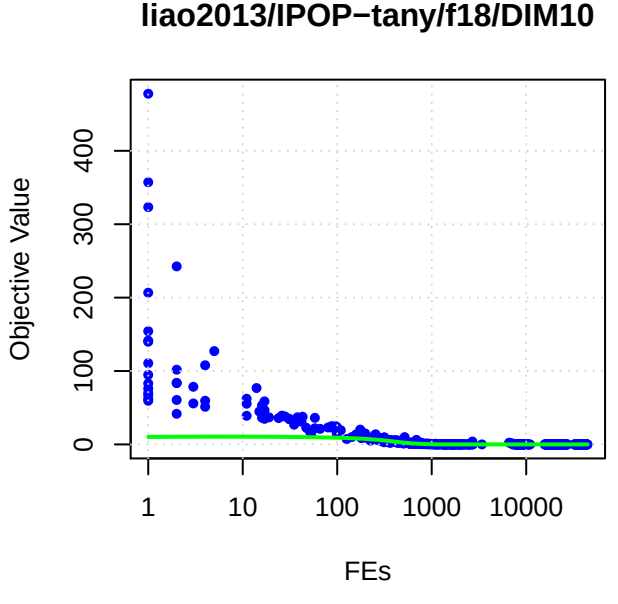
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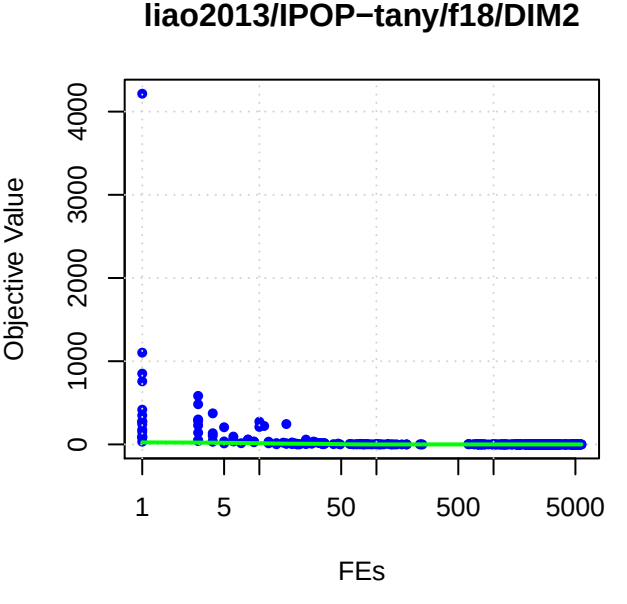
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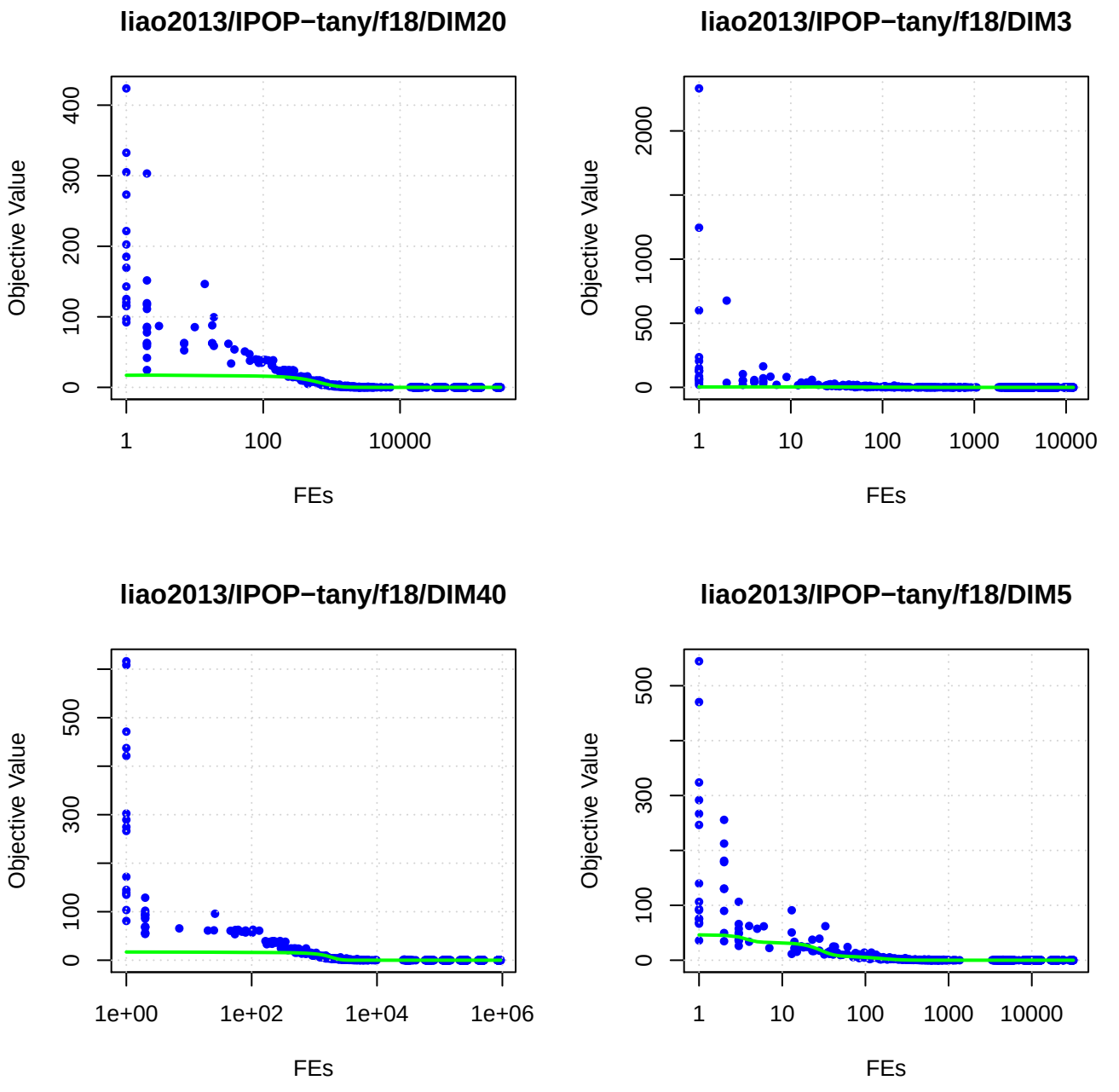
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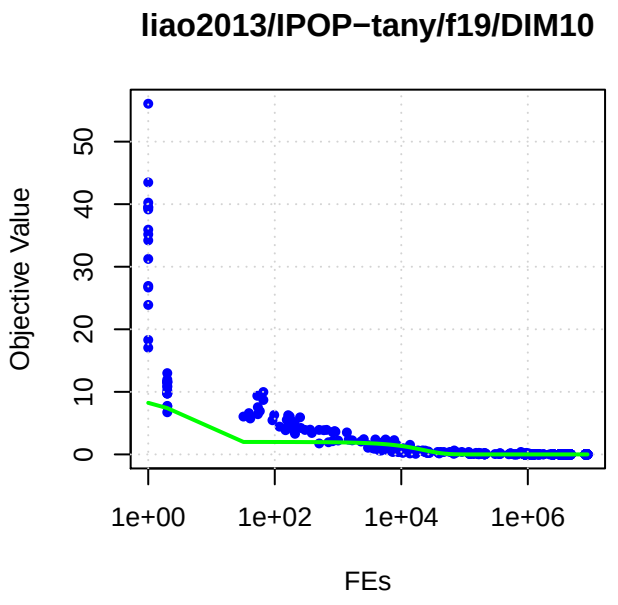
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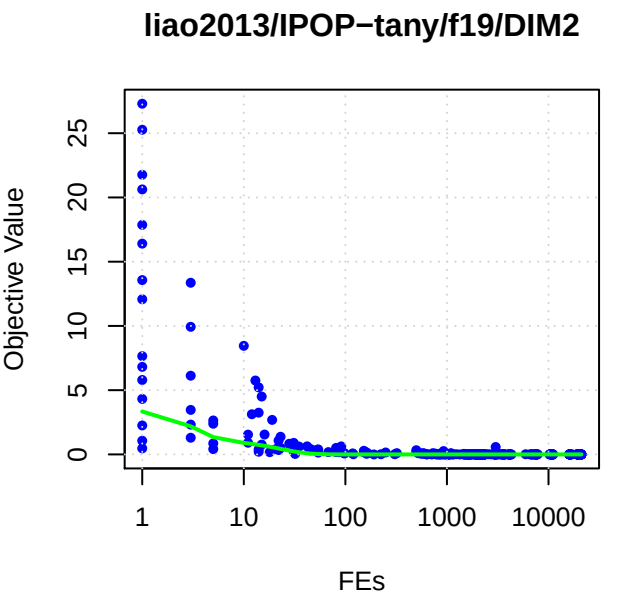
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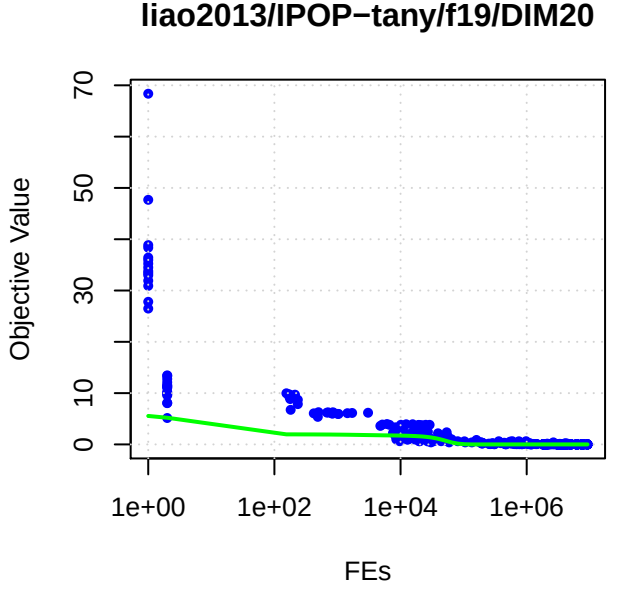
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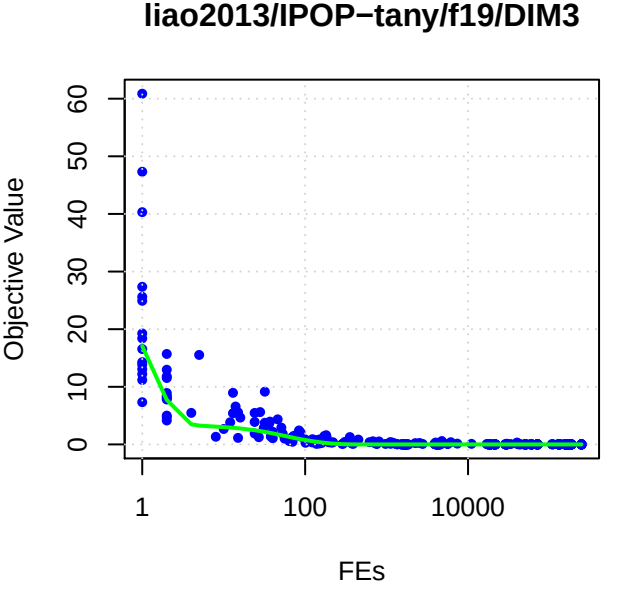
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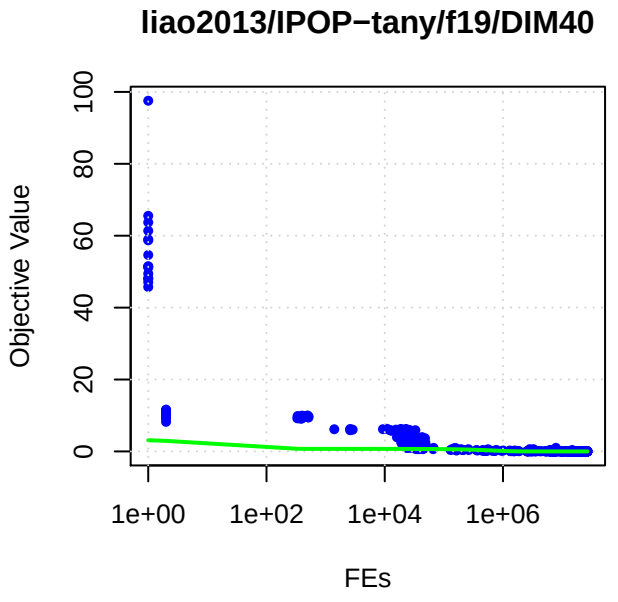
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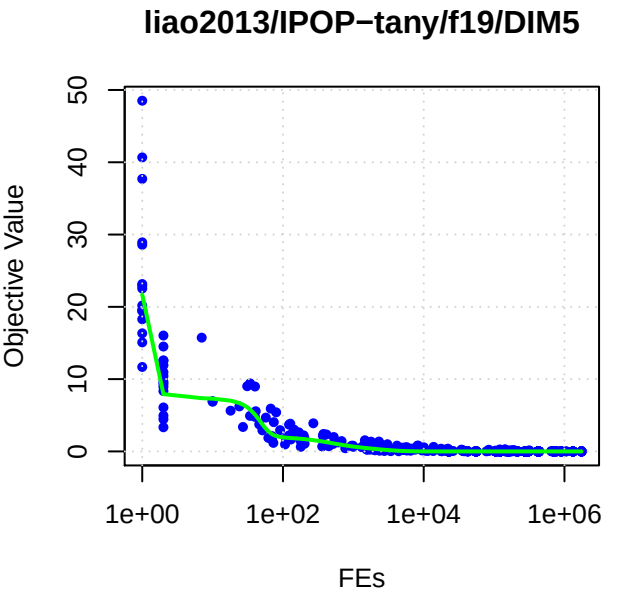
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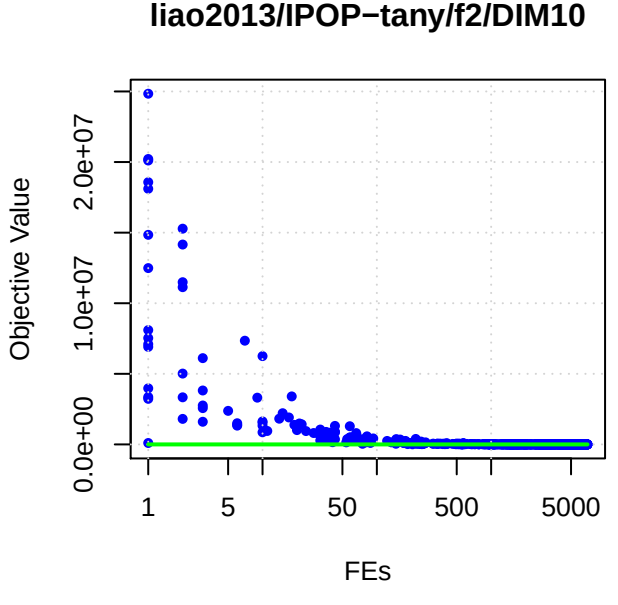
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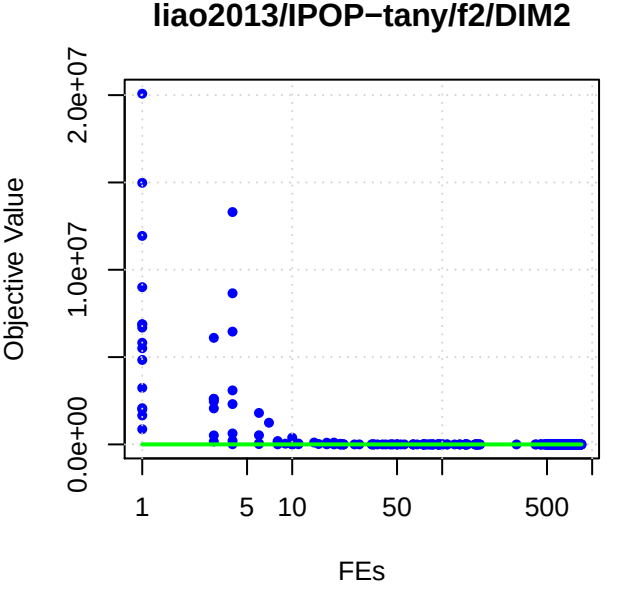
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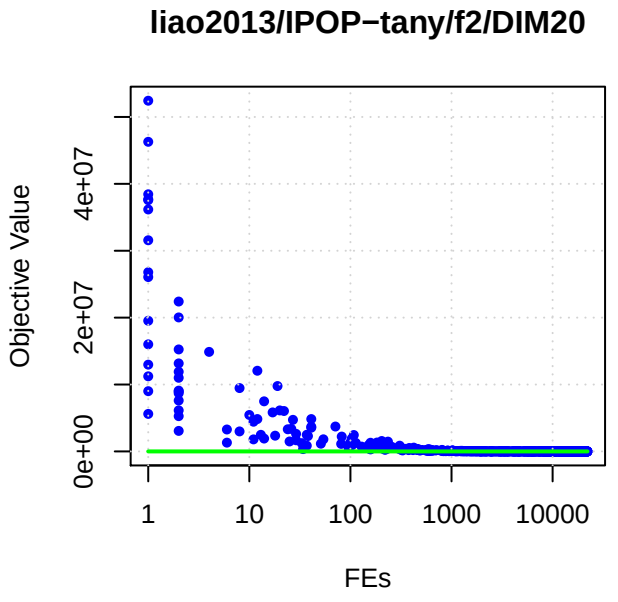
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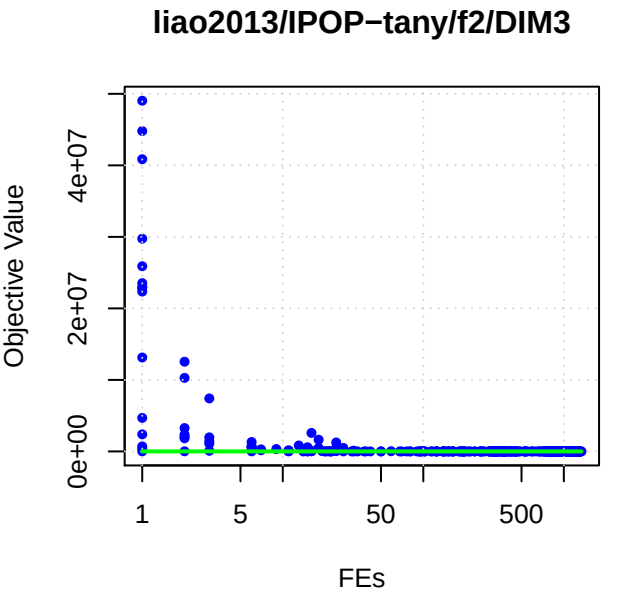
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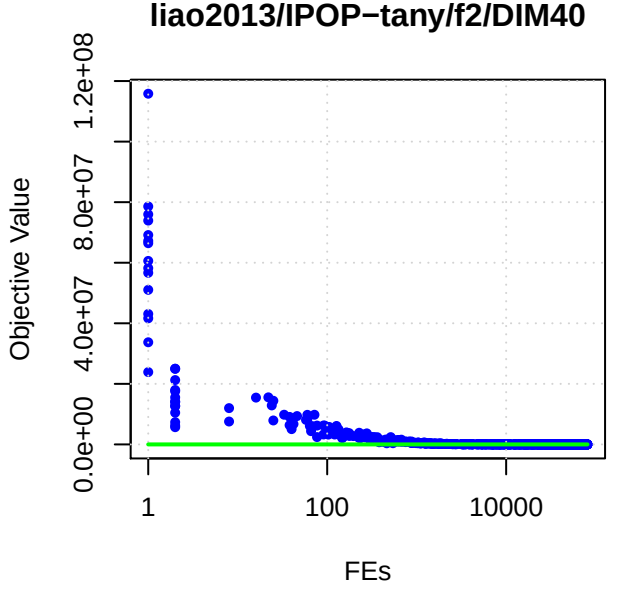
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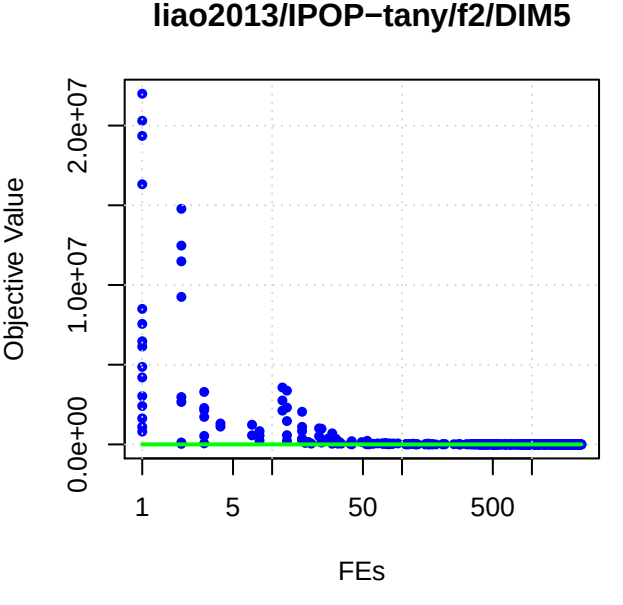
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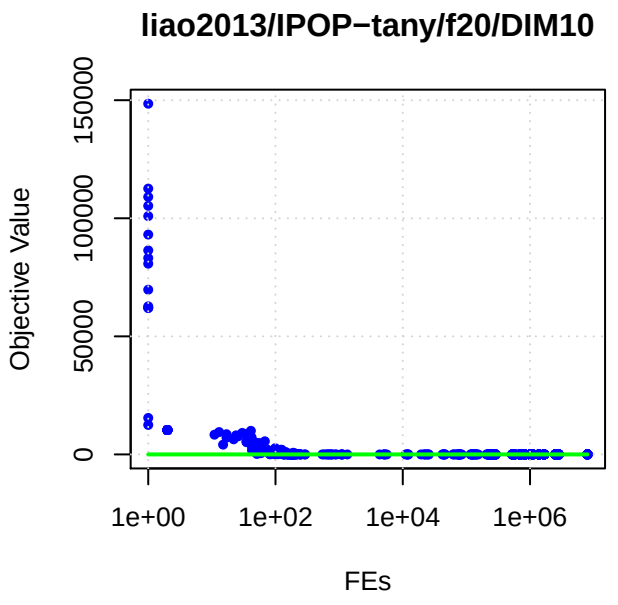
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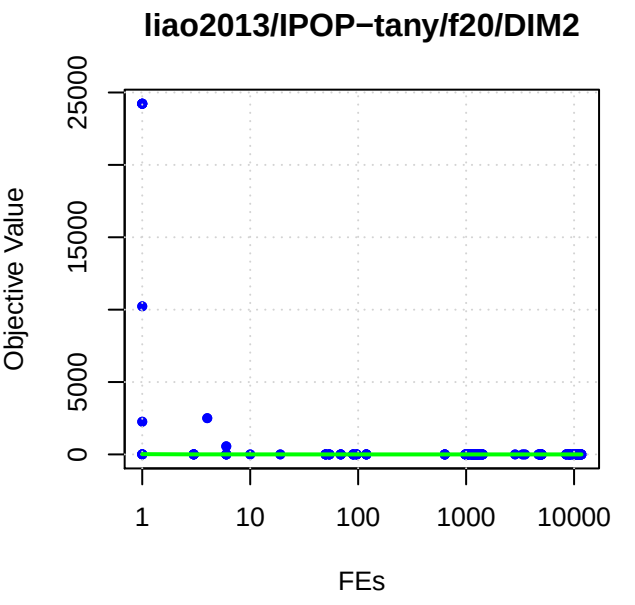
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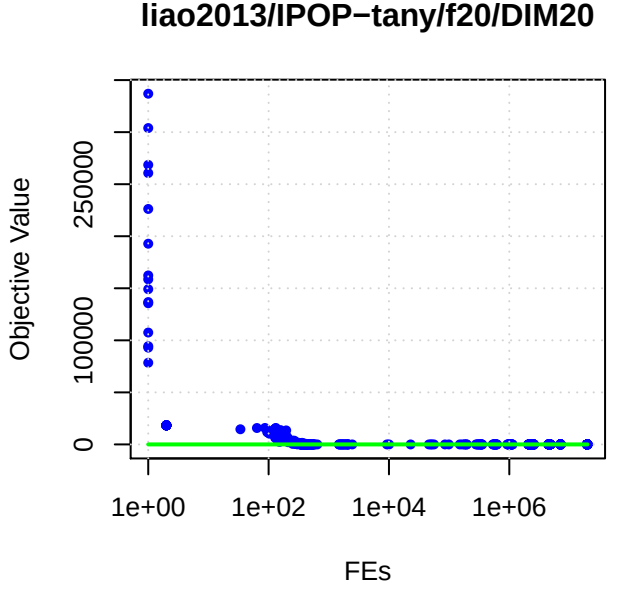
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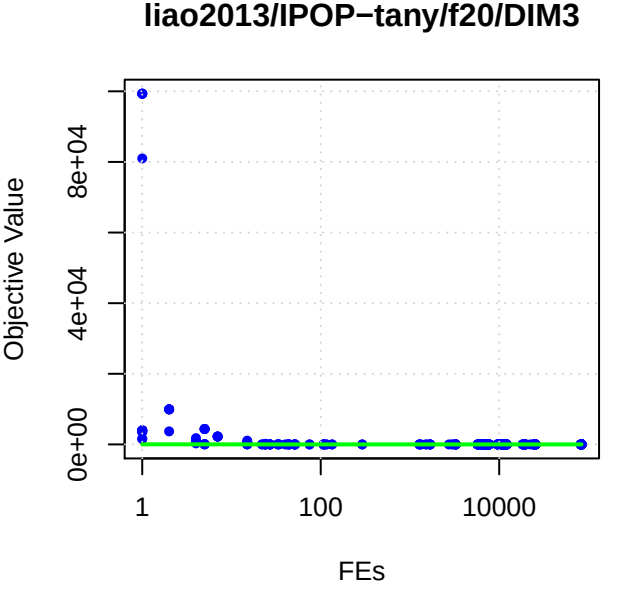
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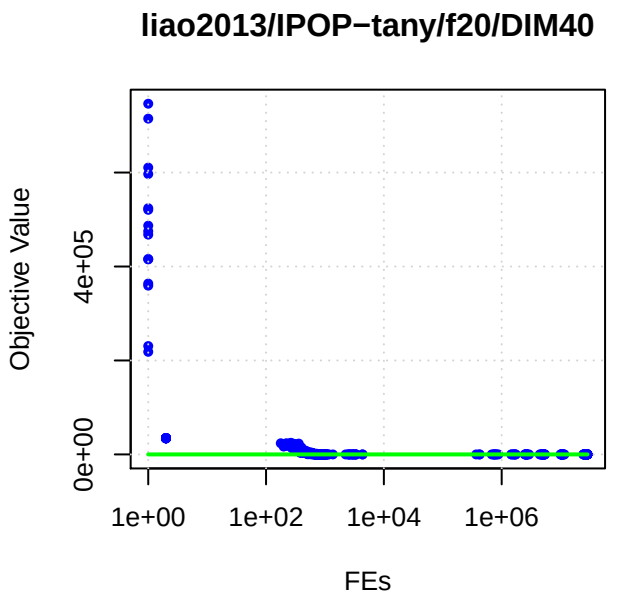
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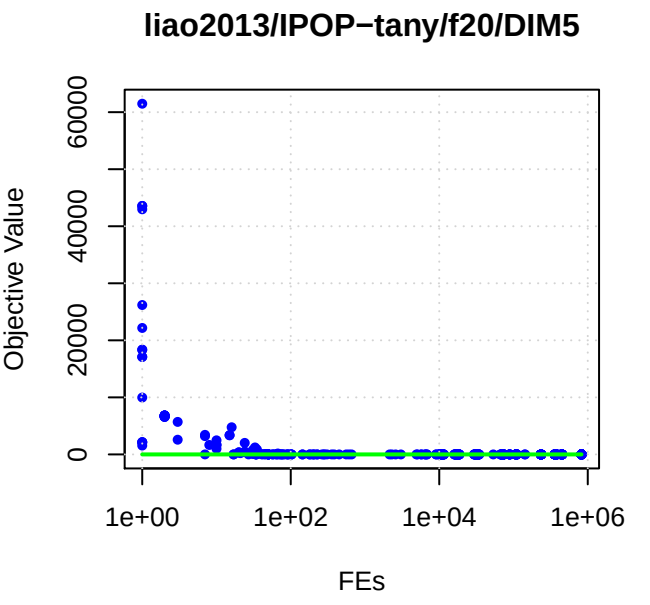
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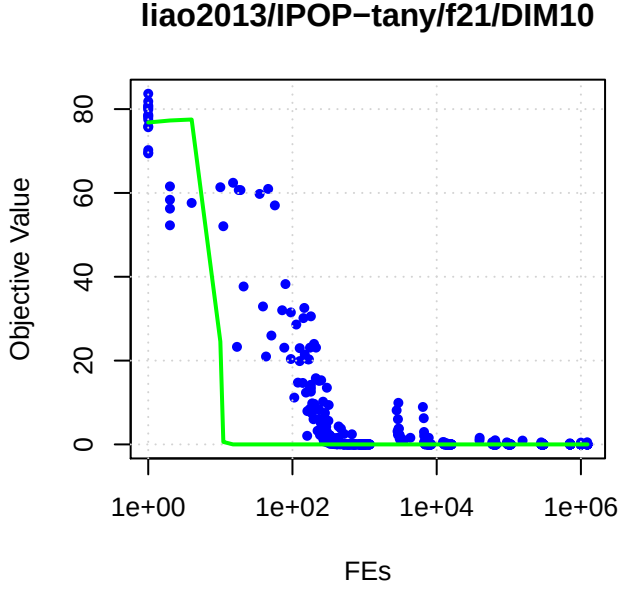
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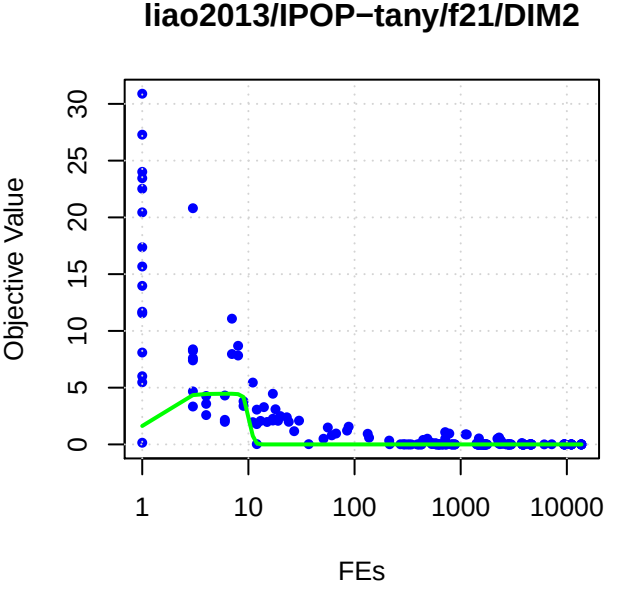
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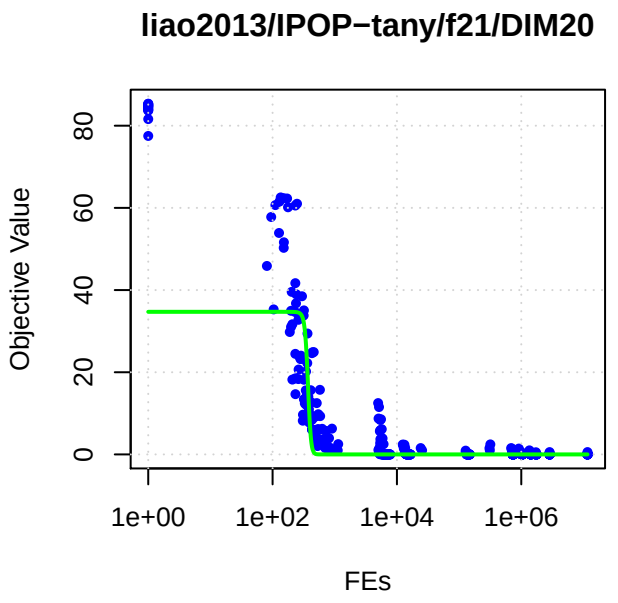
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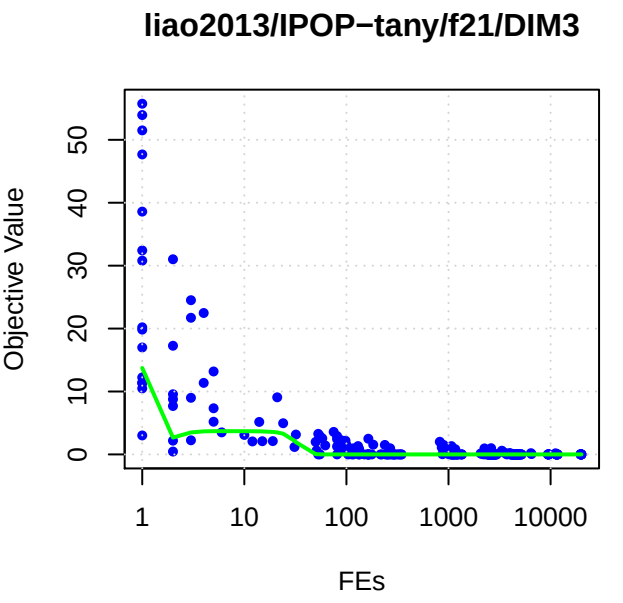
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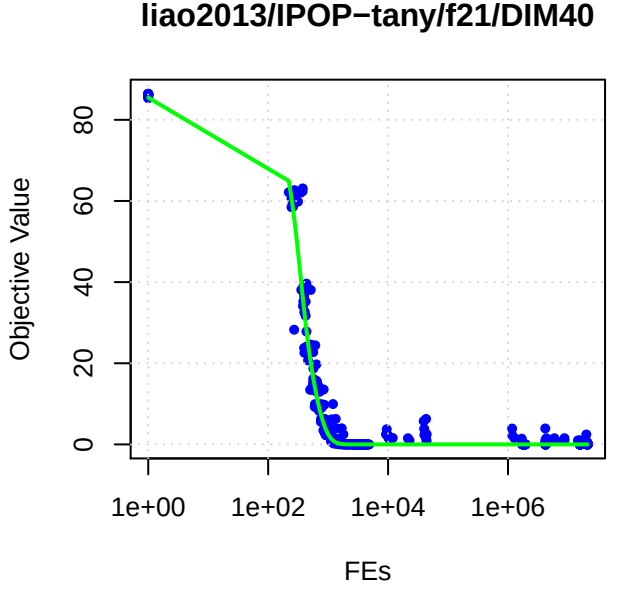
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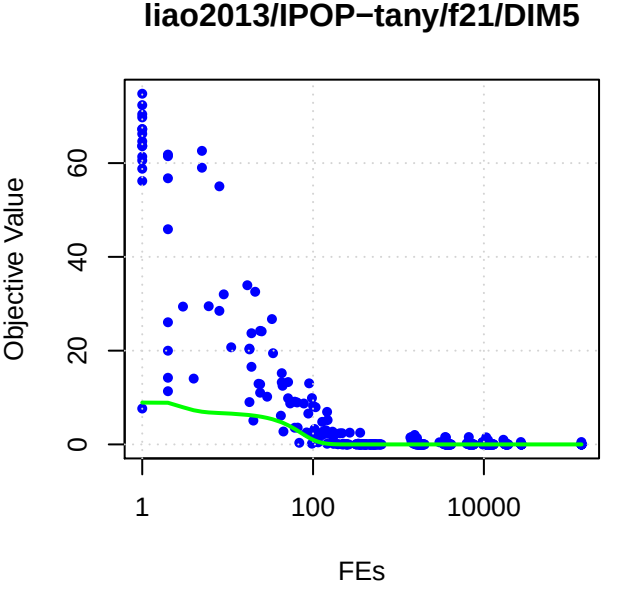
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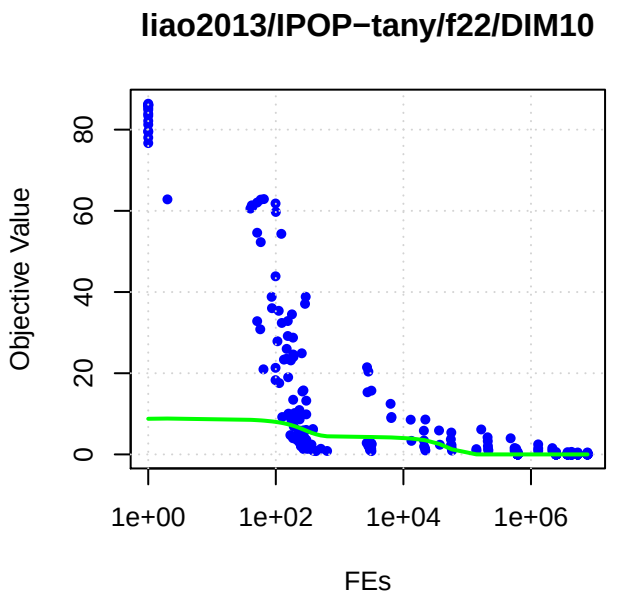
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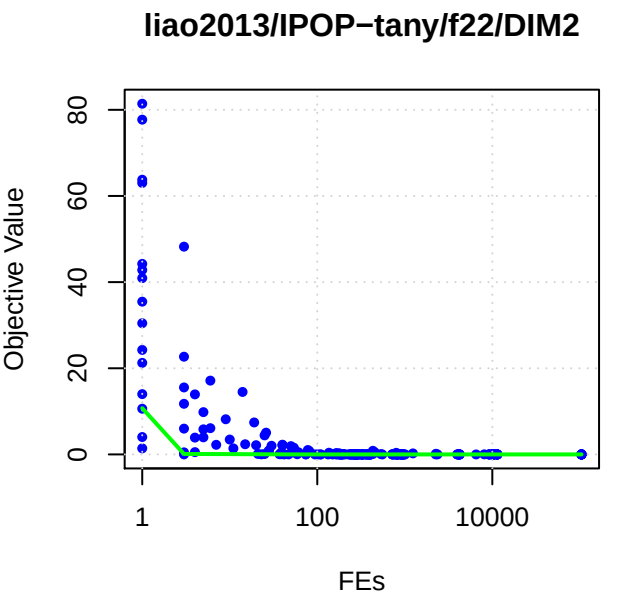
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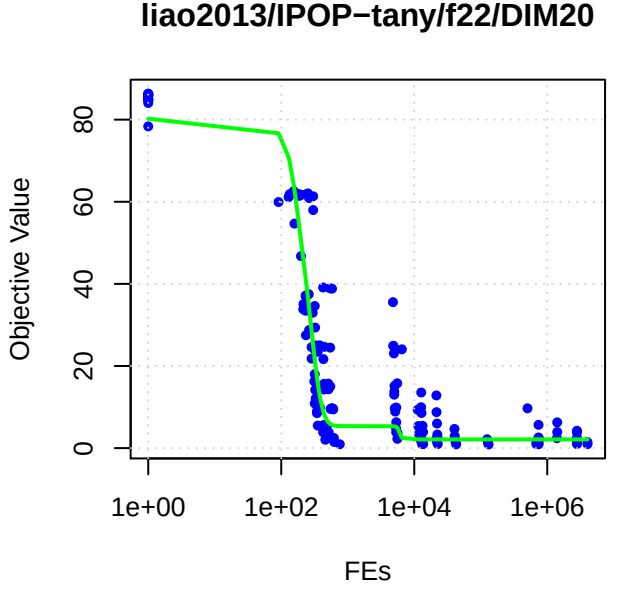
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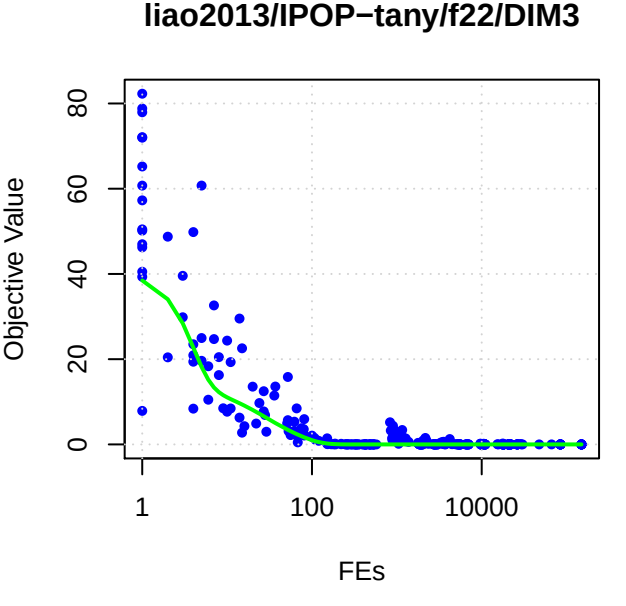
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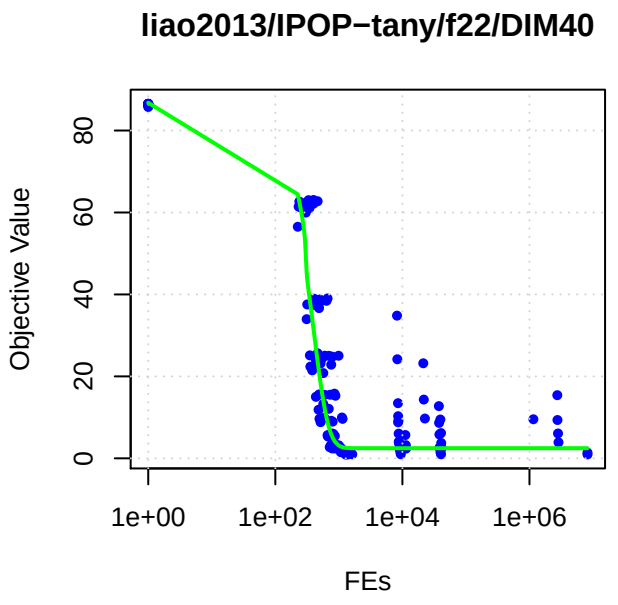
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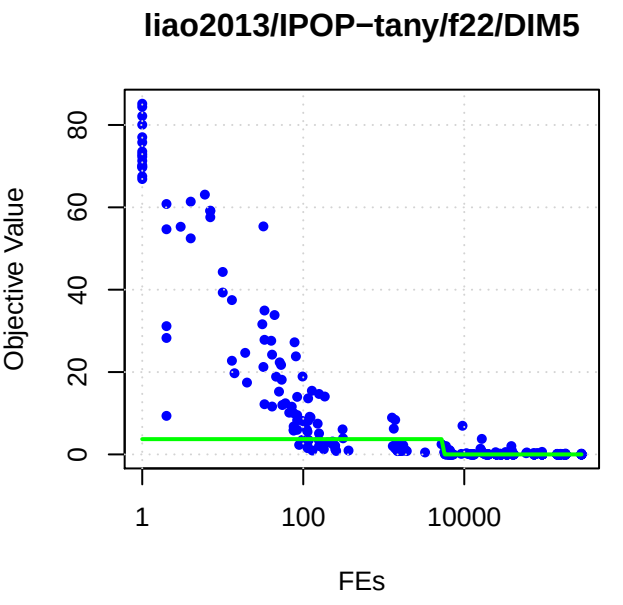
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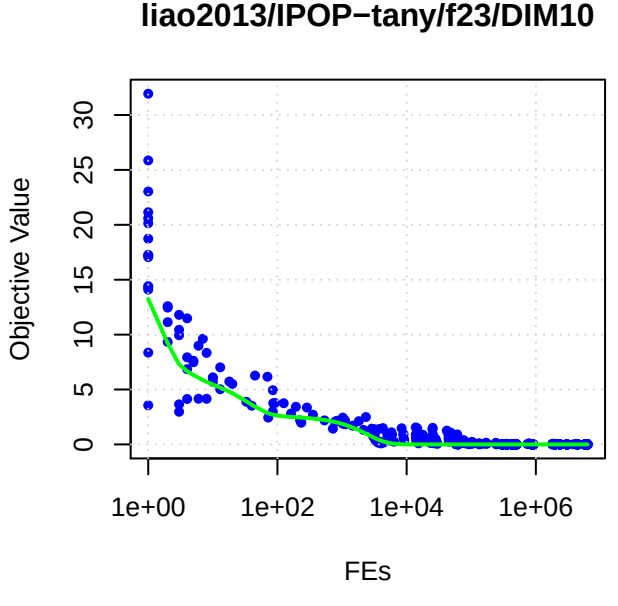
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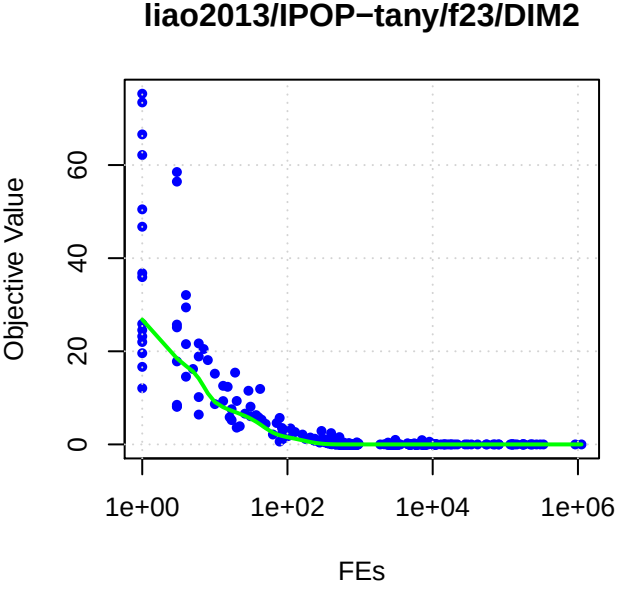
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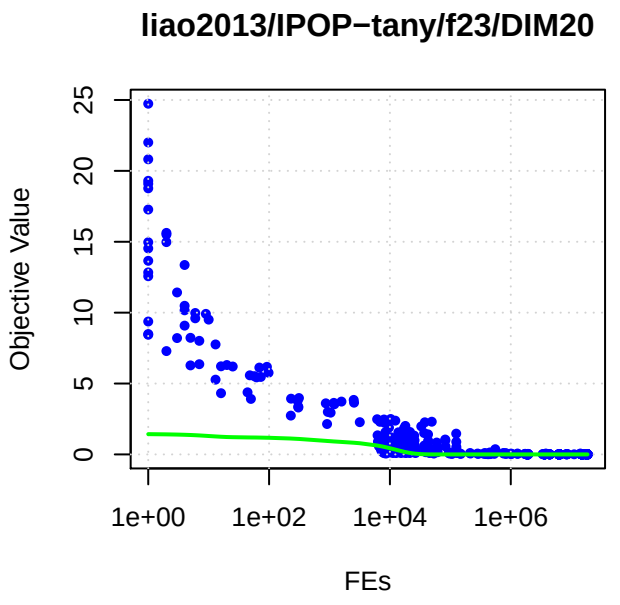
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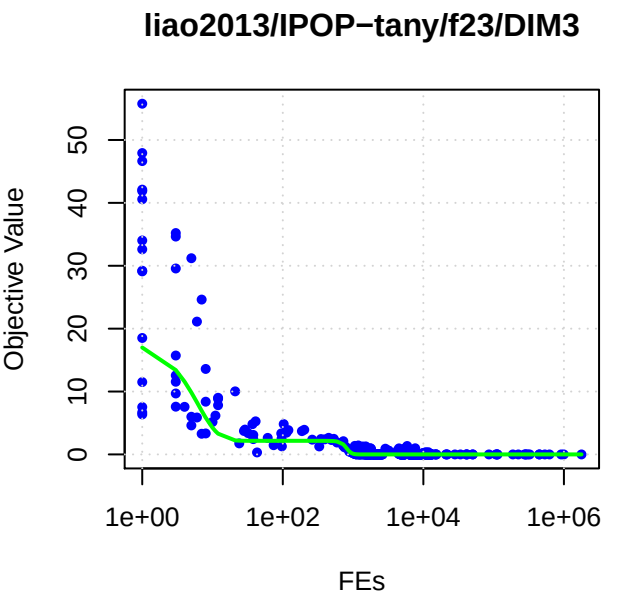
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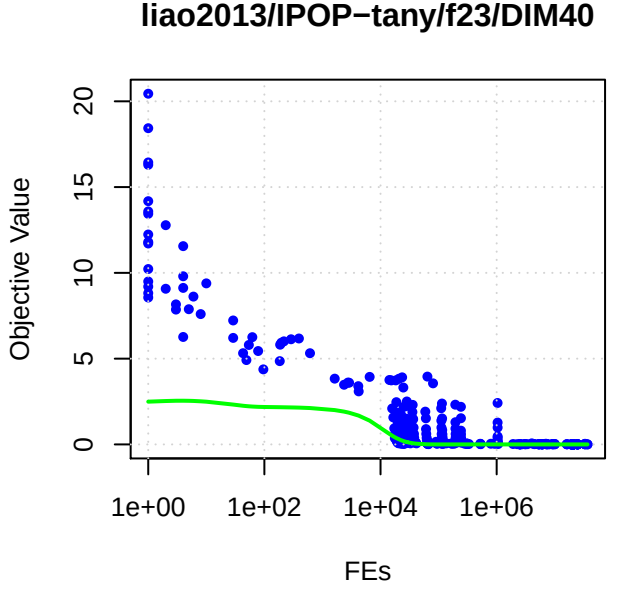
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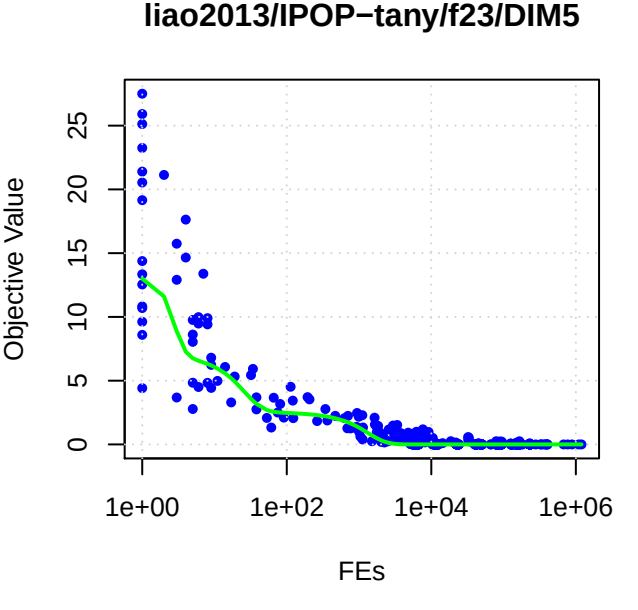
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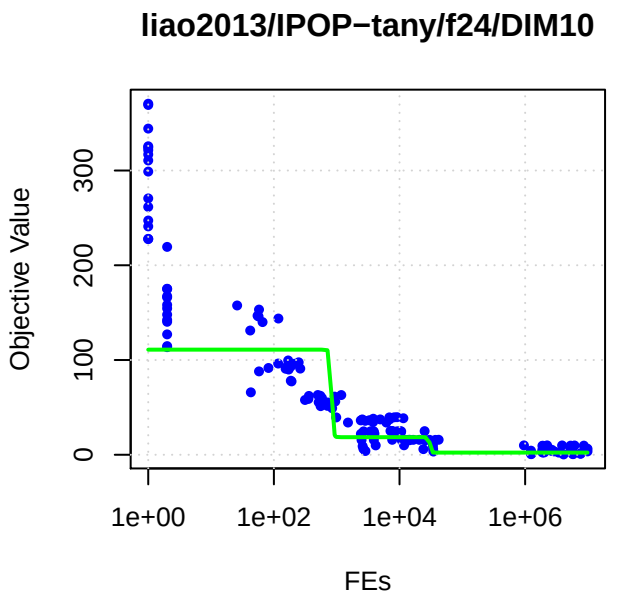
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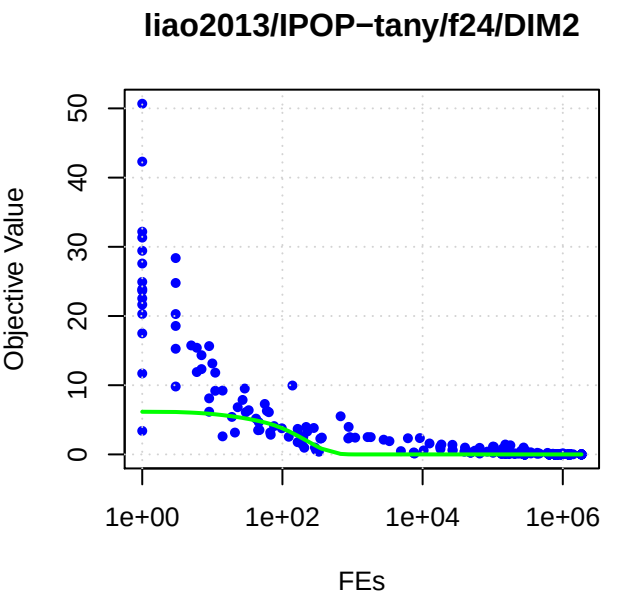
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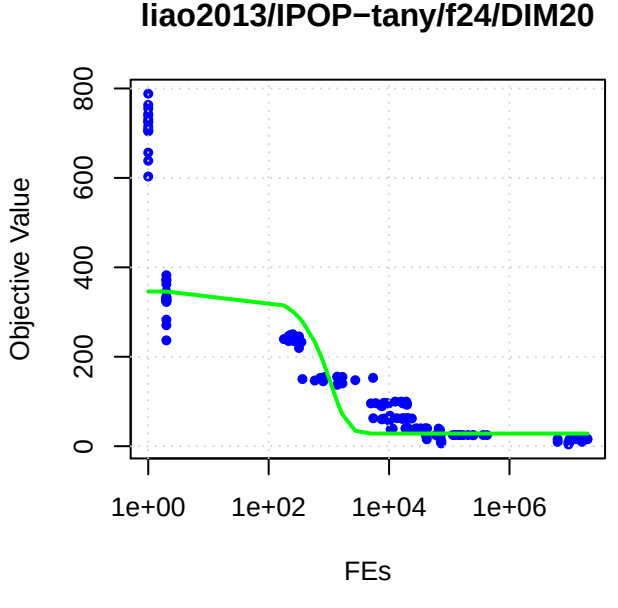
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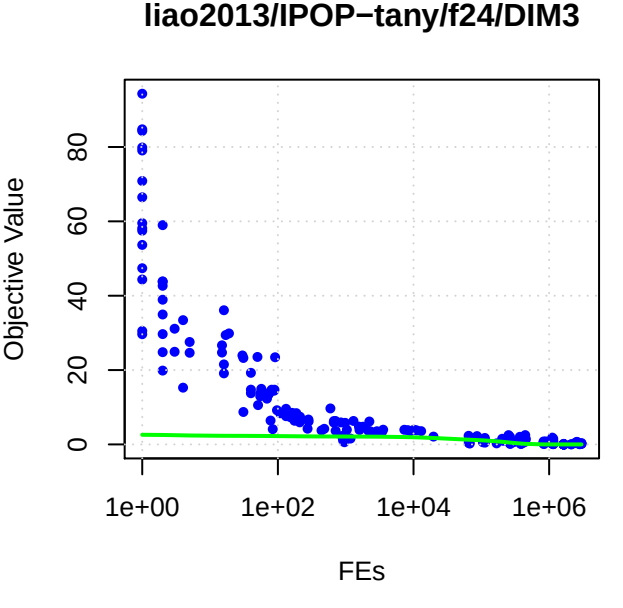
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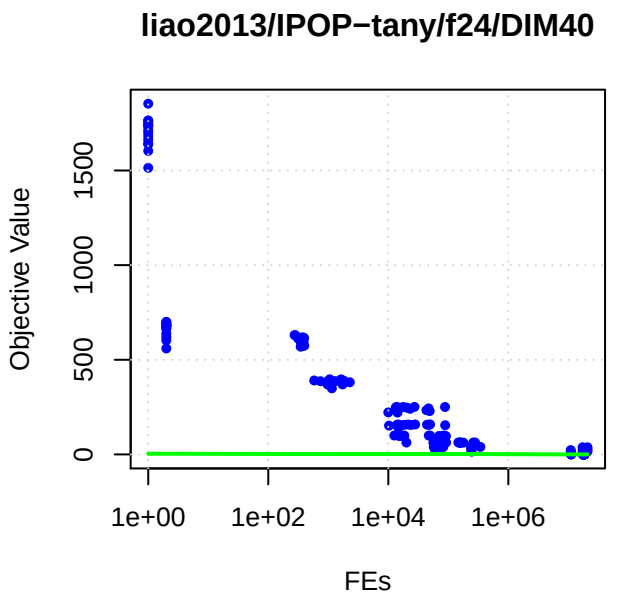
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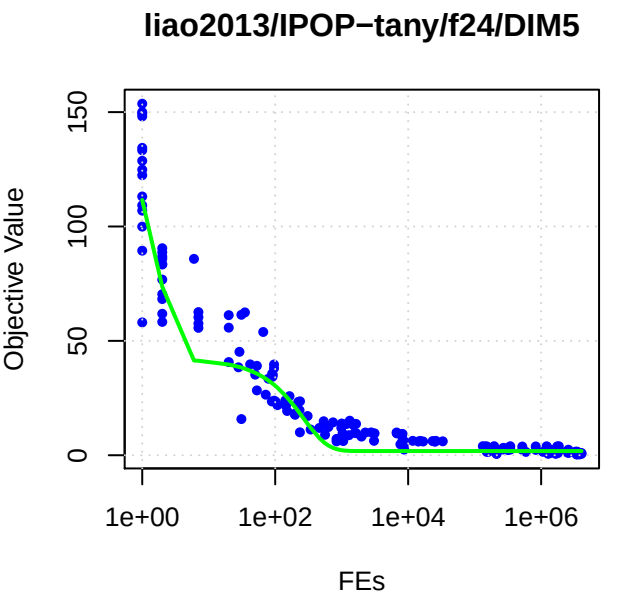
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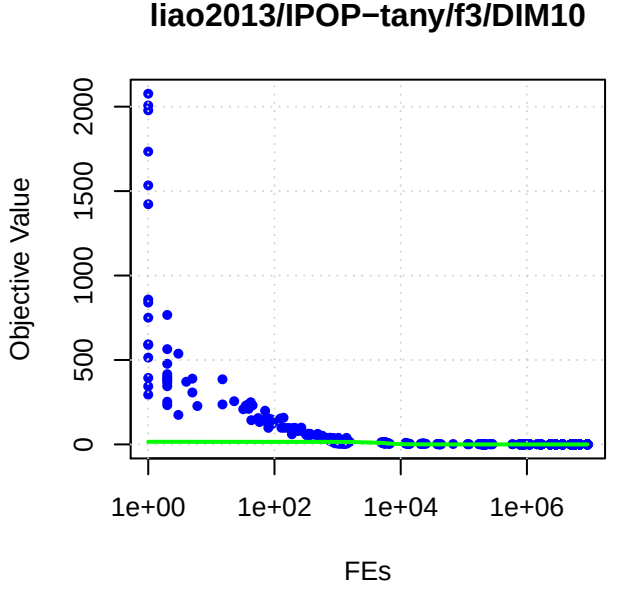
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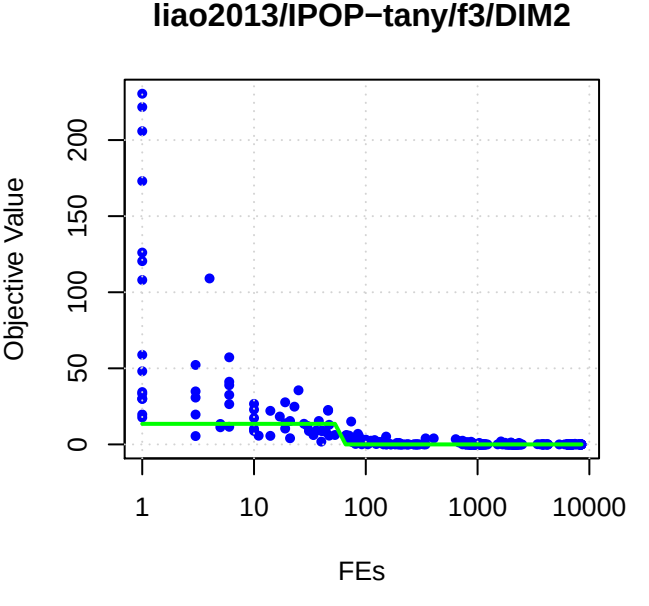
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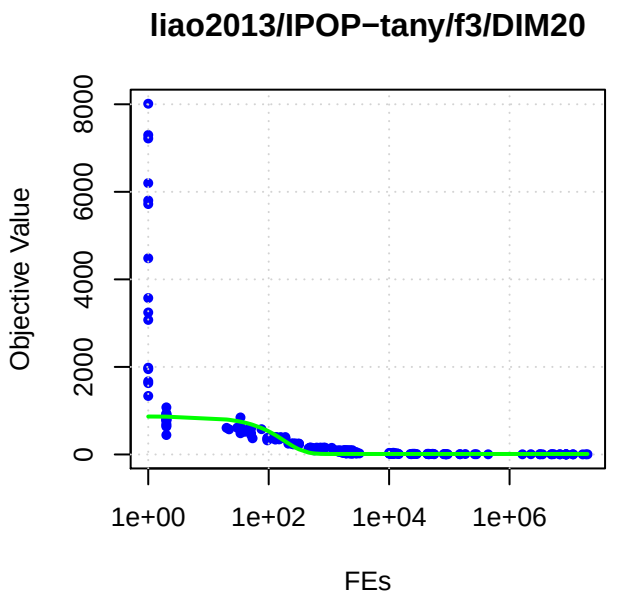
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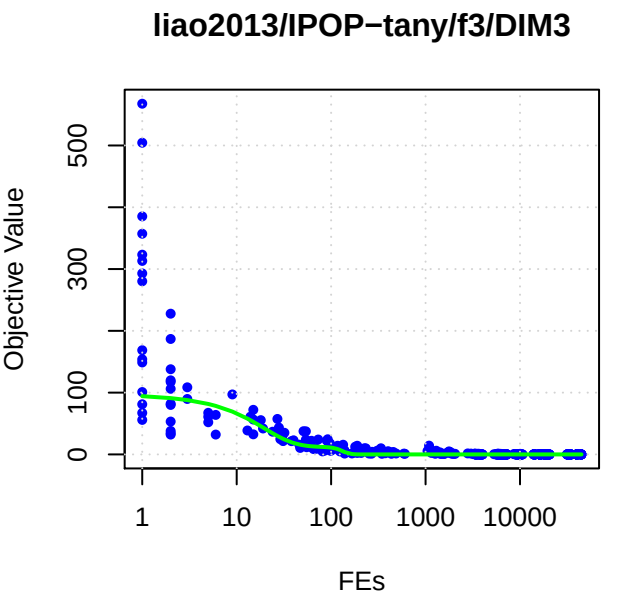
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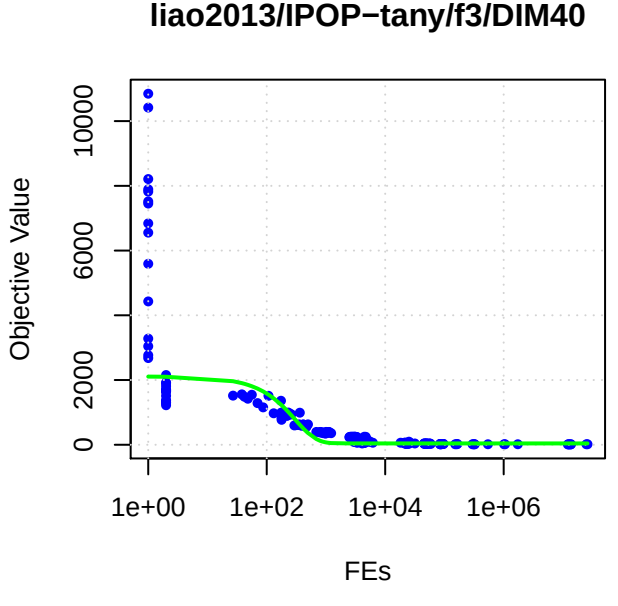
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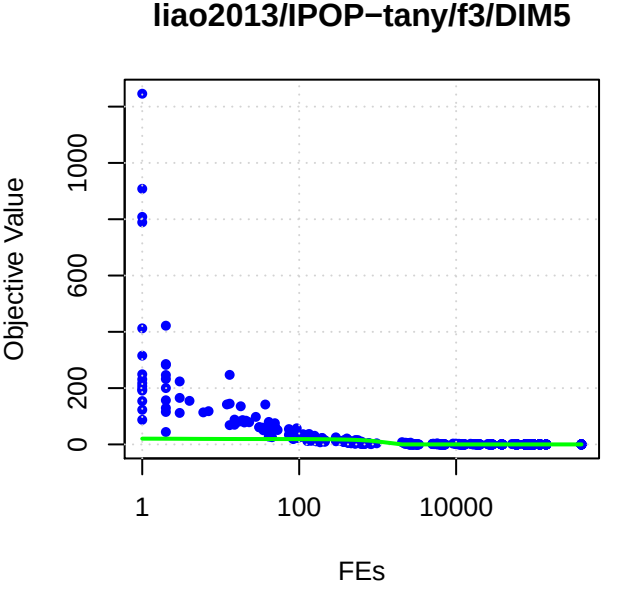
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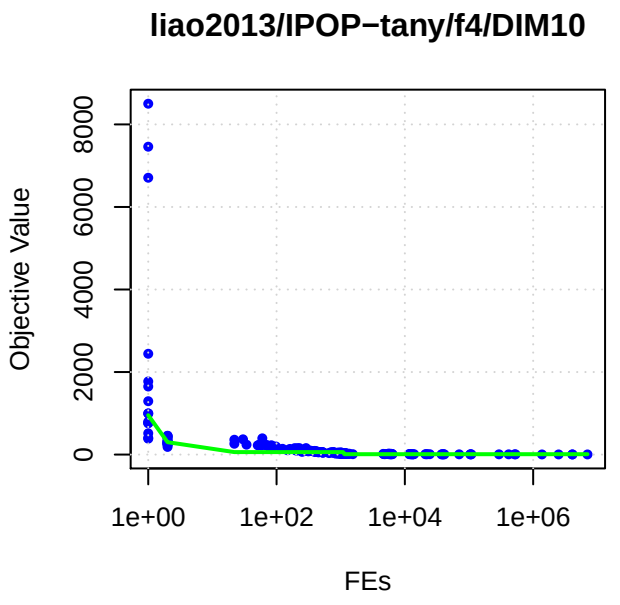
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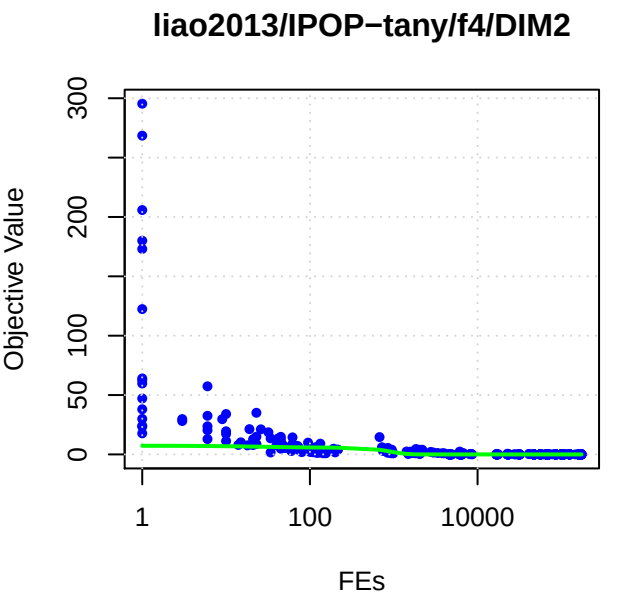
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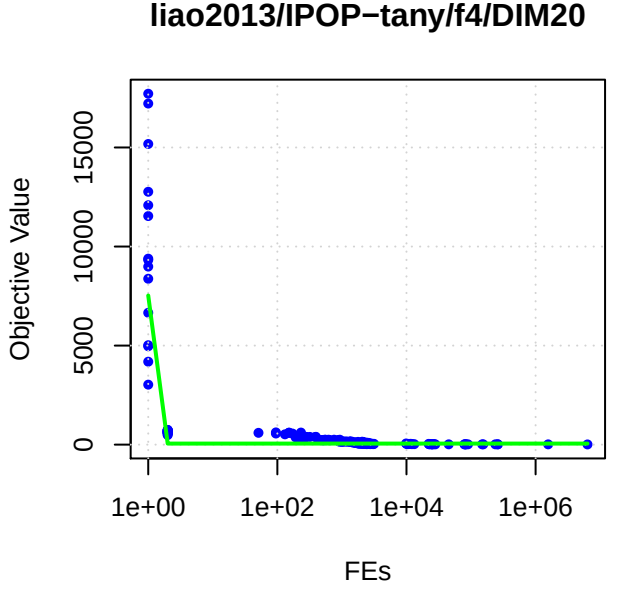
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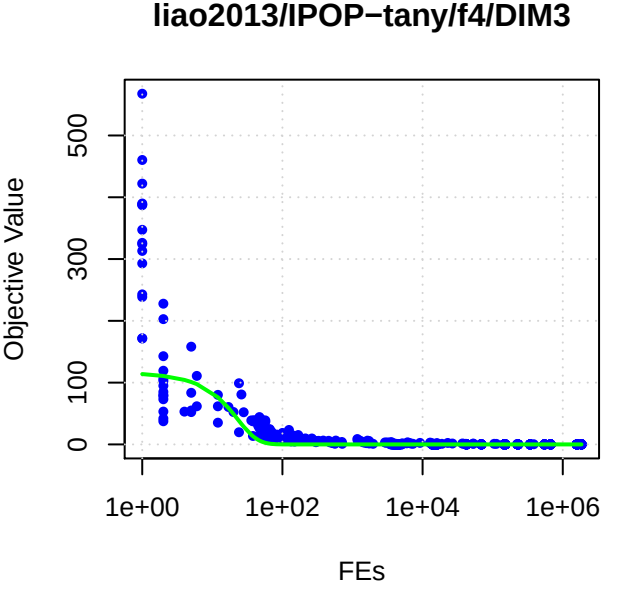
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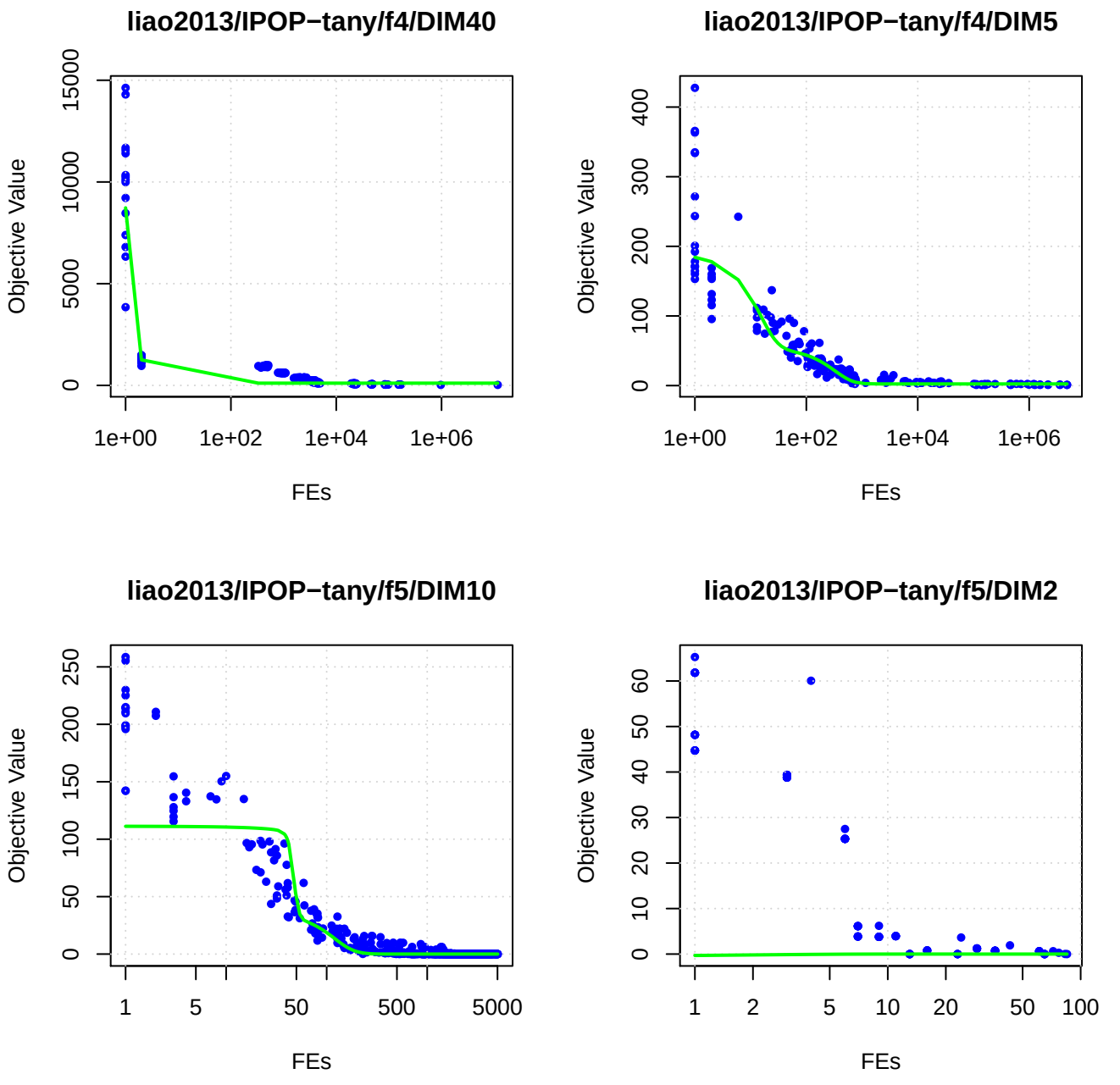
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liao2013/IPOP−tany/f4/DIM5
Objective Value
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liao2013/IPOP−tany/f5/DIM10
Objective Value
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FEs
liao2013/IPOP−tany/f5/DIM2
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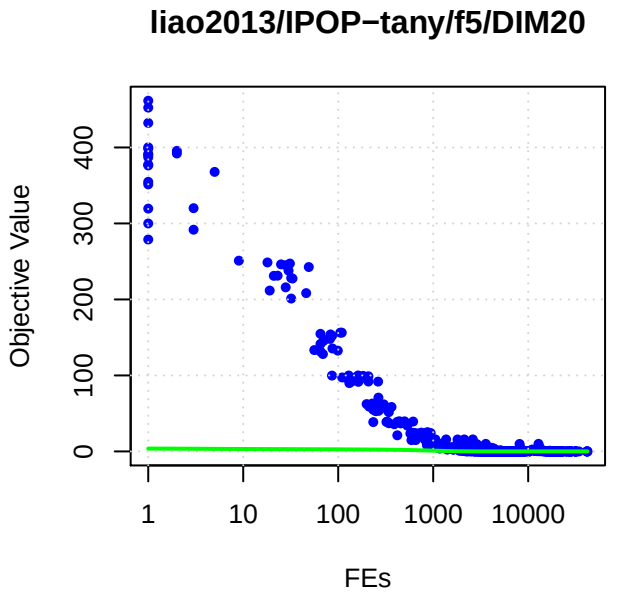
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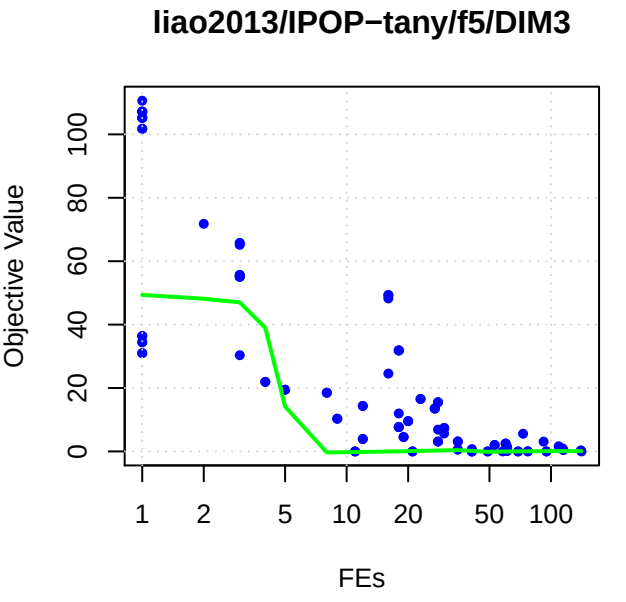
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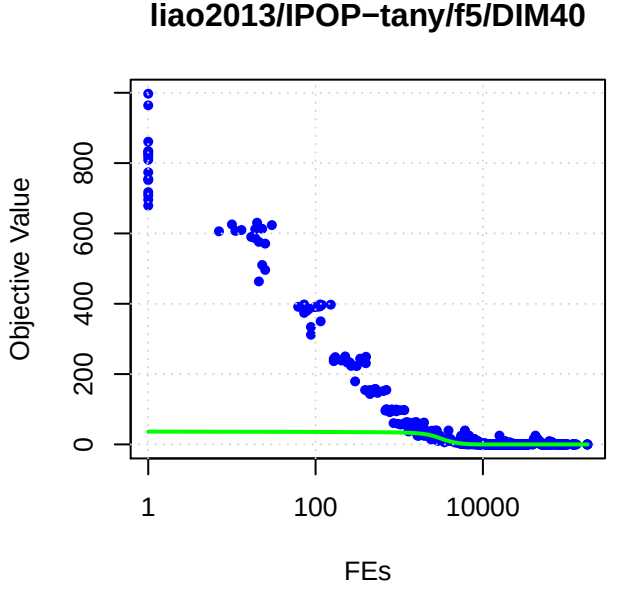
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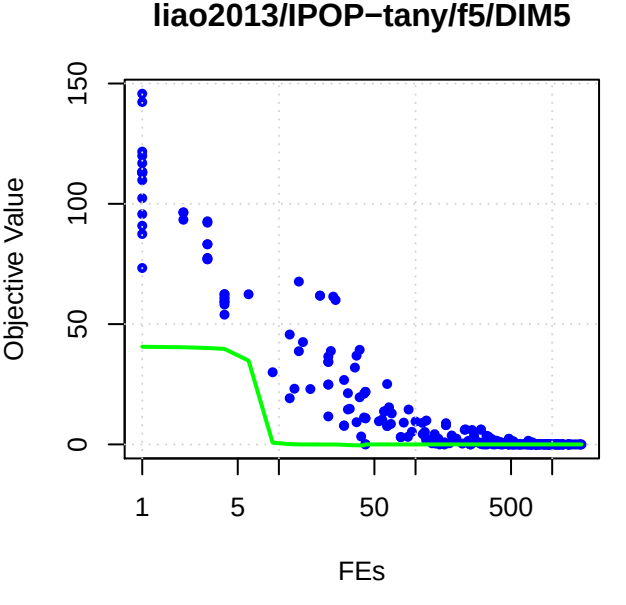
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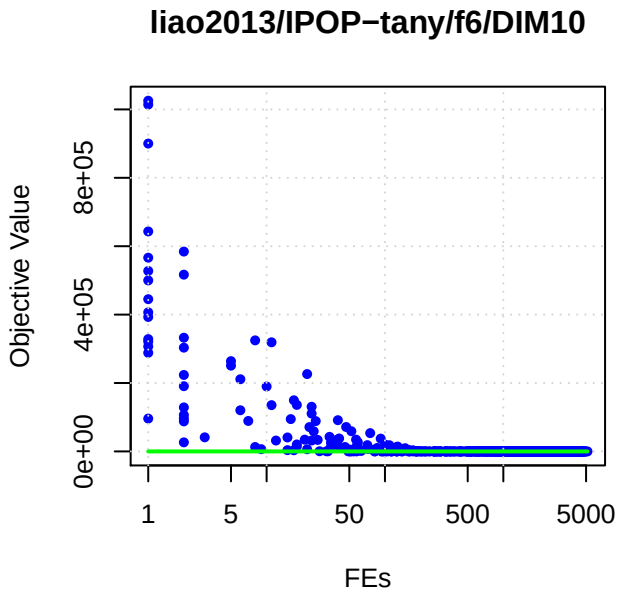
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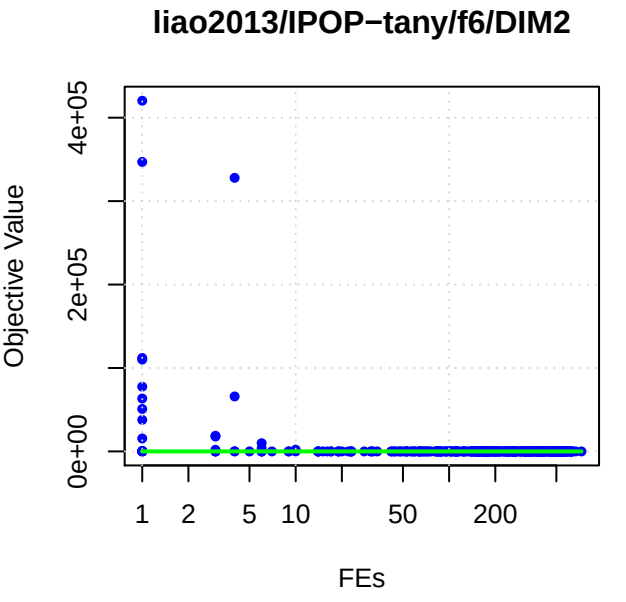
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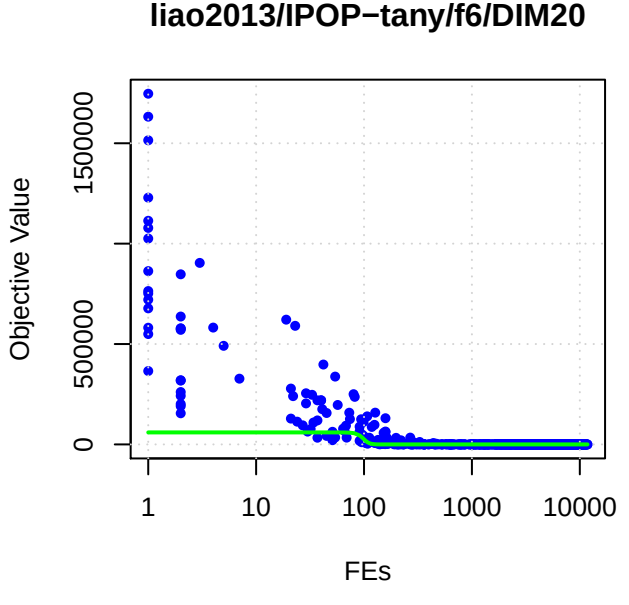
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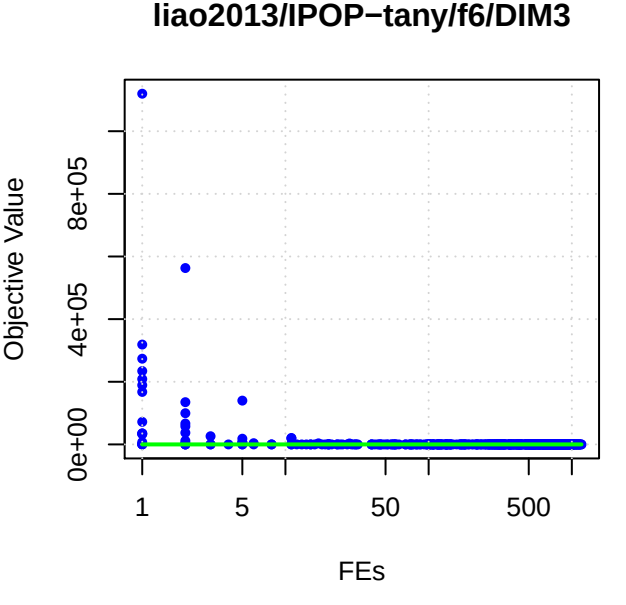
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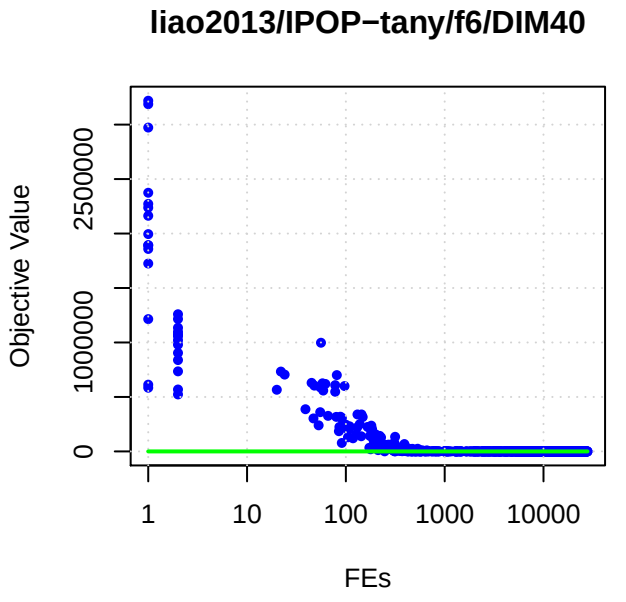
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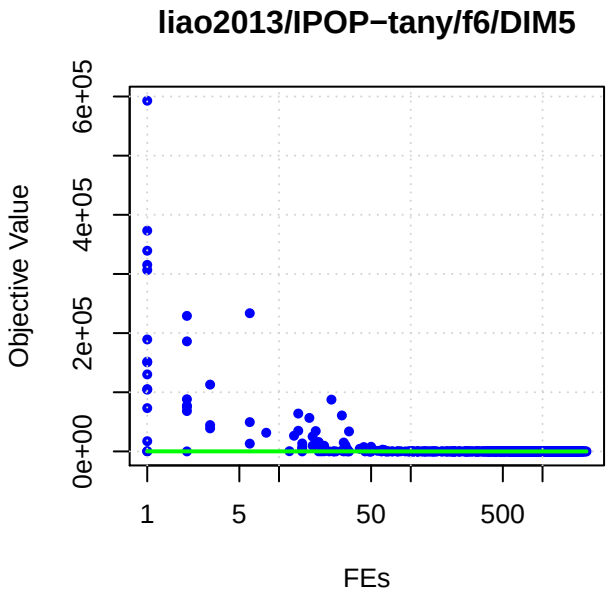
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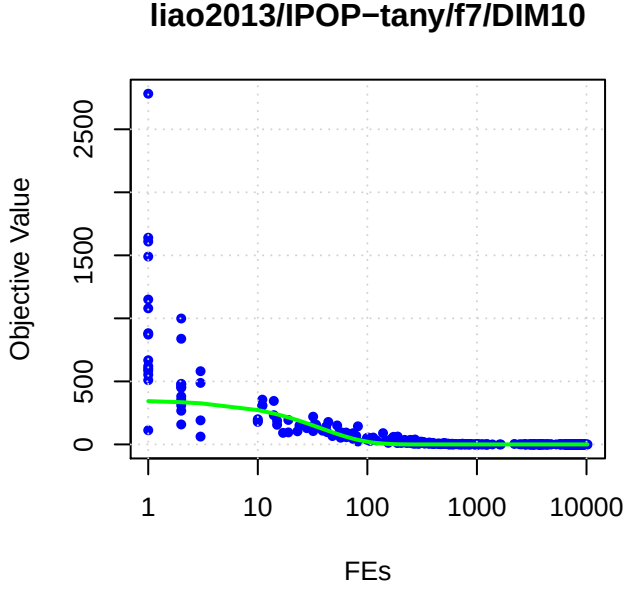
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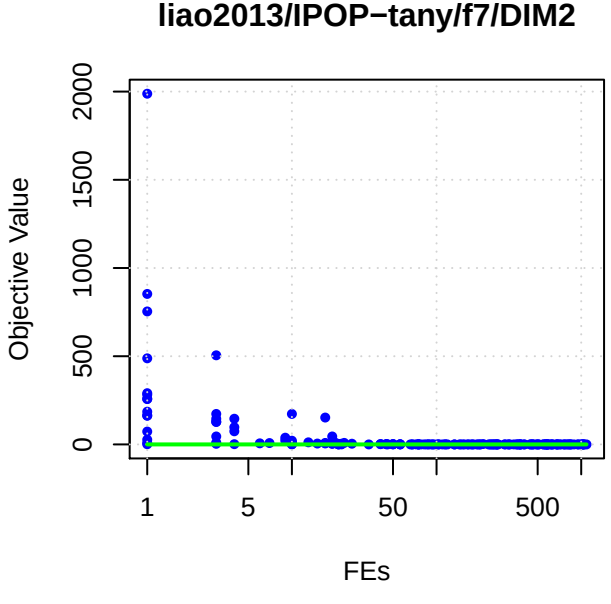
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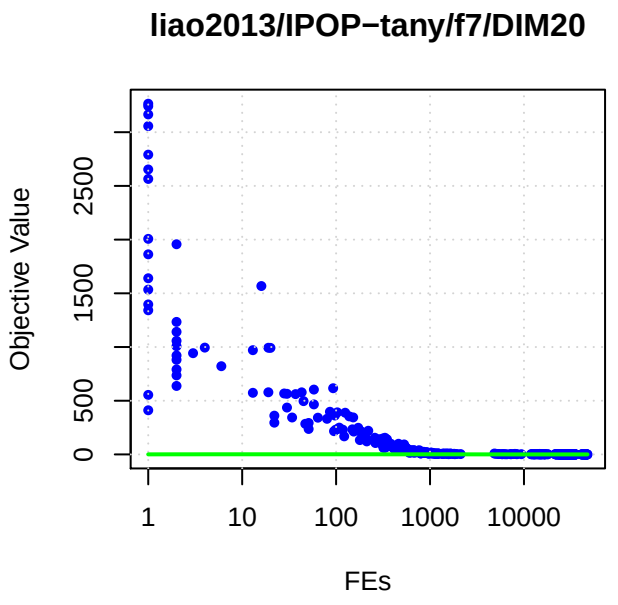
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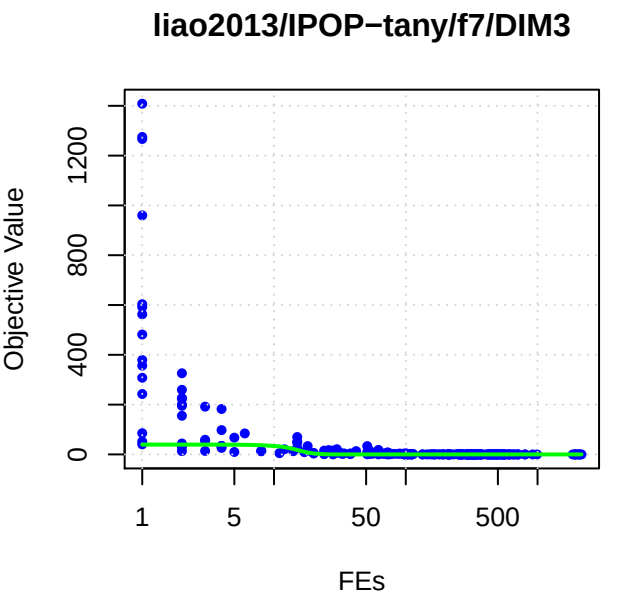
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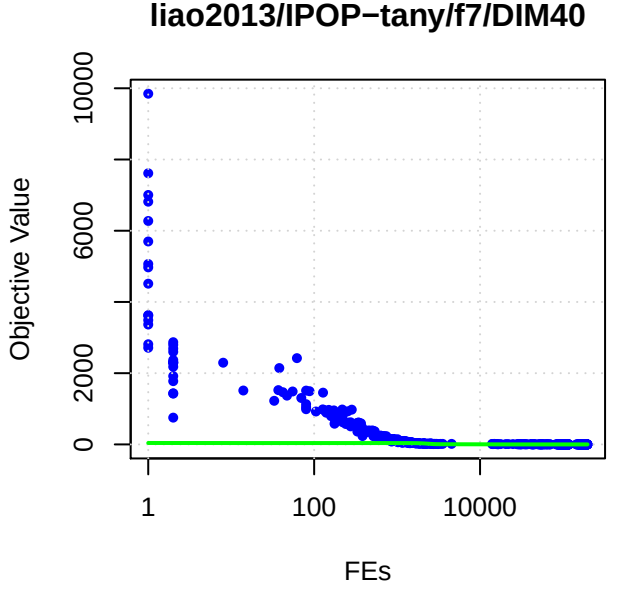
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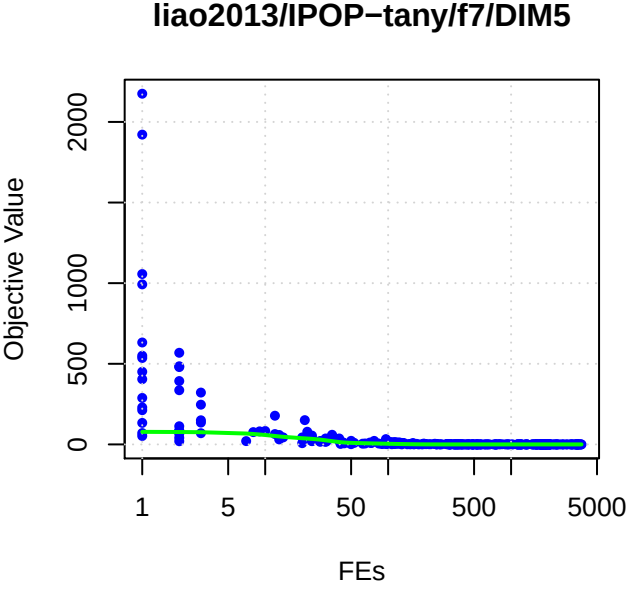
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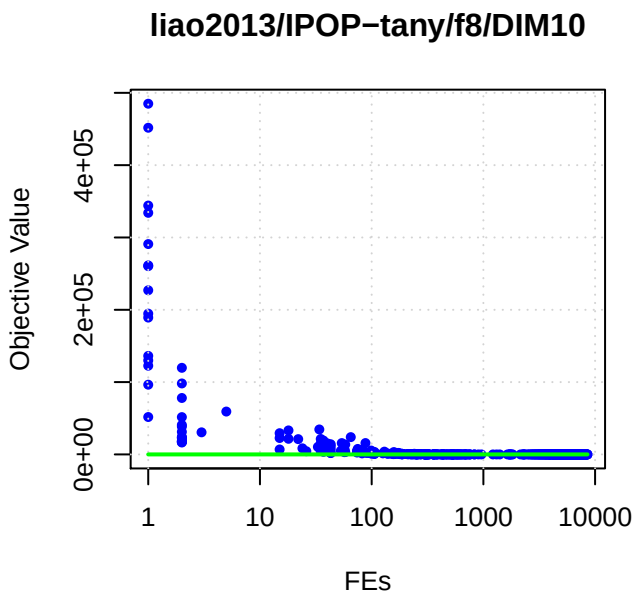
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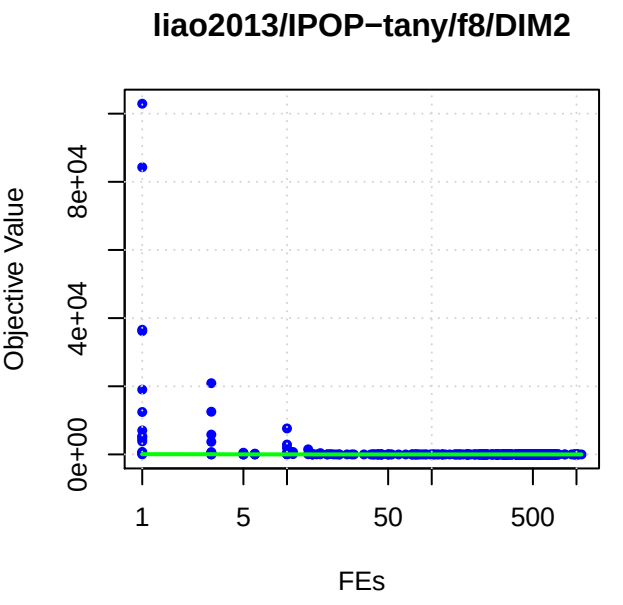
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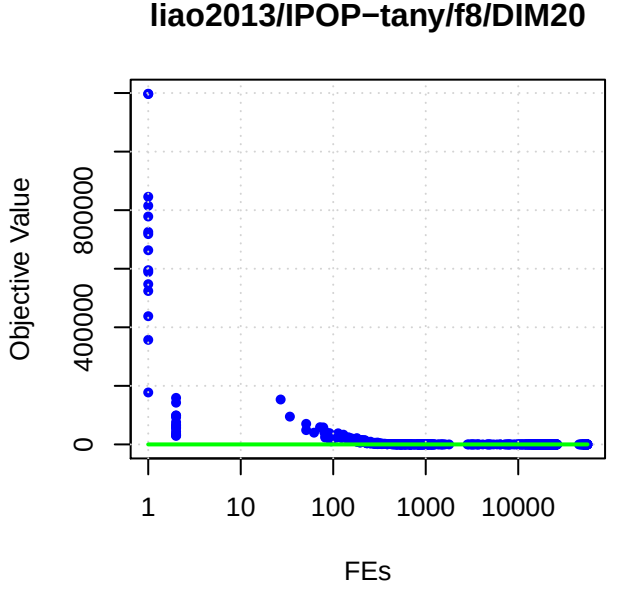
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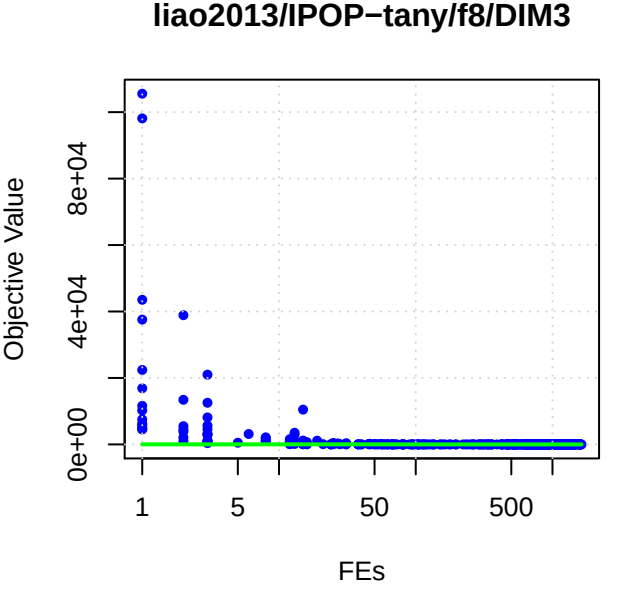
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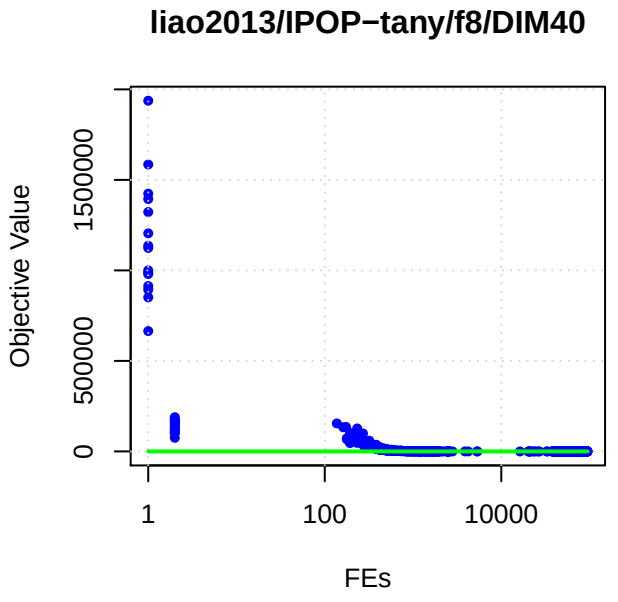
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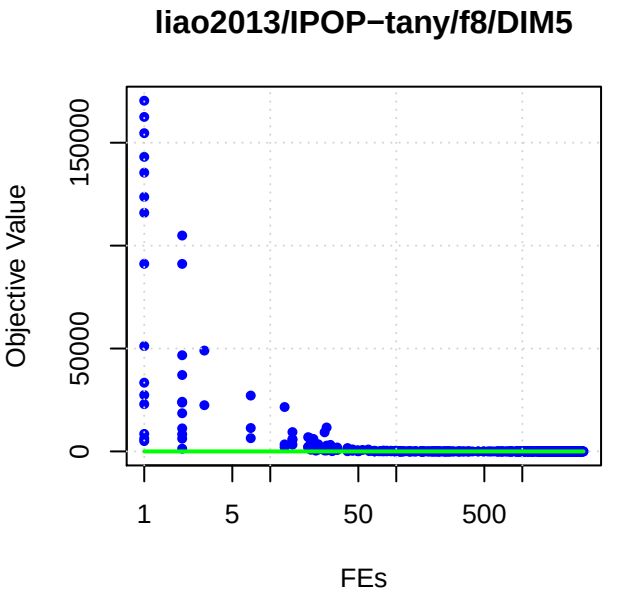
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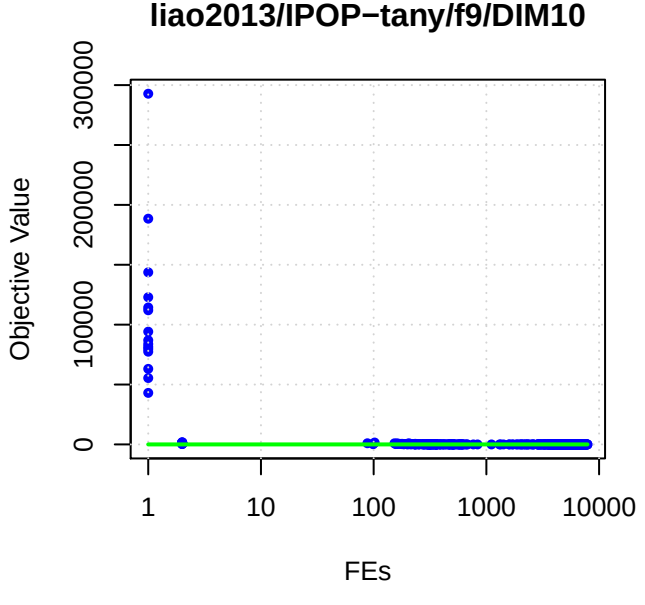
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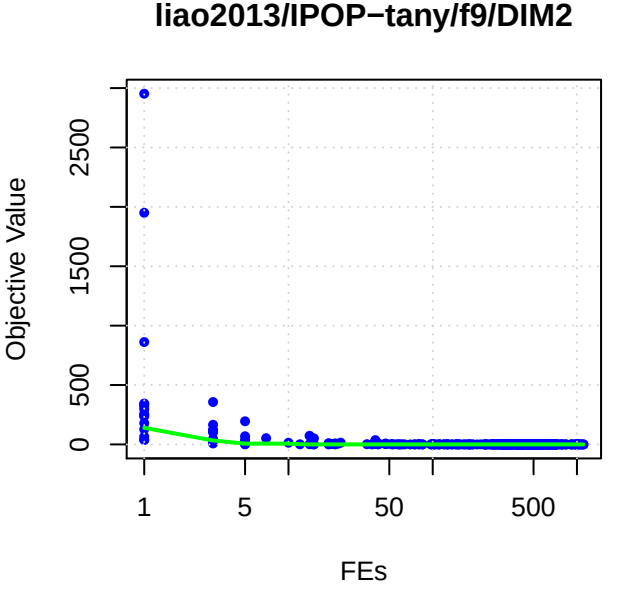
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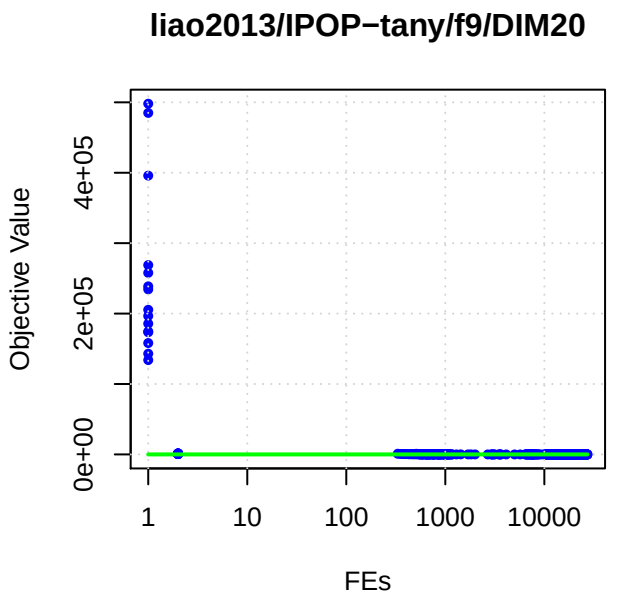
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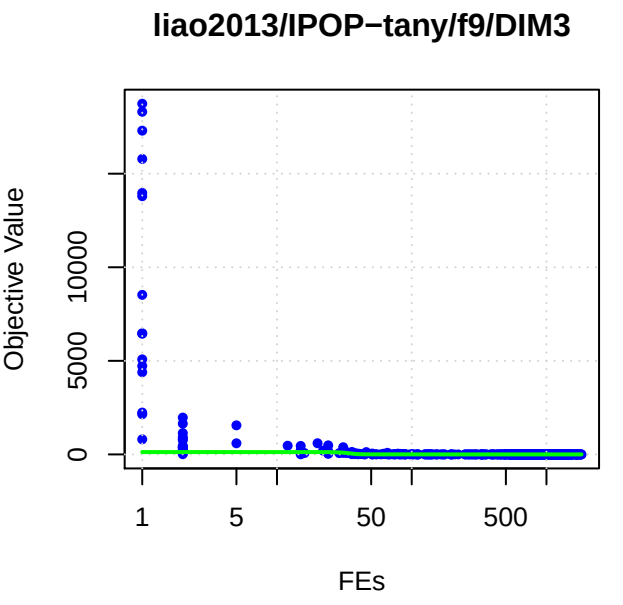
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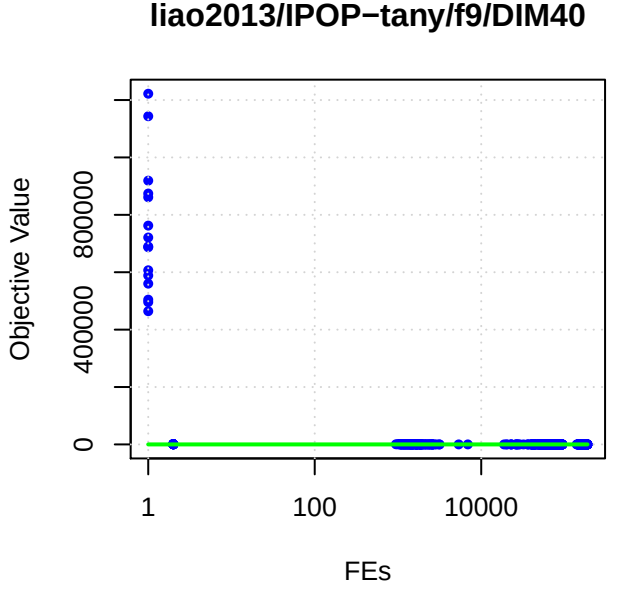
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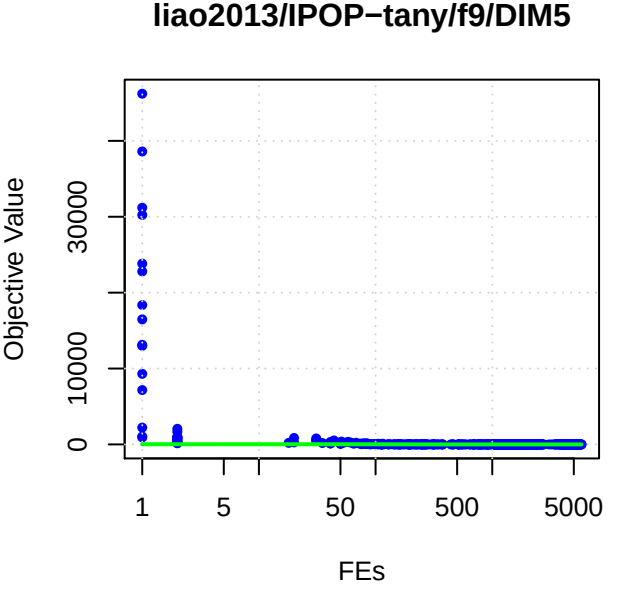
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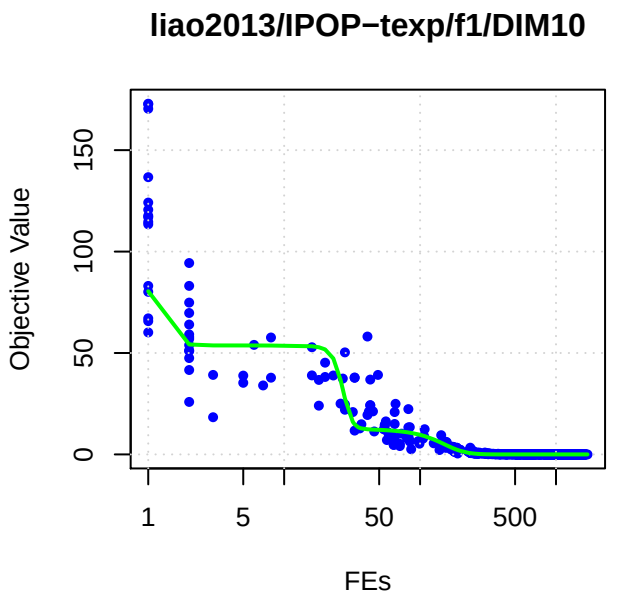
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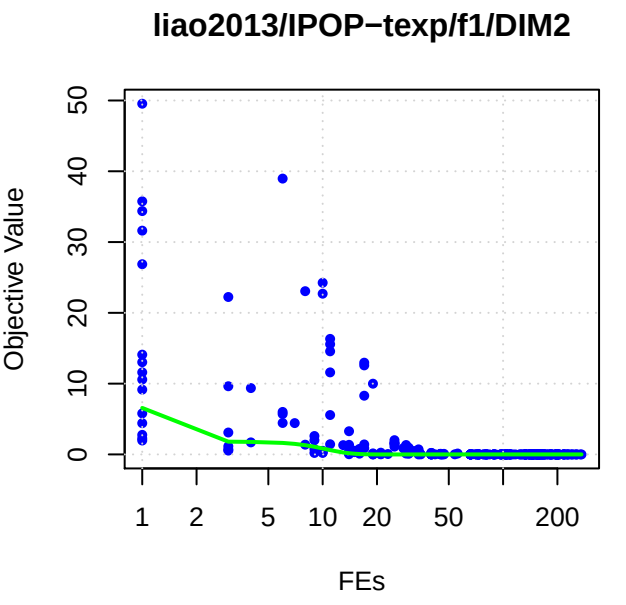
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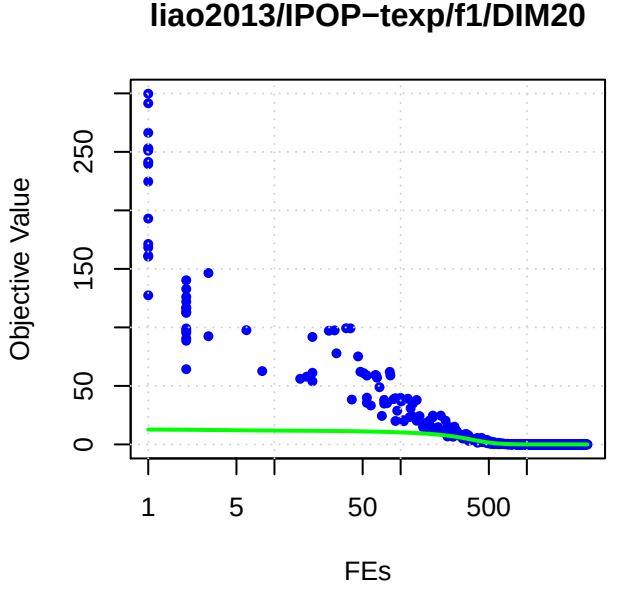
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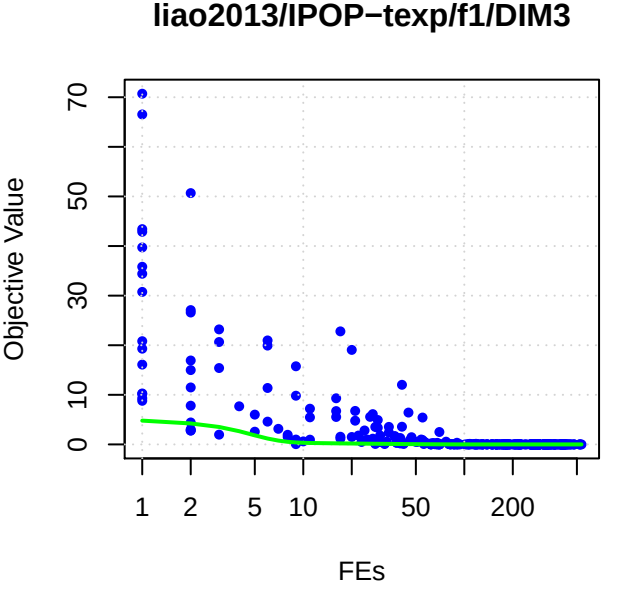
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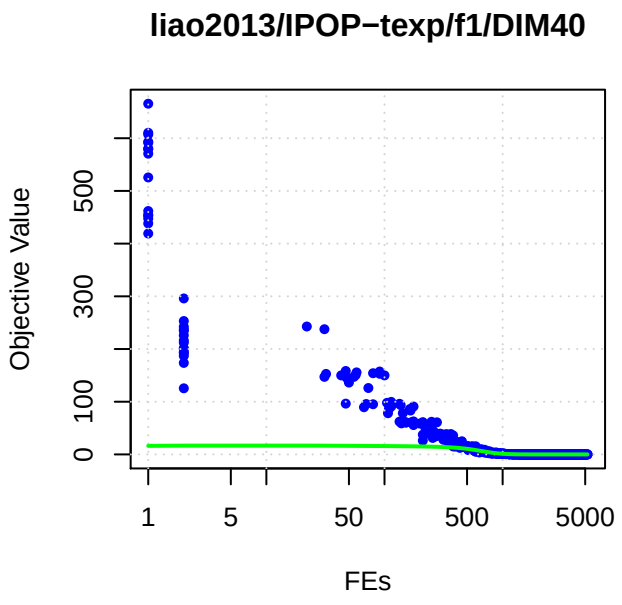
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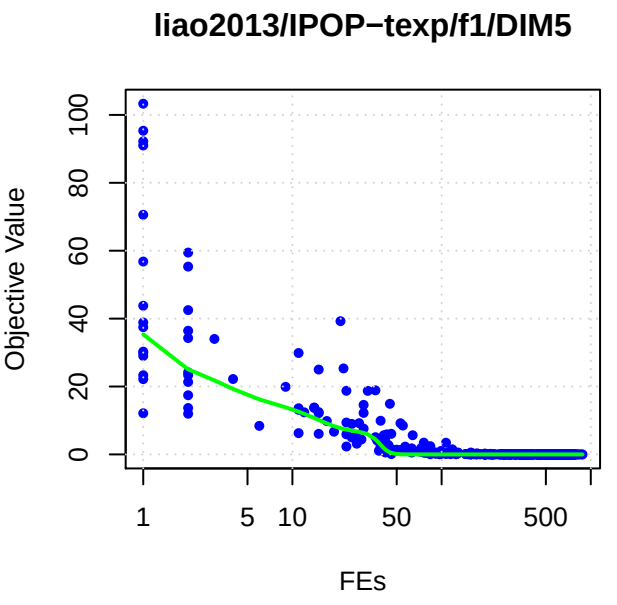
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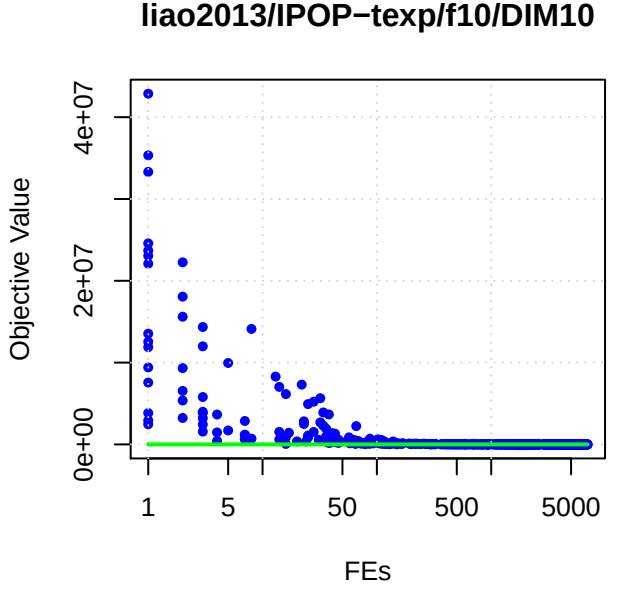
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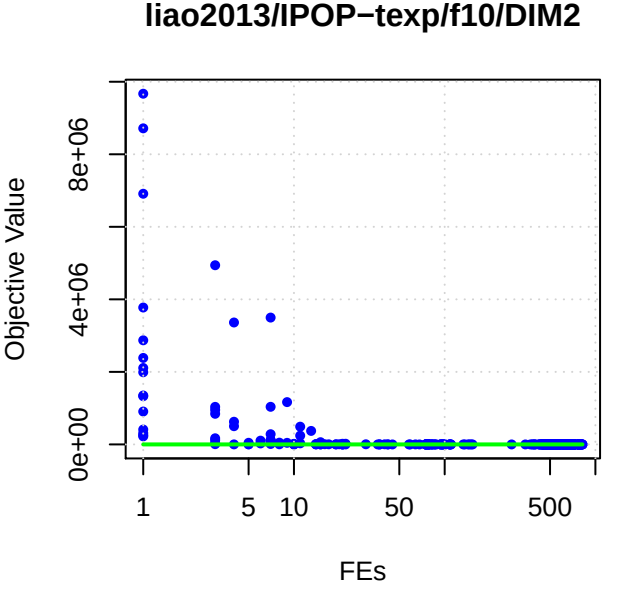
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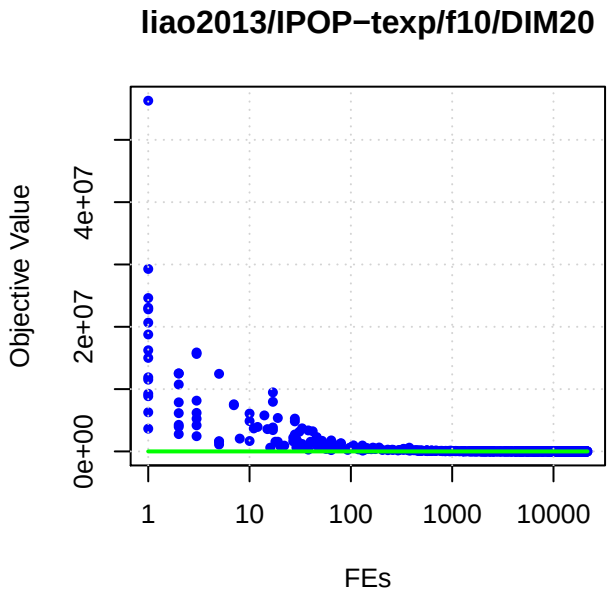
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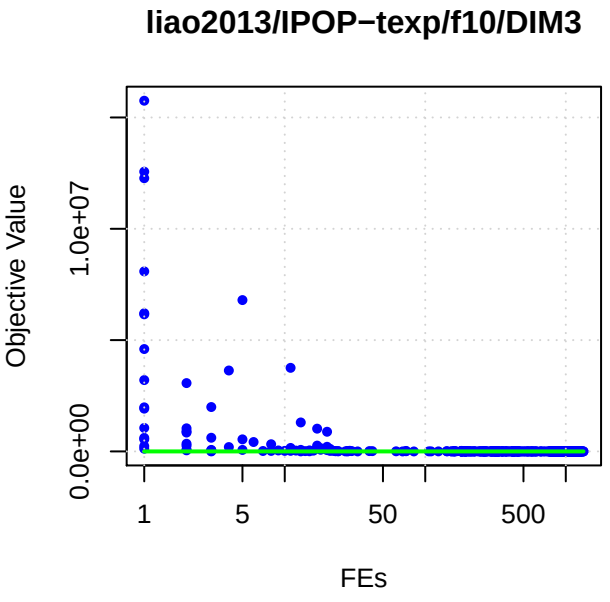
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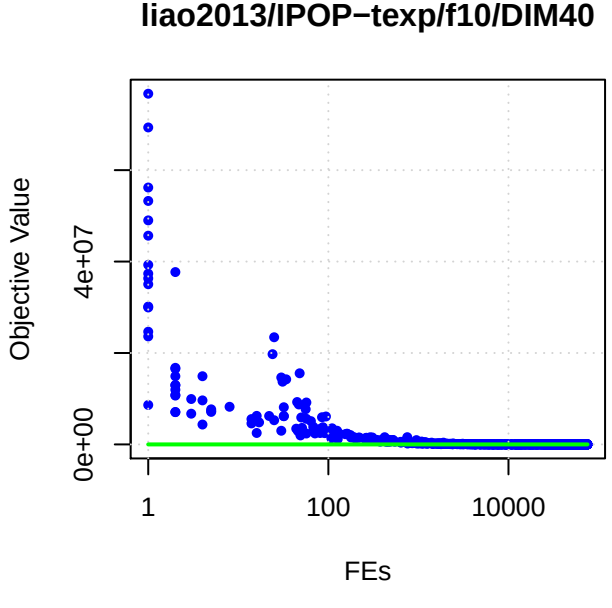
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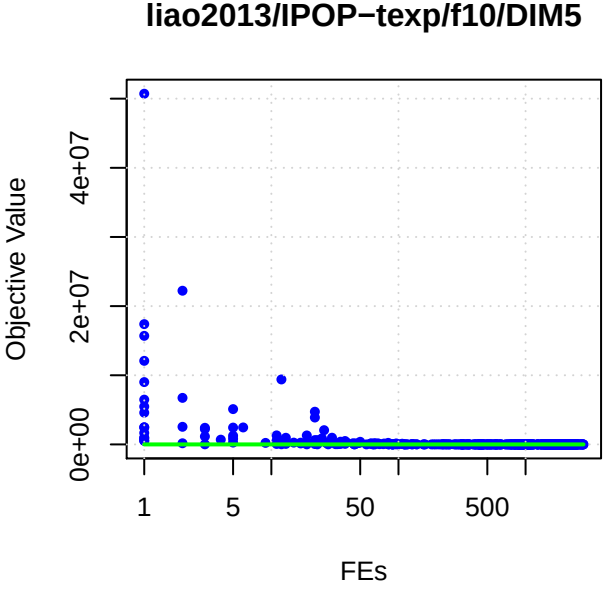
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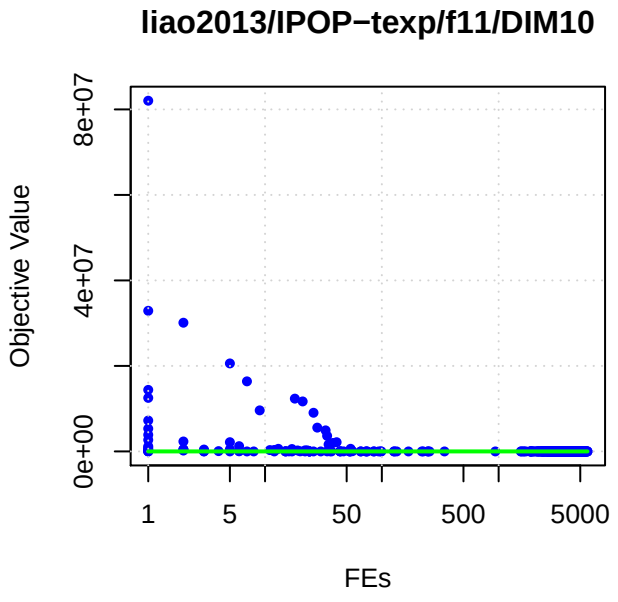
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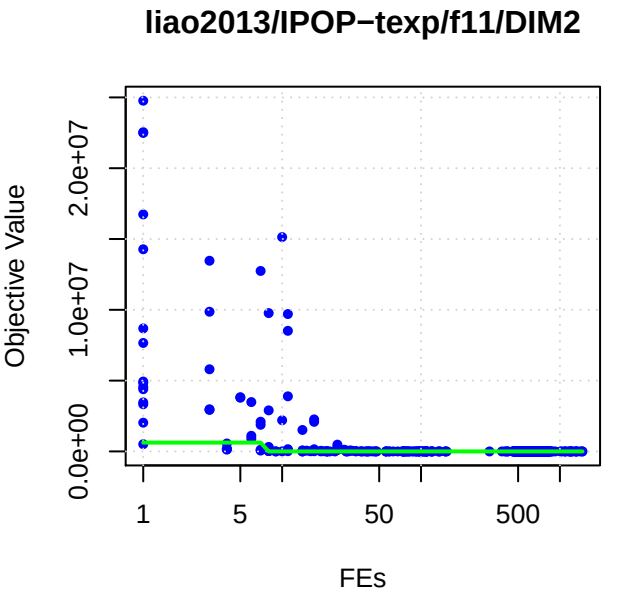
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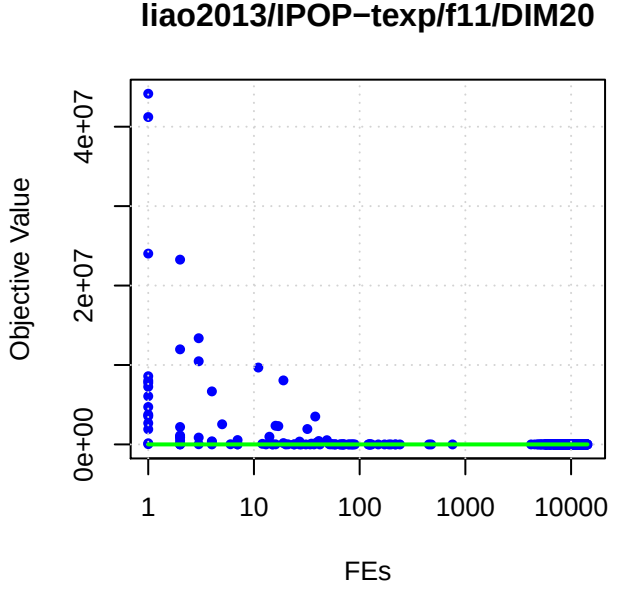
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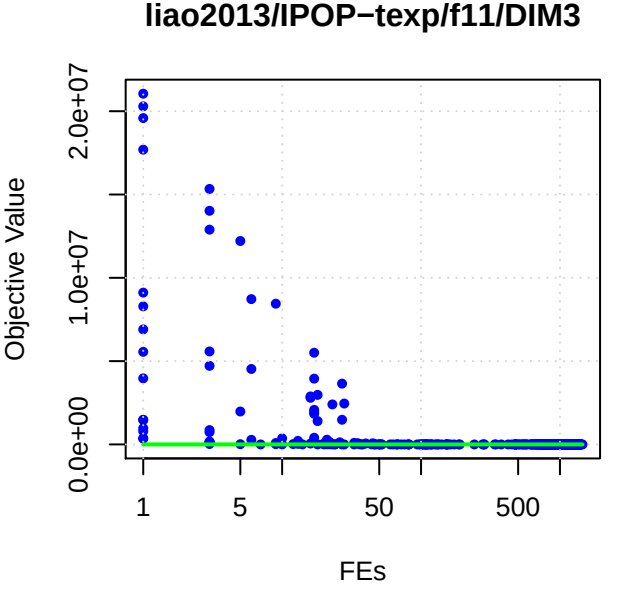
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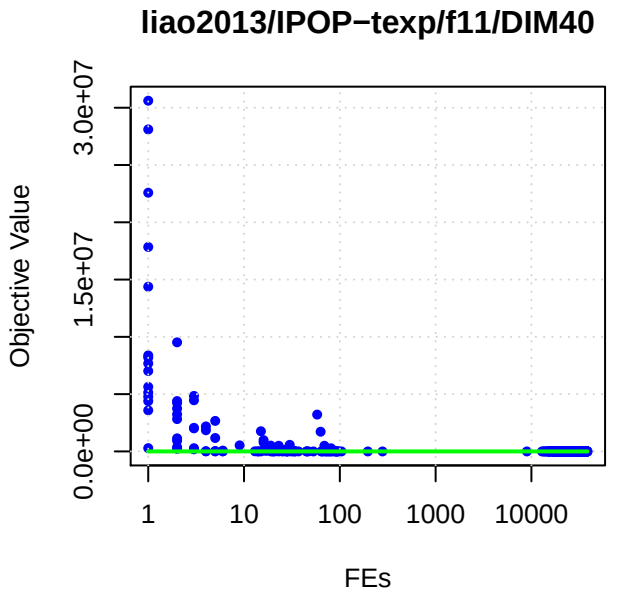
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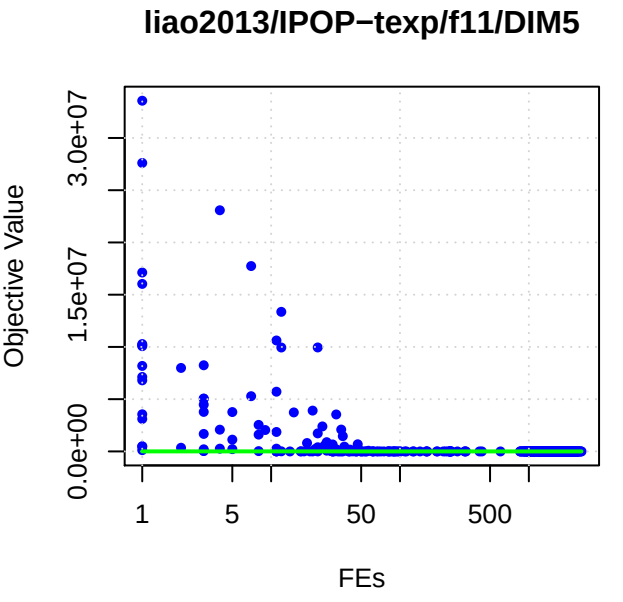
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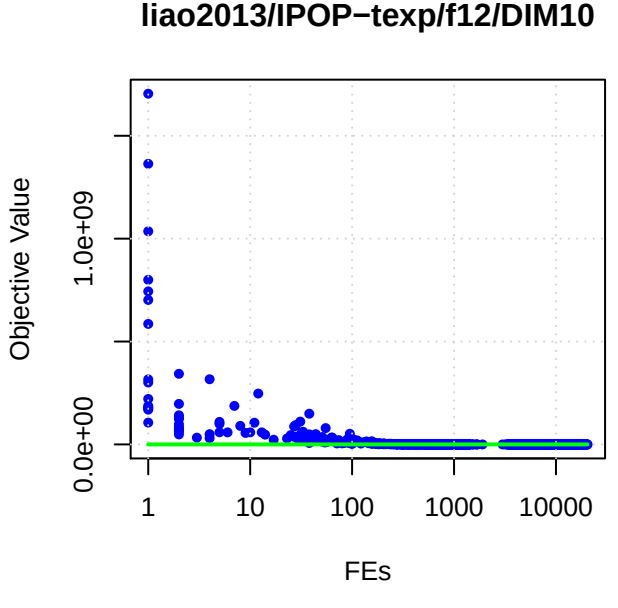
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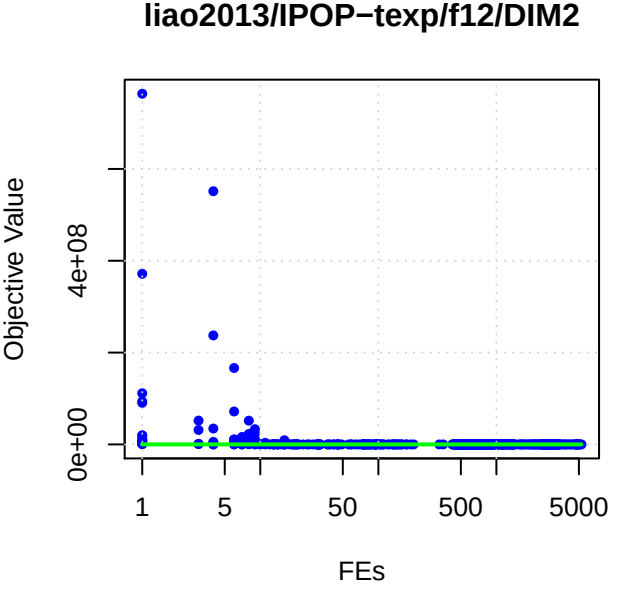
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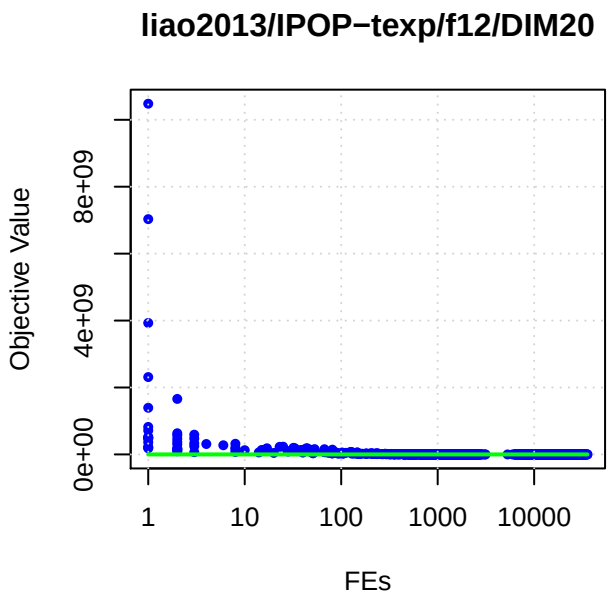
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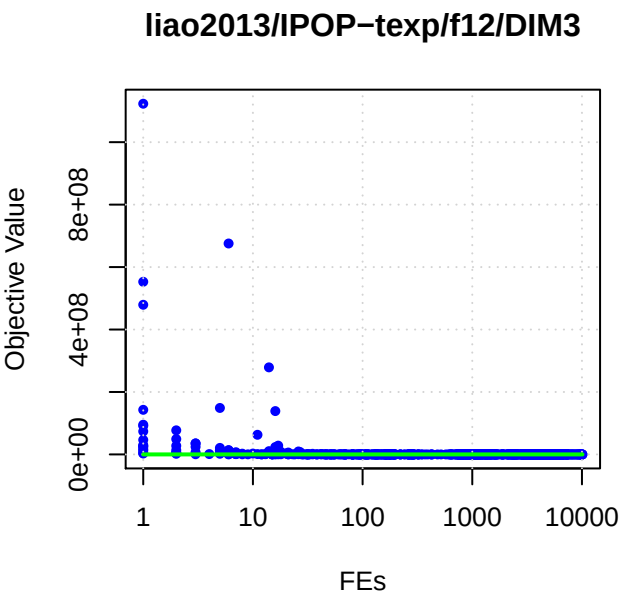
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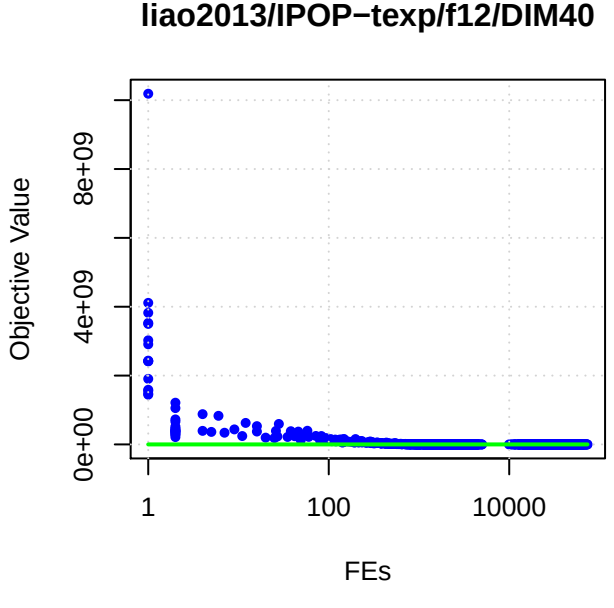
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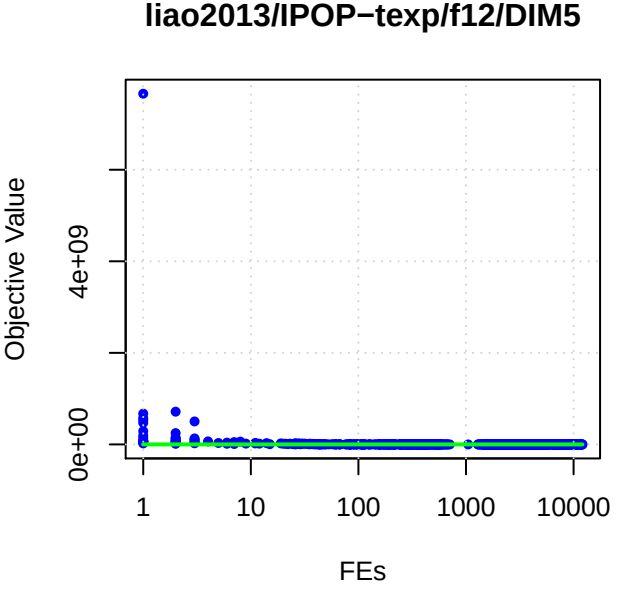
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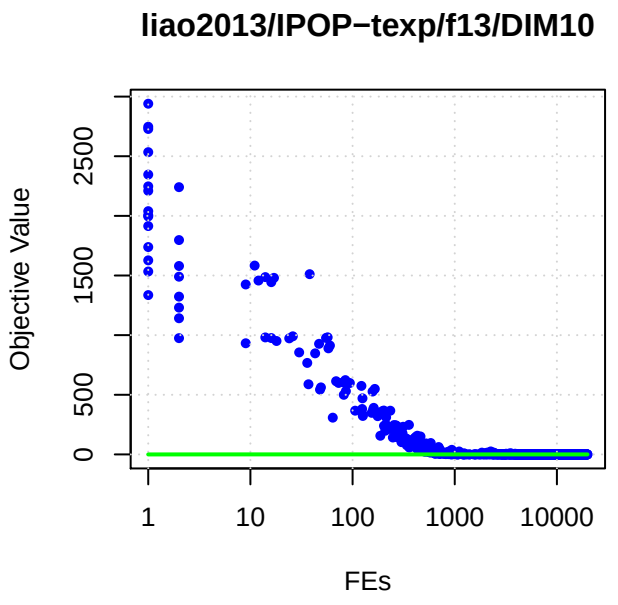
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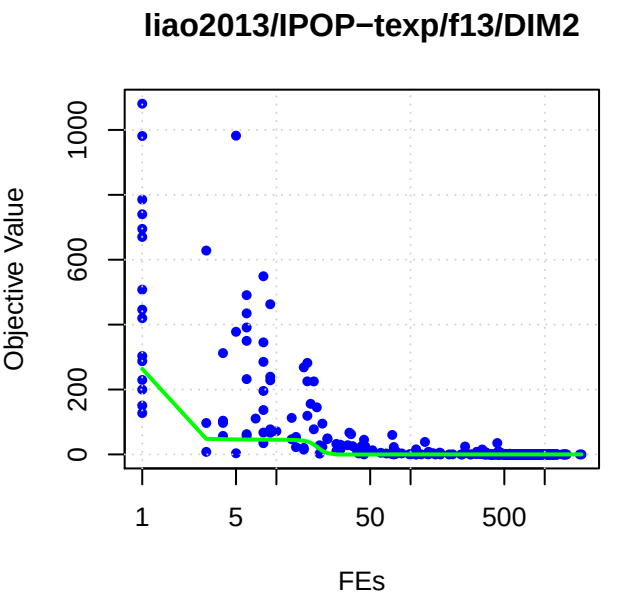
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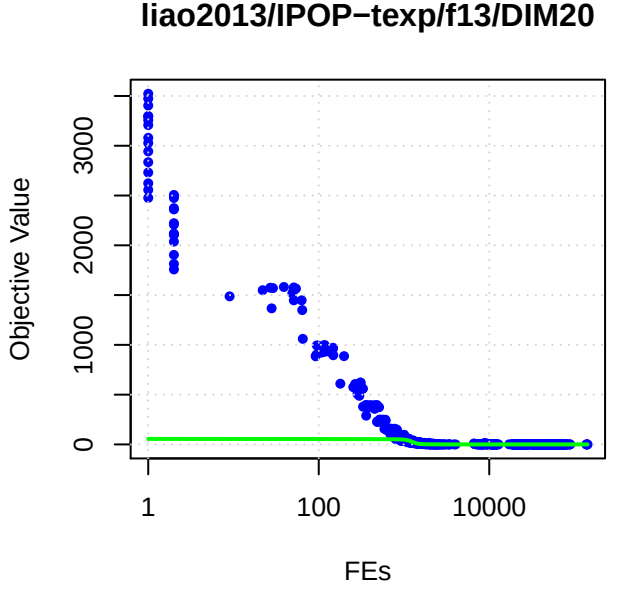
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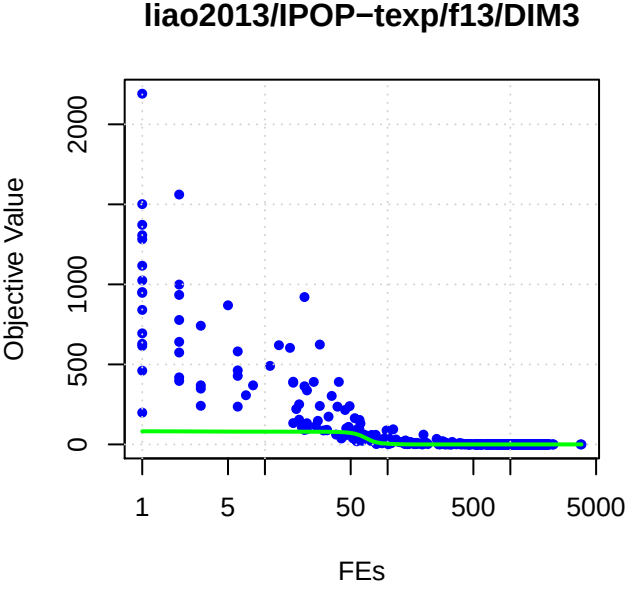
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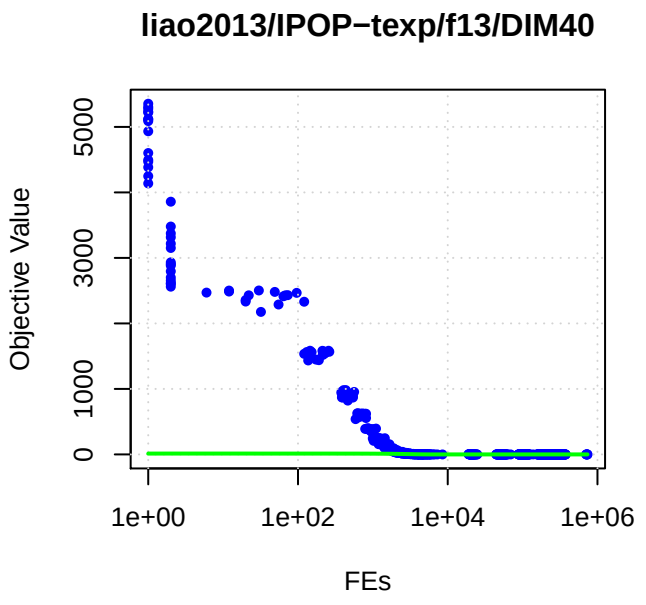
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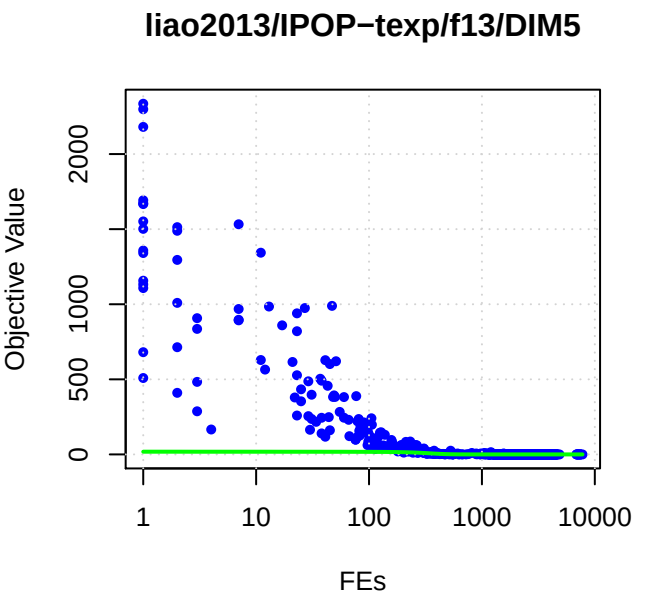
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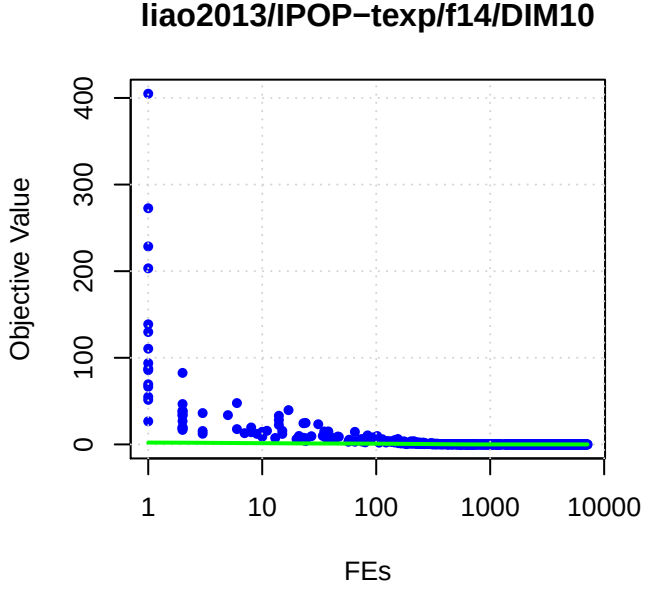
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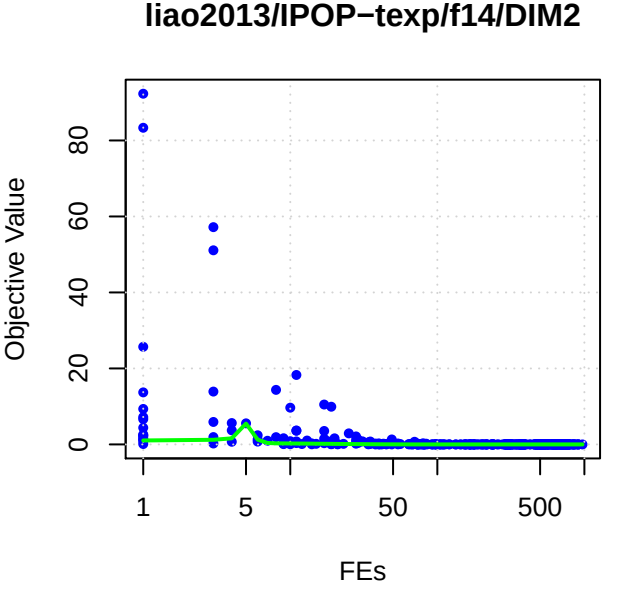
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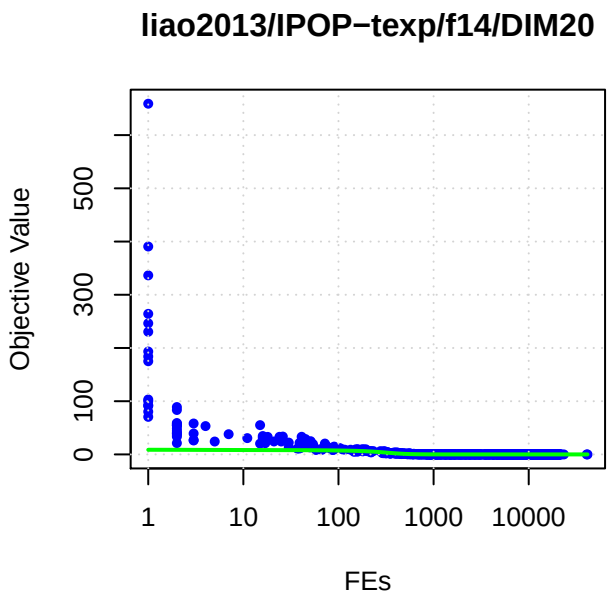
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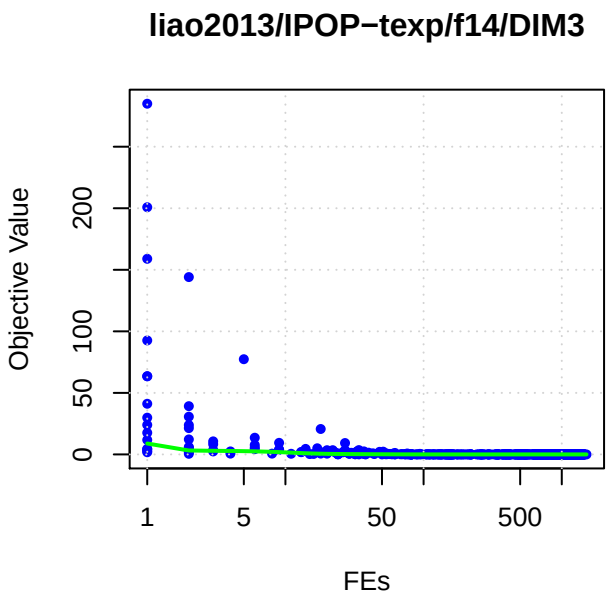
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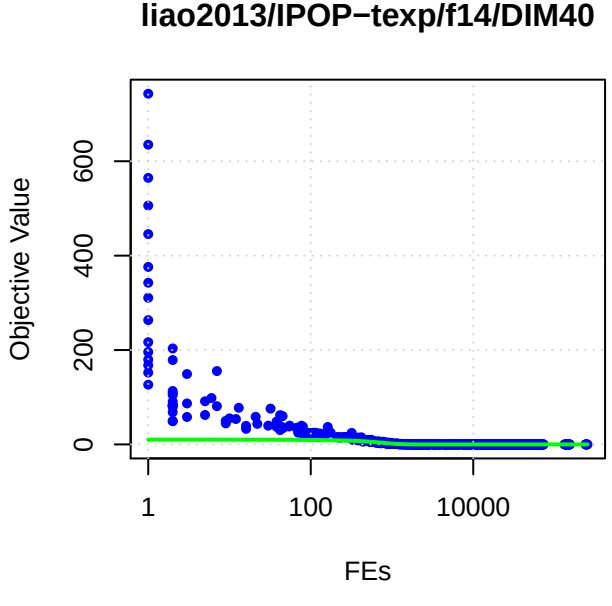
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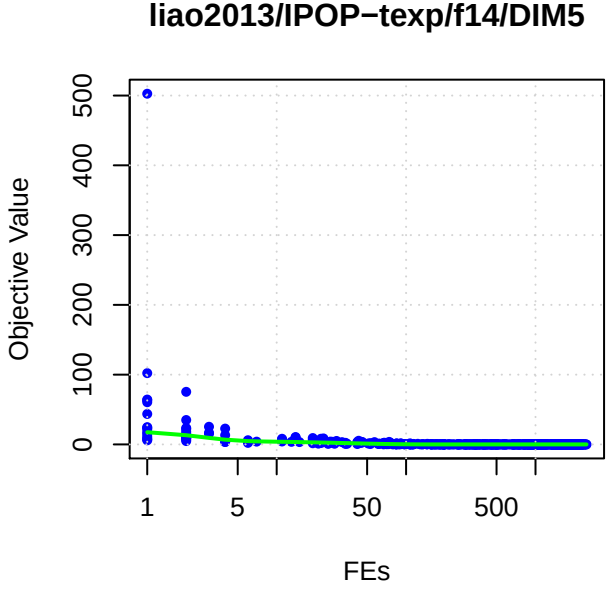
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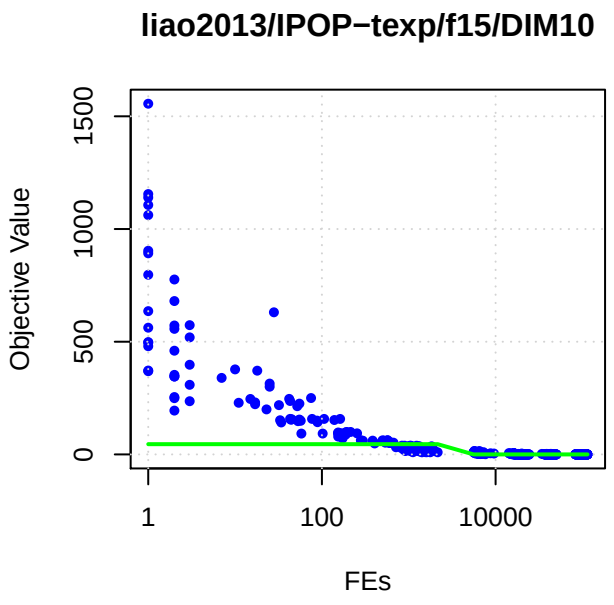
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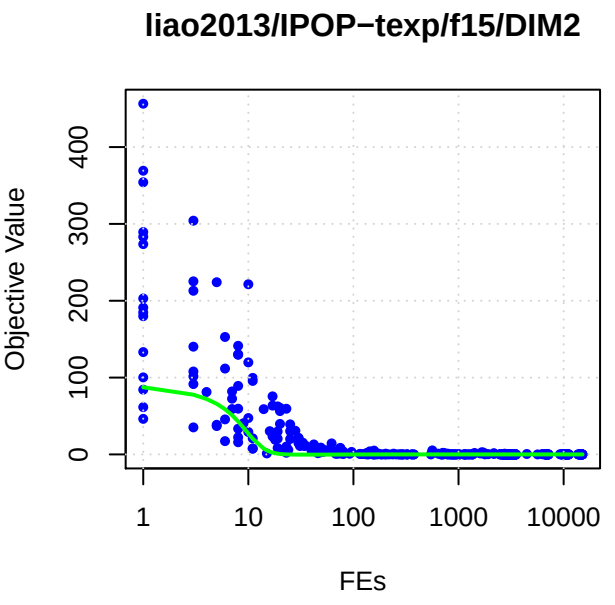
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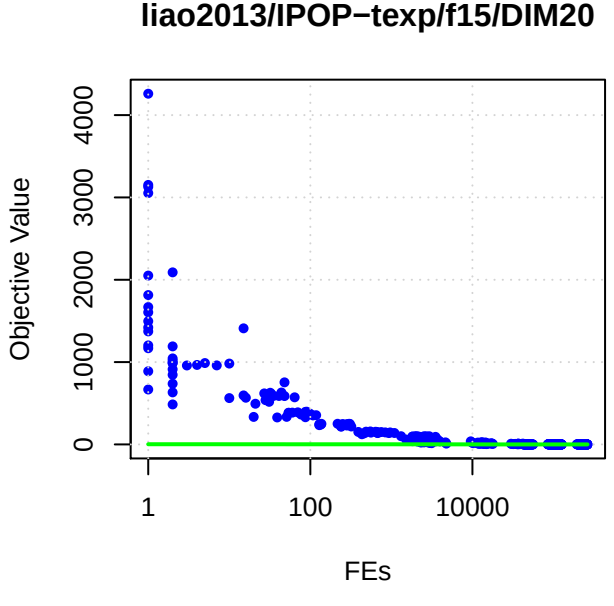
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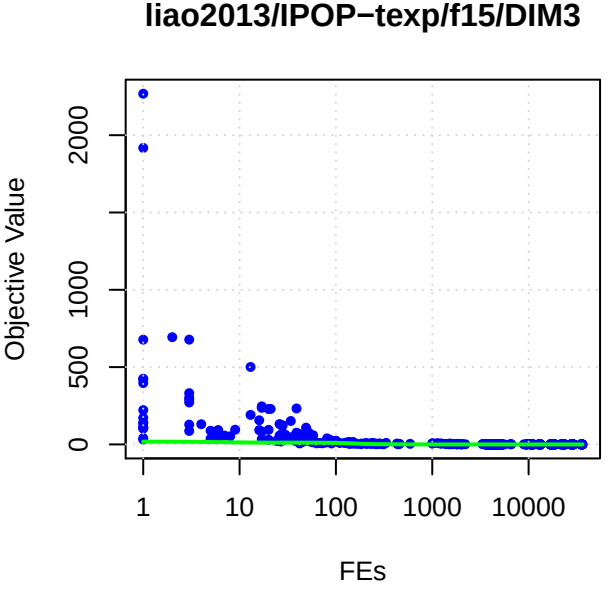
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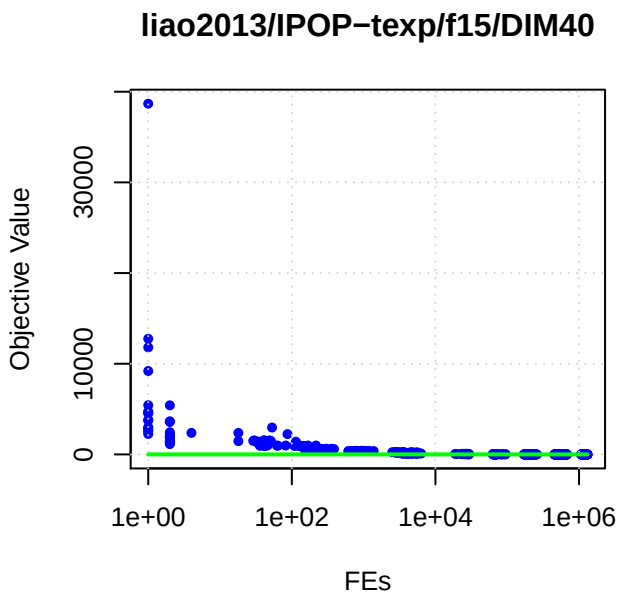
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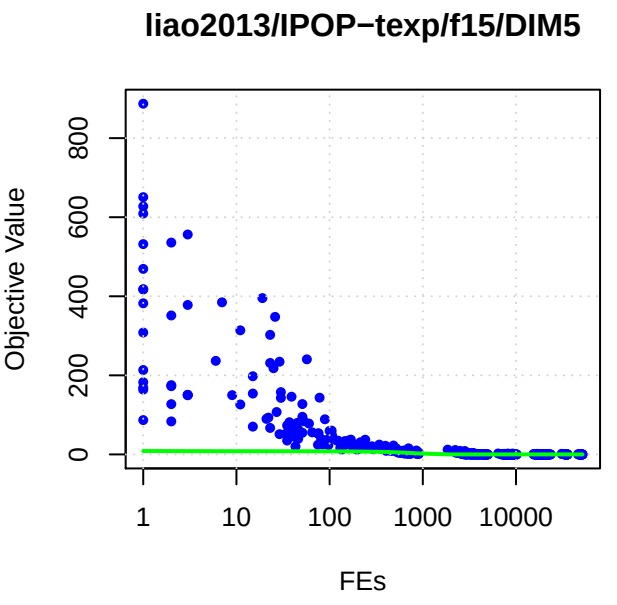
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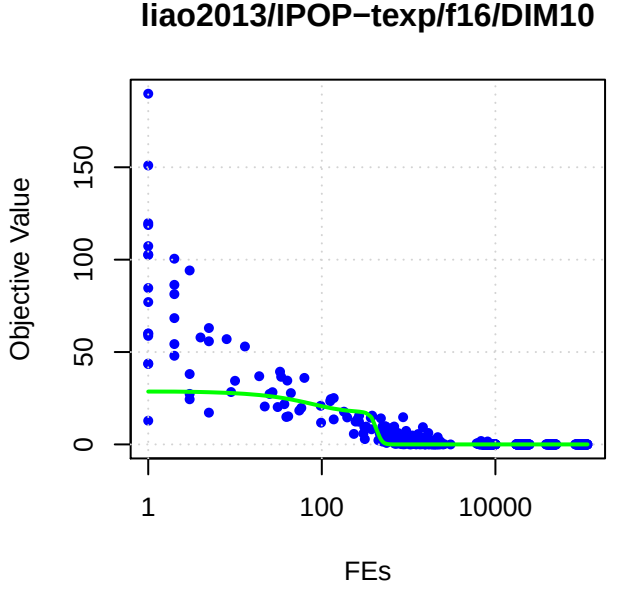
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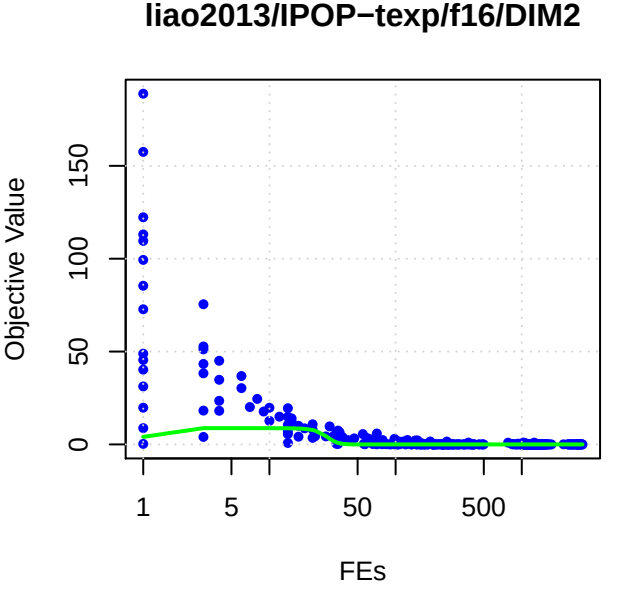
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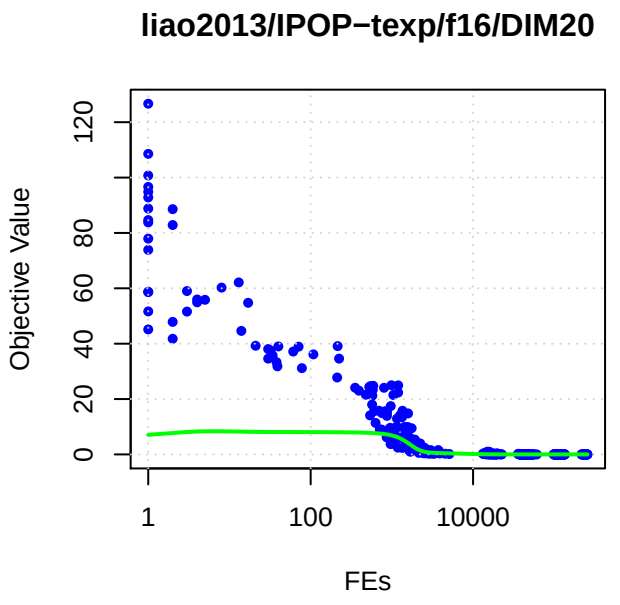
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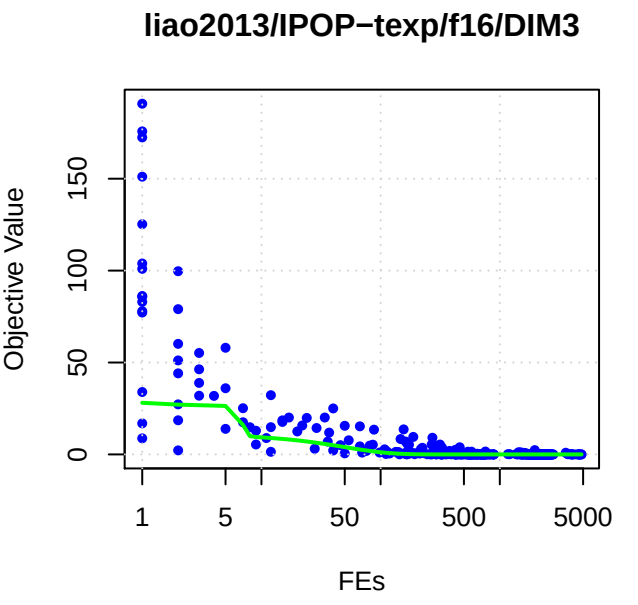
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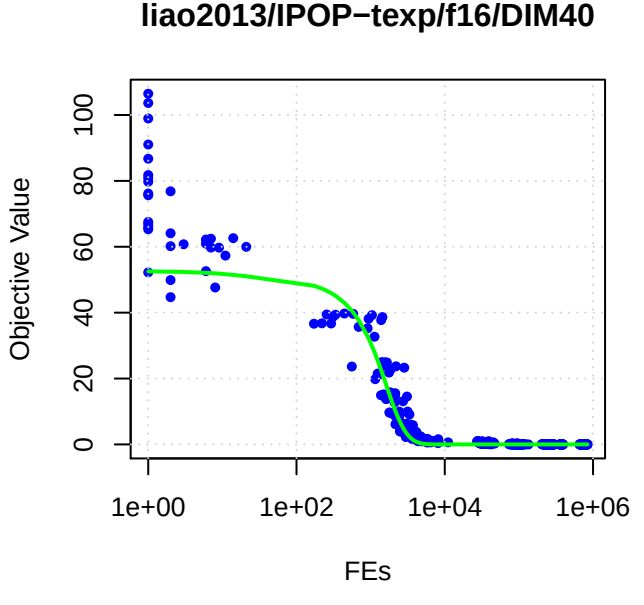
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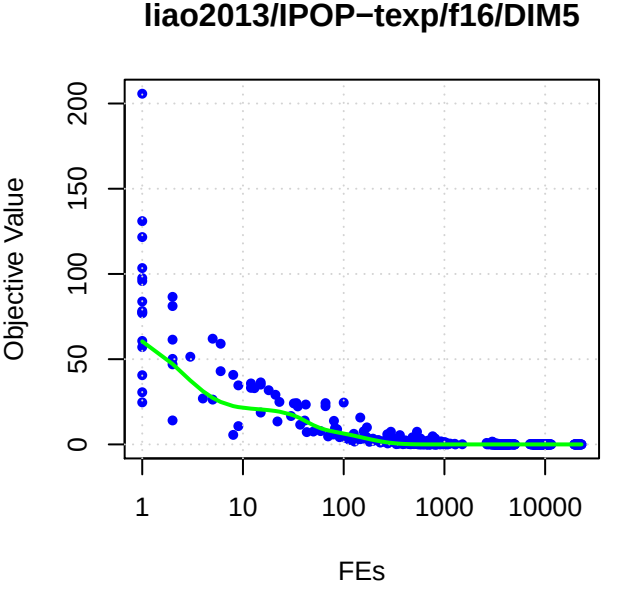
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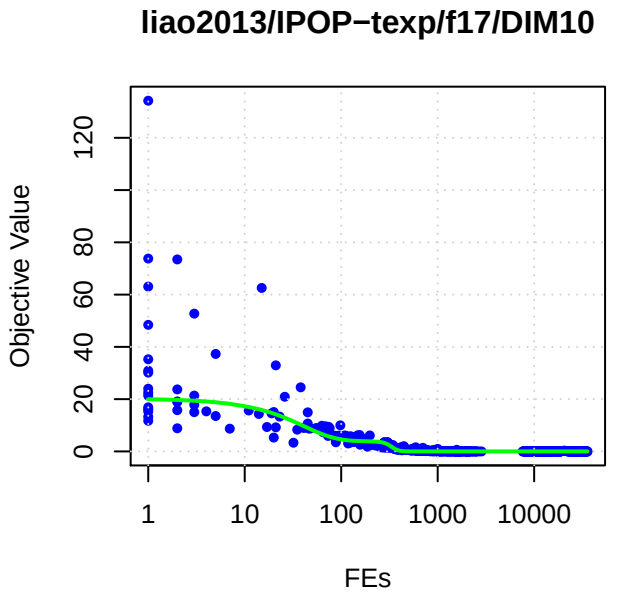
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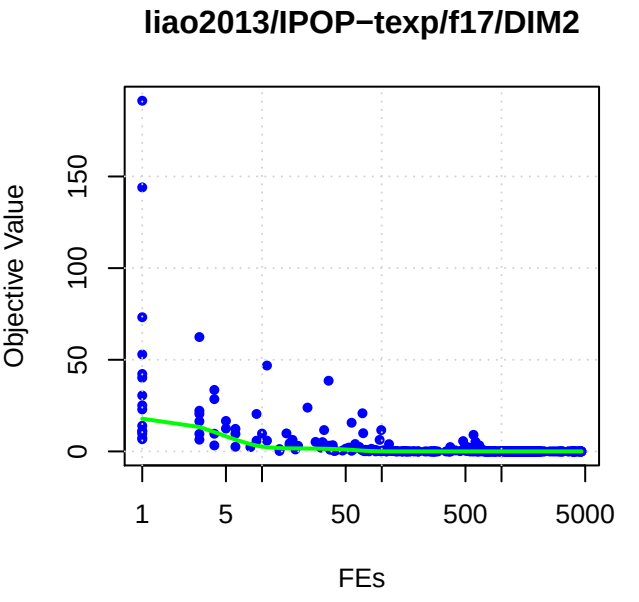
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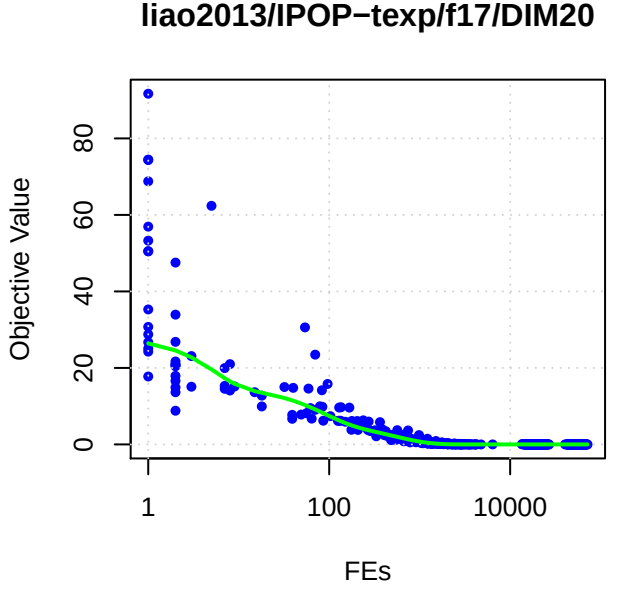
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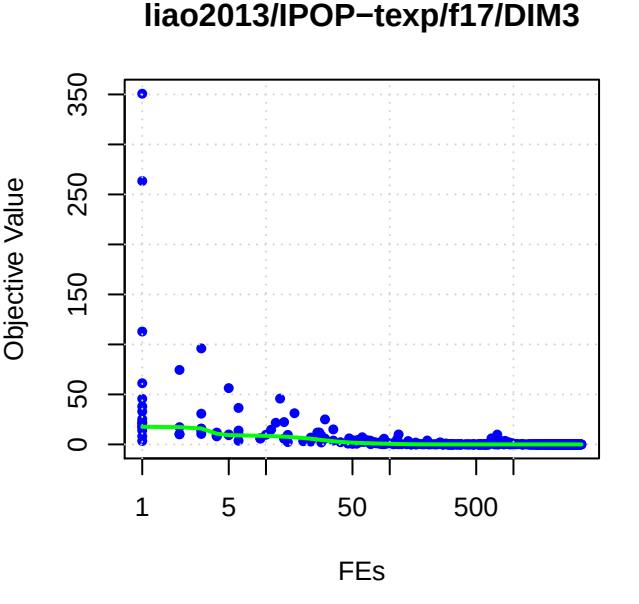
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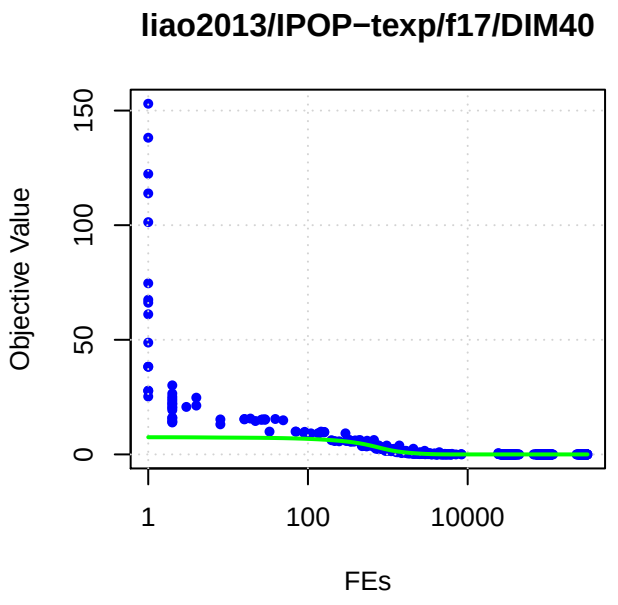
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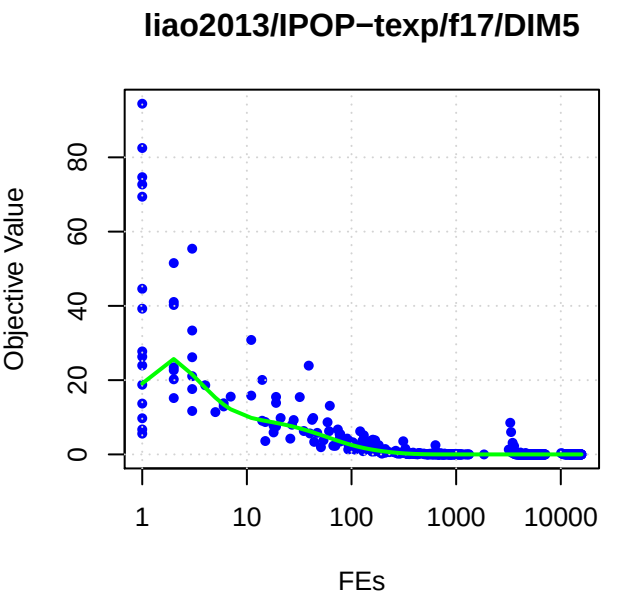
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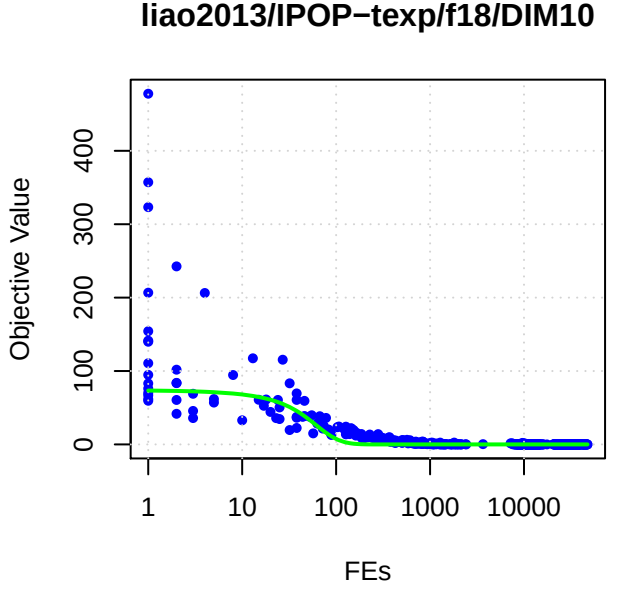
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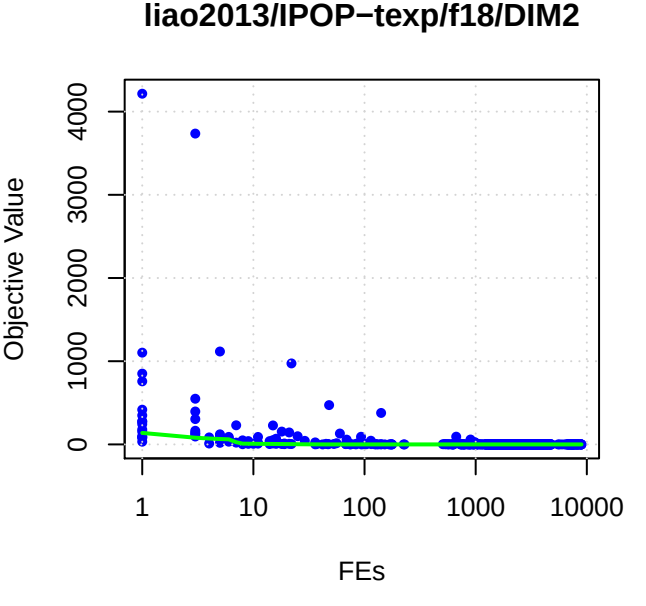
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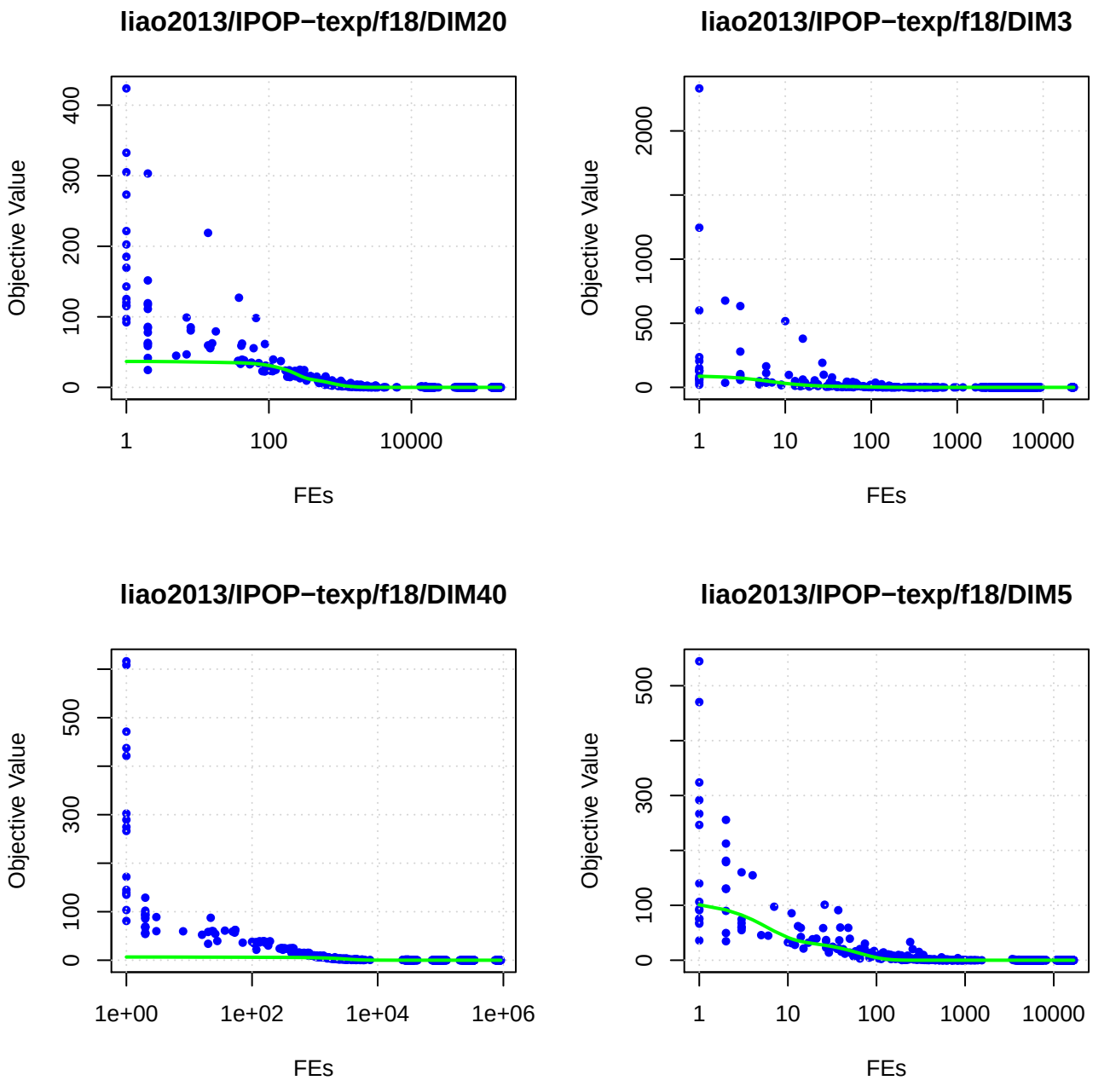
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FEs
liao2013/IPOP−texp/f18/DIM3
Objective Value
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1000
2000
1
10
100
1000
10000
FEs
liao2013/IPOP−texp/f18/DIM40
Objective Value
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1e+00
1e+02
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1e+06
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Objective Value
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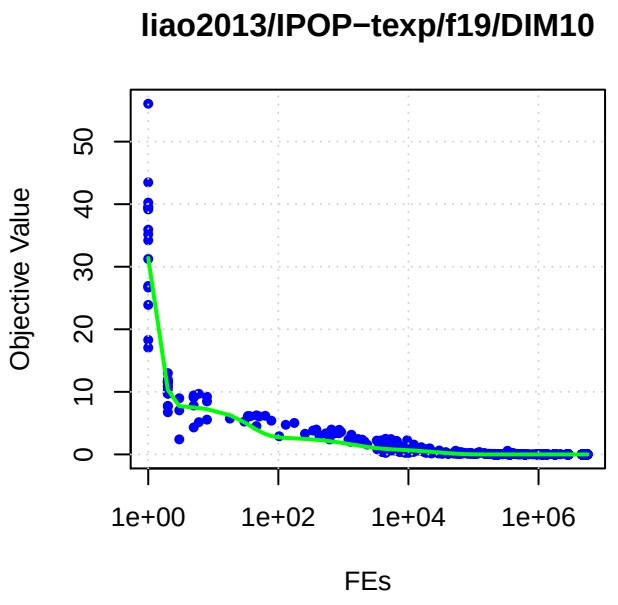
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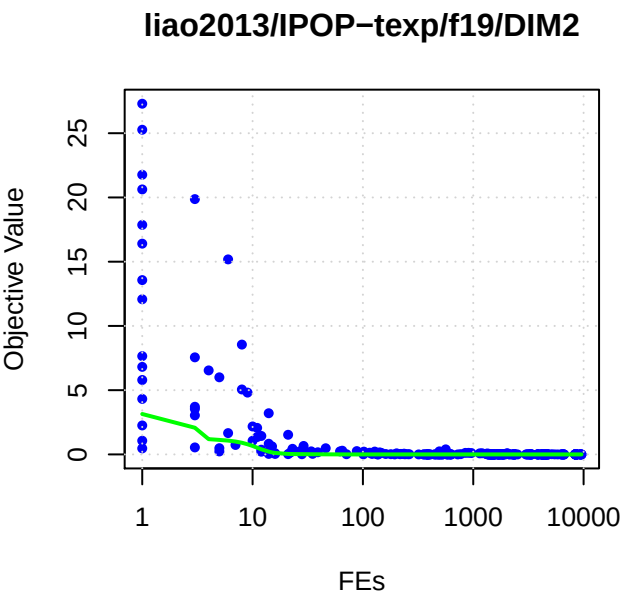
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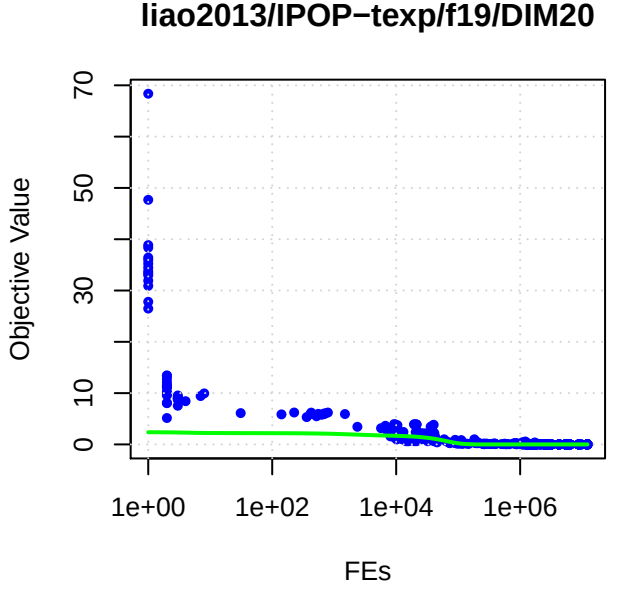
FEs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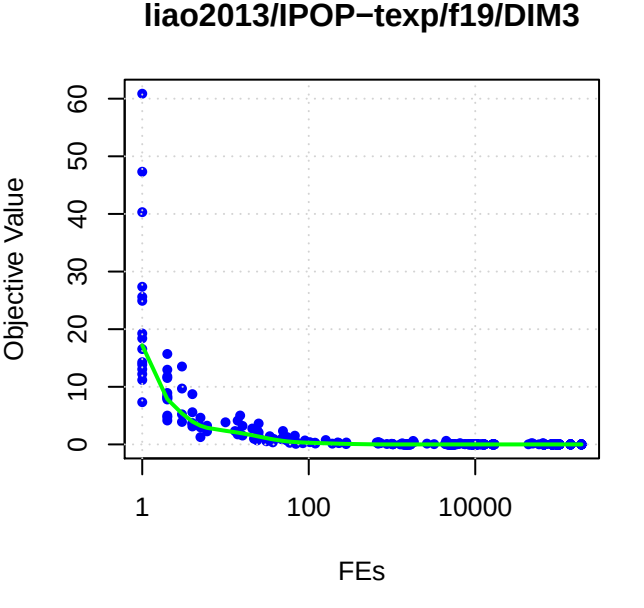
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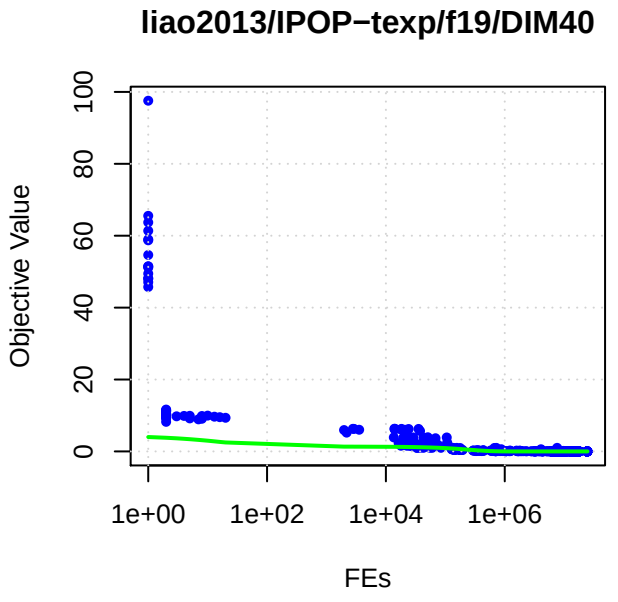
FEs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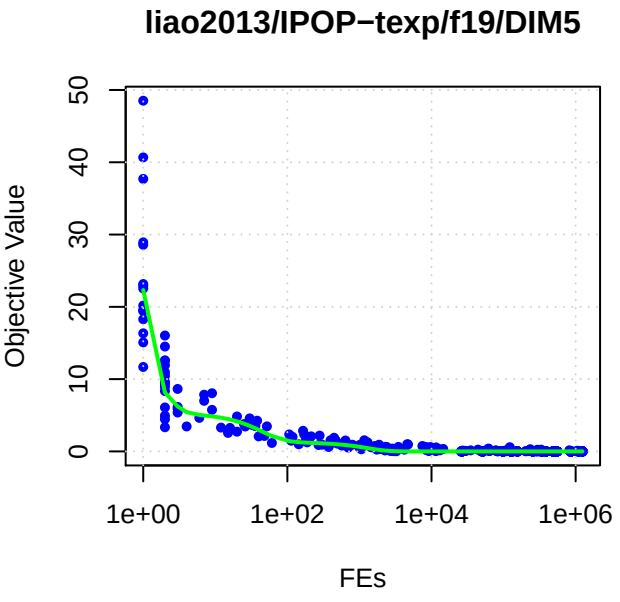
1e+04
1e+06
FEs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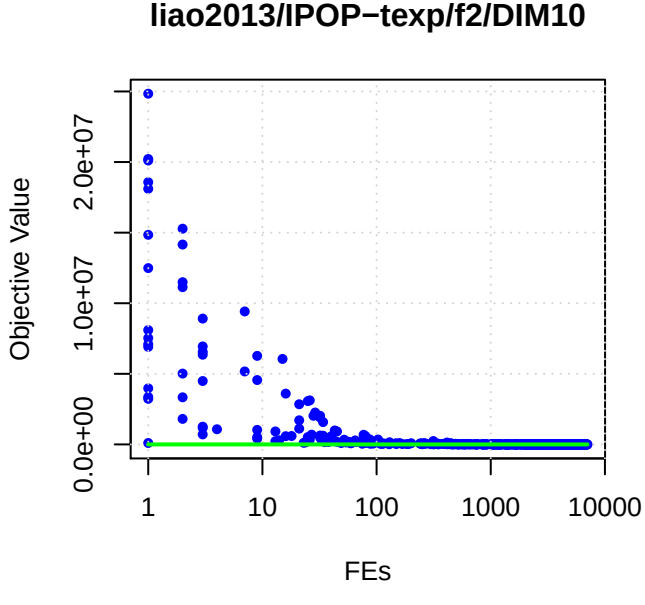
FEs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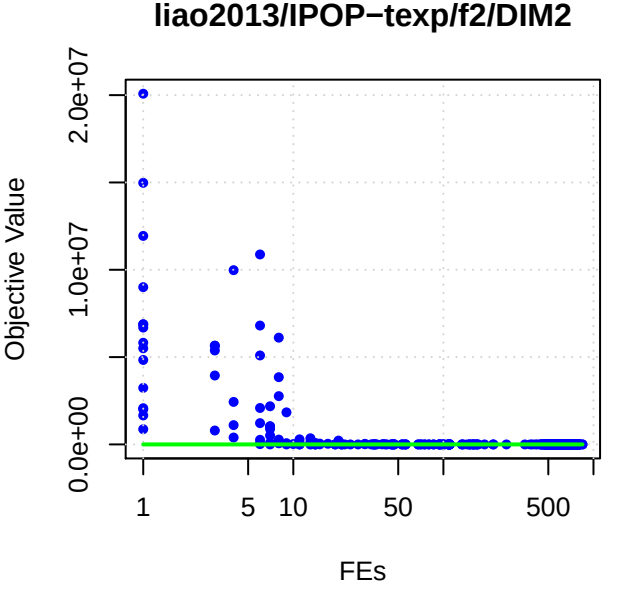
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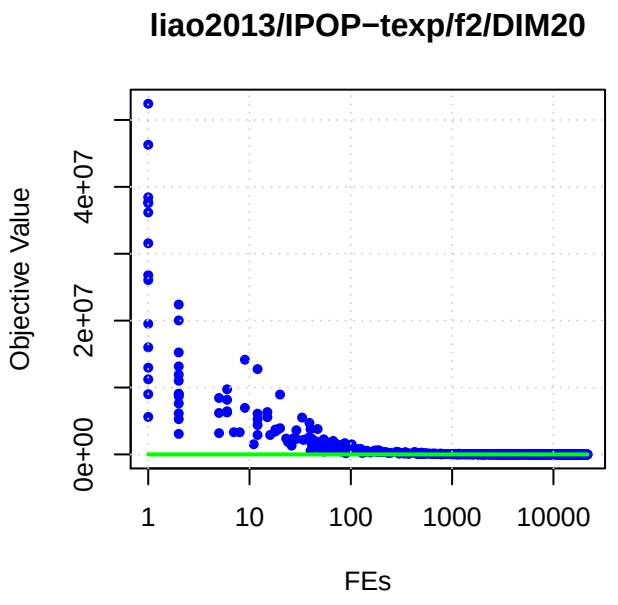
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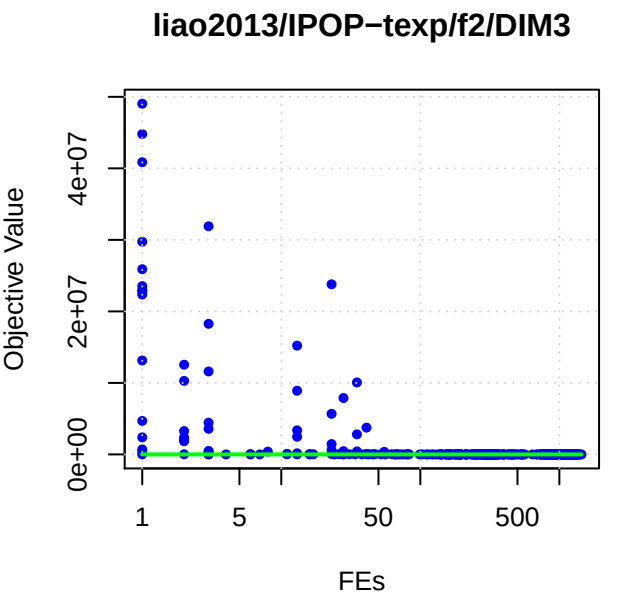
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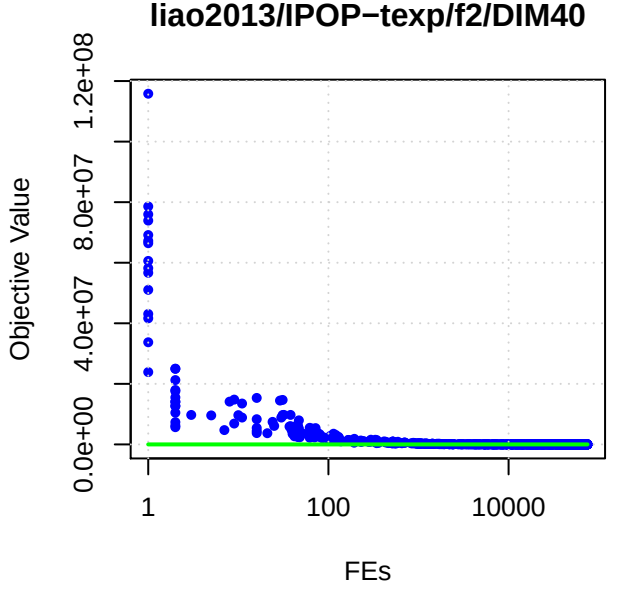
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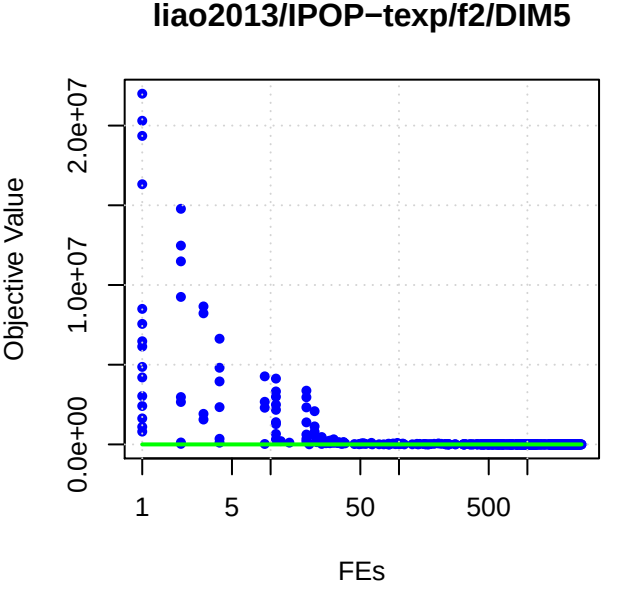
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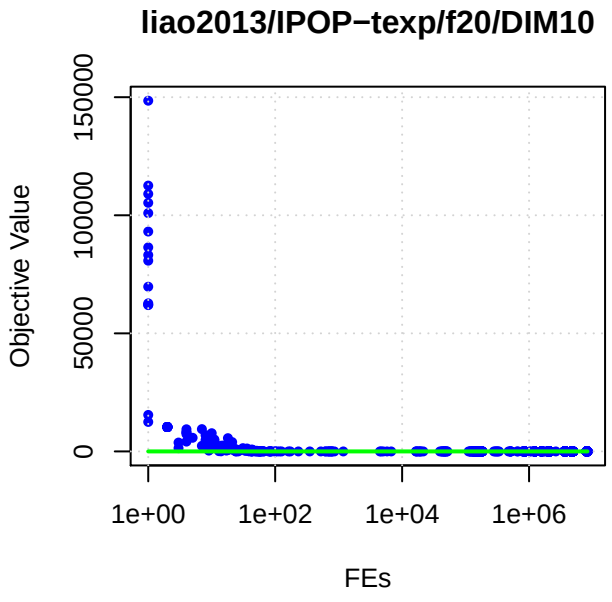
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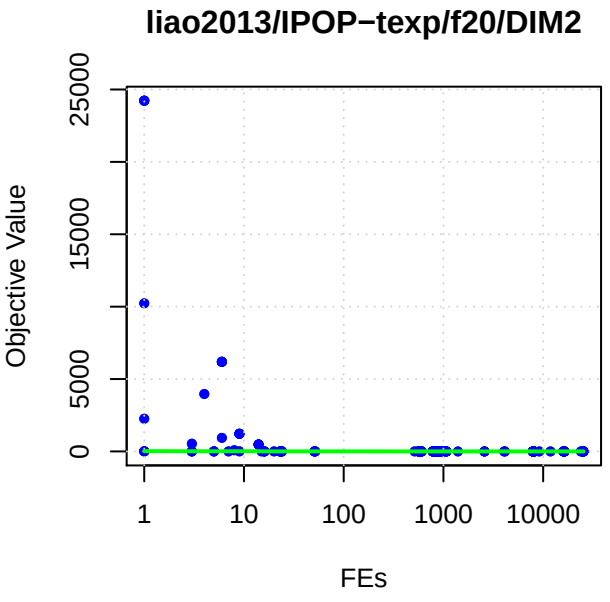
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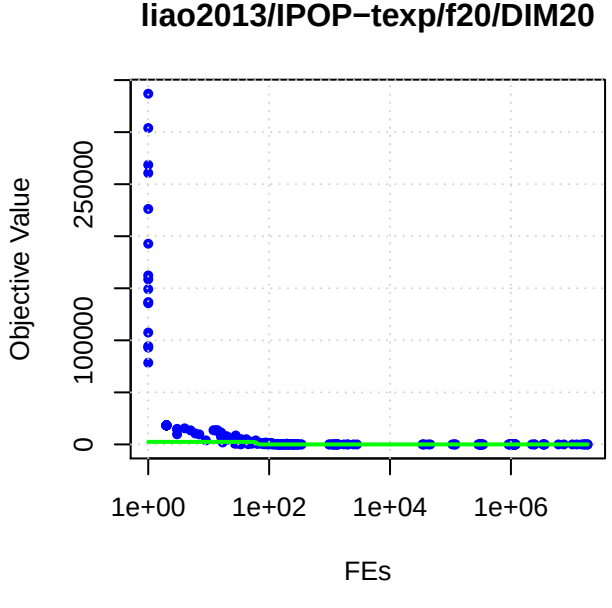
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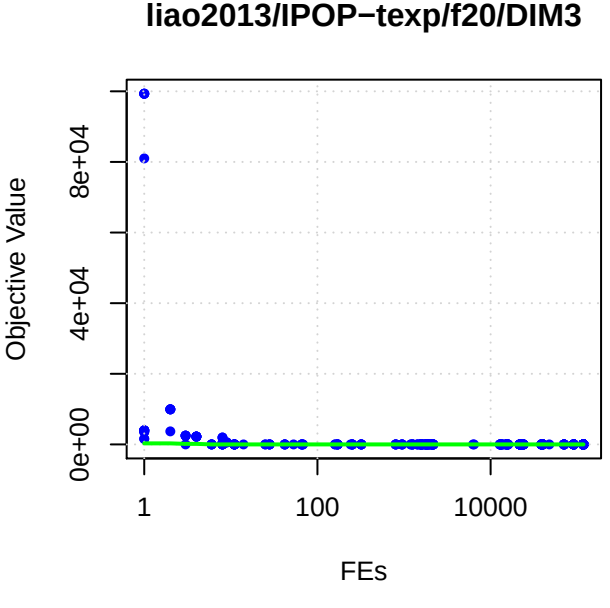
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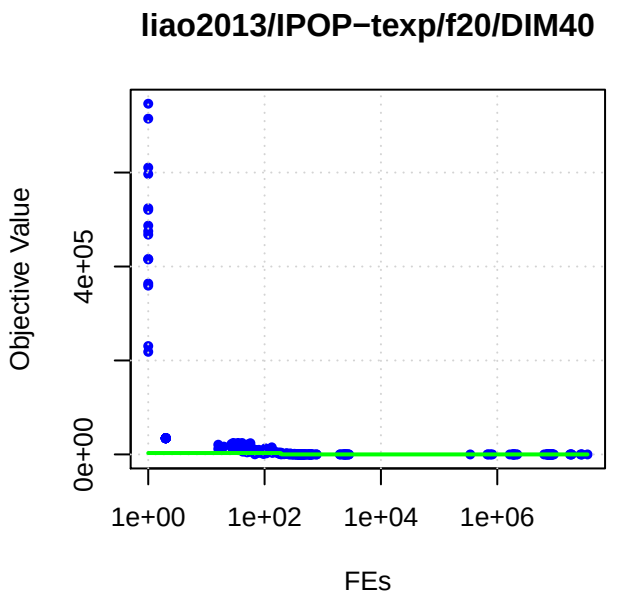
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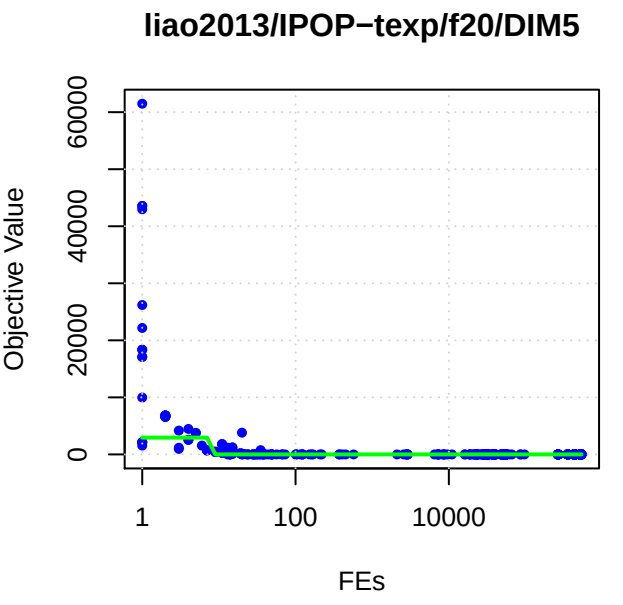
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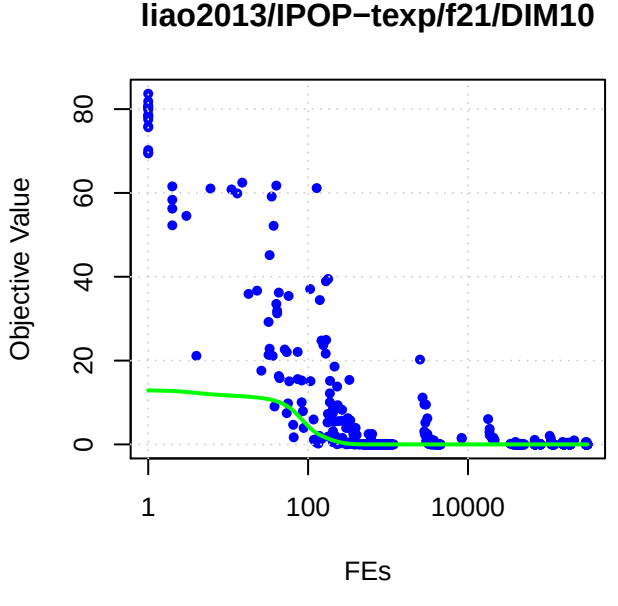
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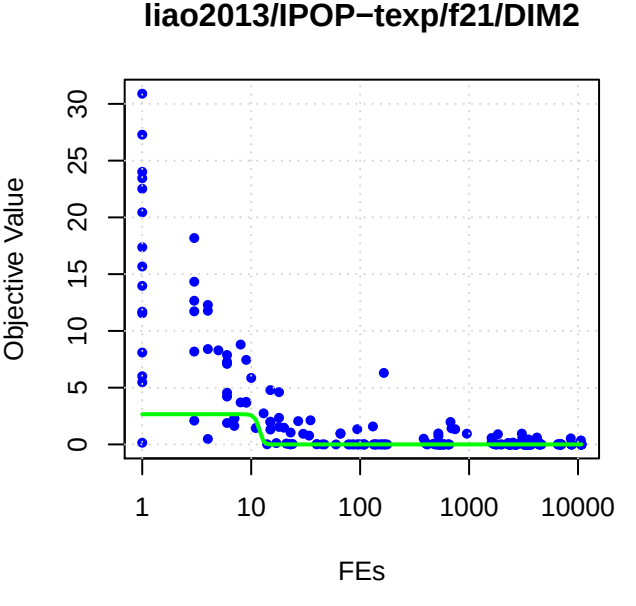
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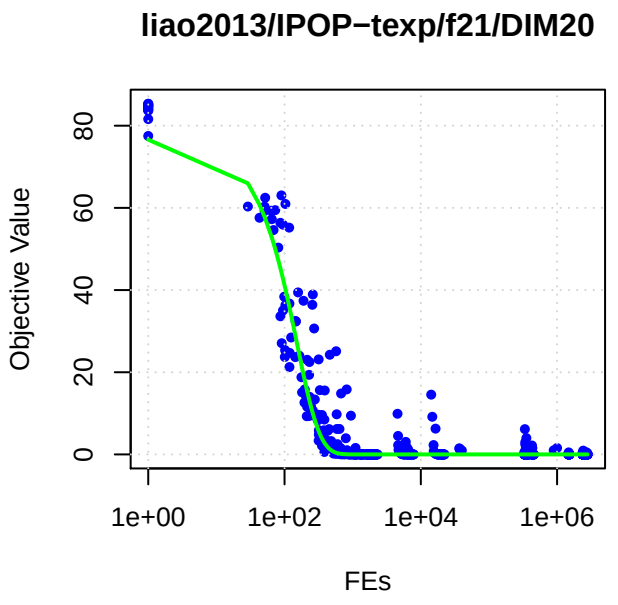
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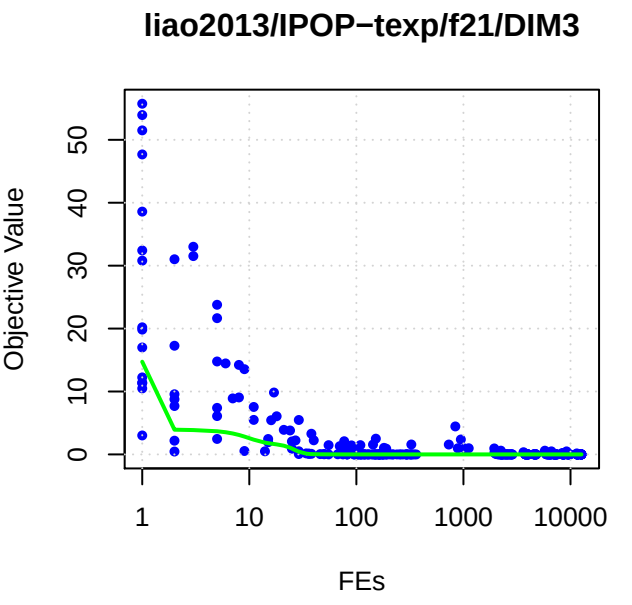
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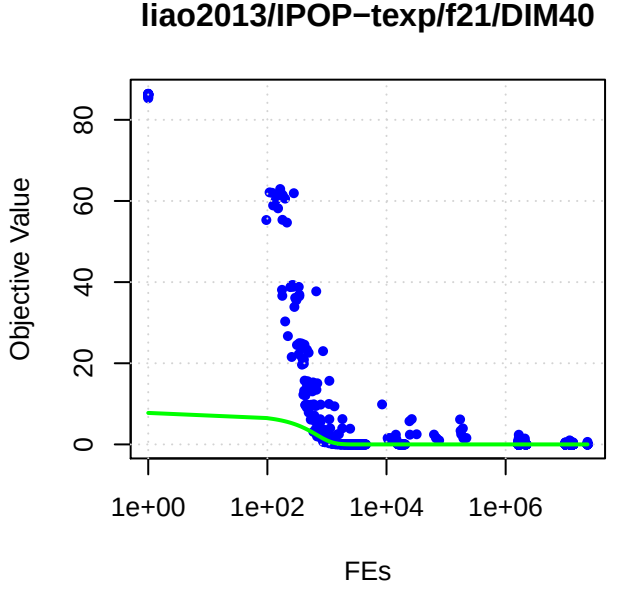
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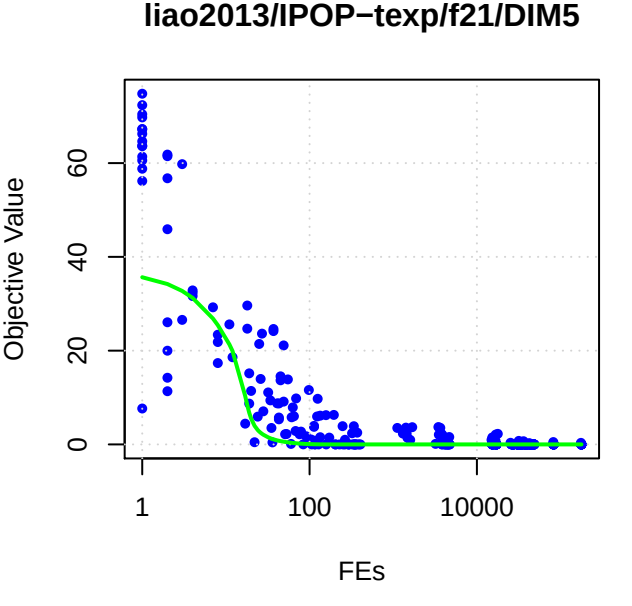
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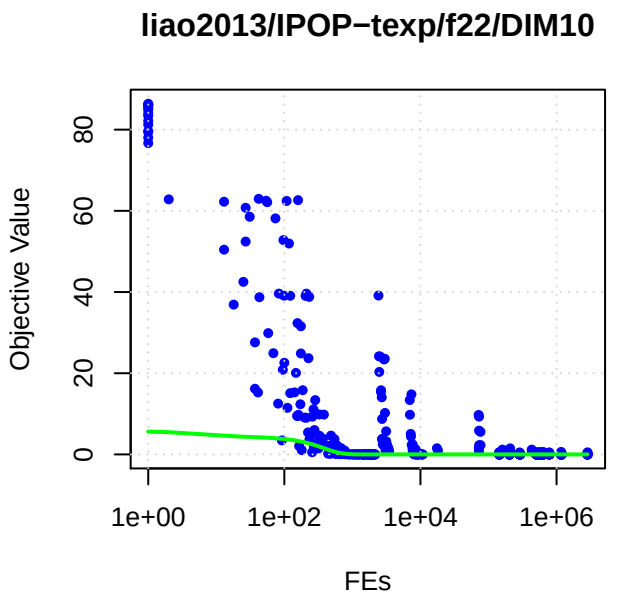
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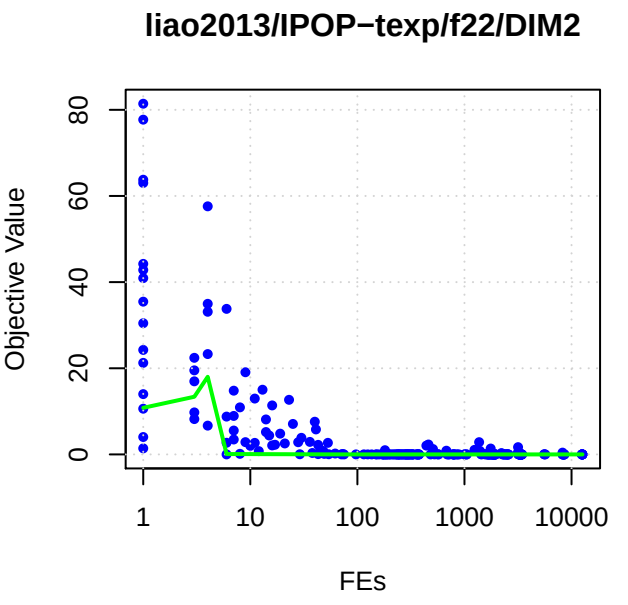
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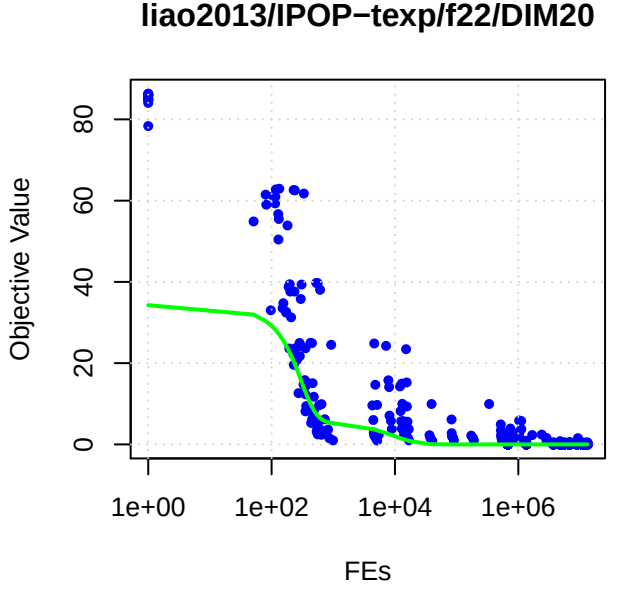
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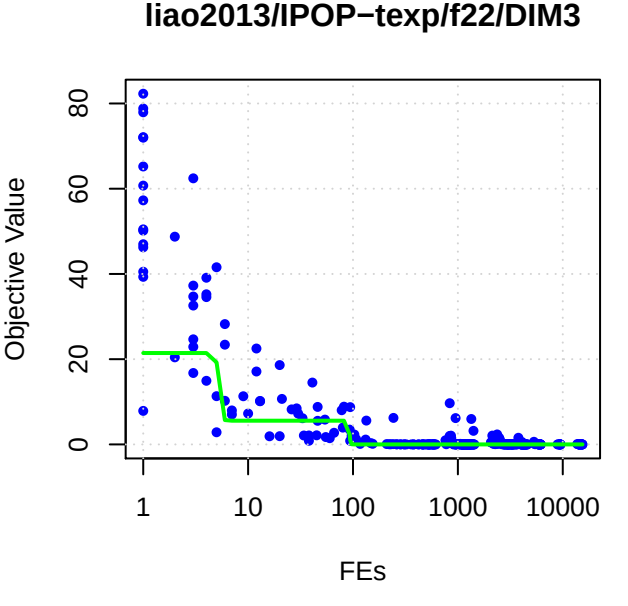
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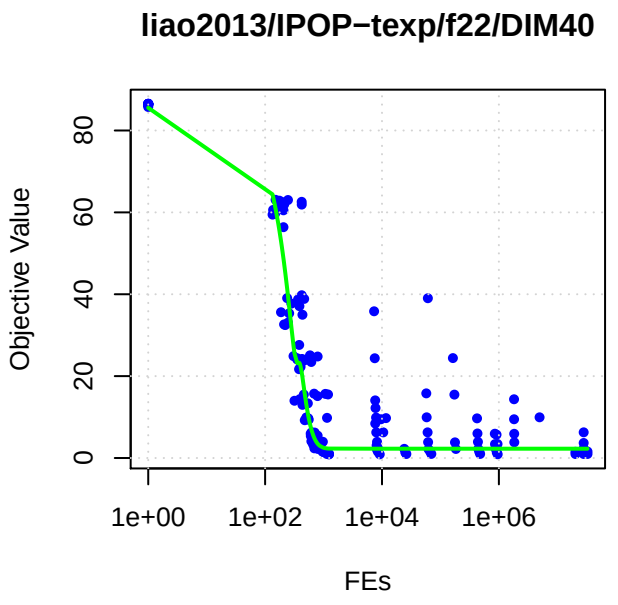
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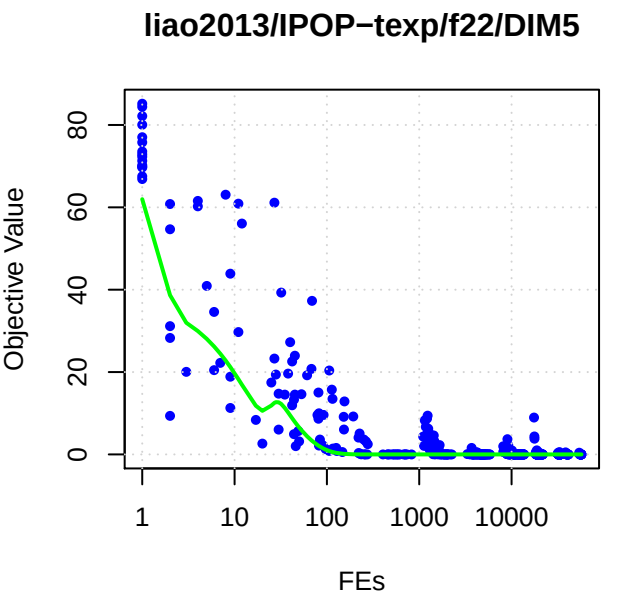
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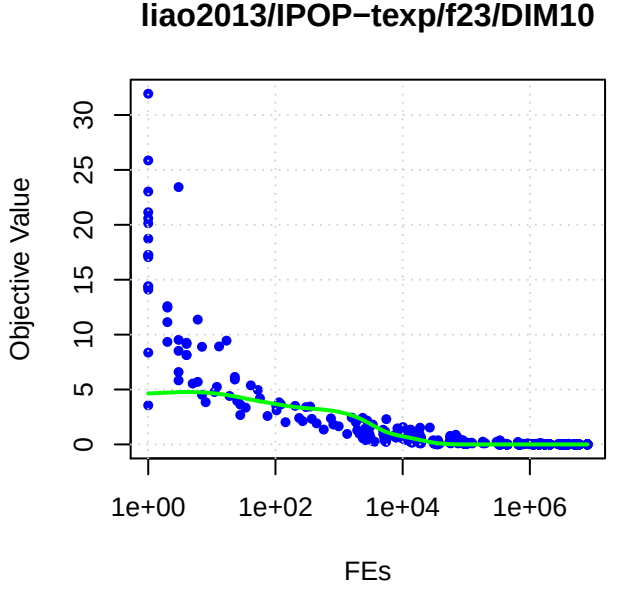
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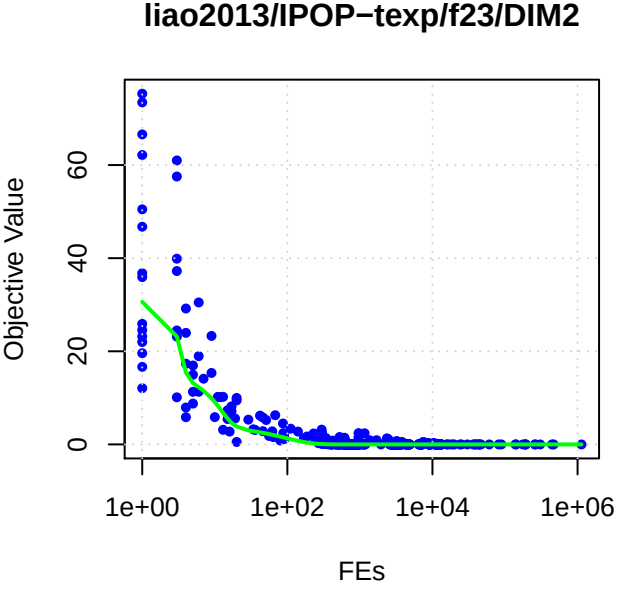
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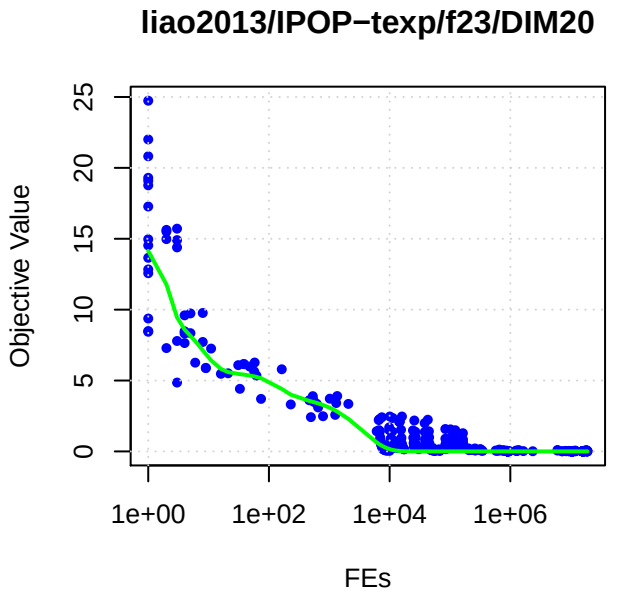
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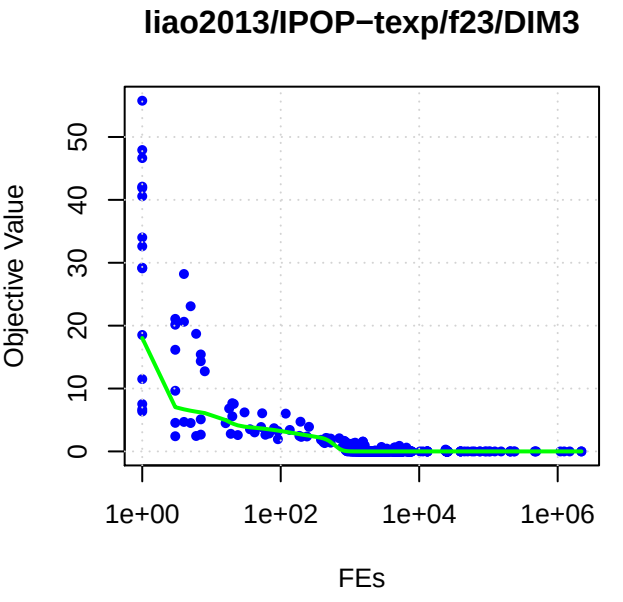
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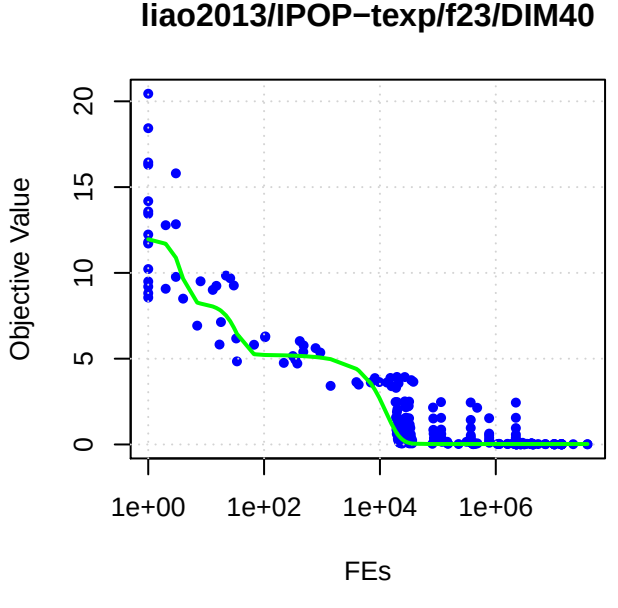
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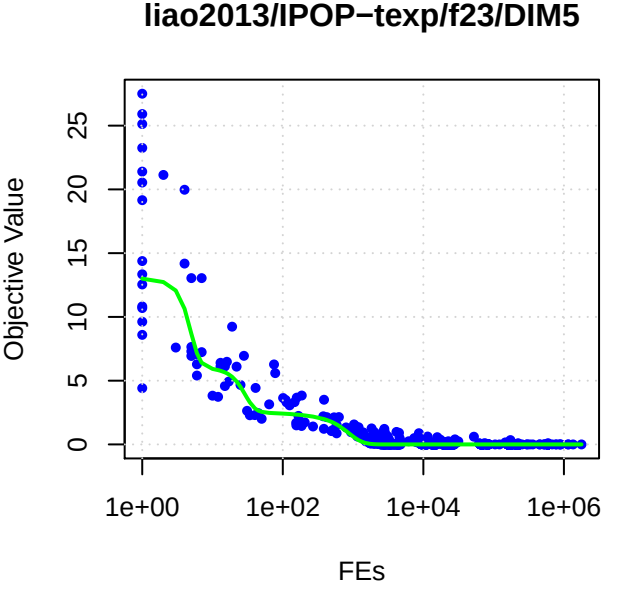
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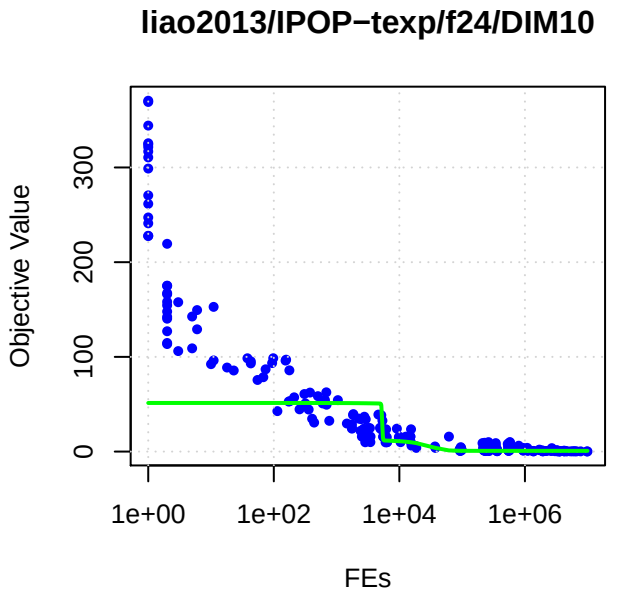
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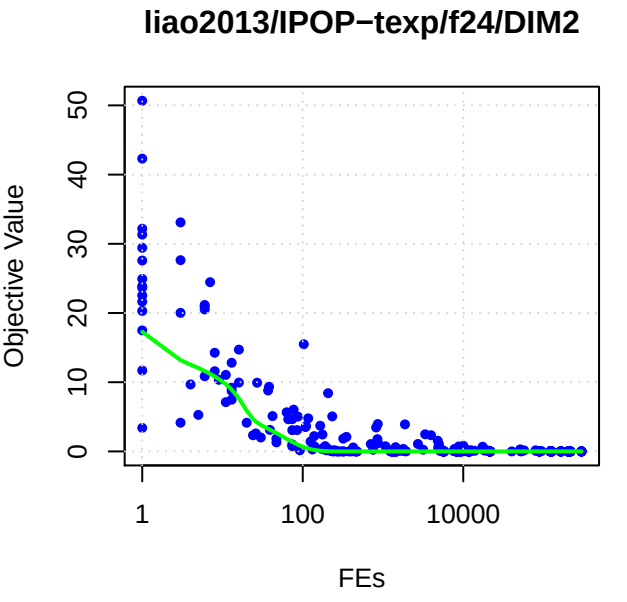
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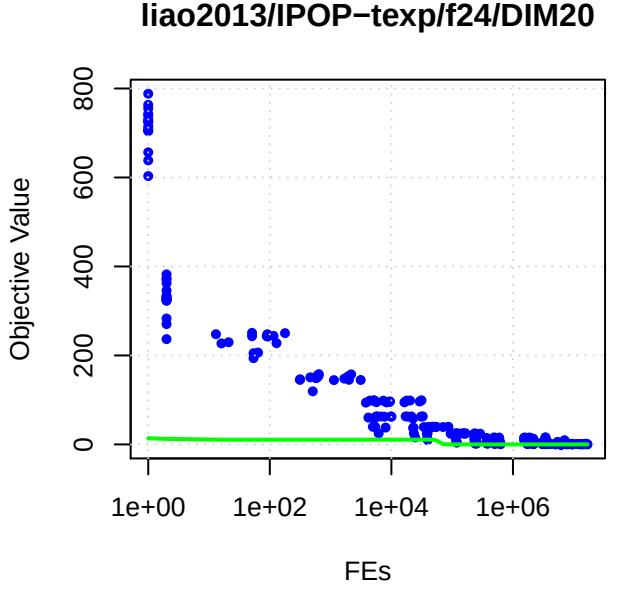
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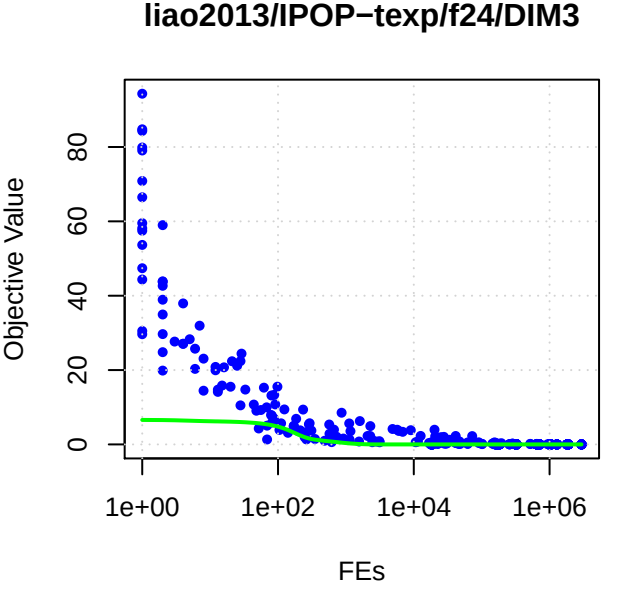
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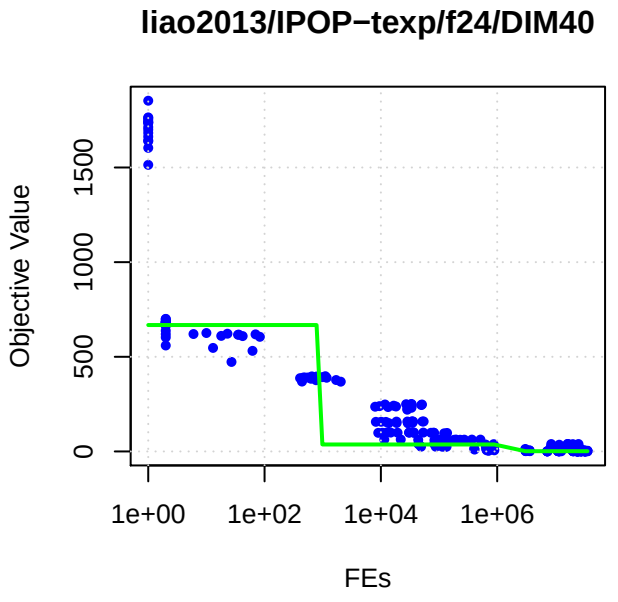
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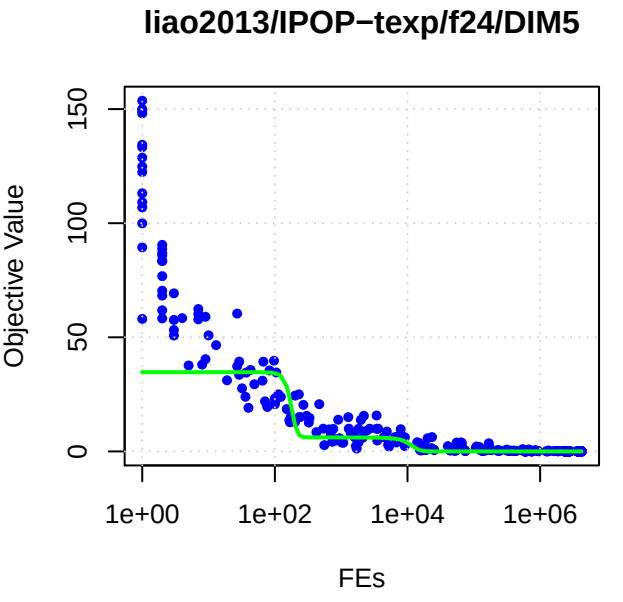
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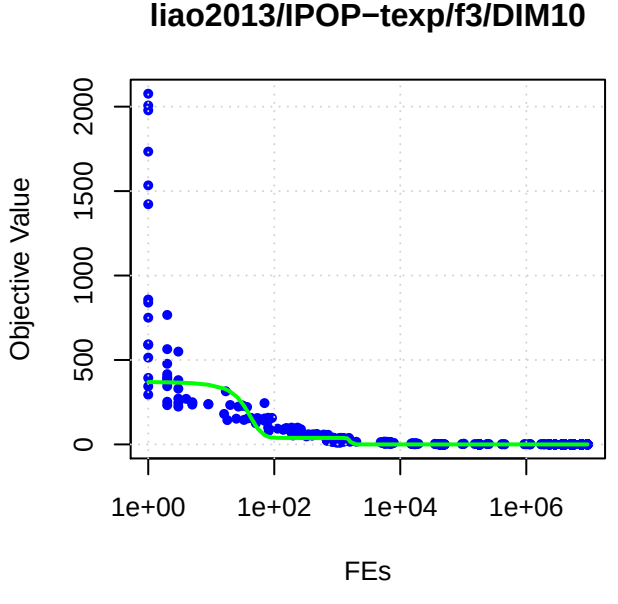
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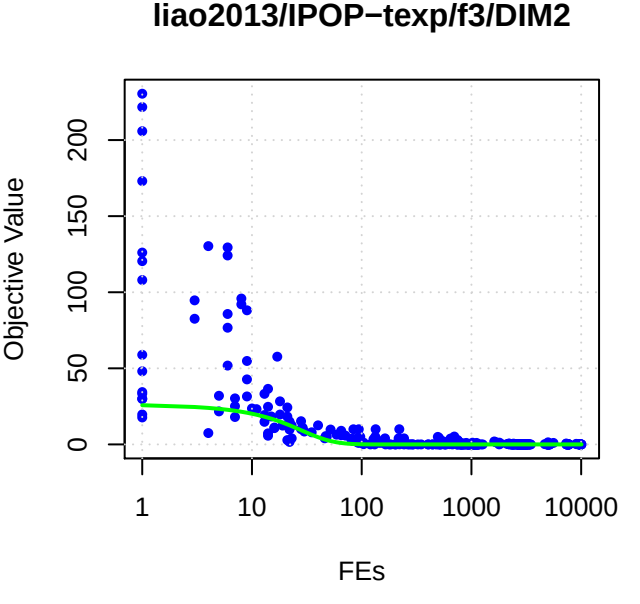
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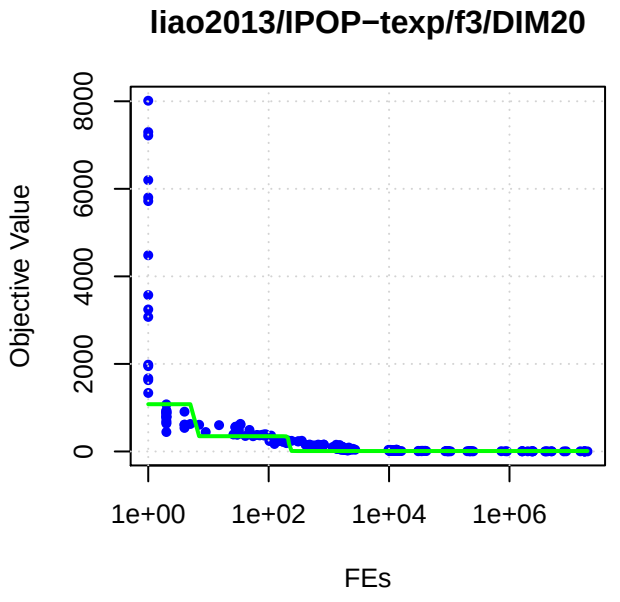
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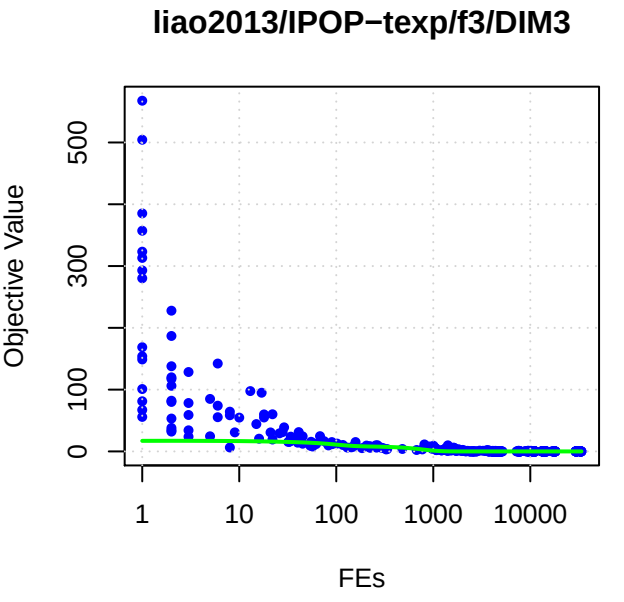
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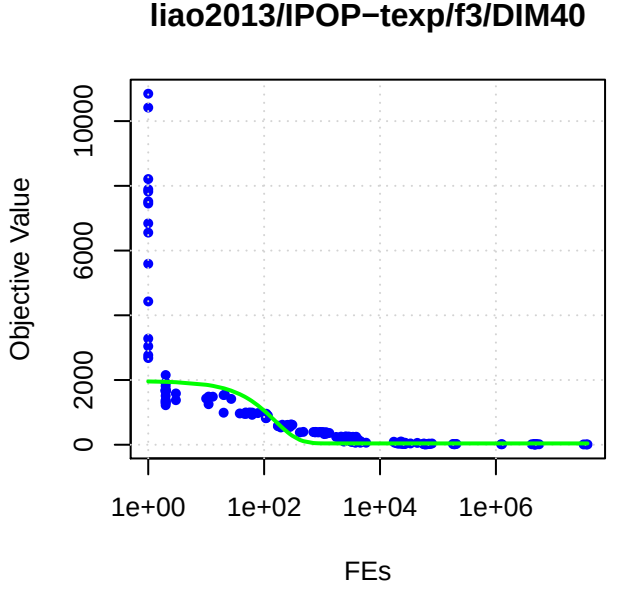
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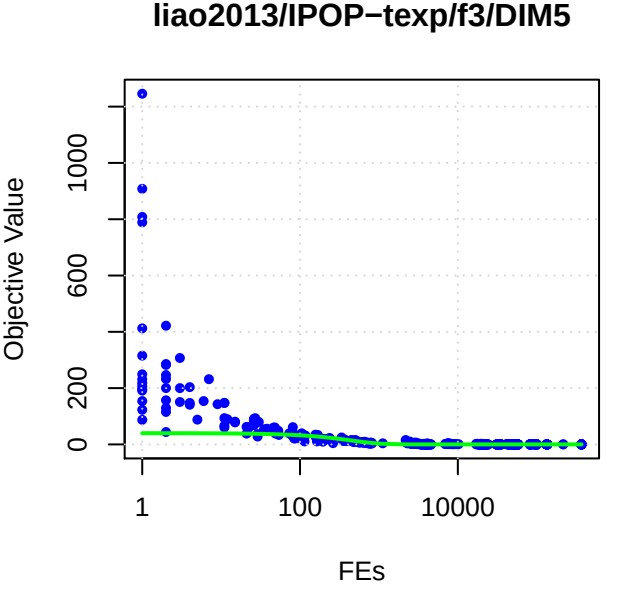
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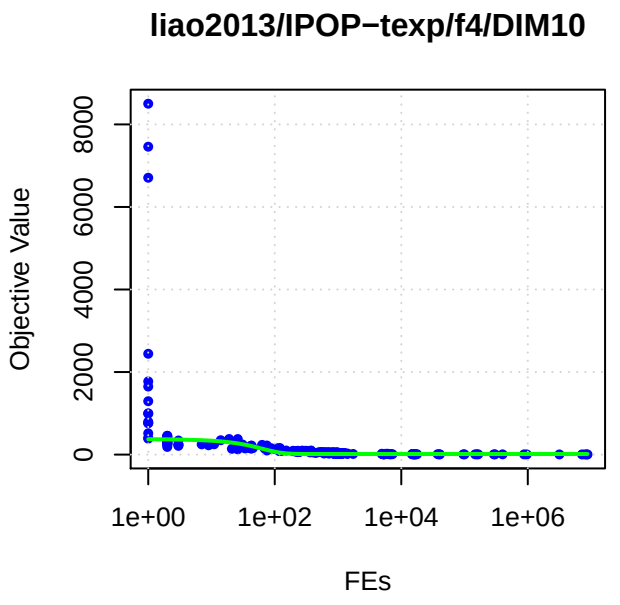
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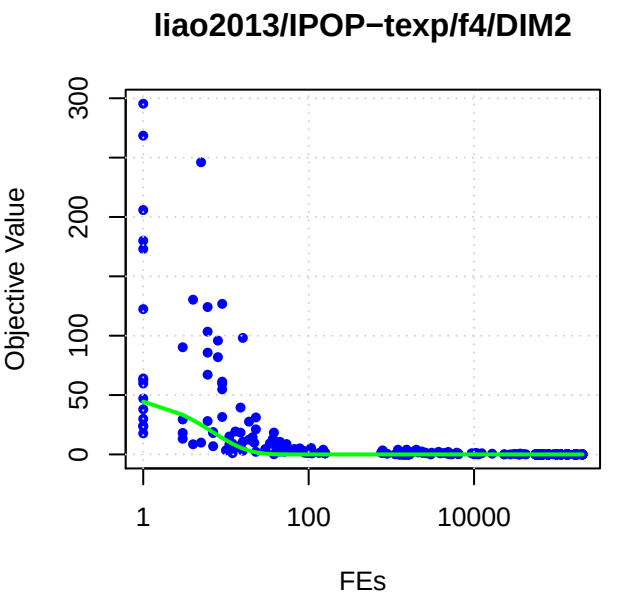
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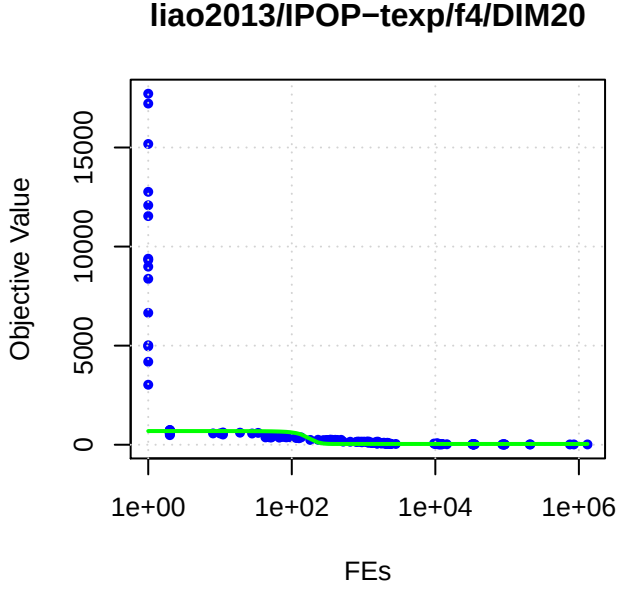
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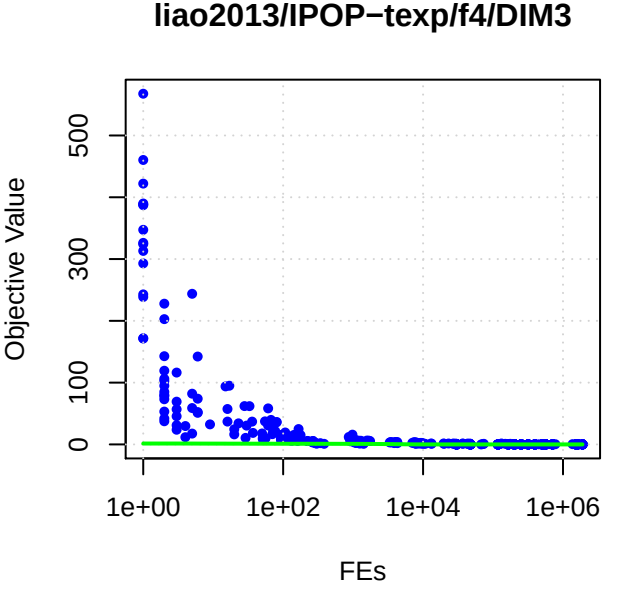
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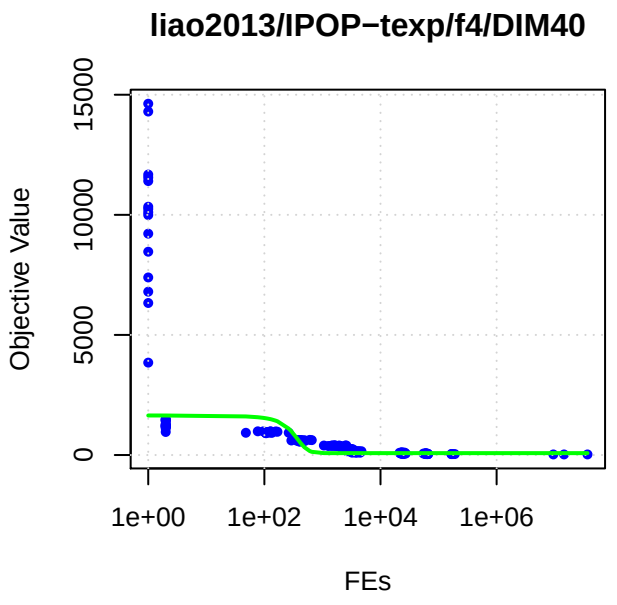
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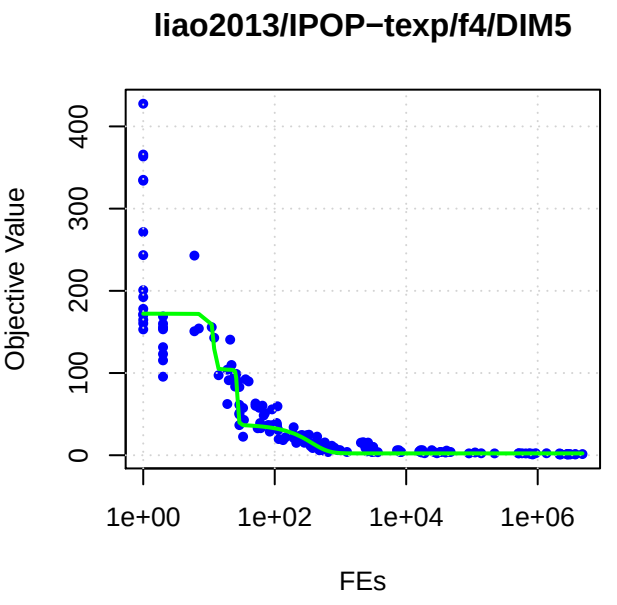
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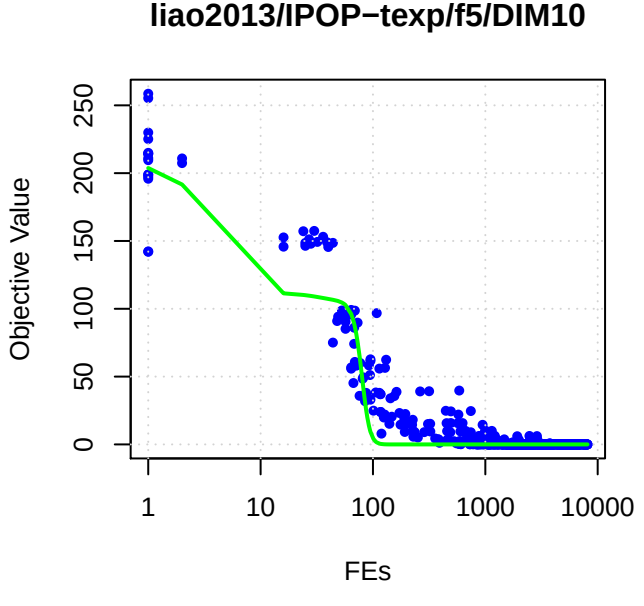
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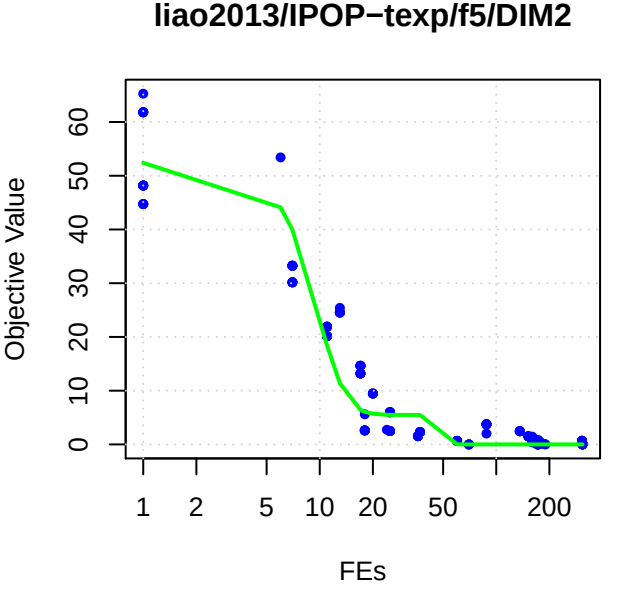
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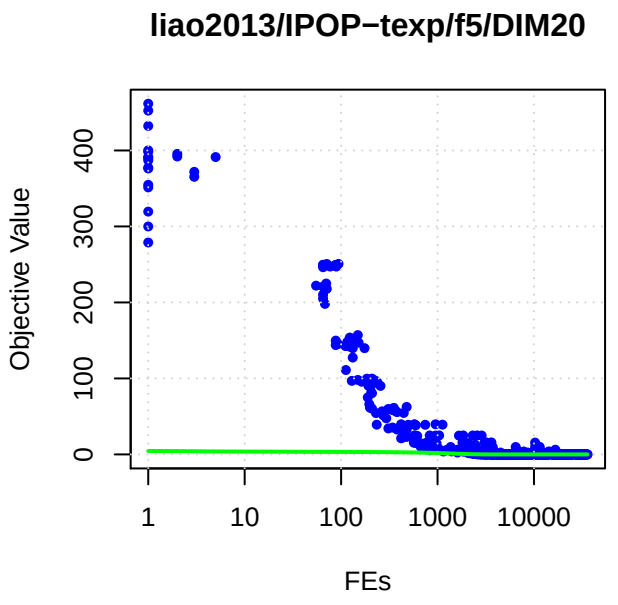
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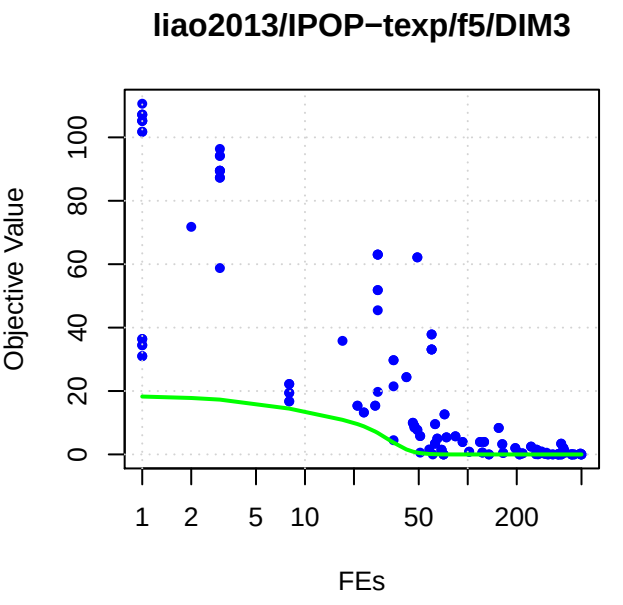
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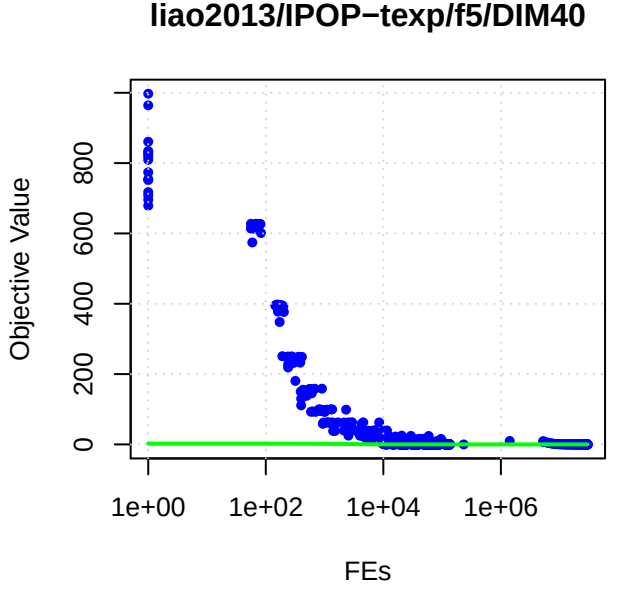
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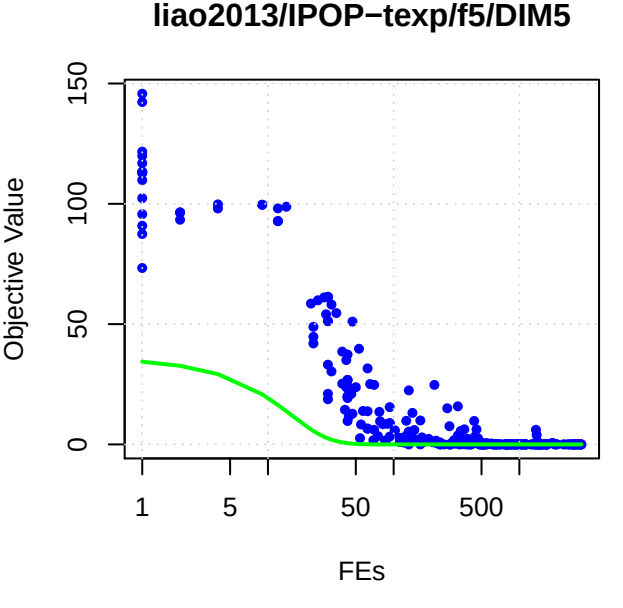
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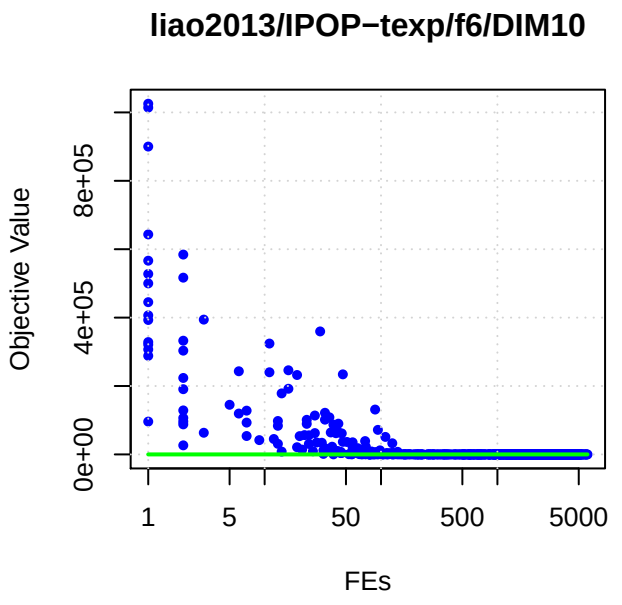
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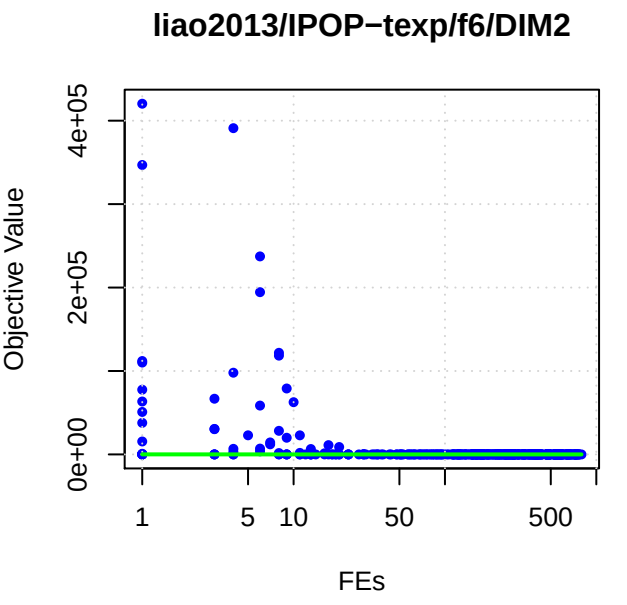
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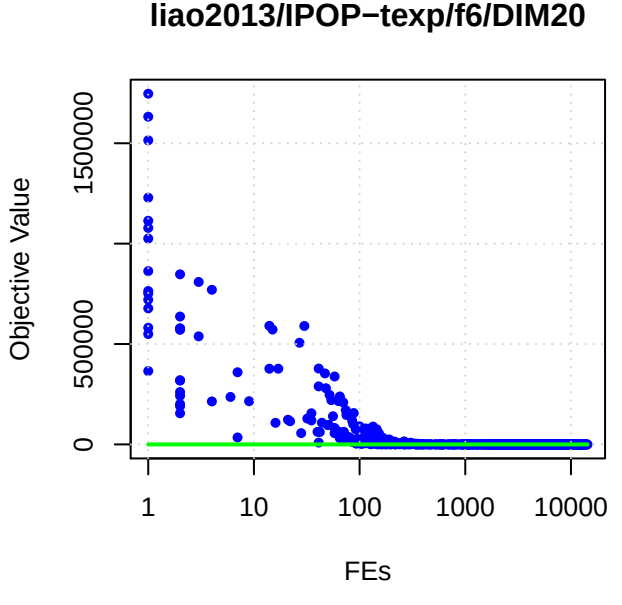
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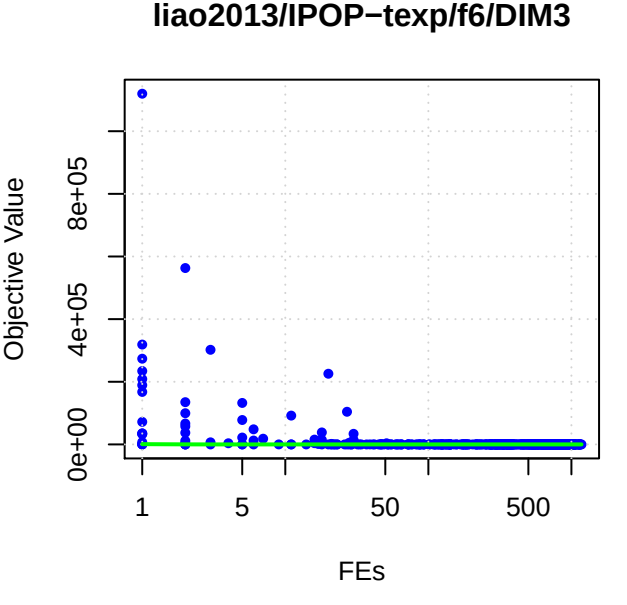
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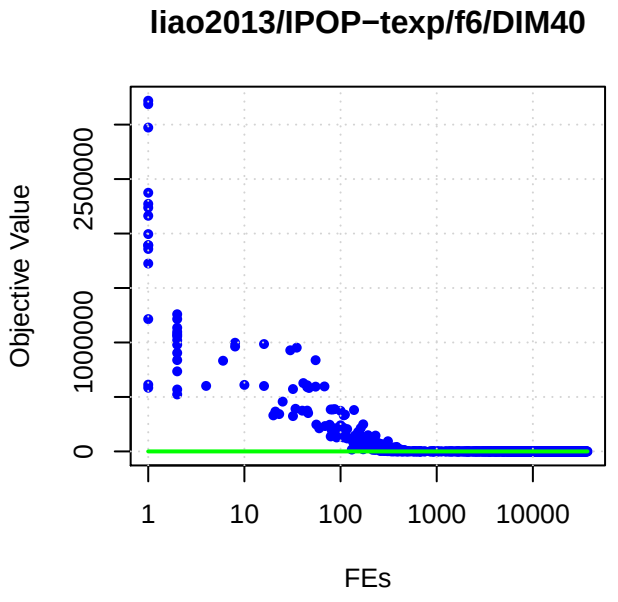
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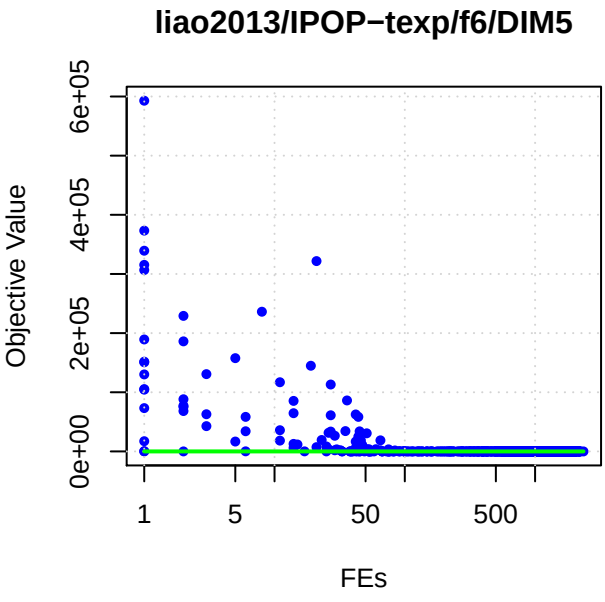
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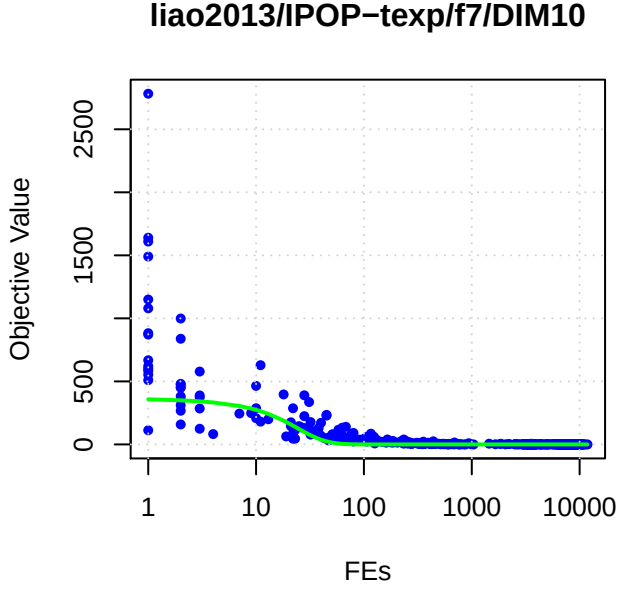
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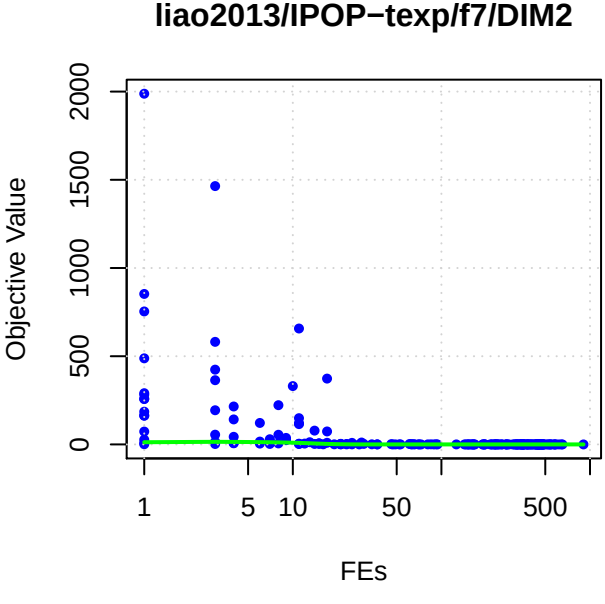
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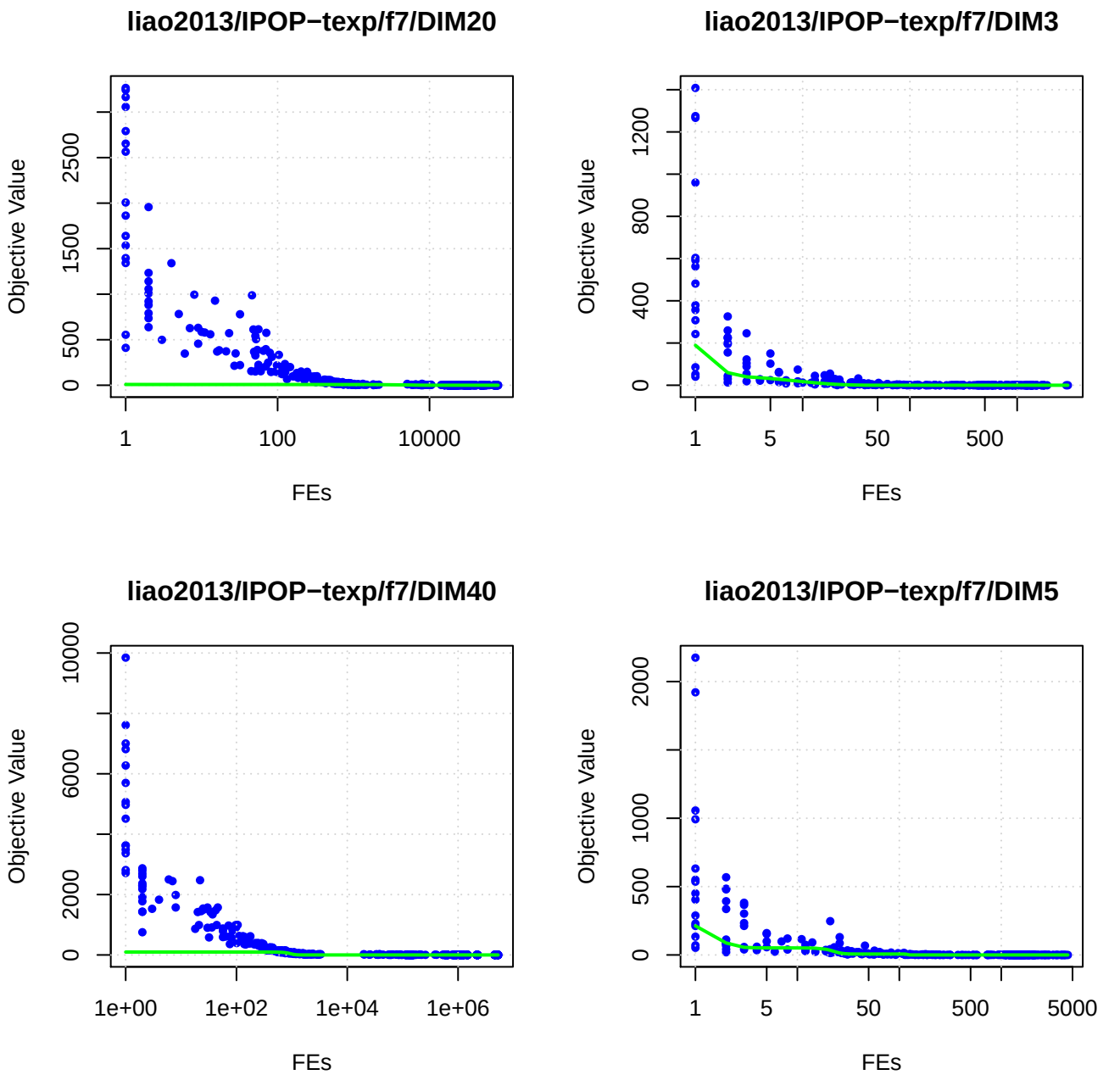
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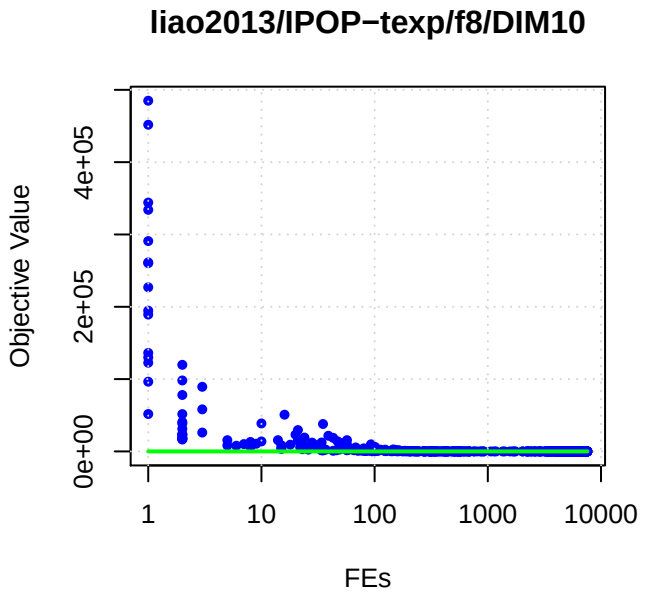
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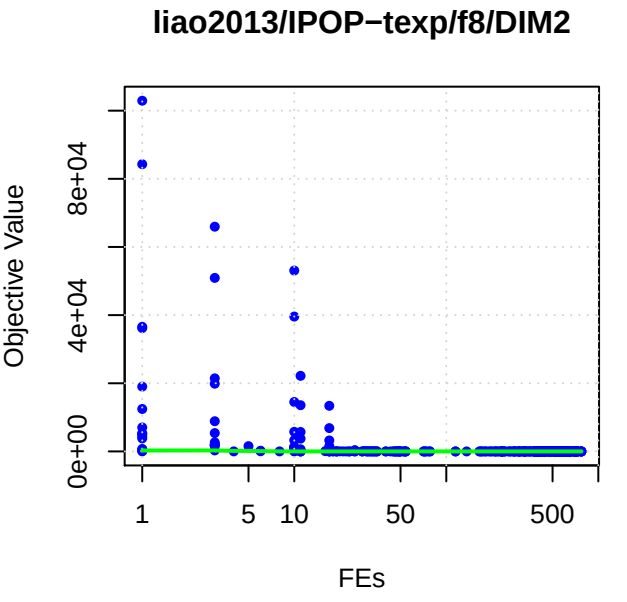
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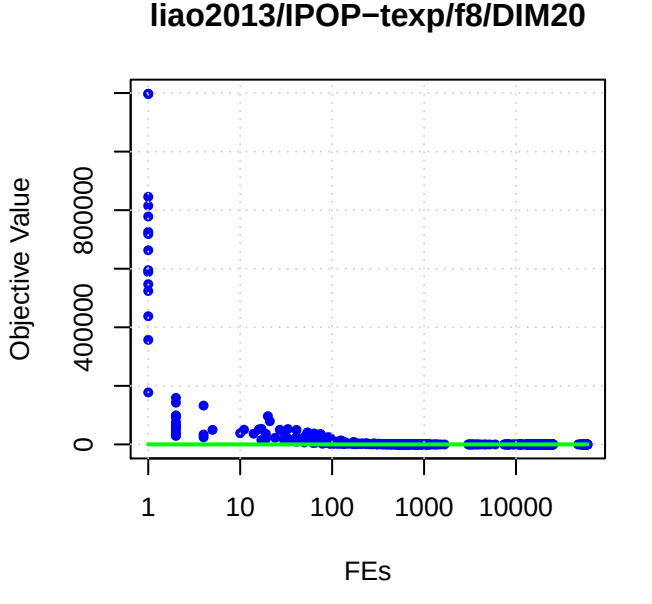
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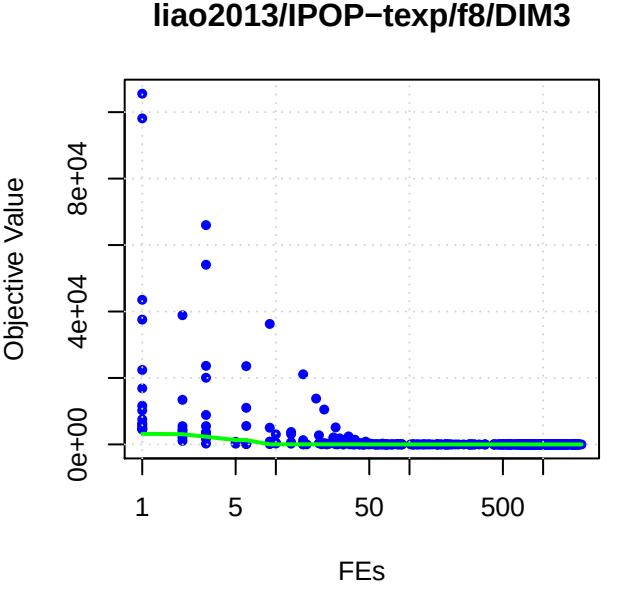
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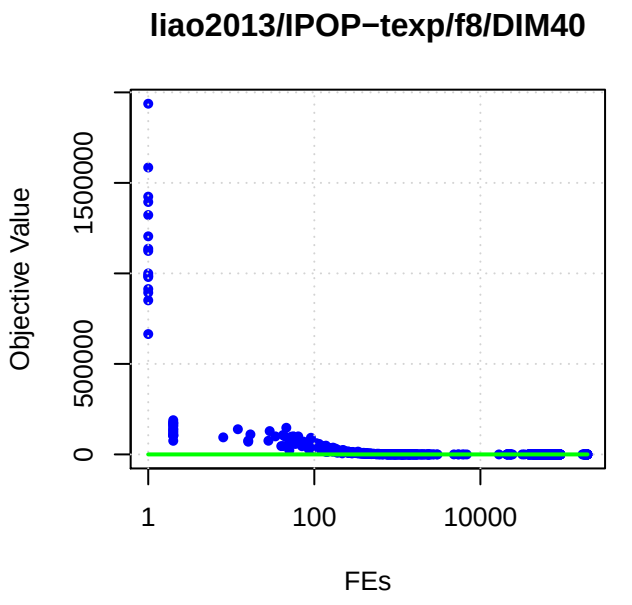
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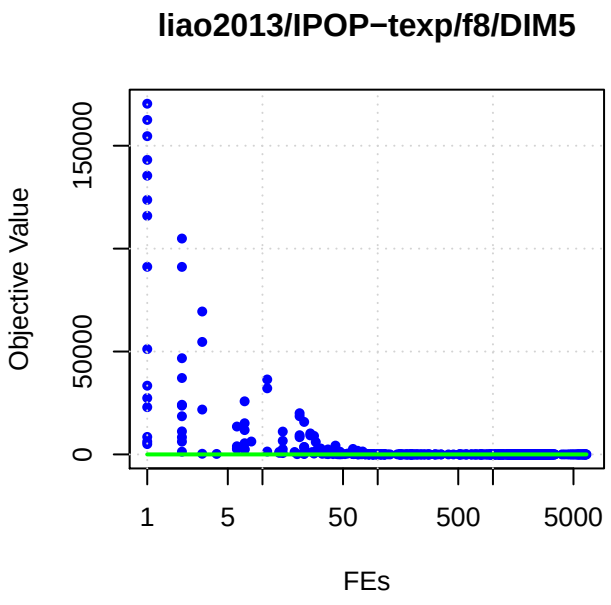
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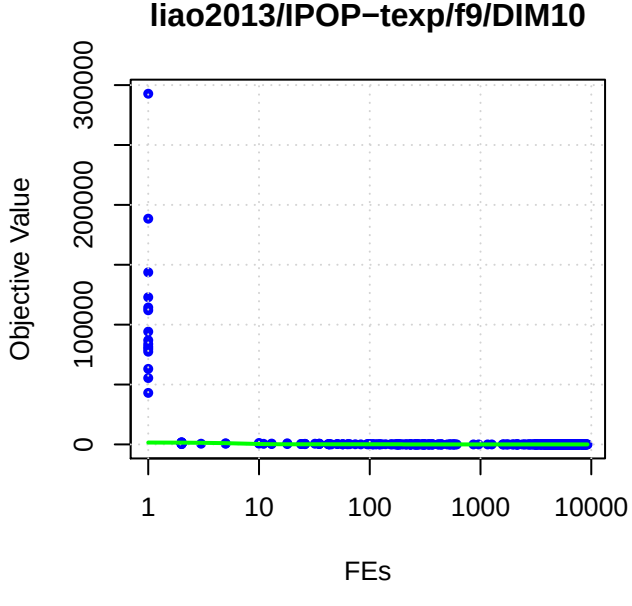
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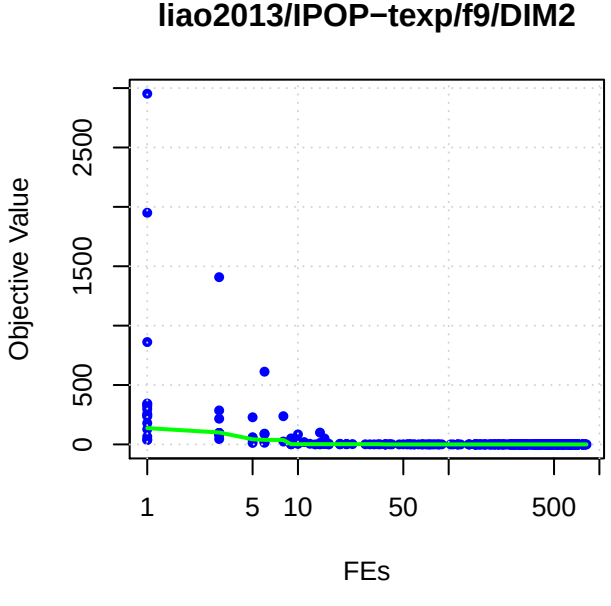
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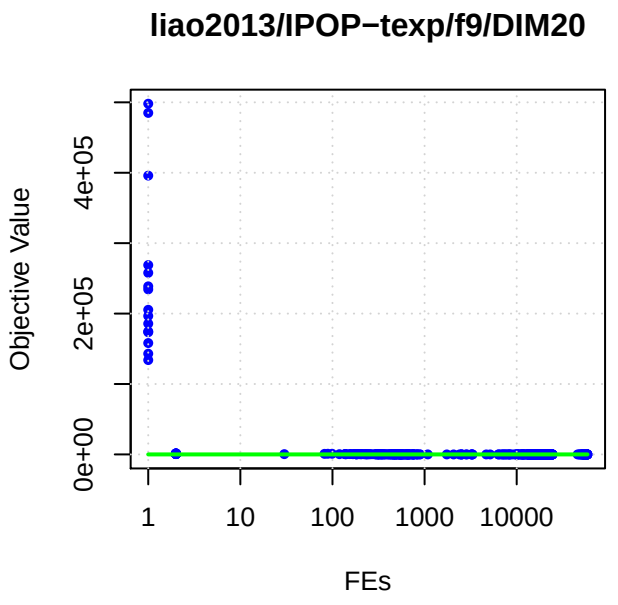
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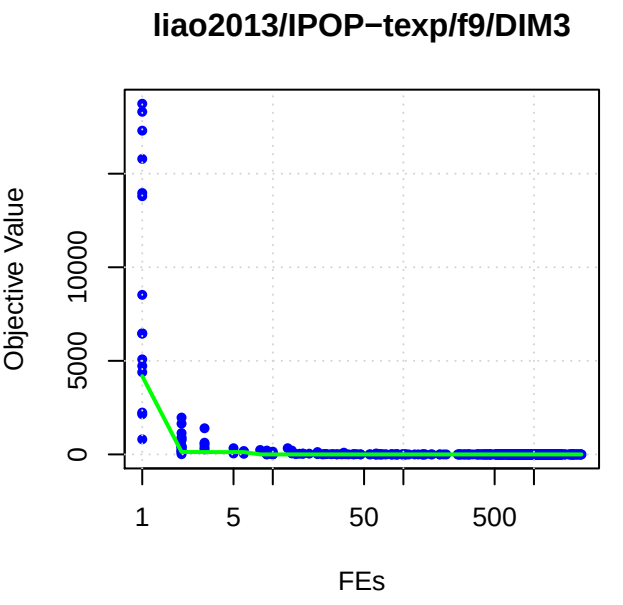
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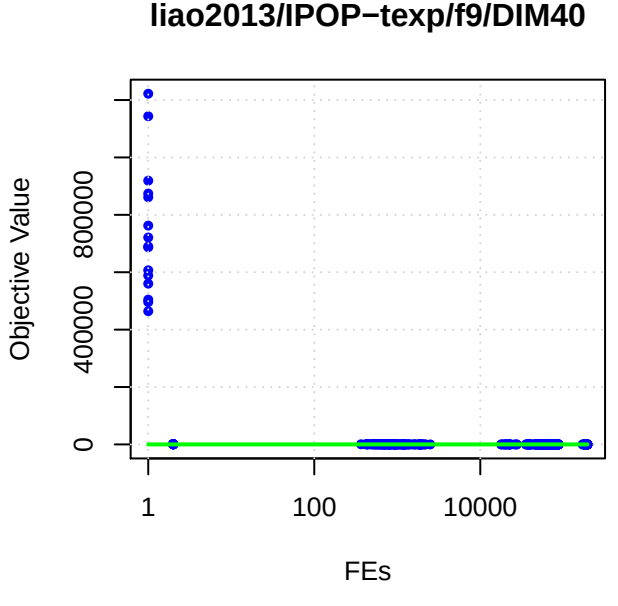
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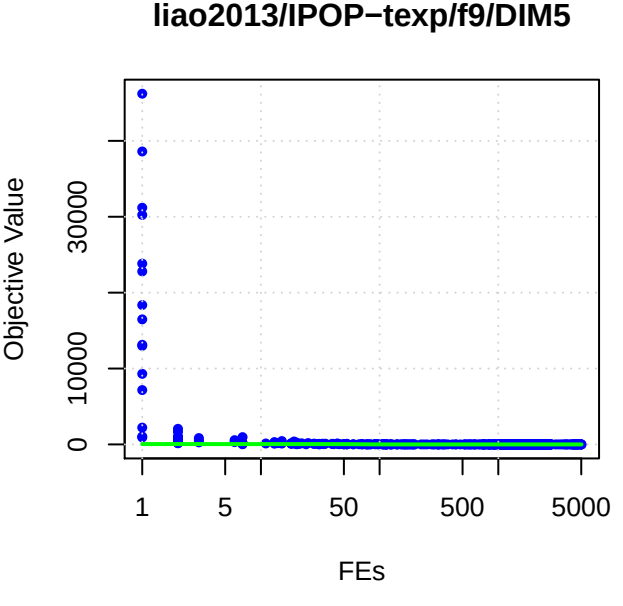
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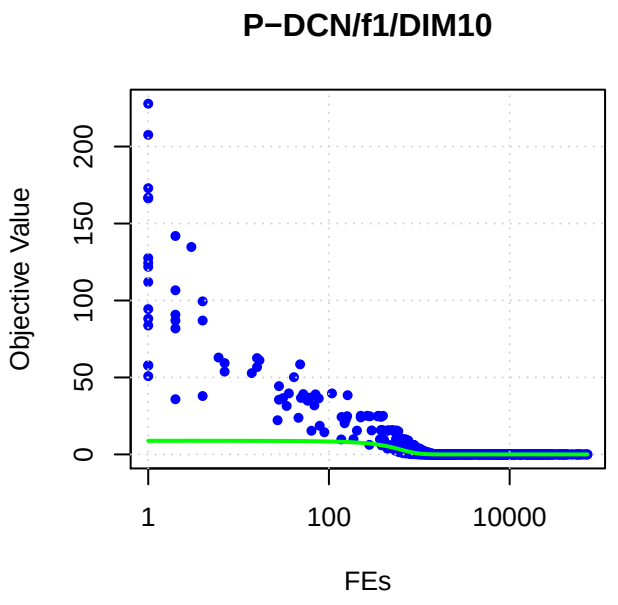
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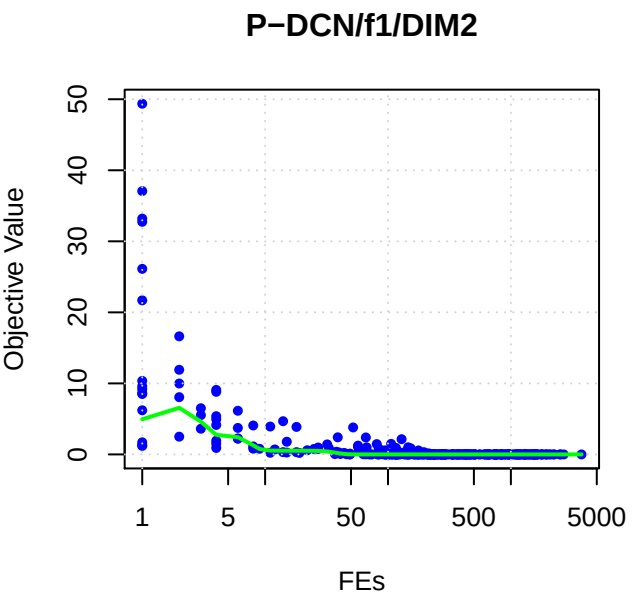
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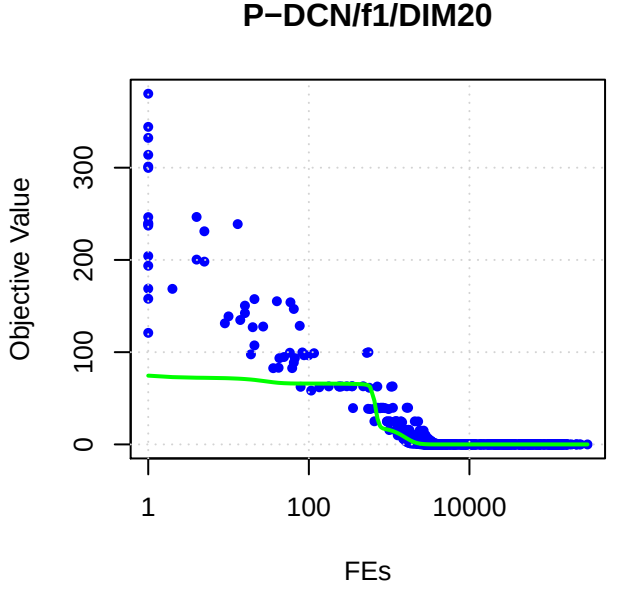
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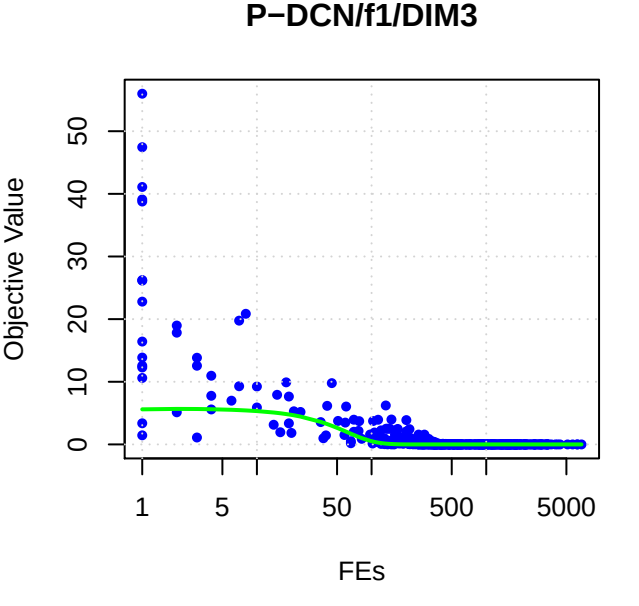
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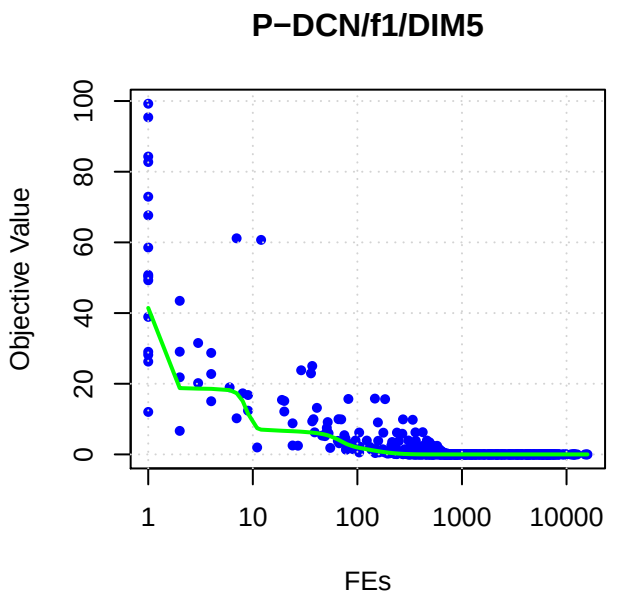
FEs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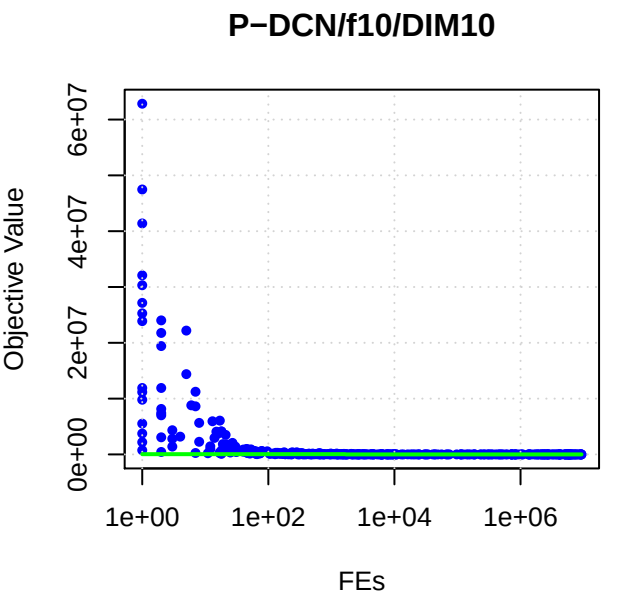
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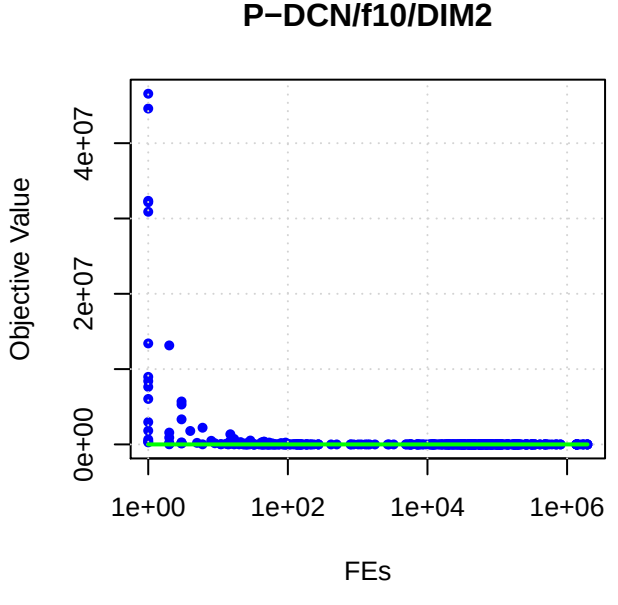
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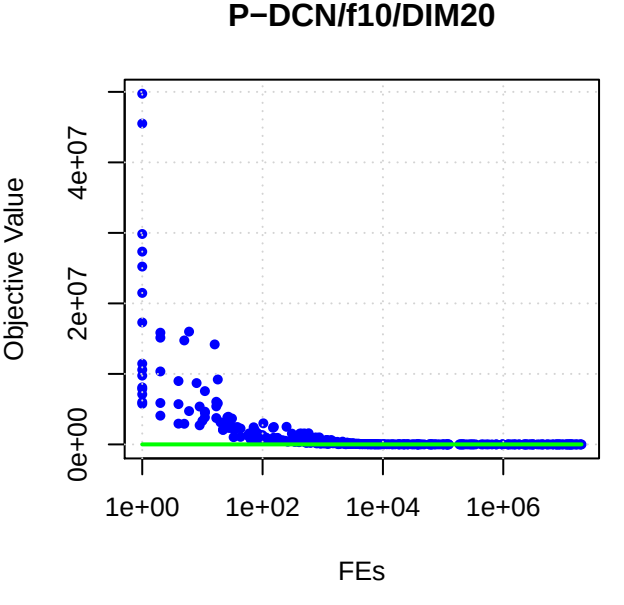
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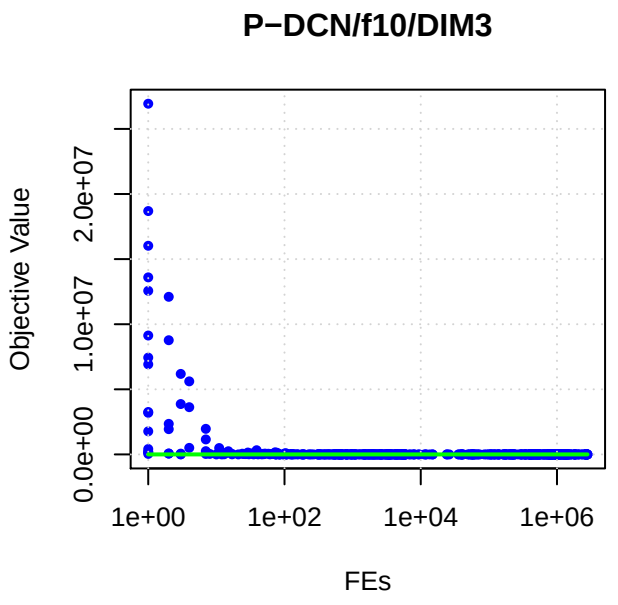
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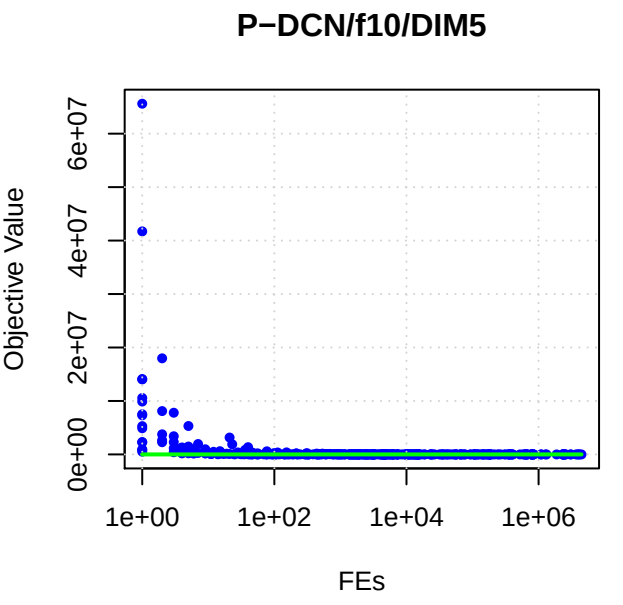
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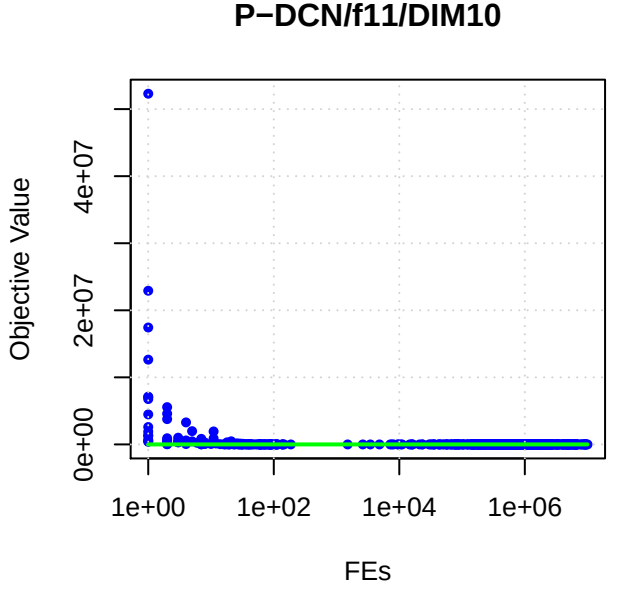
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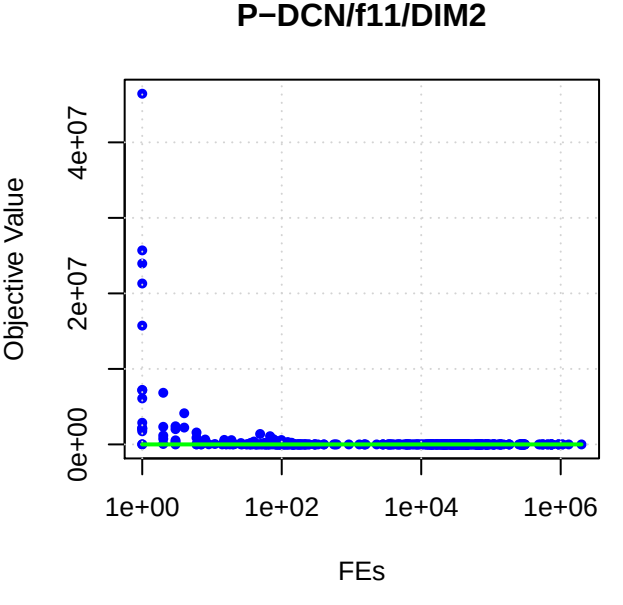
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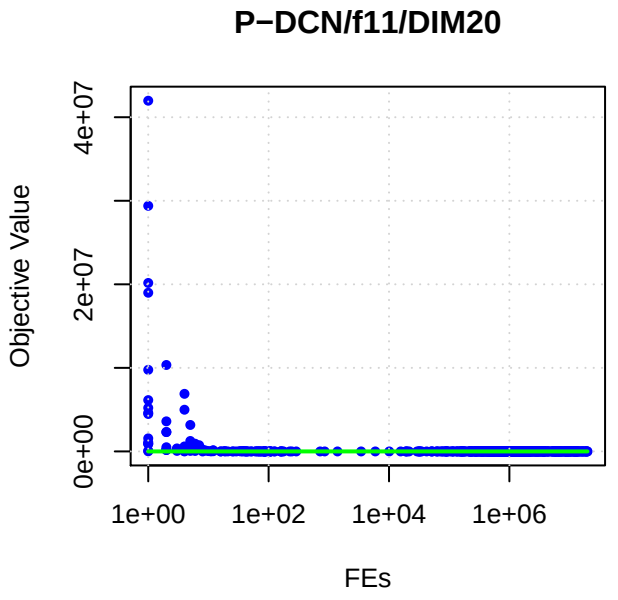
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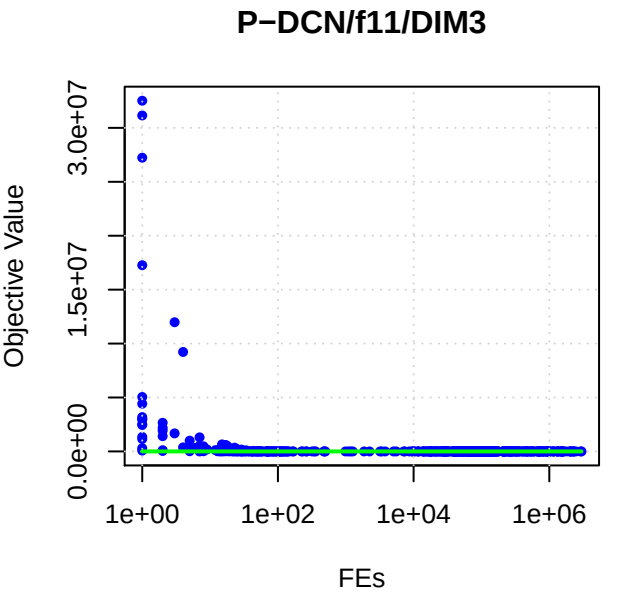
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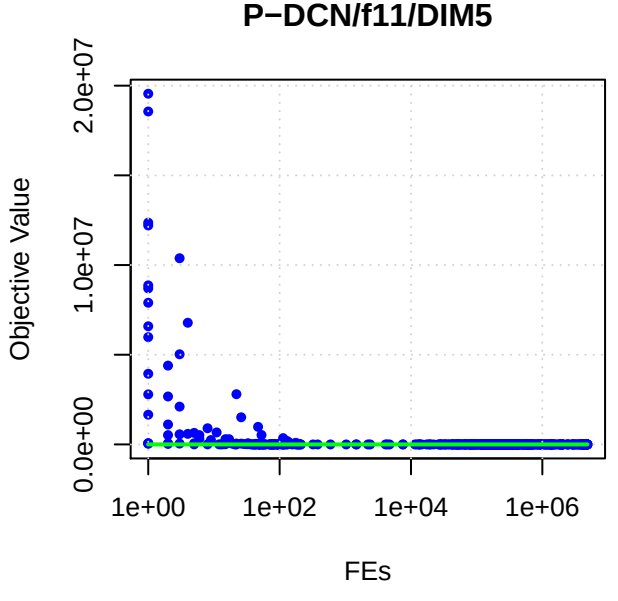
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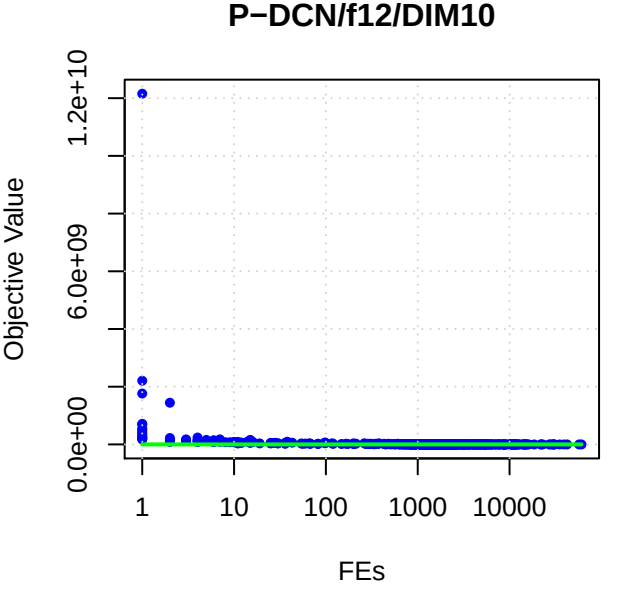
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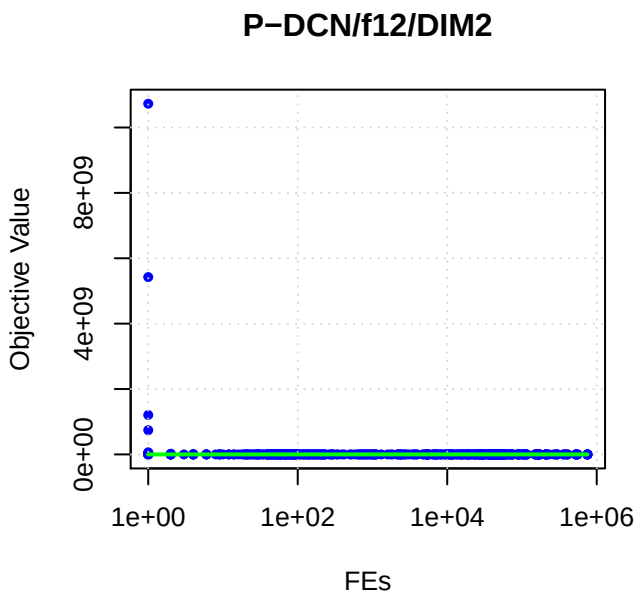
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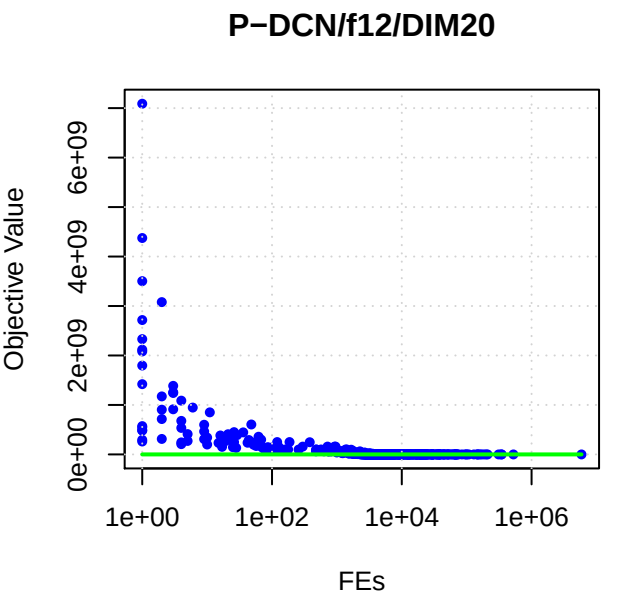
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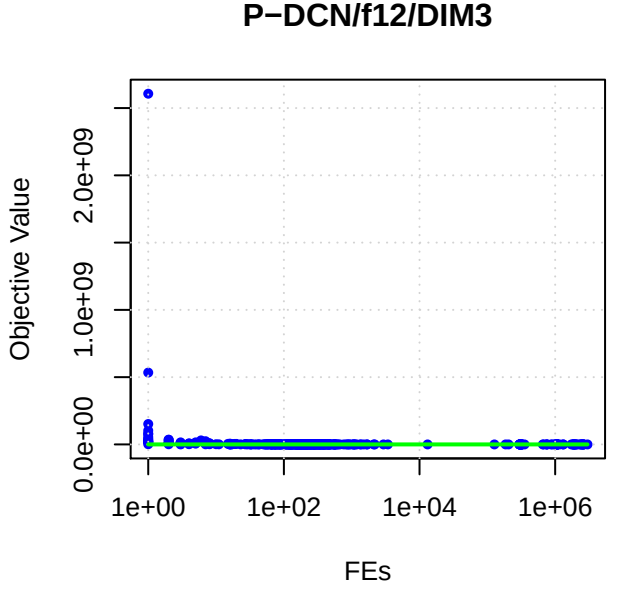
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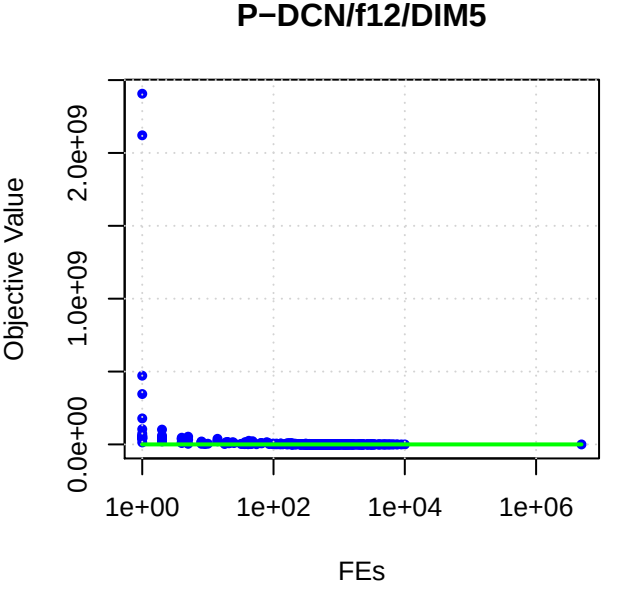
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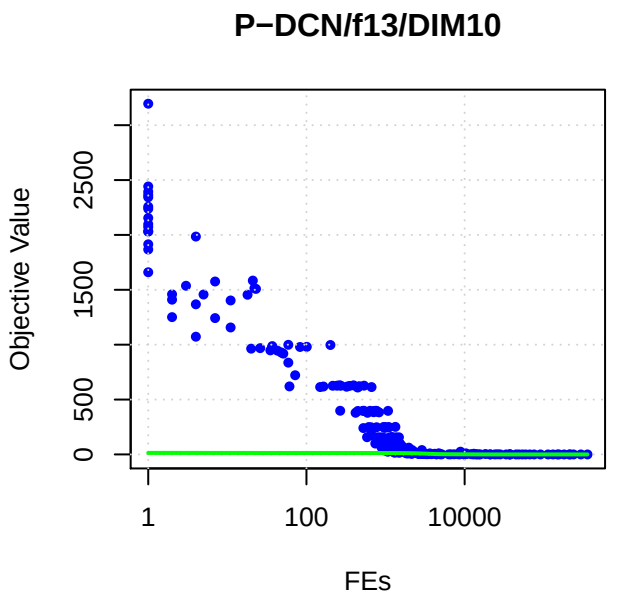
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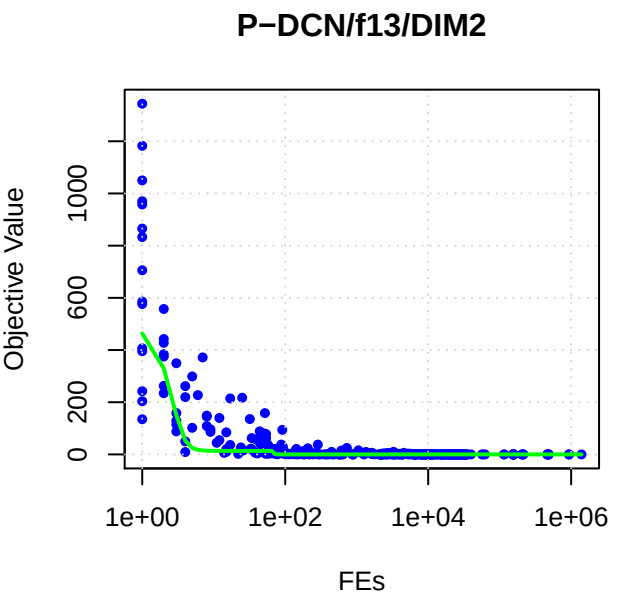
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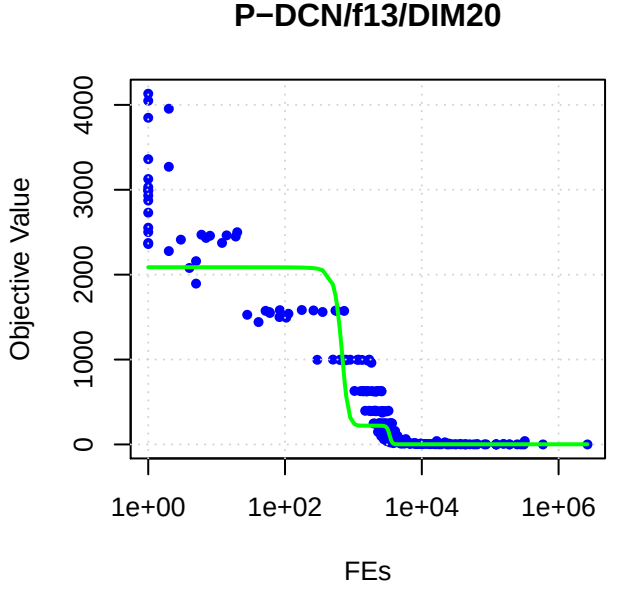
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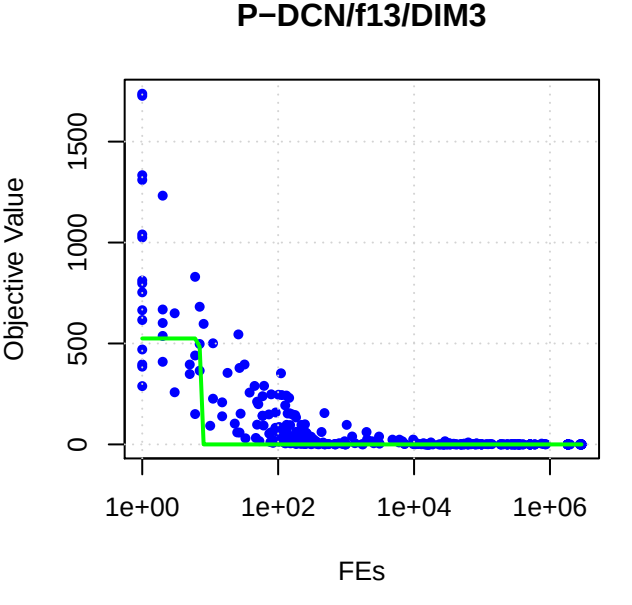
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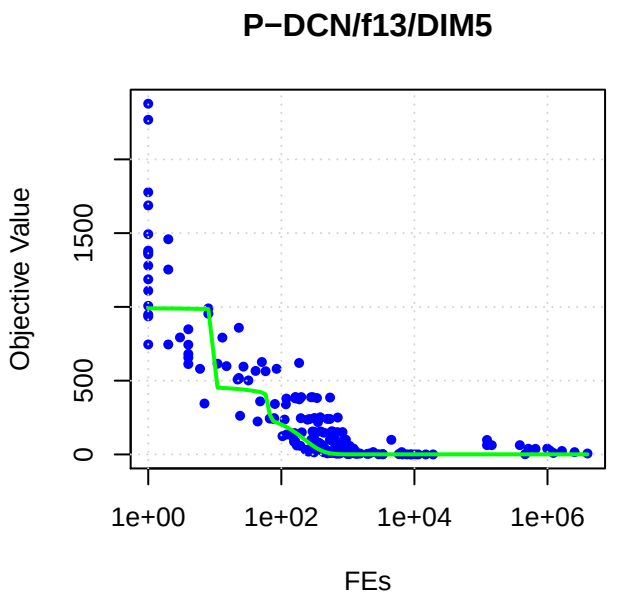
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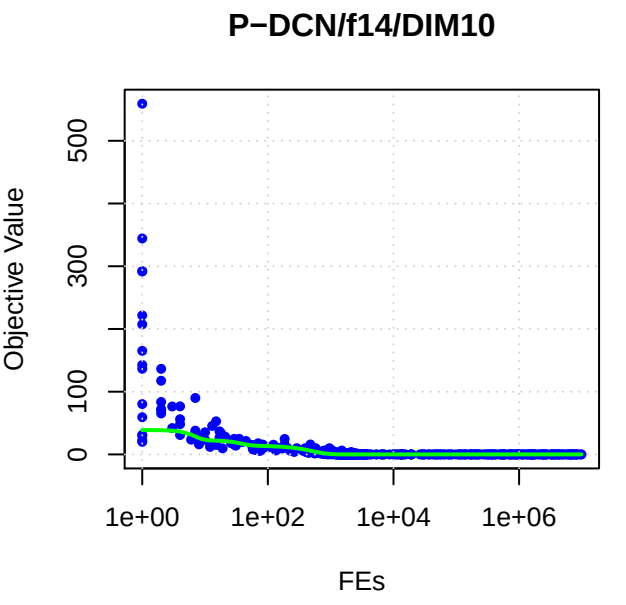
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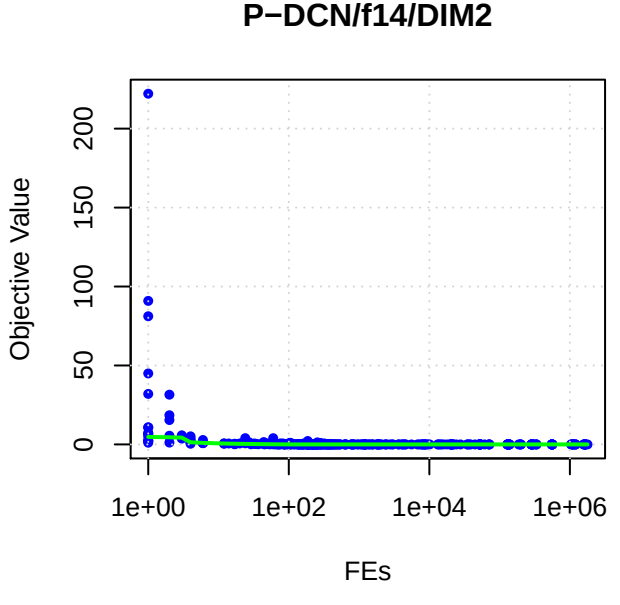
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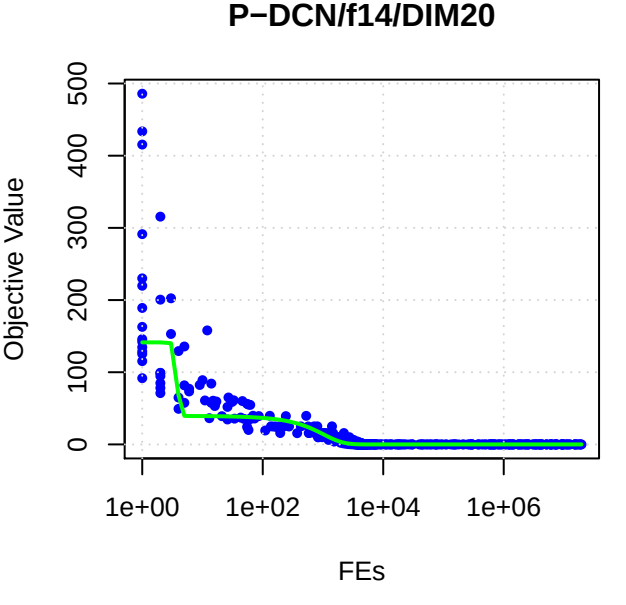
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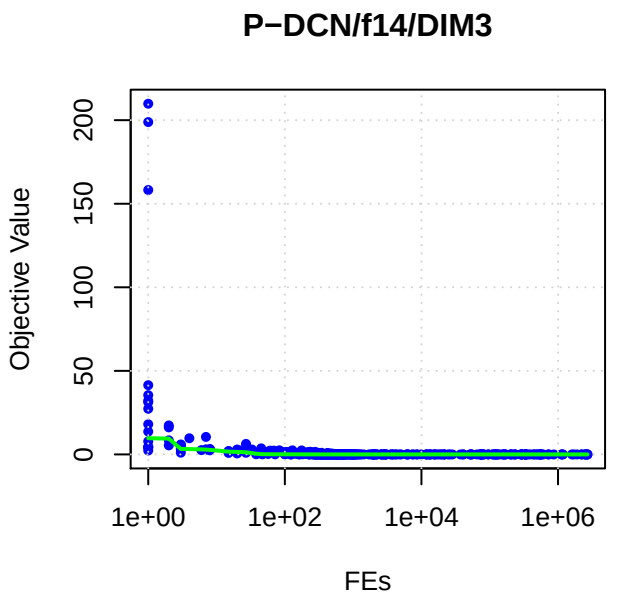
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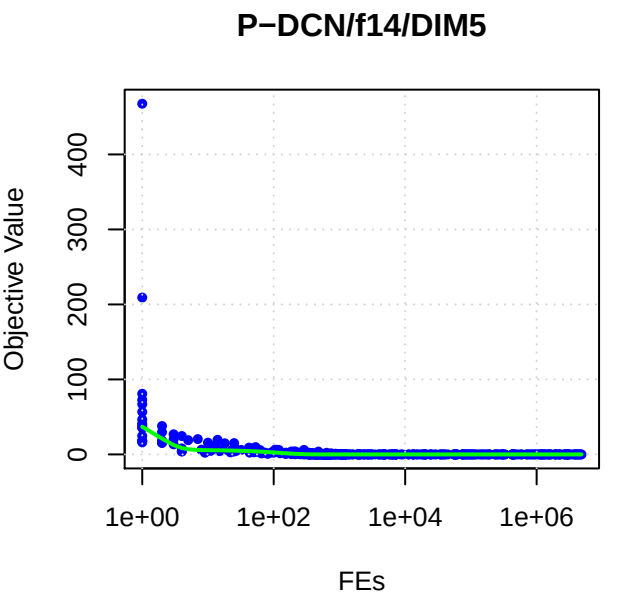
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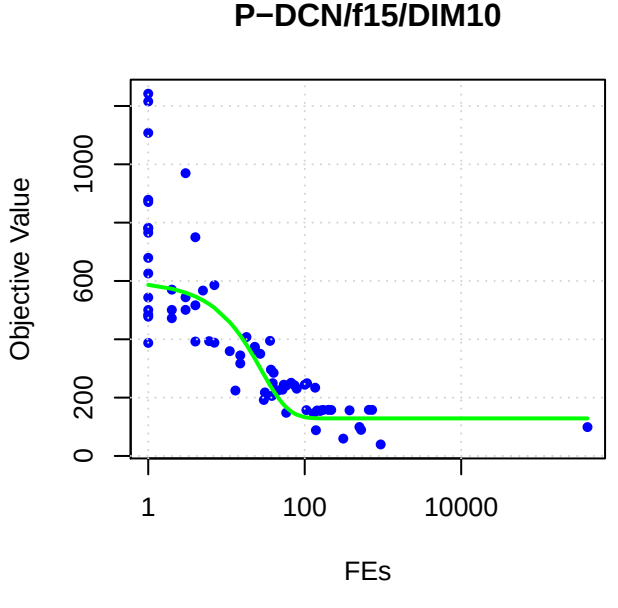
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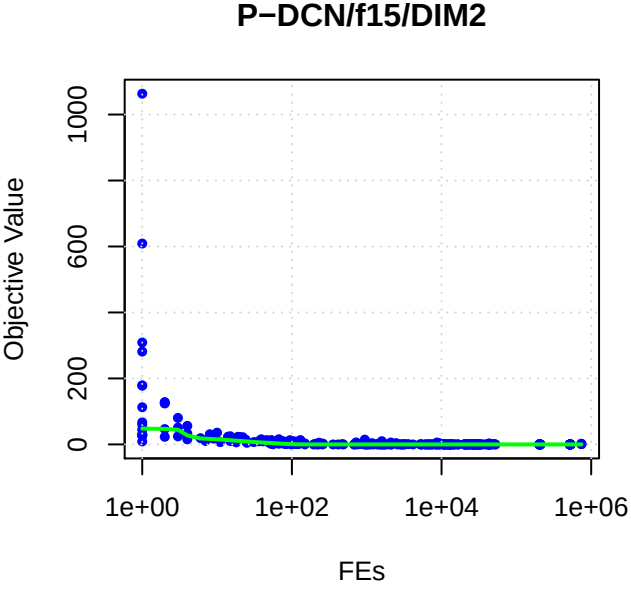
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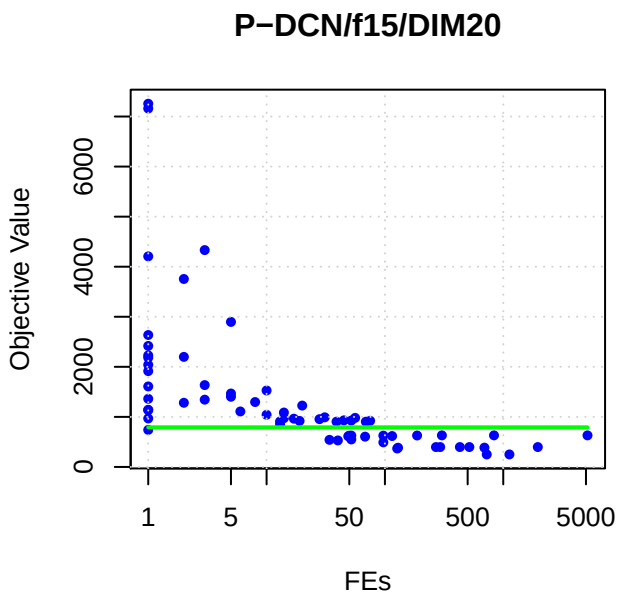
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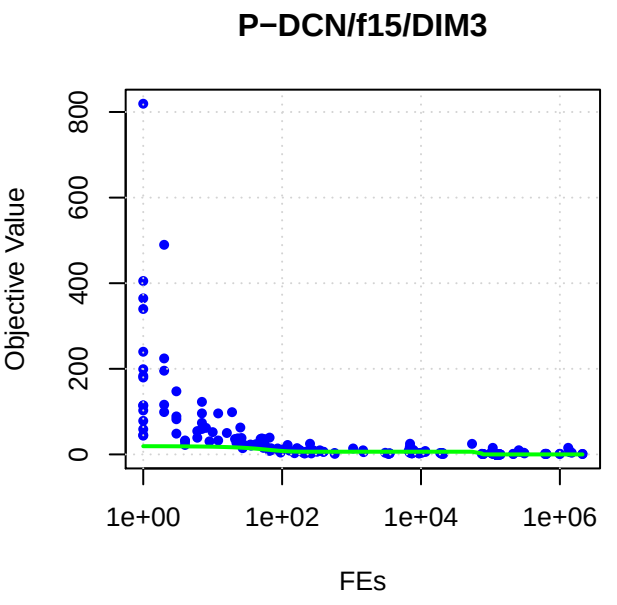
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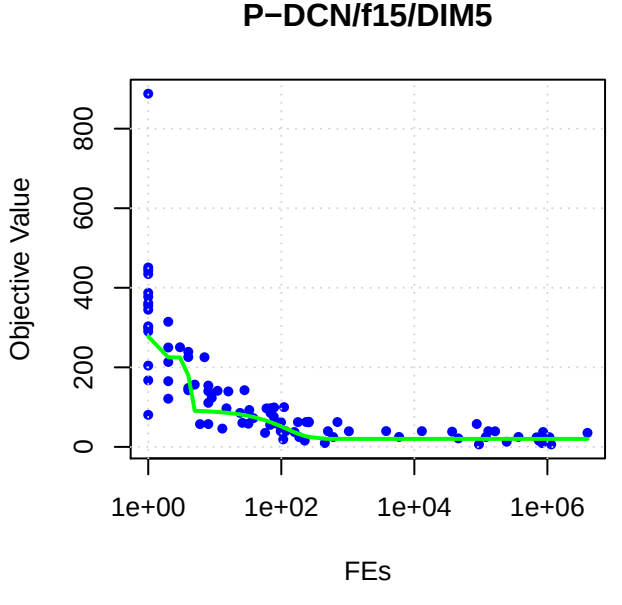
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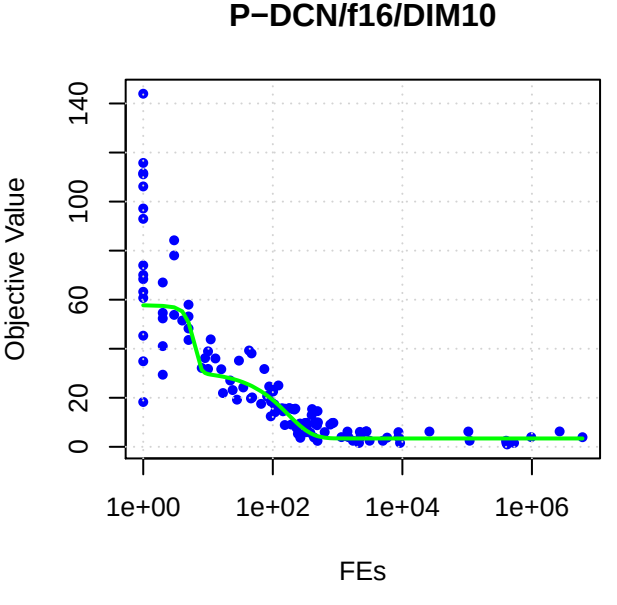
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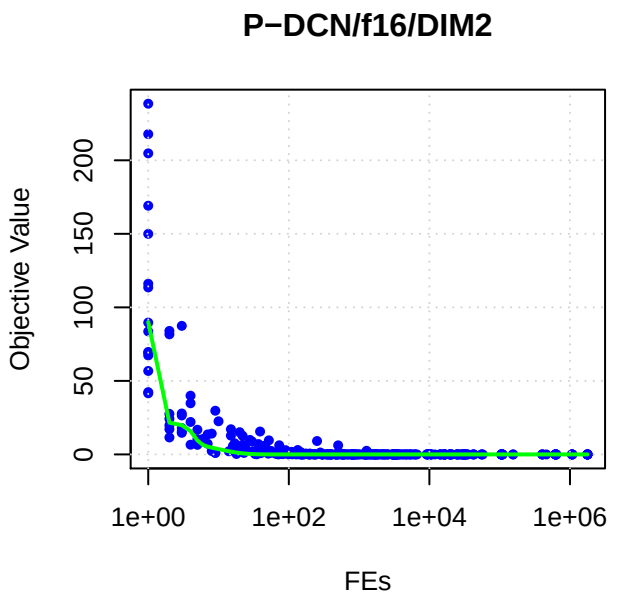
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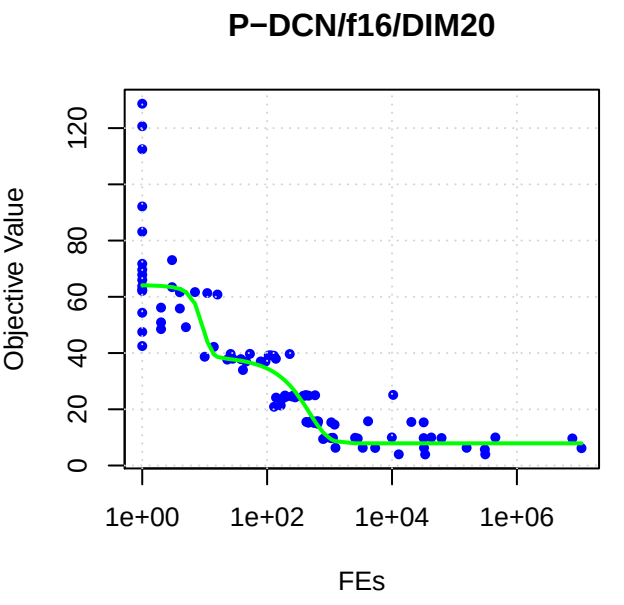
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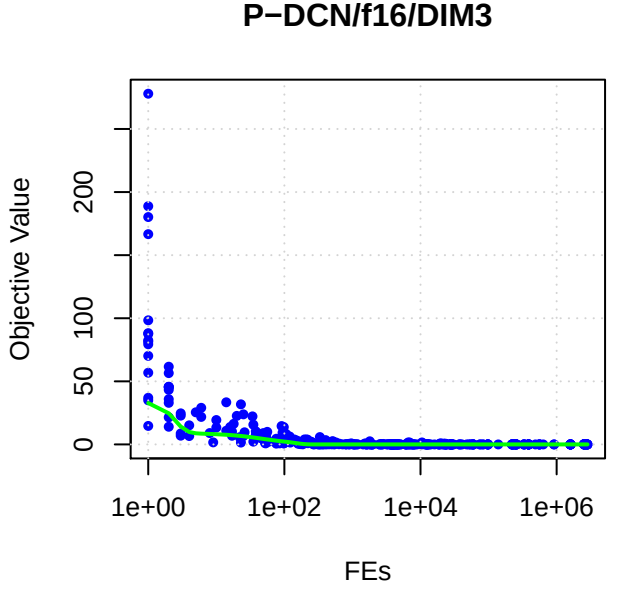
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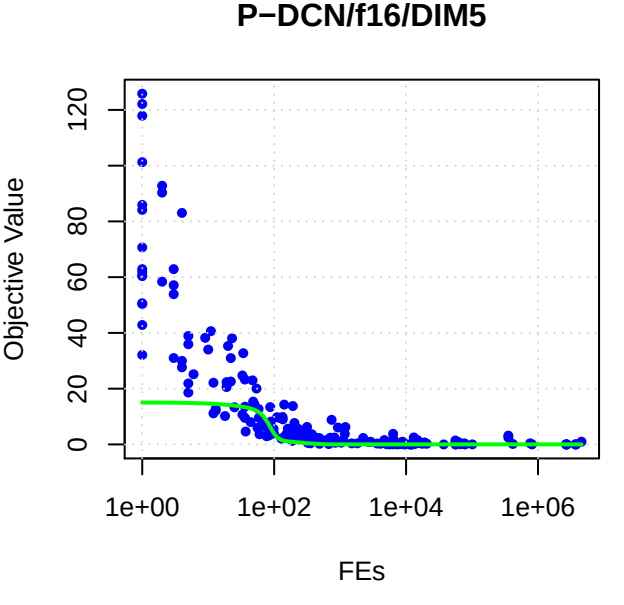
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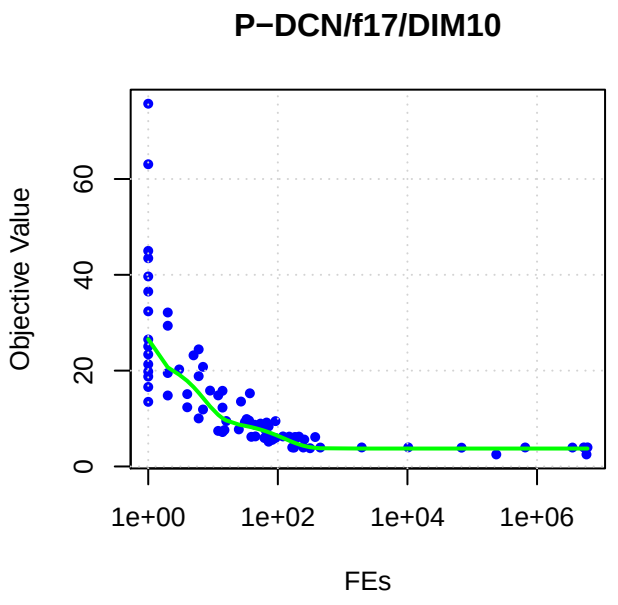
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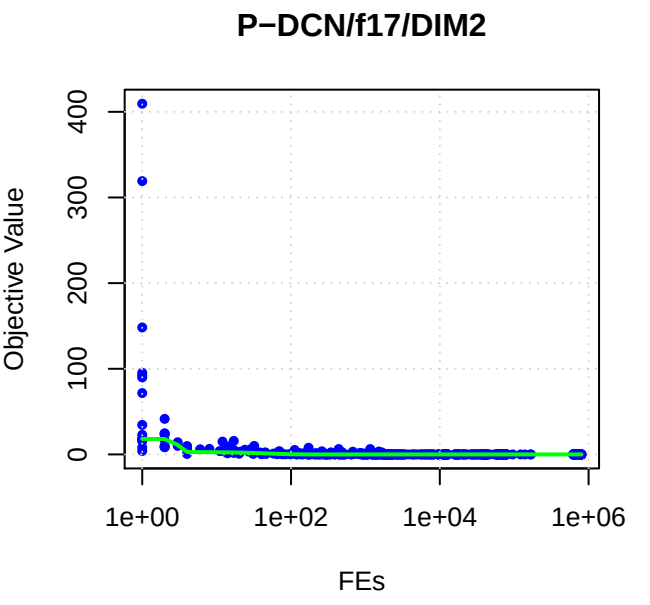
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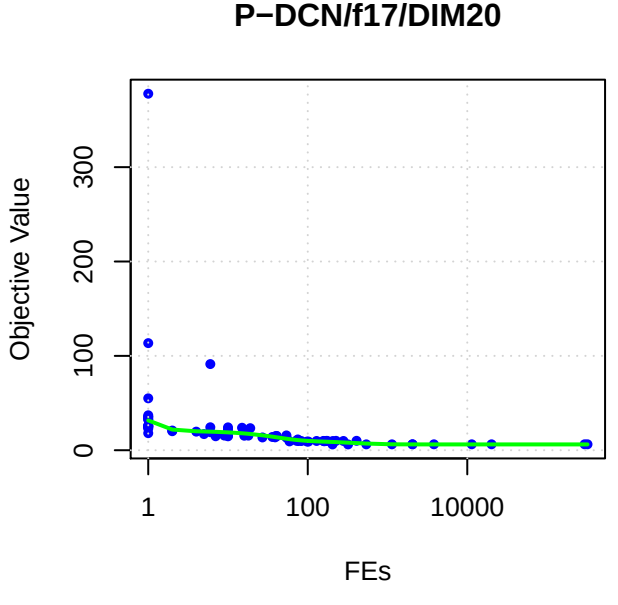
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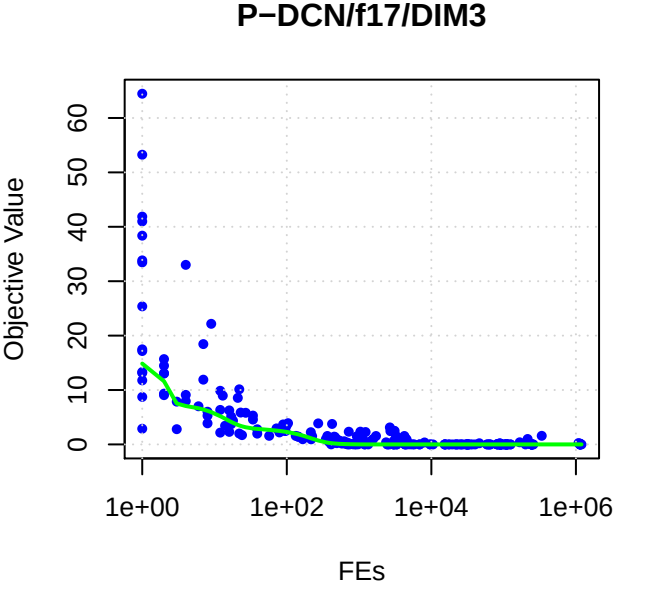
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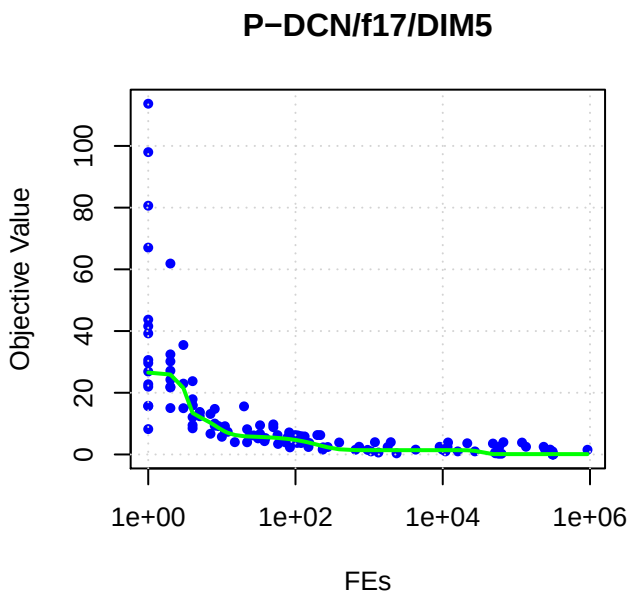
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Objective Value
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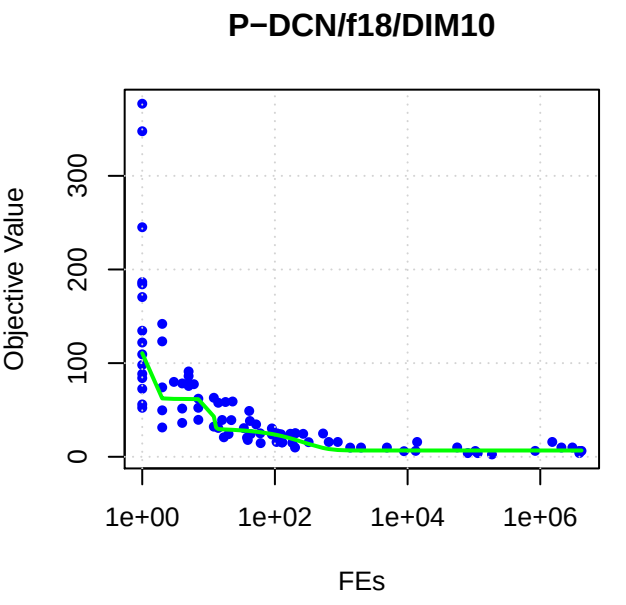
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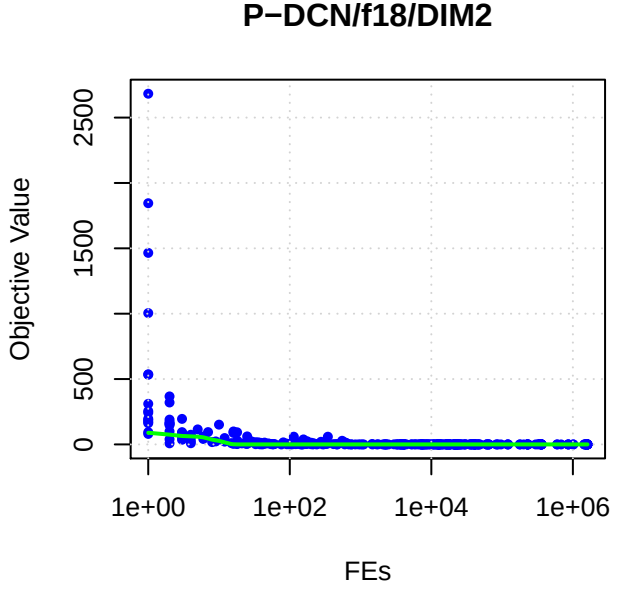
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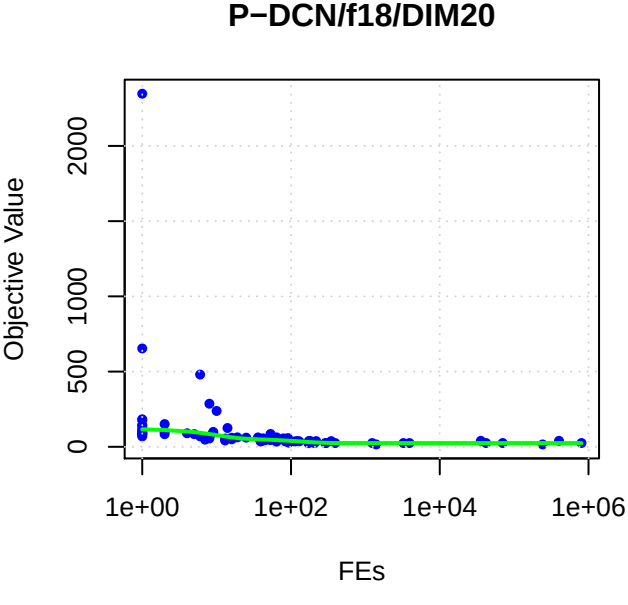
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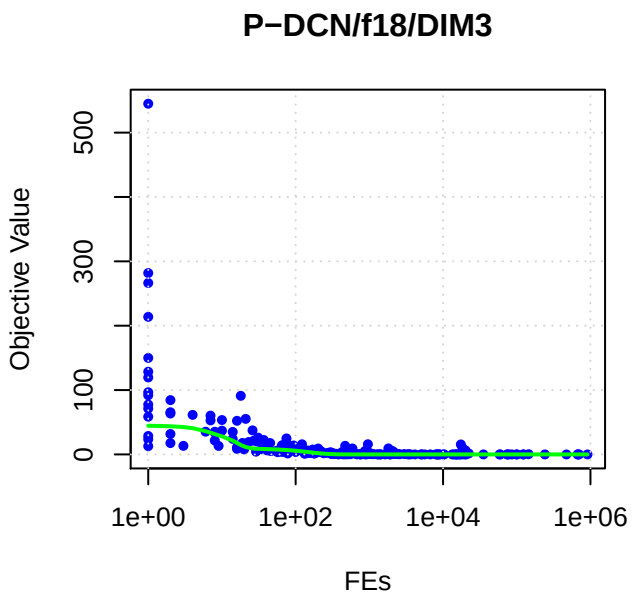
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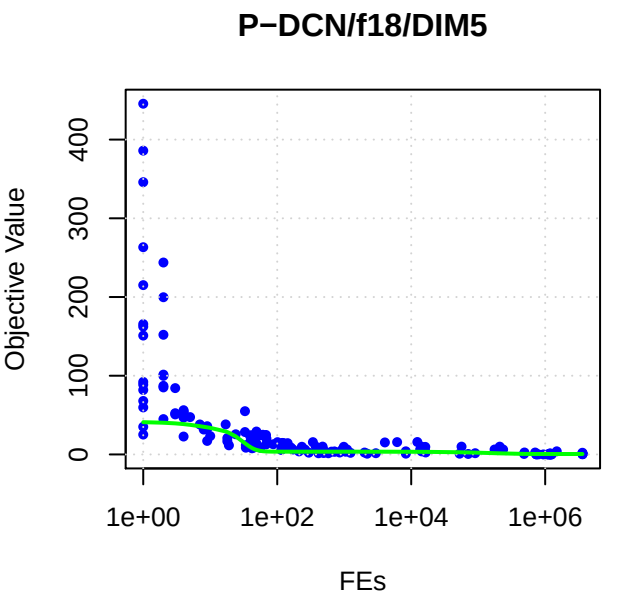
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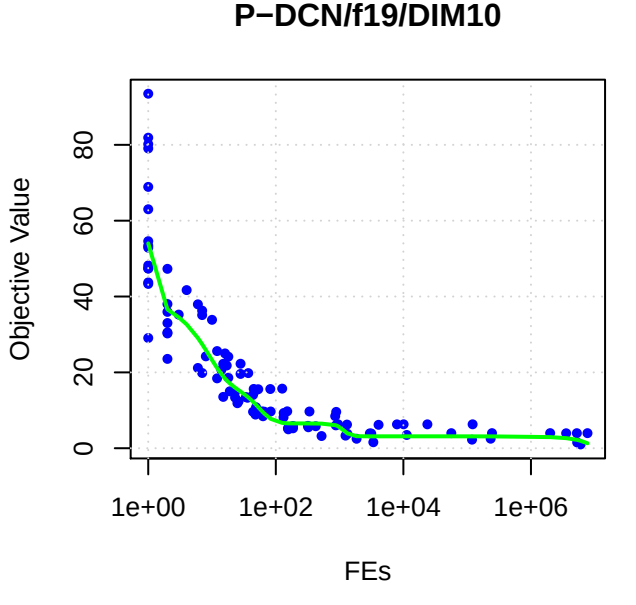
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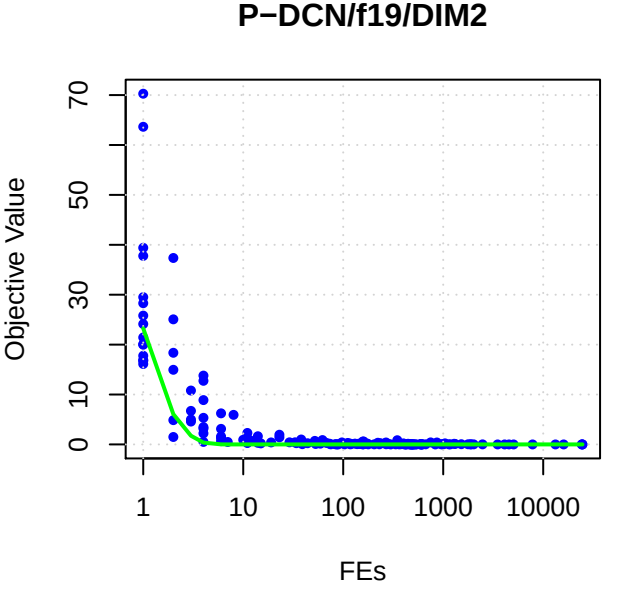
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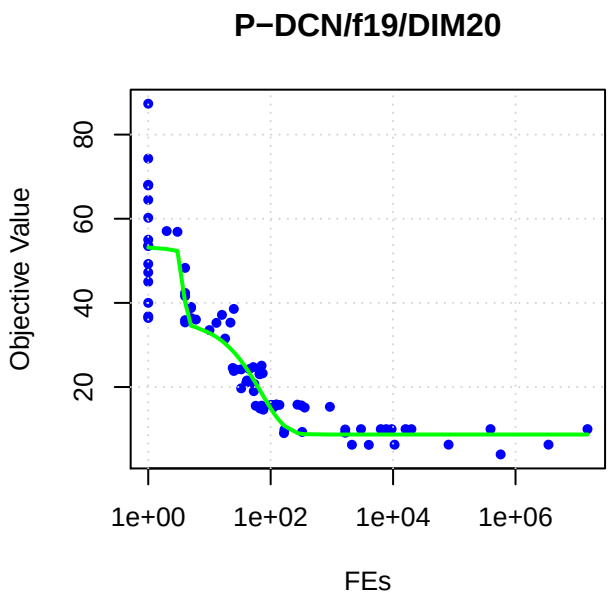
FEs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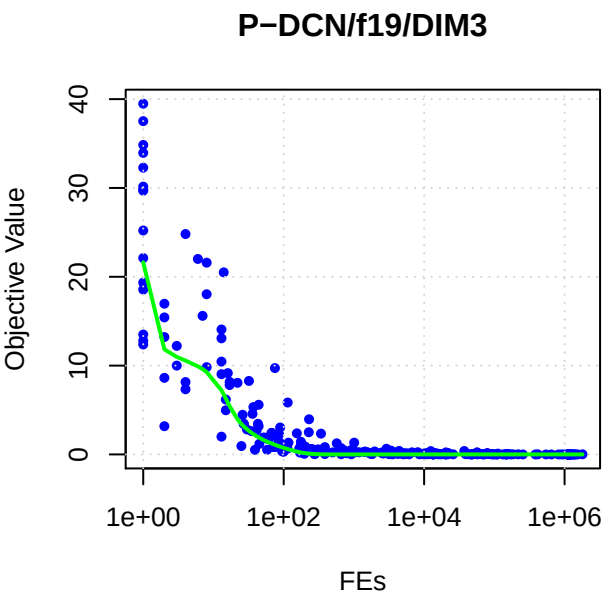
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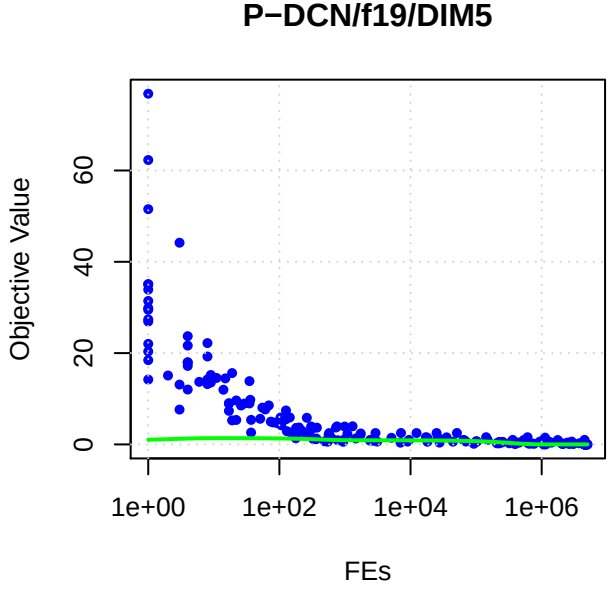
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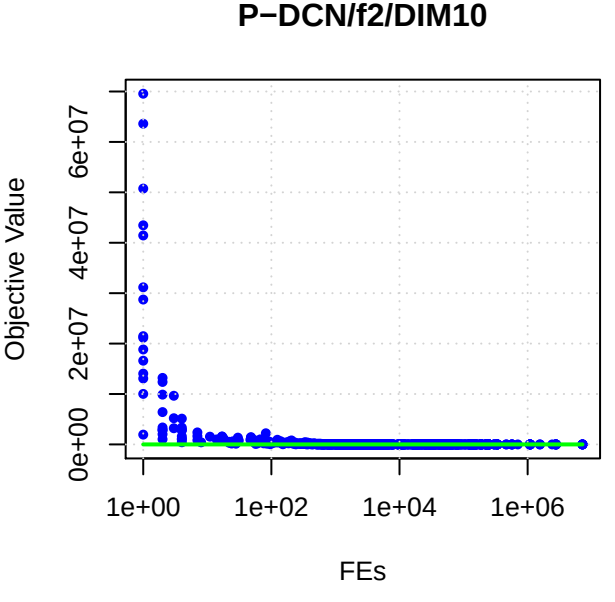
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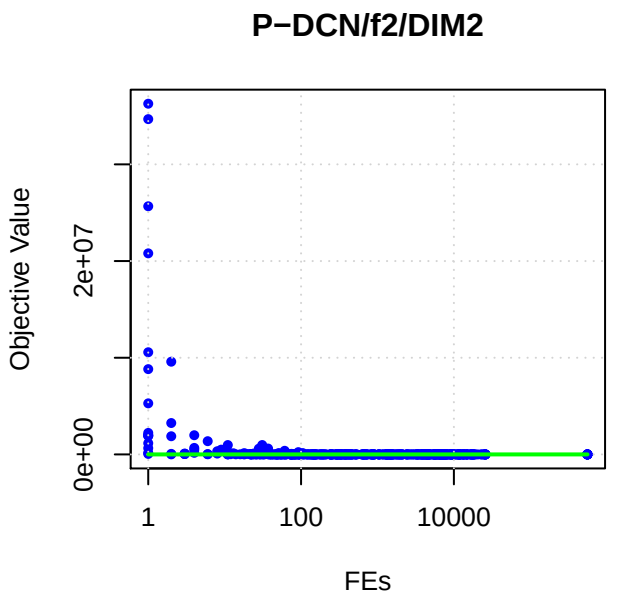
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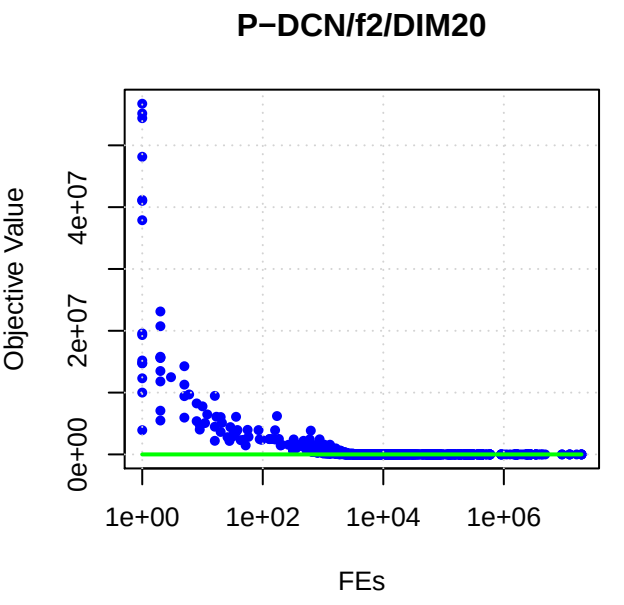
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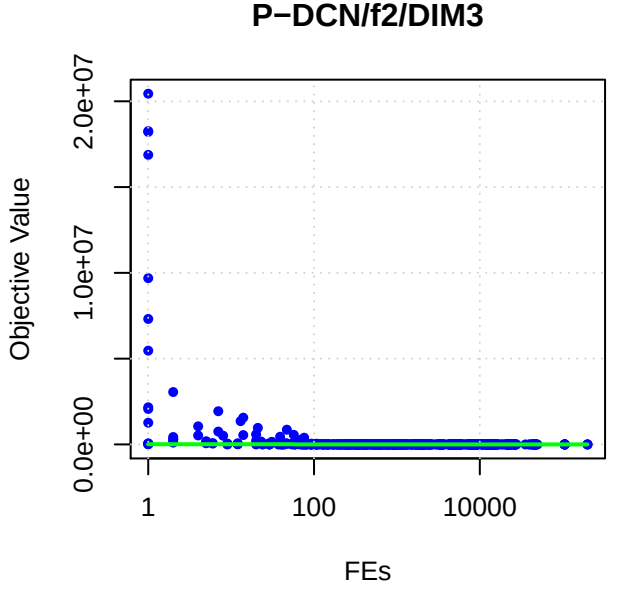
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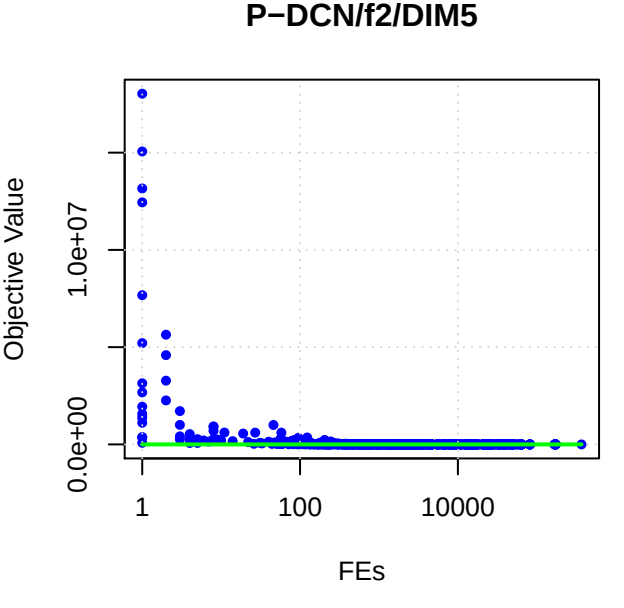
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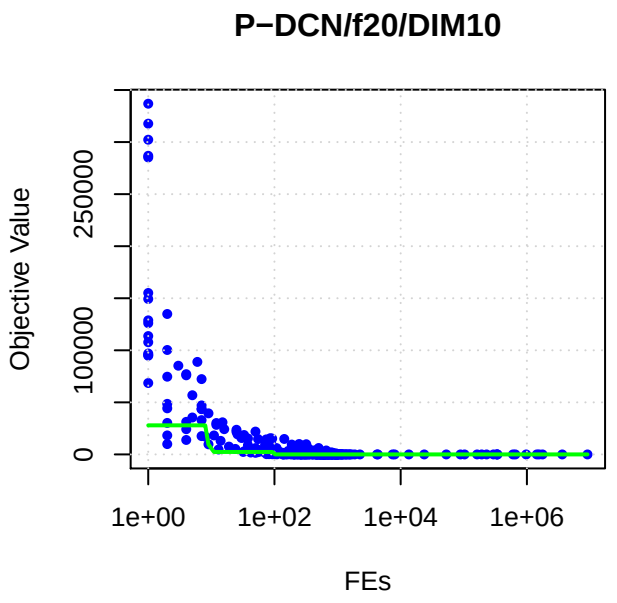
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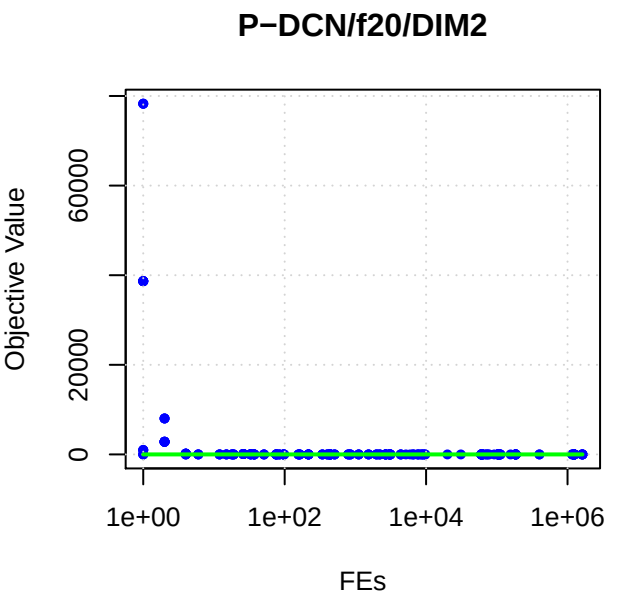
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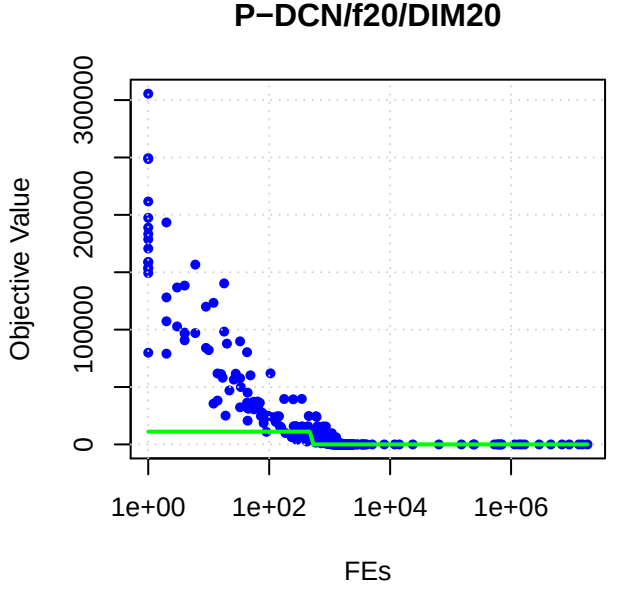
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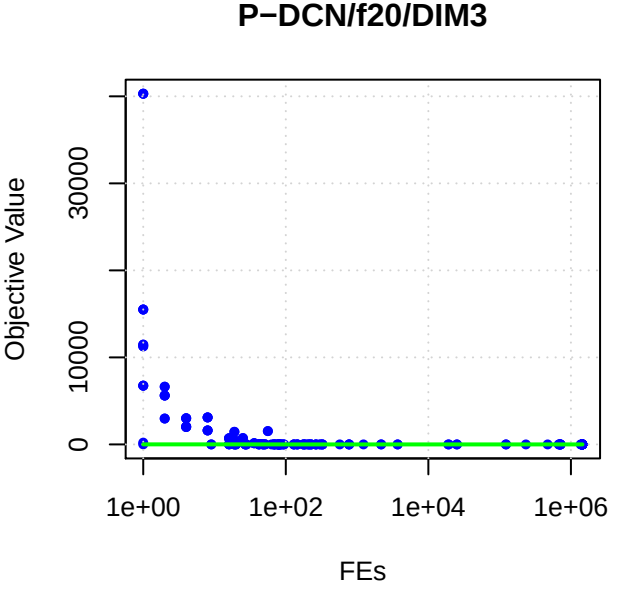
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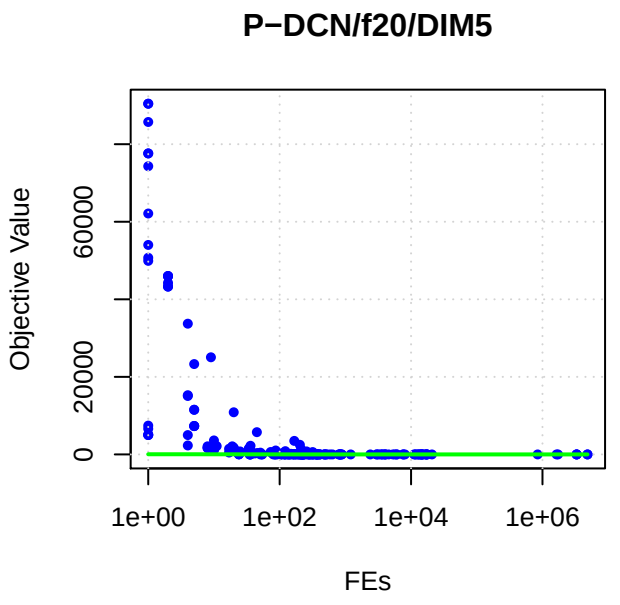
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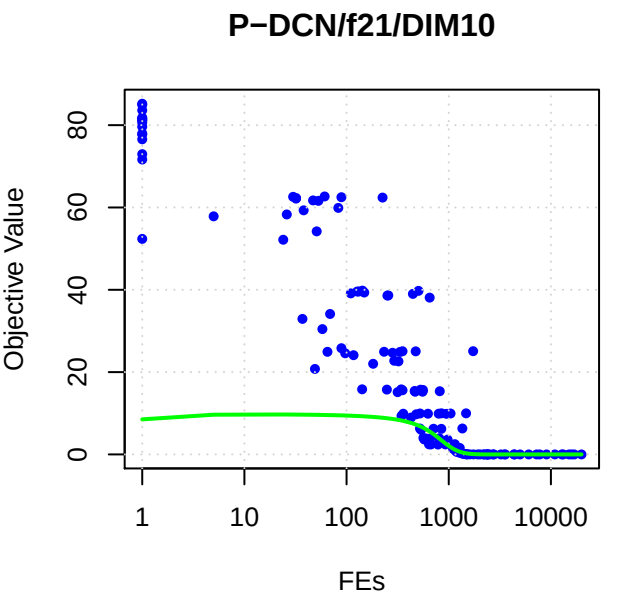
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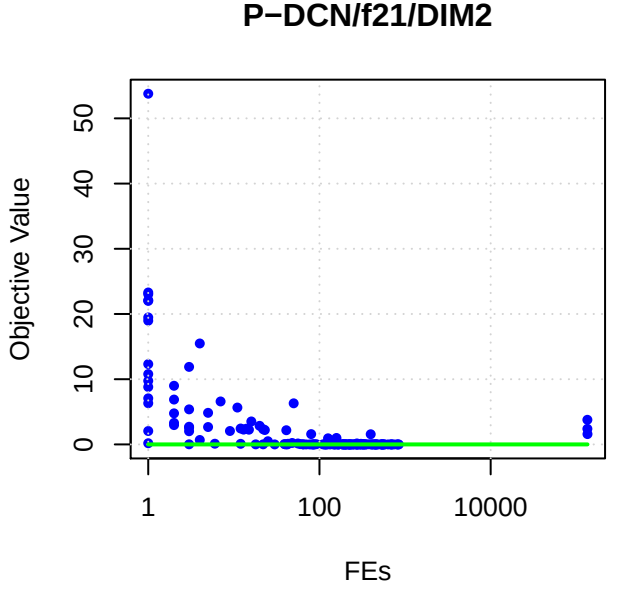
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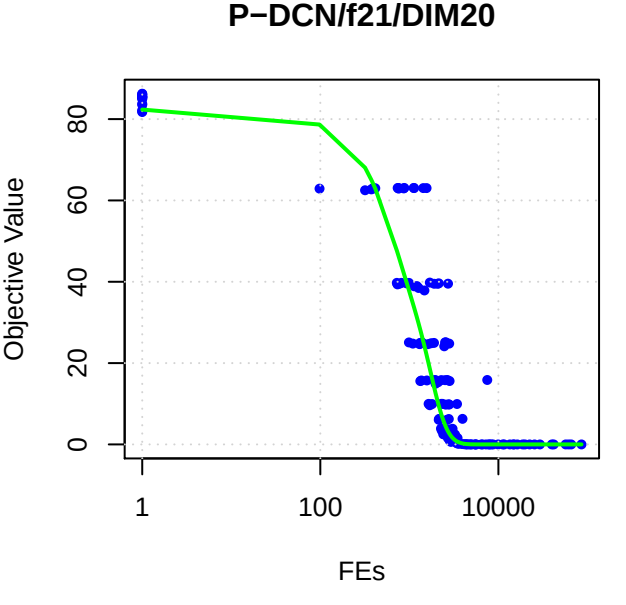
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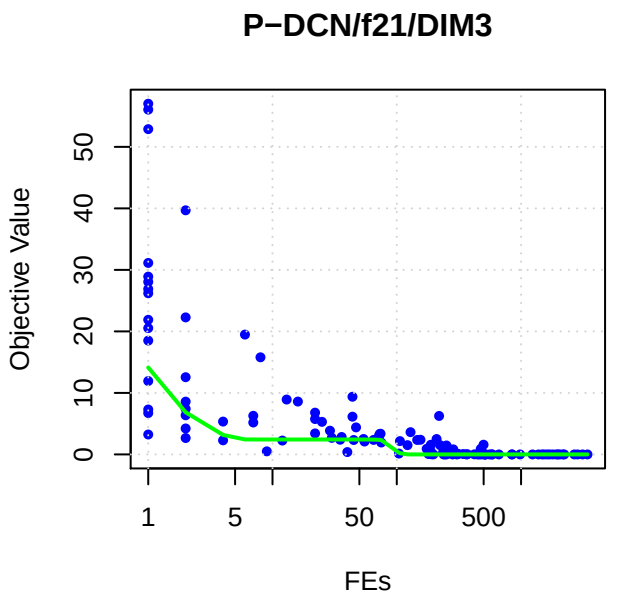
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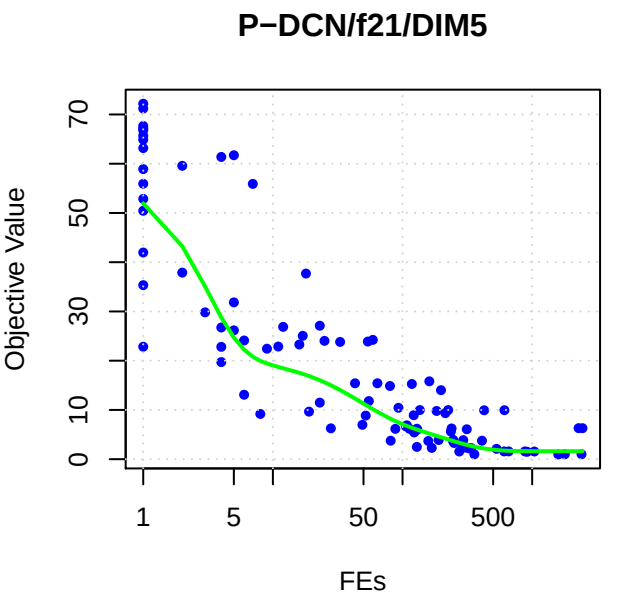
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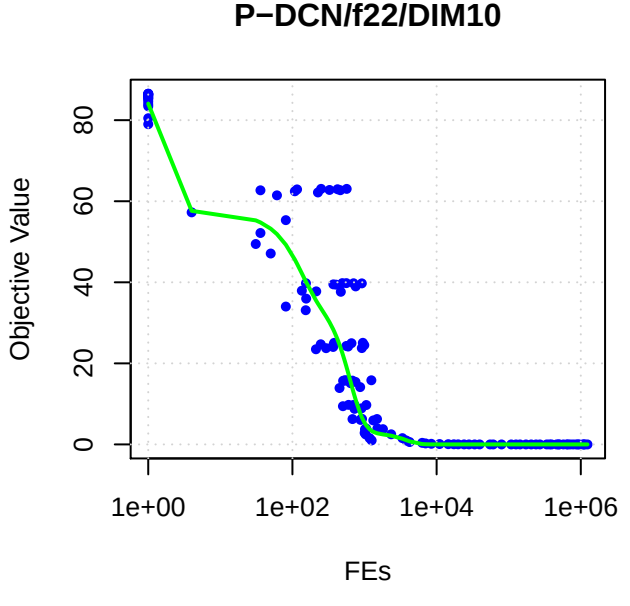
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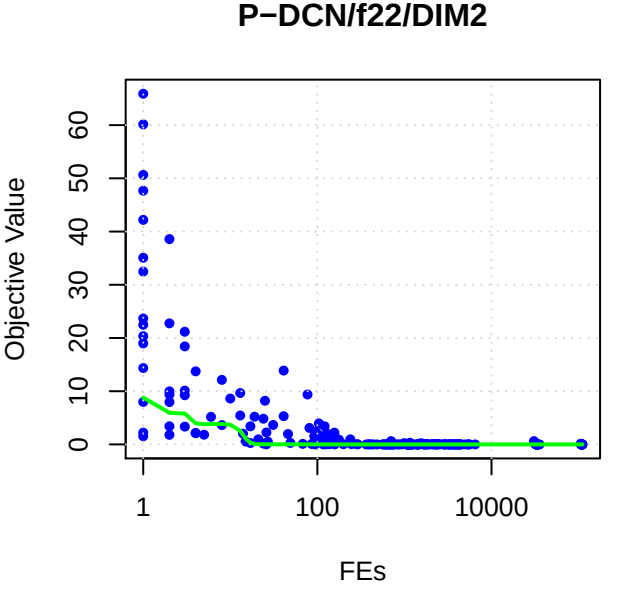
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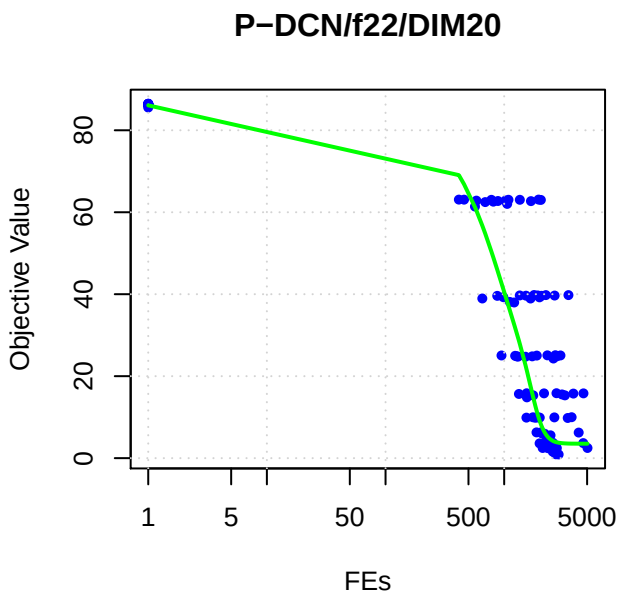
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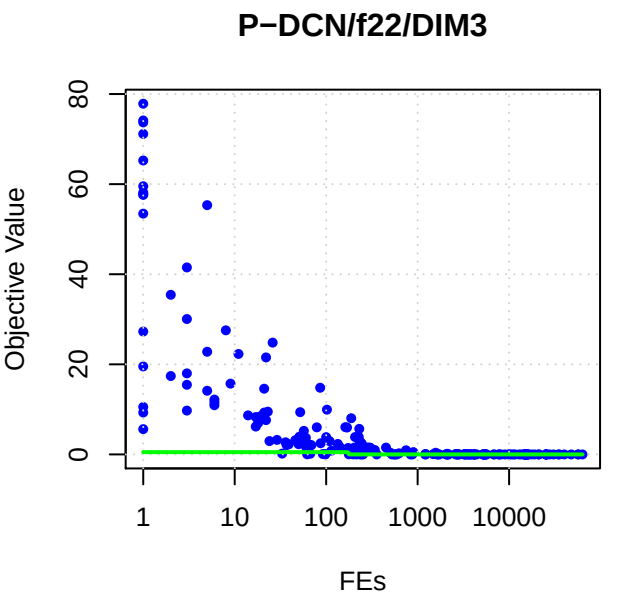
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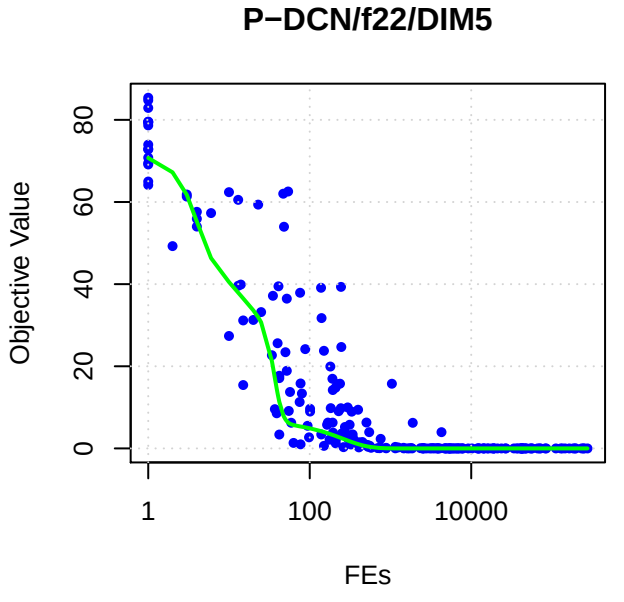
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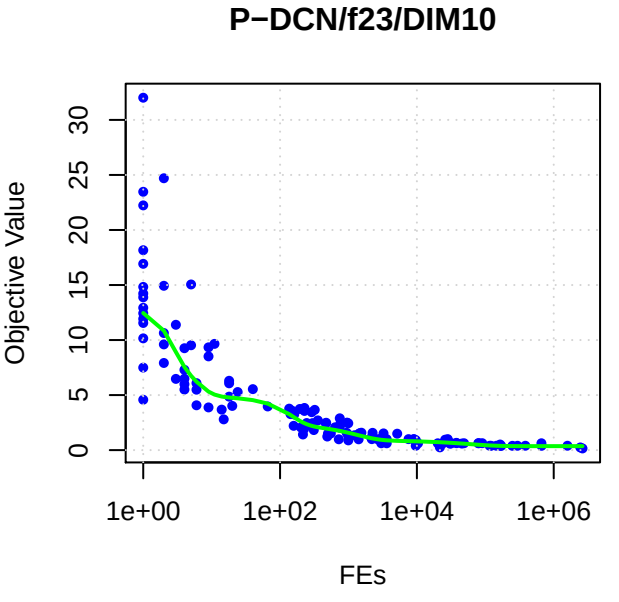
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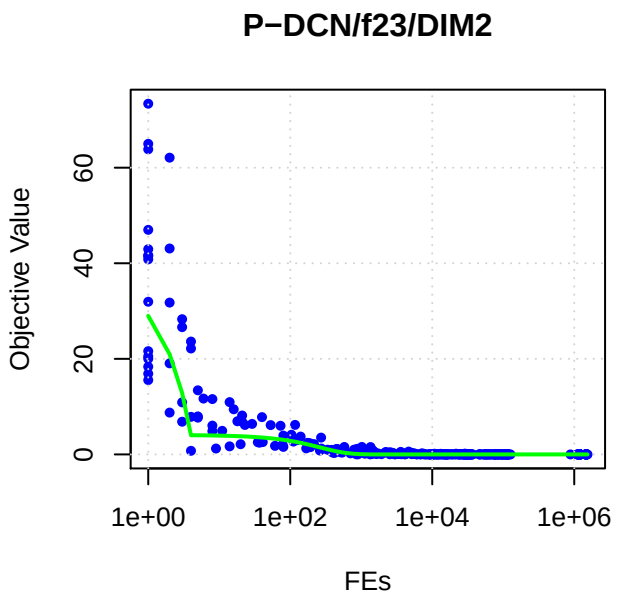
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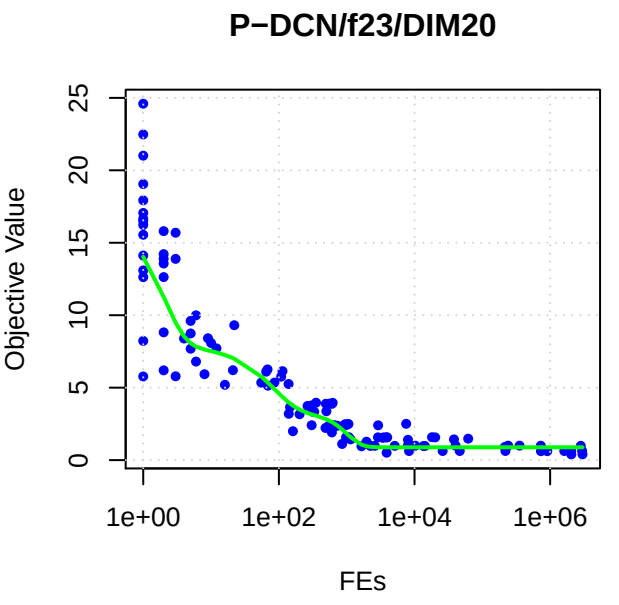
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25
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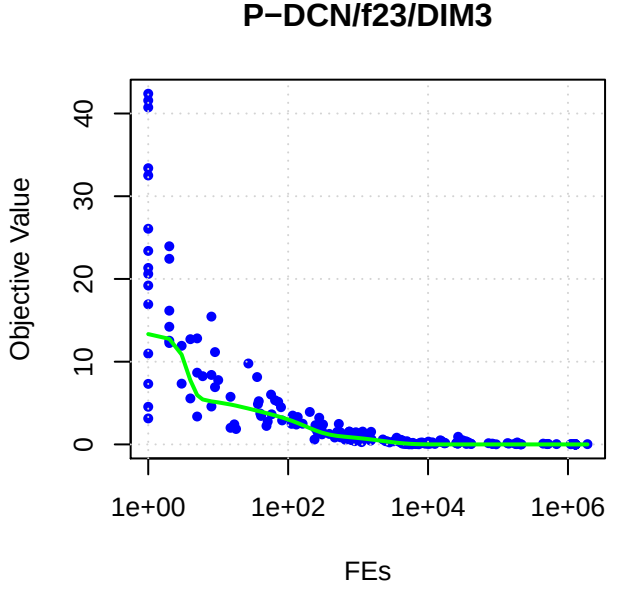
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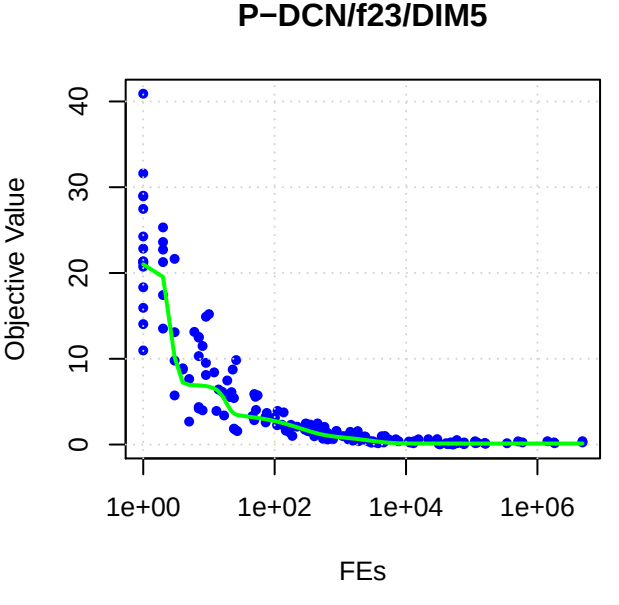
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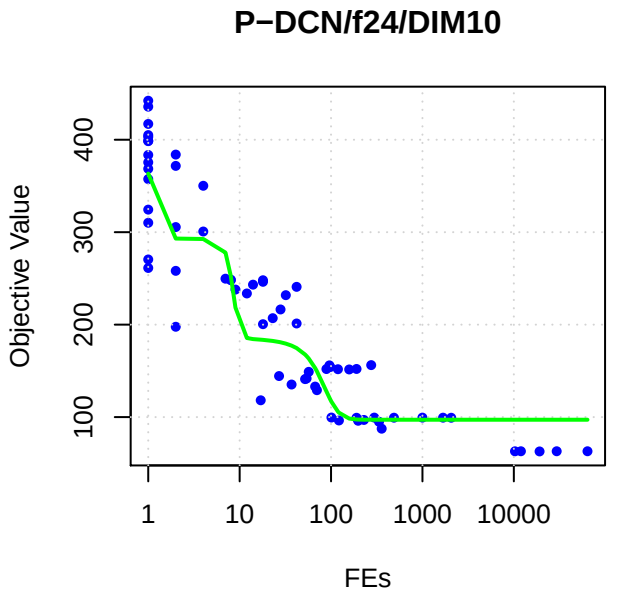
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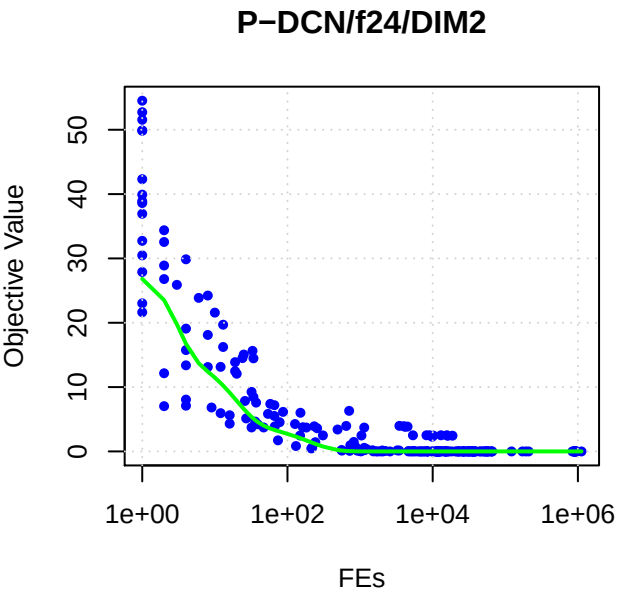
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Objective Value
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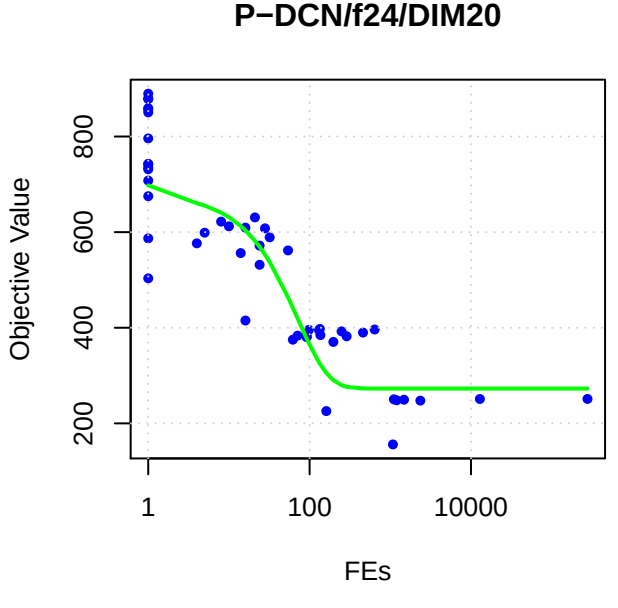
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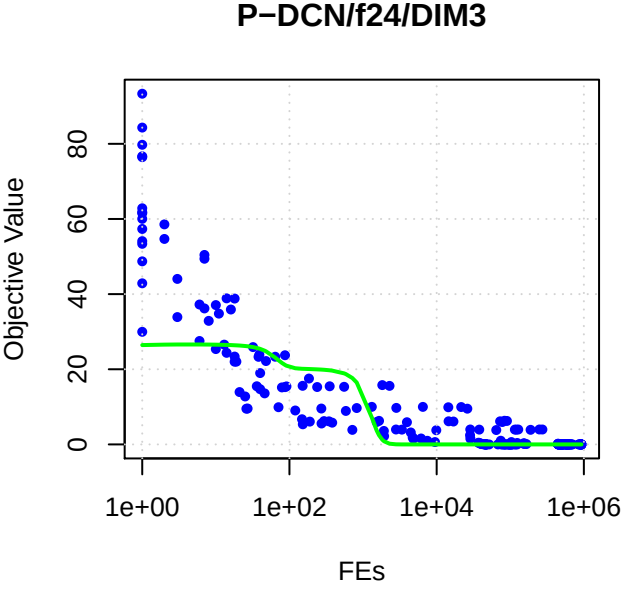
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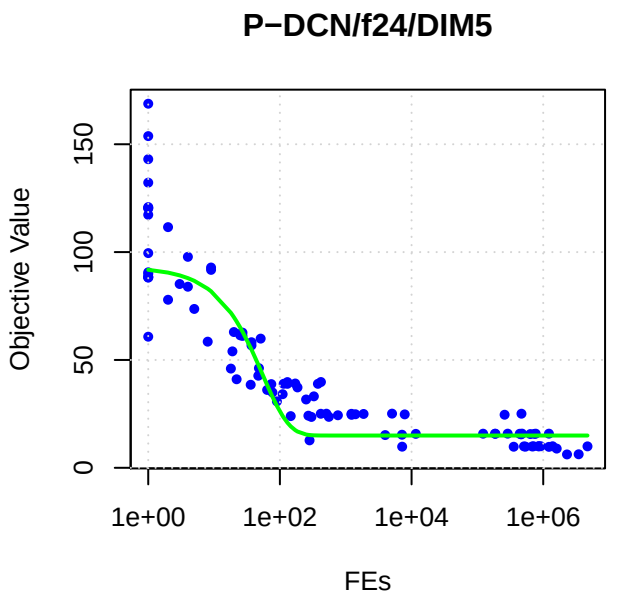
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1e+06
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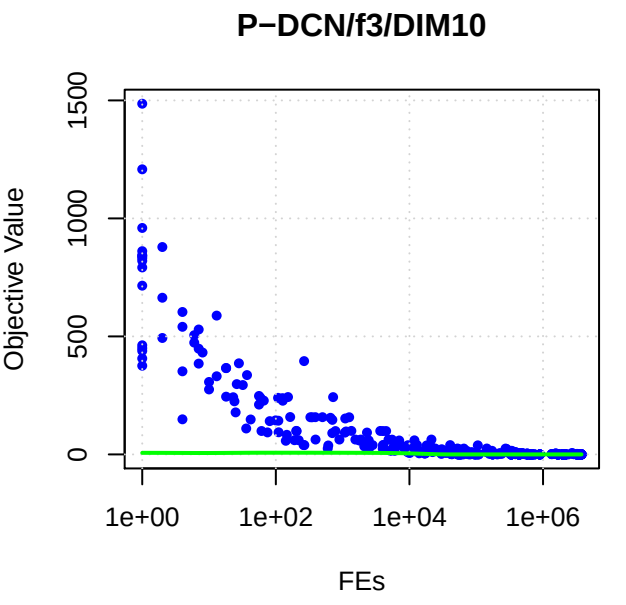
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Objective Value
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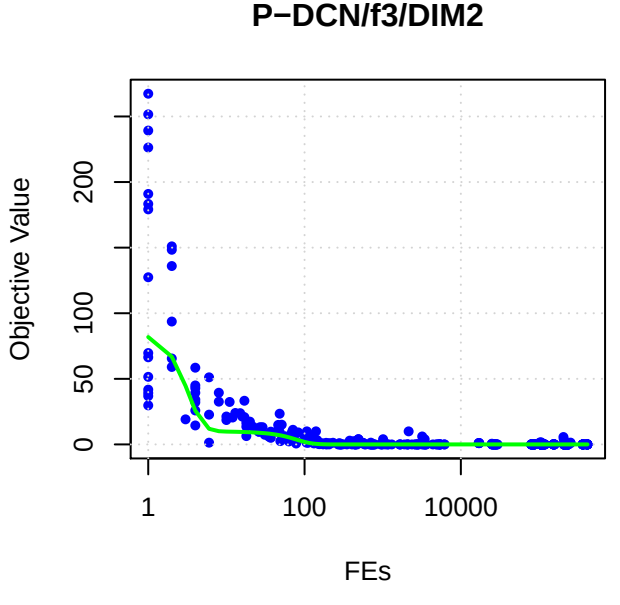
1e+06
FEs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Objective Value
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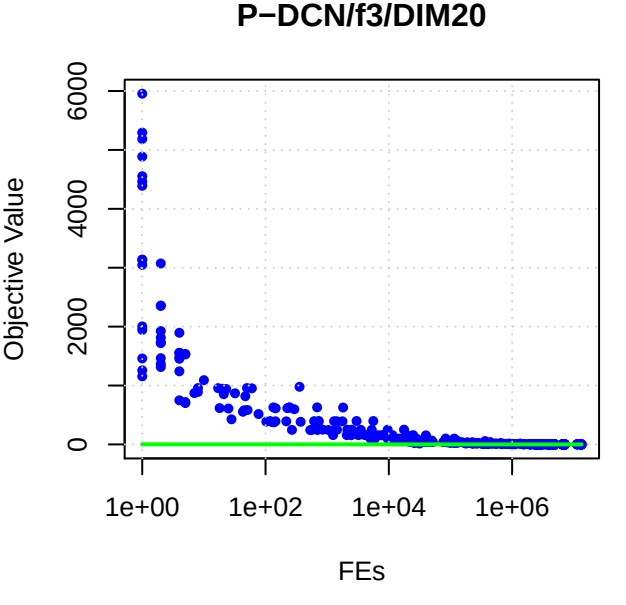
1
100
10000
FEs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Objective Value
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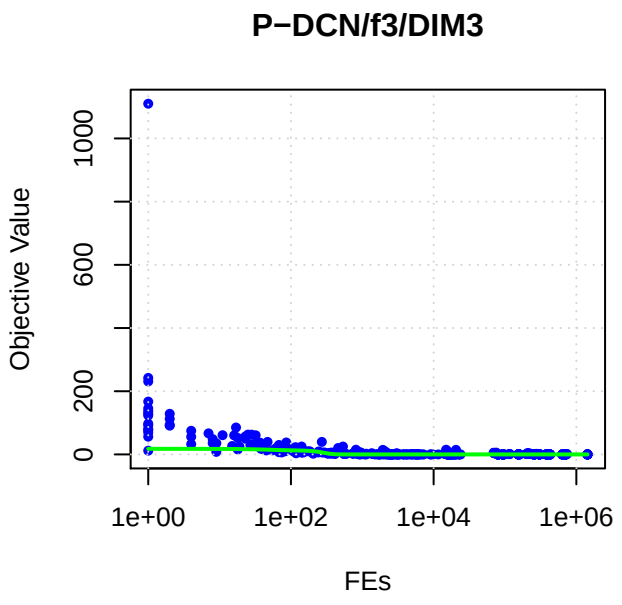
1e+06
FEs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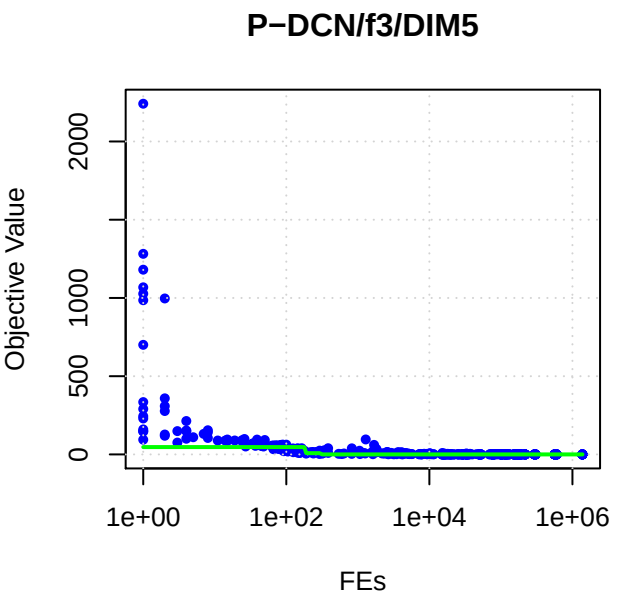
P−DCN/f3/DIM5
Objective Value
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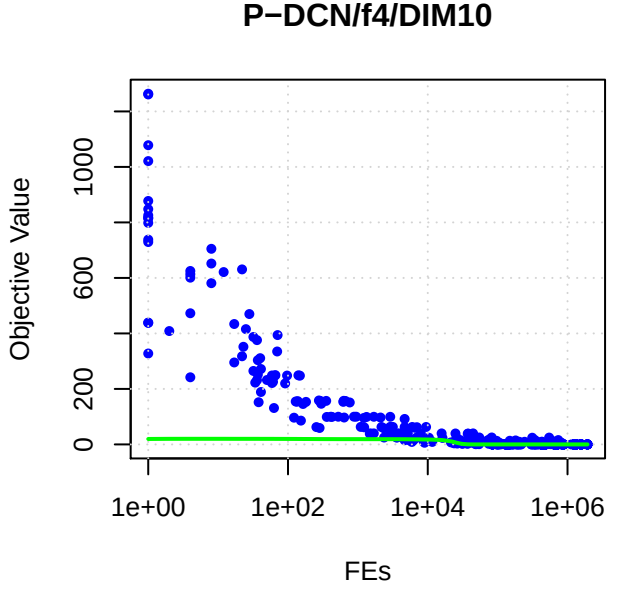
1e+02
1e+04
1e+06
FEs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Objective Value
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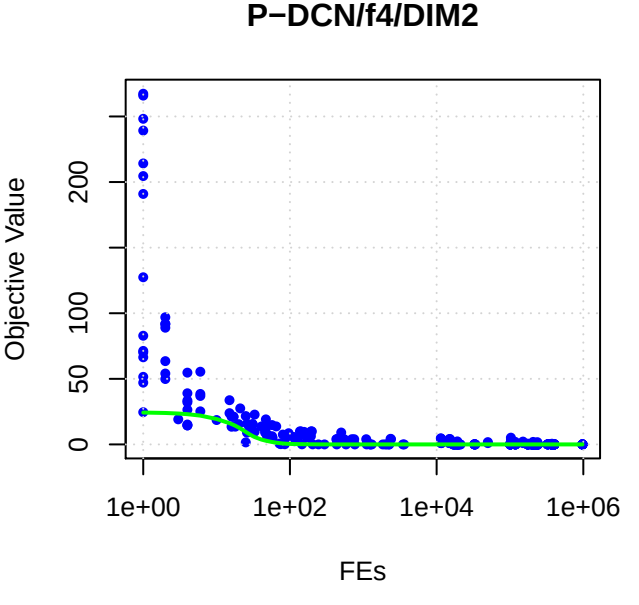
1000
1e+00
1e+02
1e+04
1e+06
FEs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Objective Value
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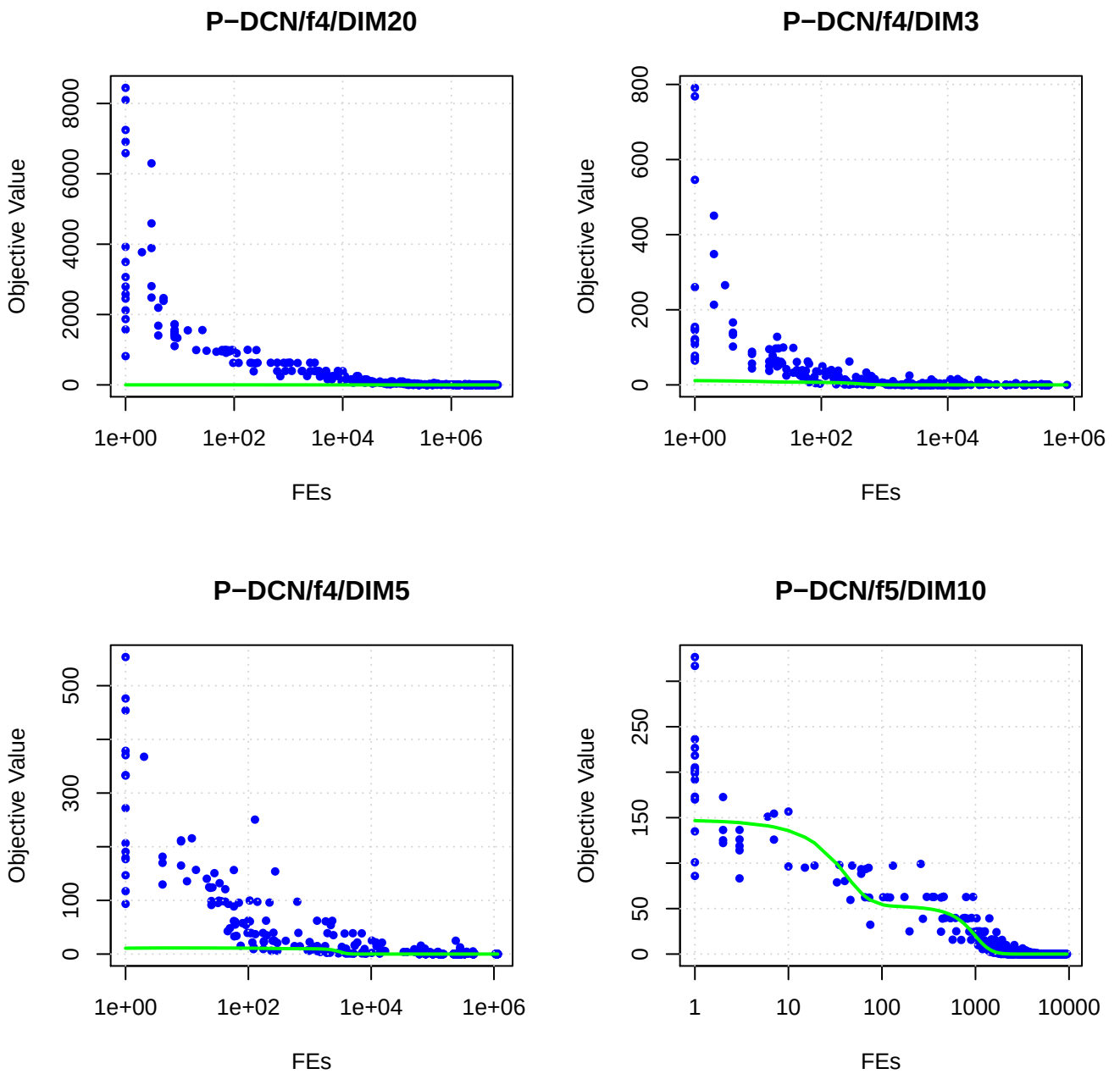
1e+06
FEs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Objective Value
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1e+06
FEs
P−DCN/f4/DIM3
Objective Value
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400
600
800
1e+00
1e+02
1e+04
1e+06
FEs
P−DCN/f4/DIM5
Objective Value
0
100
300
500
1e+00
1e+02
1e+04
1e+06
FEs
P−DCN/f5/DIM10
Objective Value
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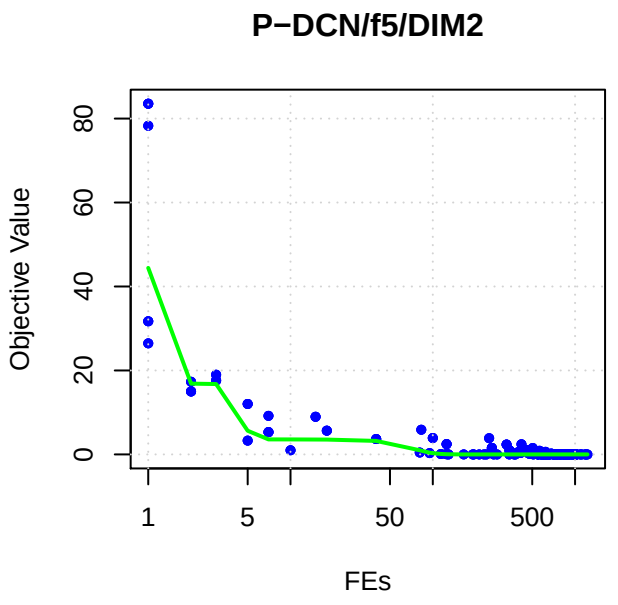
250
1
10
100
1000
10000
FEs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Objective Value
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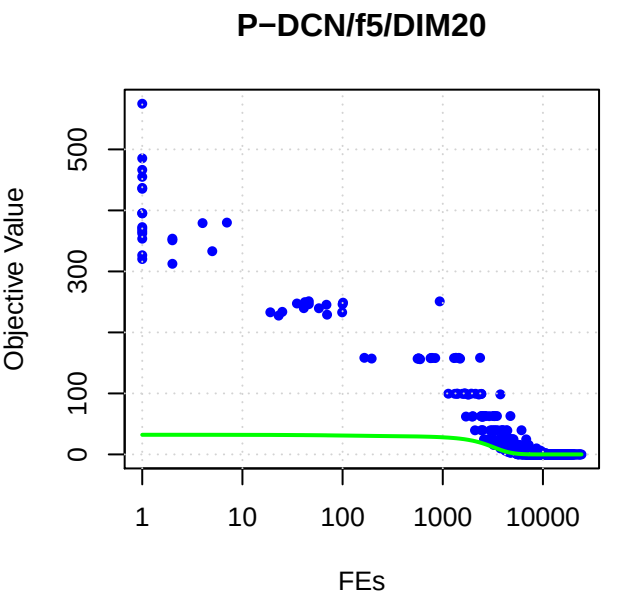
FEs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1
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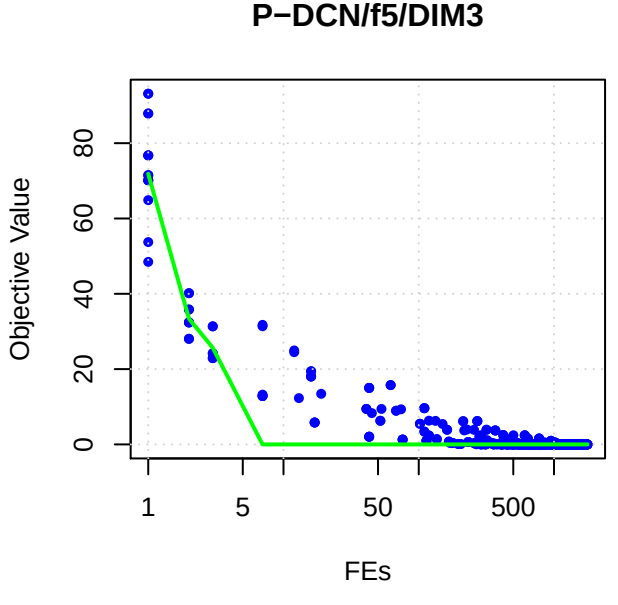
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Objective Value
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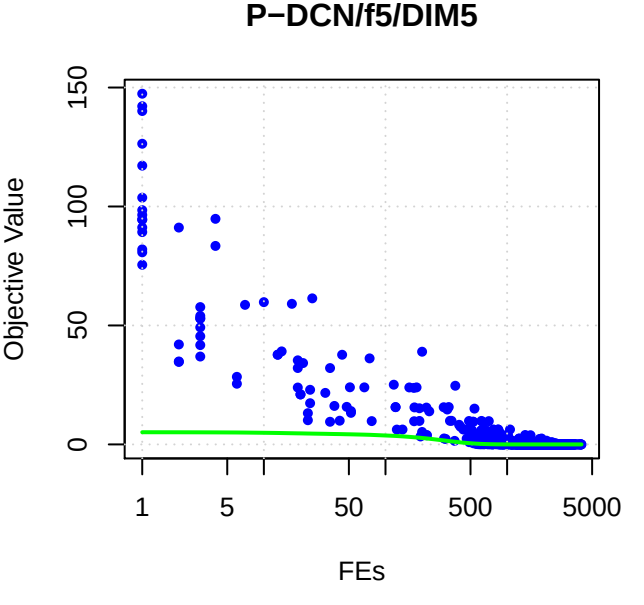
50
500
FEs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Objective Value
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1
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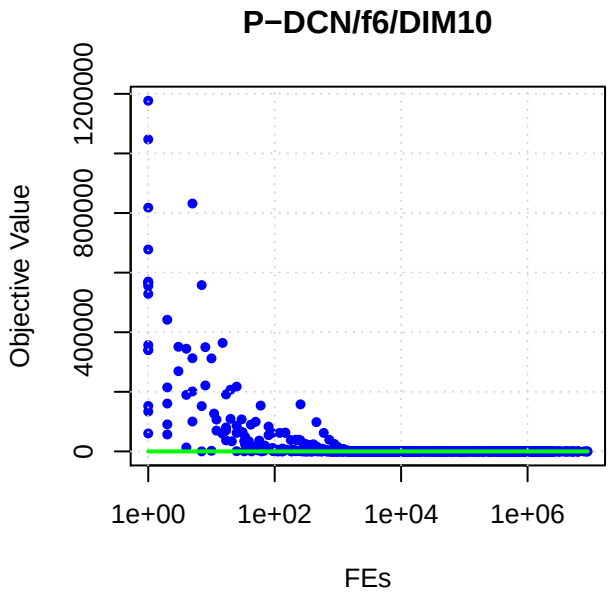
50
500
5000
FEs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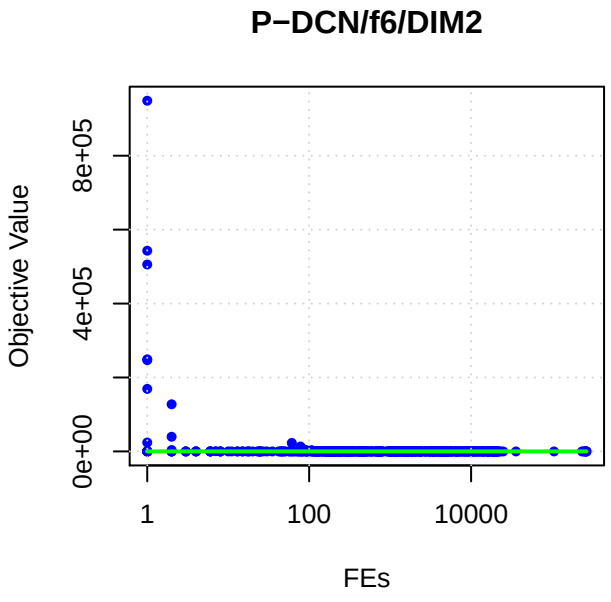
FEs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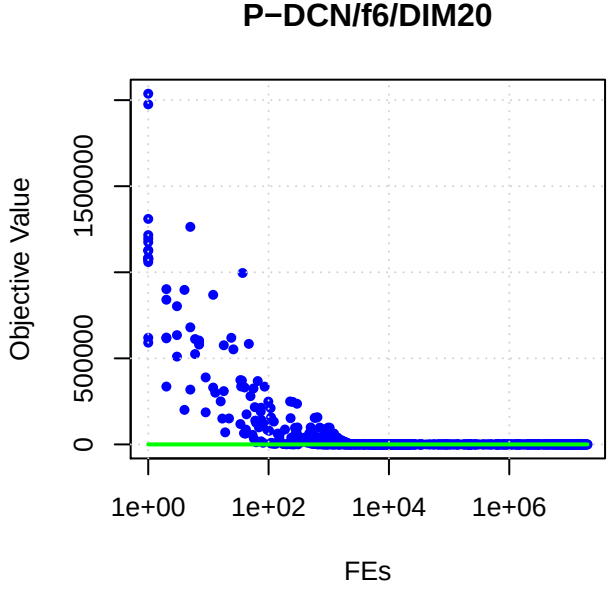
FEs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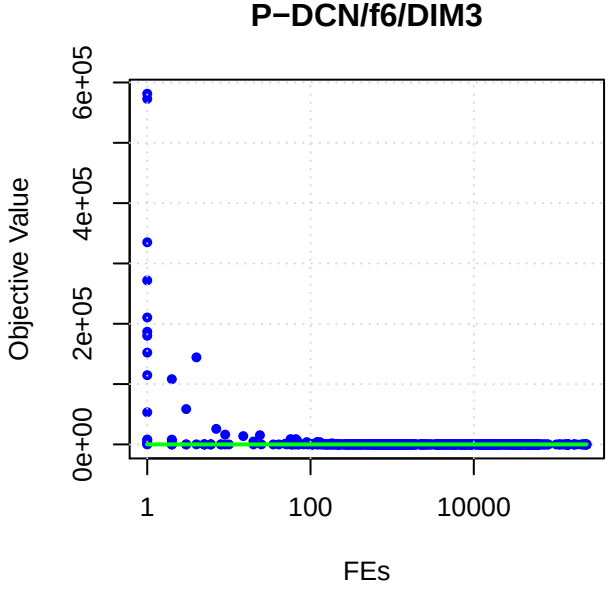
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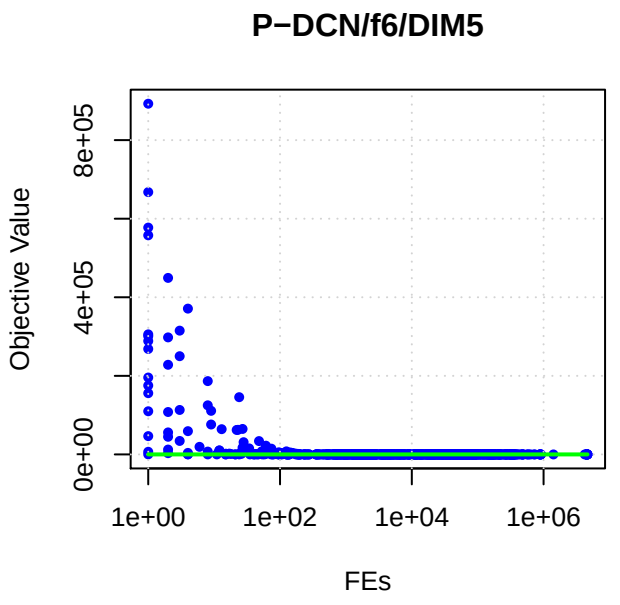
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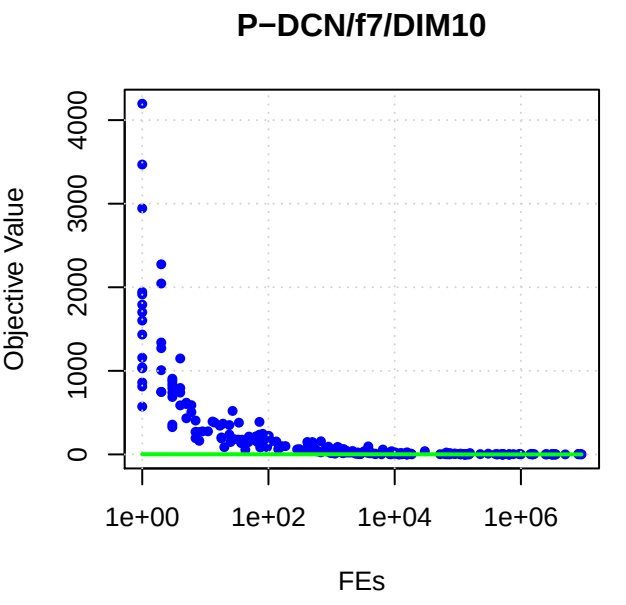
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4000
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1e+04
1e+06
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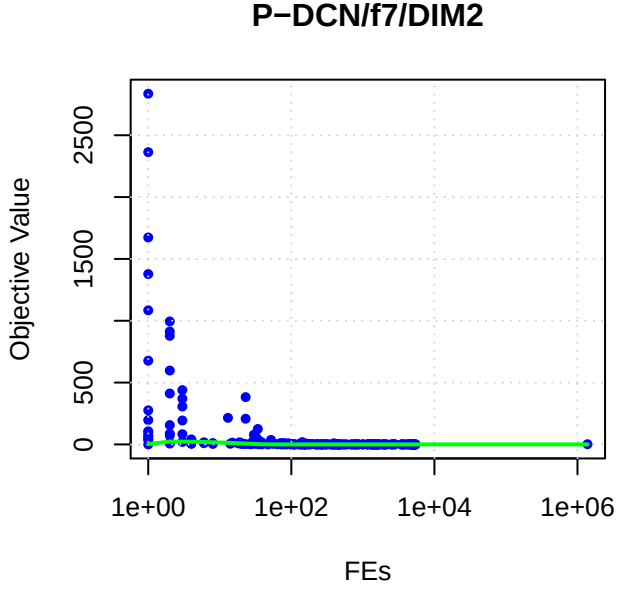
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Objective Value
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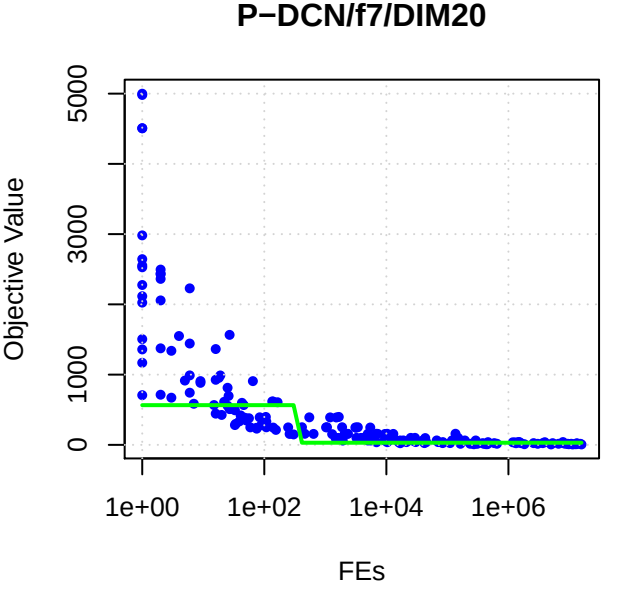
1e+06
FEs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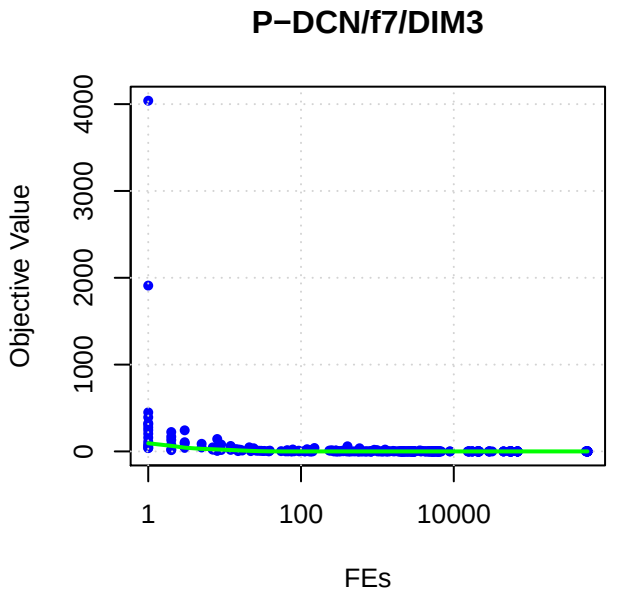
FEs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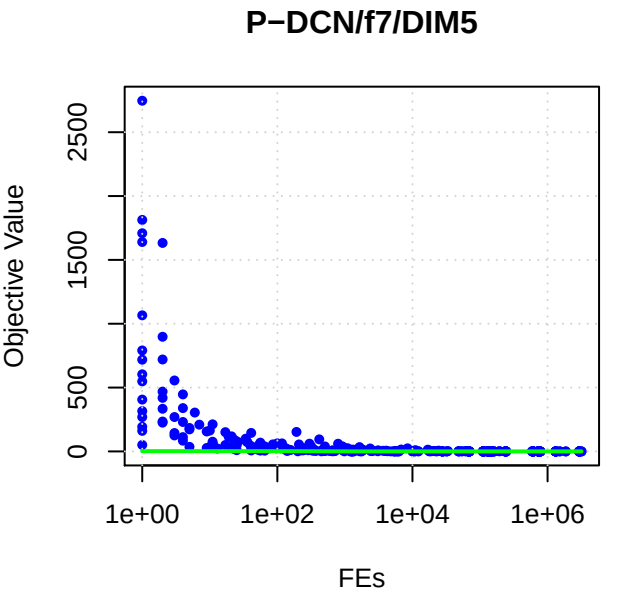
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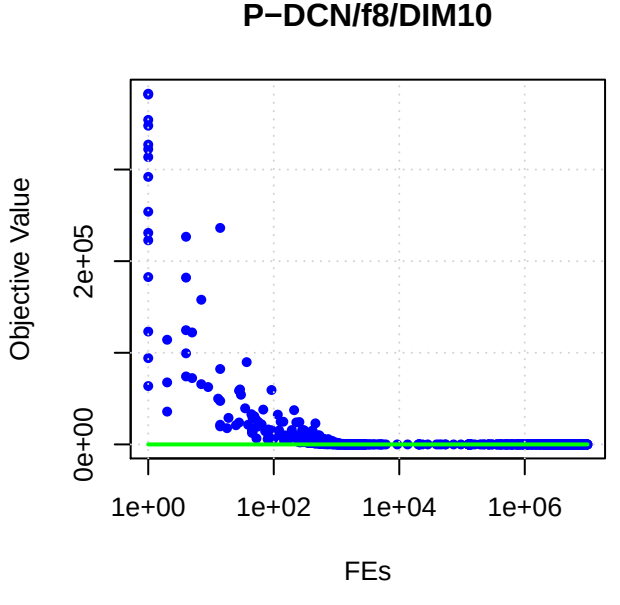
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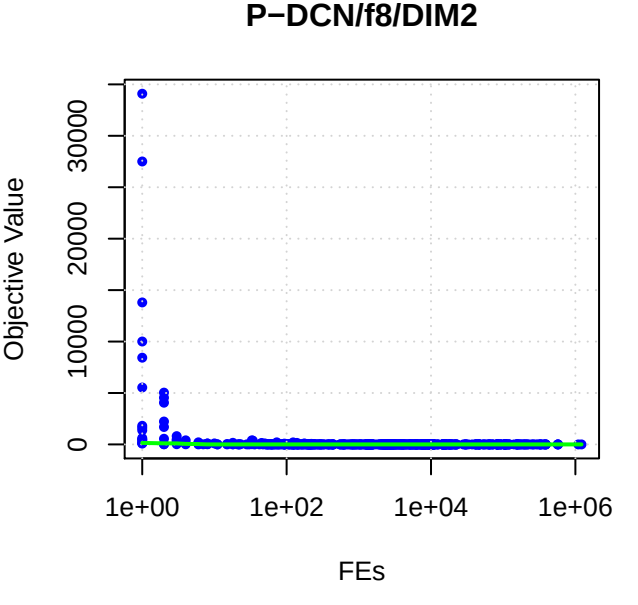
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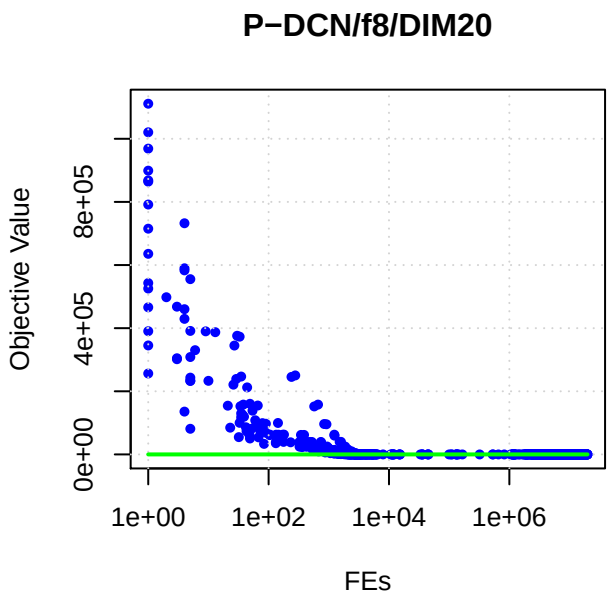
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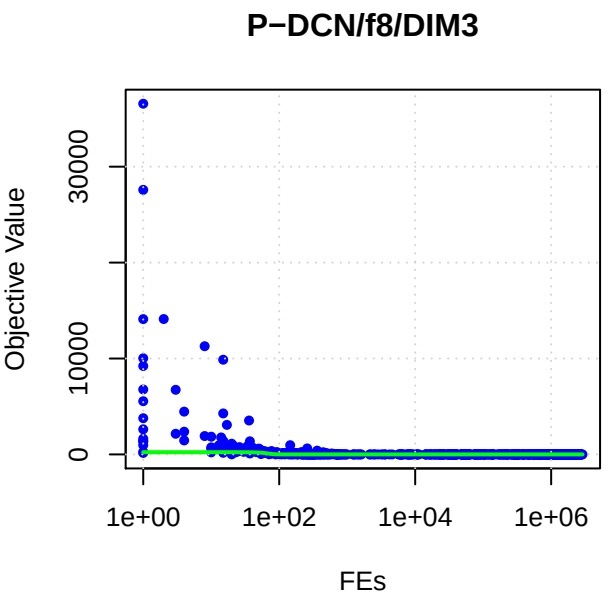
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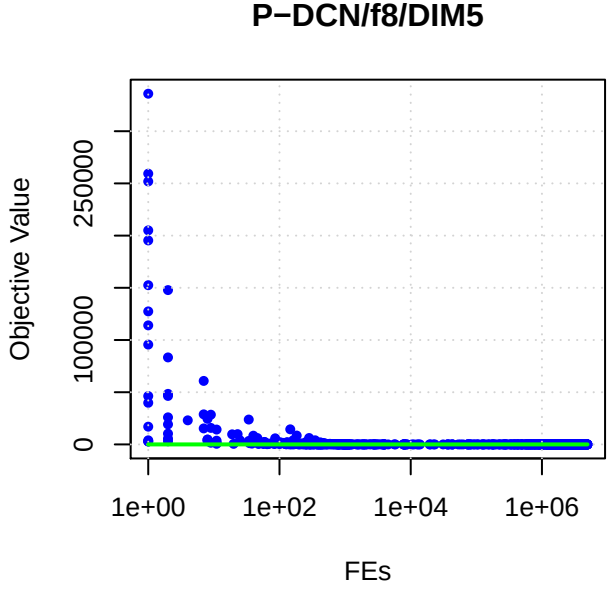
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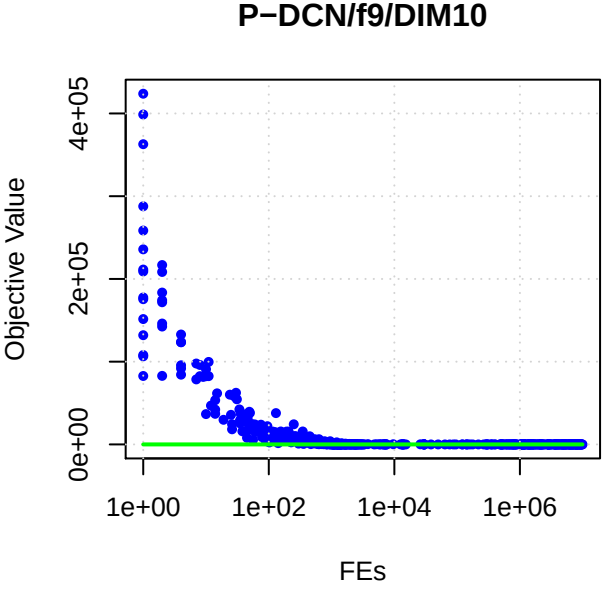
FEs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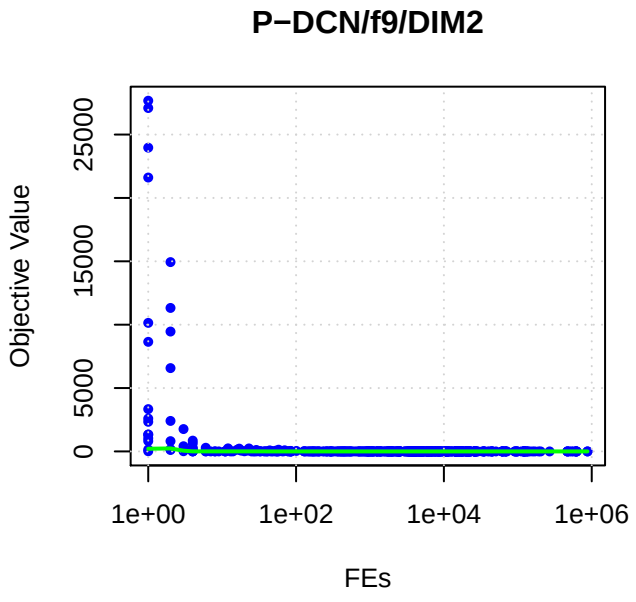
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Objective Value
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1e+04
1e+06
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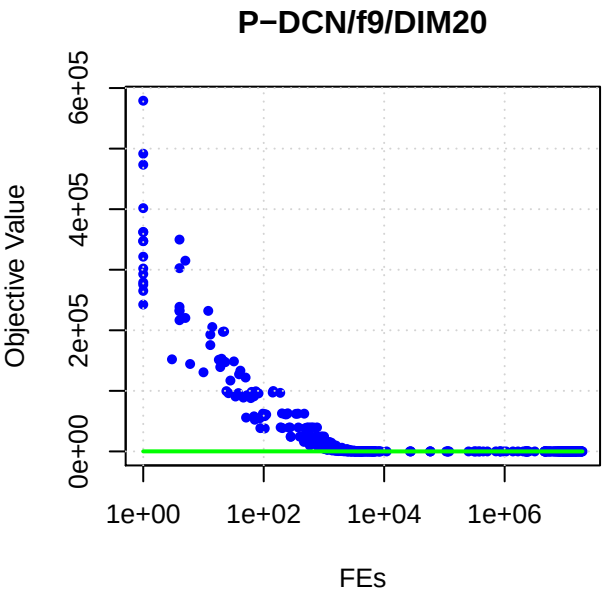
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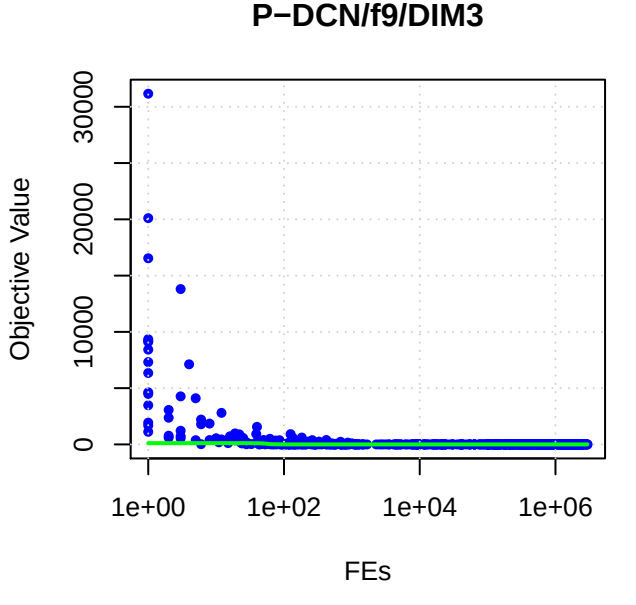
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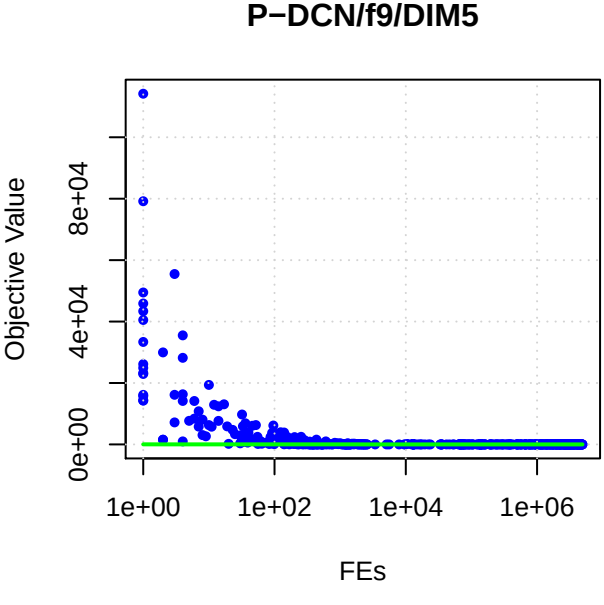
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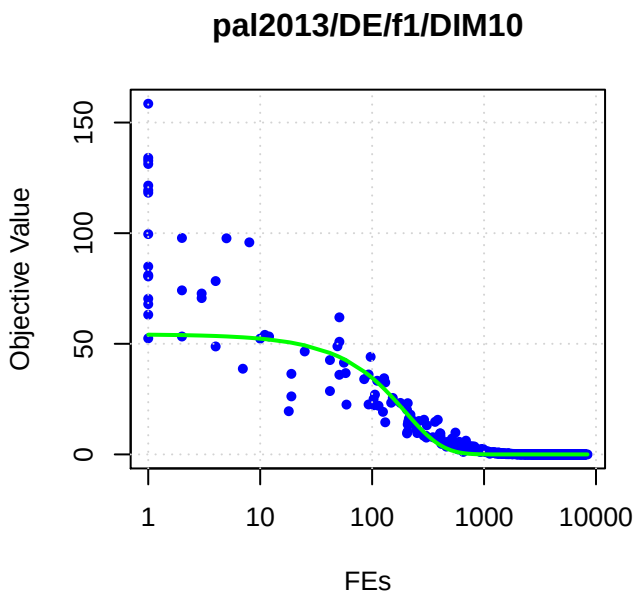
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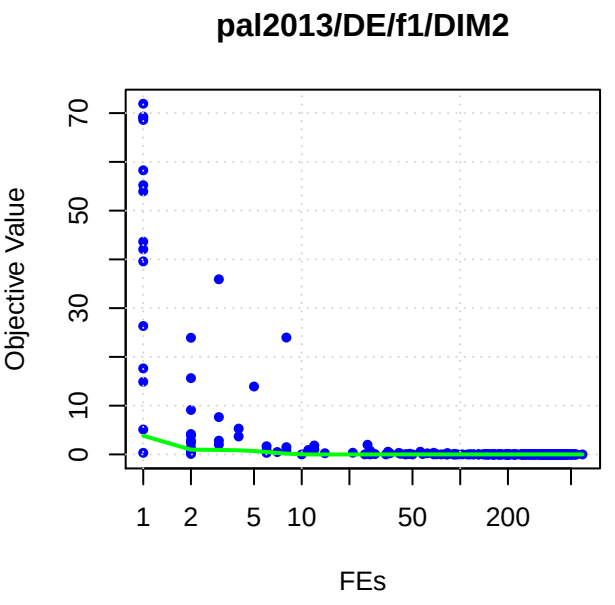
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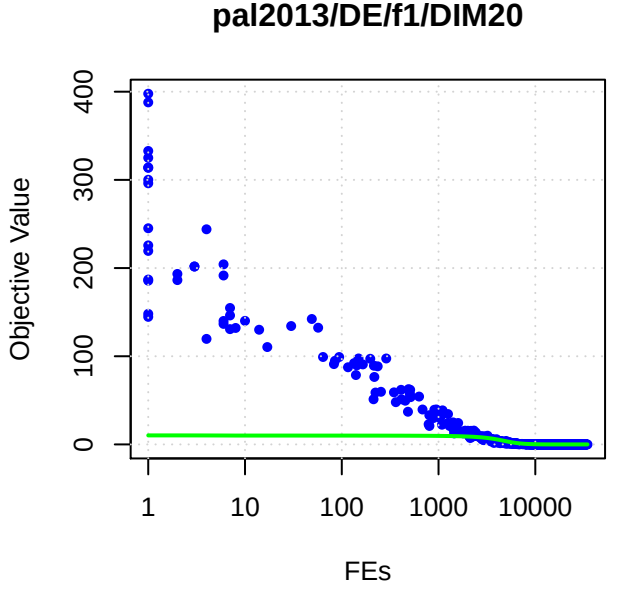
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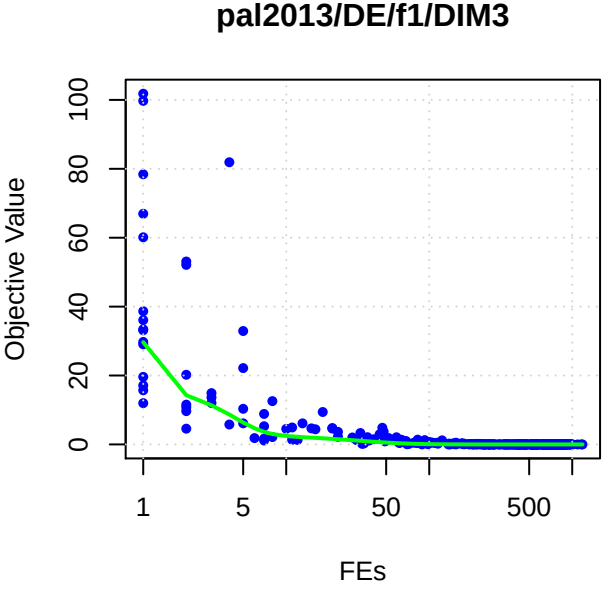
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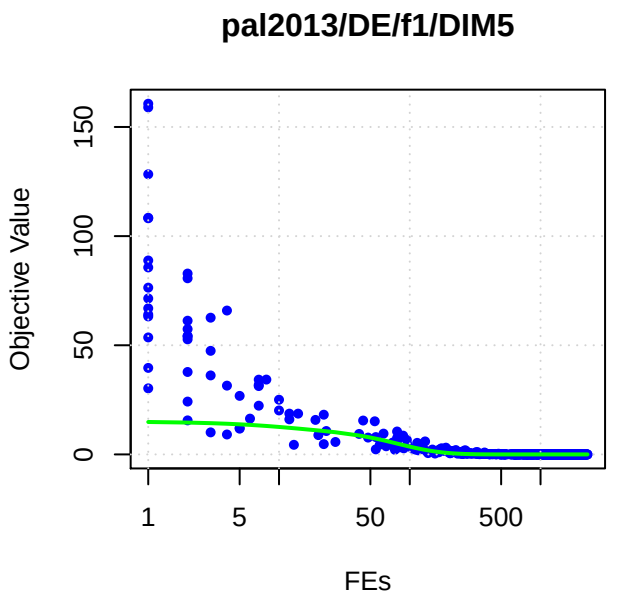
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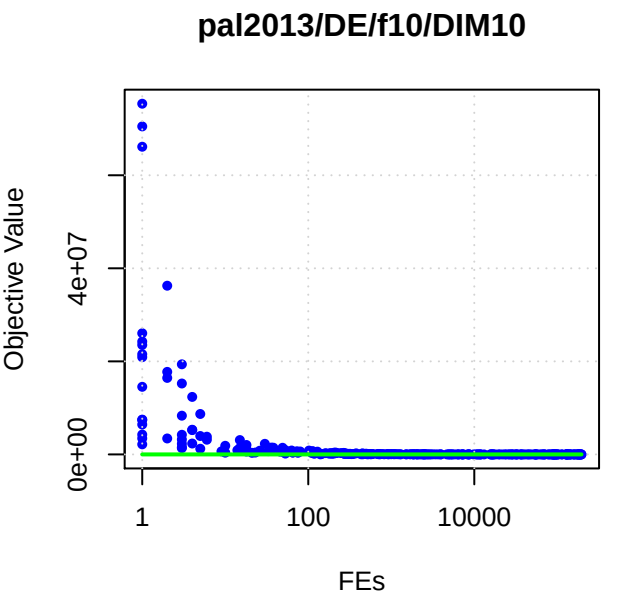
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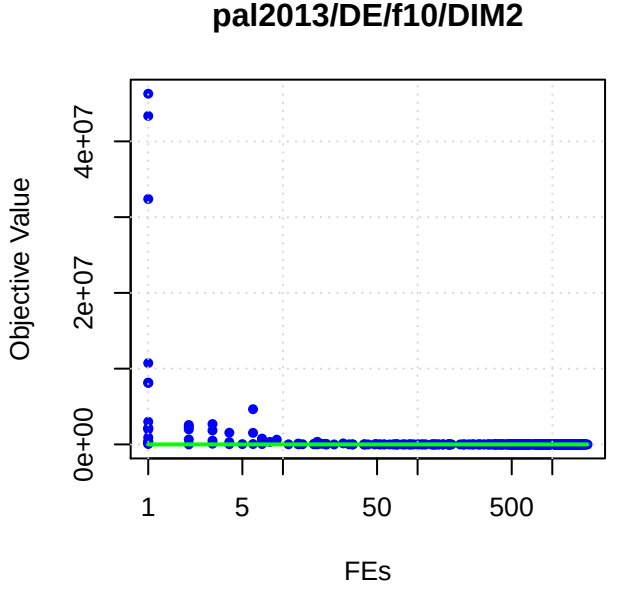
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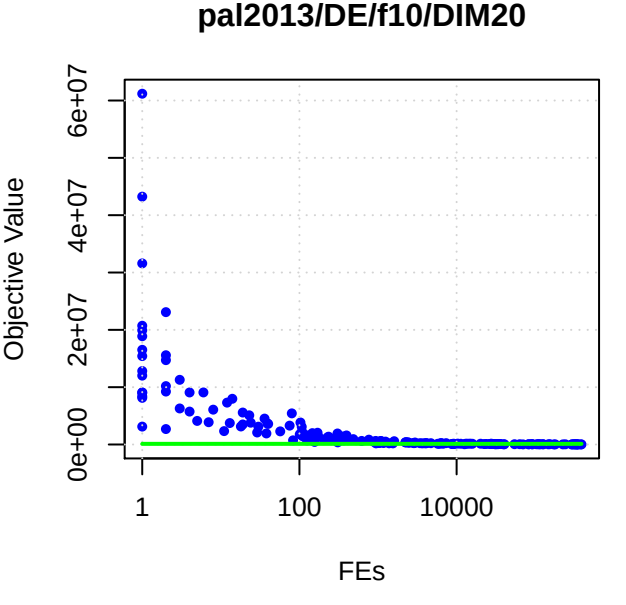
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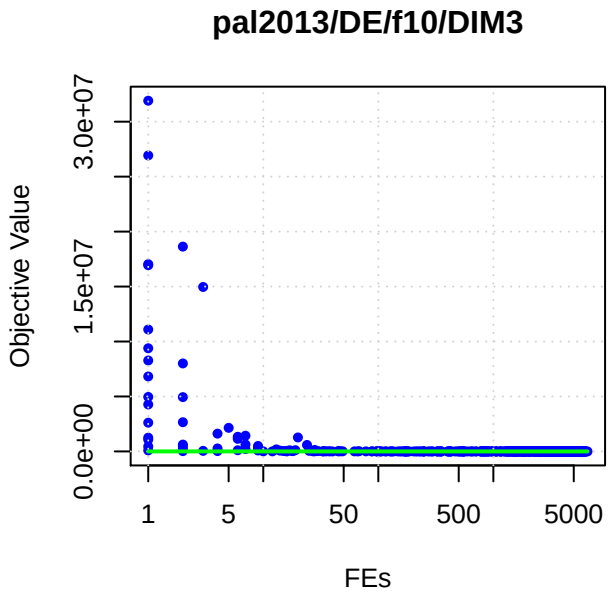
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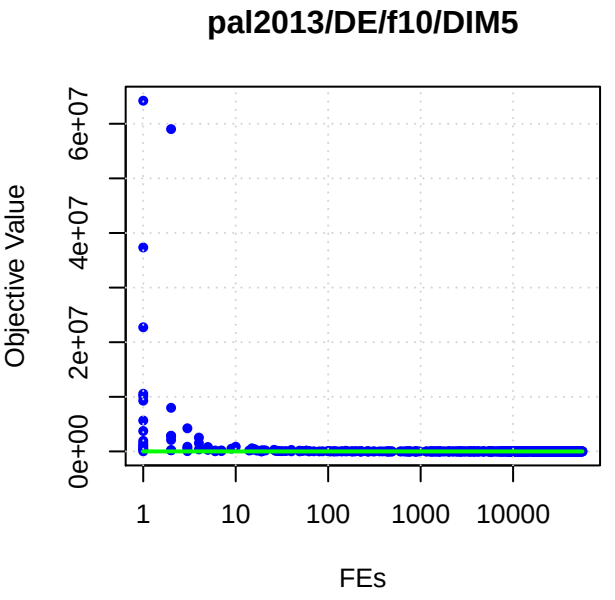
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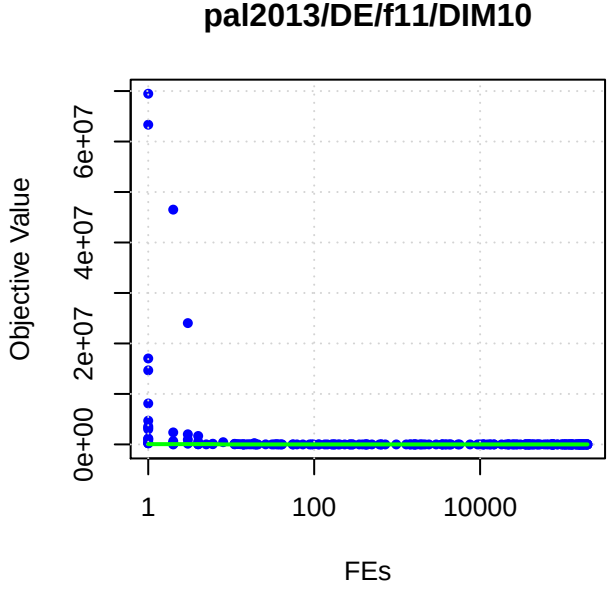
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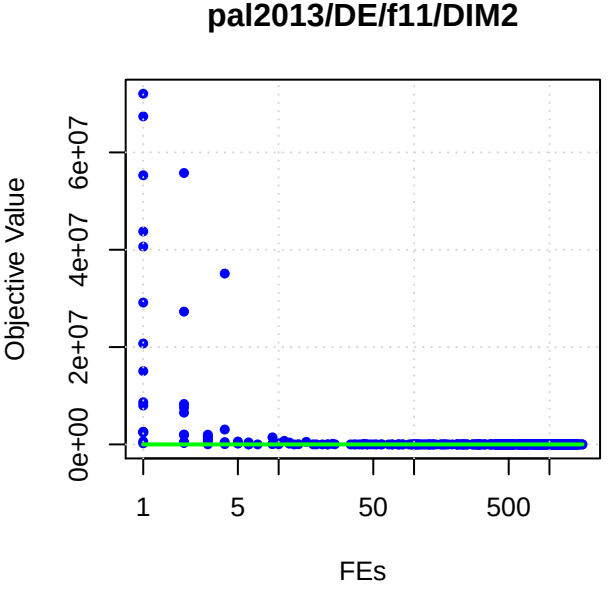
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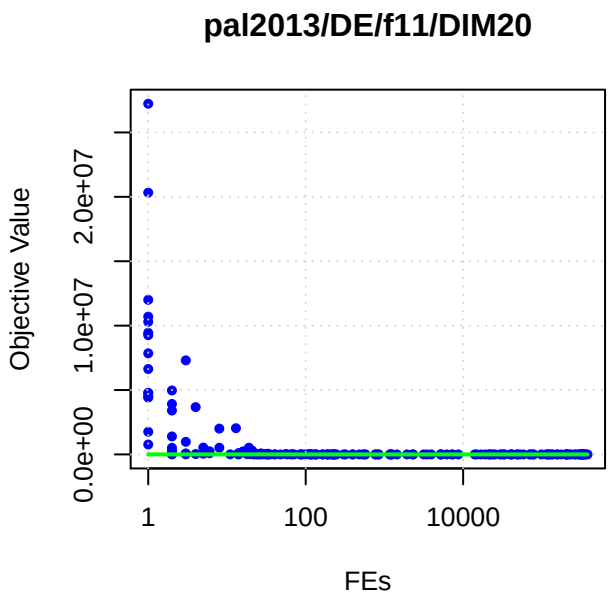
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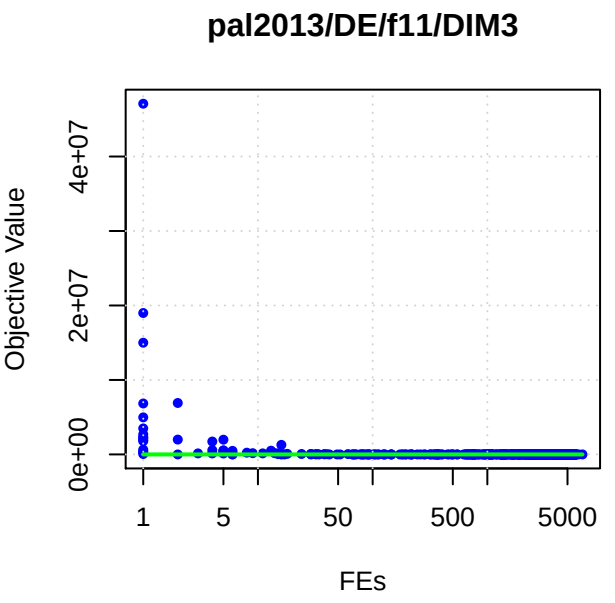
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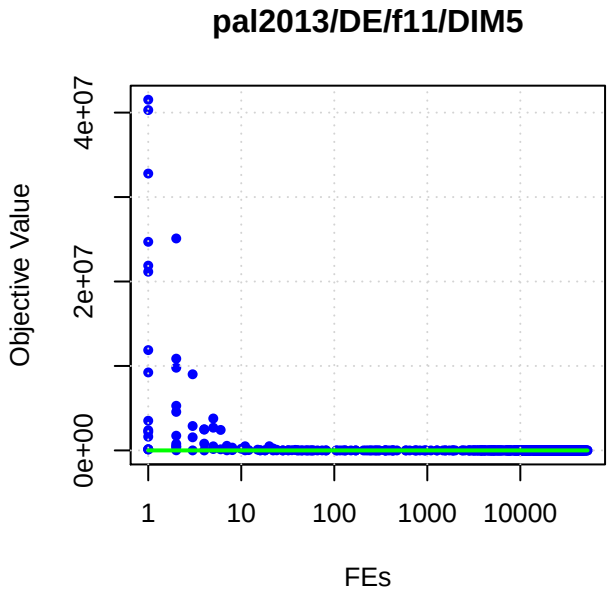
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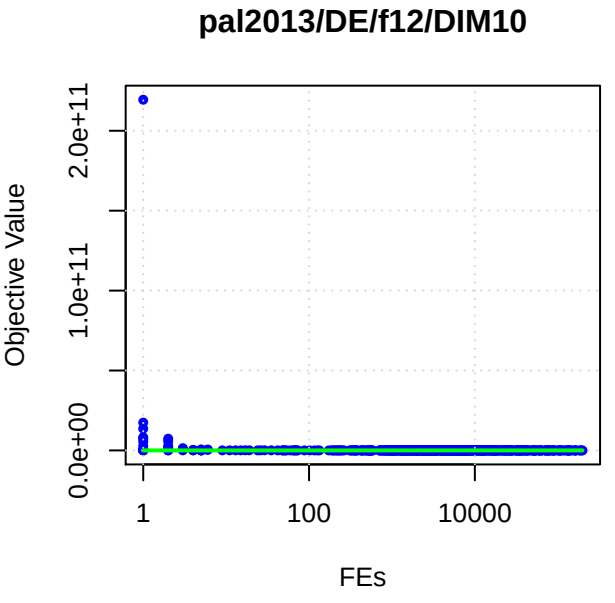
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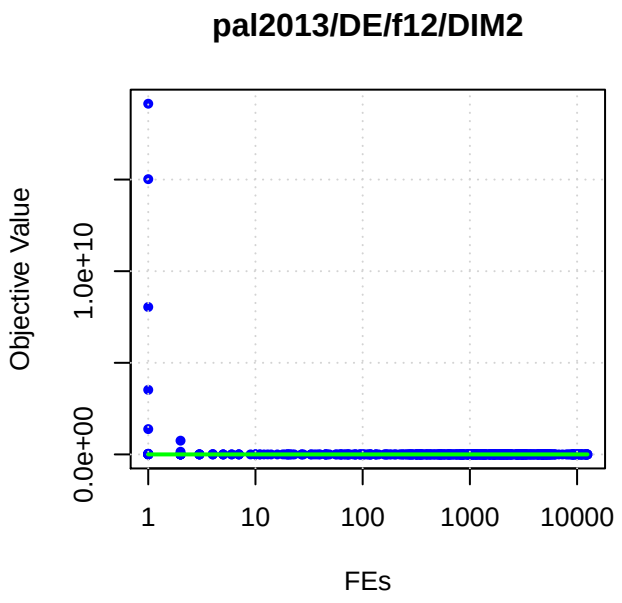
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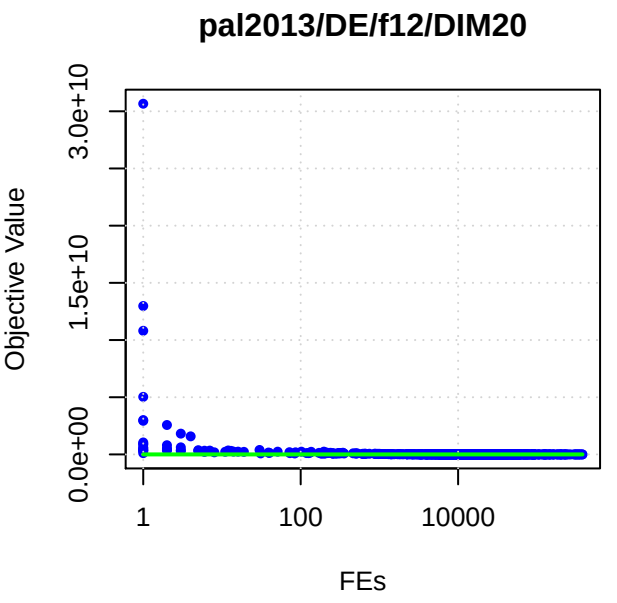
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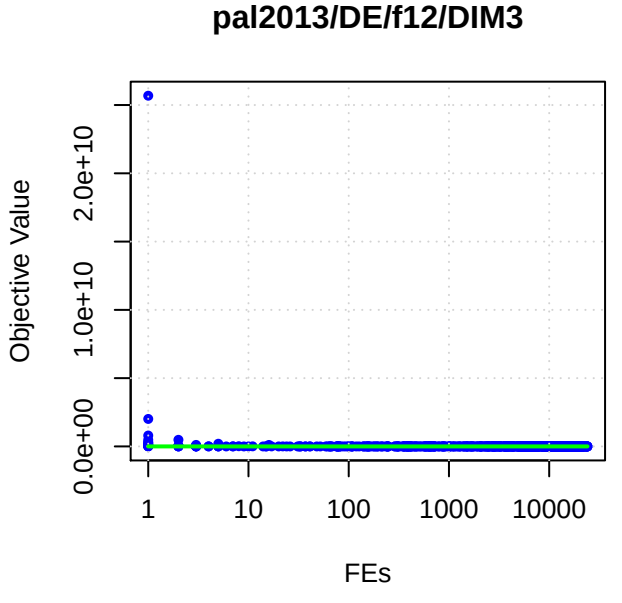
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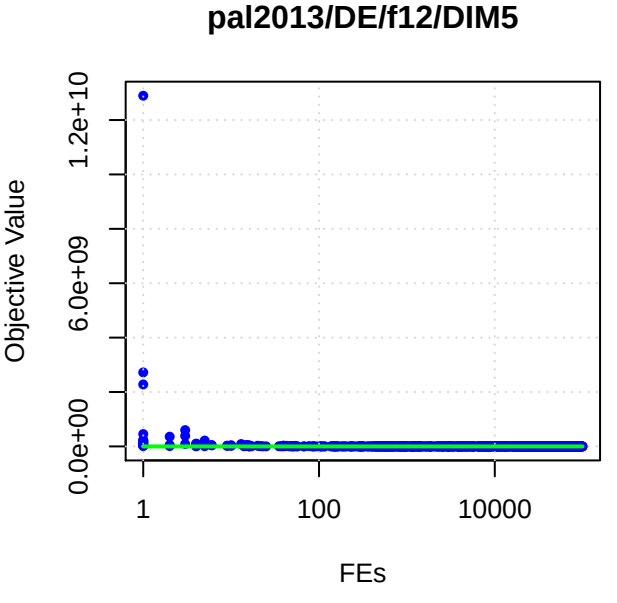
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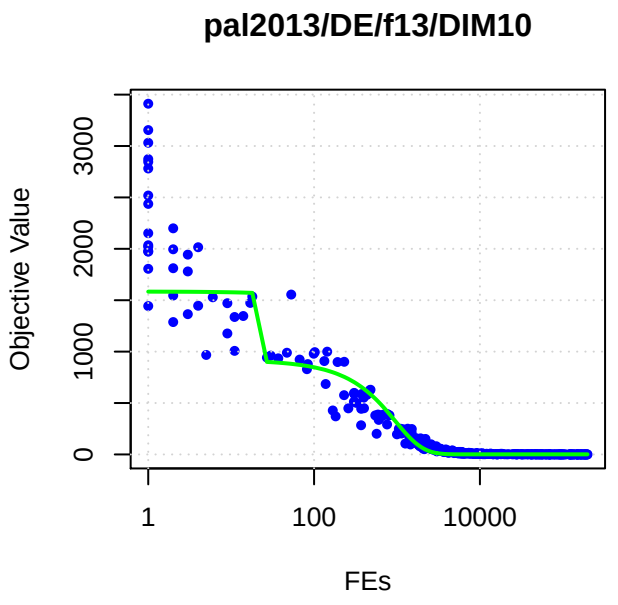
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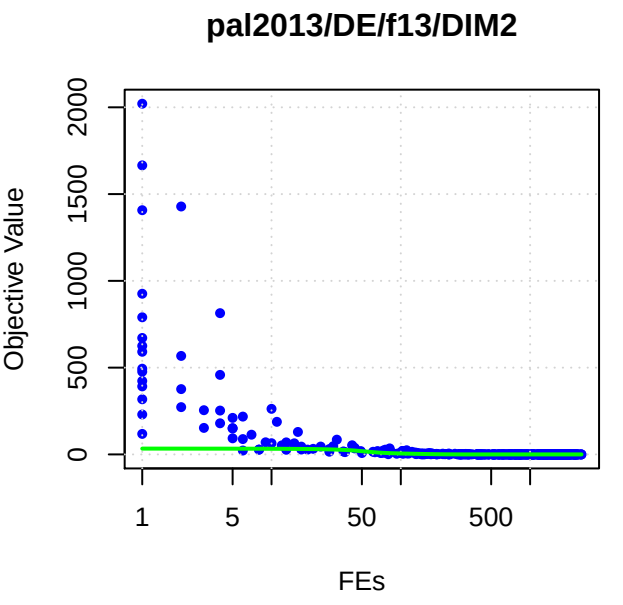
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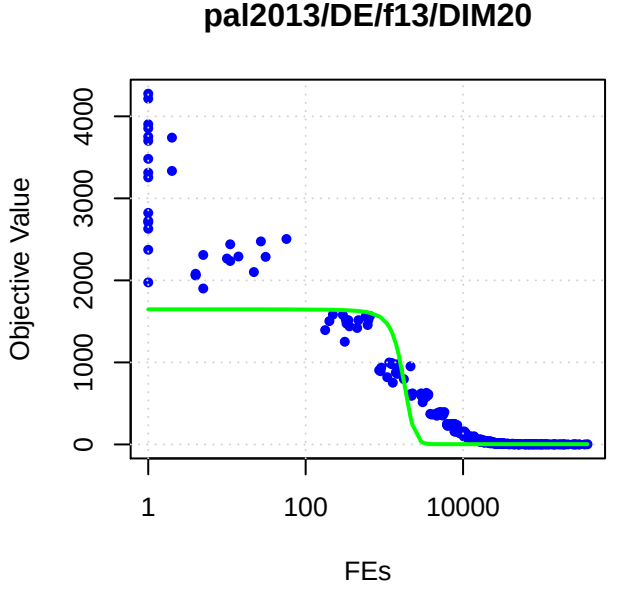
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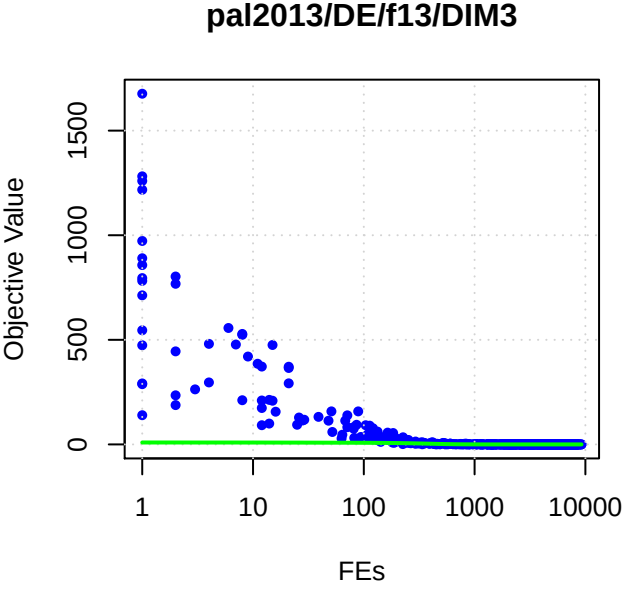
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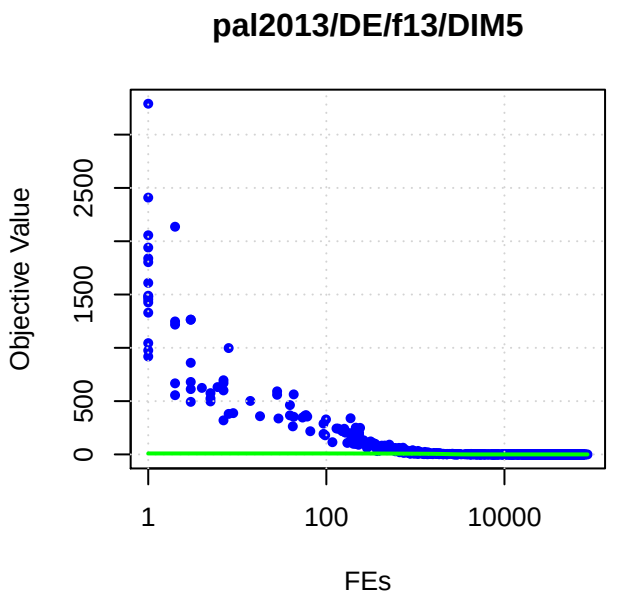
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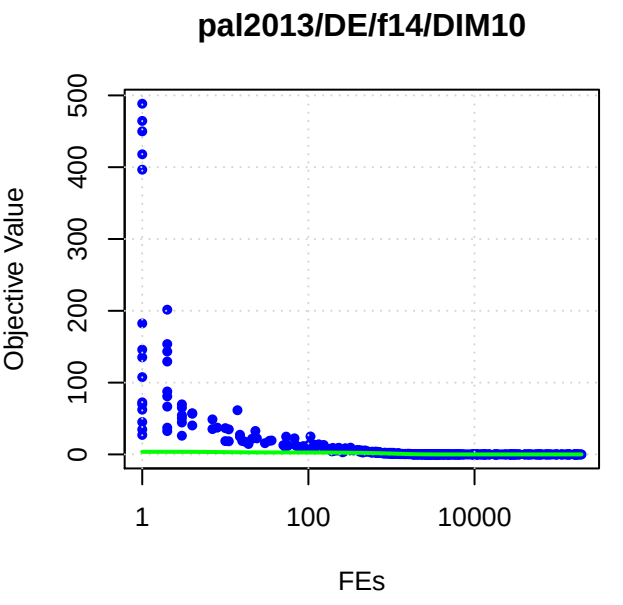
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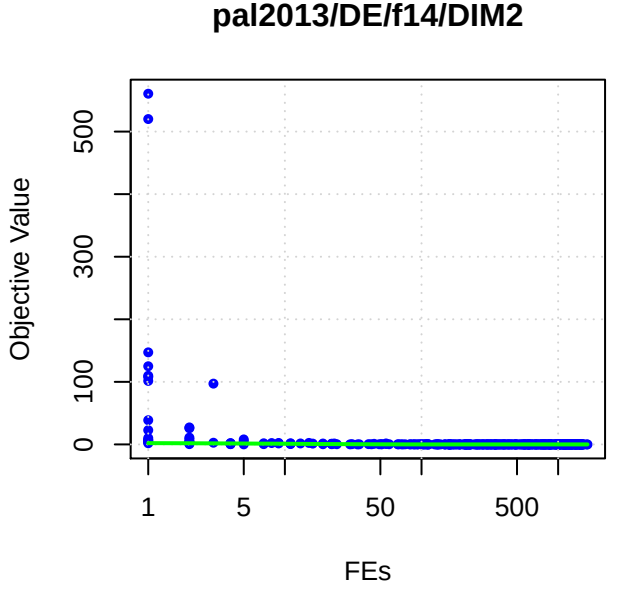
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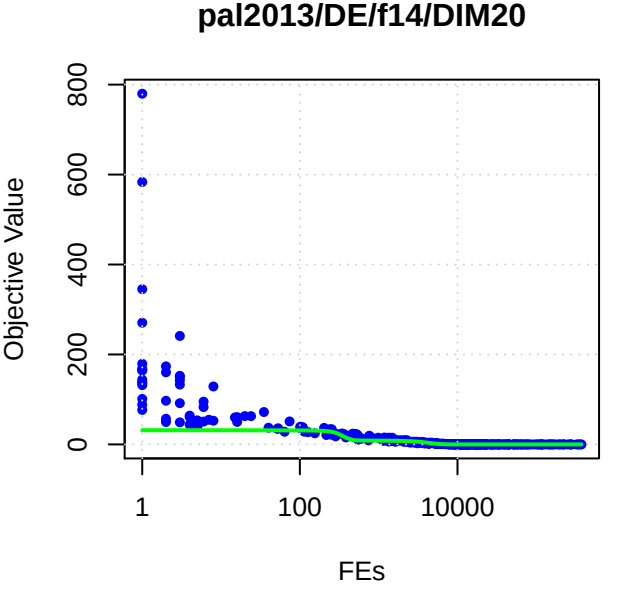
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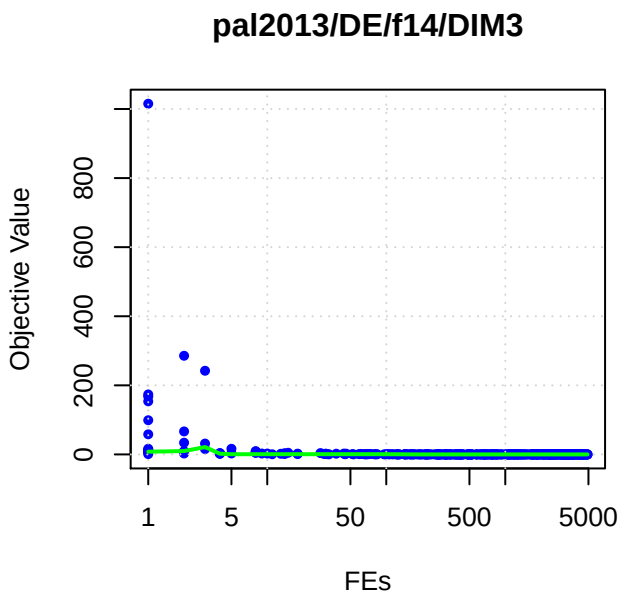
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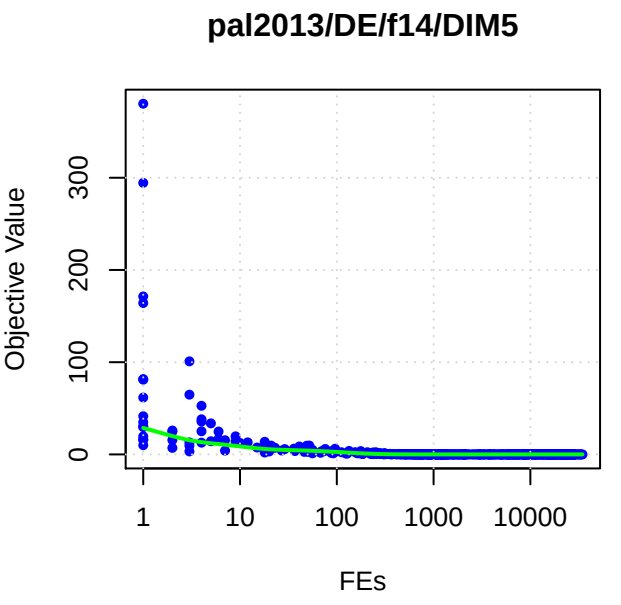
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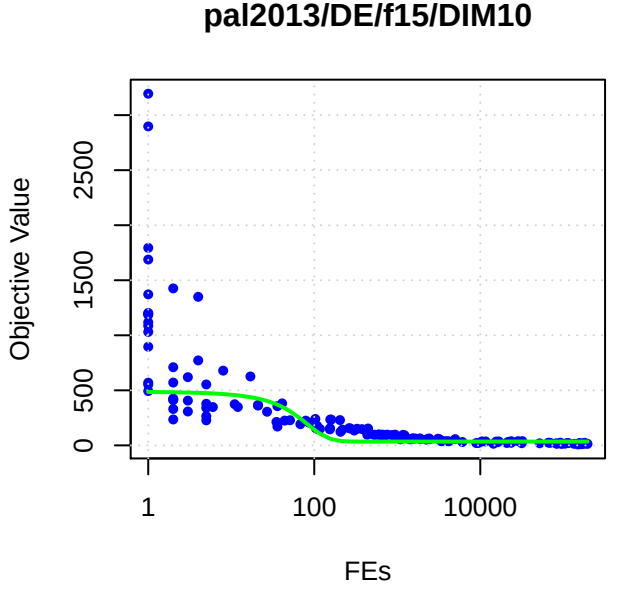
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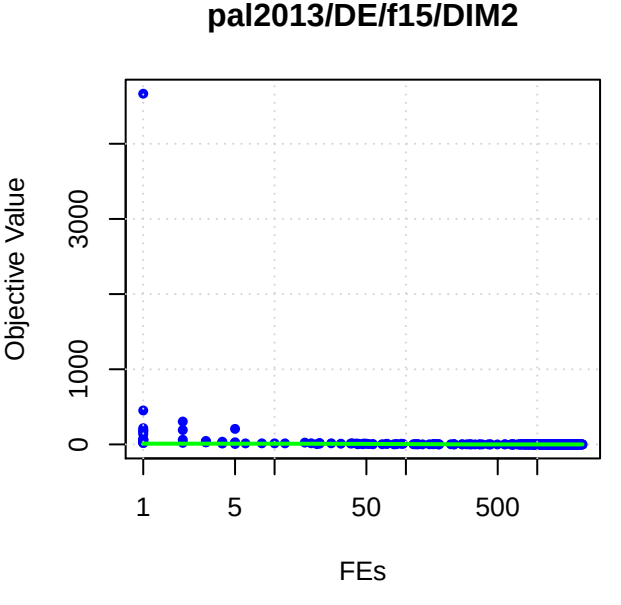
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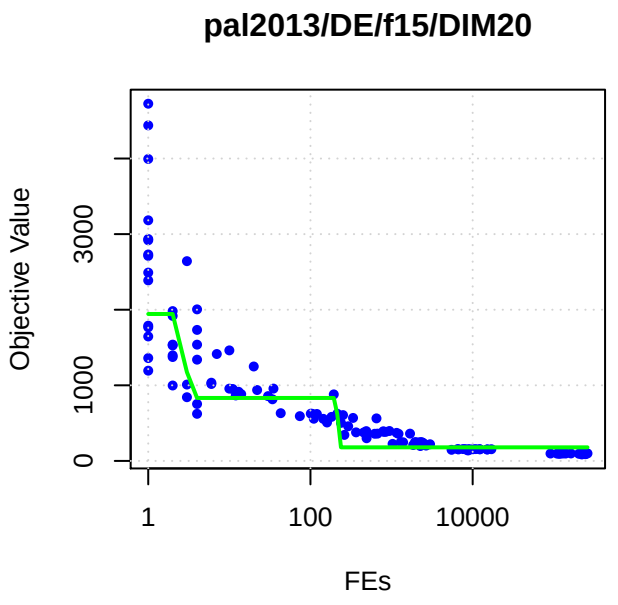
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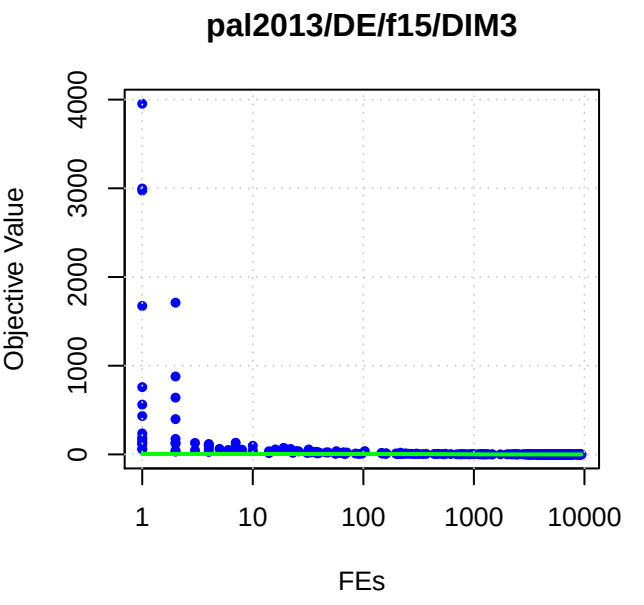
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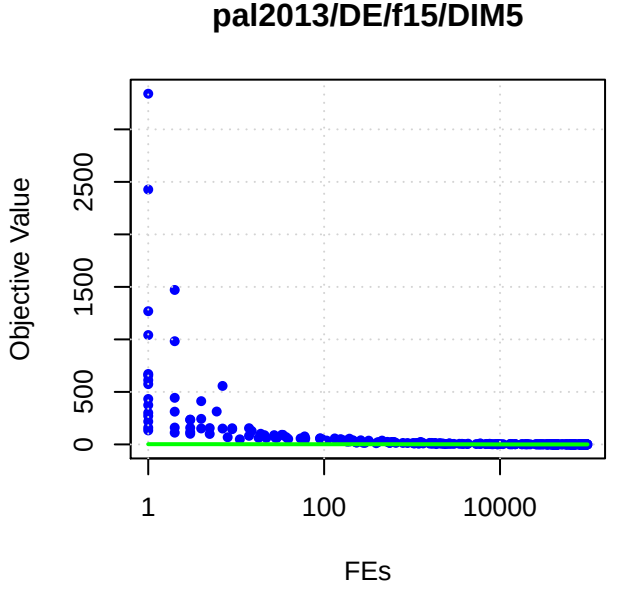
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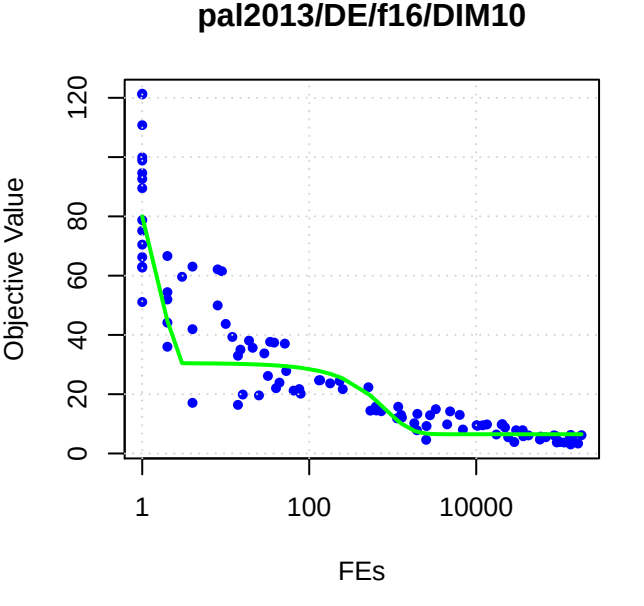
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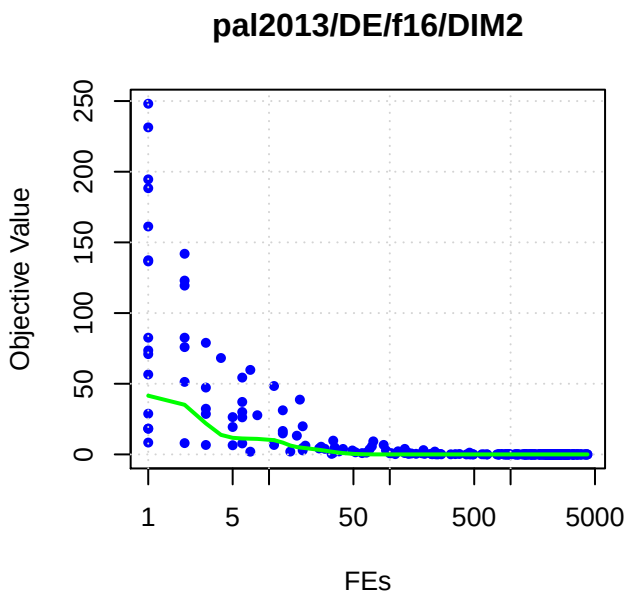
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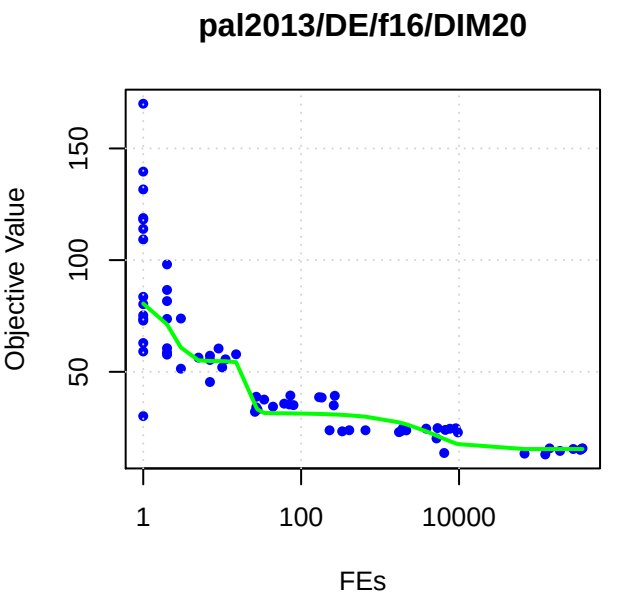
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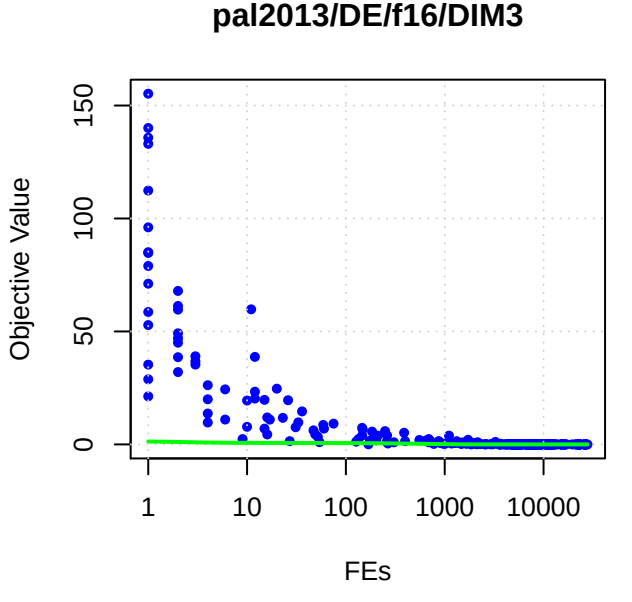
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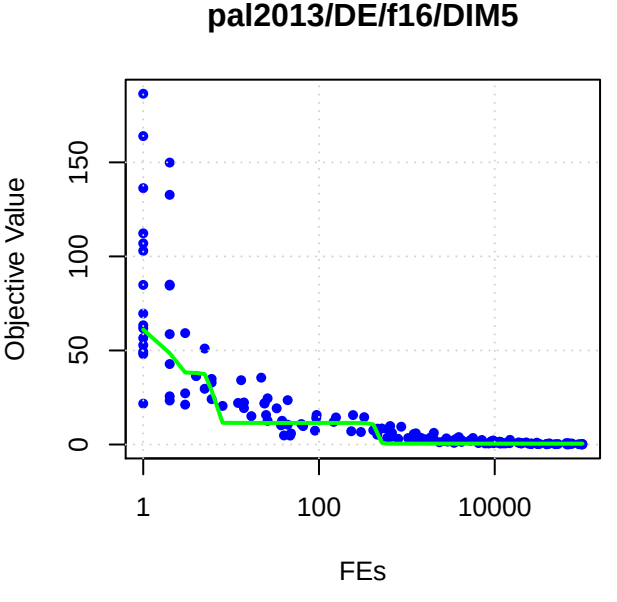
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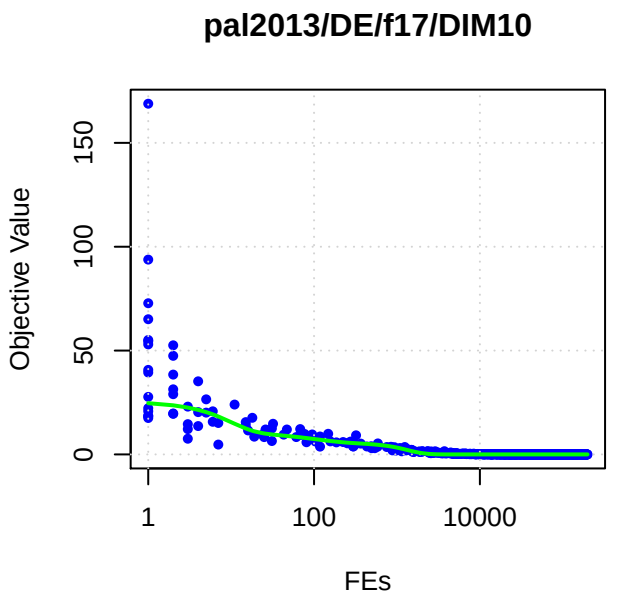
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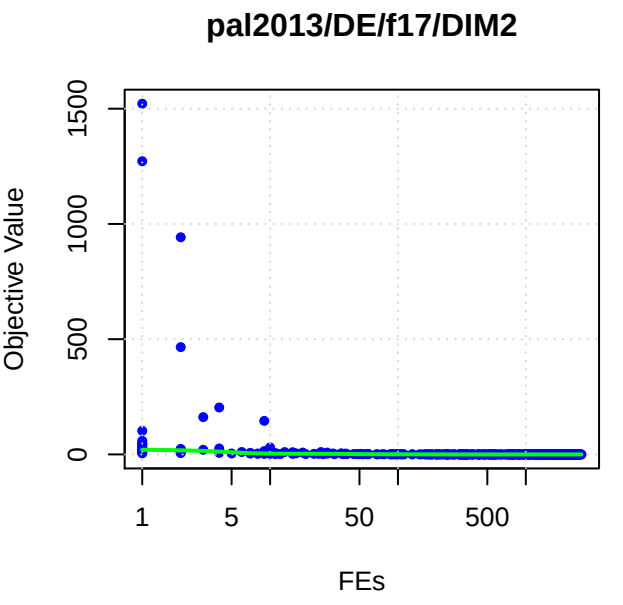
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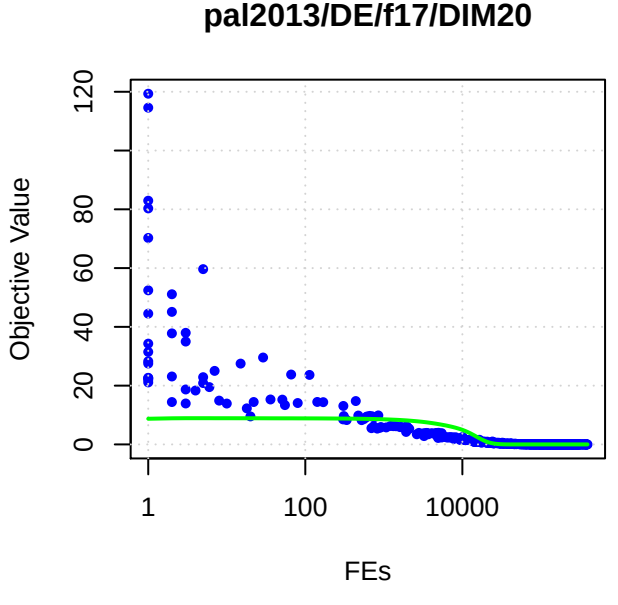
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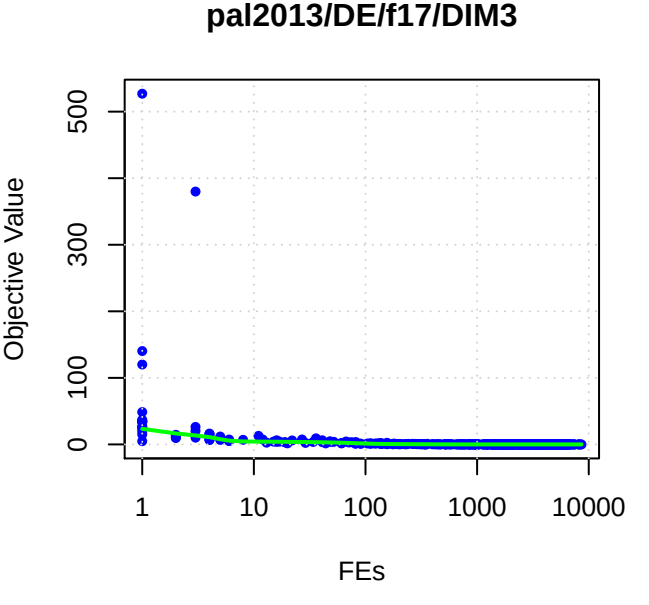
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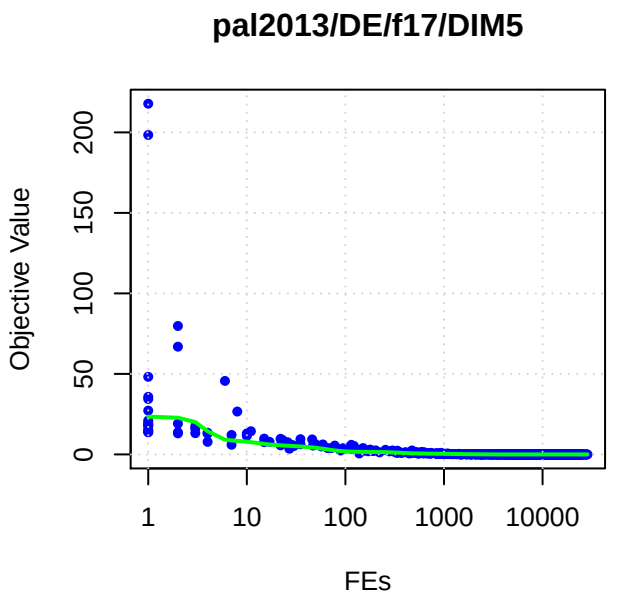
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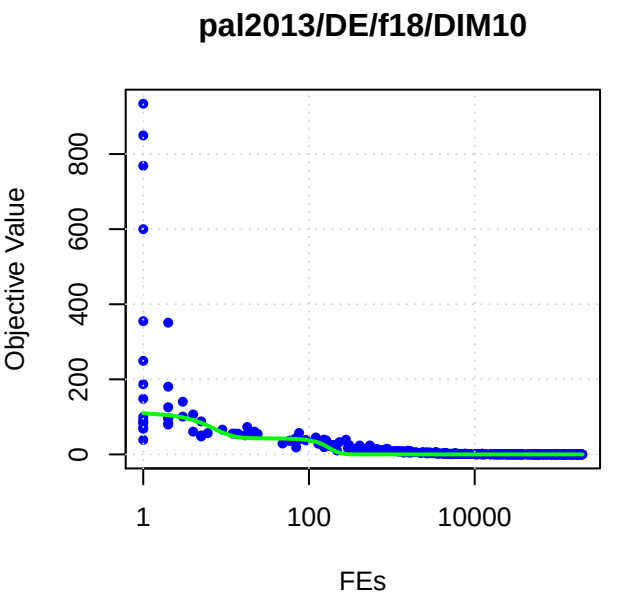
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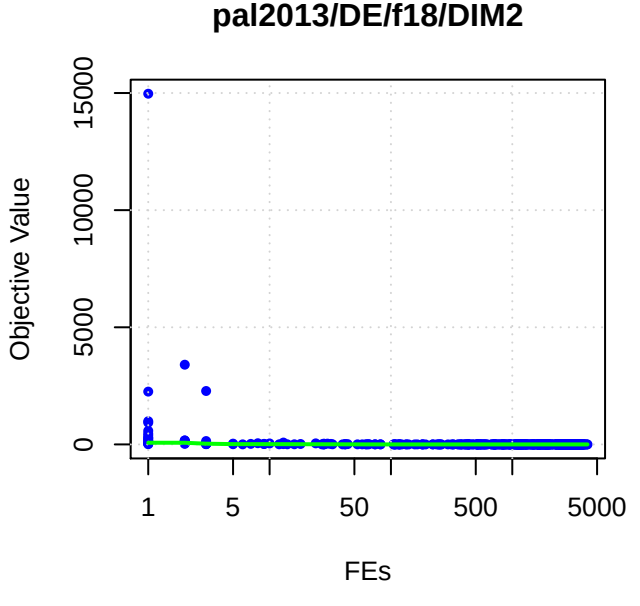
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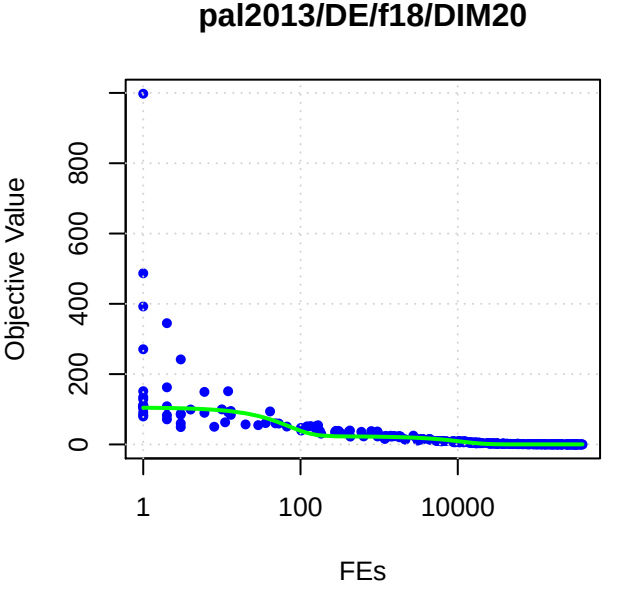
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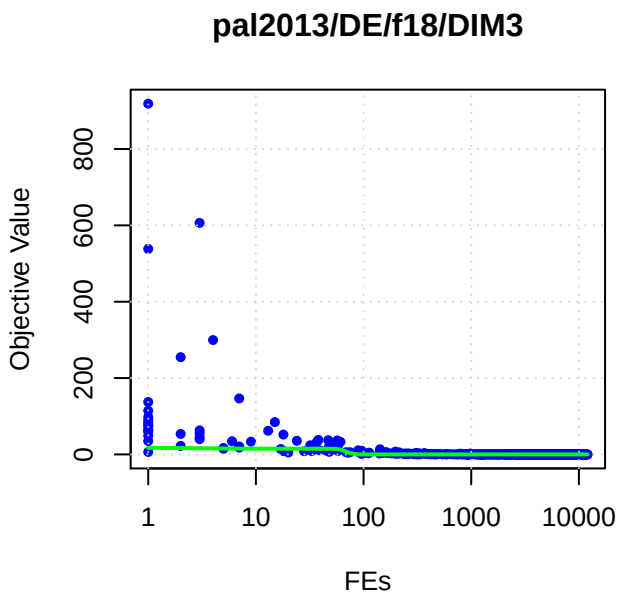
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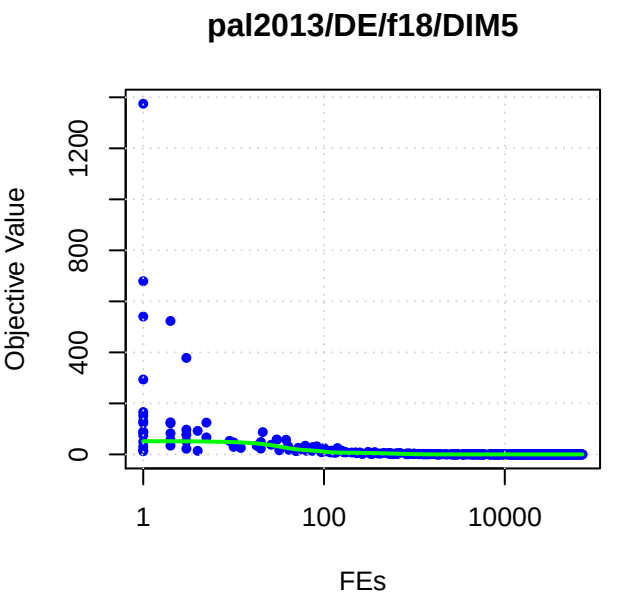
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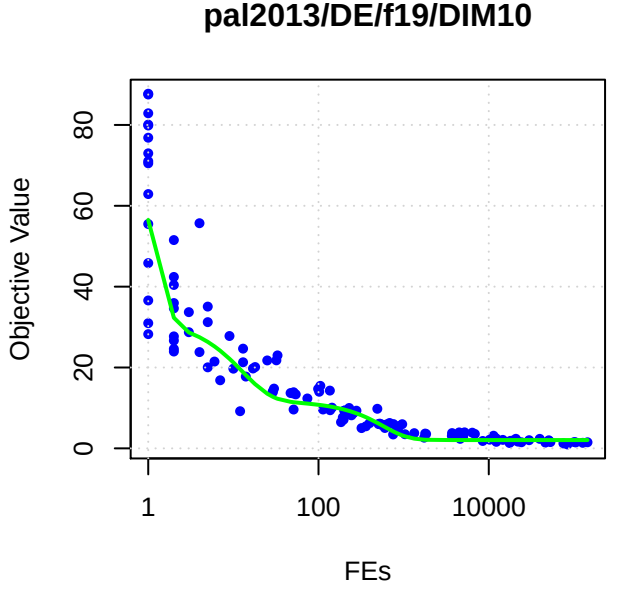
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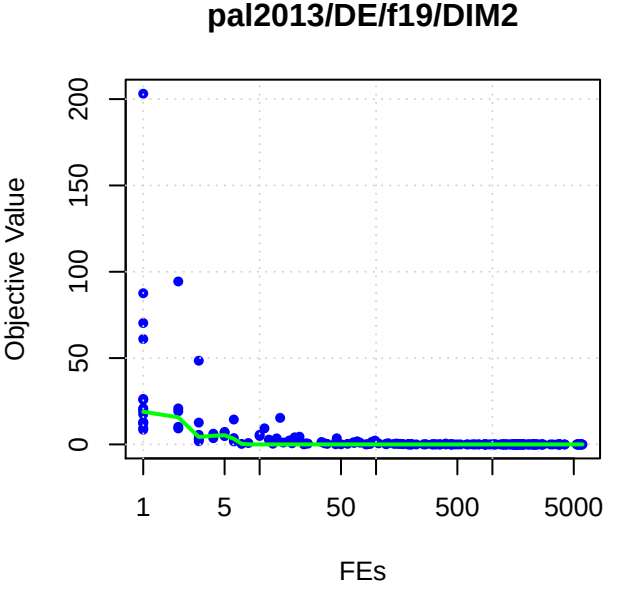
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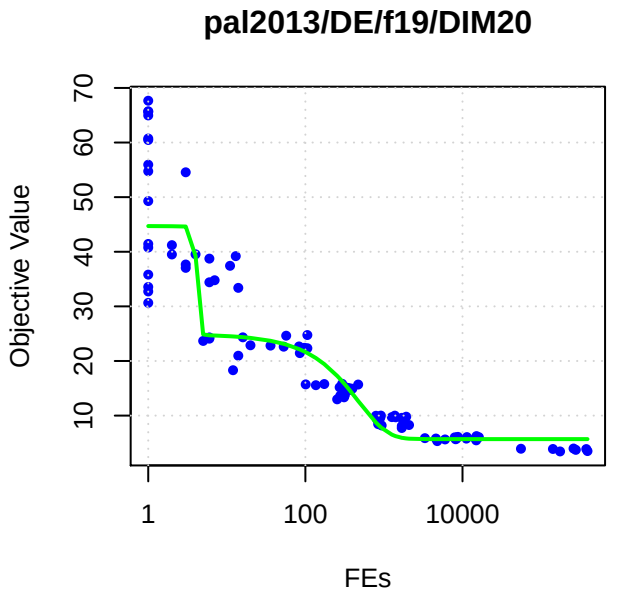
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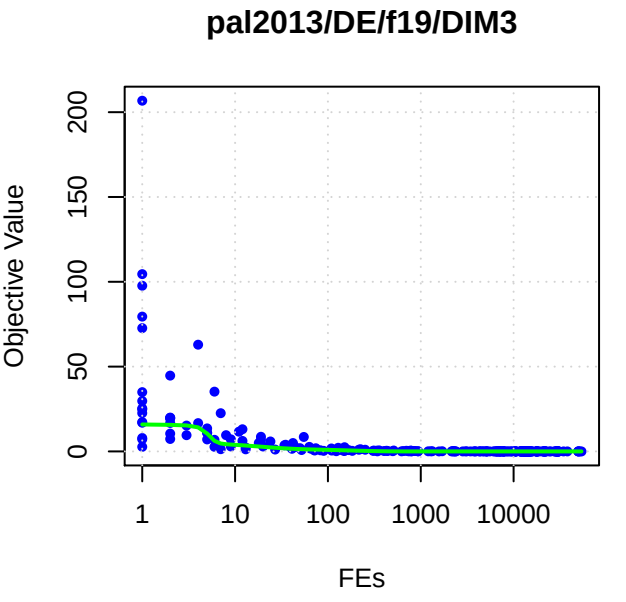
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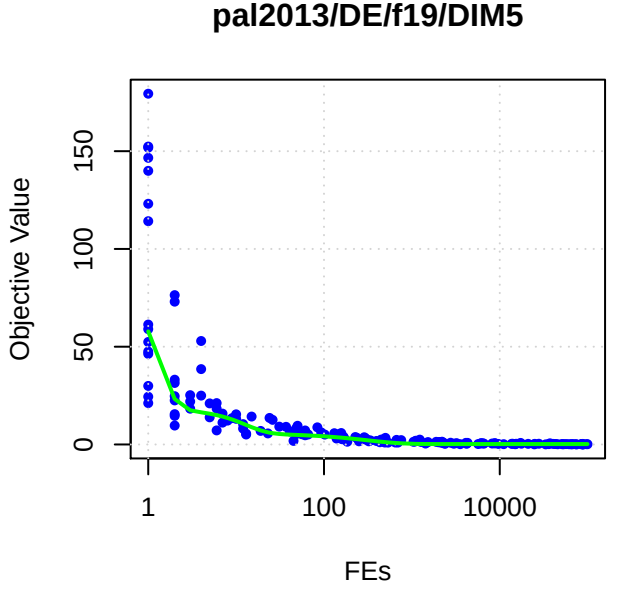
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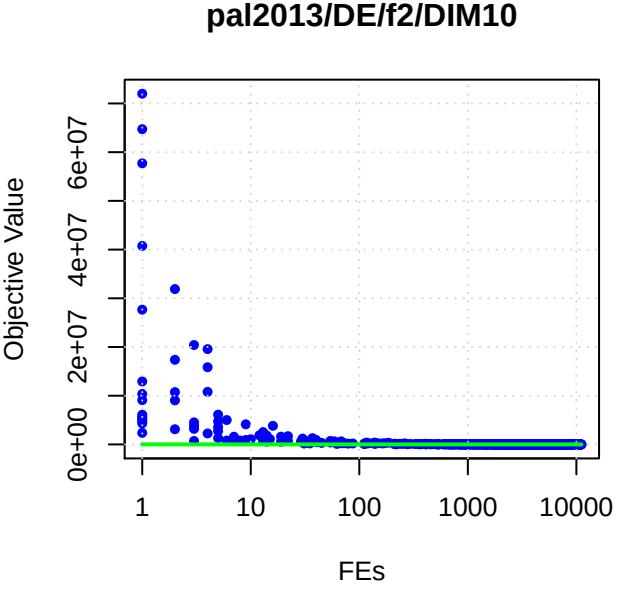
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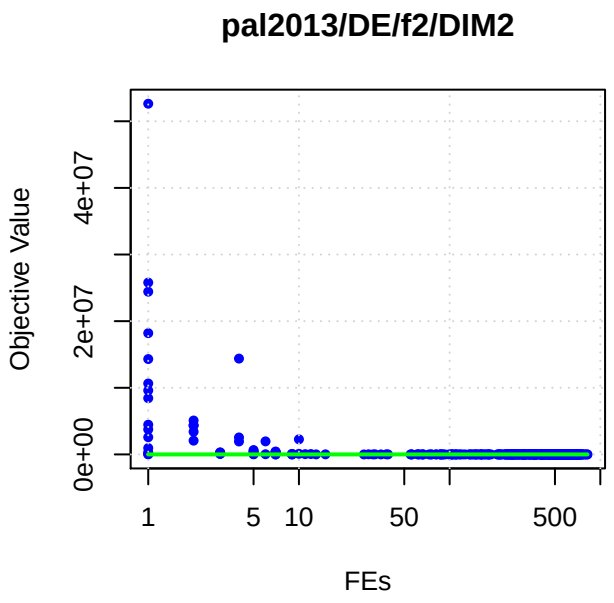
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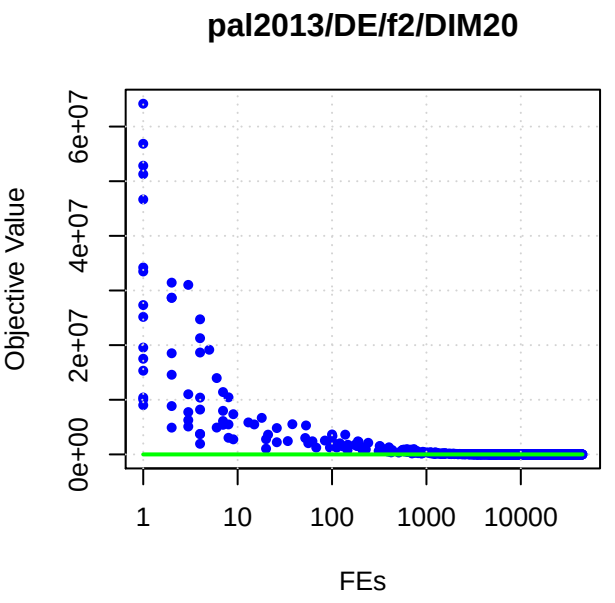
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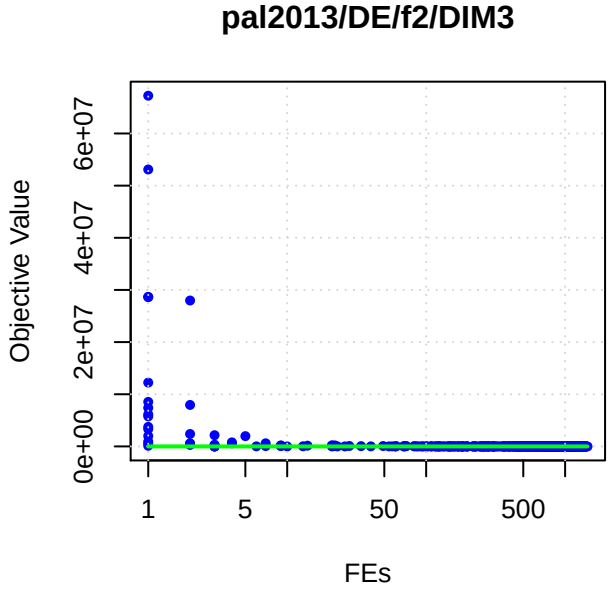
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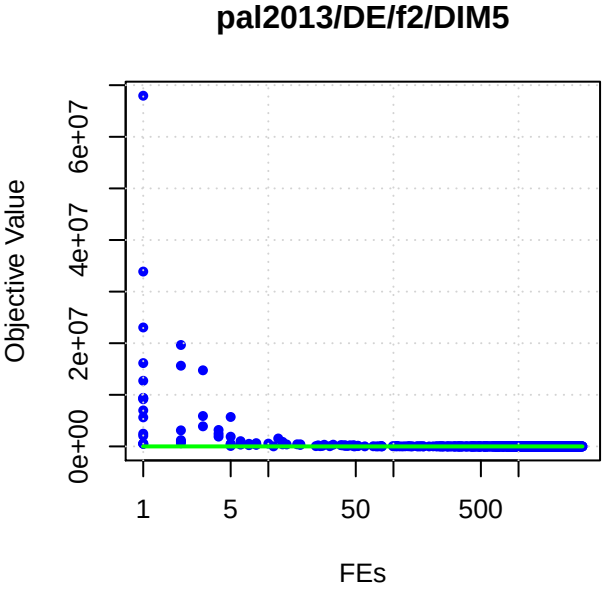
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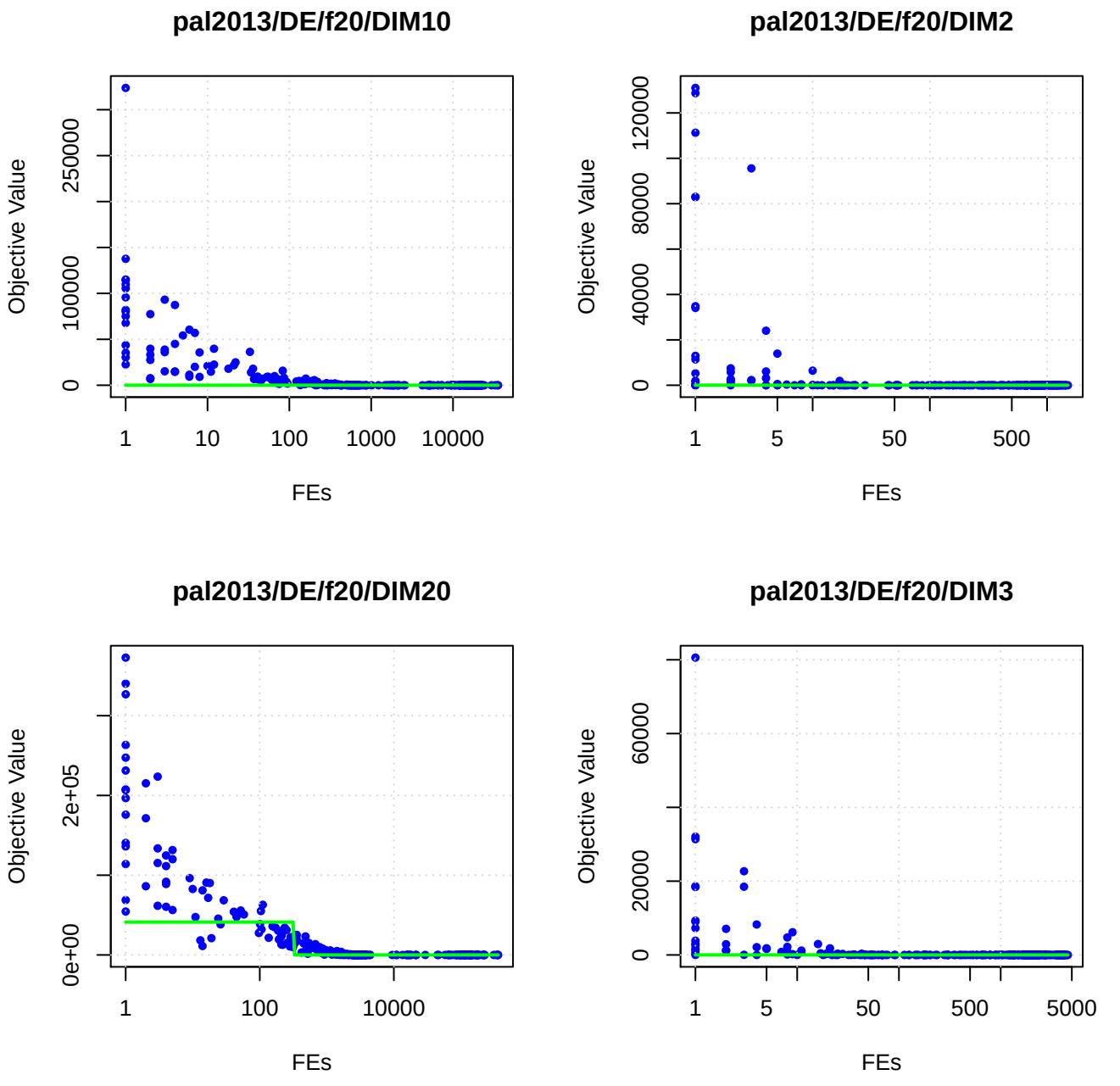
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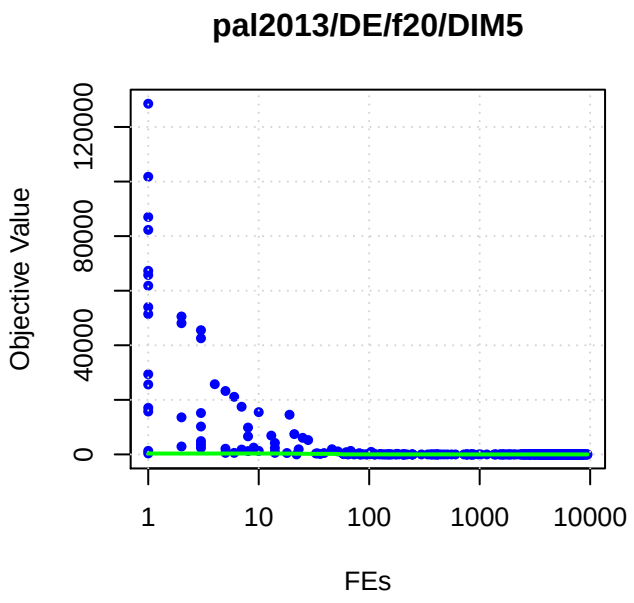
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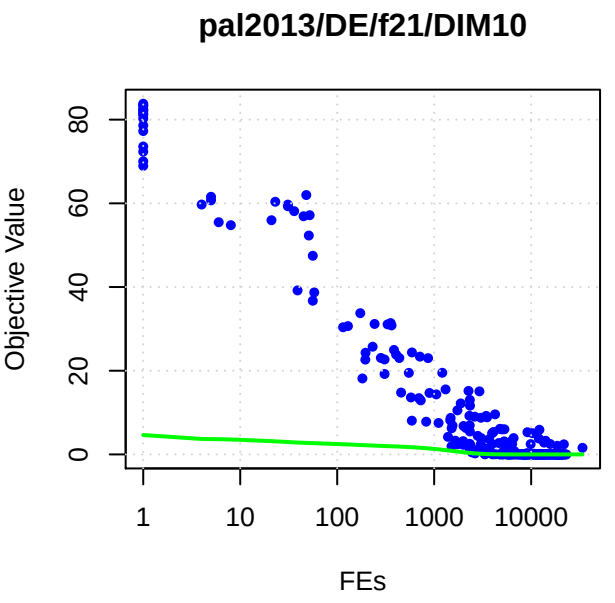
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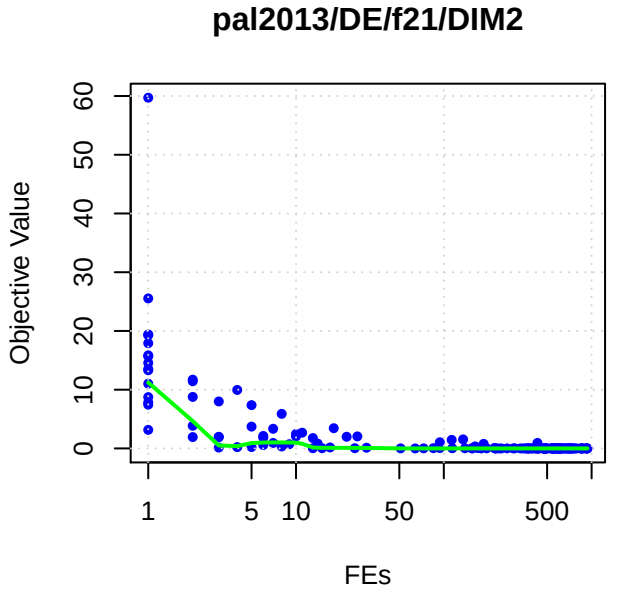
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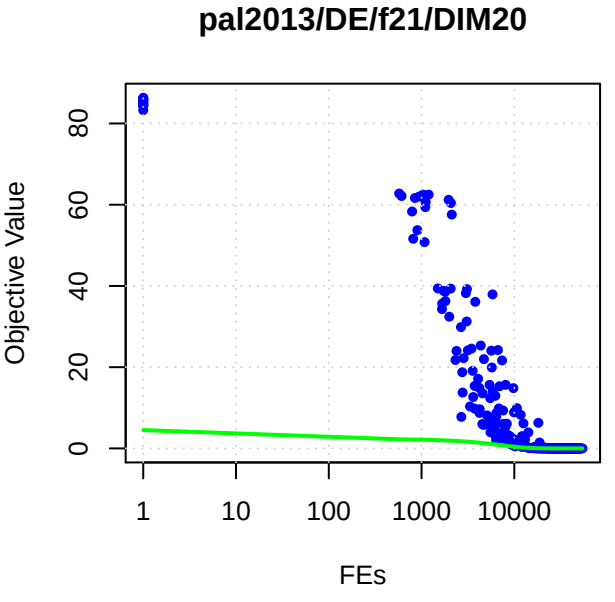
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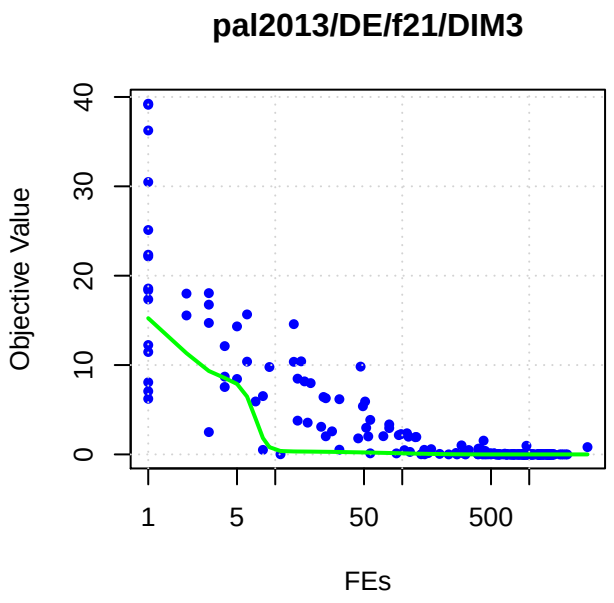
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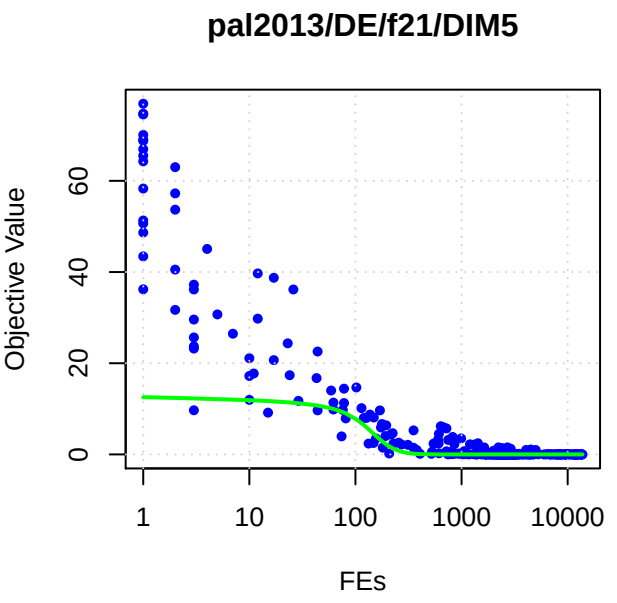
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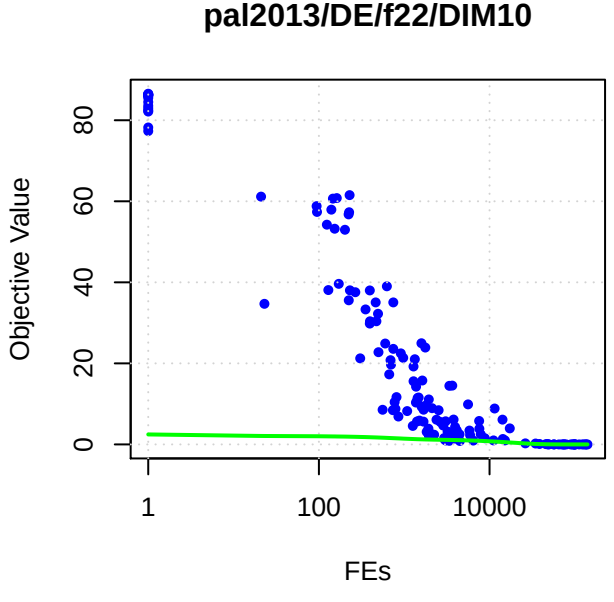
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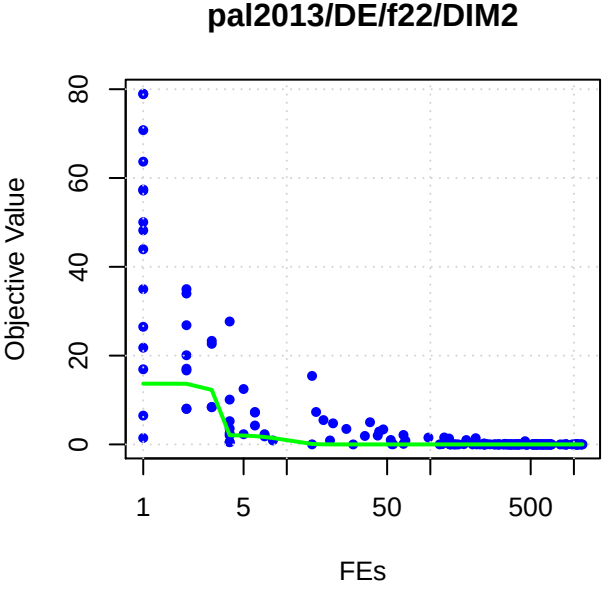
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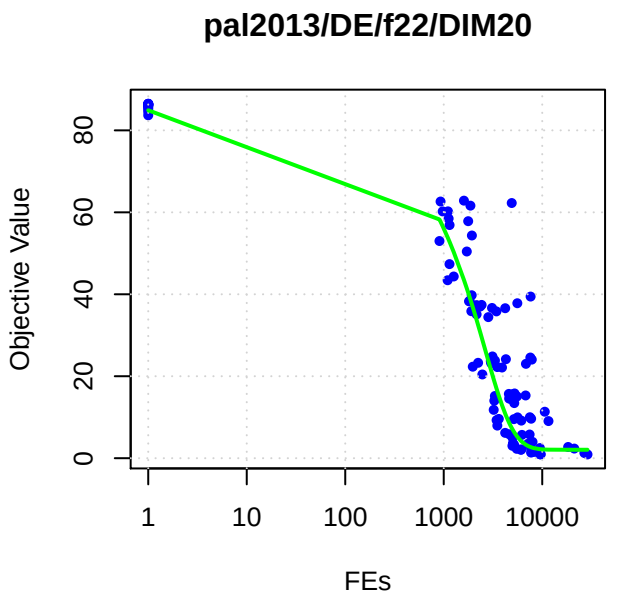
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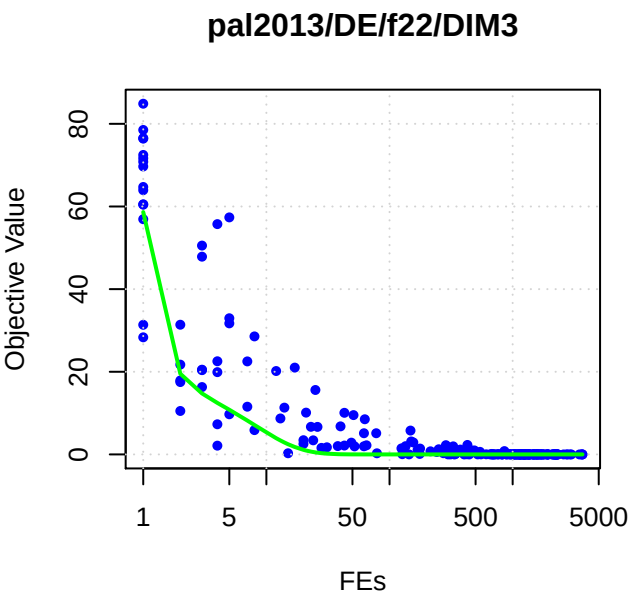
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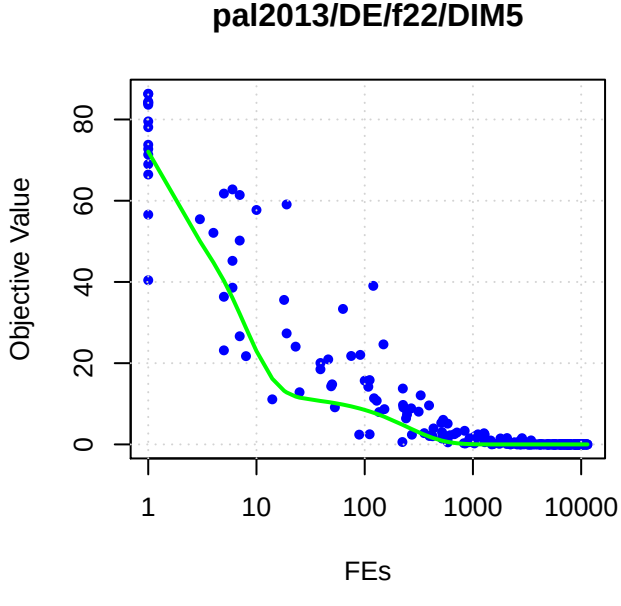
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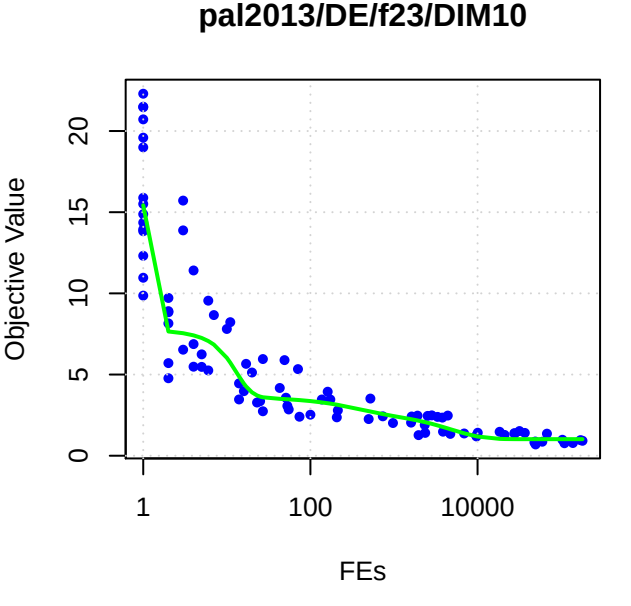
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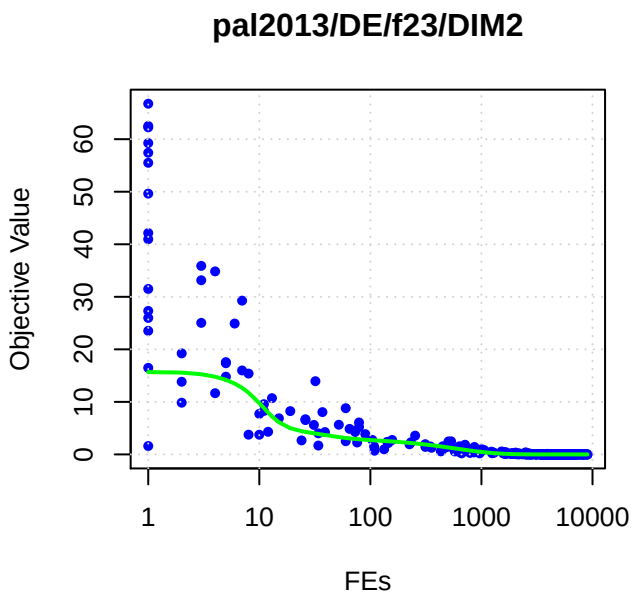
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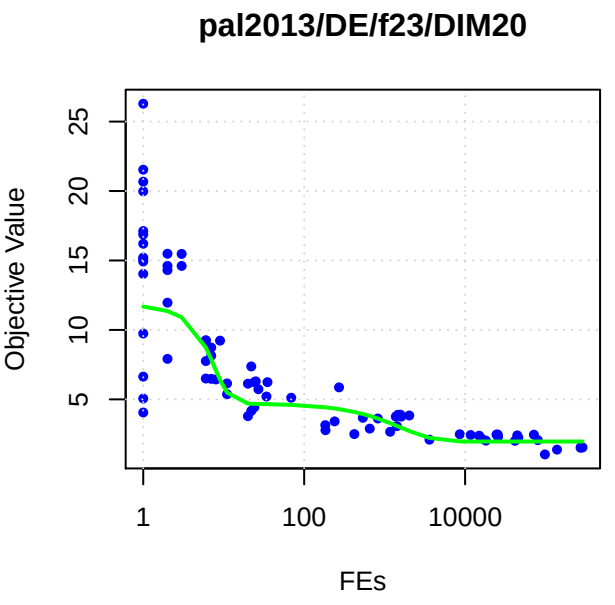
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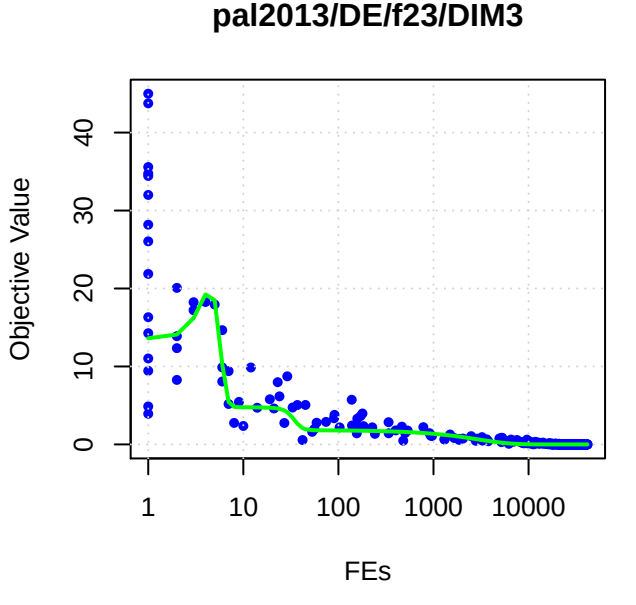
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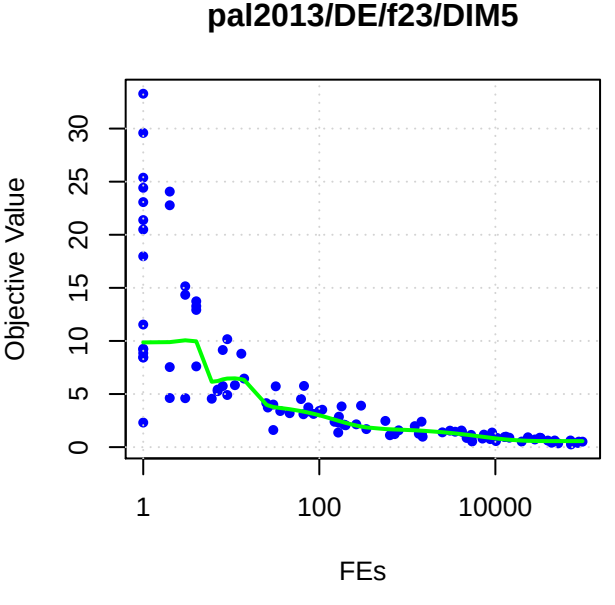
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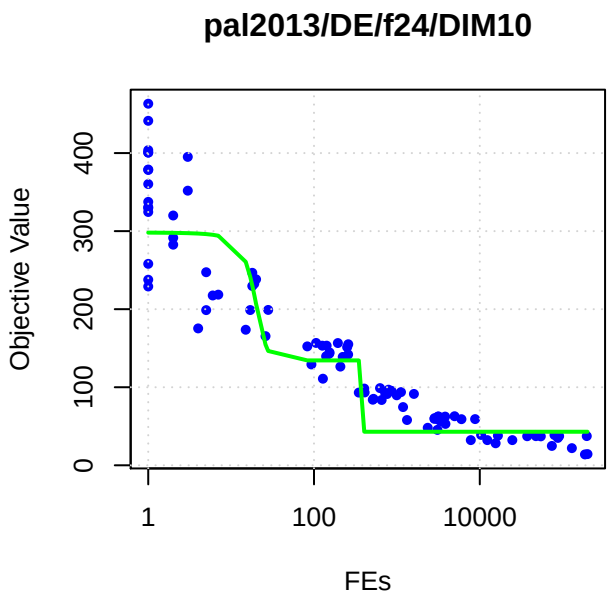
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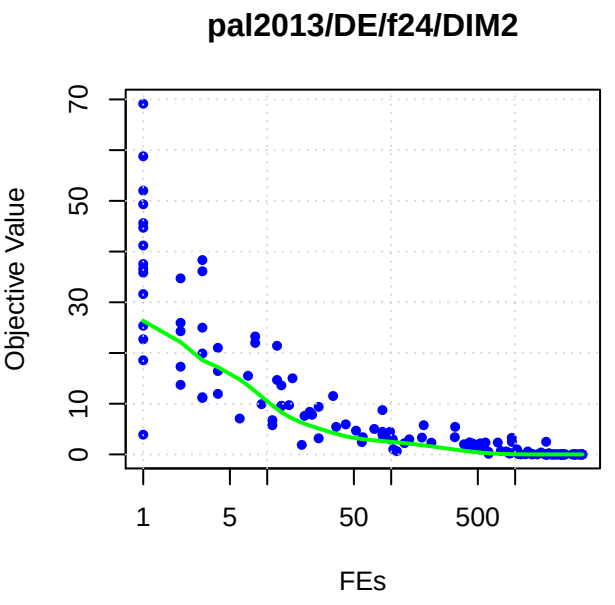
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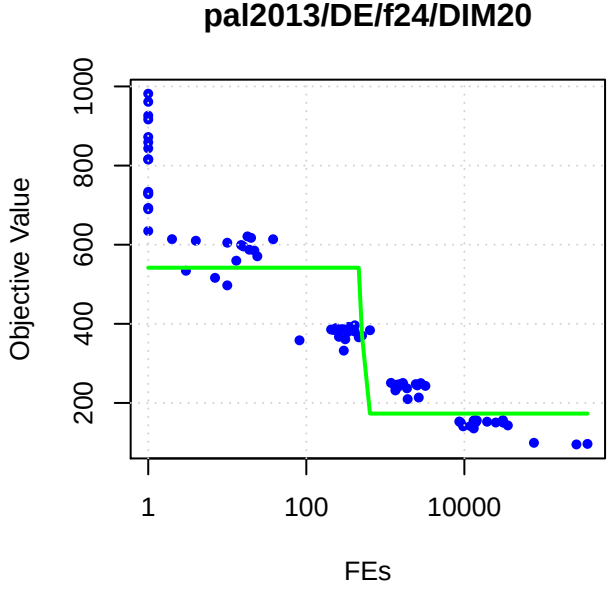
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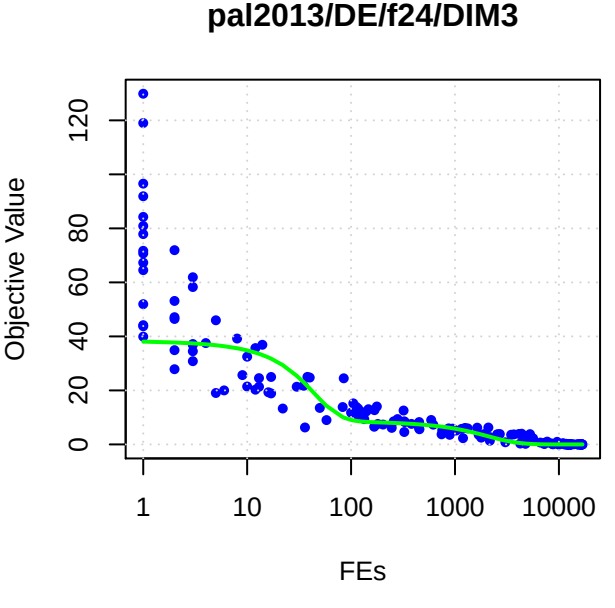
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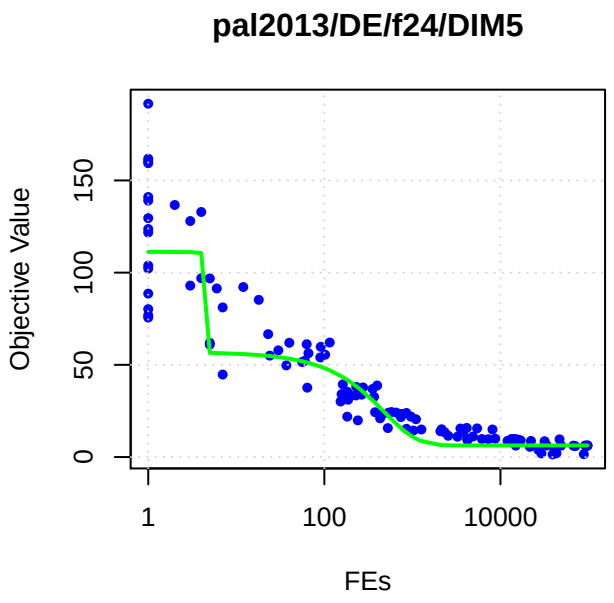
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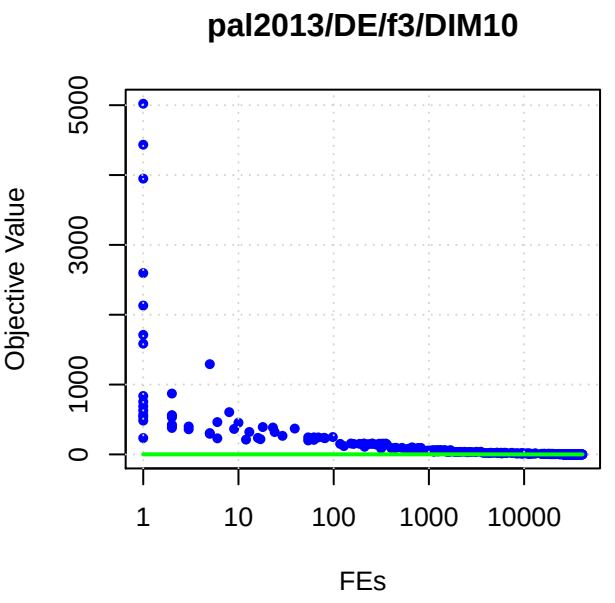
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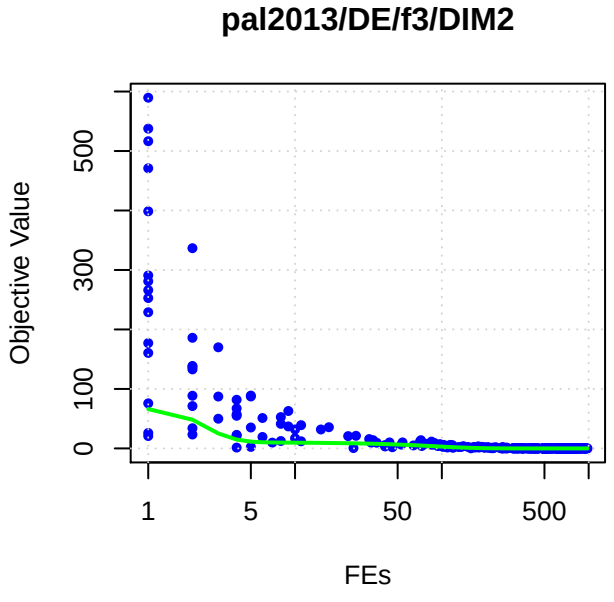
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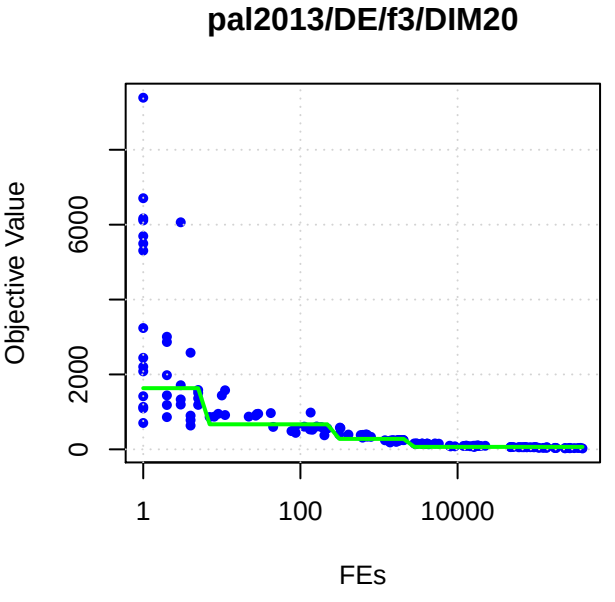
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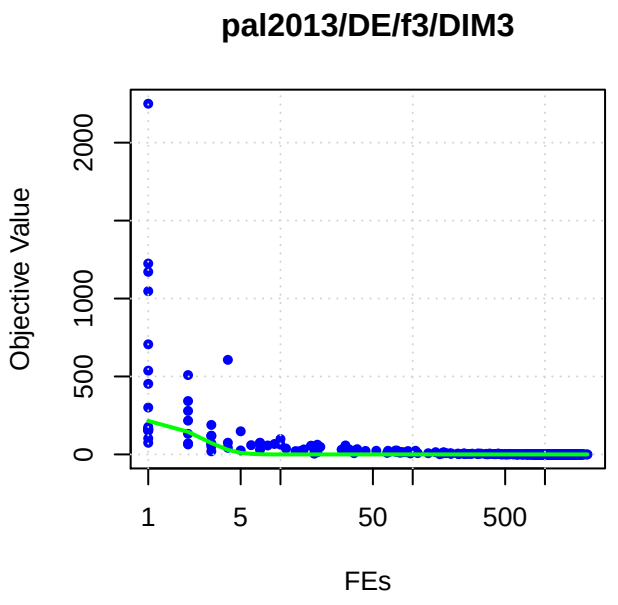
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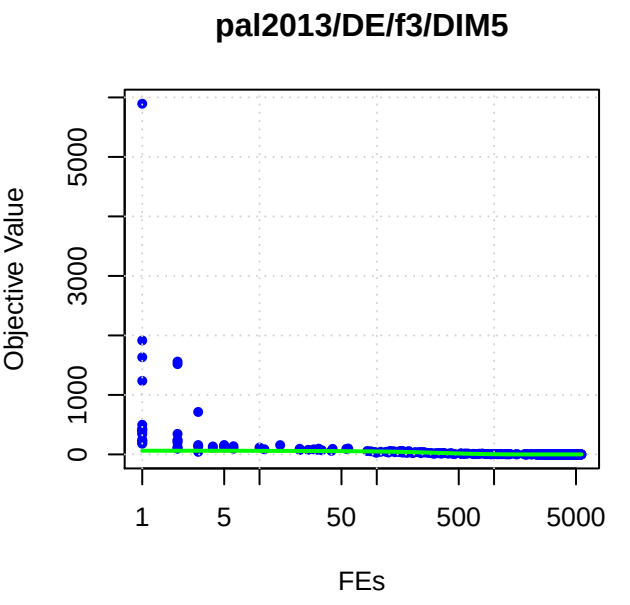
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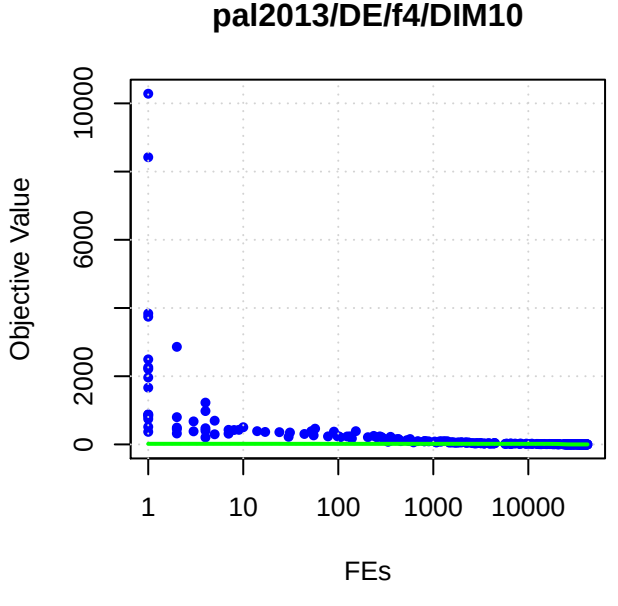
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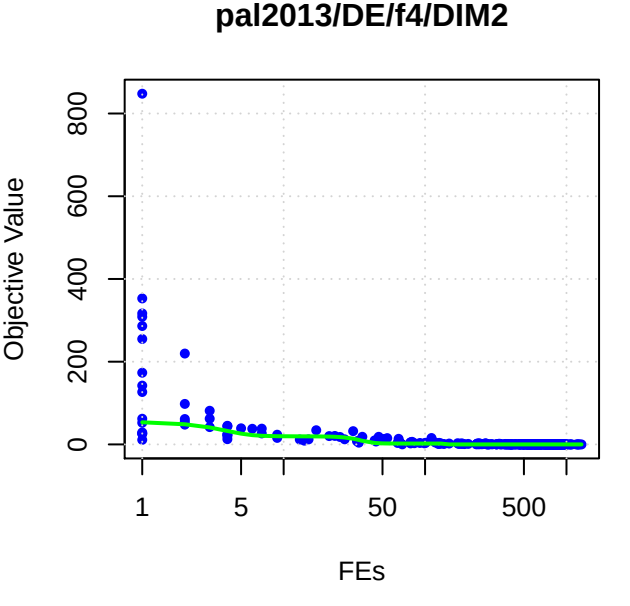
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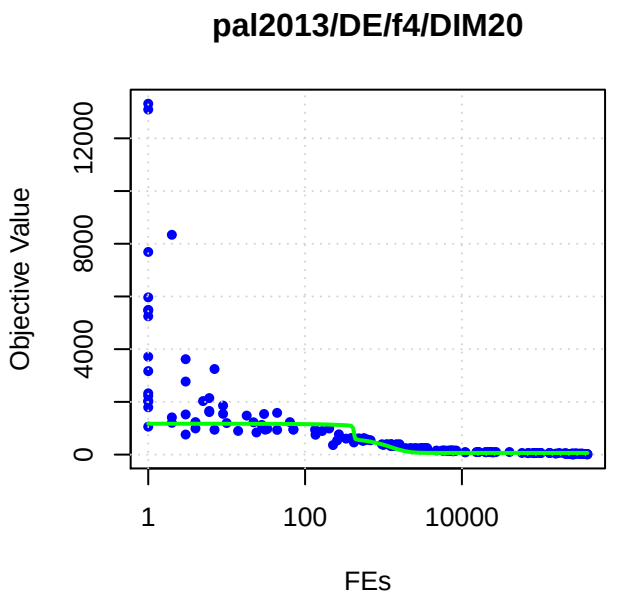
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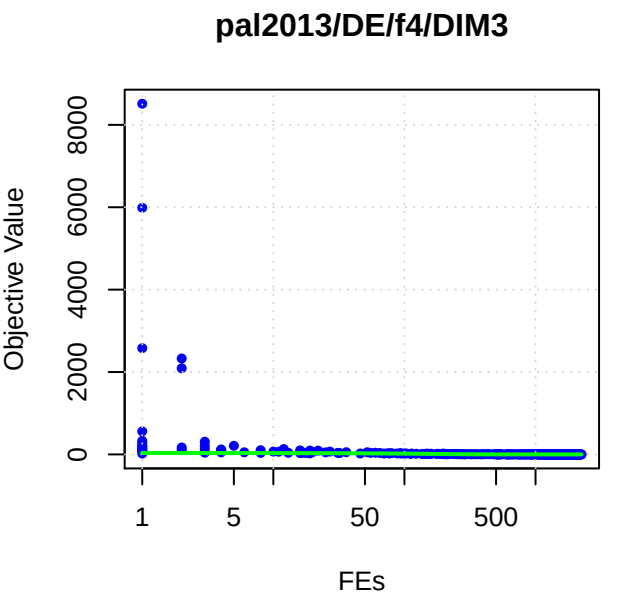
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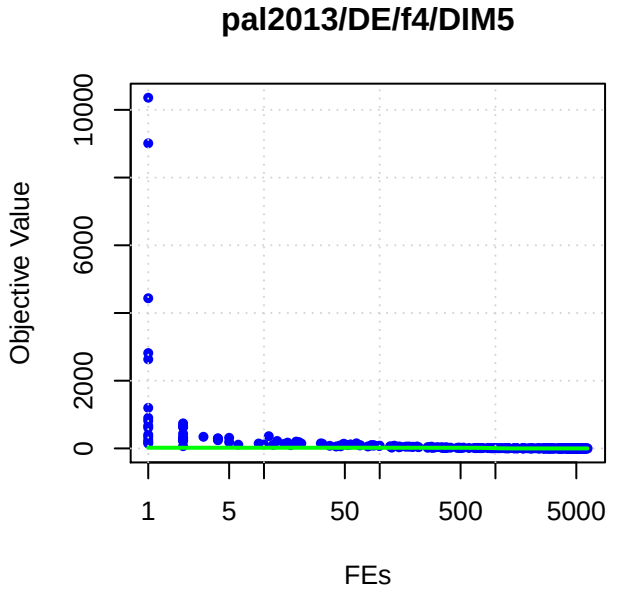
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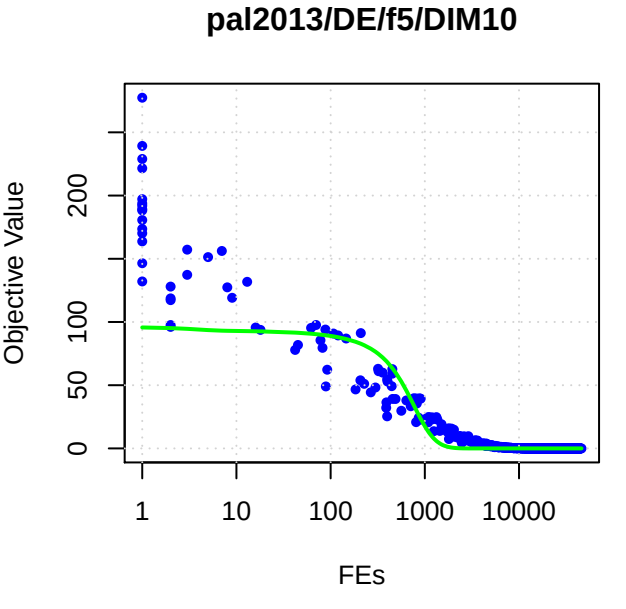
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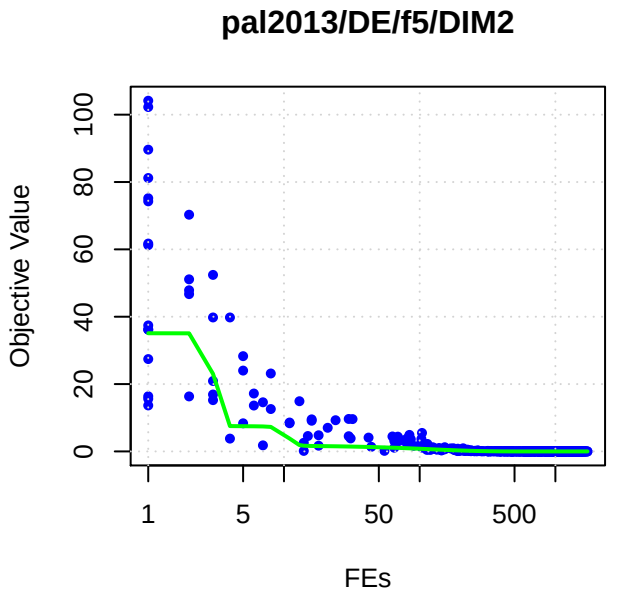
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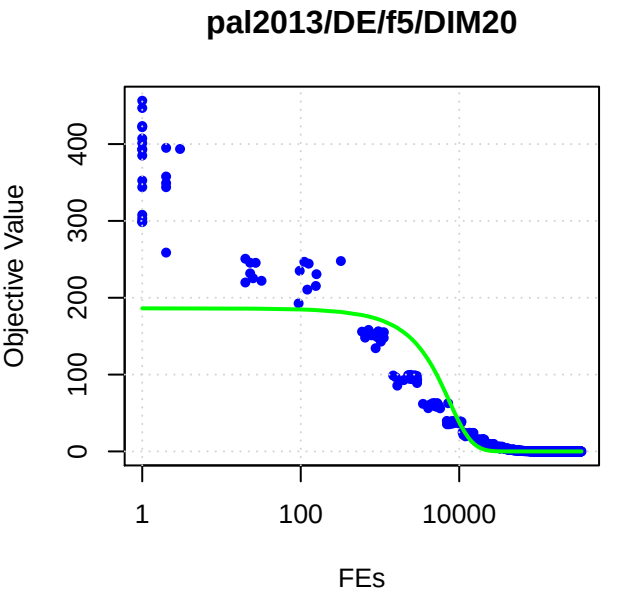
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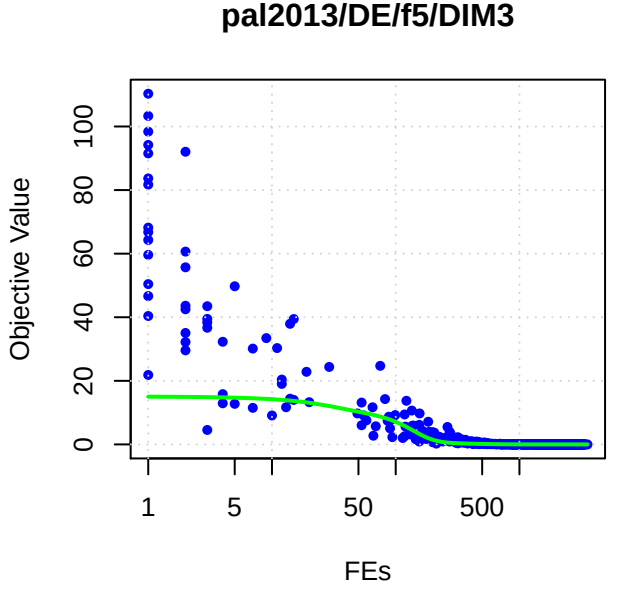
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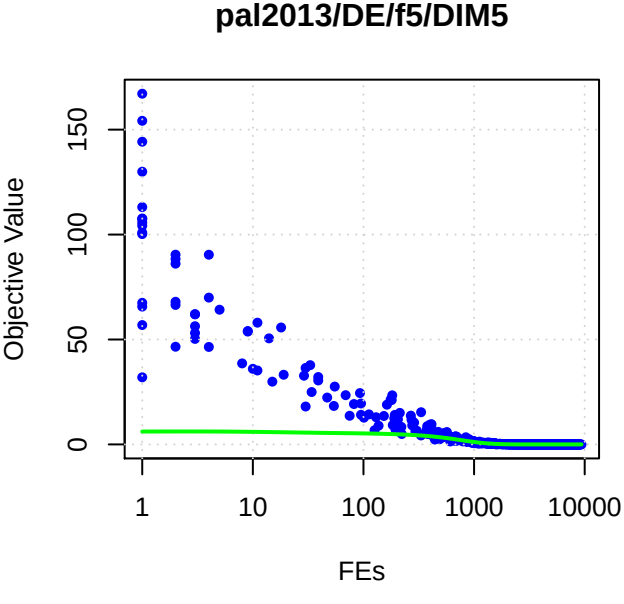
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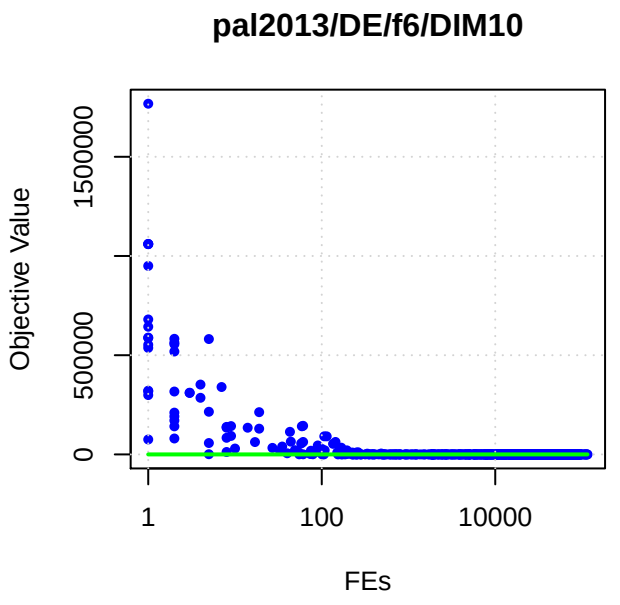
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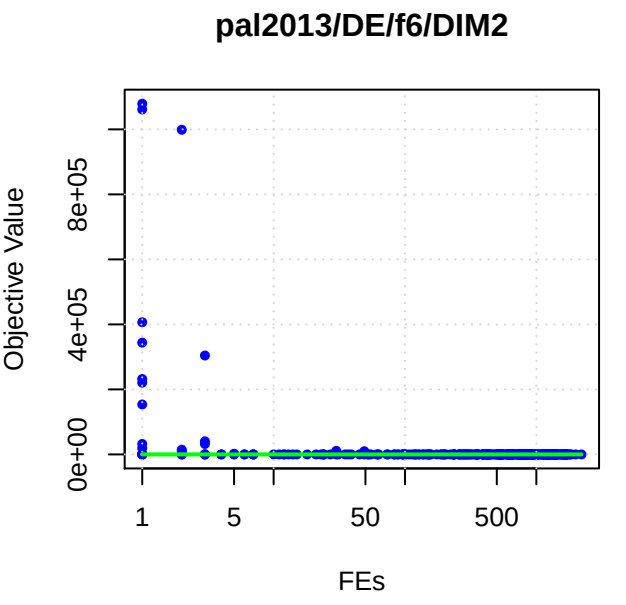
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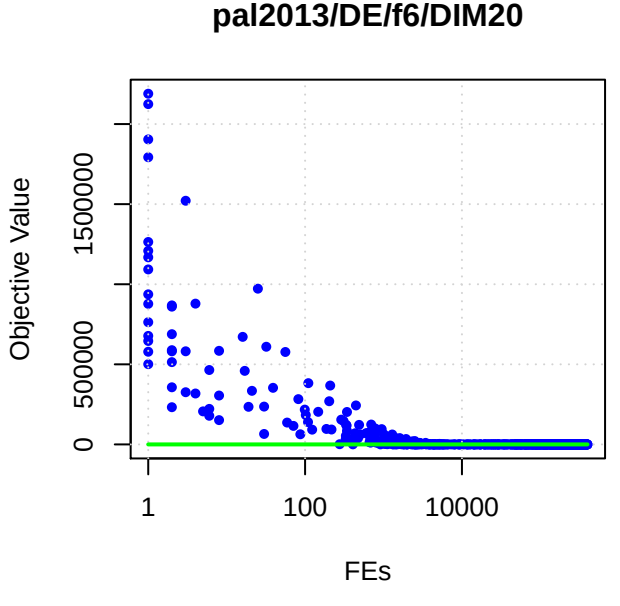
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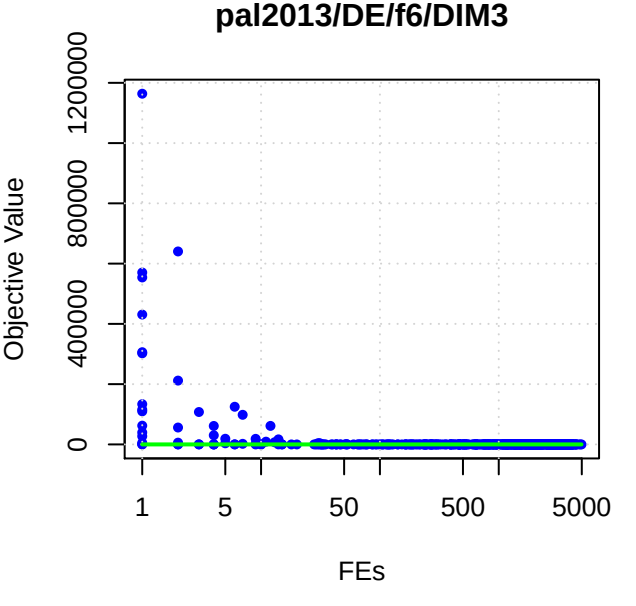
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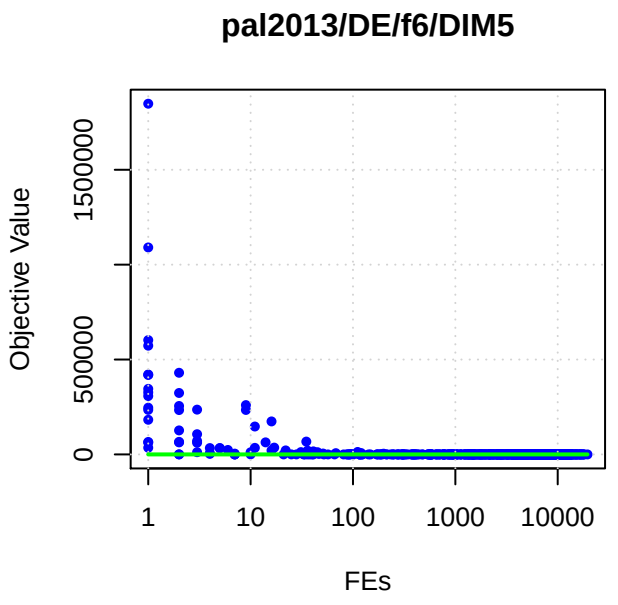
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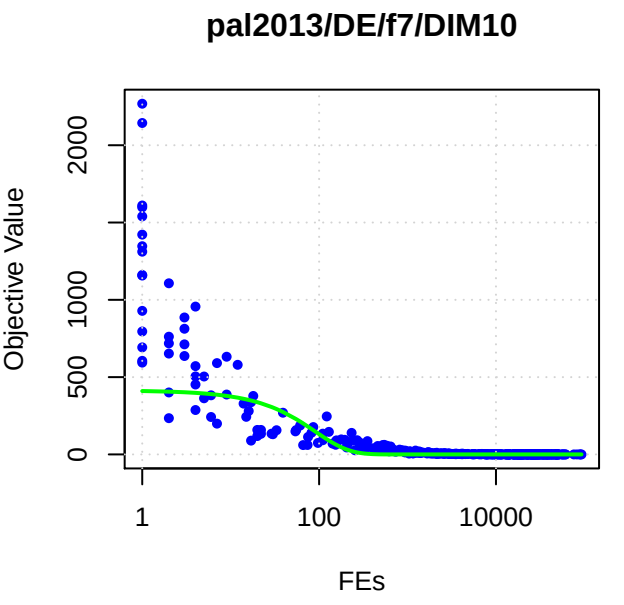
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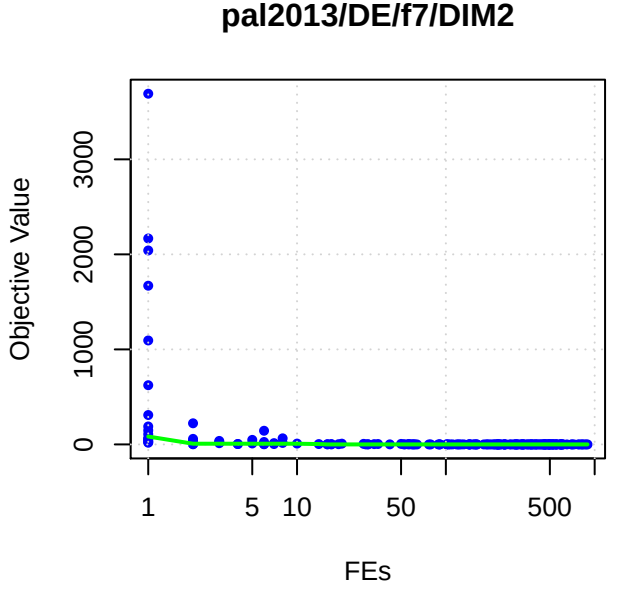
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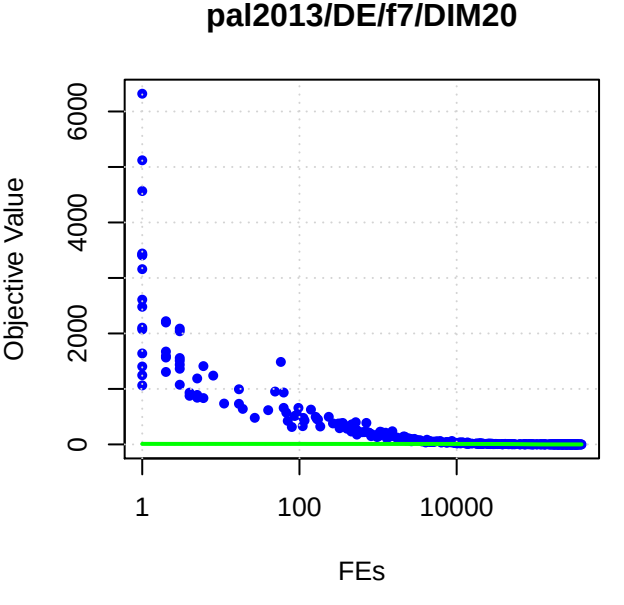
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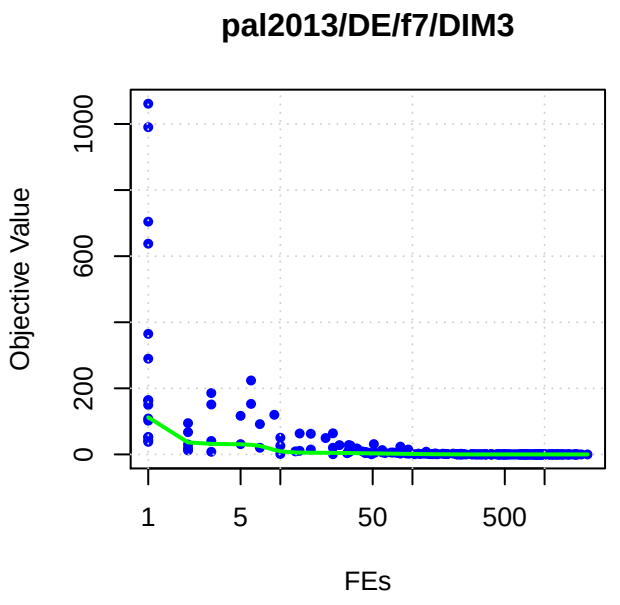
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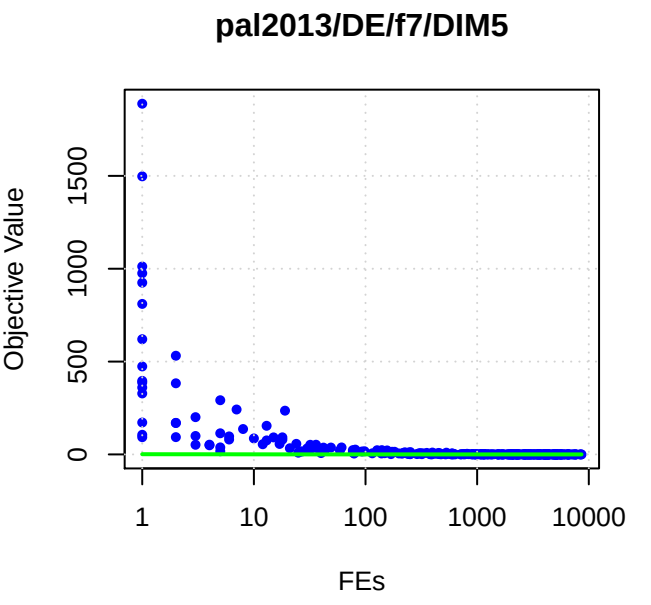
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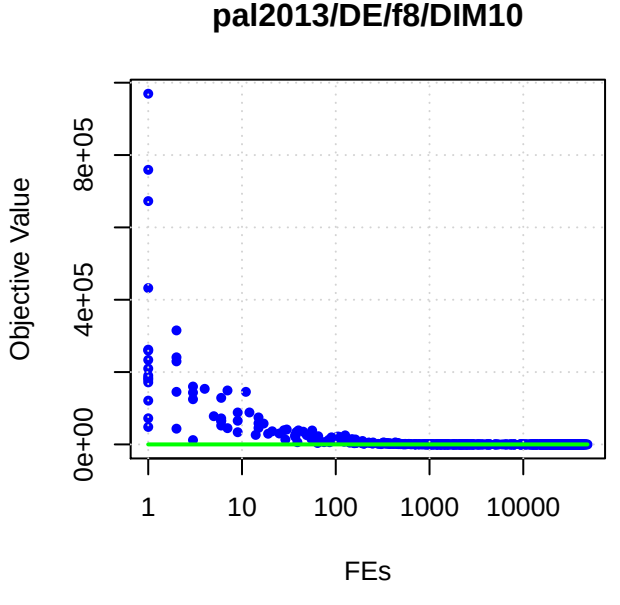
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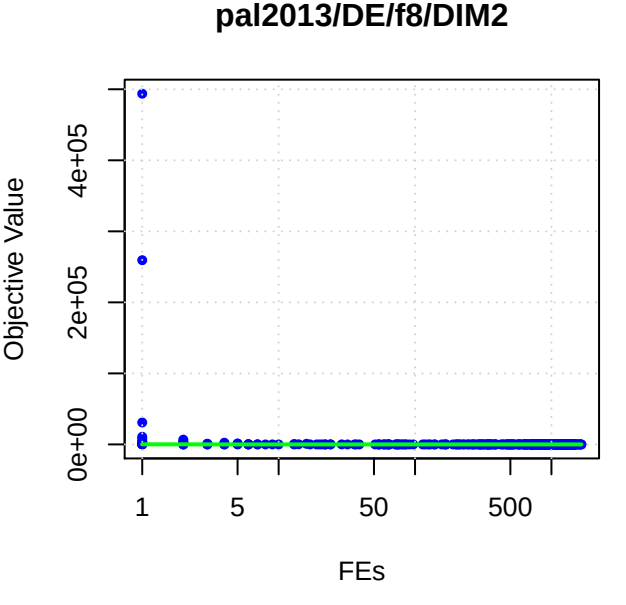
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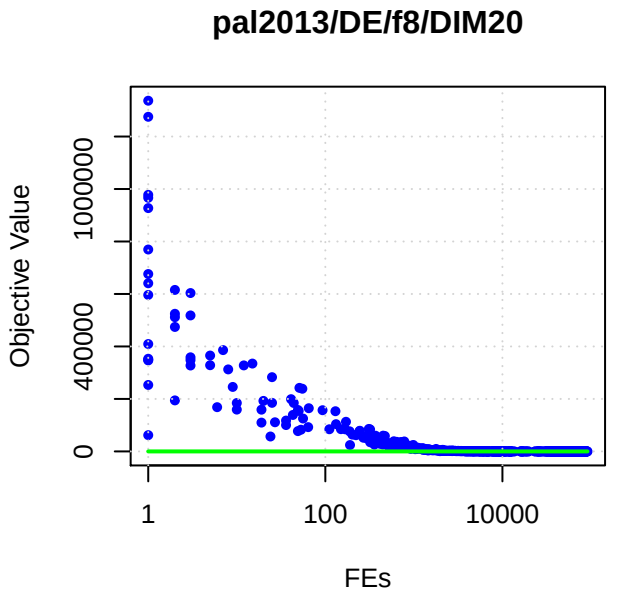
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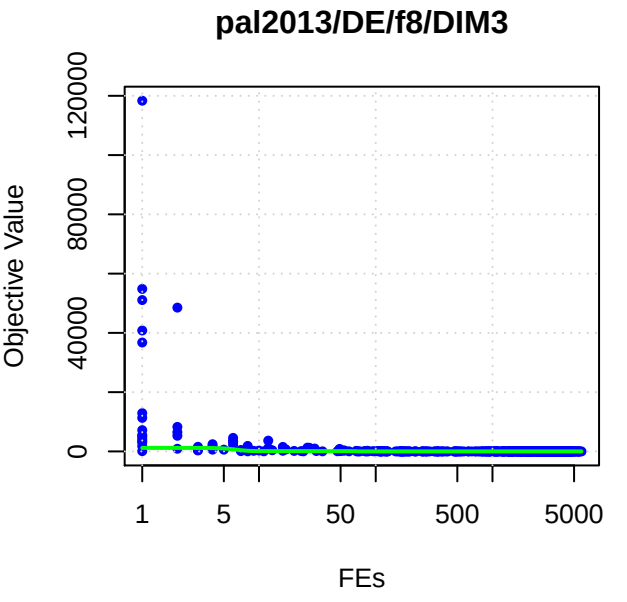
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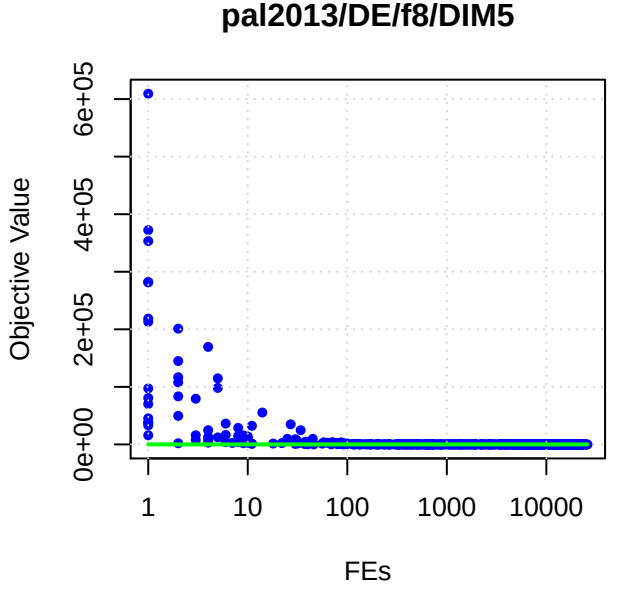
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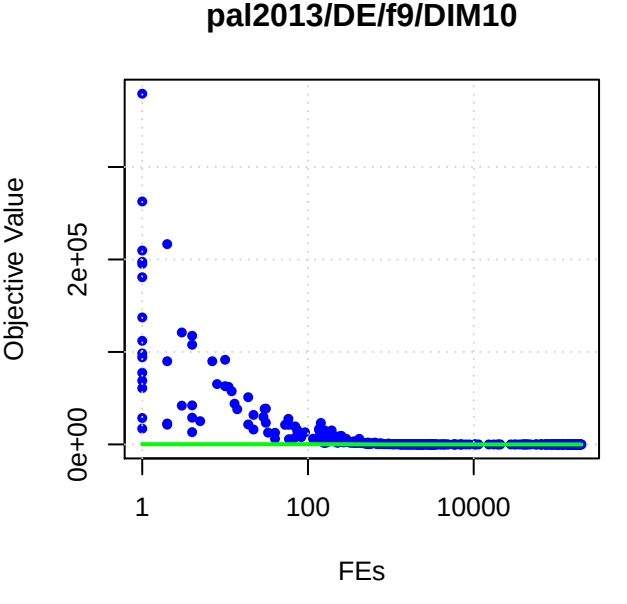
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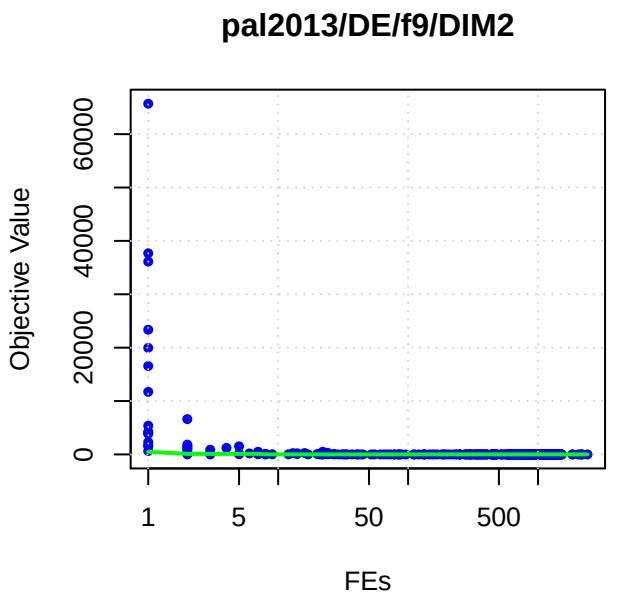
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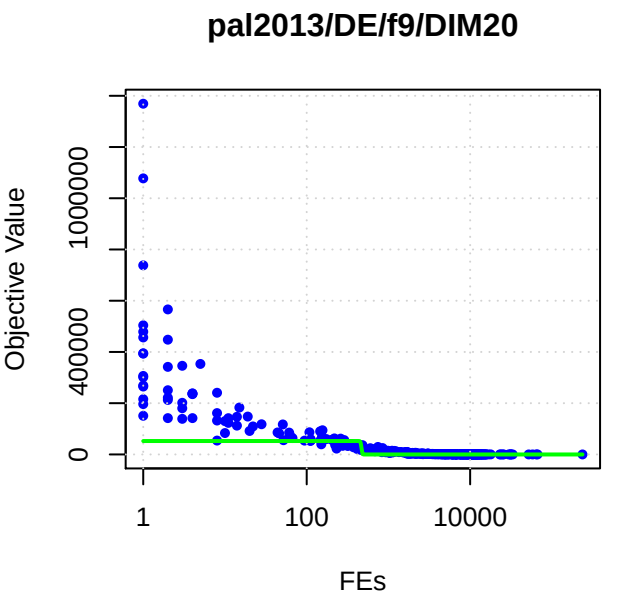
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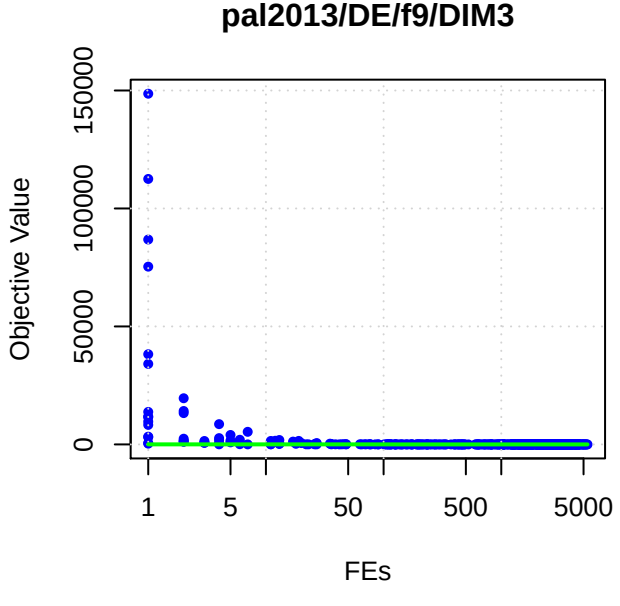
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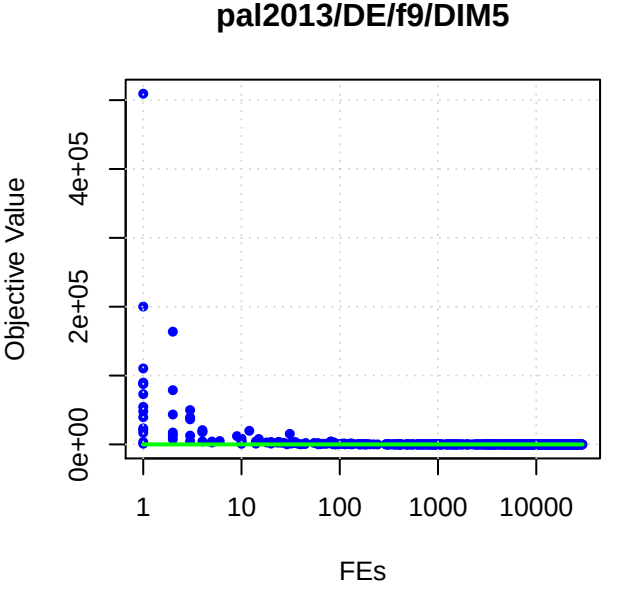
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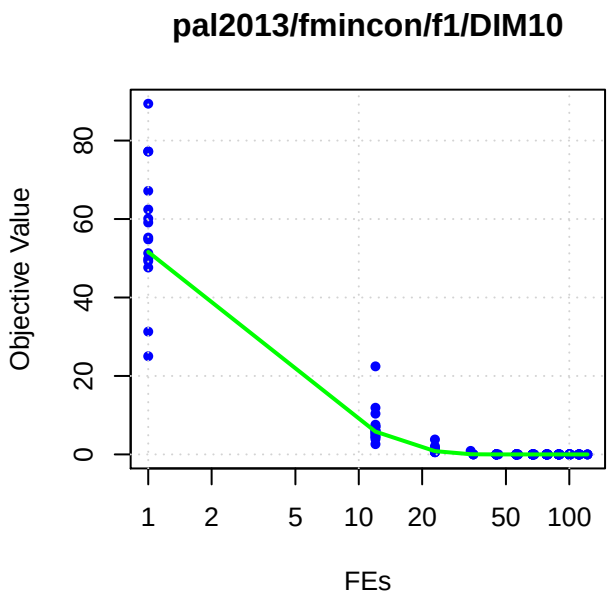
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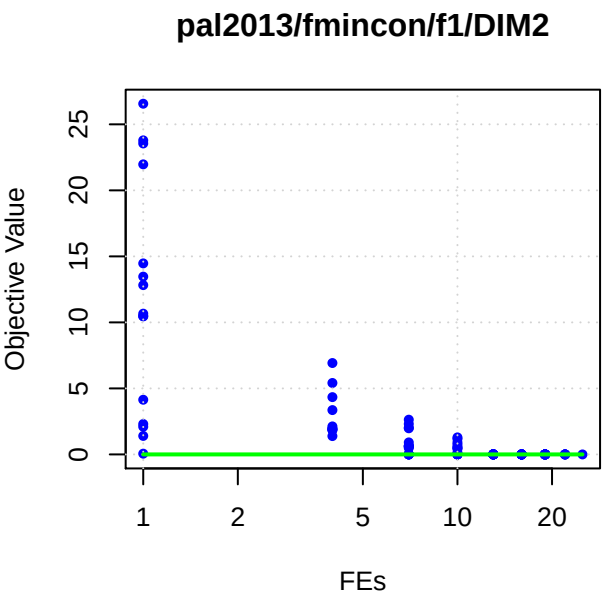
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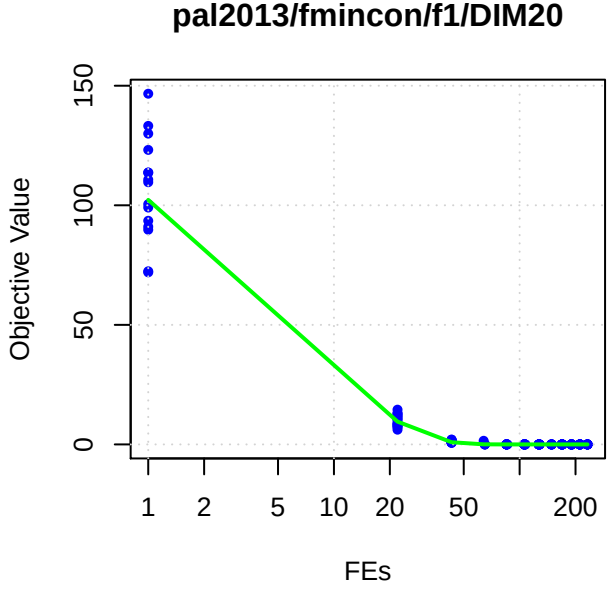
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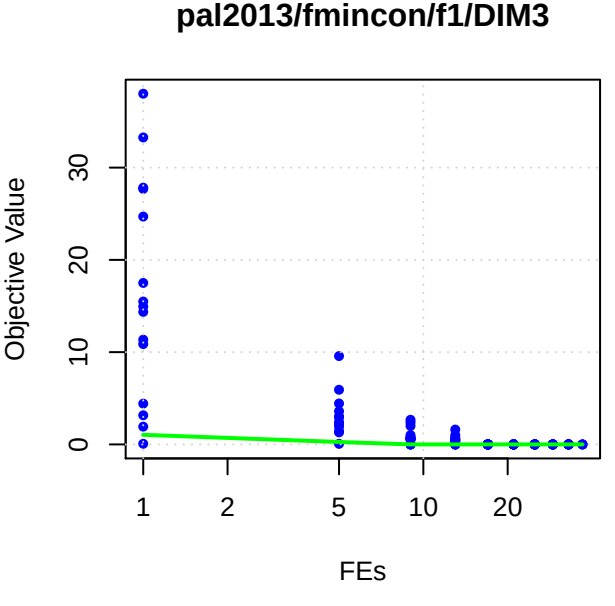
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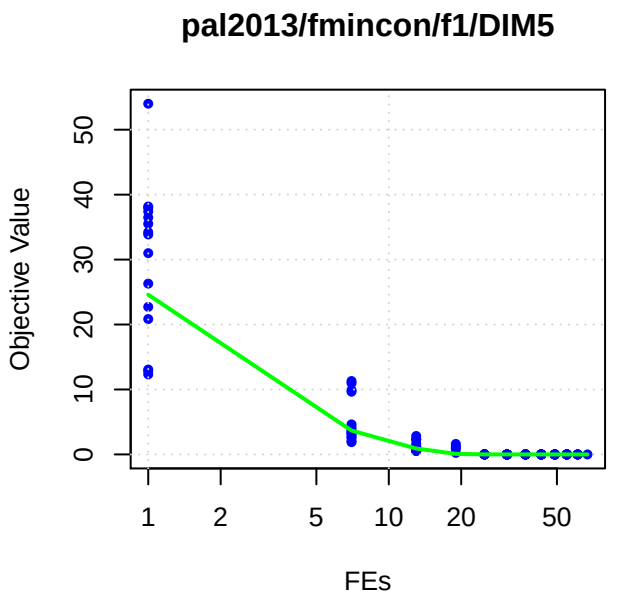
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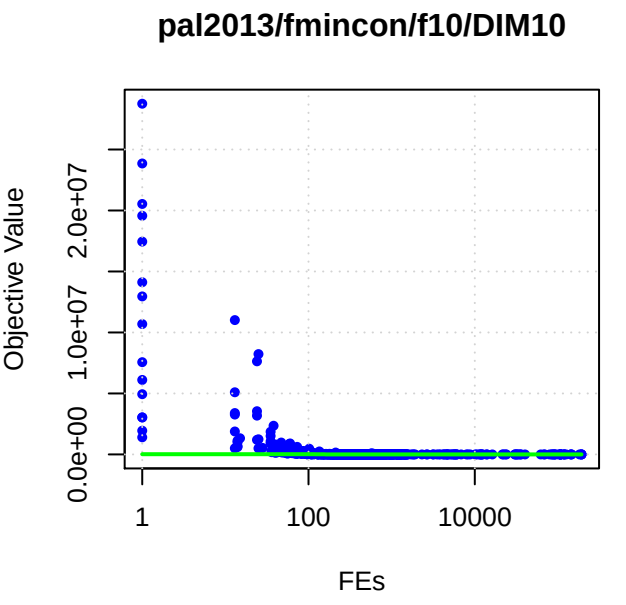
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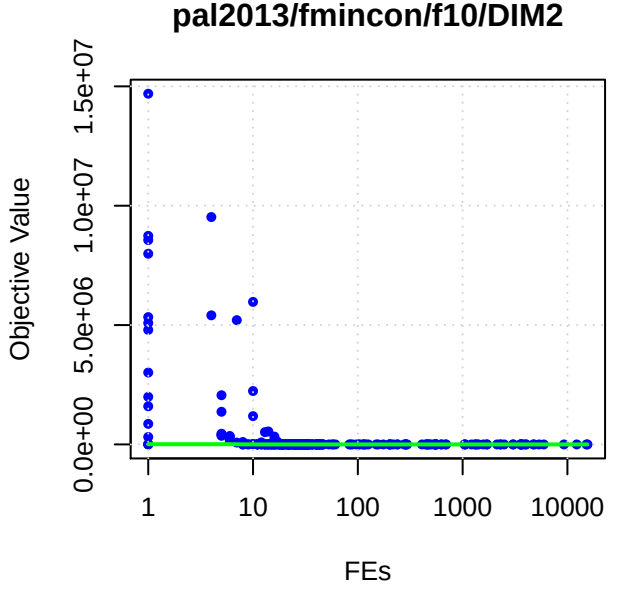
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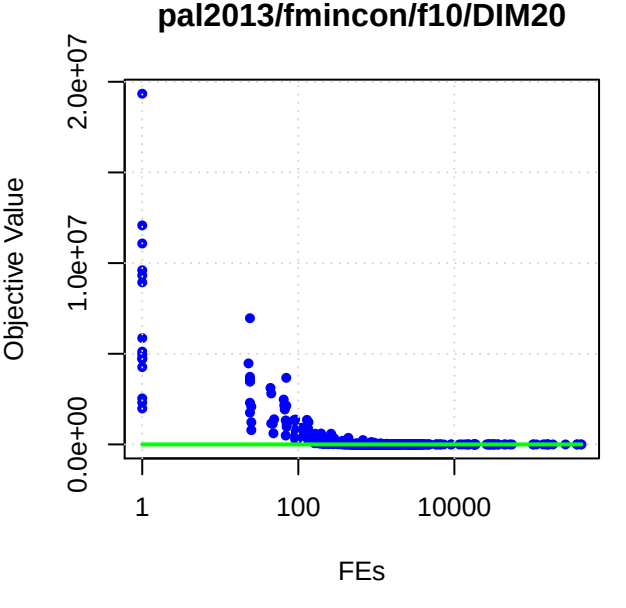
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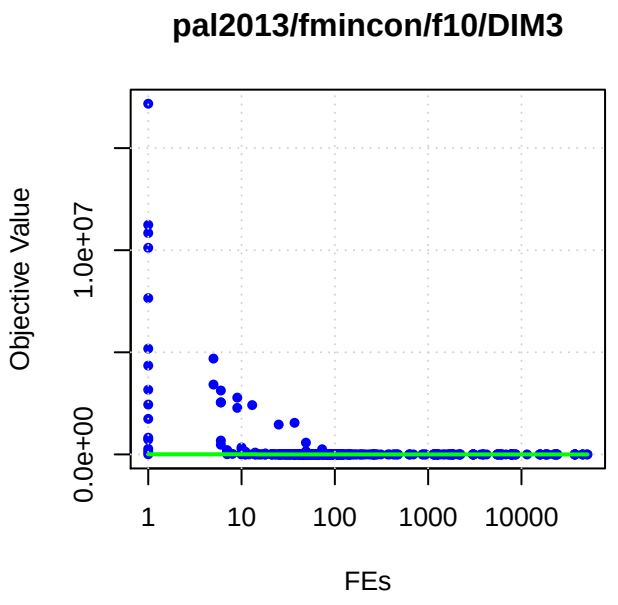
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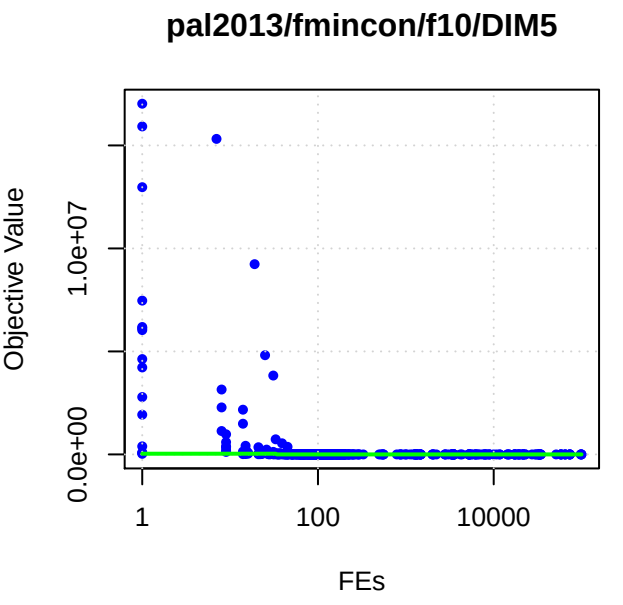
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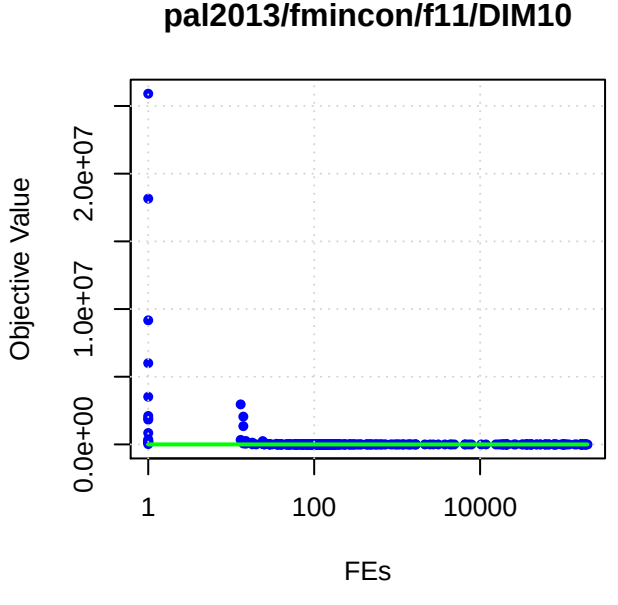
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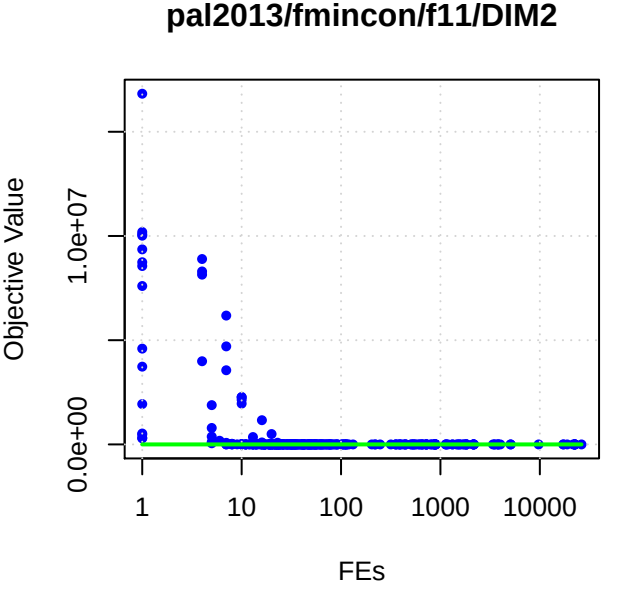
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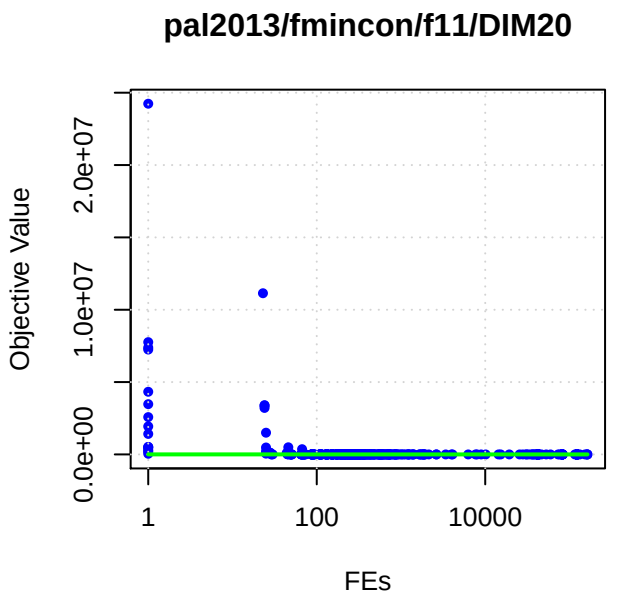
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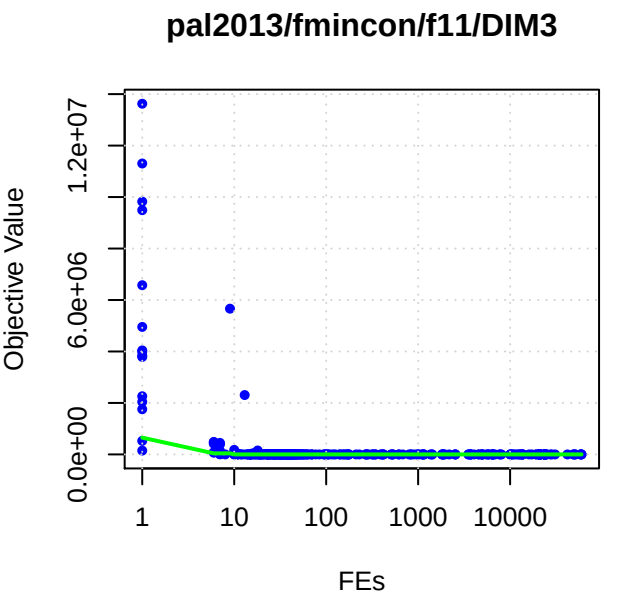
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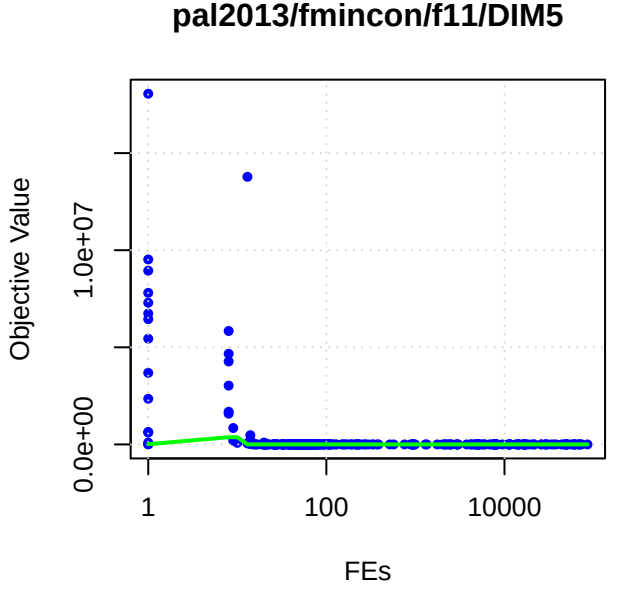
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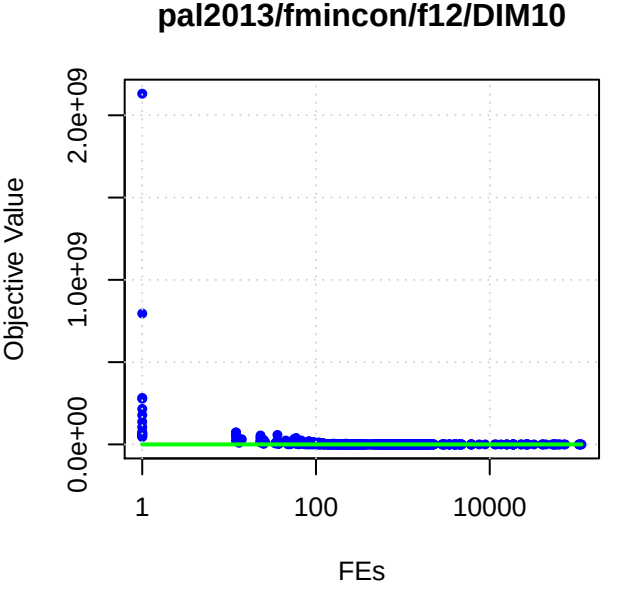
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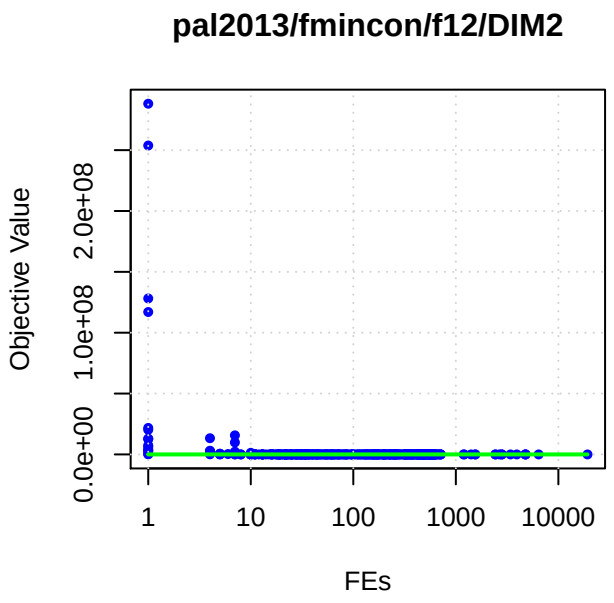
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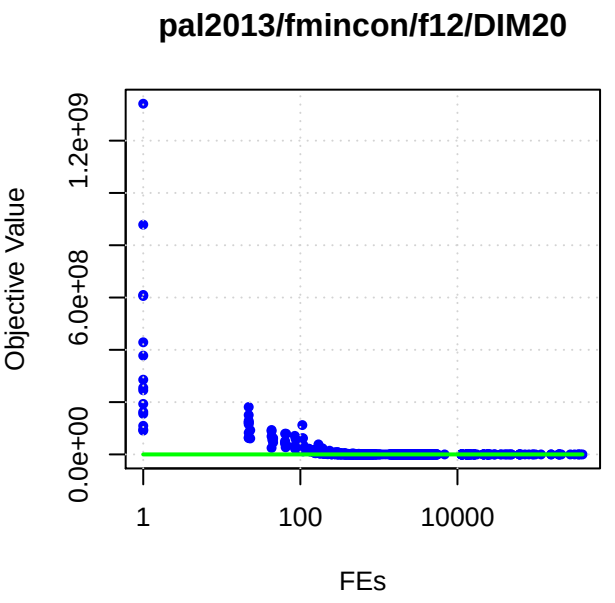
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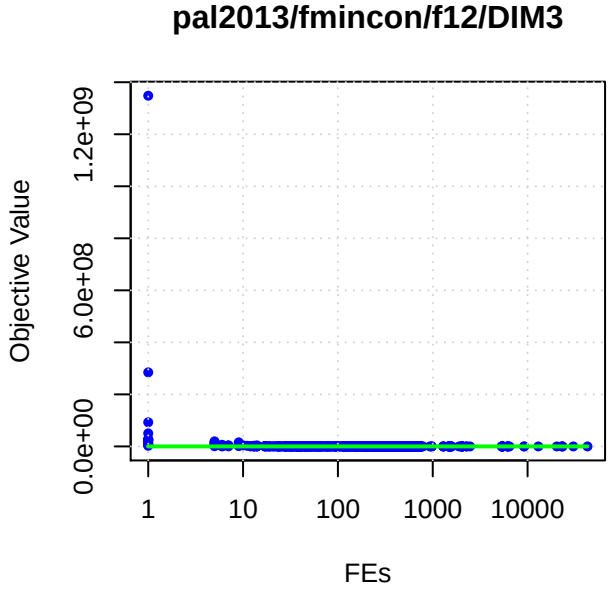
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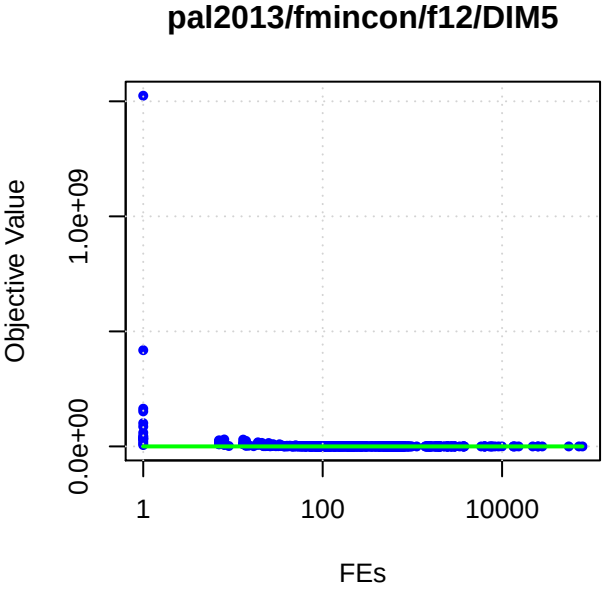
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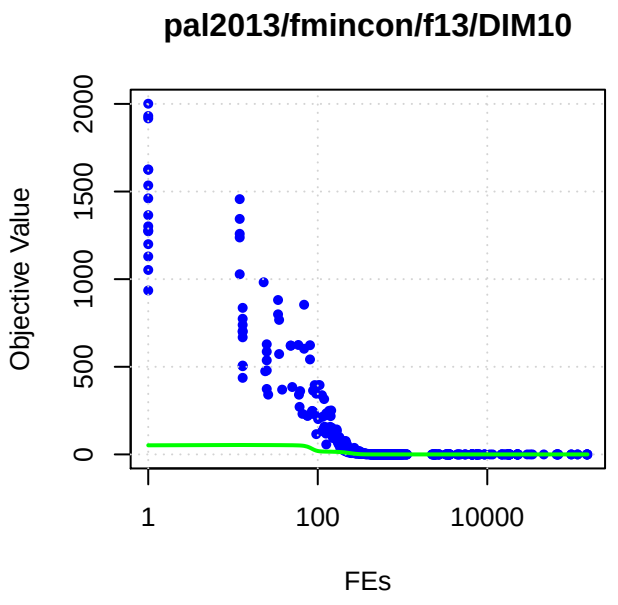
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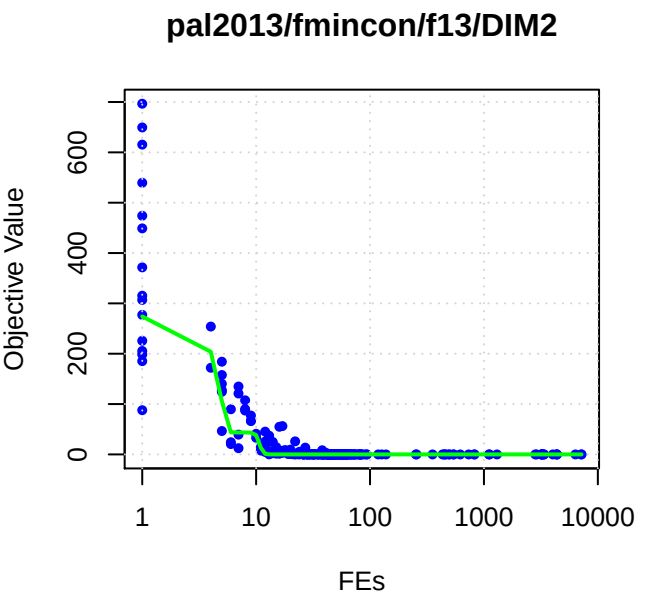
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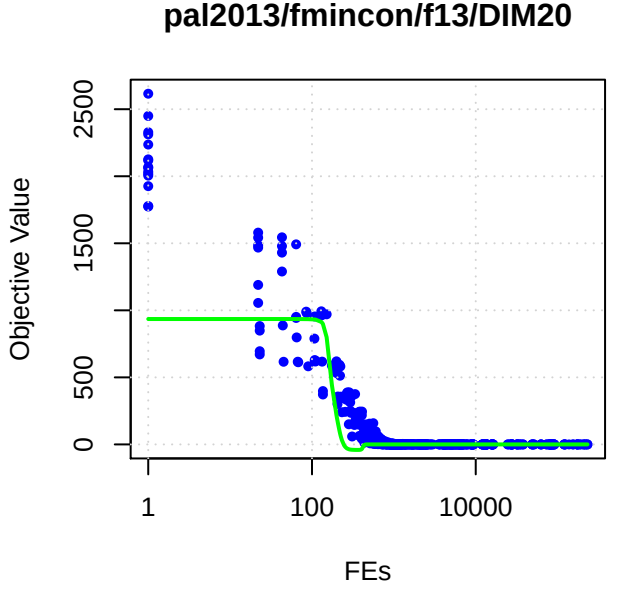
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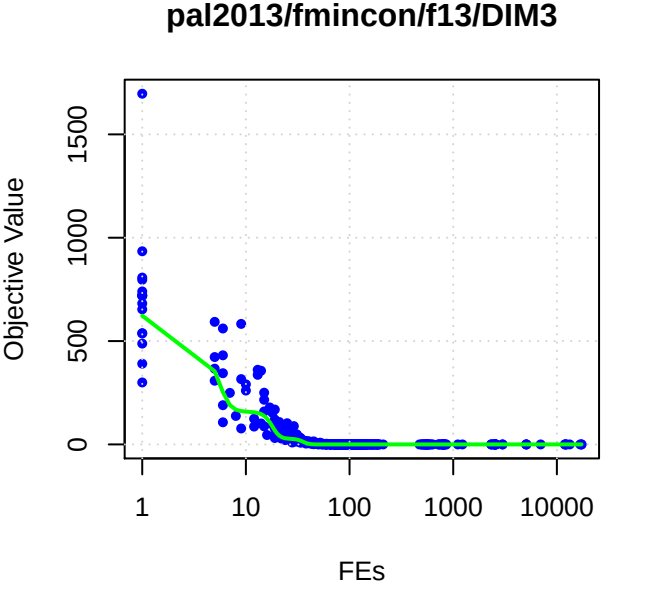
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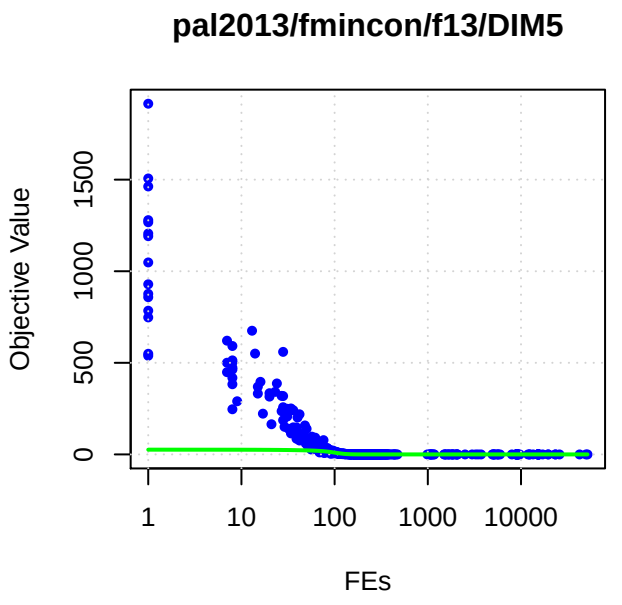
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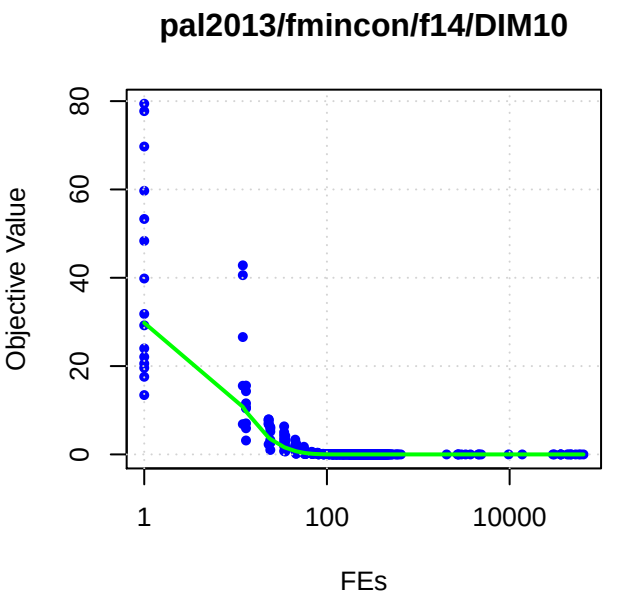
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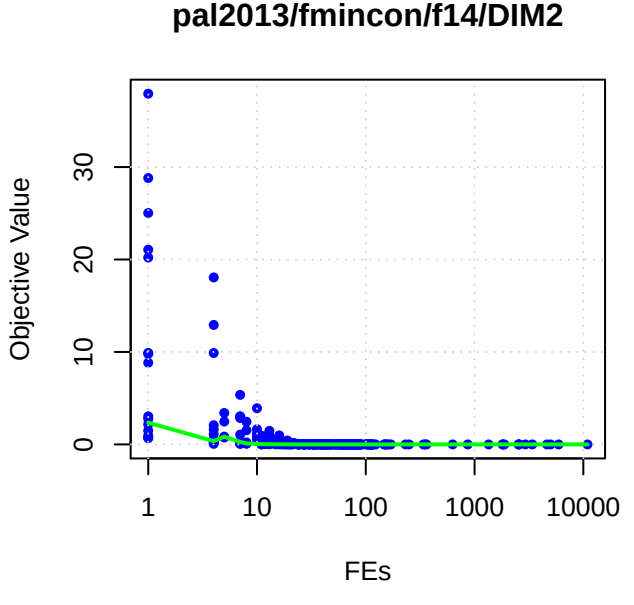
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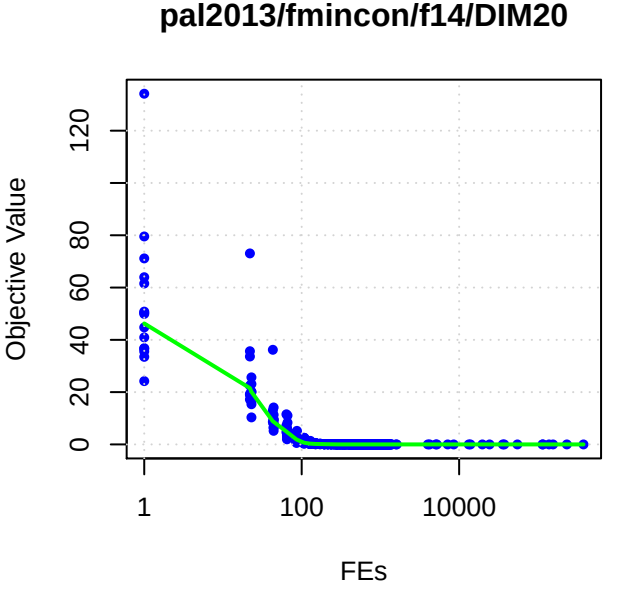
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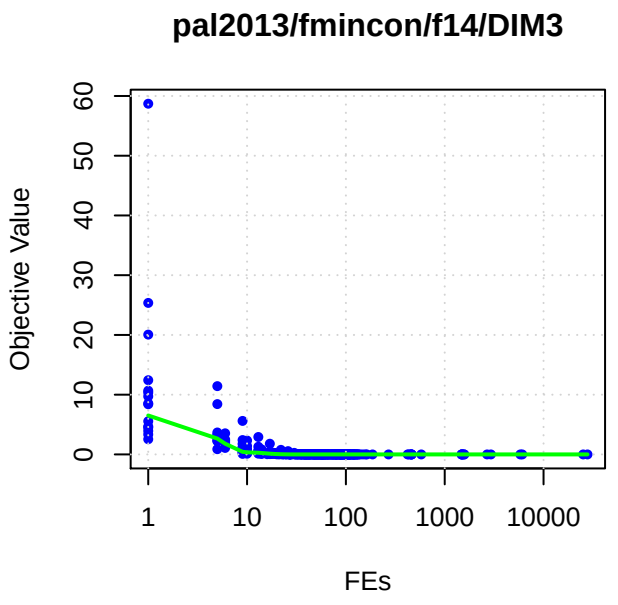
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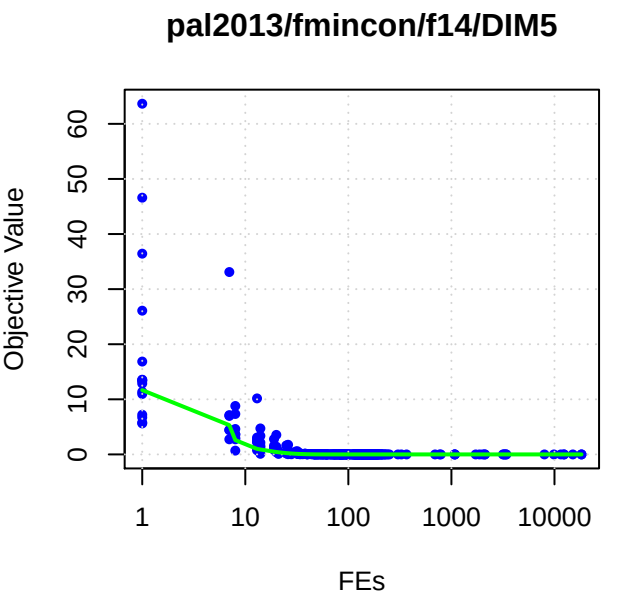
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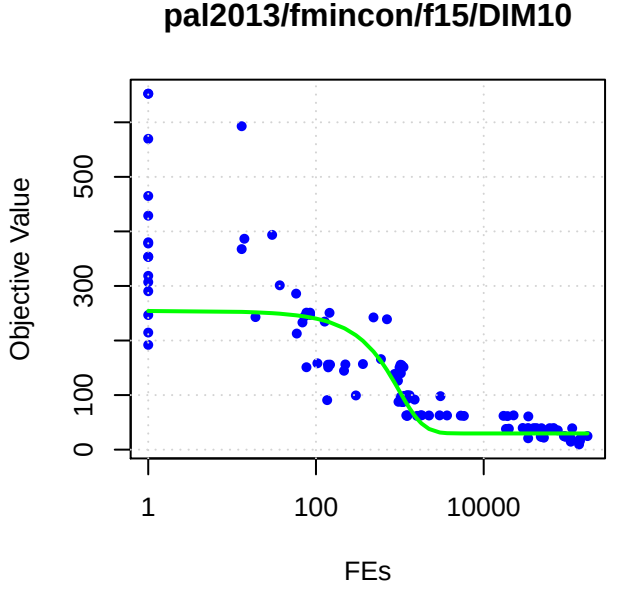
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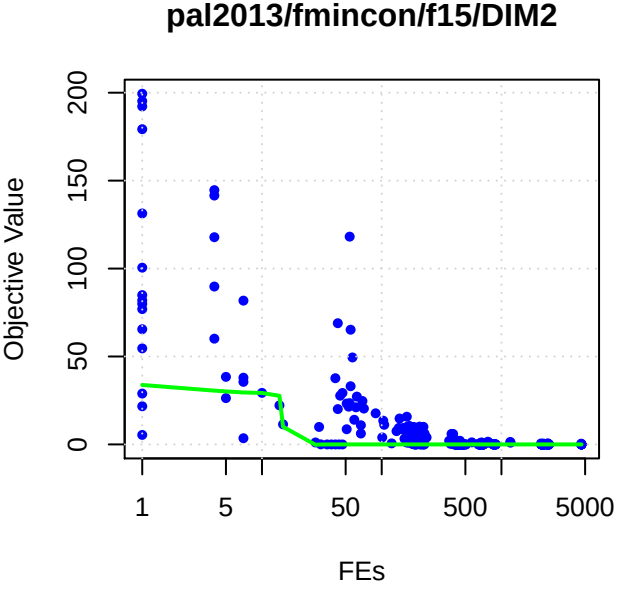
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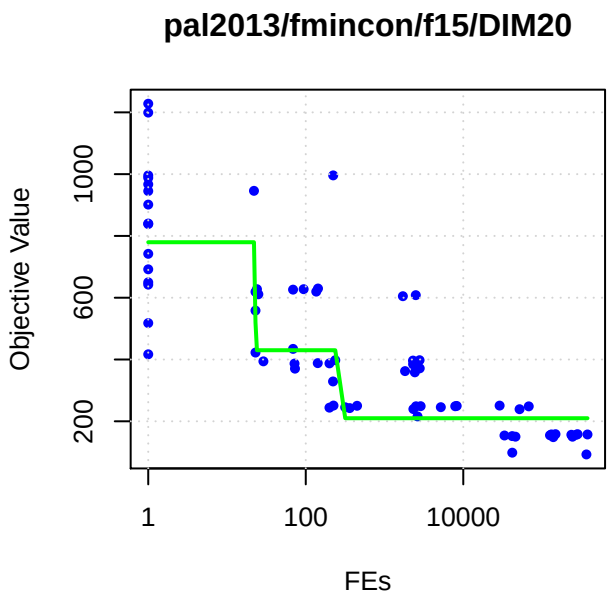
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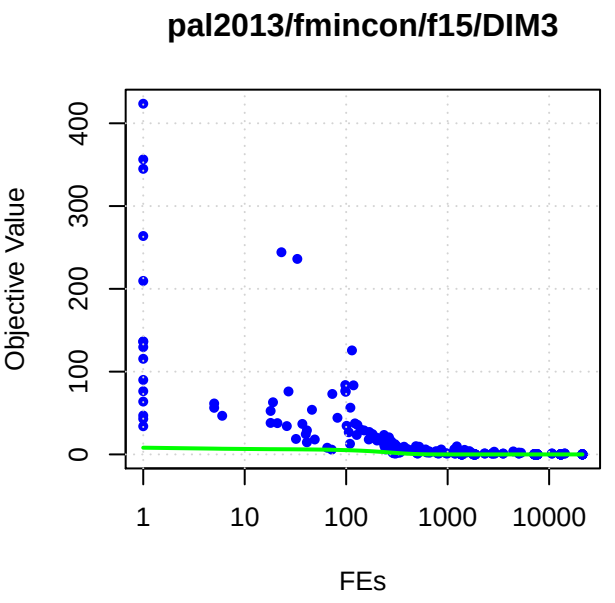
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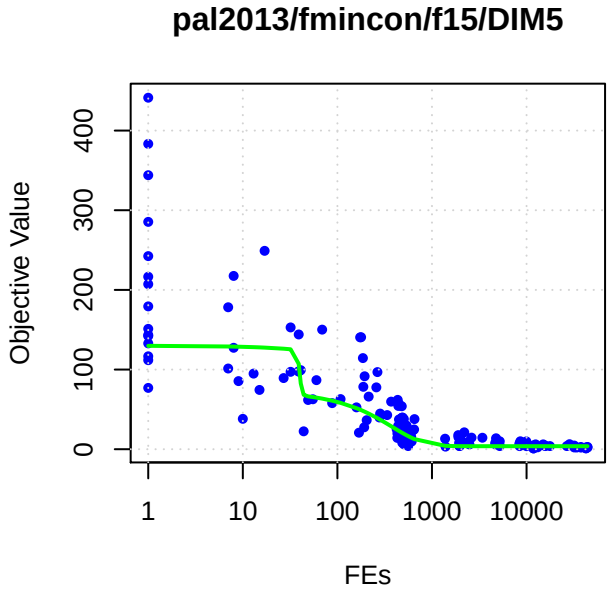
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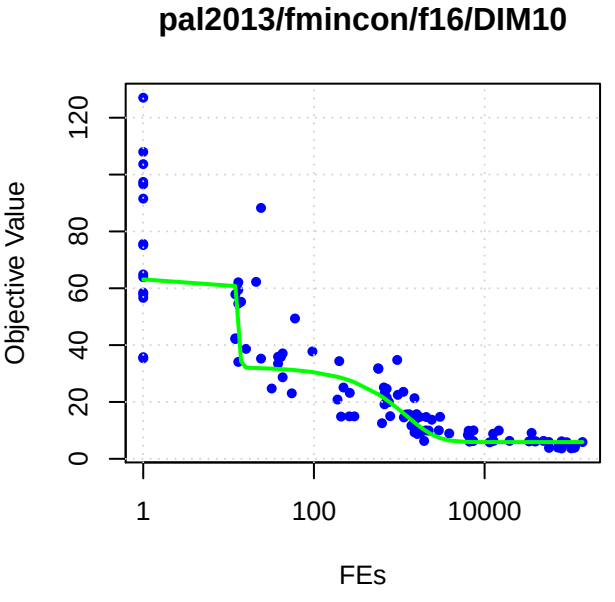
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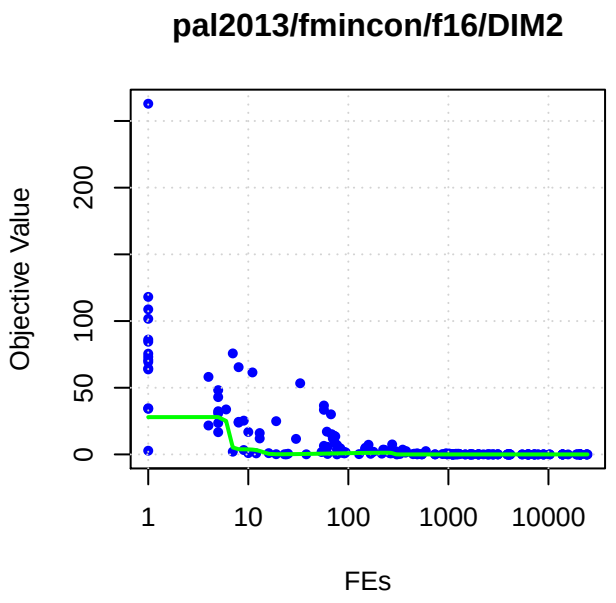
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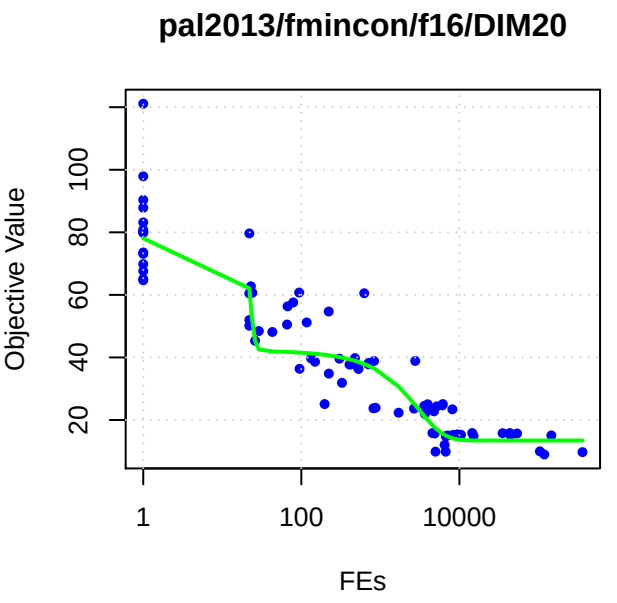
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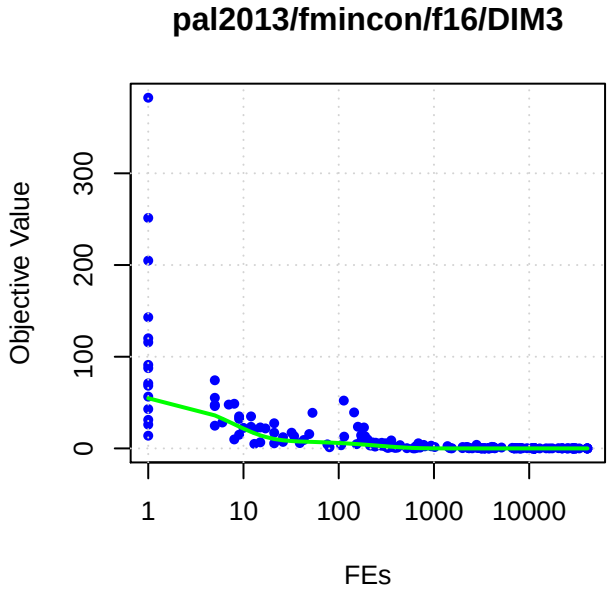
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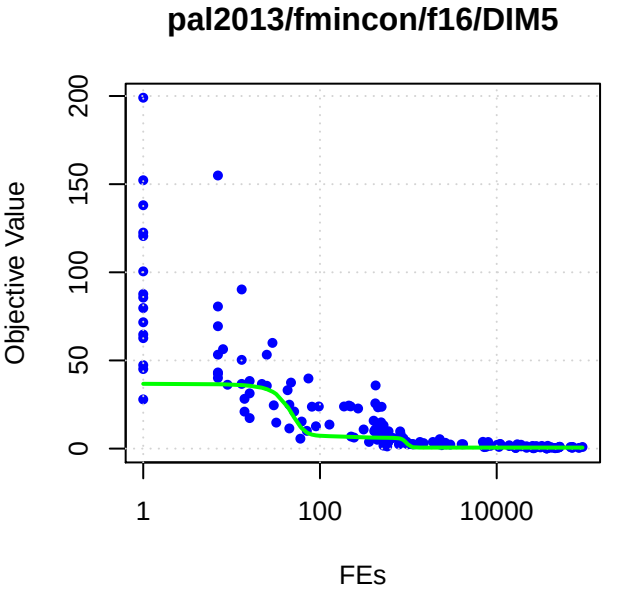
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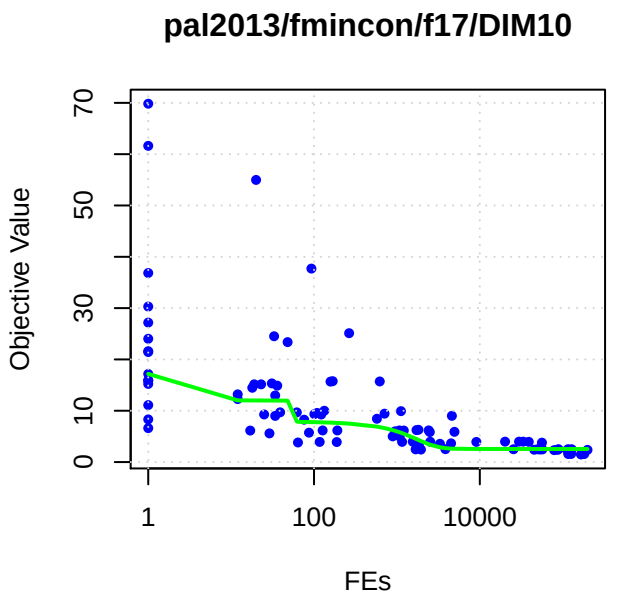
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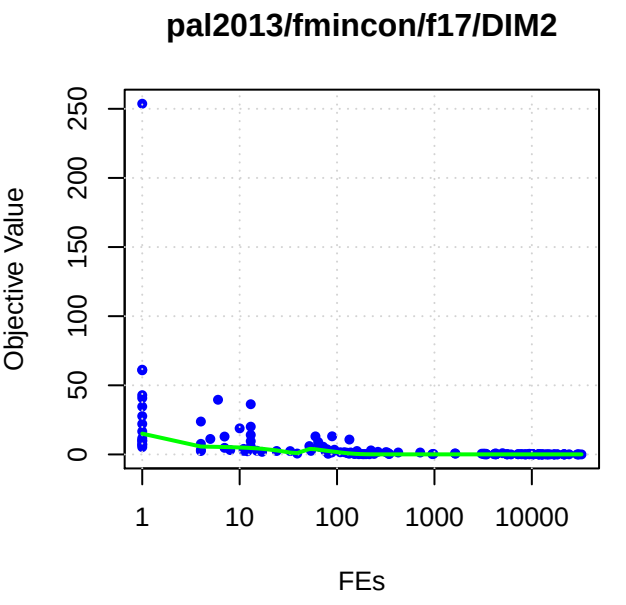
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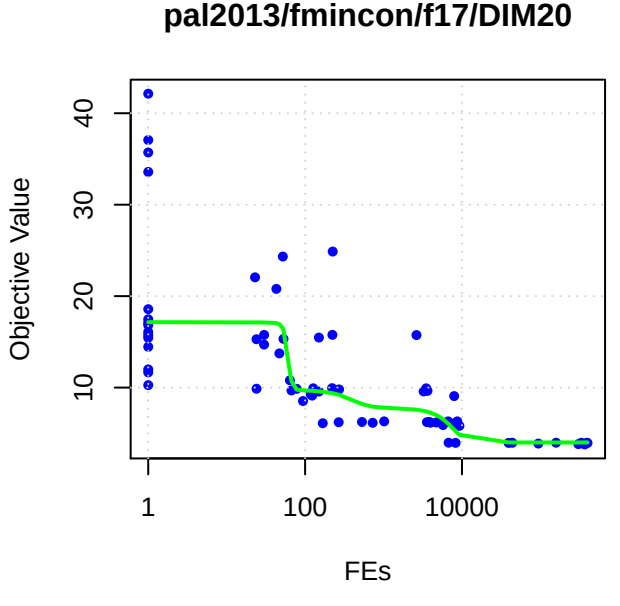
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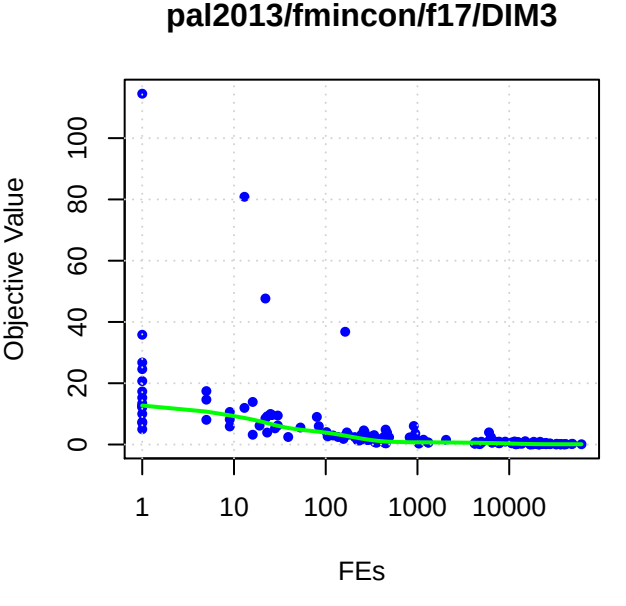
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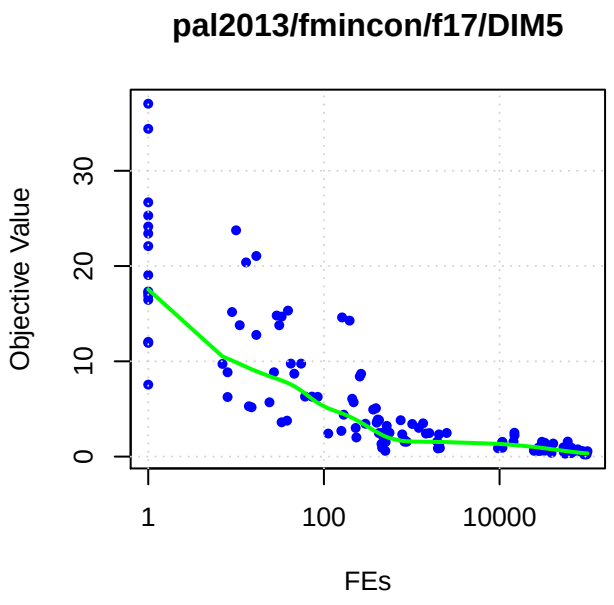
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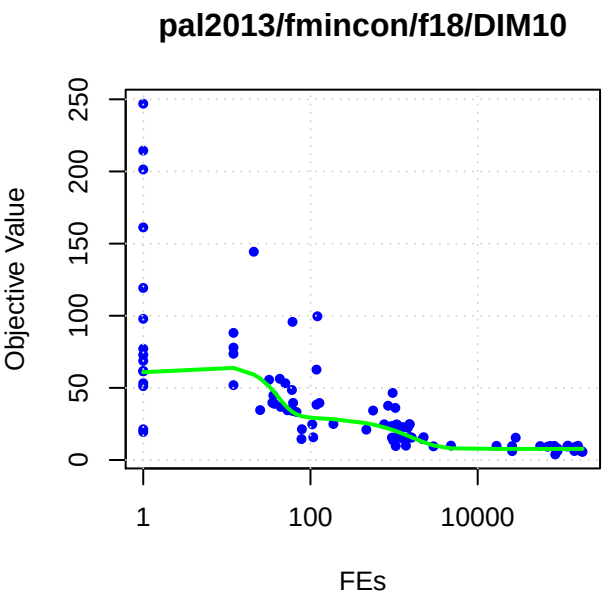
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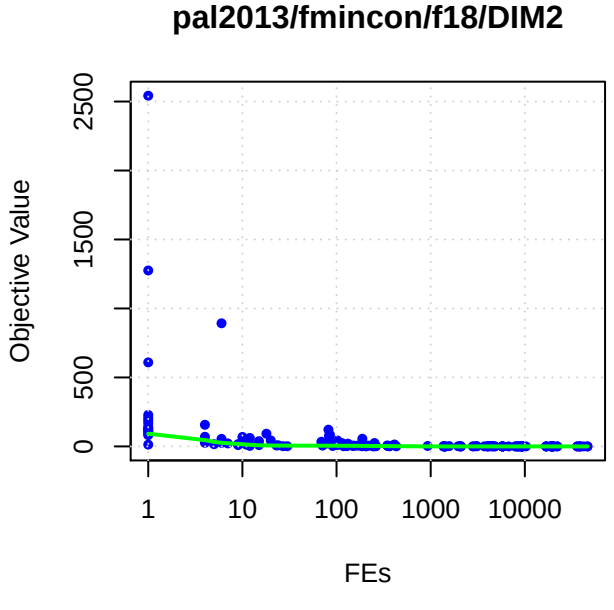
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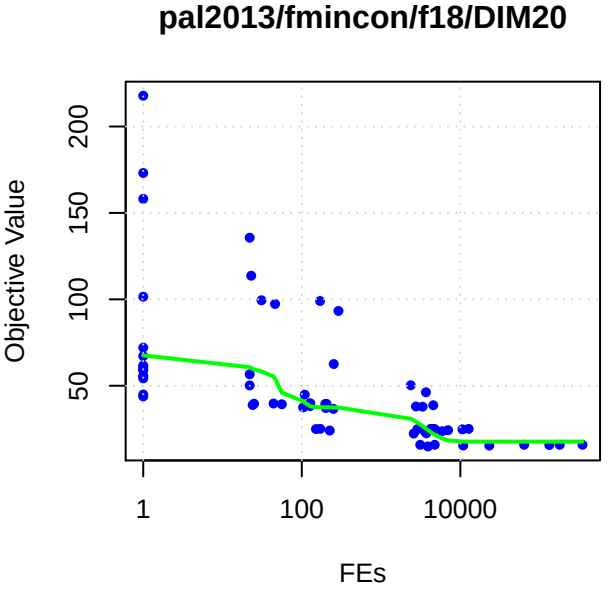
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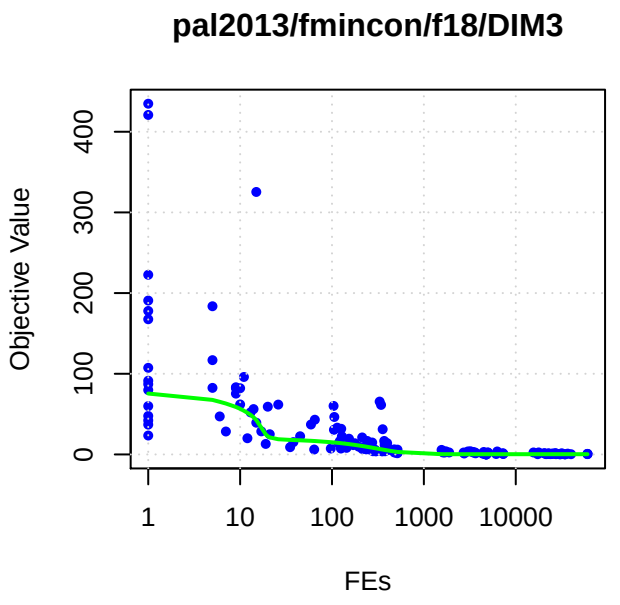
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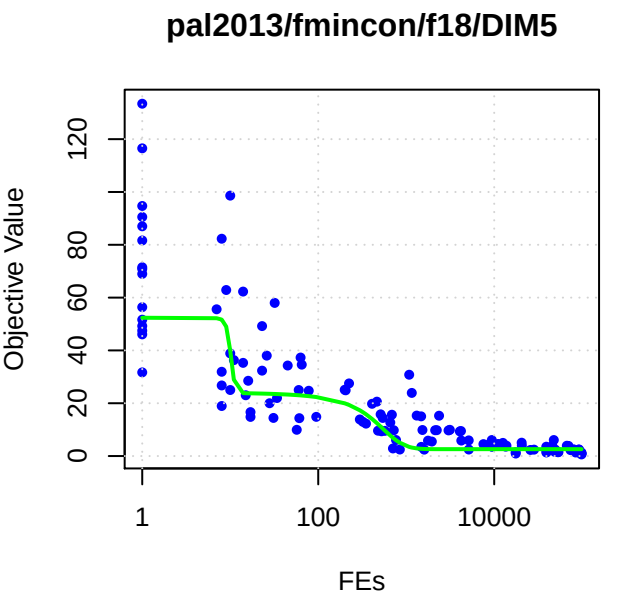
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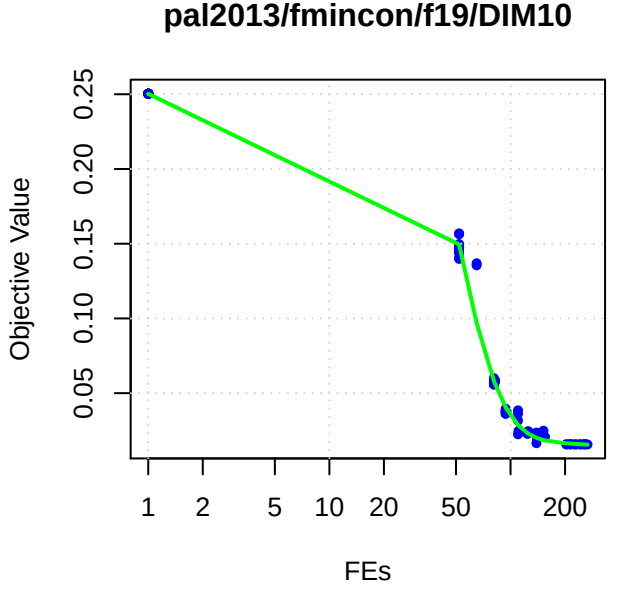
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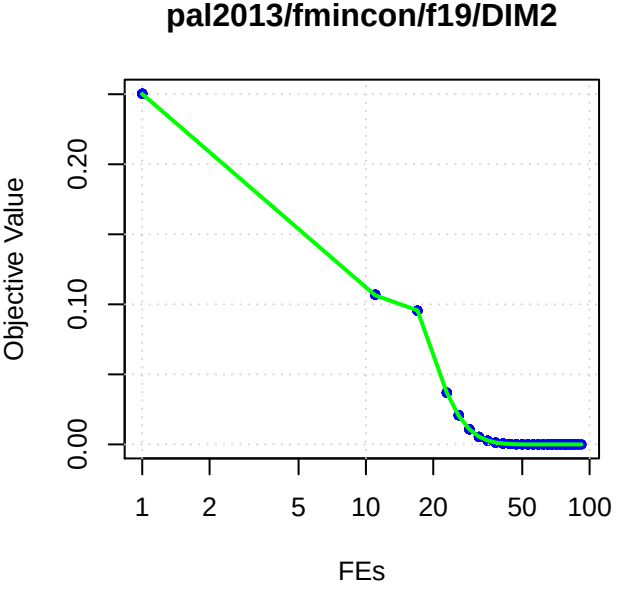
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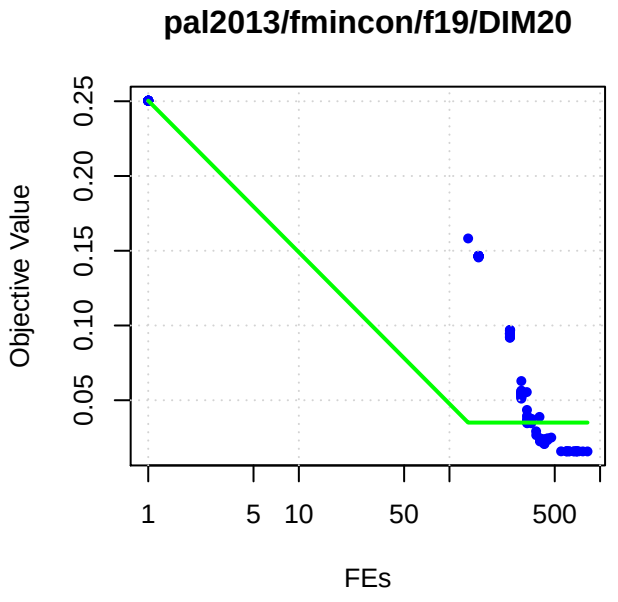
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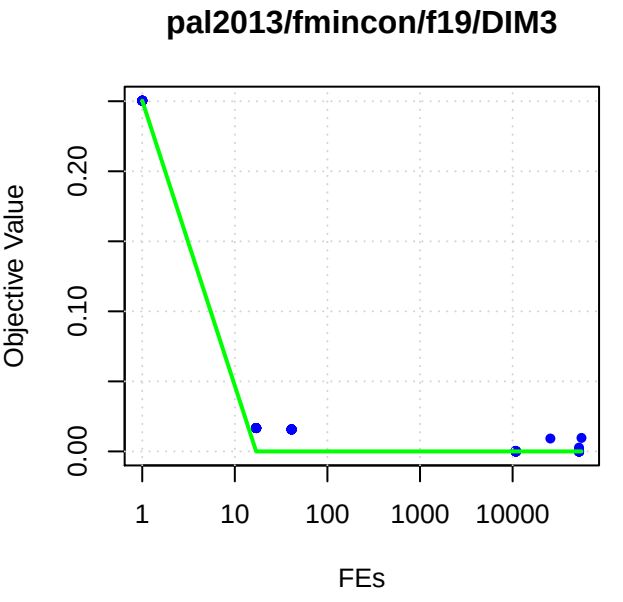
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10000
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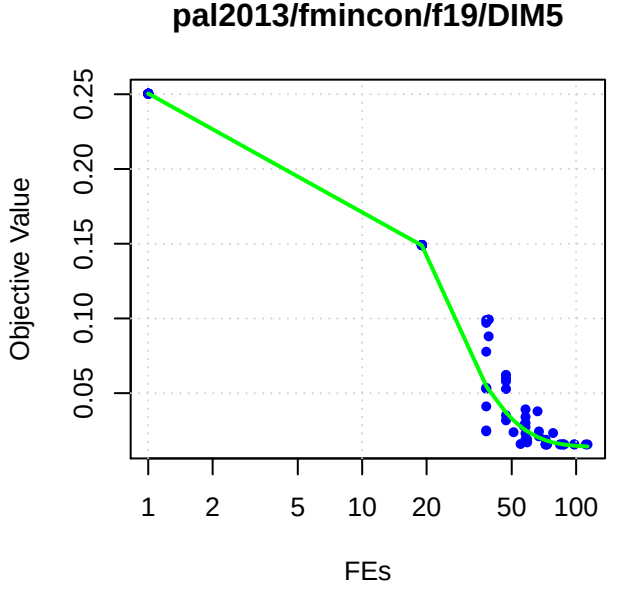
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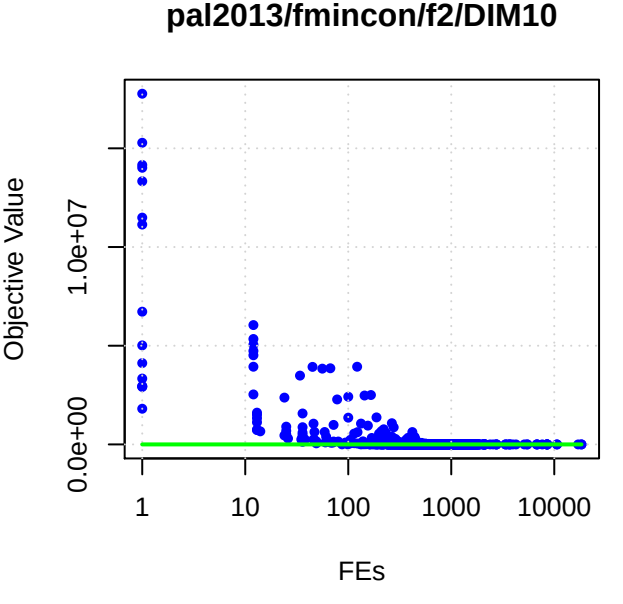
100
FEs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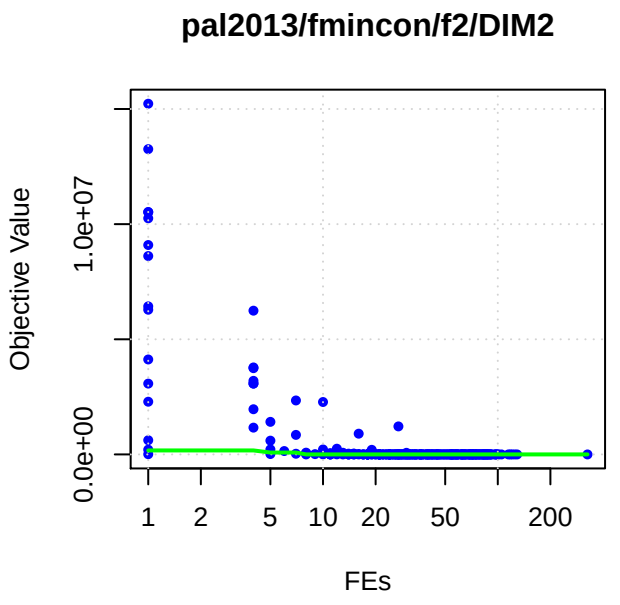
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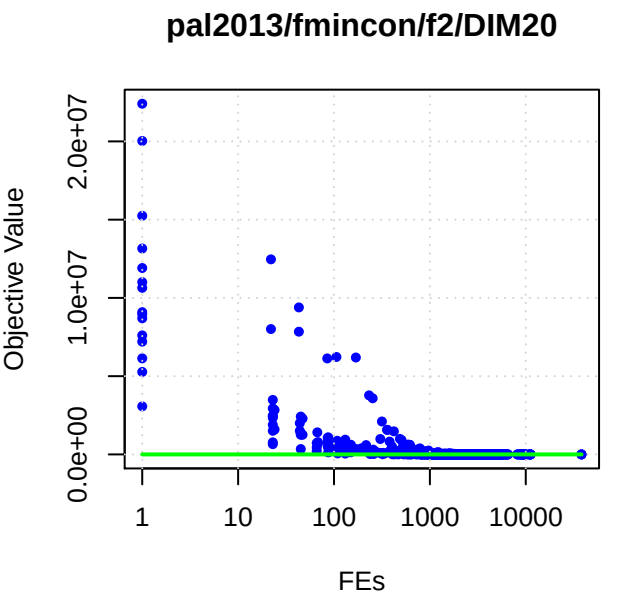
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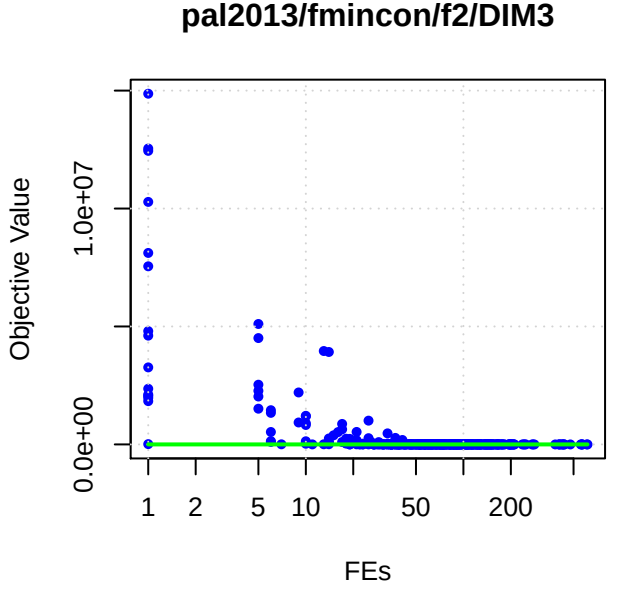
FEs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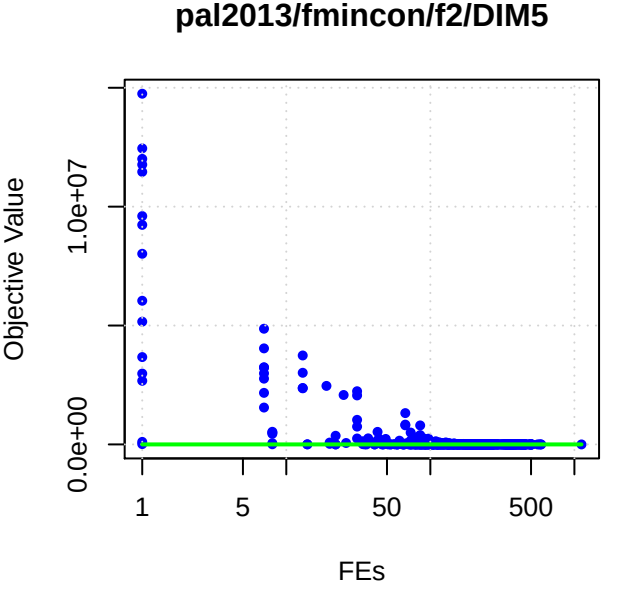
FEs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1.0e+07
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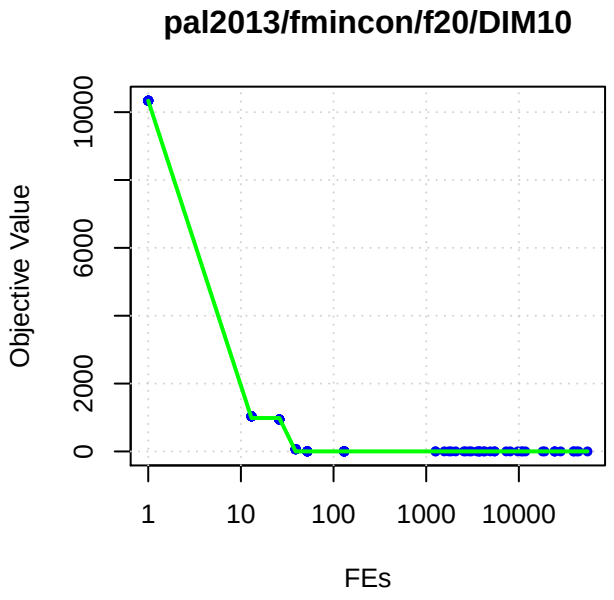
FEs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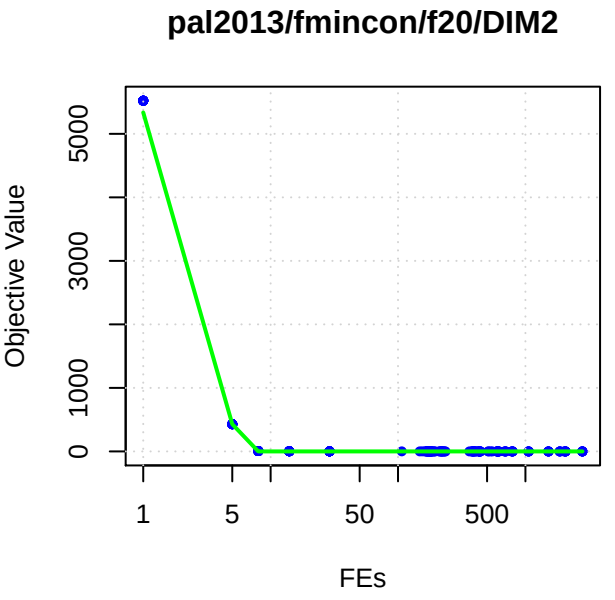
FEs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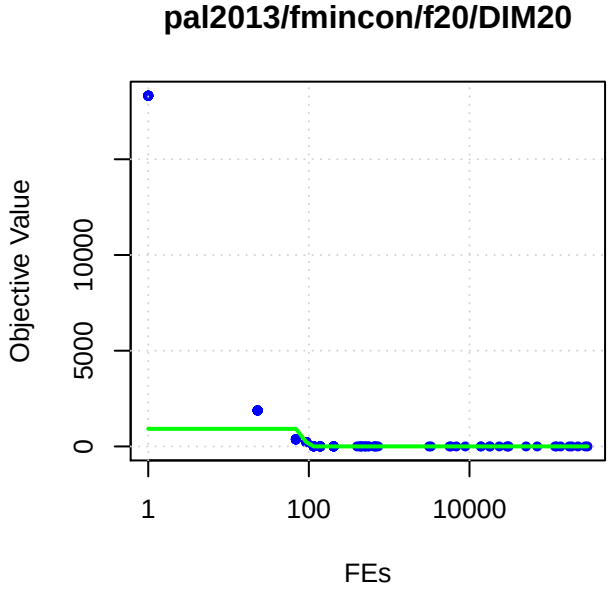
FEs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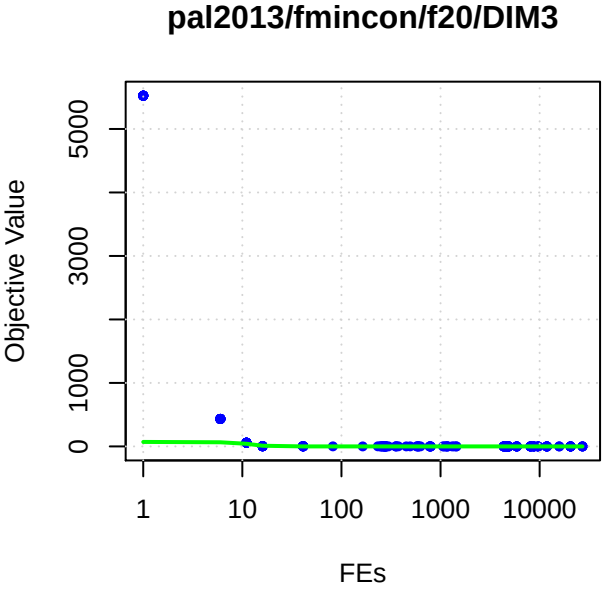
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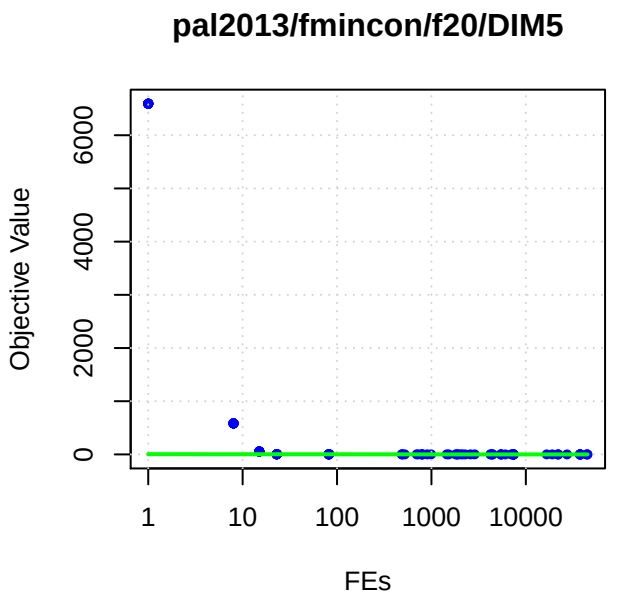
FEs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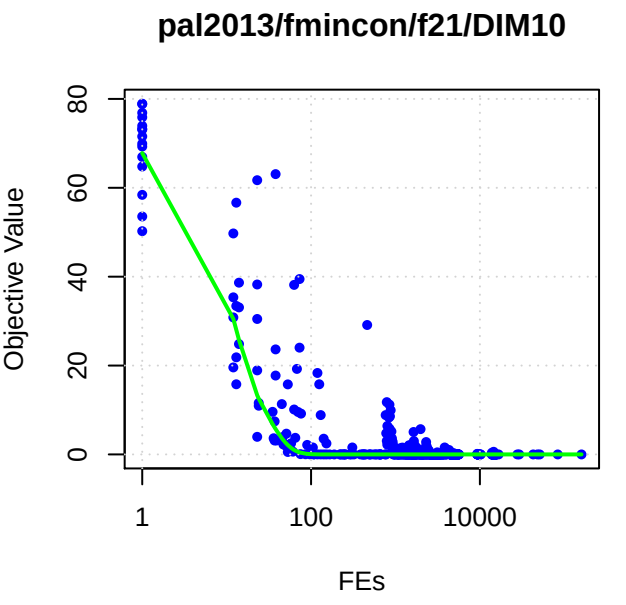
FEs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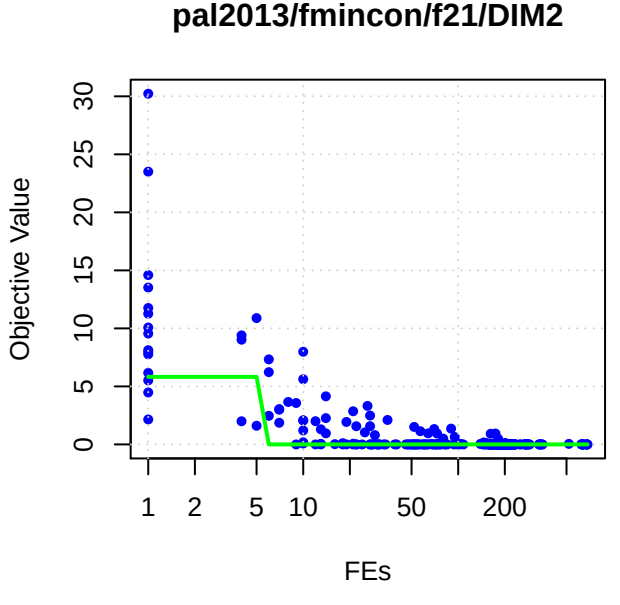
FEs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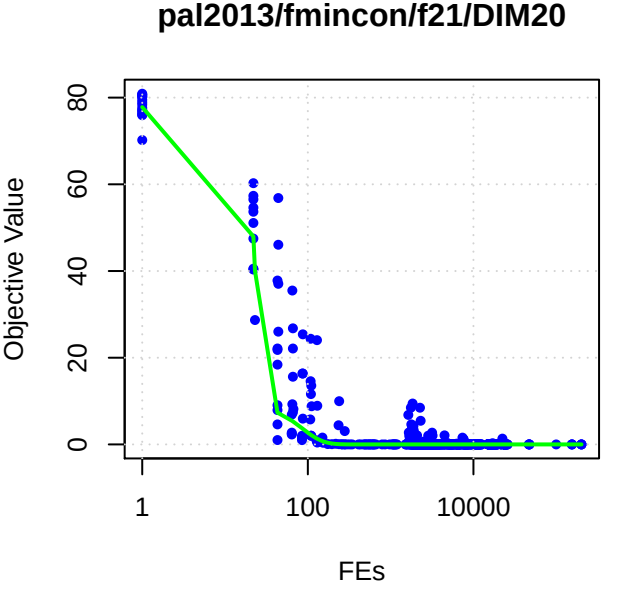
FEs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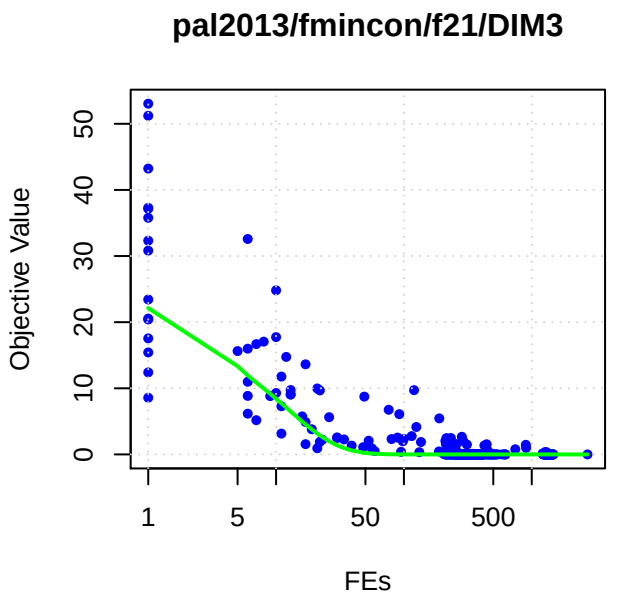
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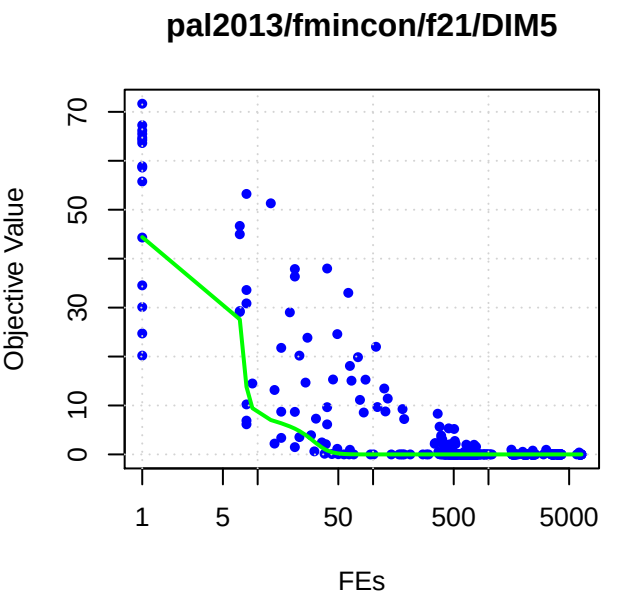
FEs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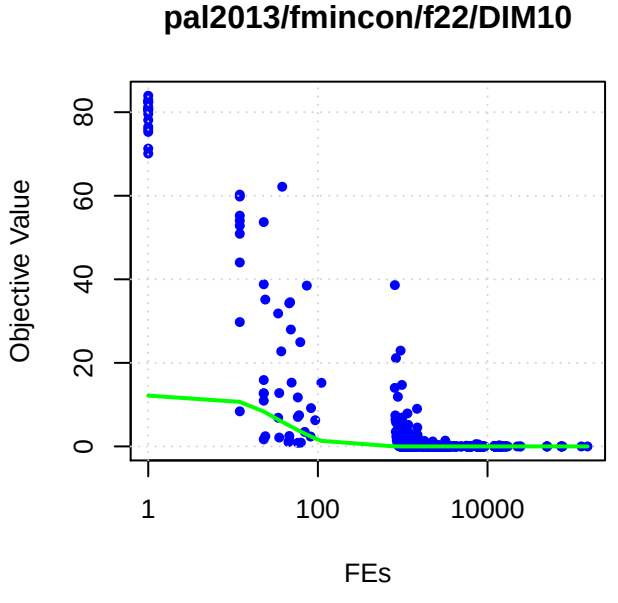
FEs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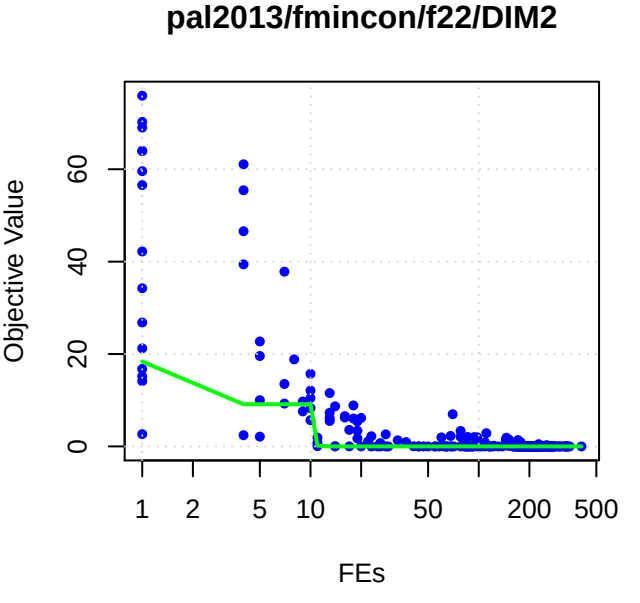
FEs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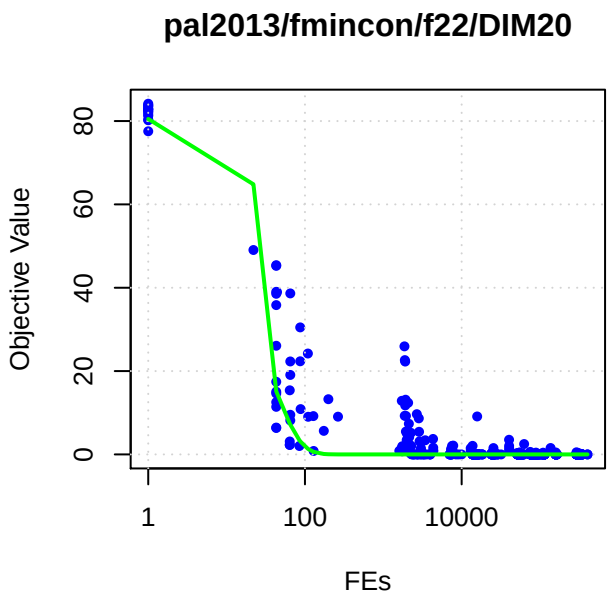
FEs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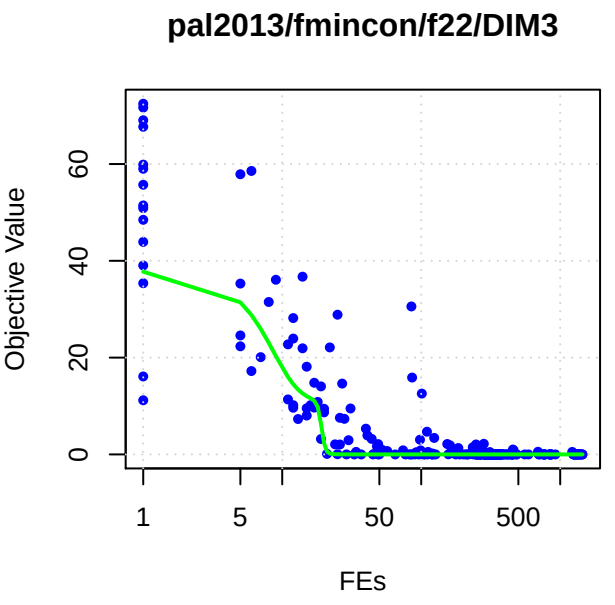
FEs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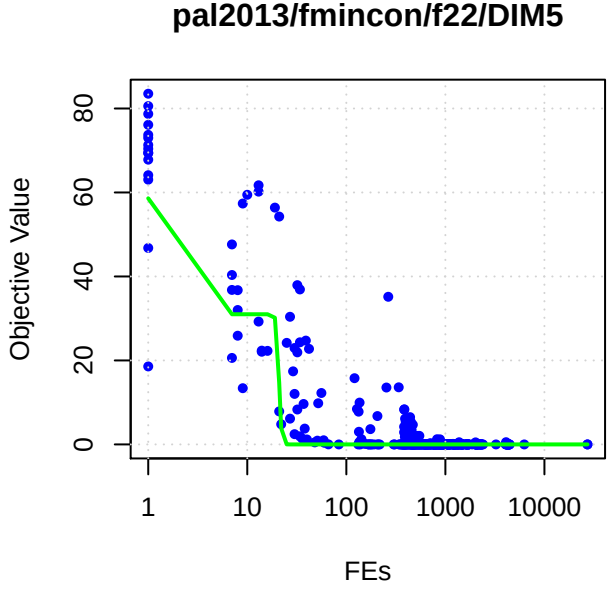
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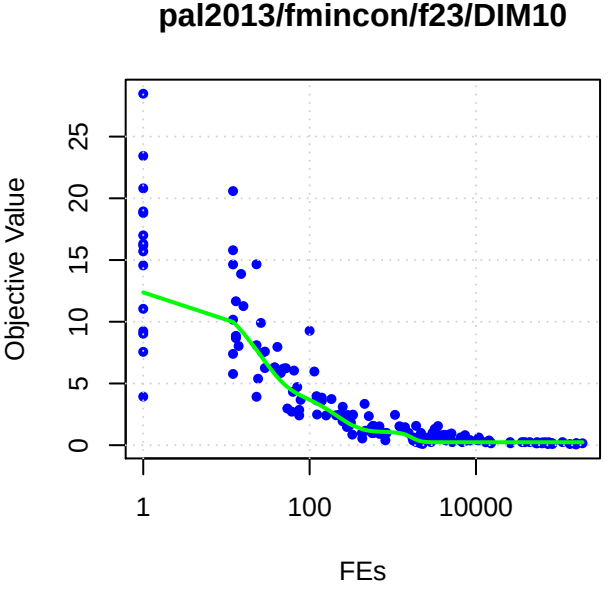
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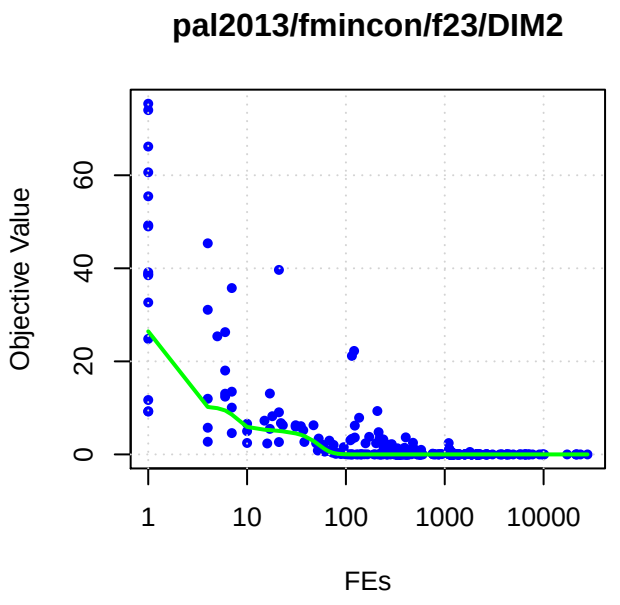
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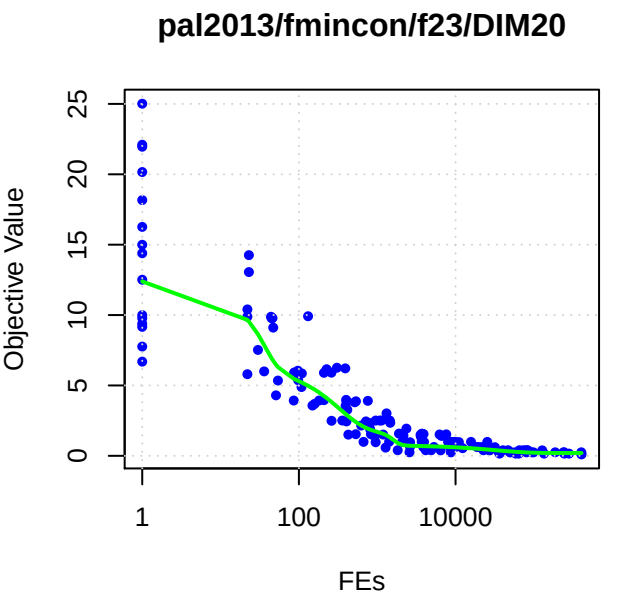
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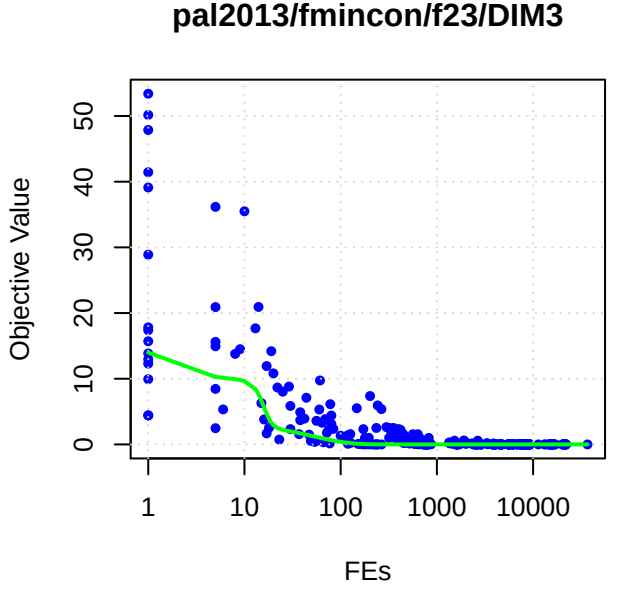
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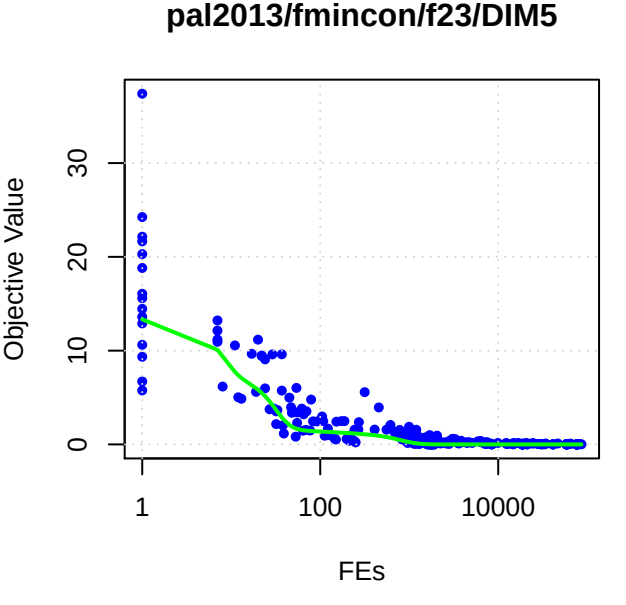
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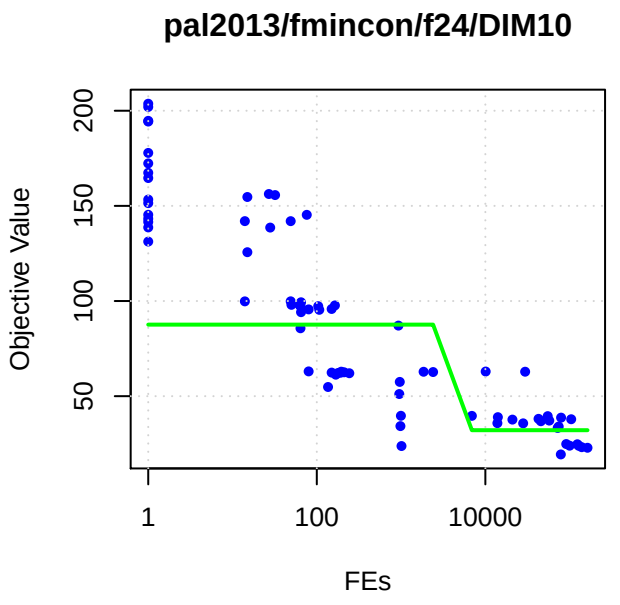
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10000
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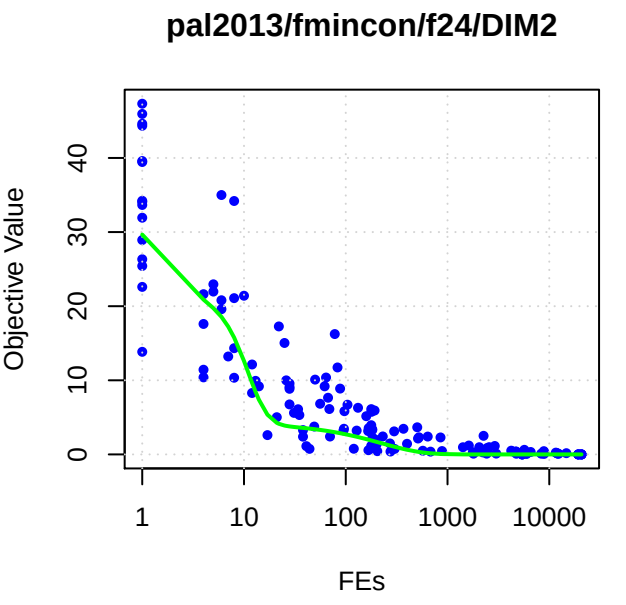
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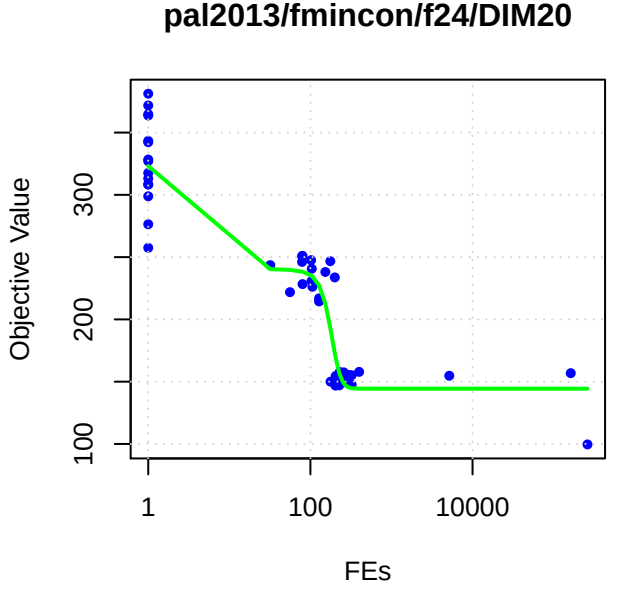
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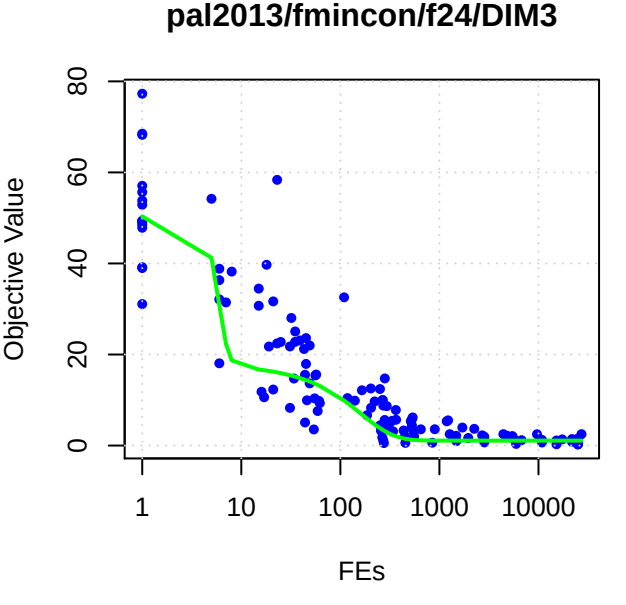
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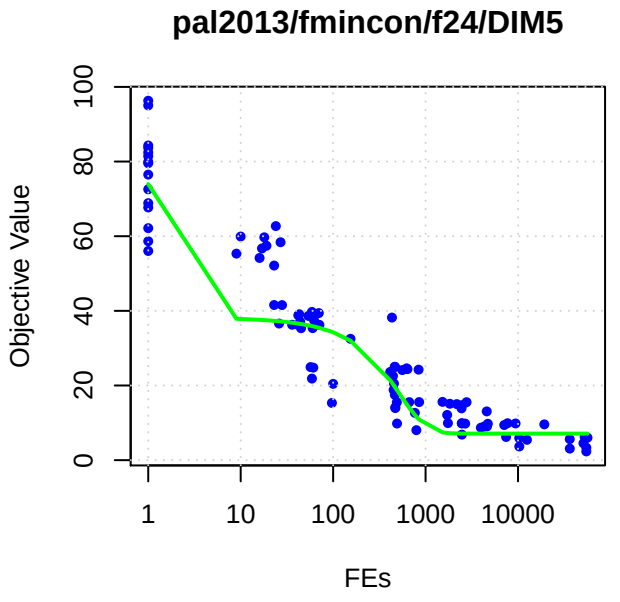
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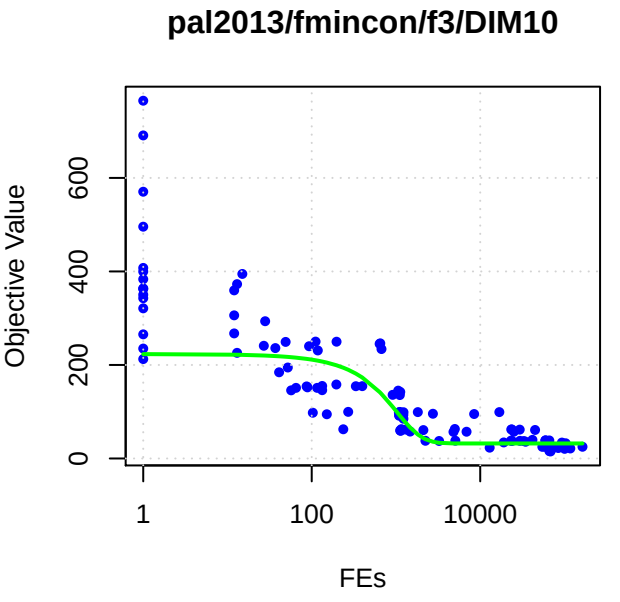
FEs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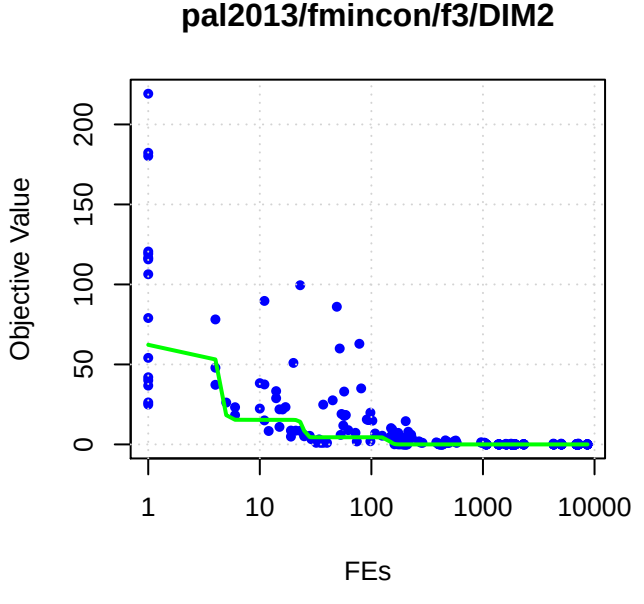
FEs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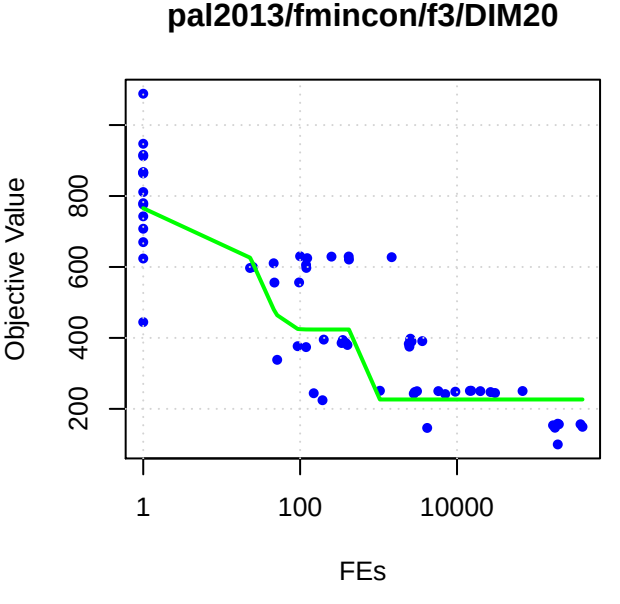
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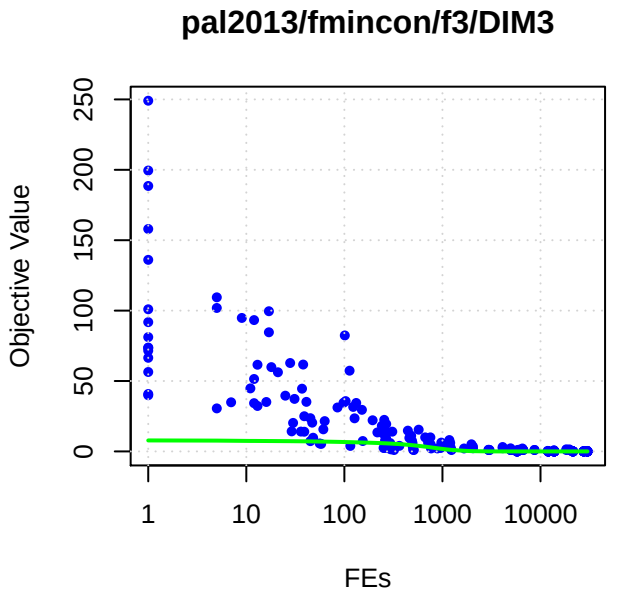
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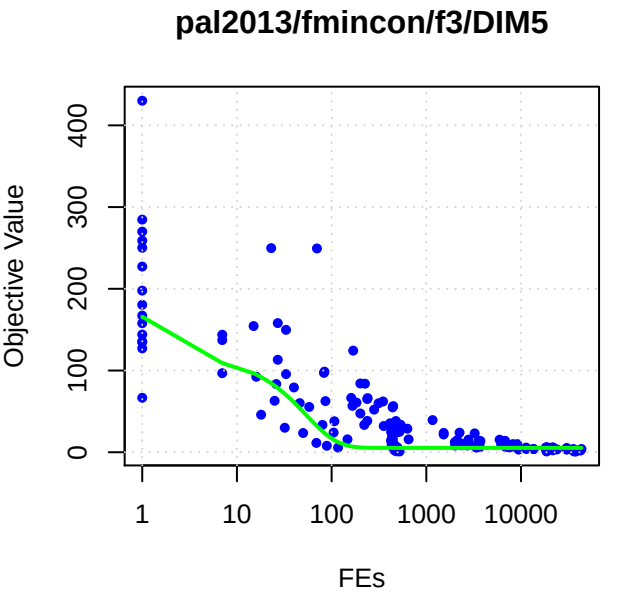
FEs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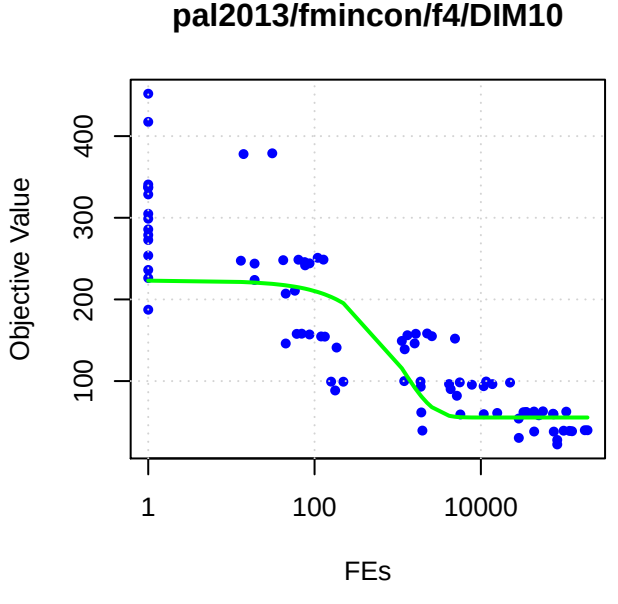
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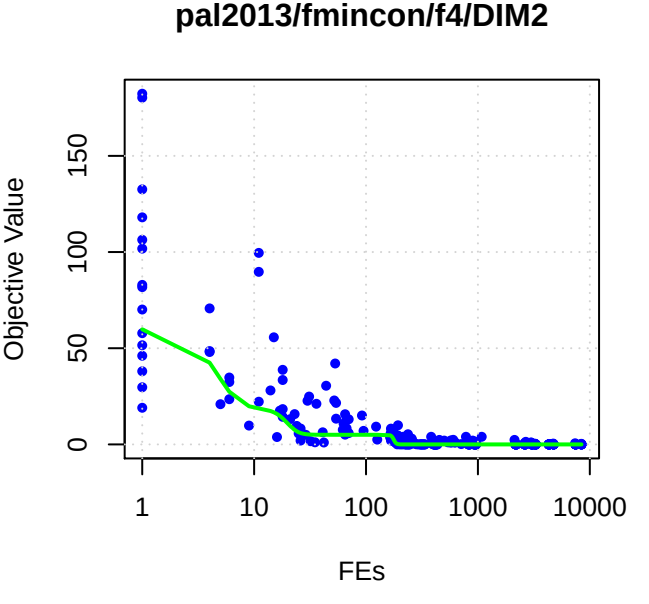
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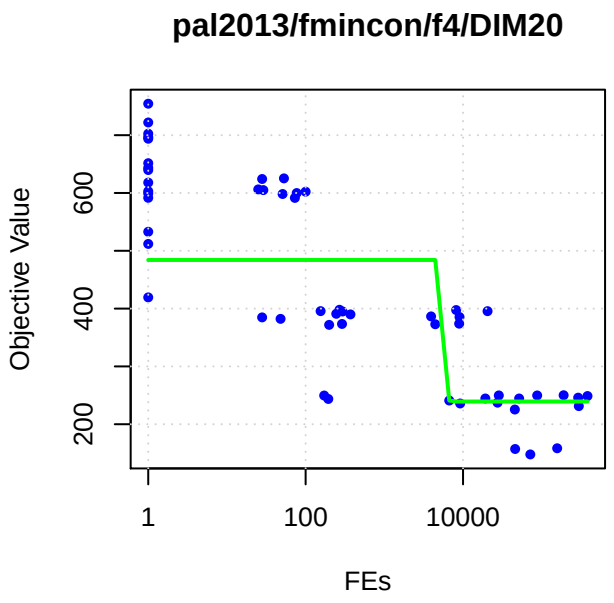
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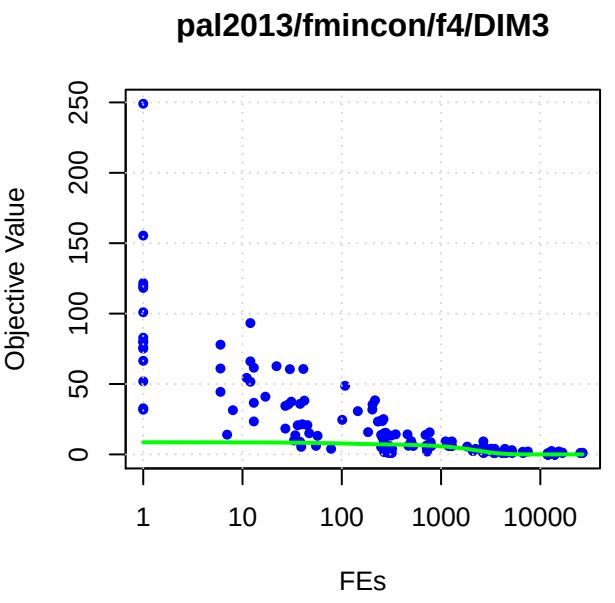
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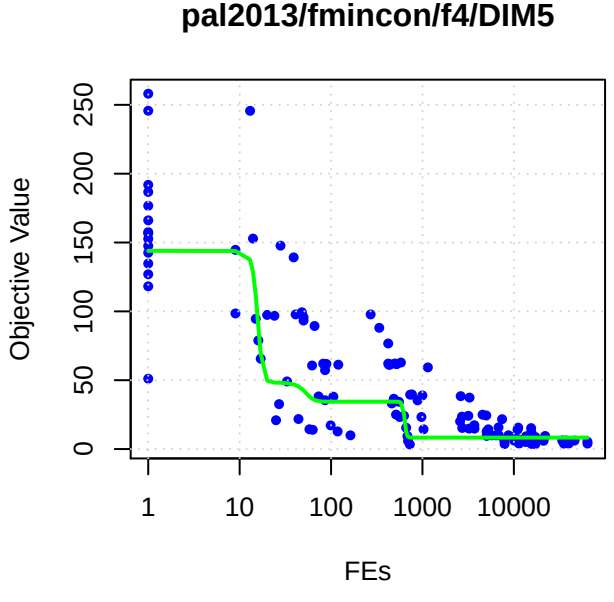
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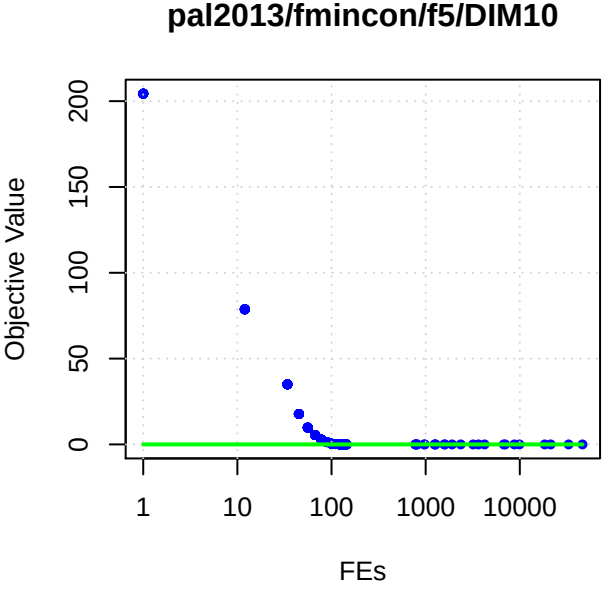
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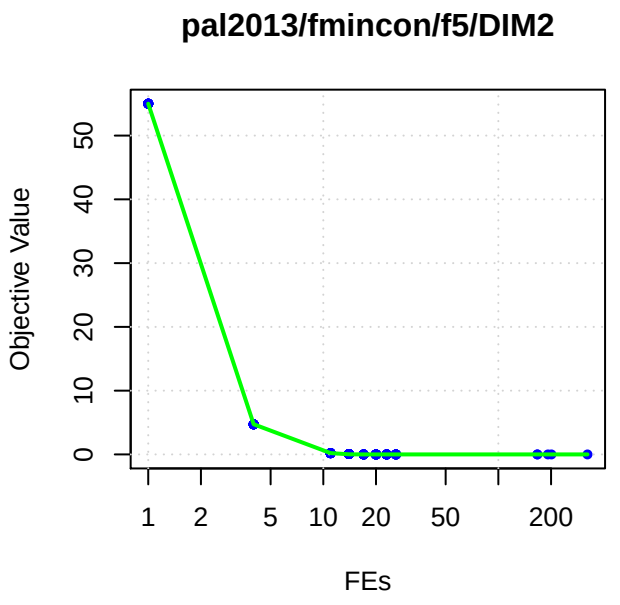
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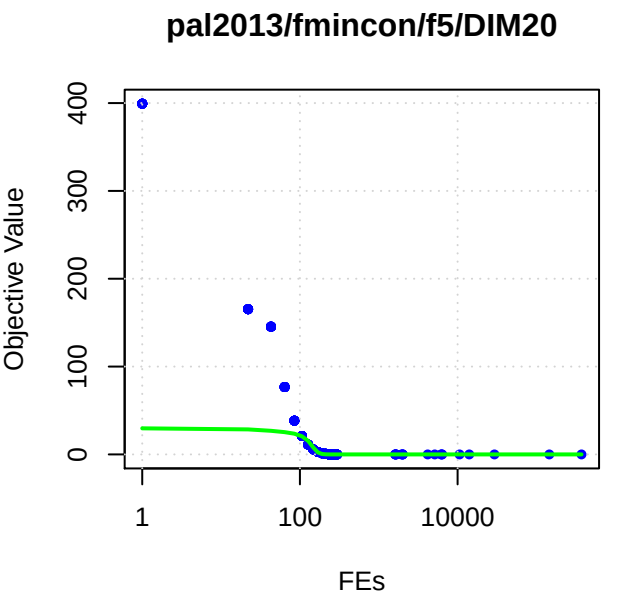
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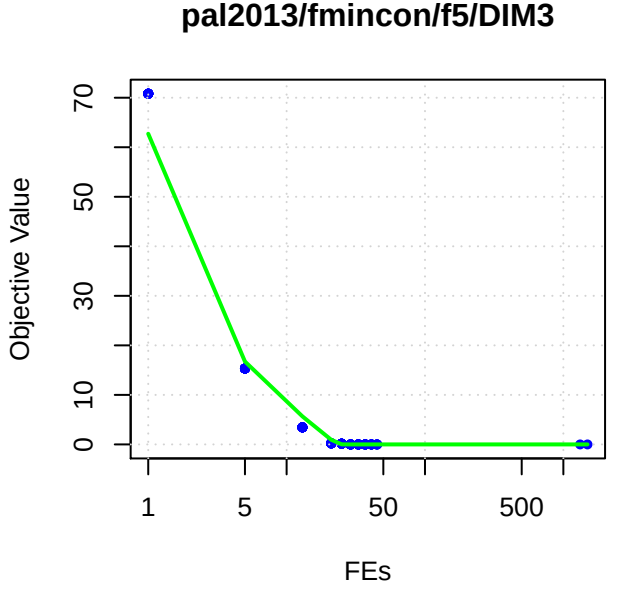
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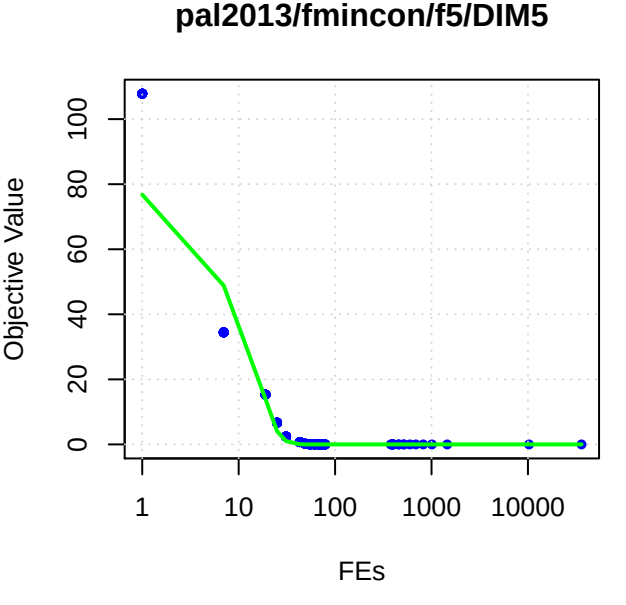
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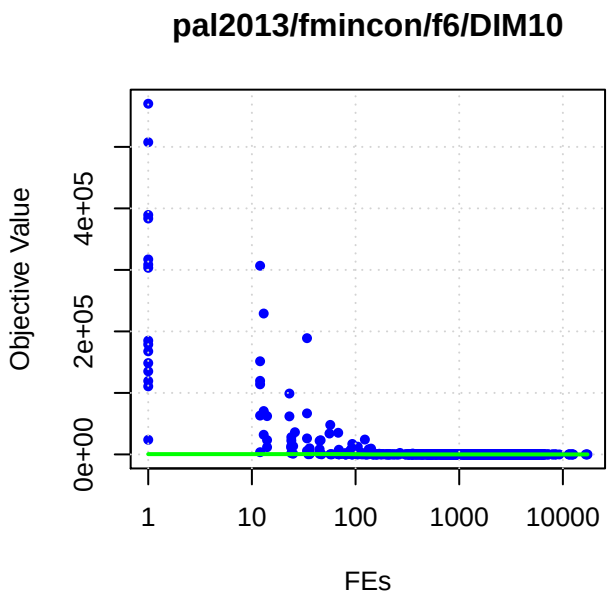
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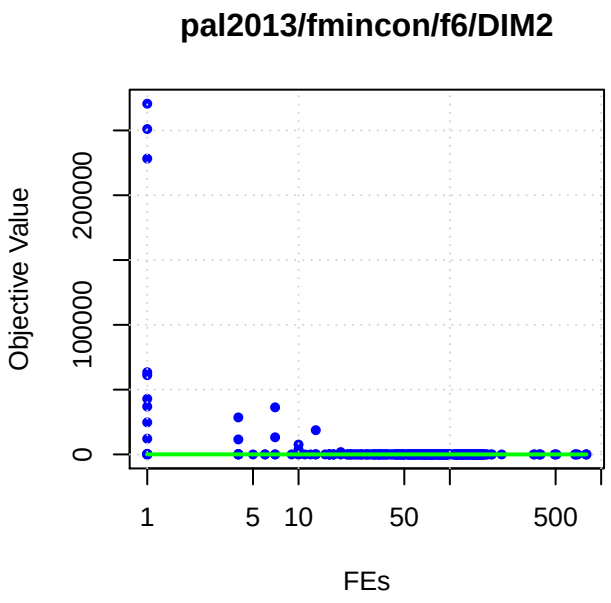
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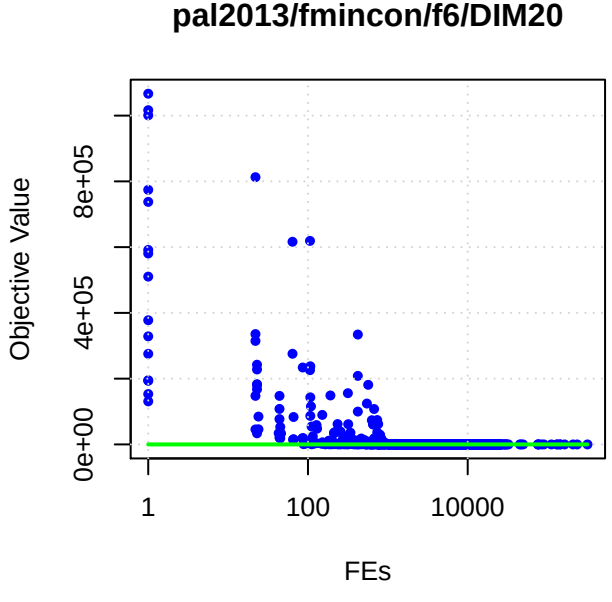
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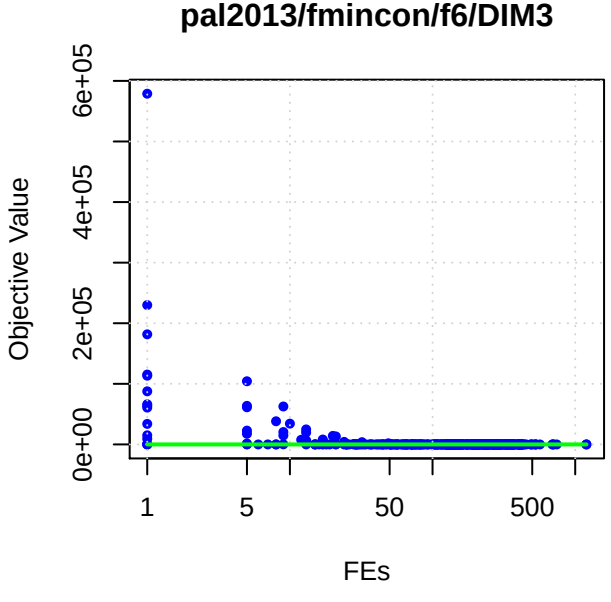
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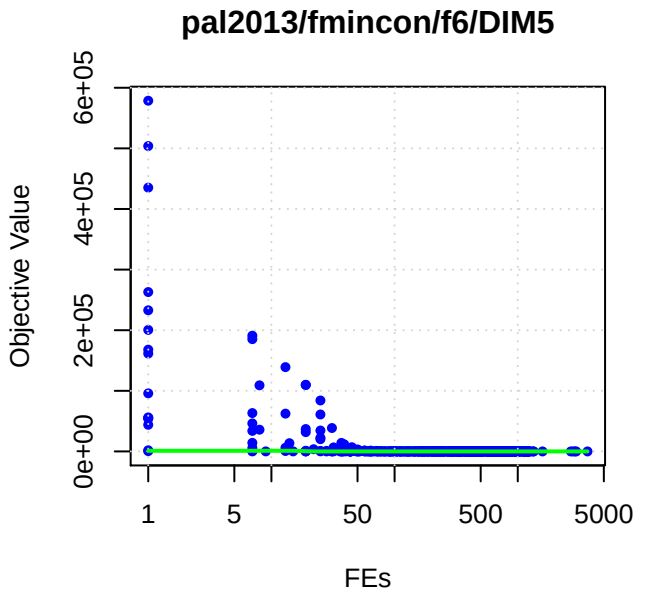
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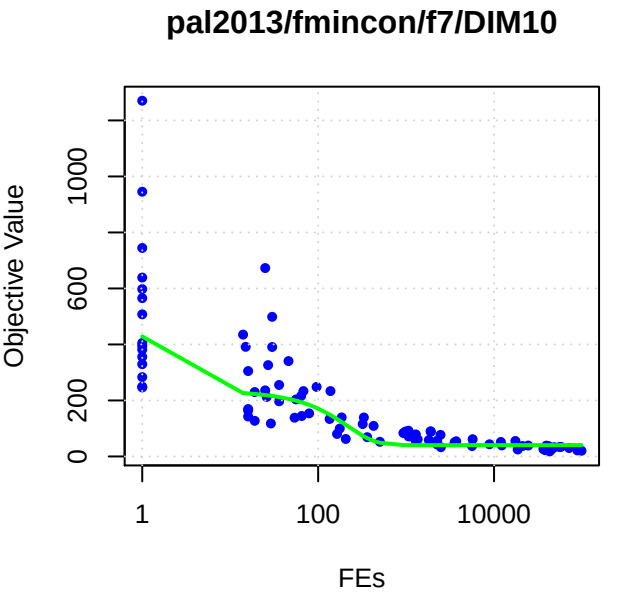
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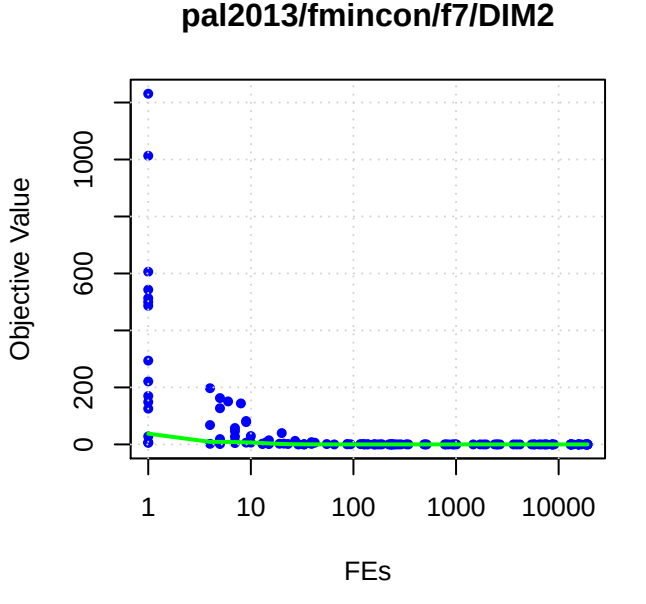
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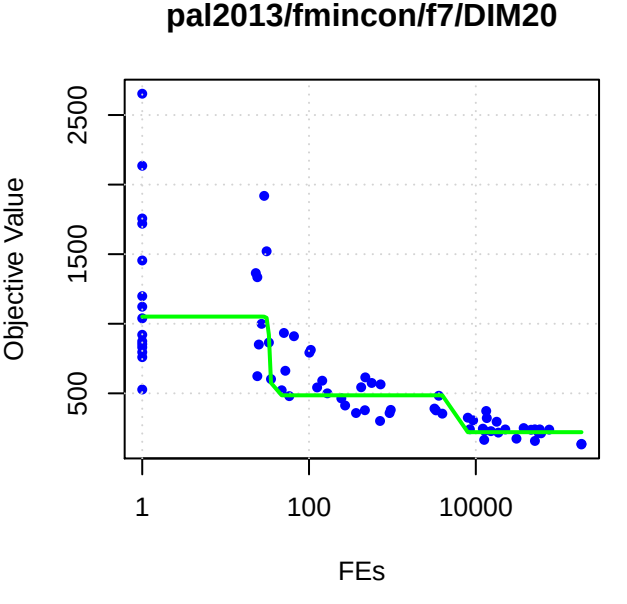
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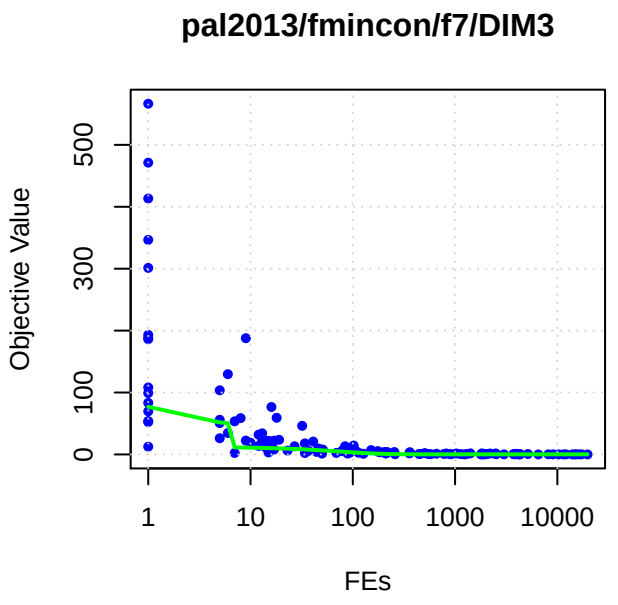
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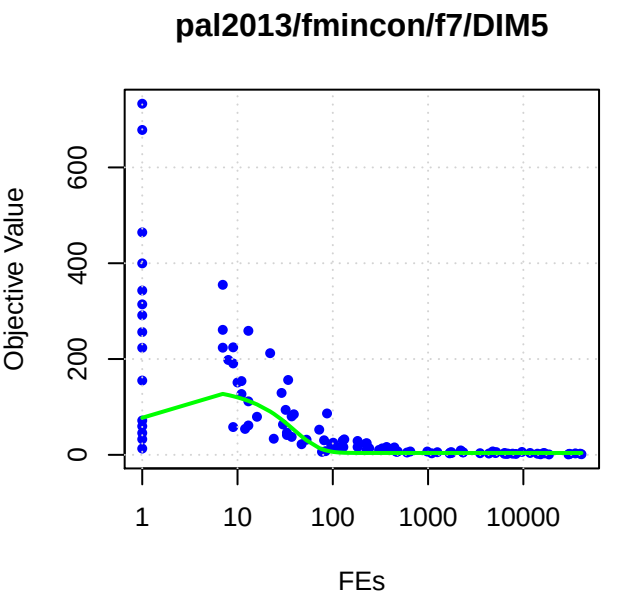
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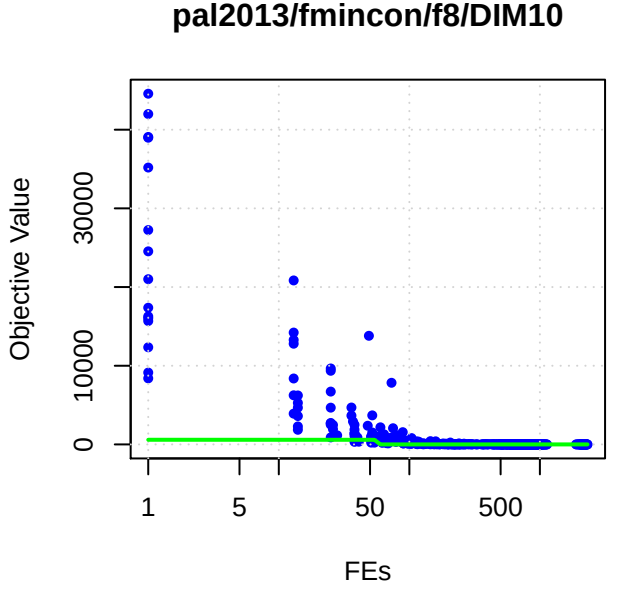
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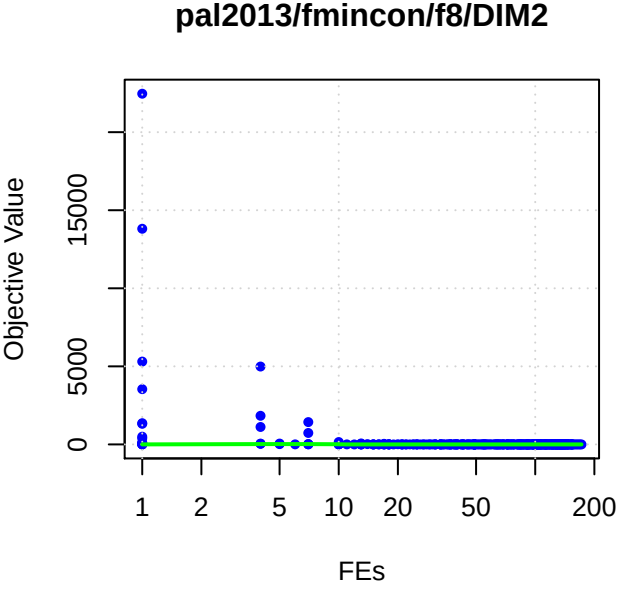
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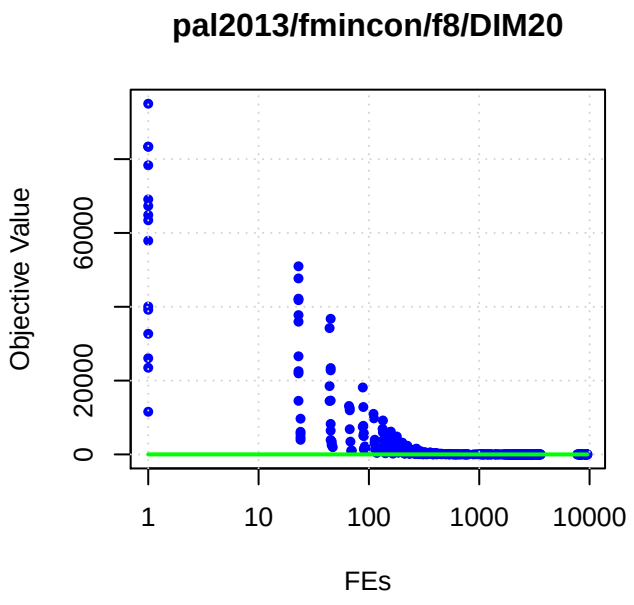
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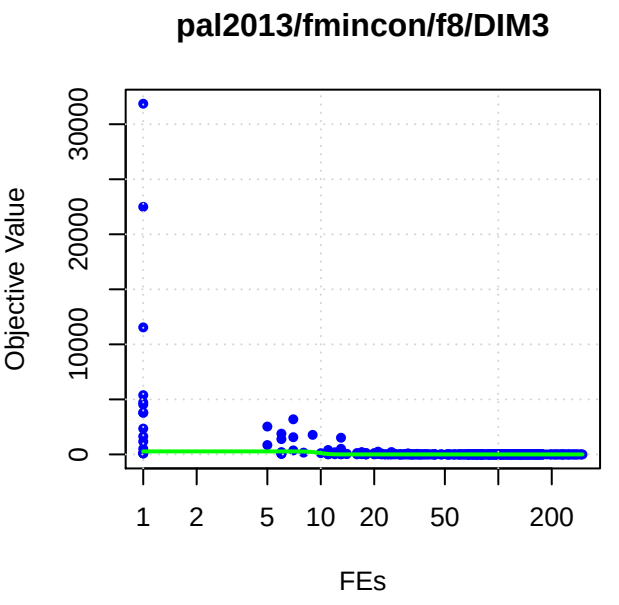
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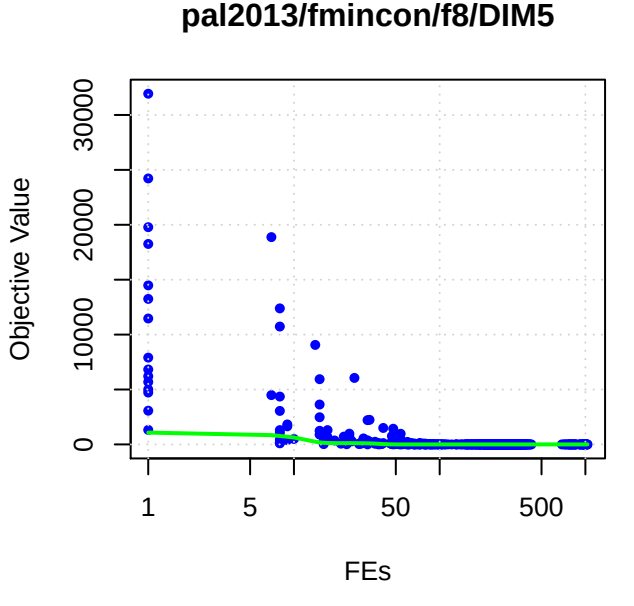
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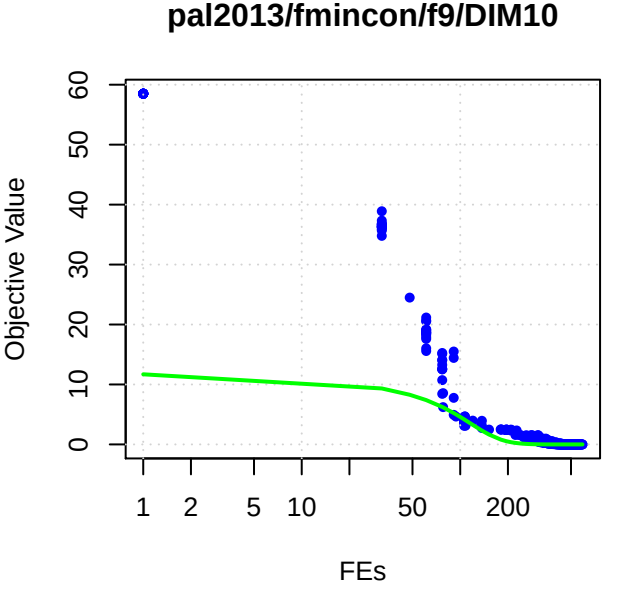
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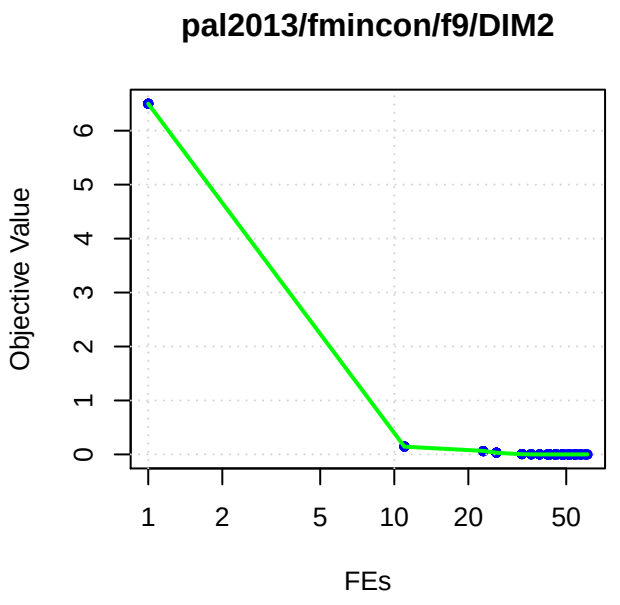
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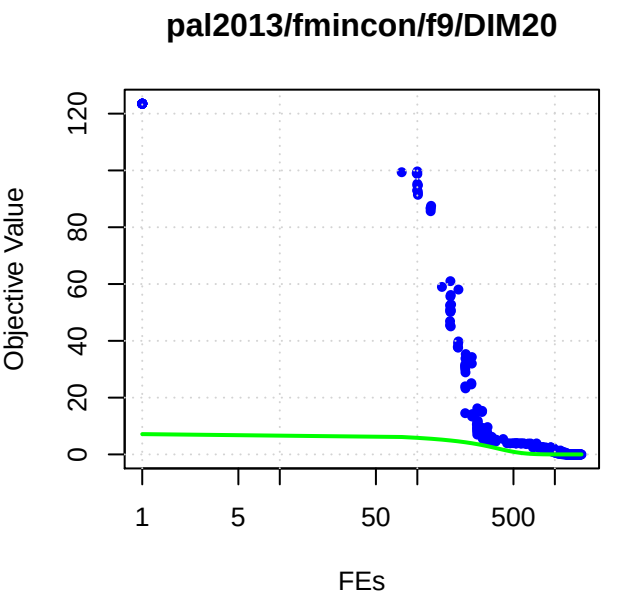
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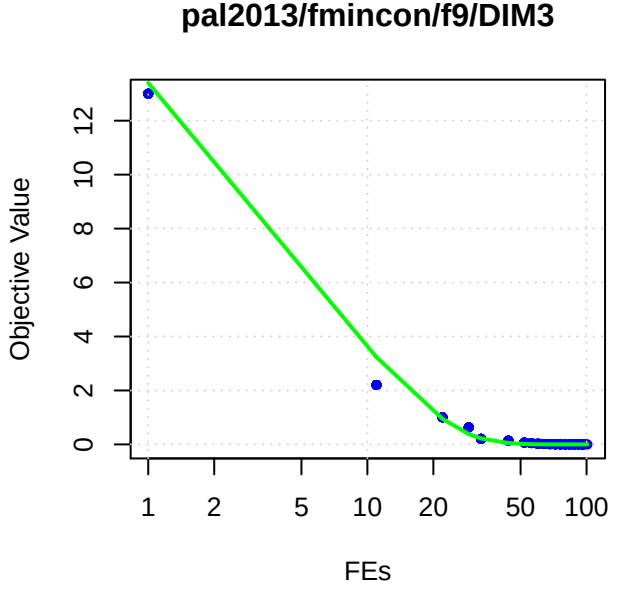
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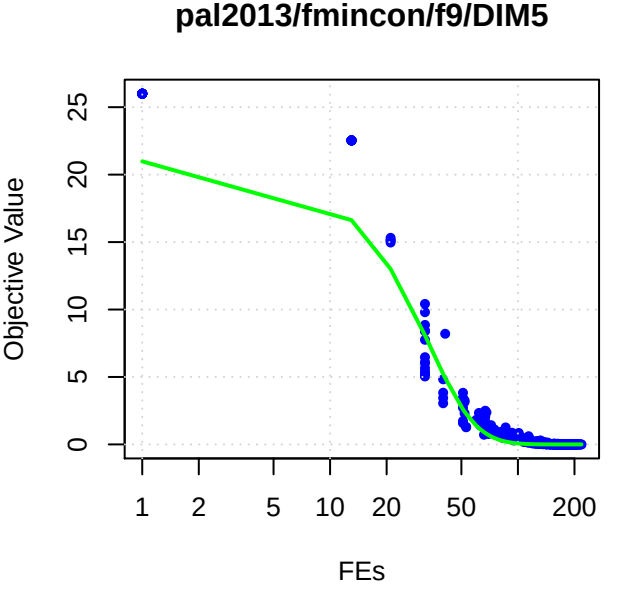
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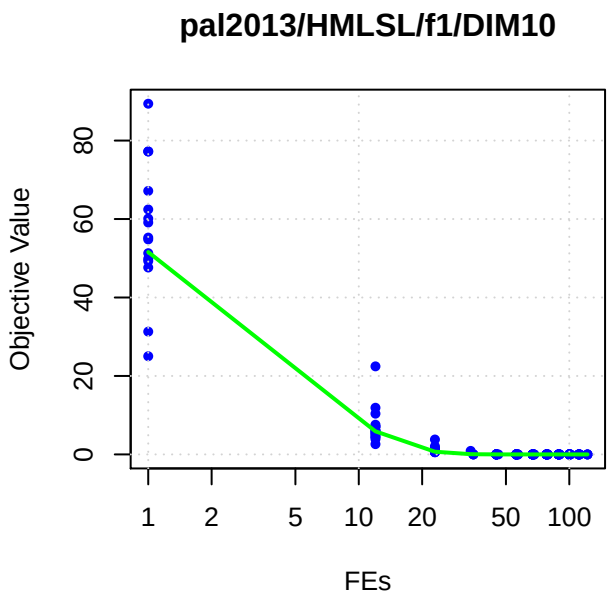
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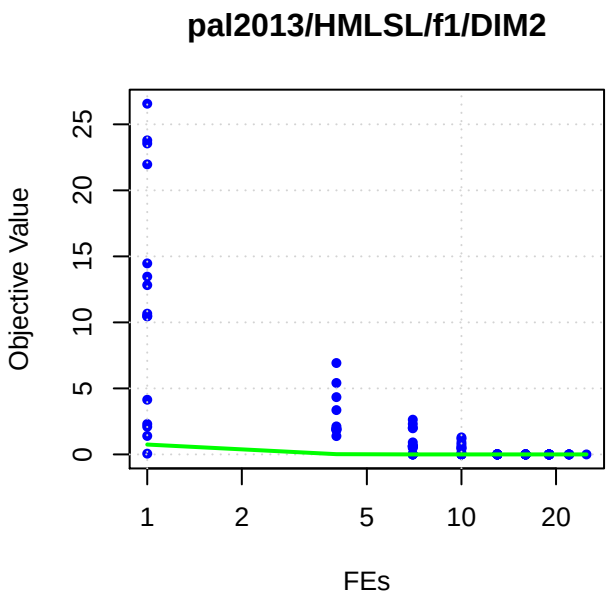
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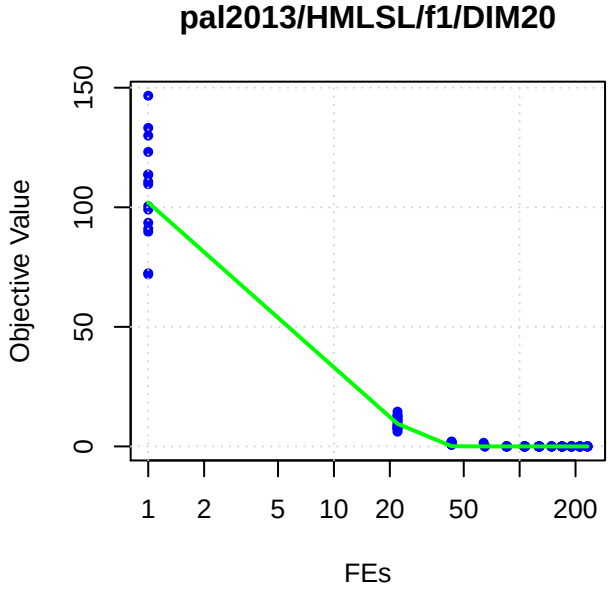
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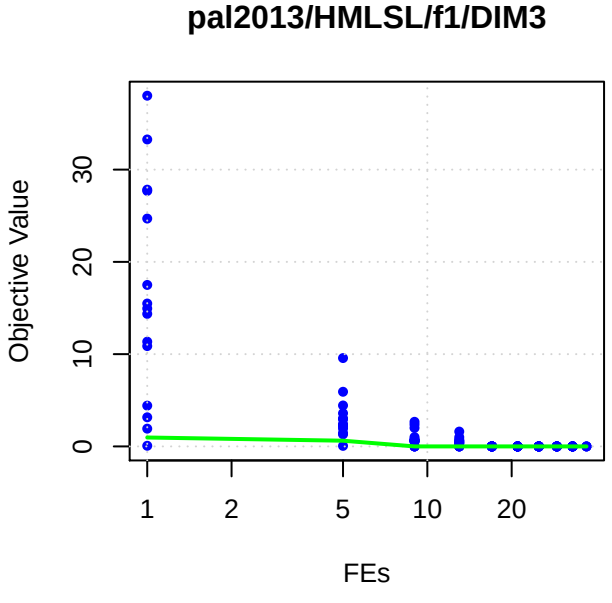
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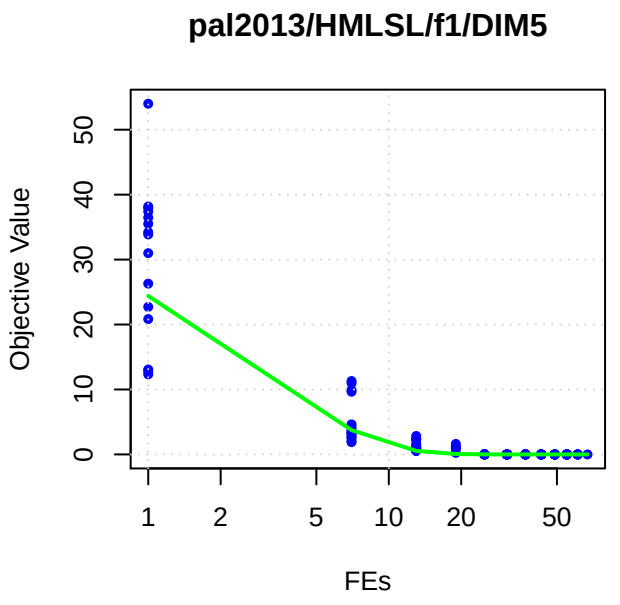
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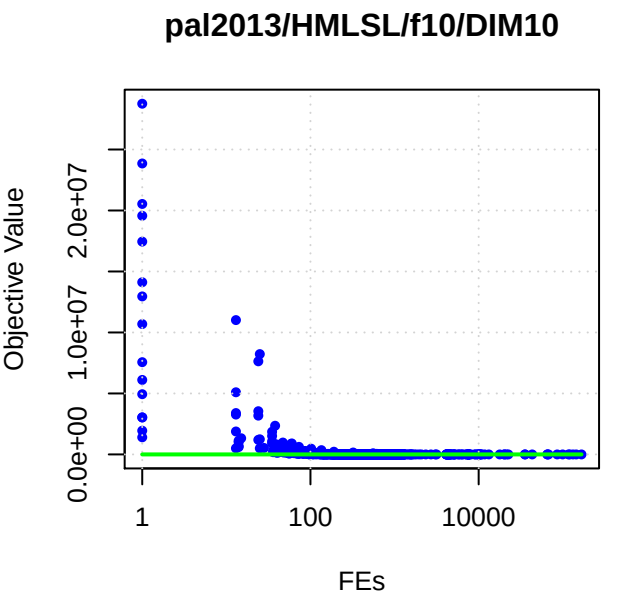
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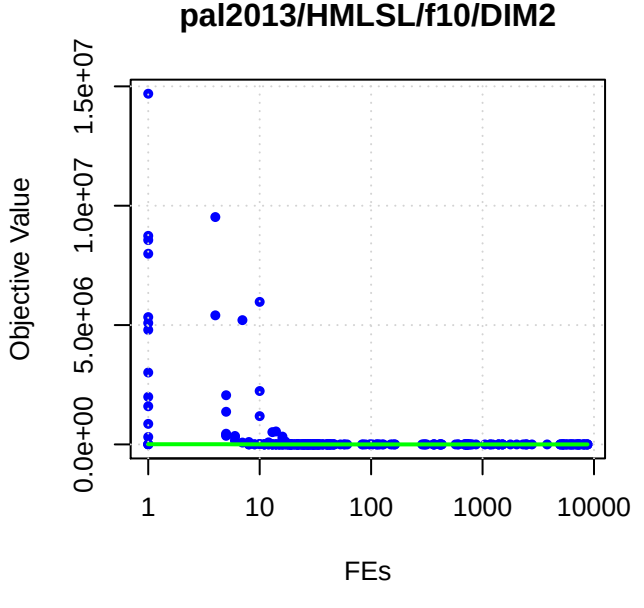
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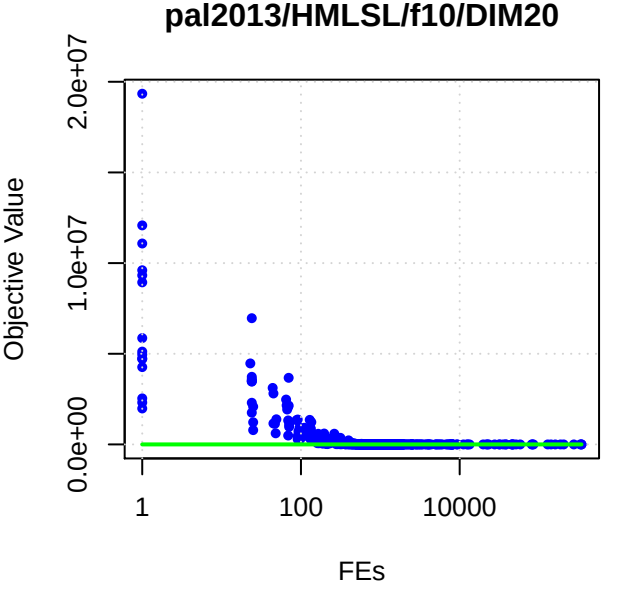
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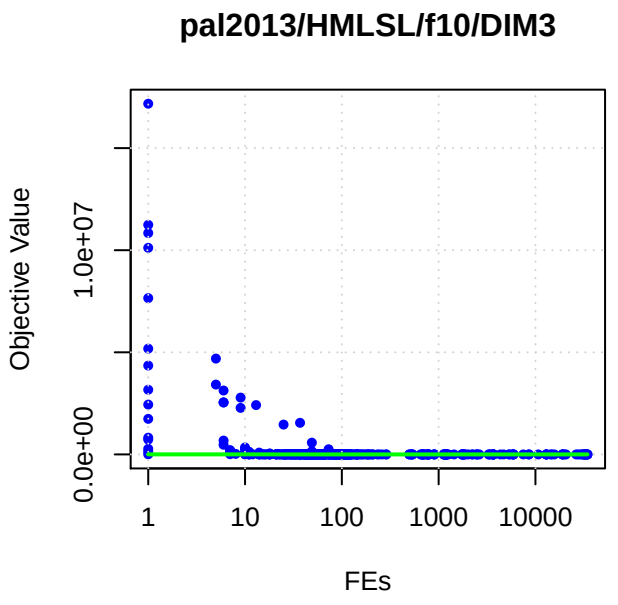
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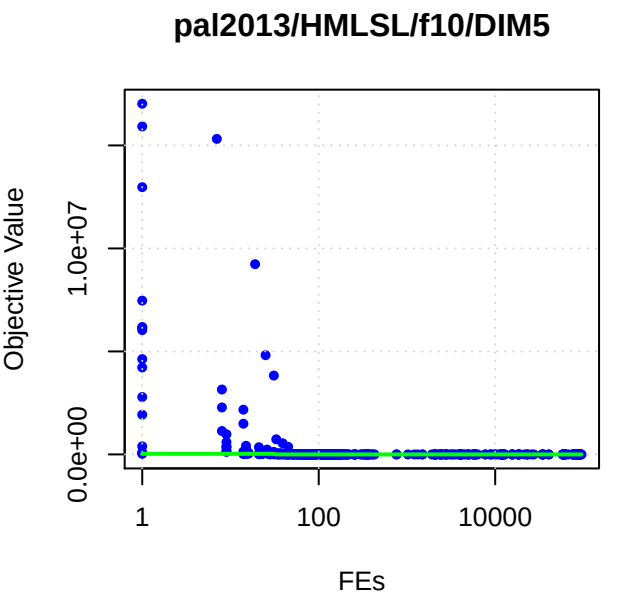
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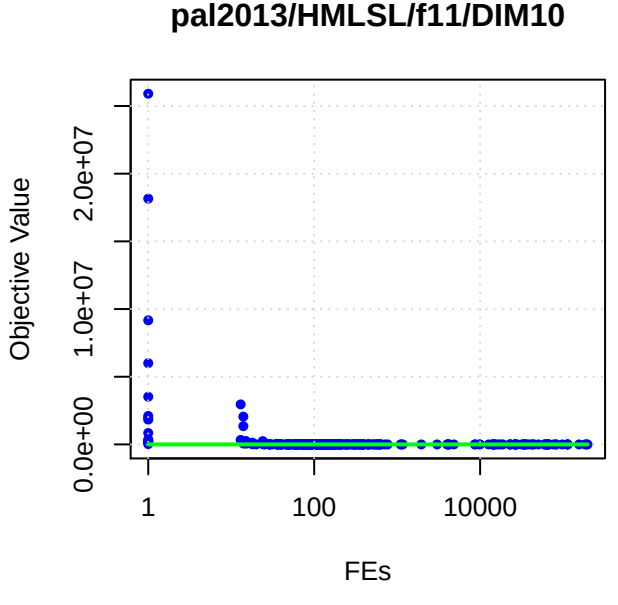
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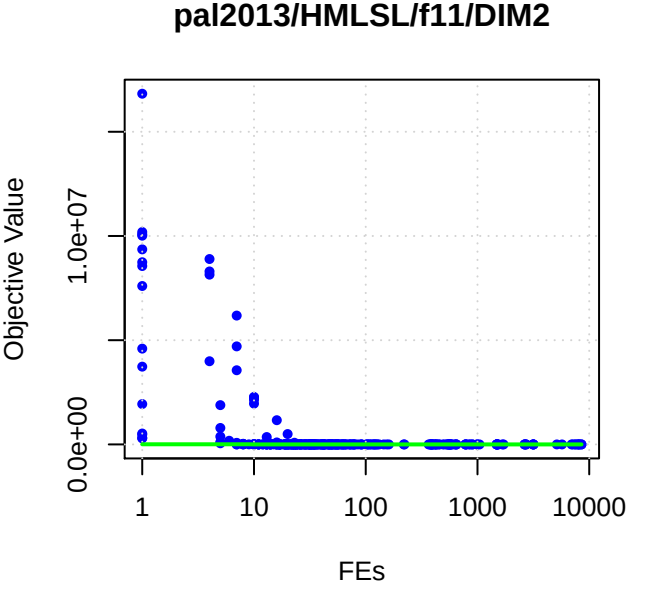
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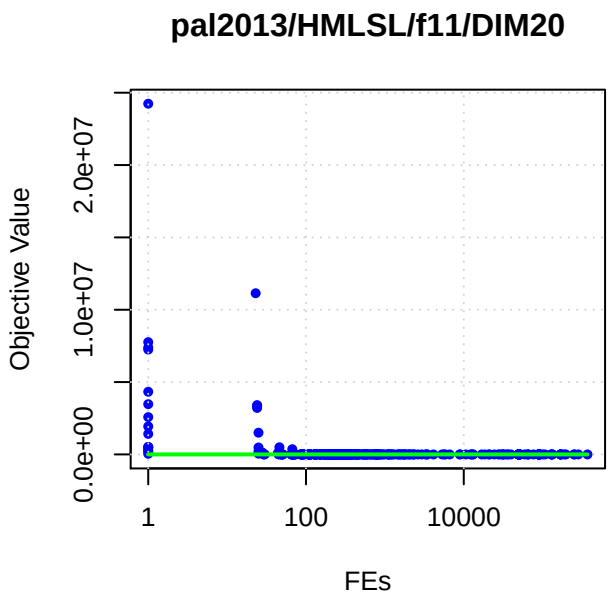
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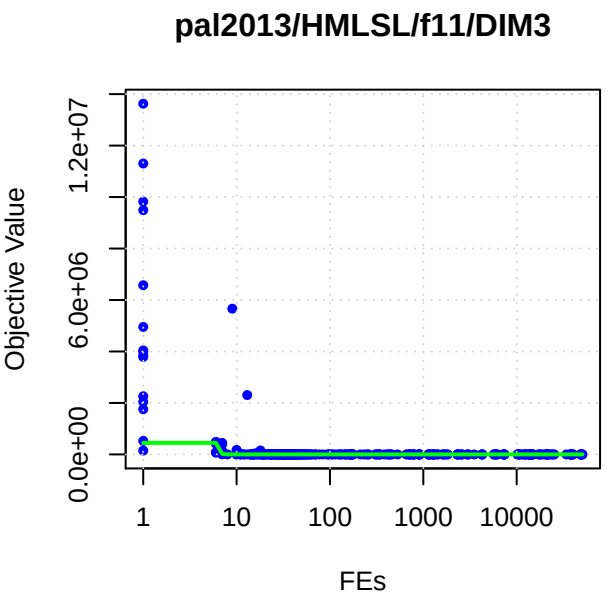
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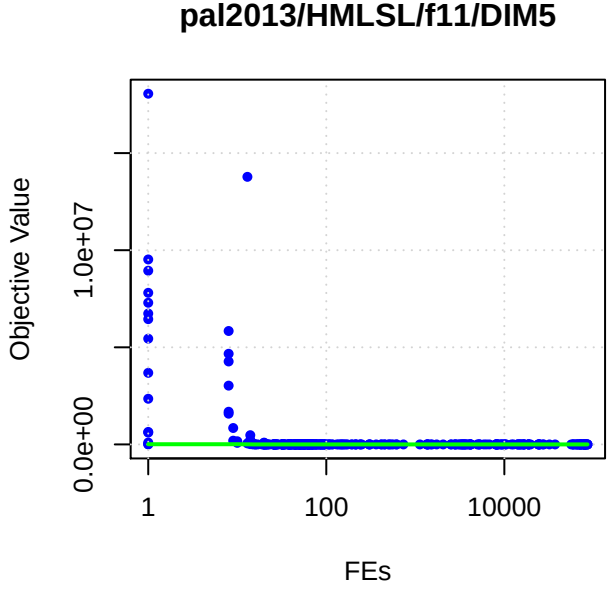
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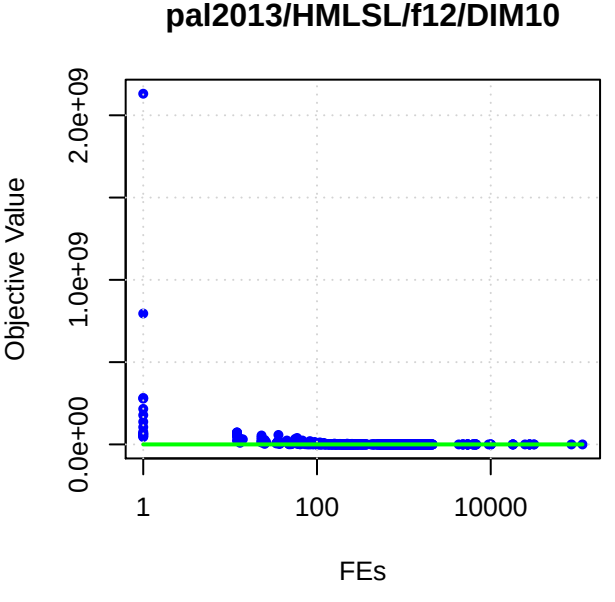
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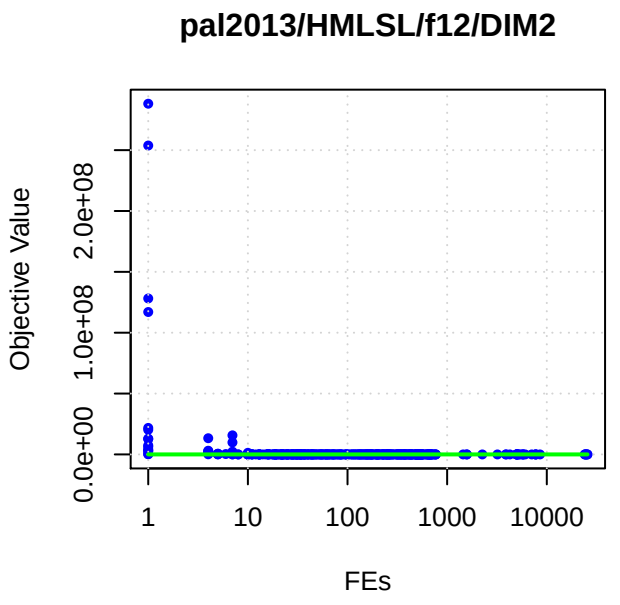
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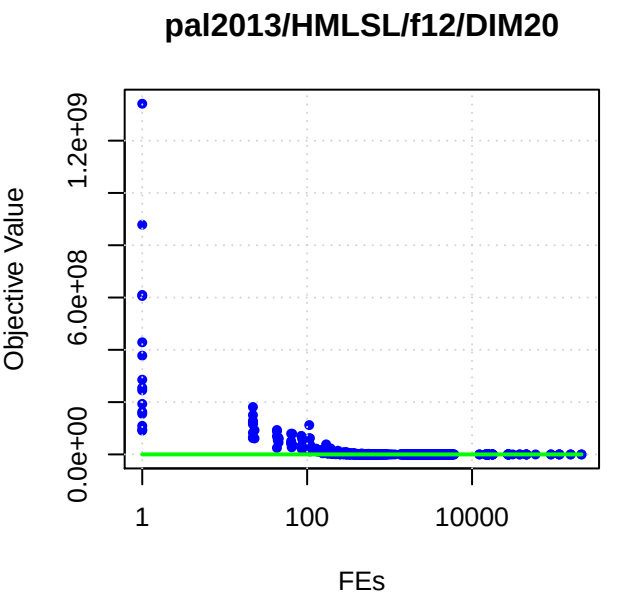
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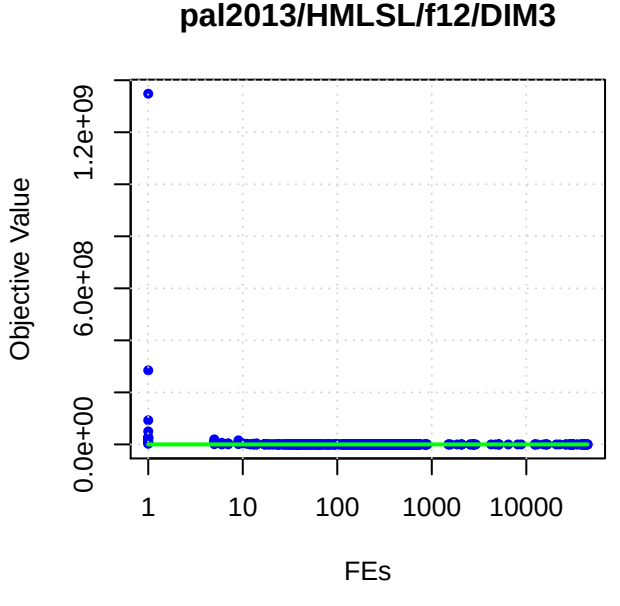
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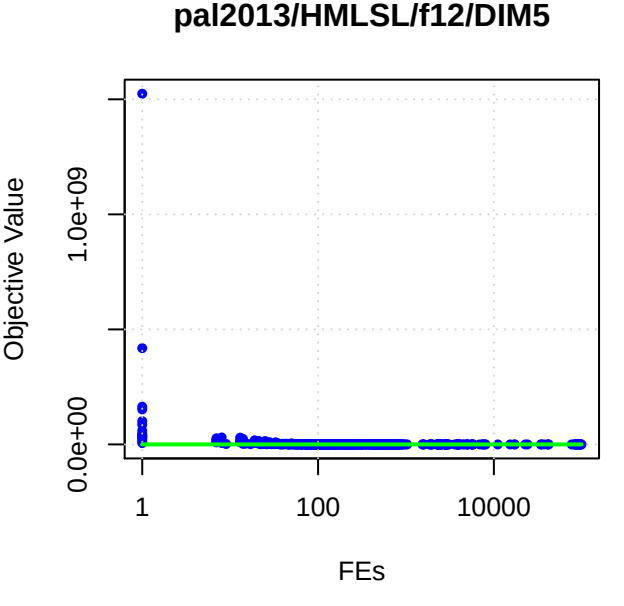
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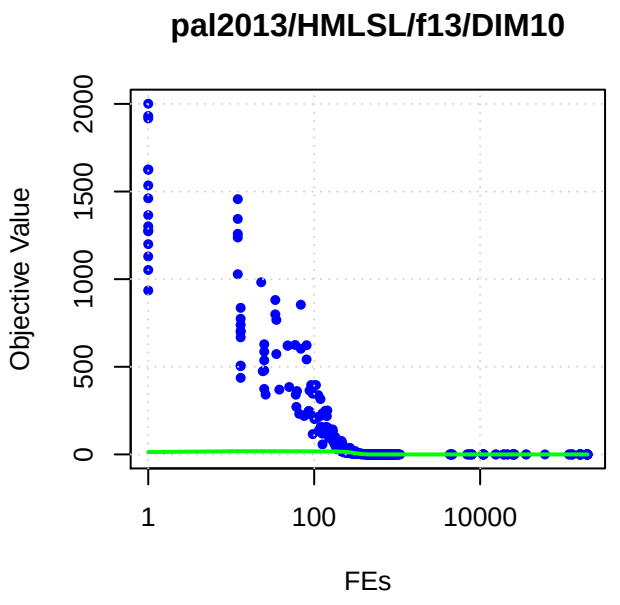
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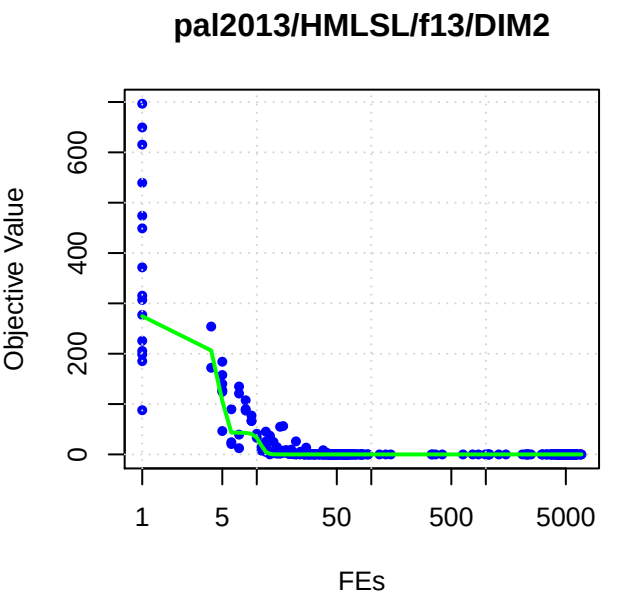
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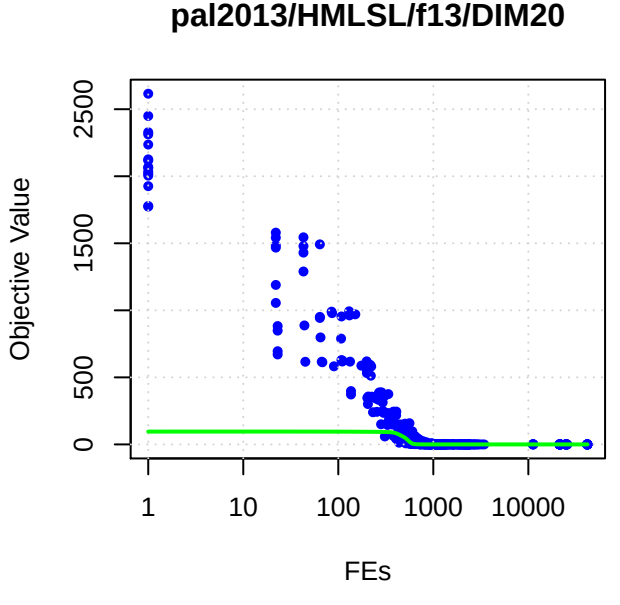
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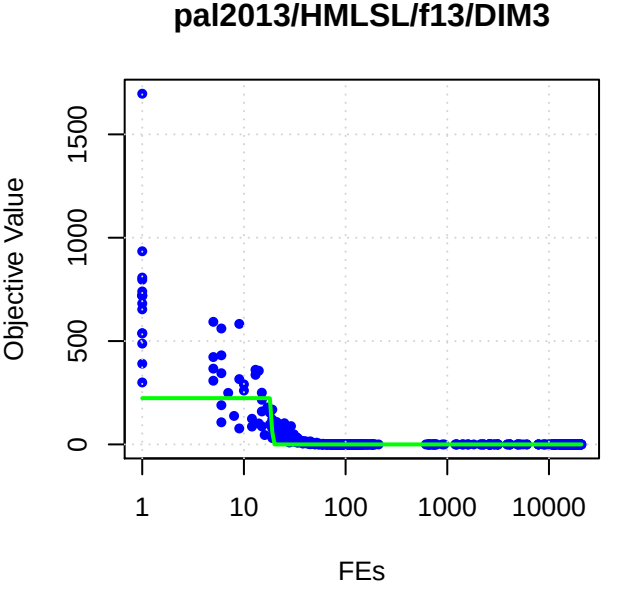
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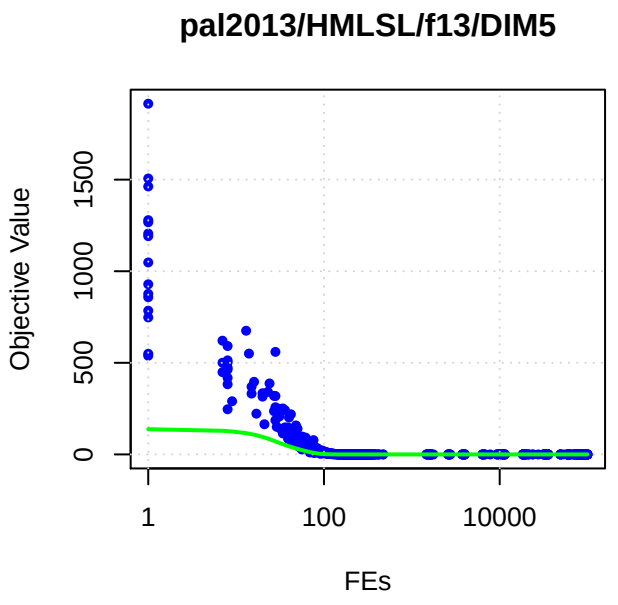
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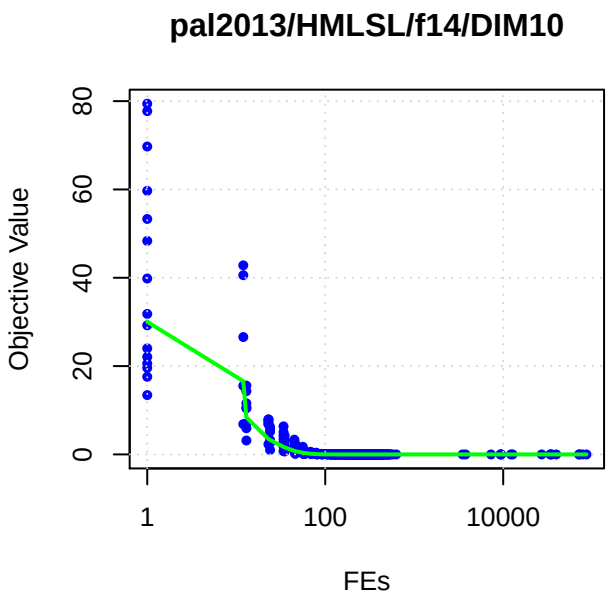
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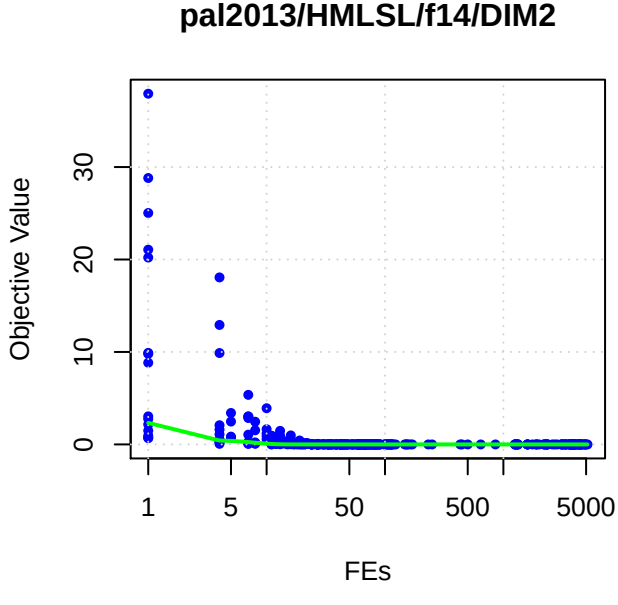
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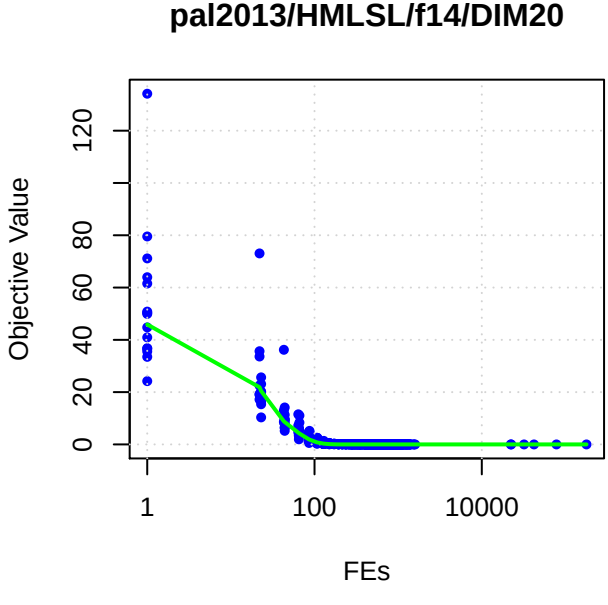
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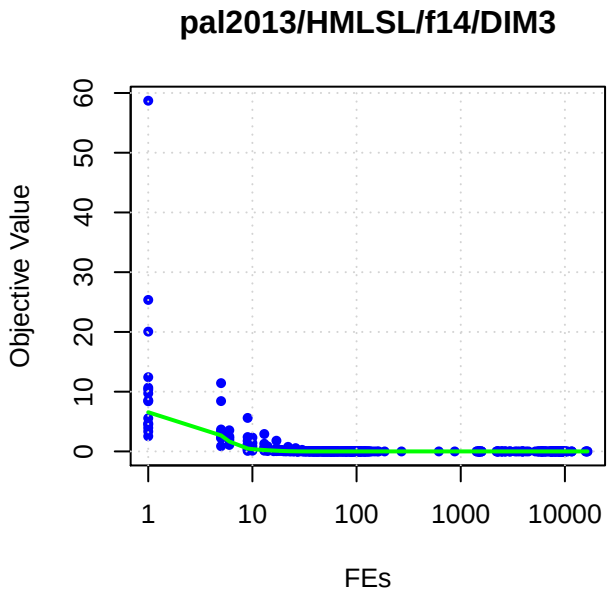
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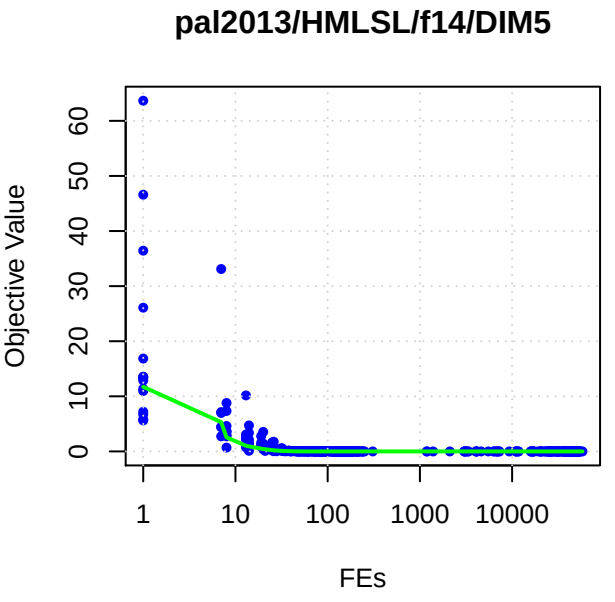
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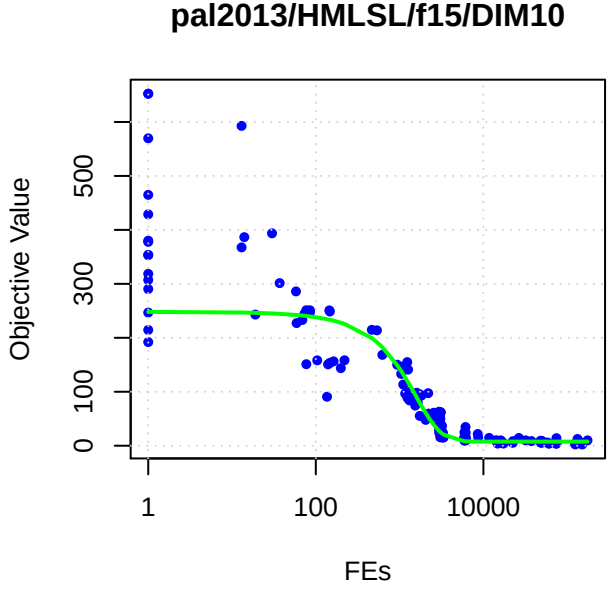
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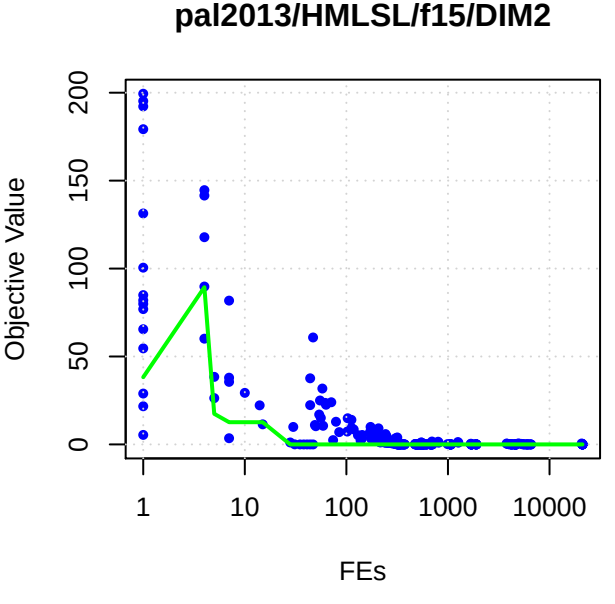
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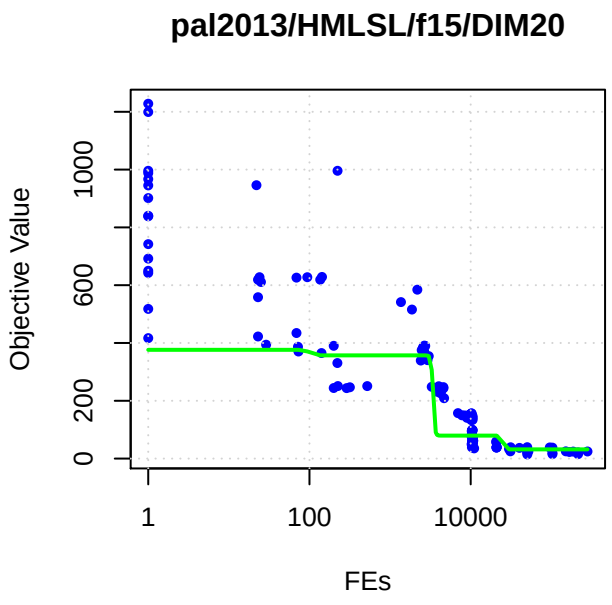
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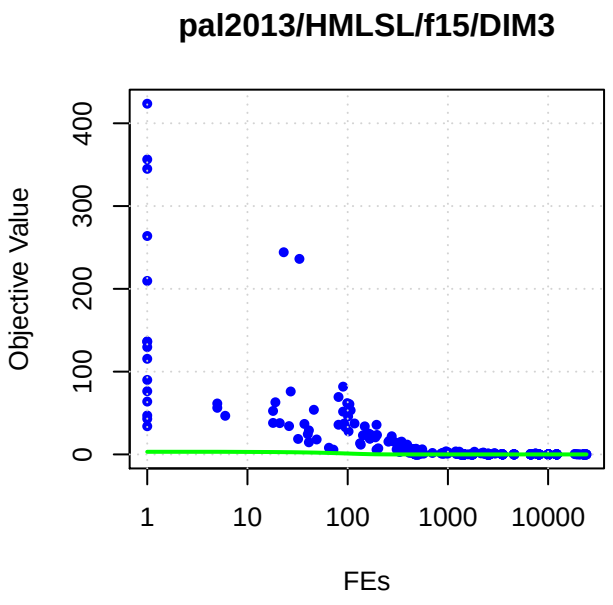
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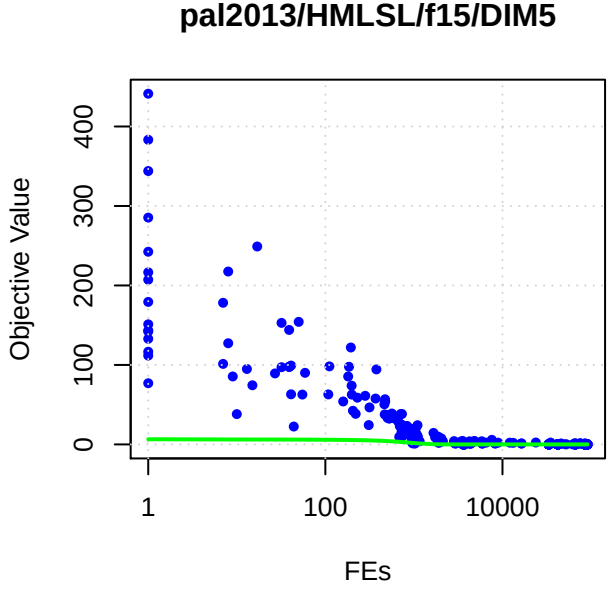
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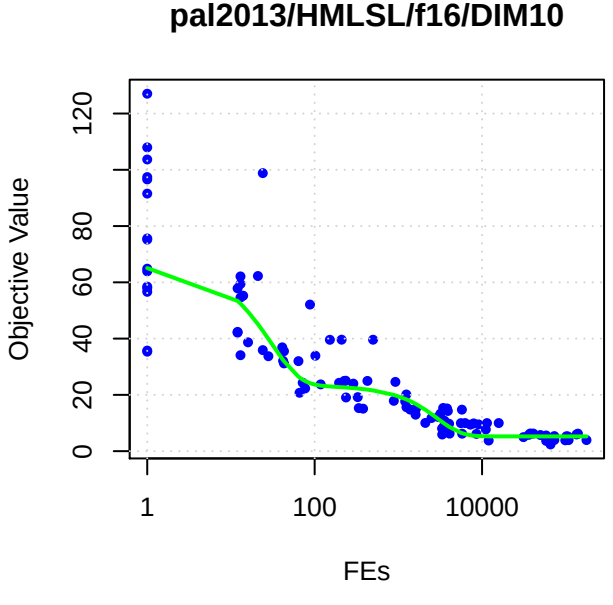
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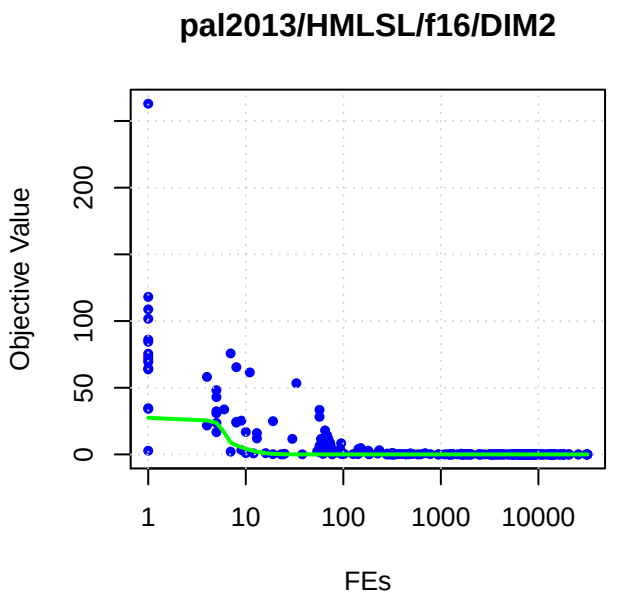
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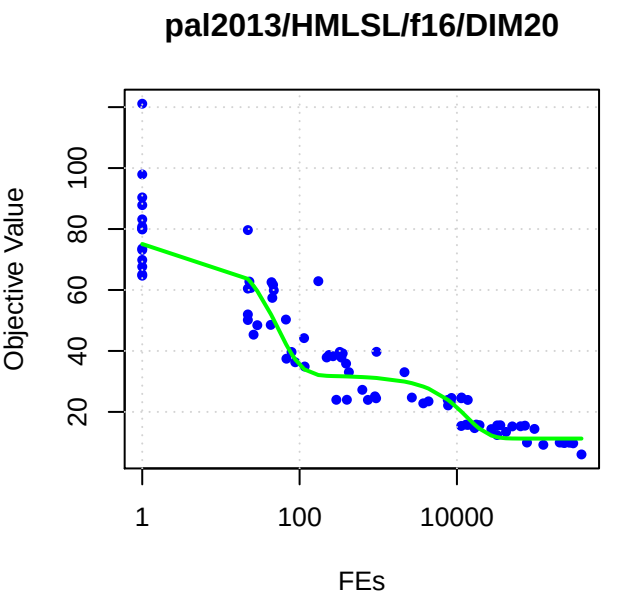
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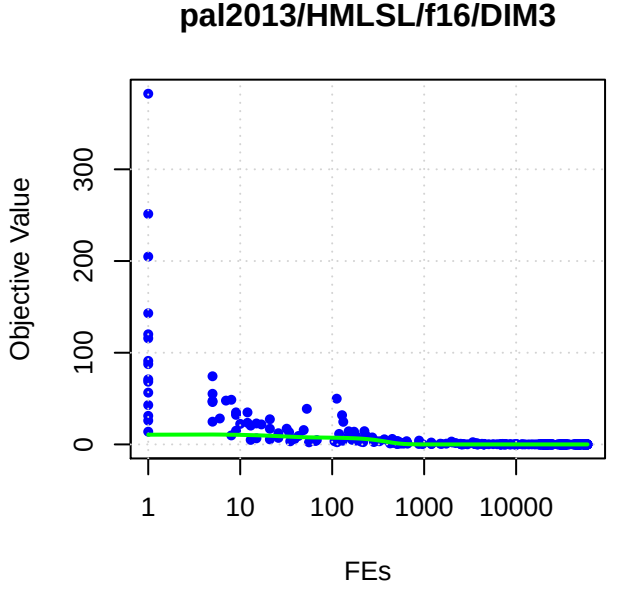
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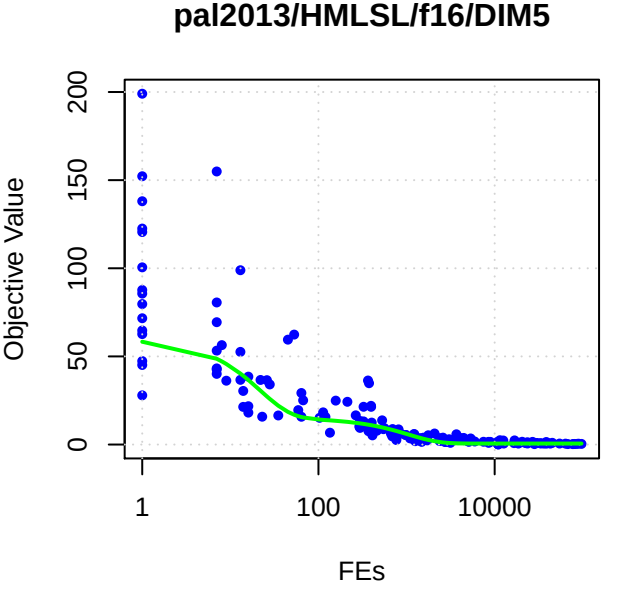
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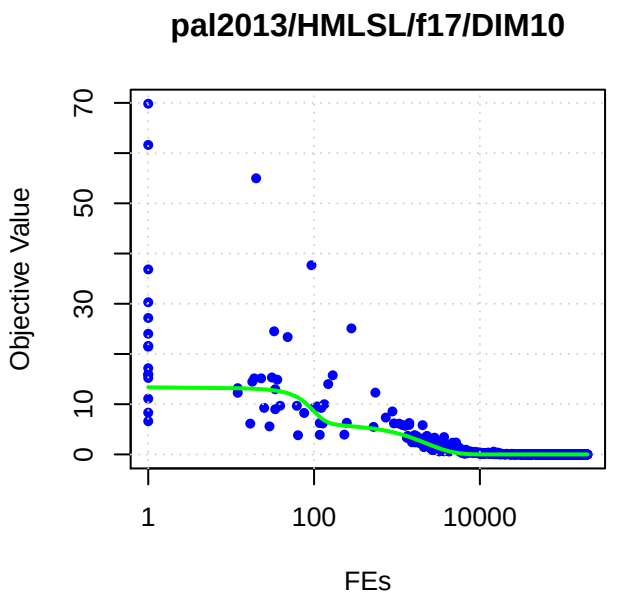
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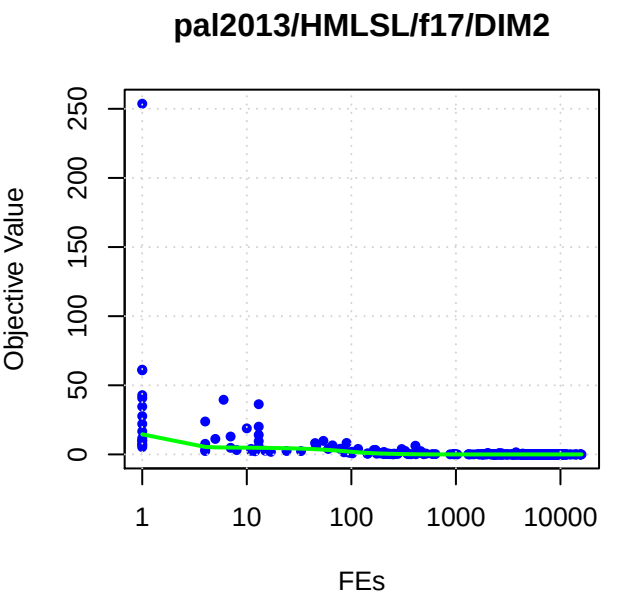
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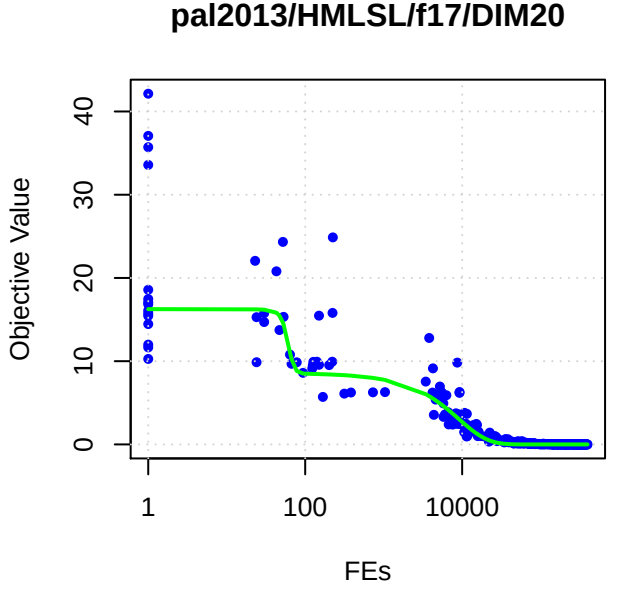
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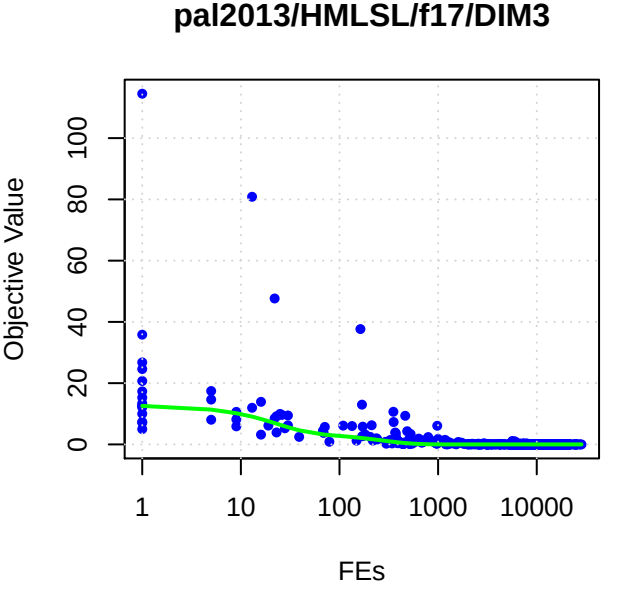
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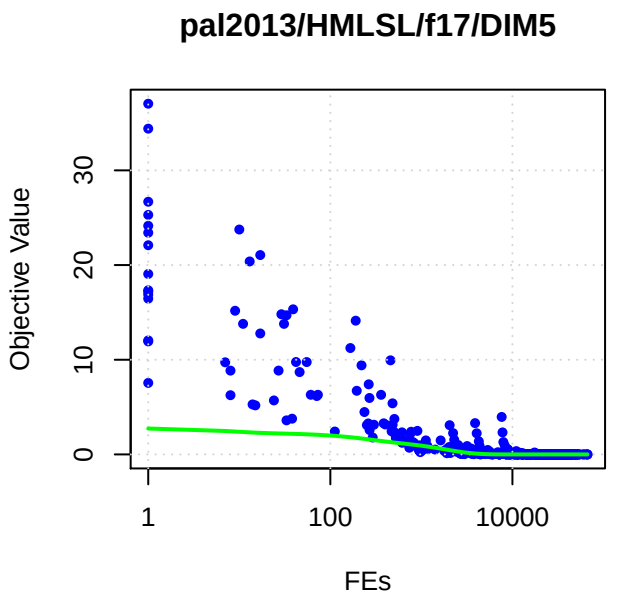
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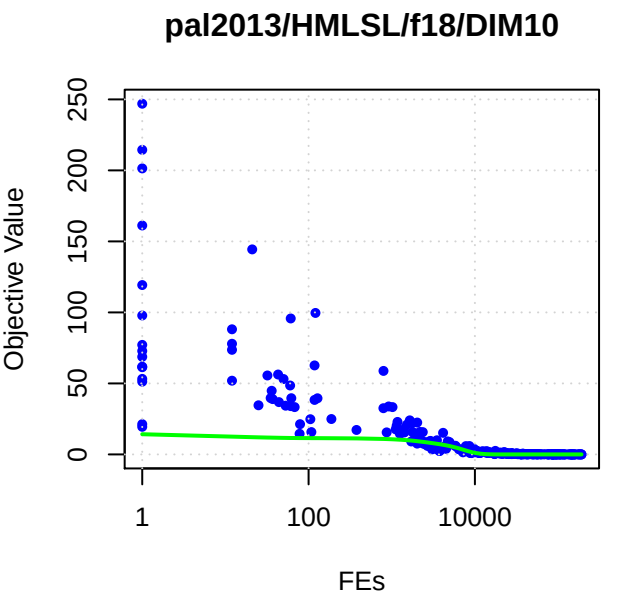
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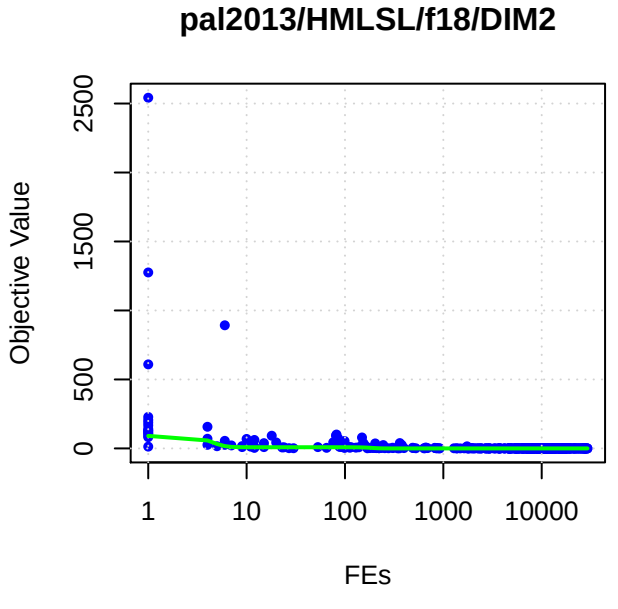
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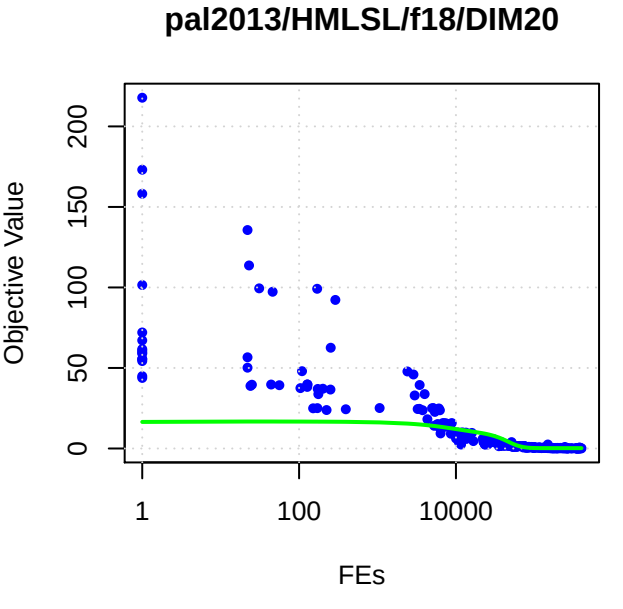
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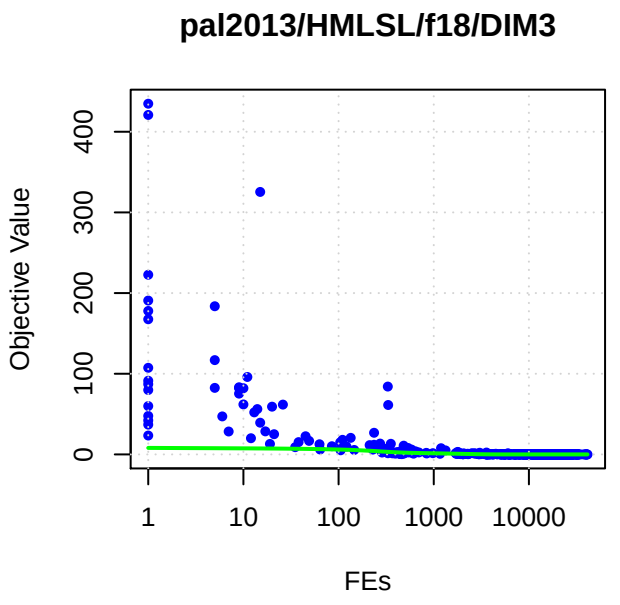
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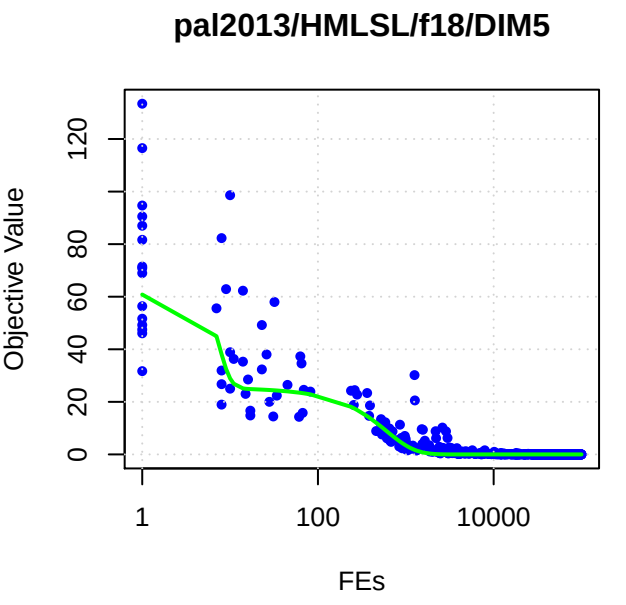
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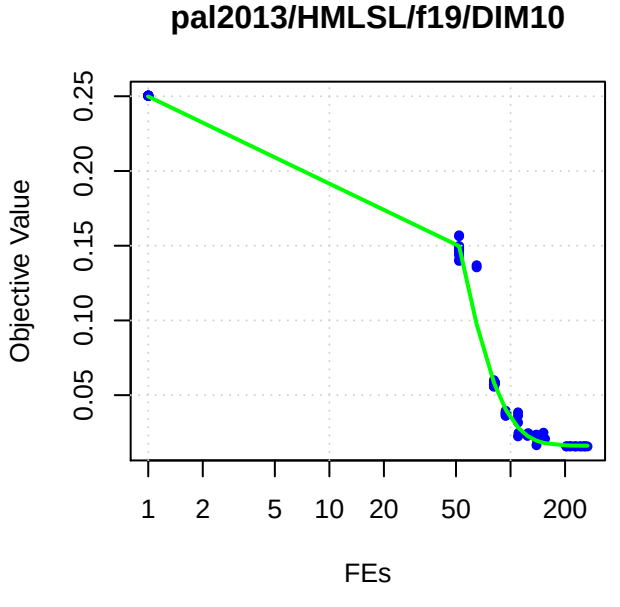
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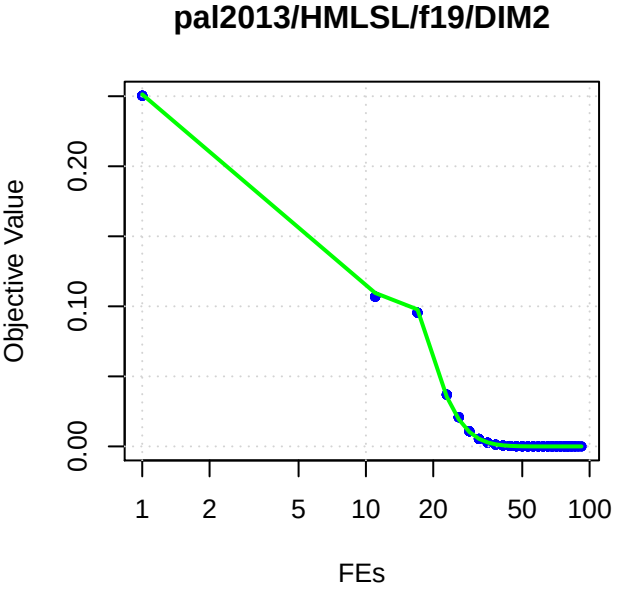
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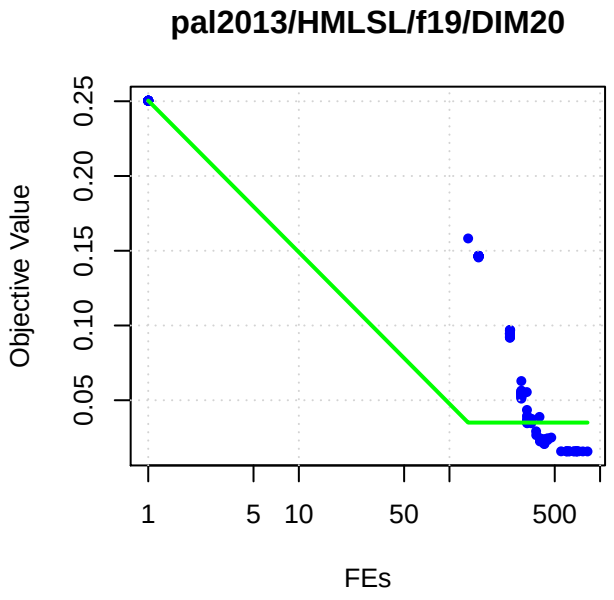
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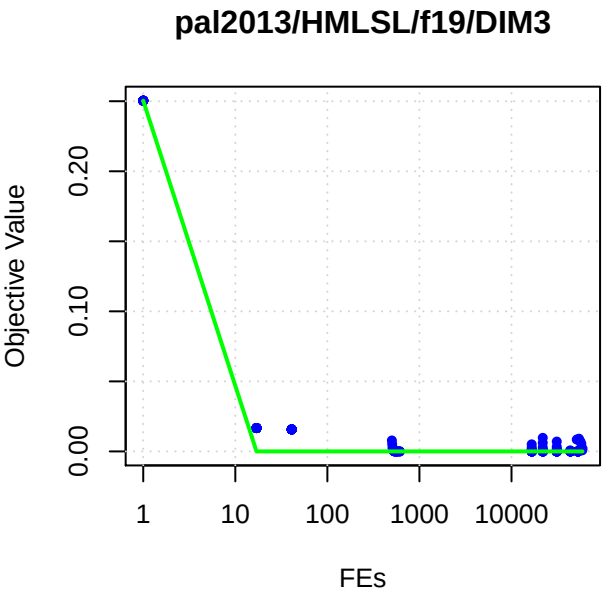
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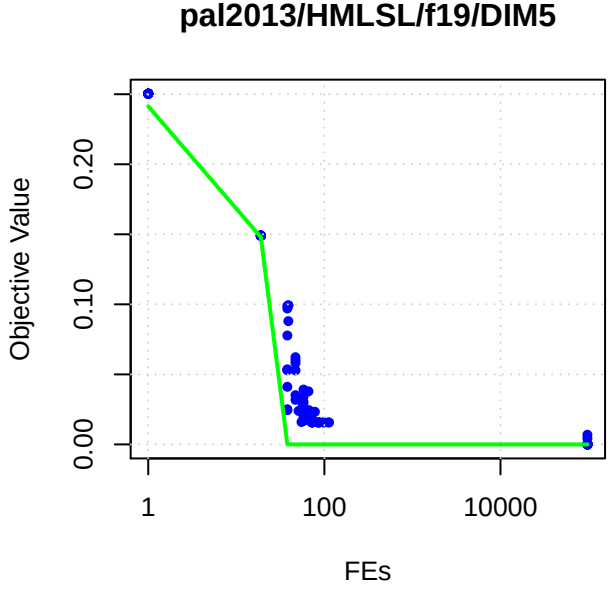
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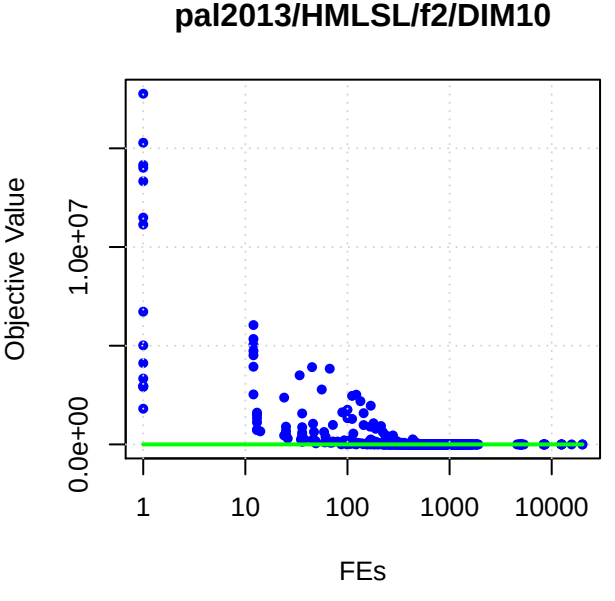
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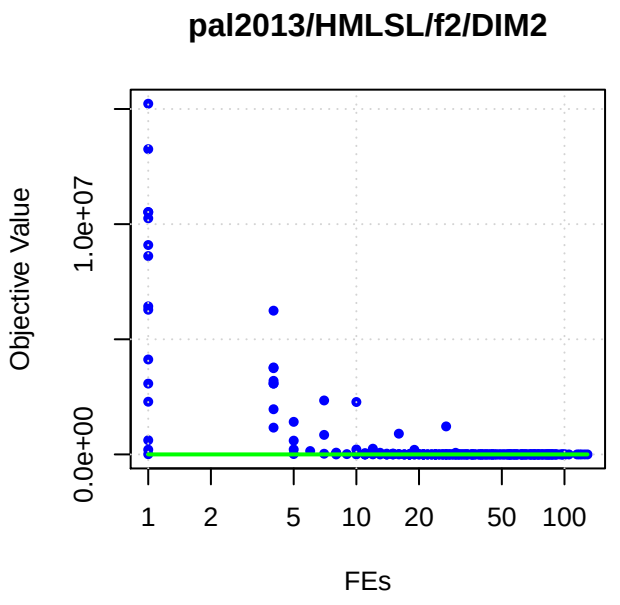
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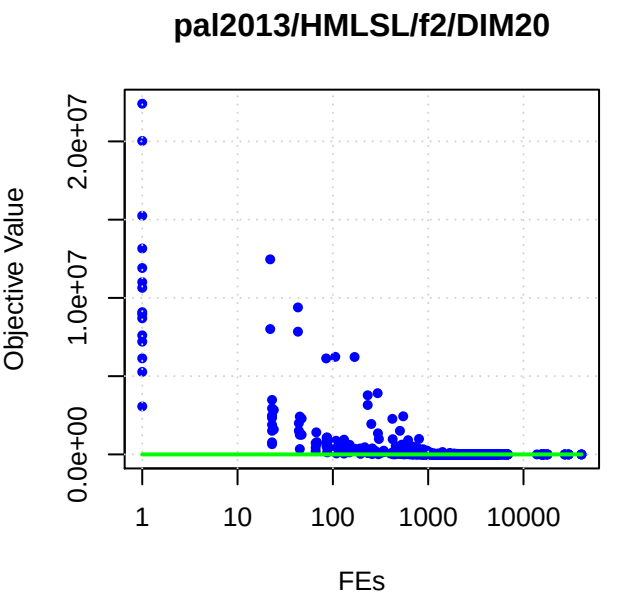
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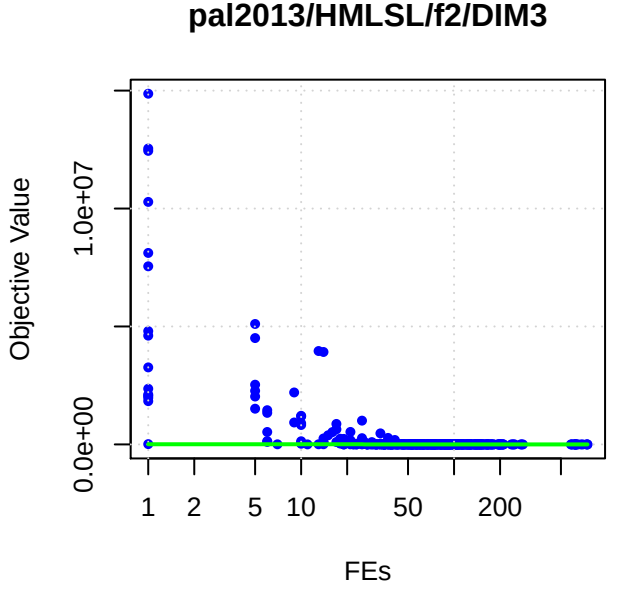
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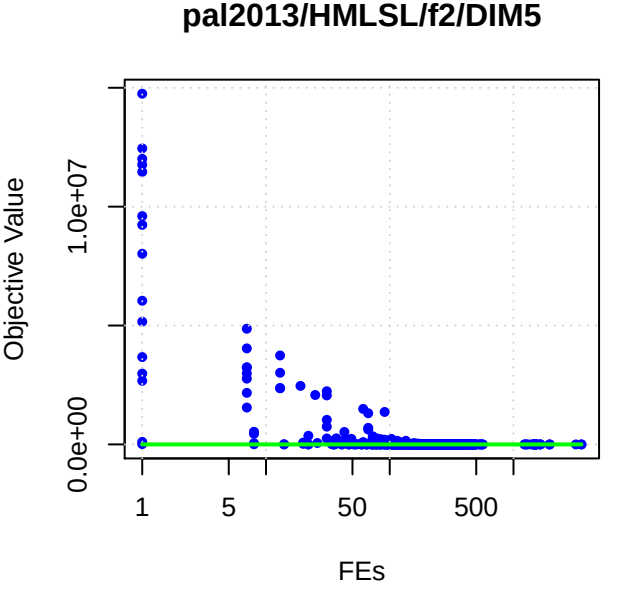
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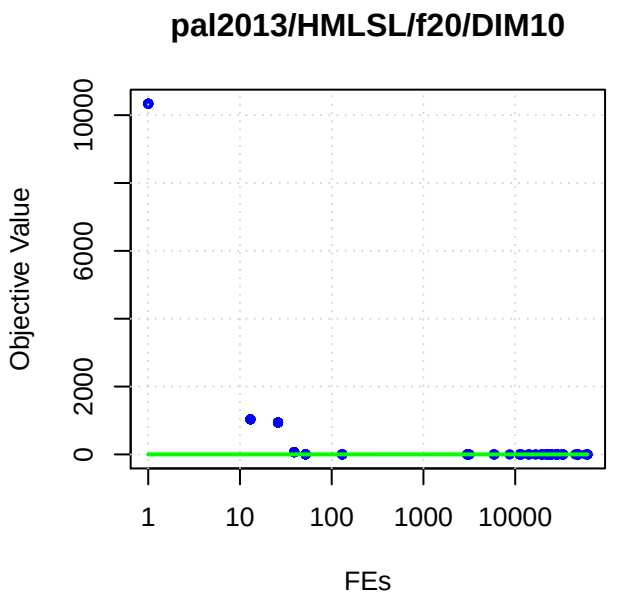
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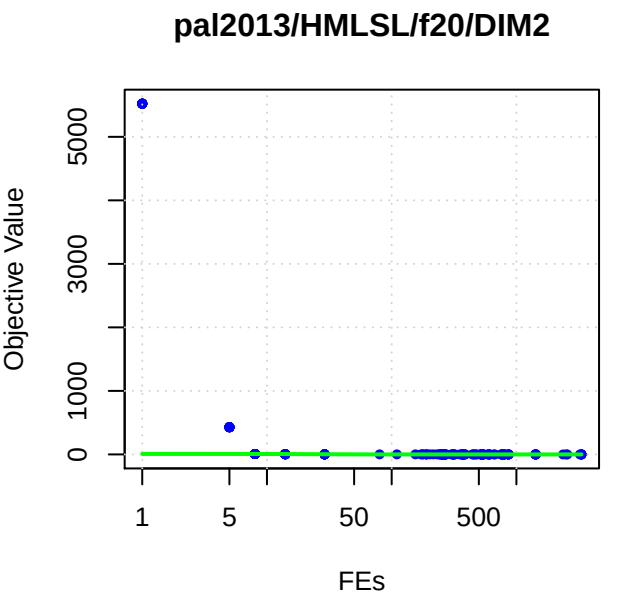
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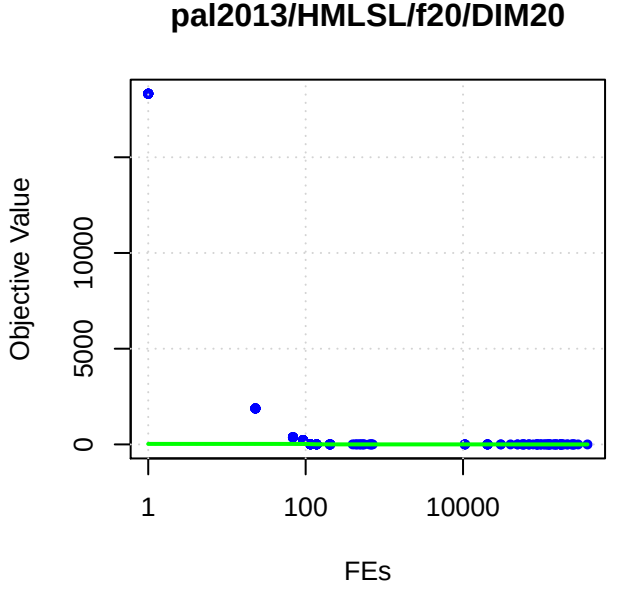
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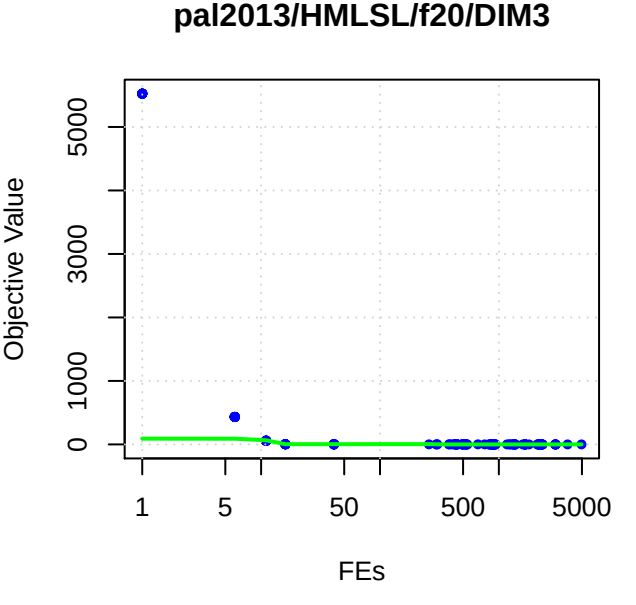
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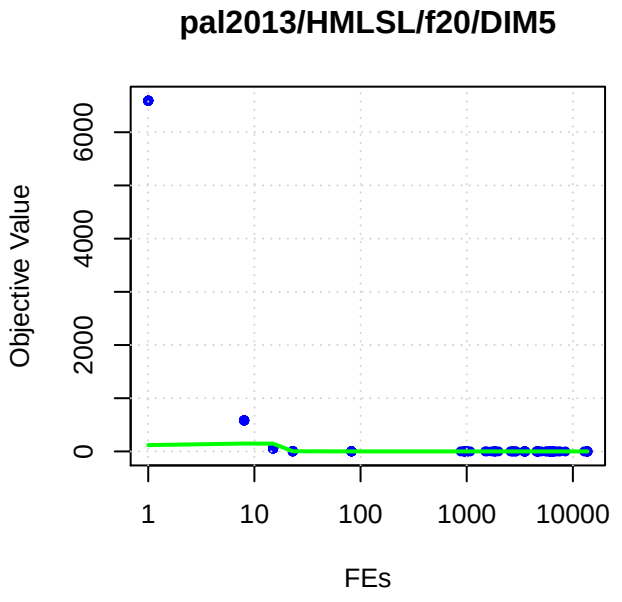
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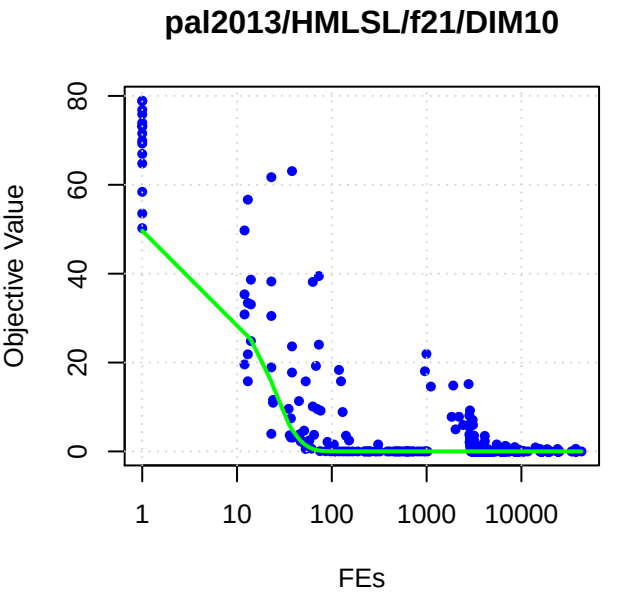
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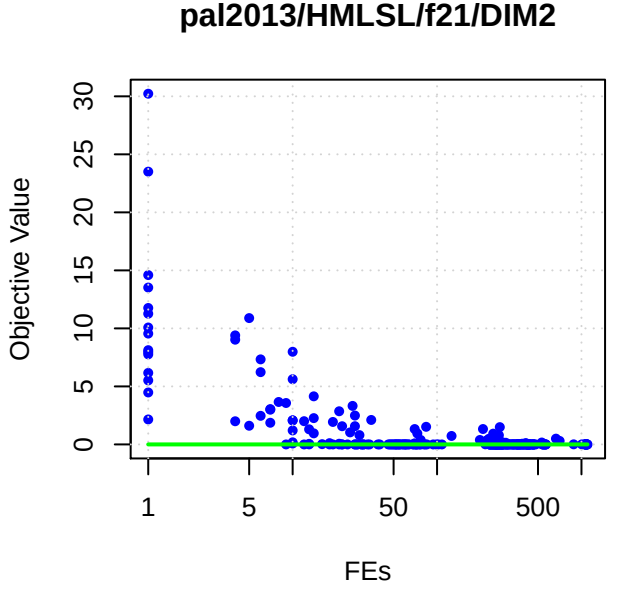
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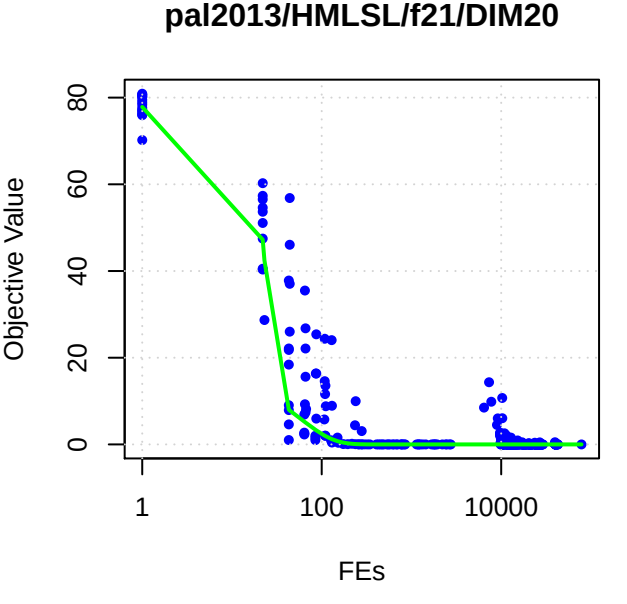
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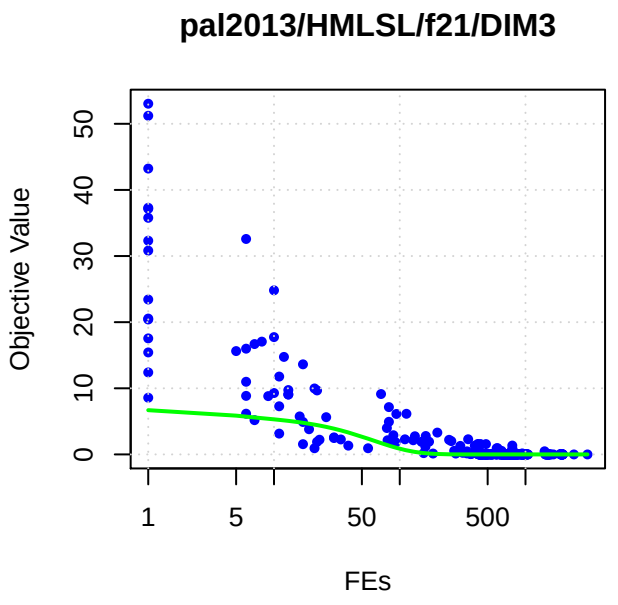
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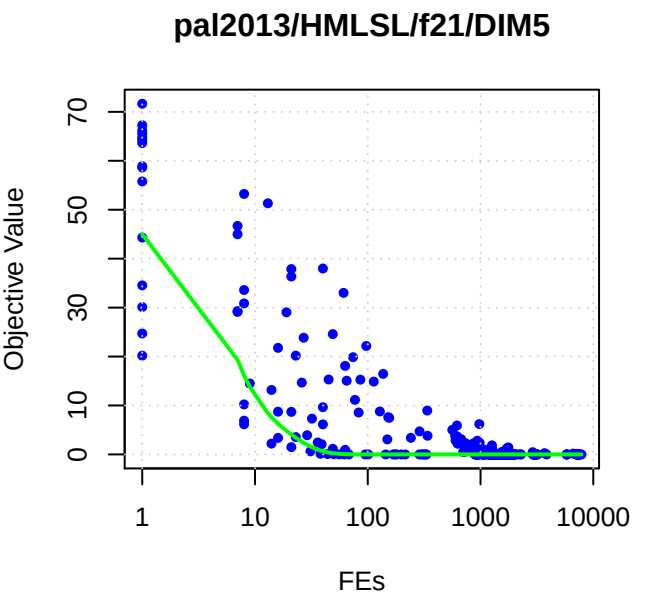
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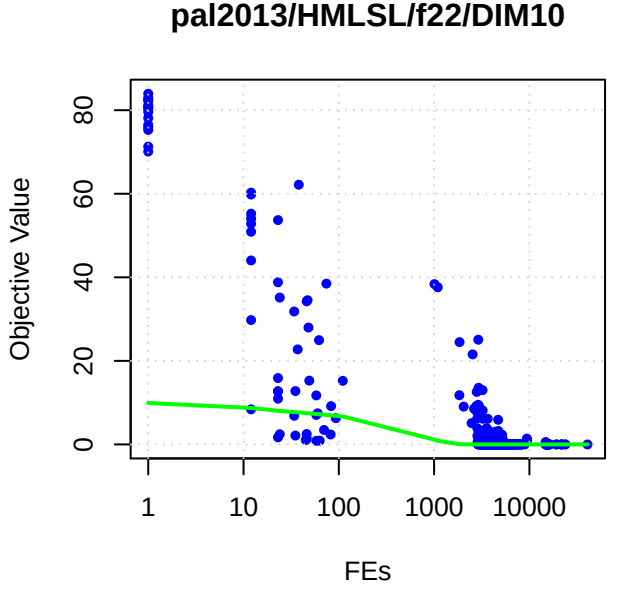
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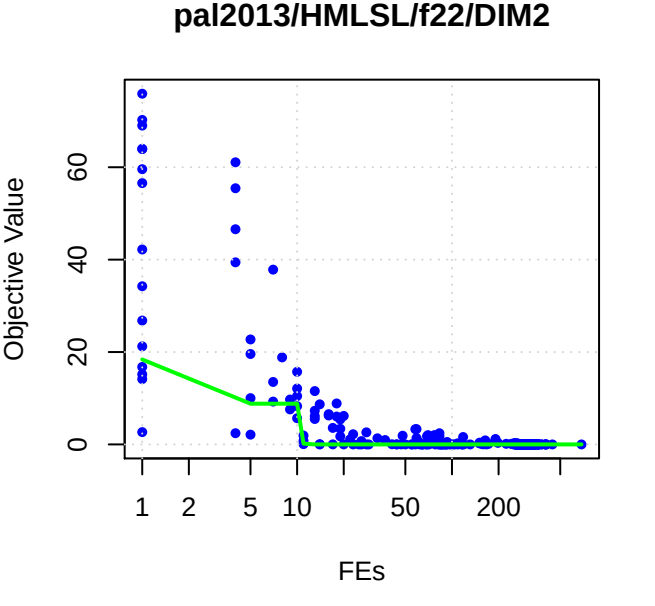
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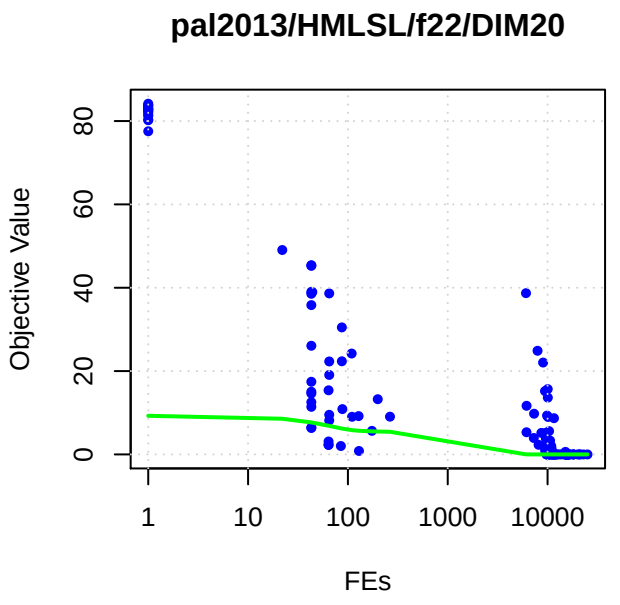
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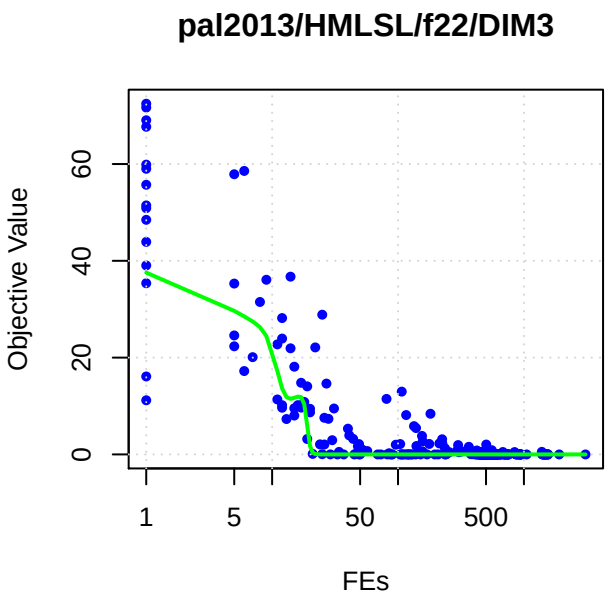
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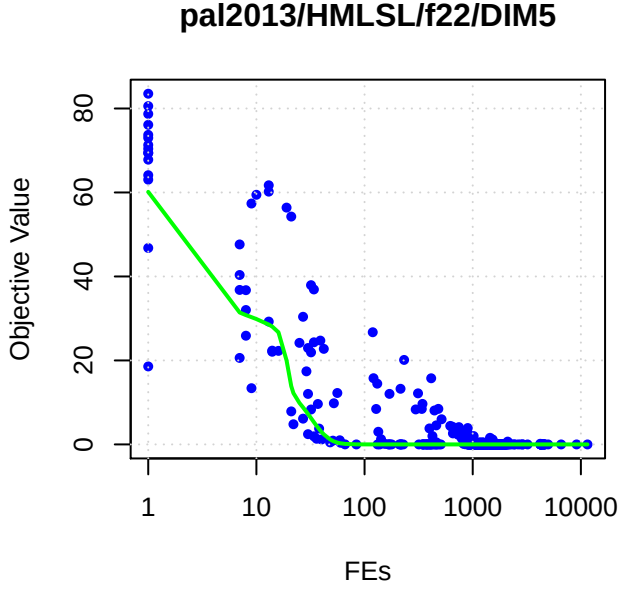
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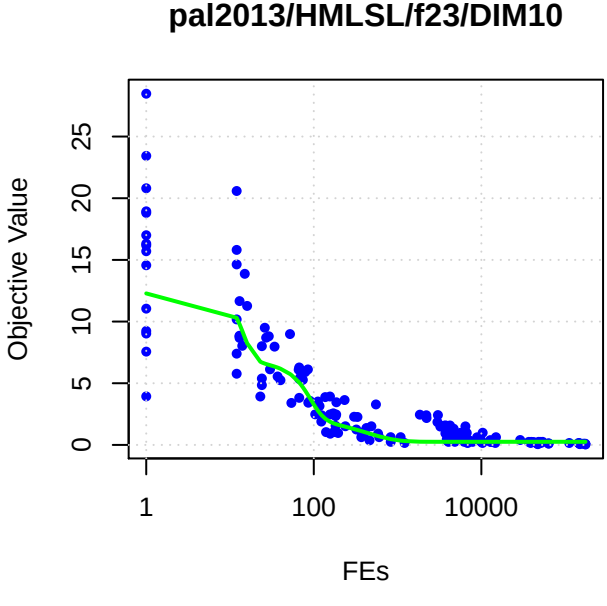
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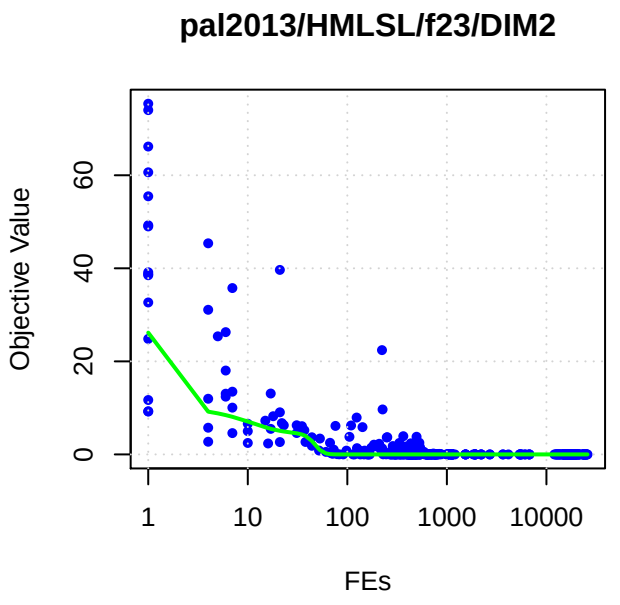
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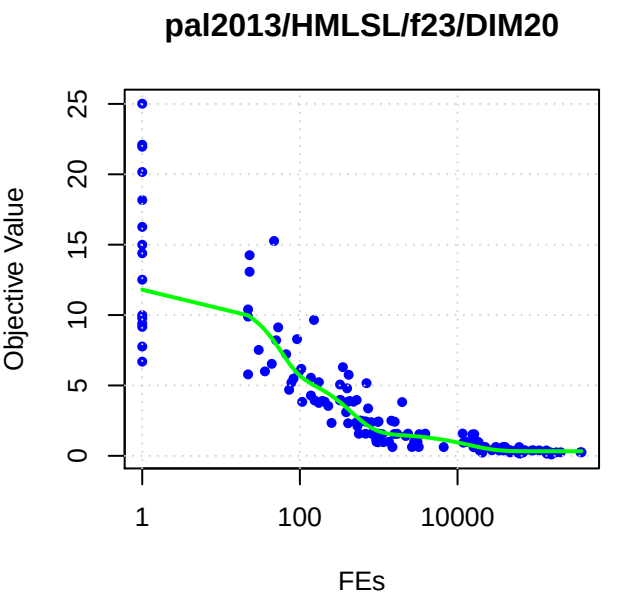
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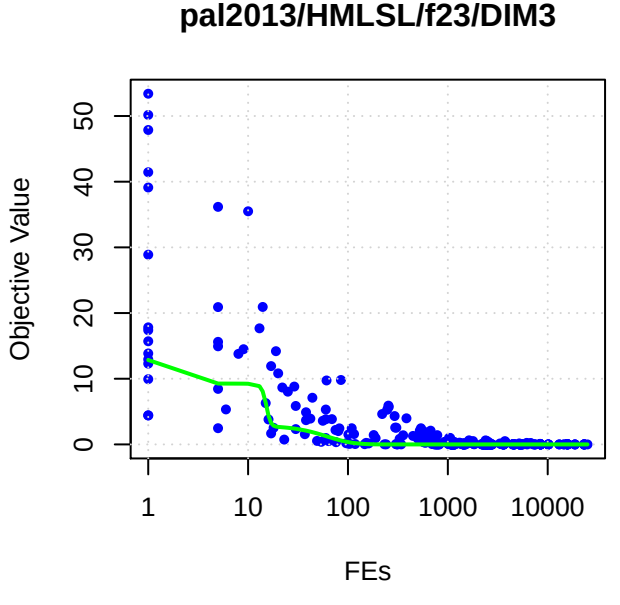
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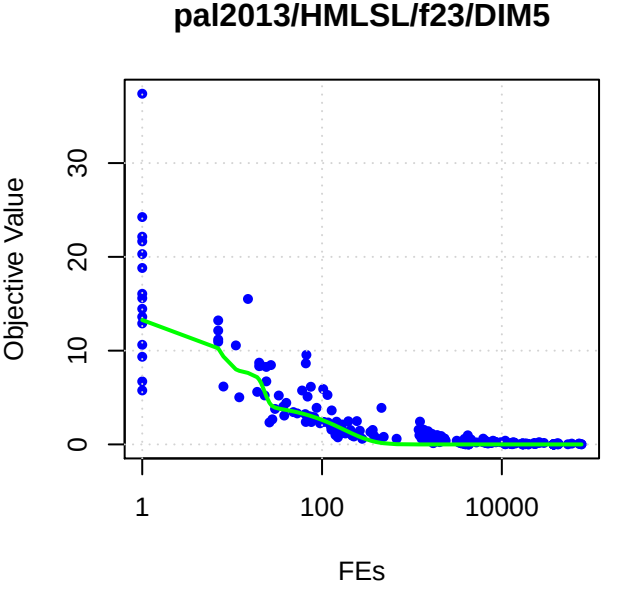
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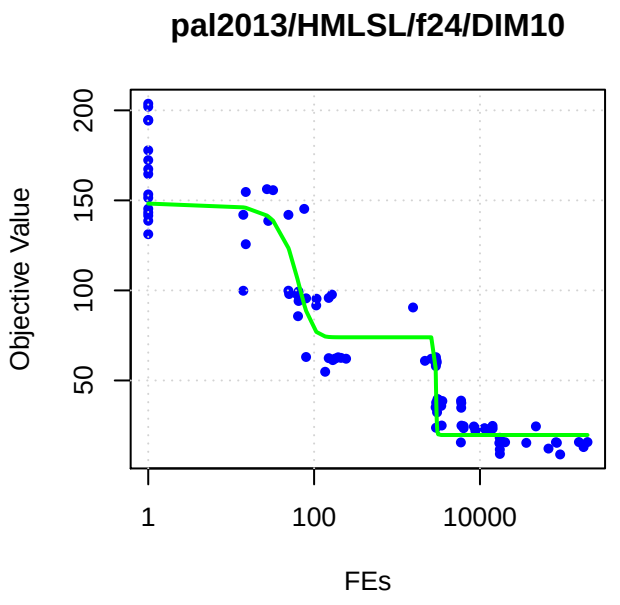
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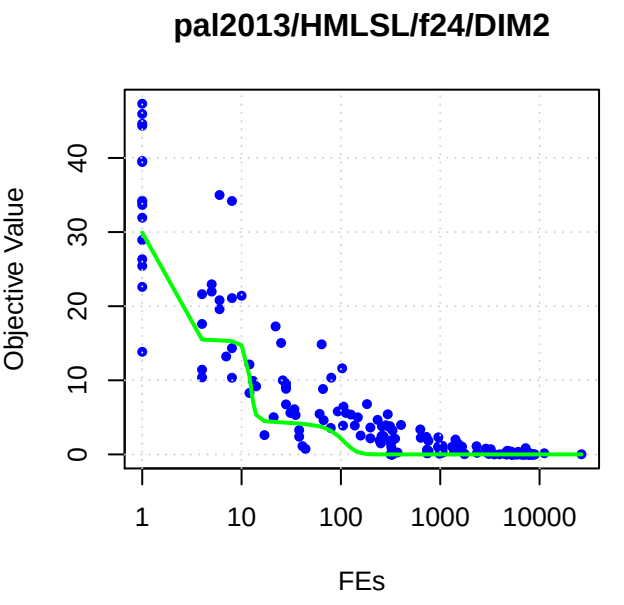
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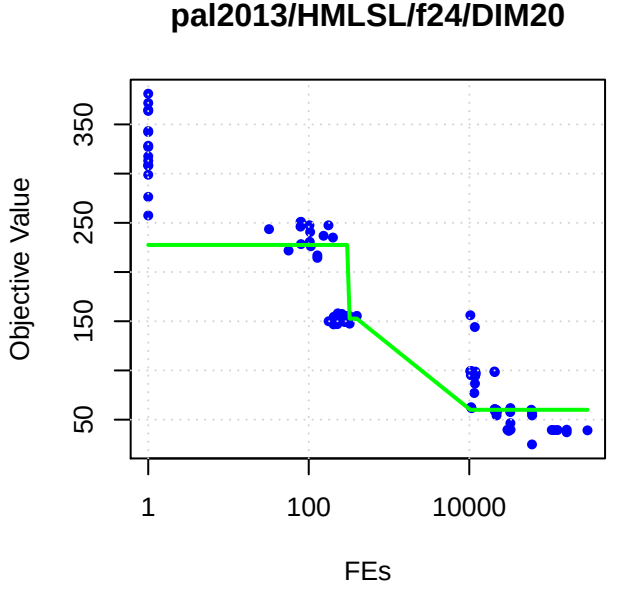
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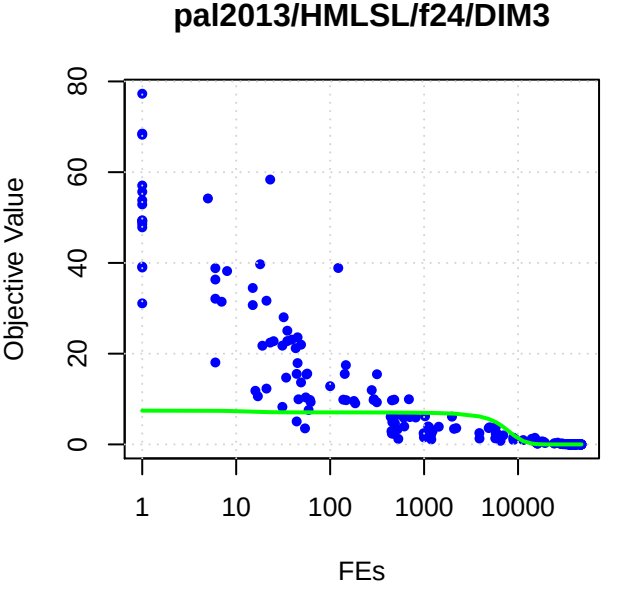
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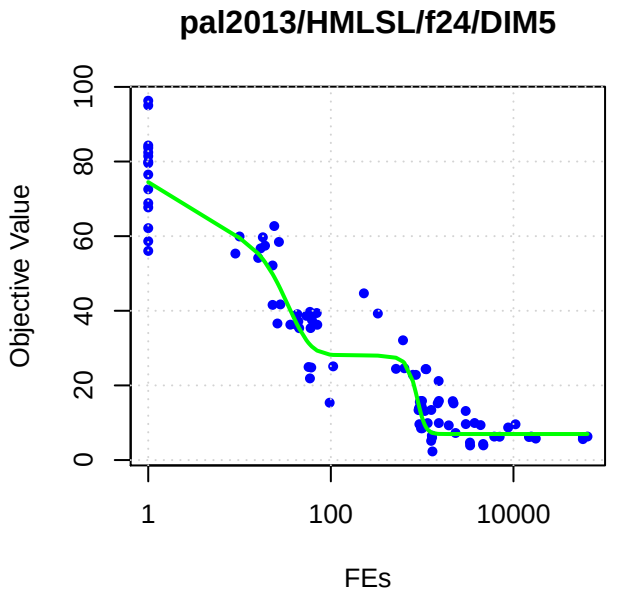
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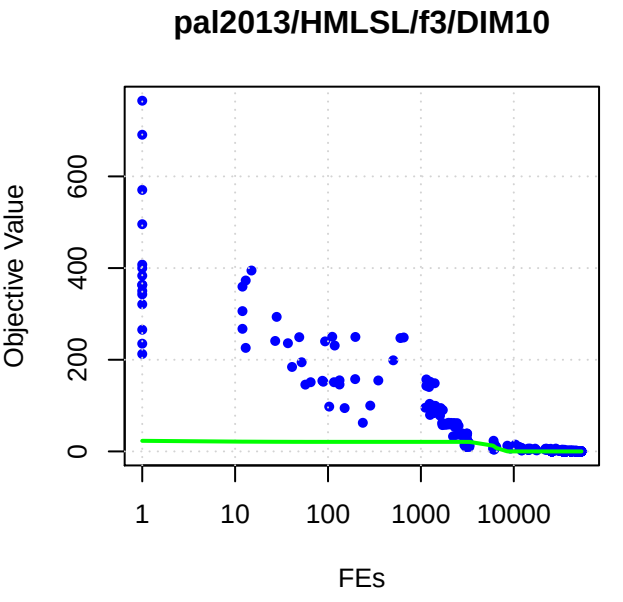
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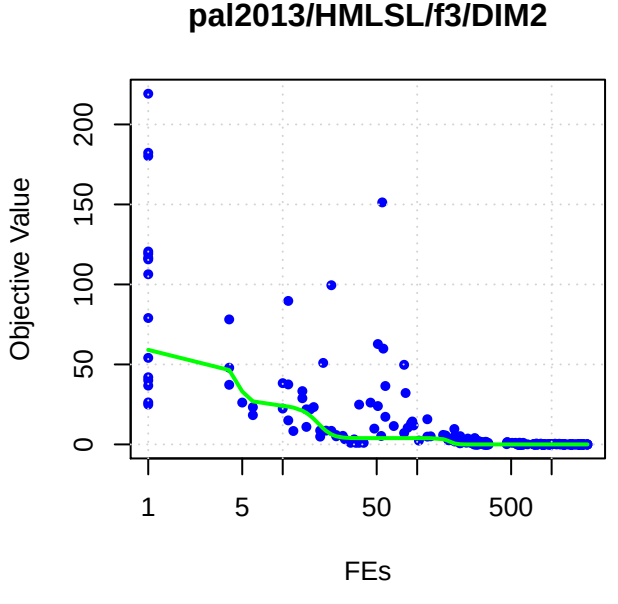
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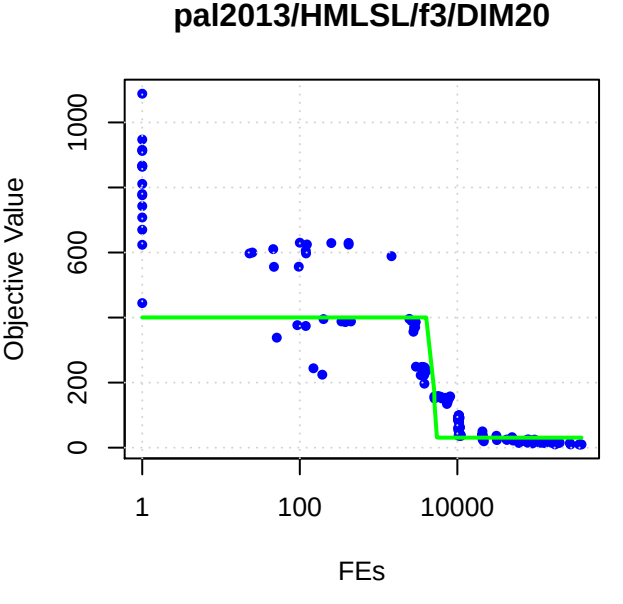
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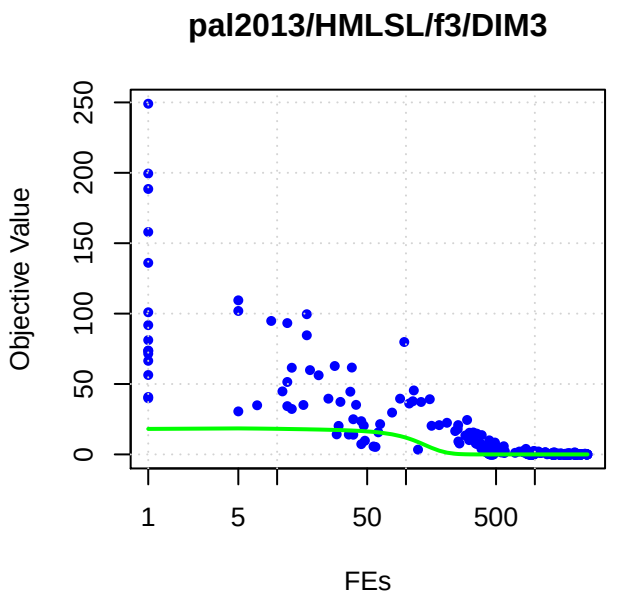
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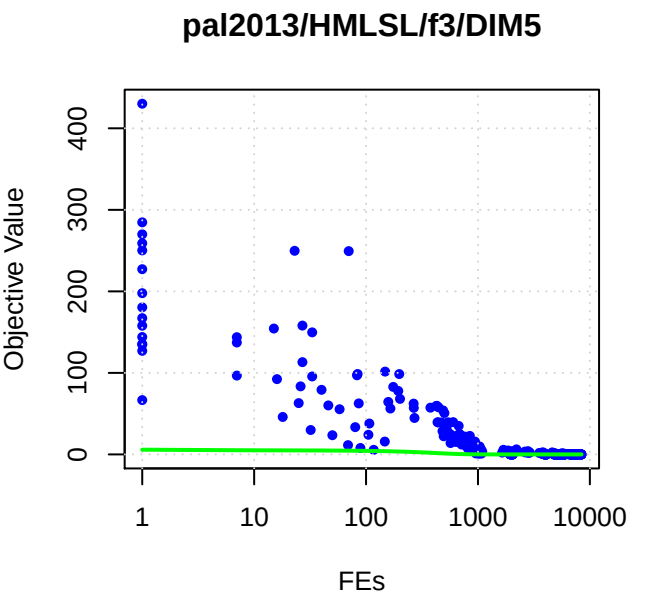
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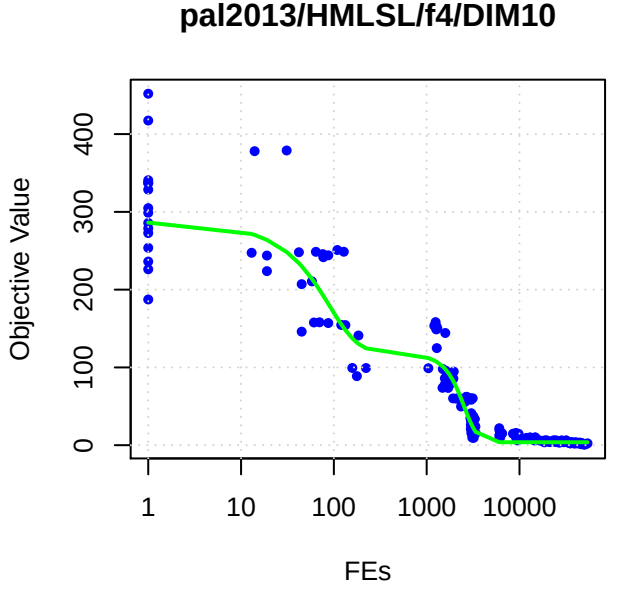
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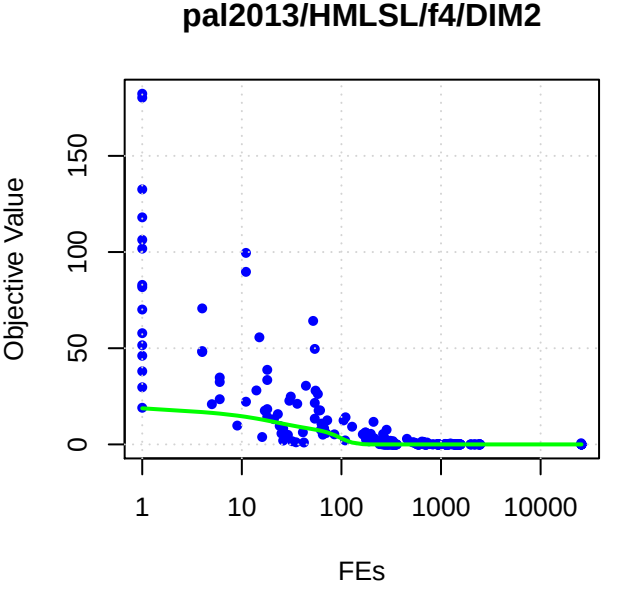
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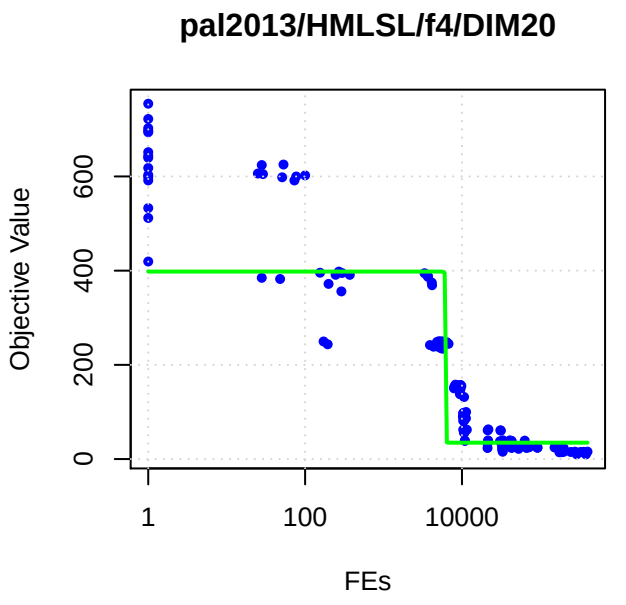
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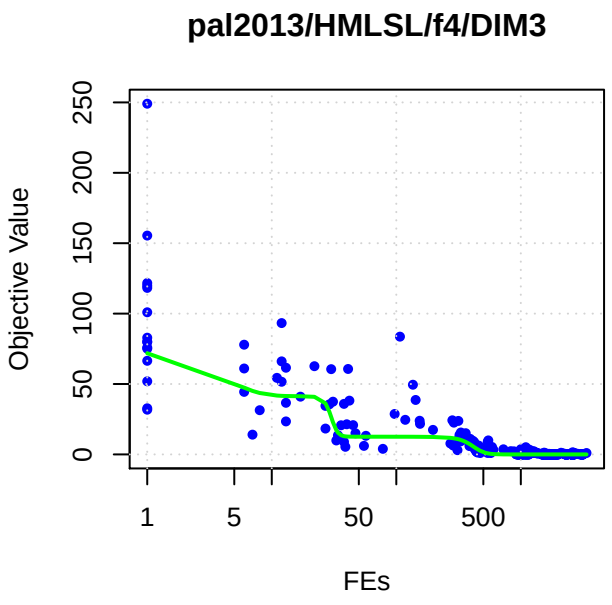
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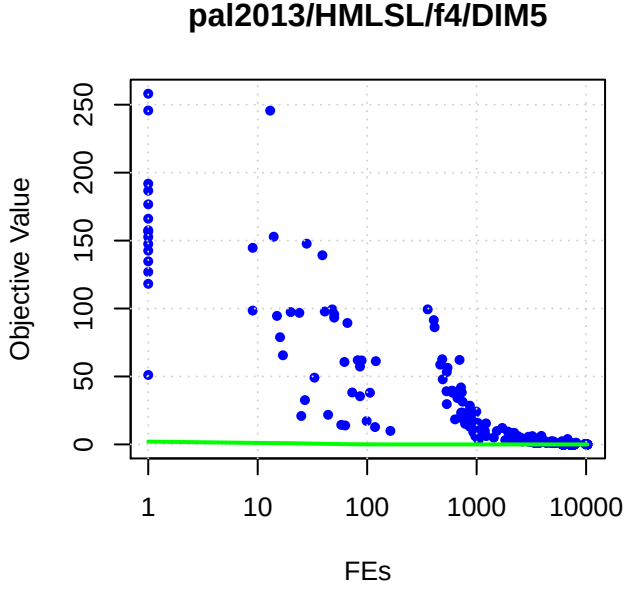
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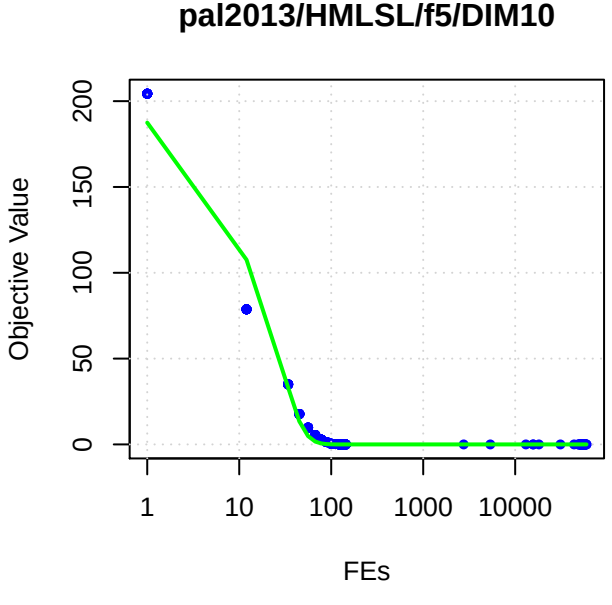
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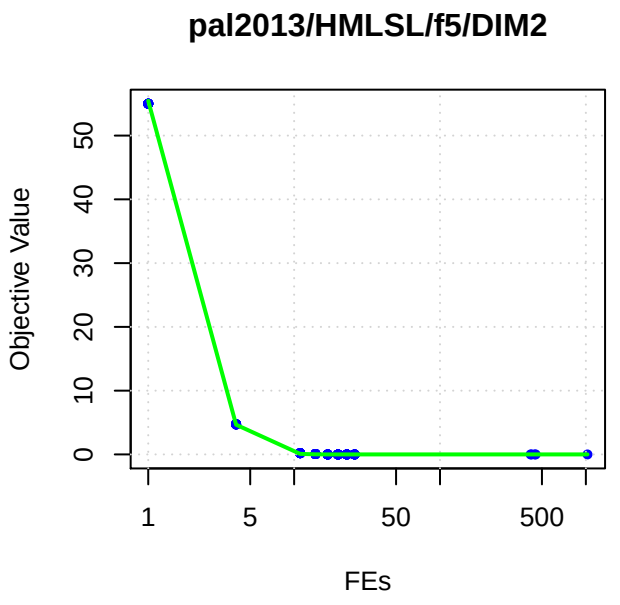
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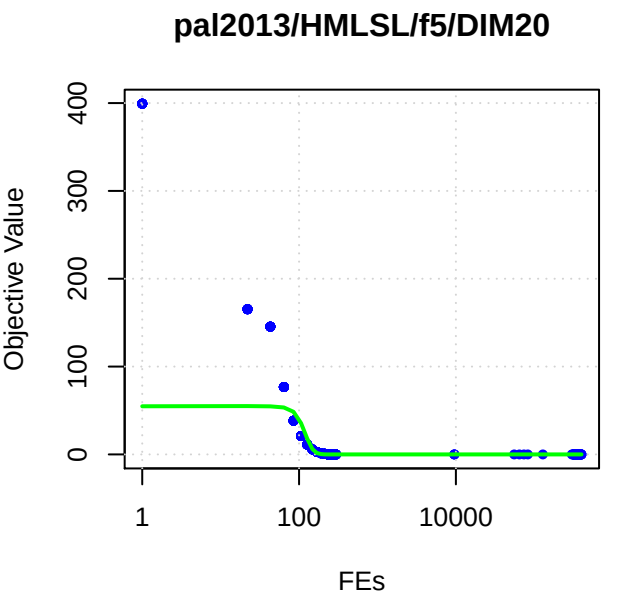
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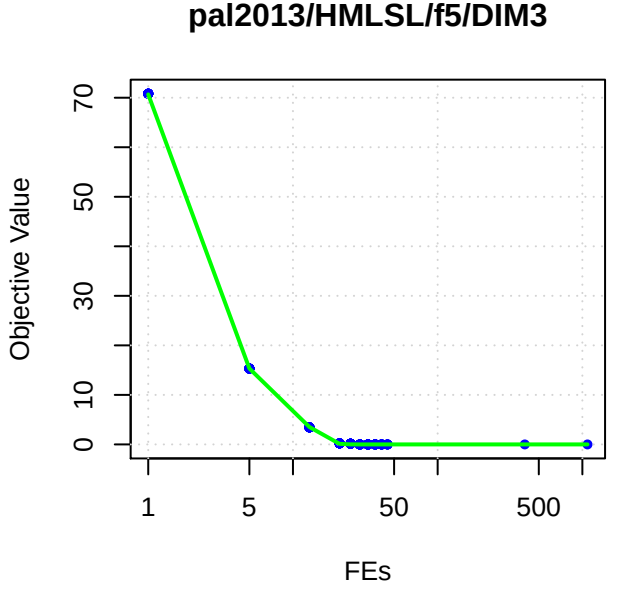
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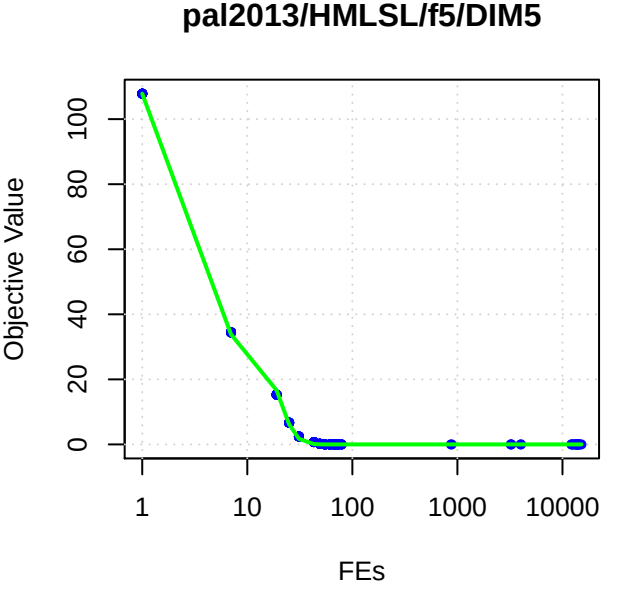
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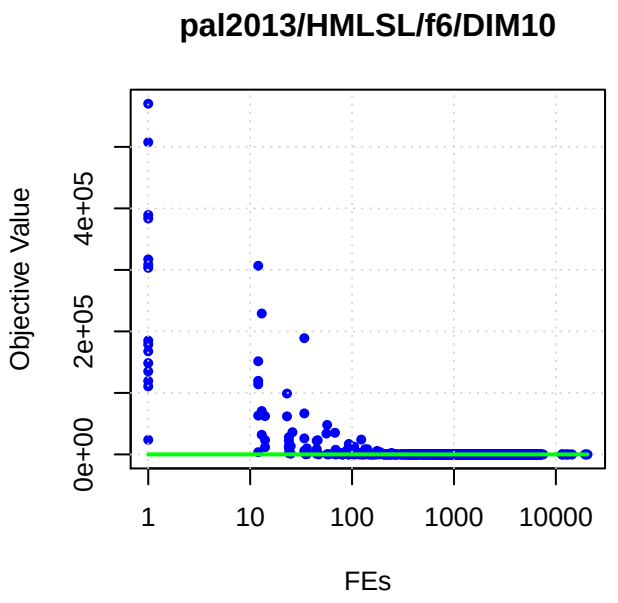
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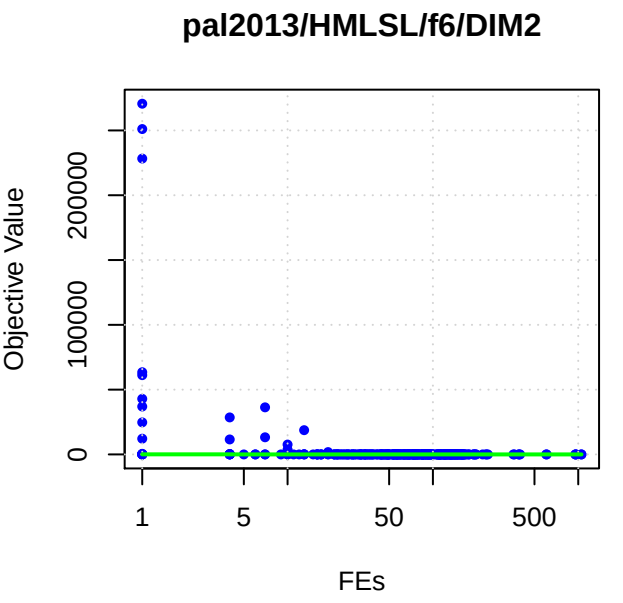
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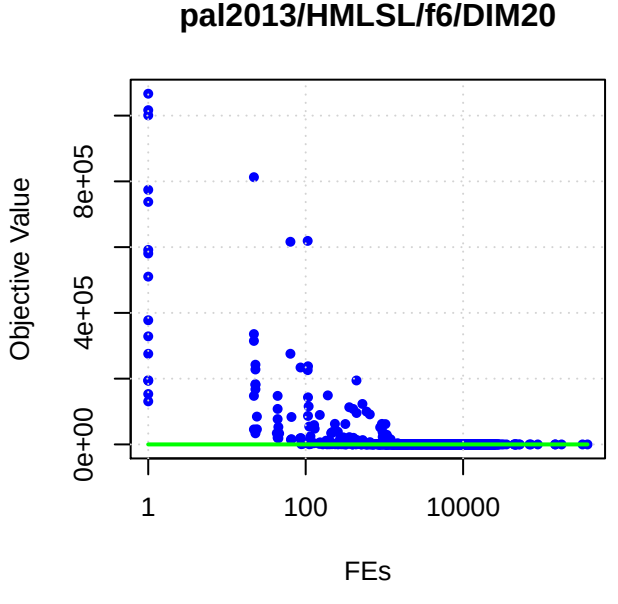
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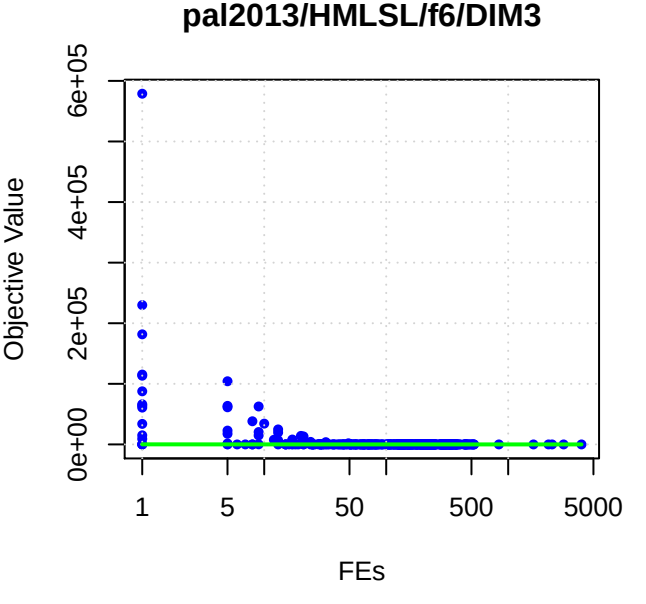
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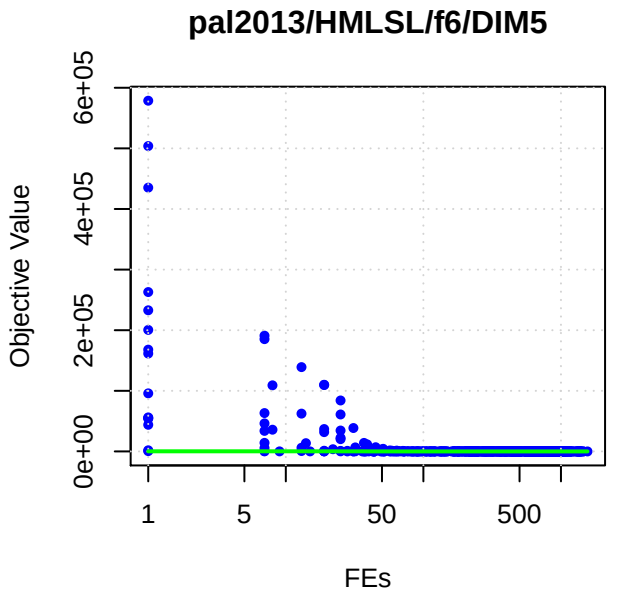
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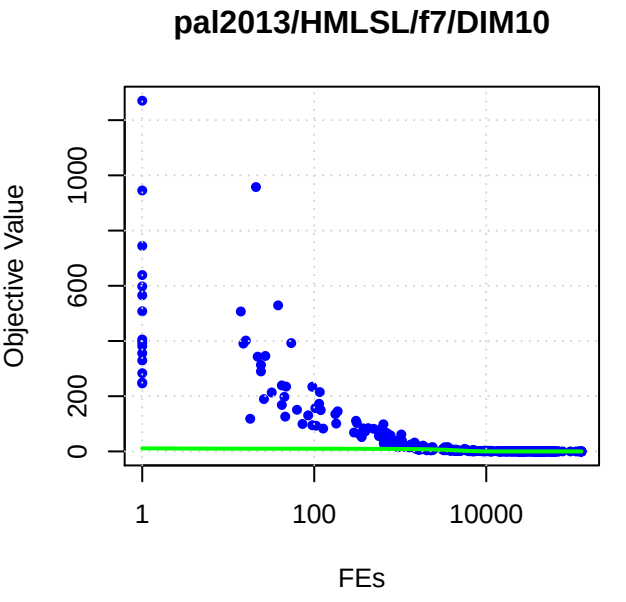
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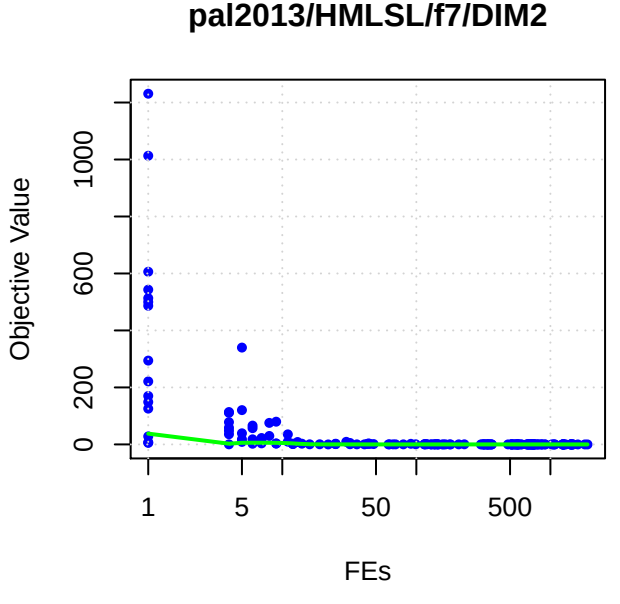
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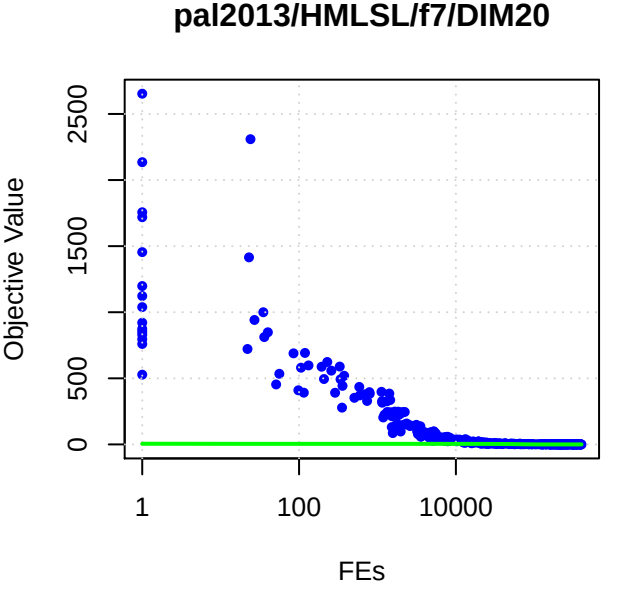
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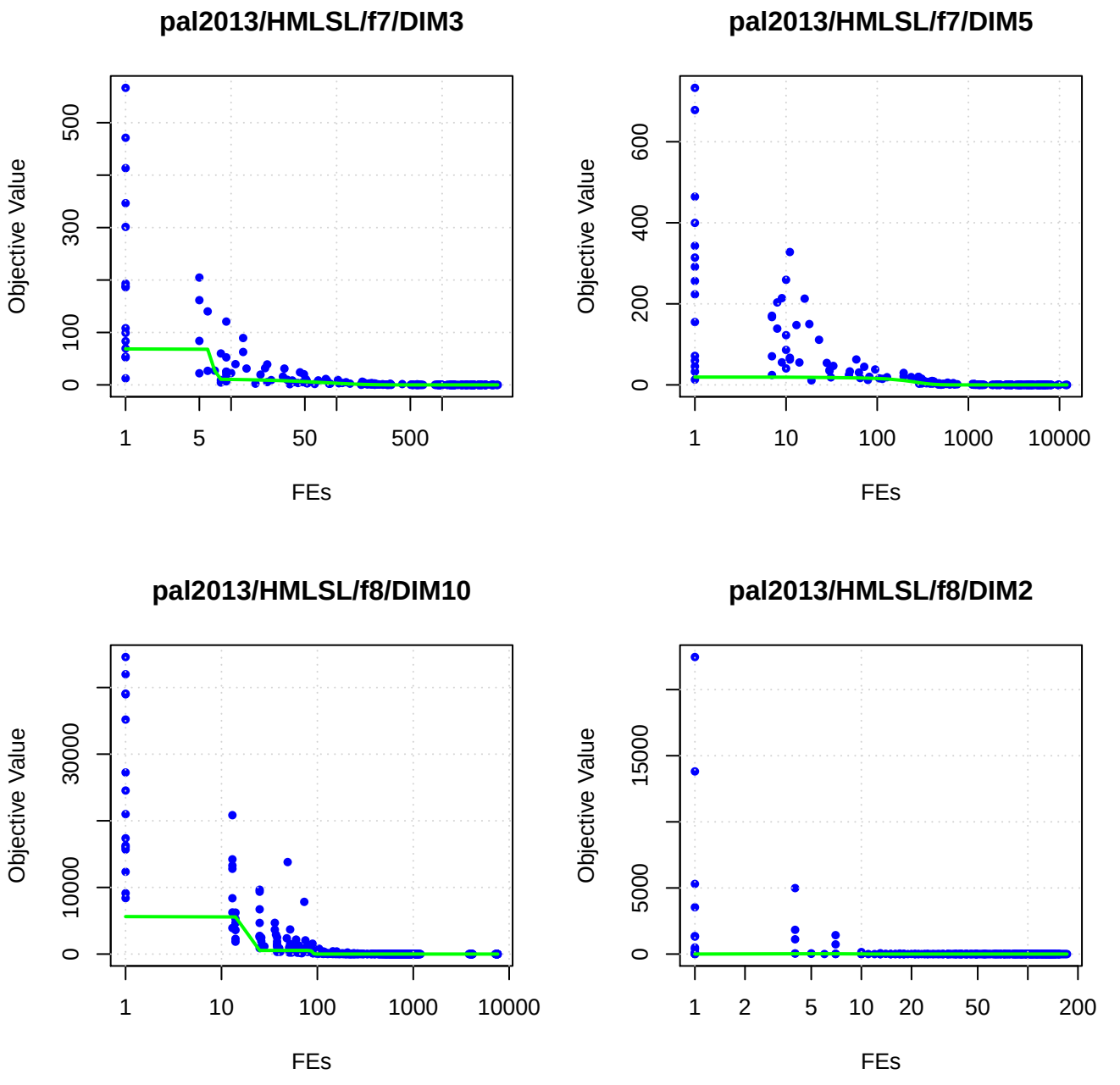
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FEs
pal2013/HMLSL/f7/DIM5
Objective Value
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600
1
10
100
1000
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FEs
pal2013/HMLSL/f8/DIM10
Objective Value
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10000
30000
1
10
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1000
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FEs
pal2013/HMLSL/f8/DIM2
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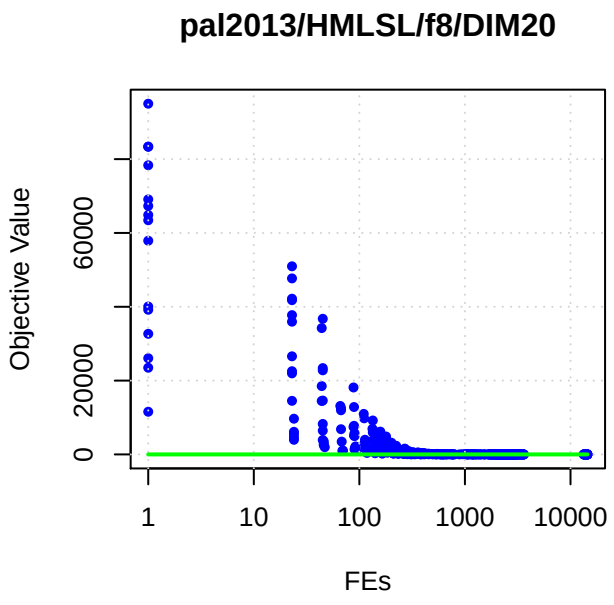
200
FEs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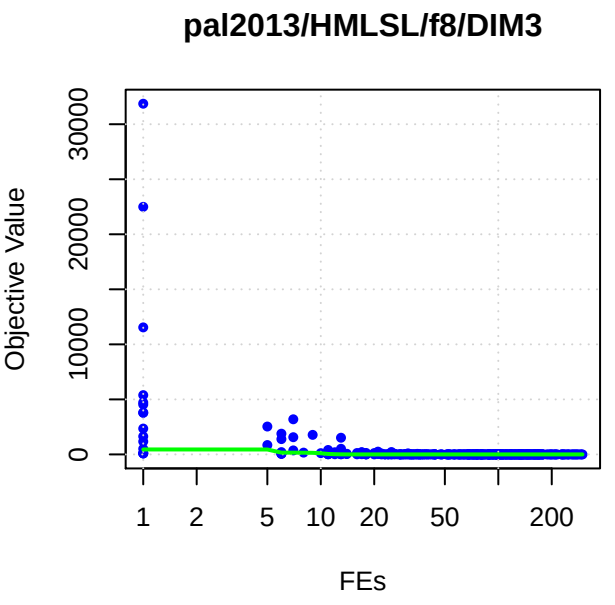
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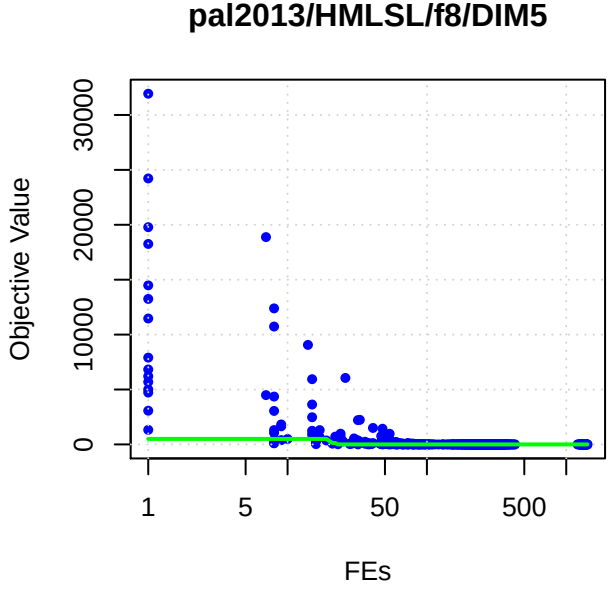
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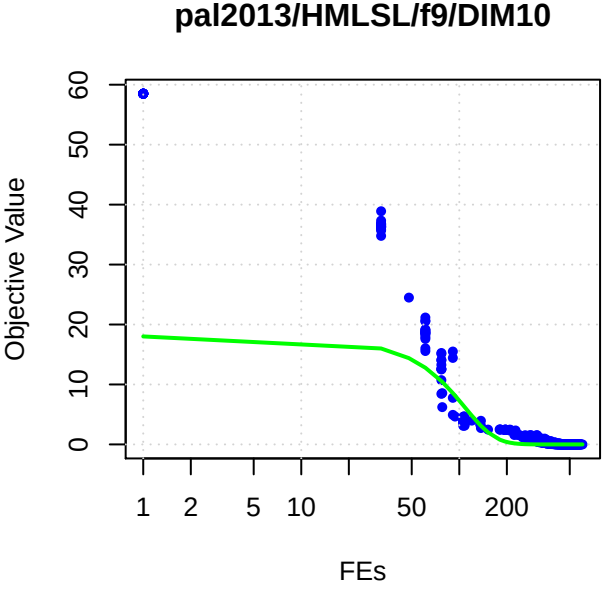
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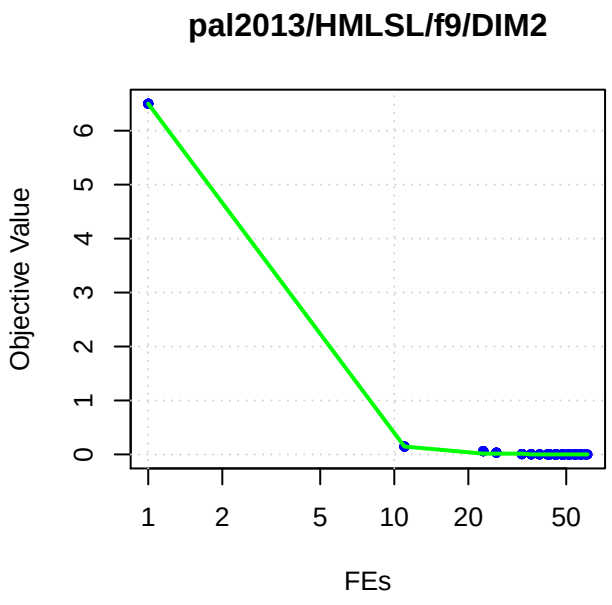
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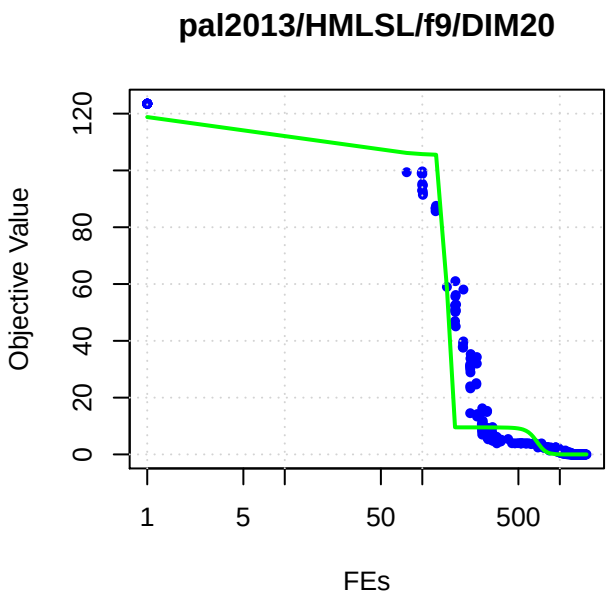
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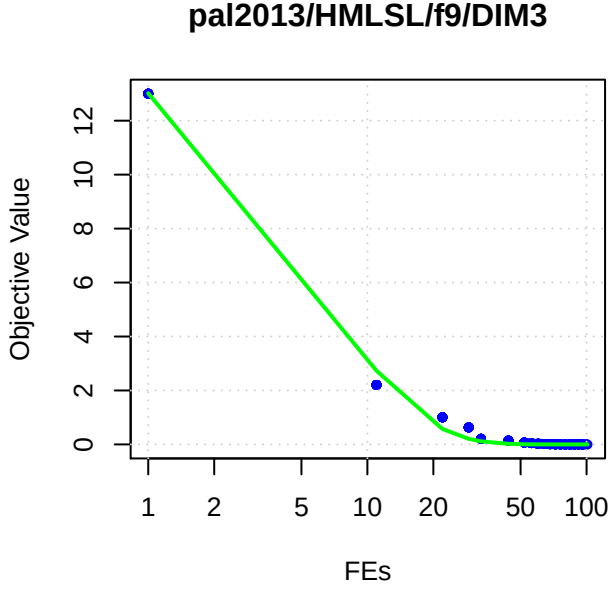
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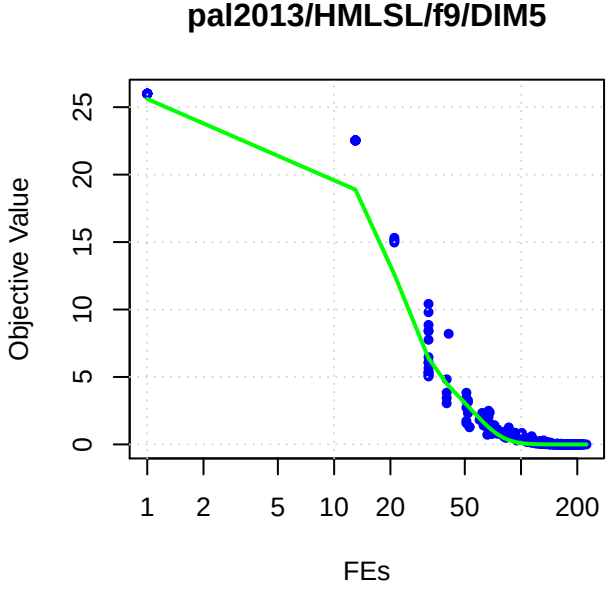
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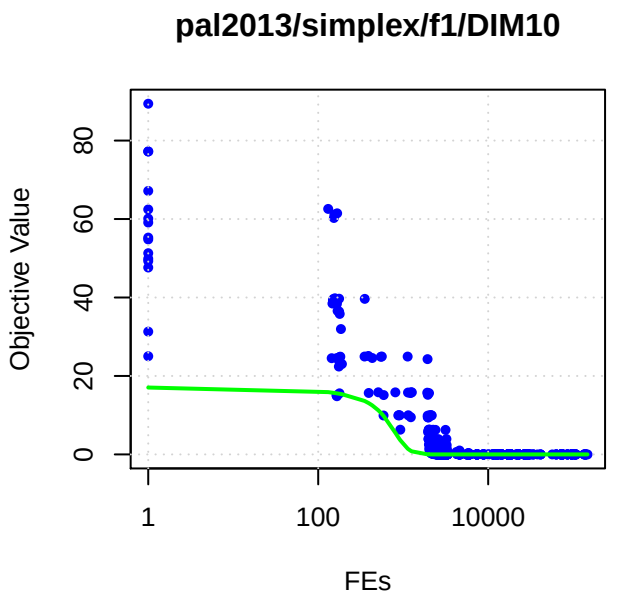
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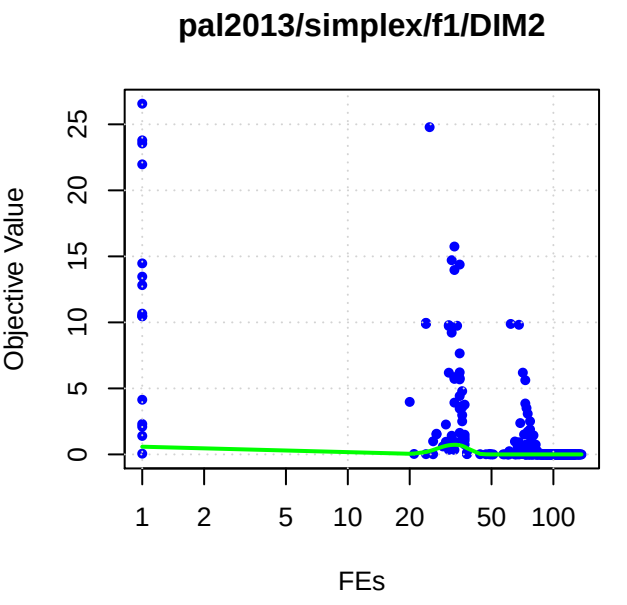
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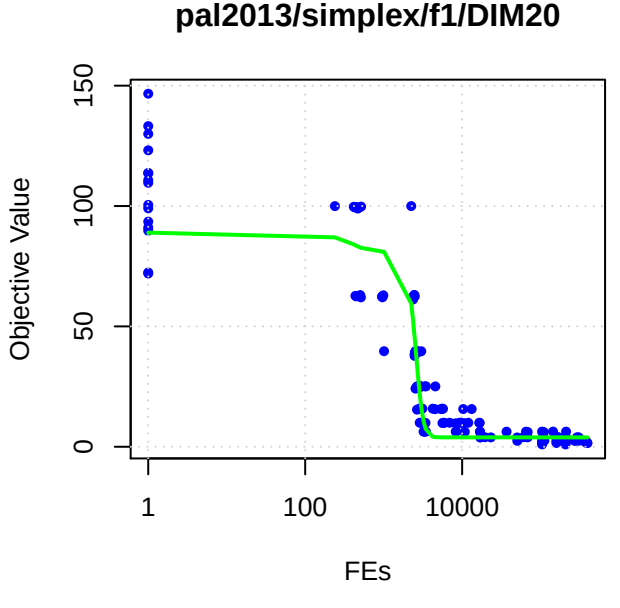
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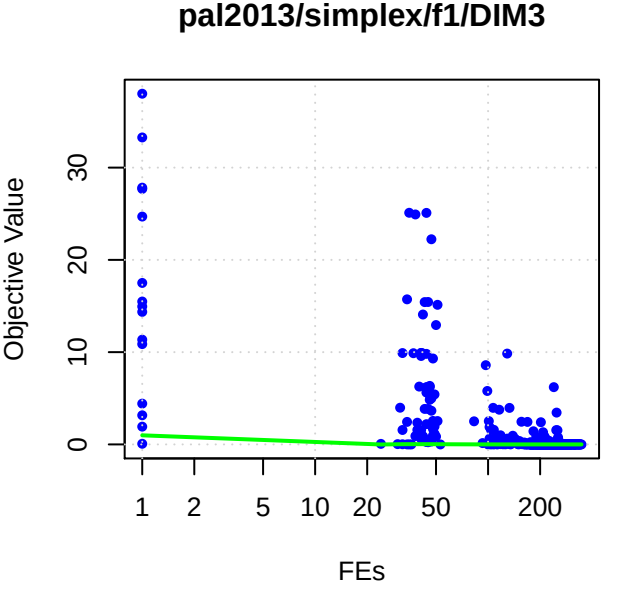
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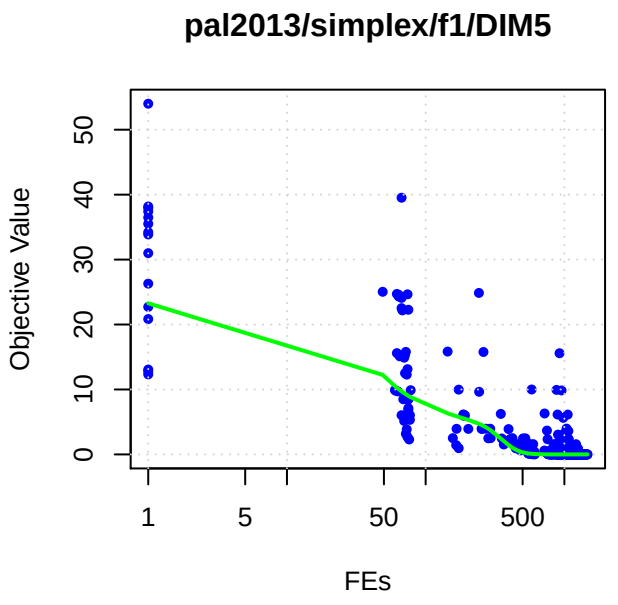
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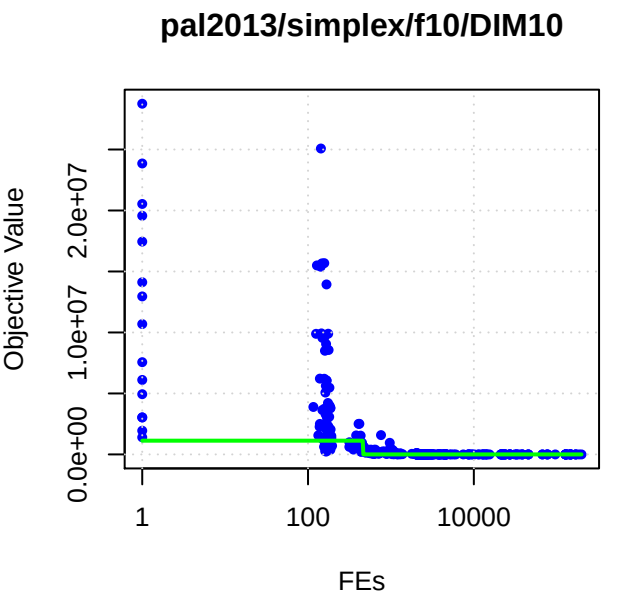
FEs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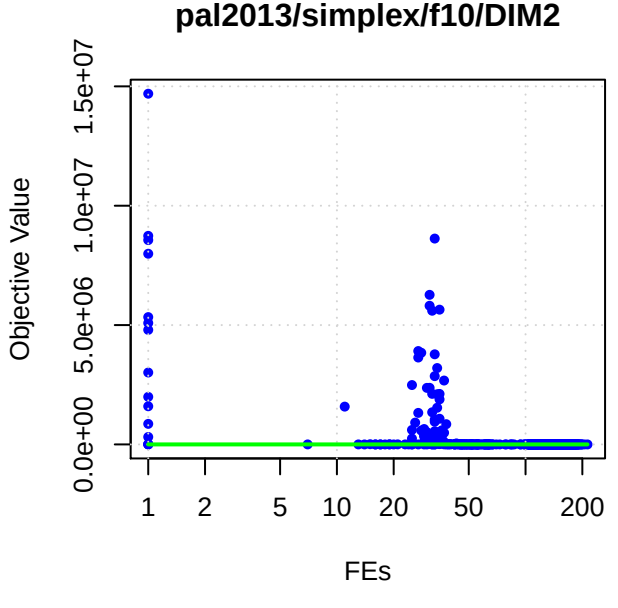
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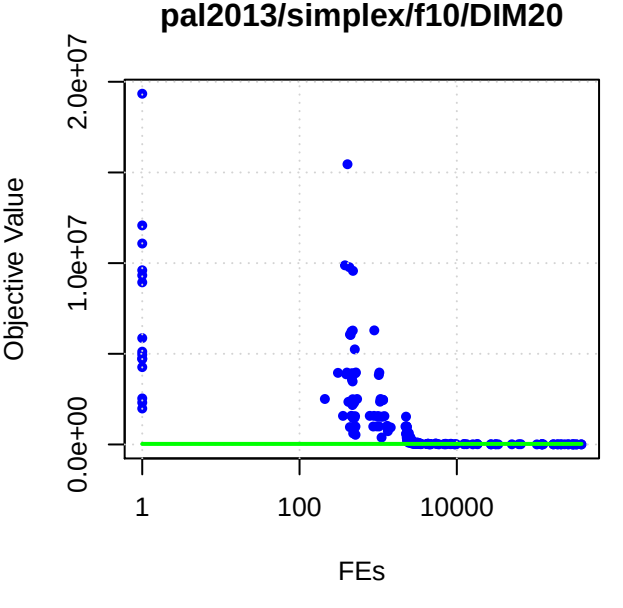
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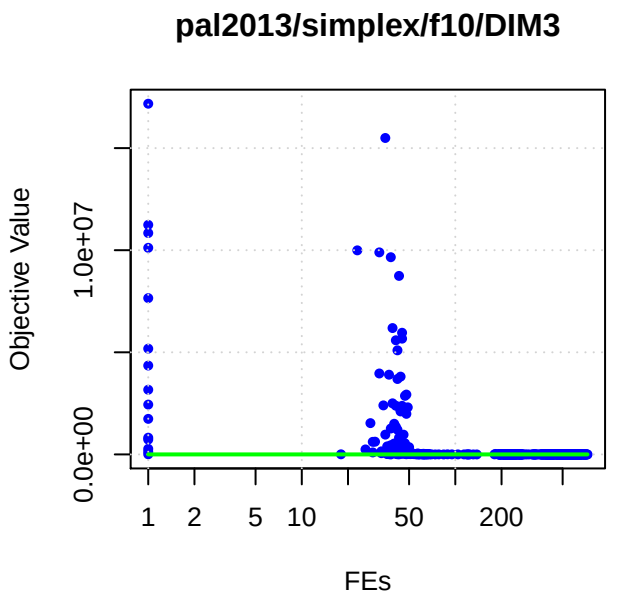
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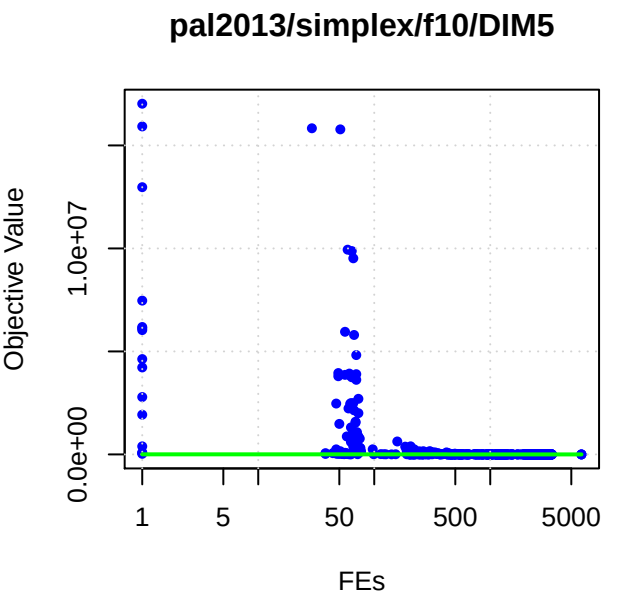
FEs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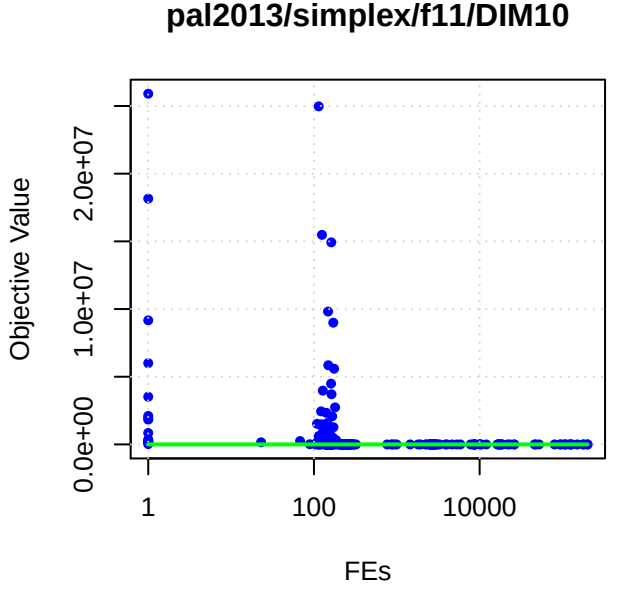
FEs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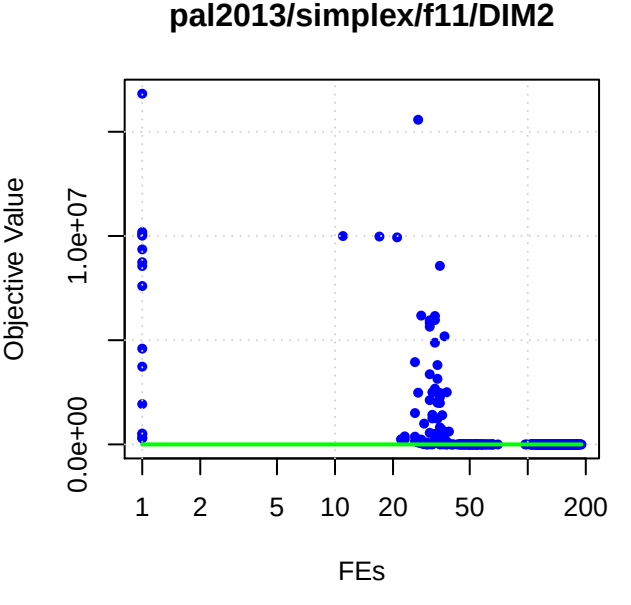
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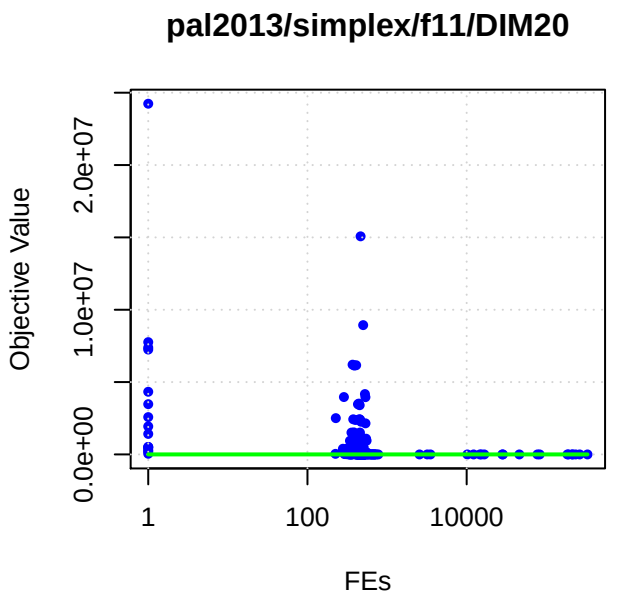
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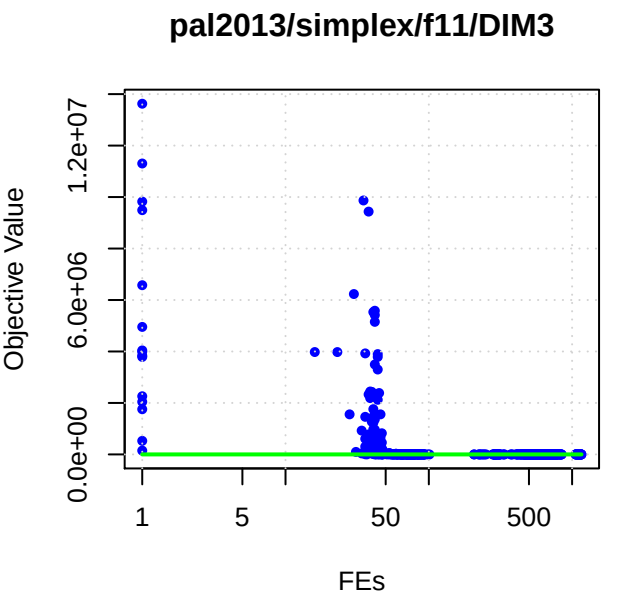
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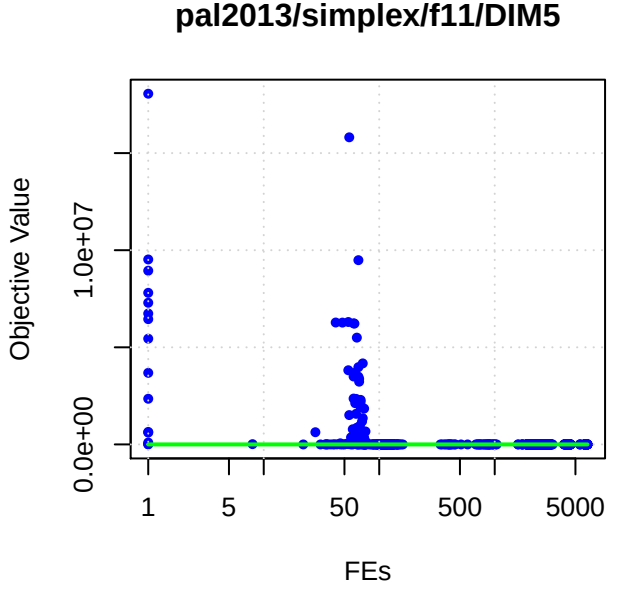
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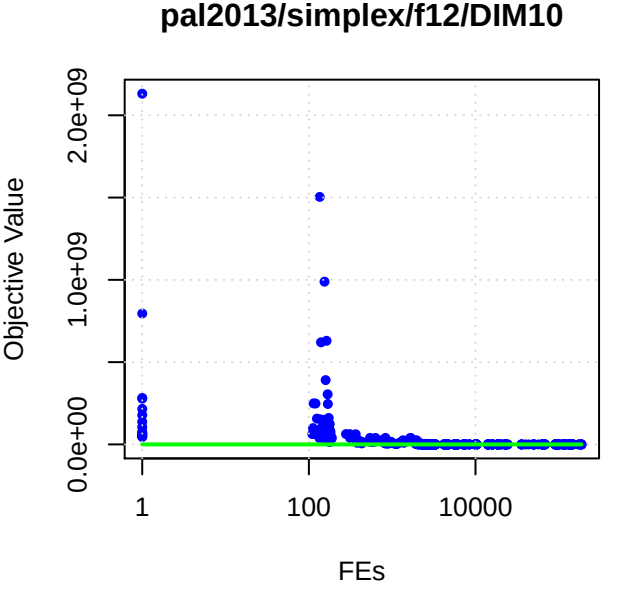
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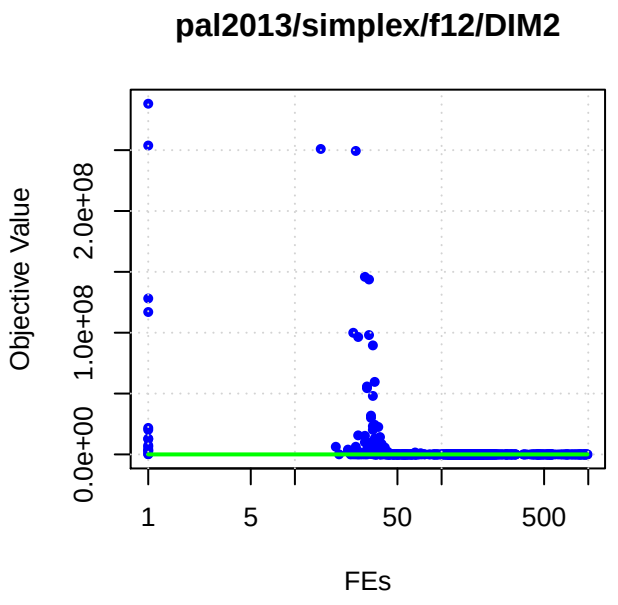
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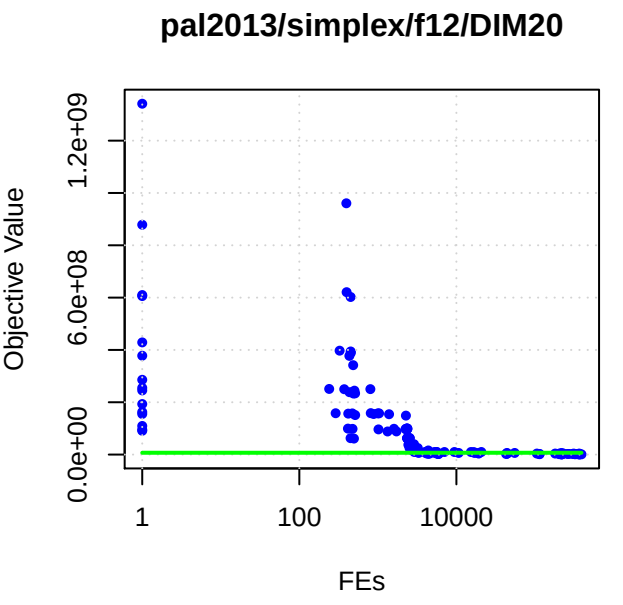
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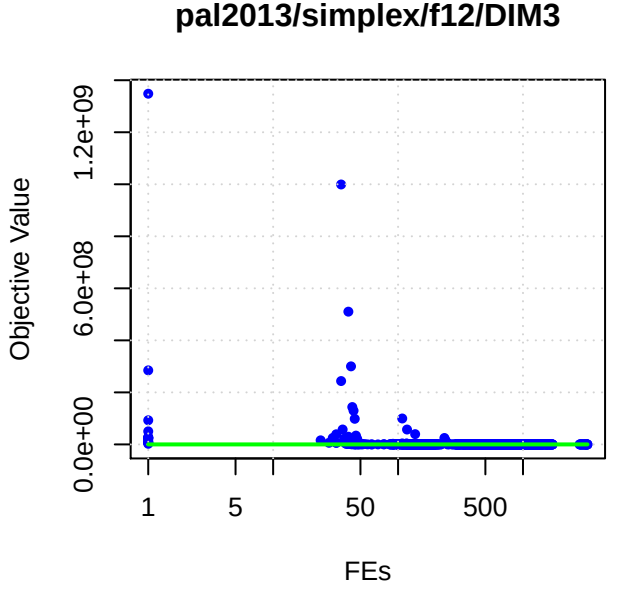
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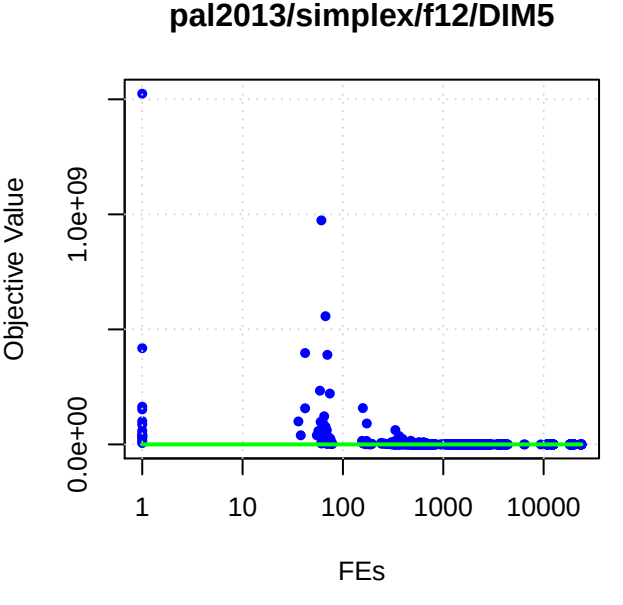
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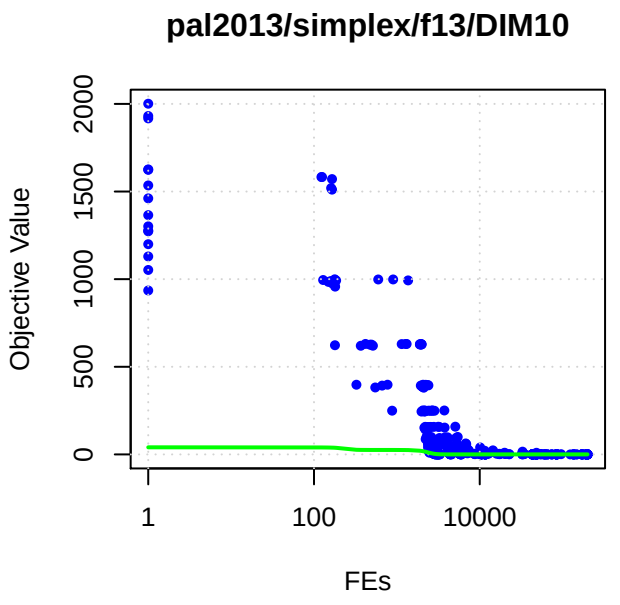
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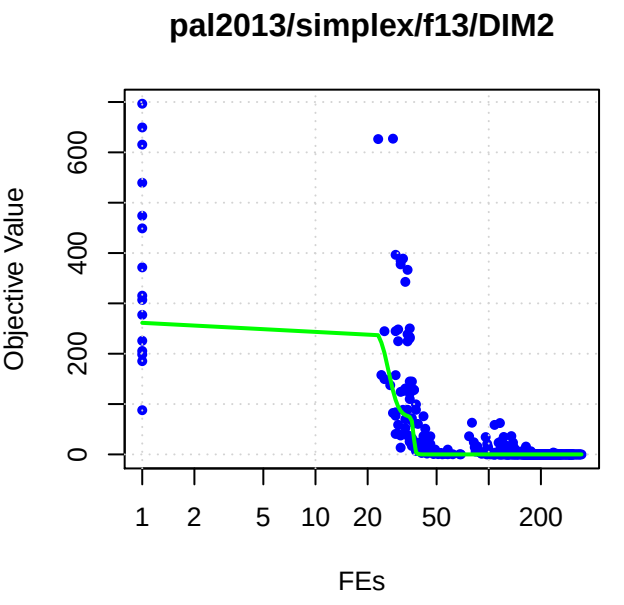
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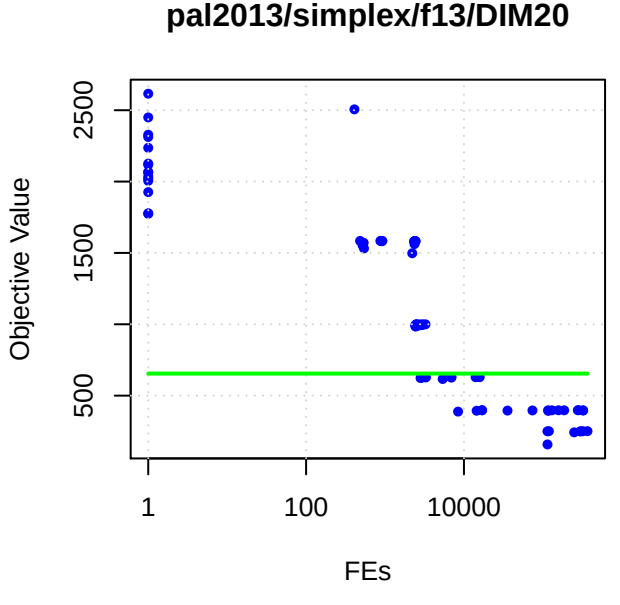
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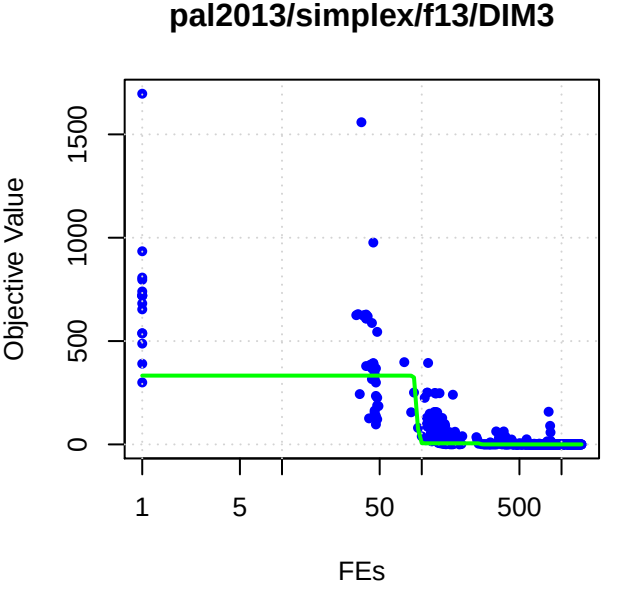
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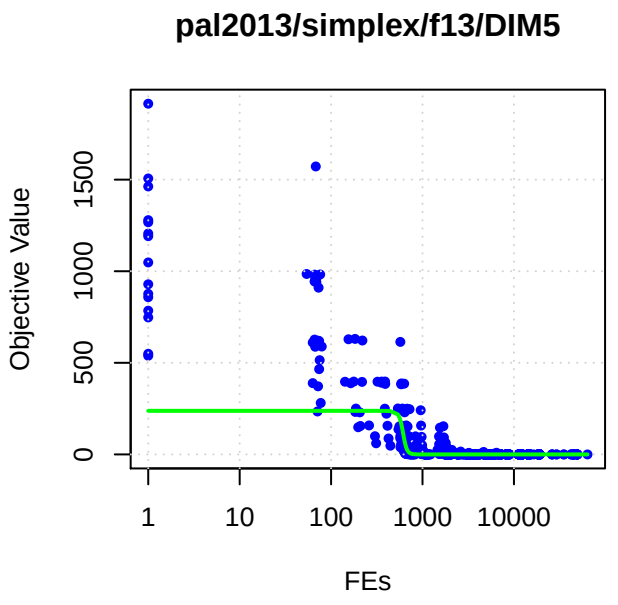
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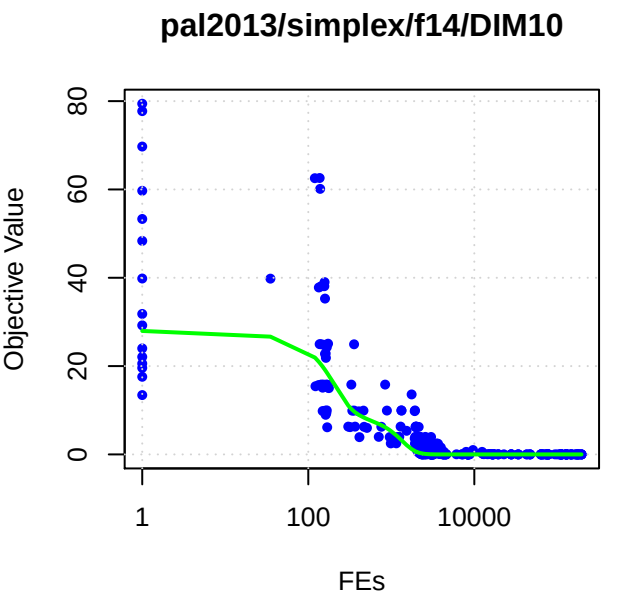
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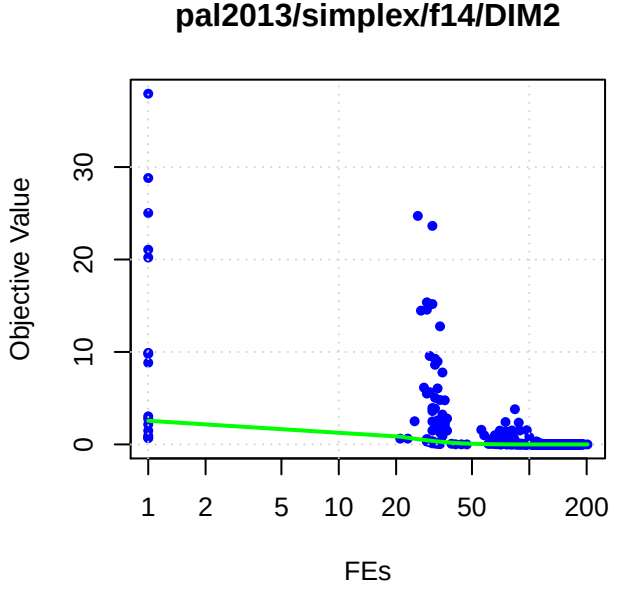
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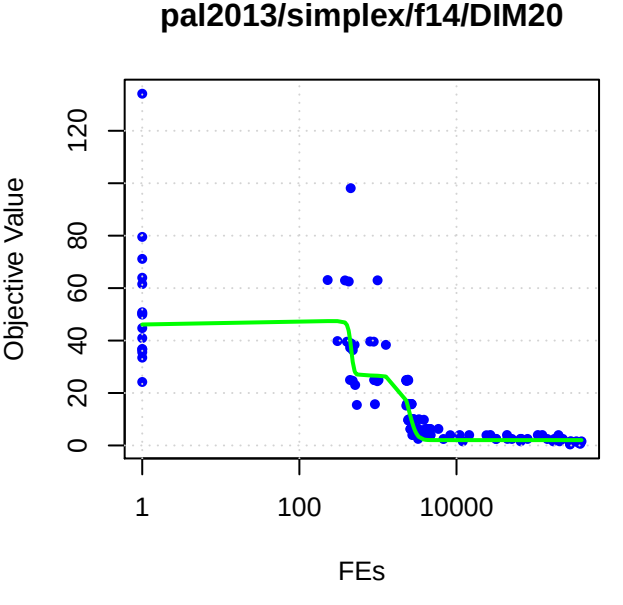
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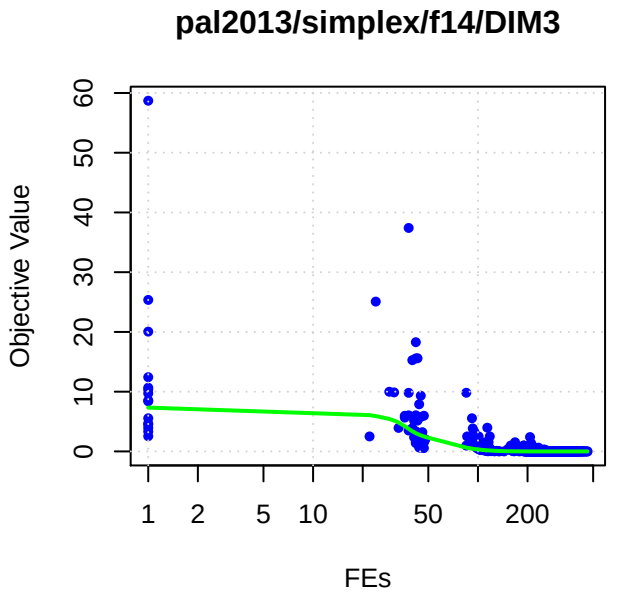
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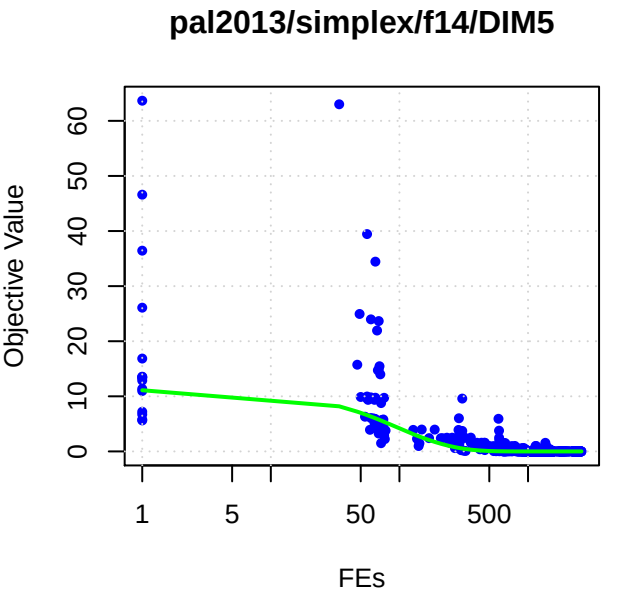
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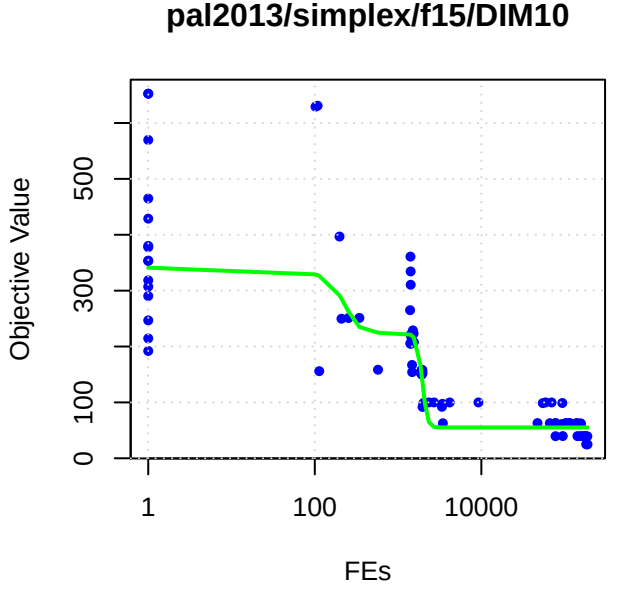
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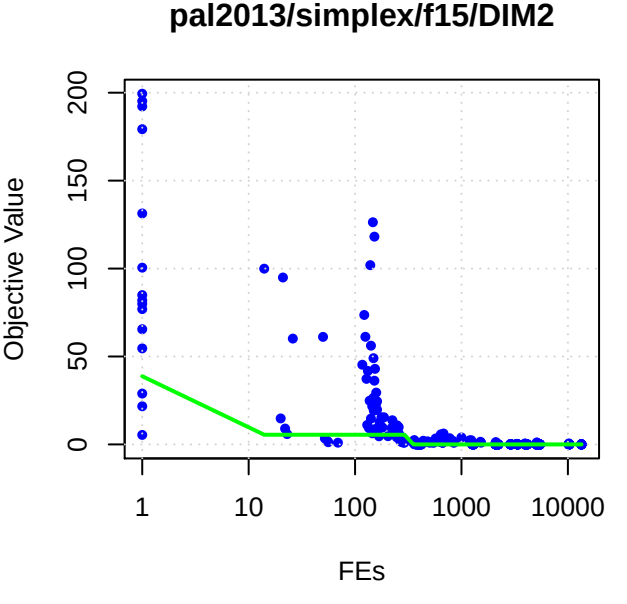
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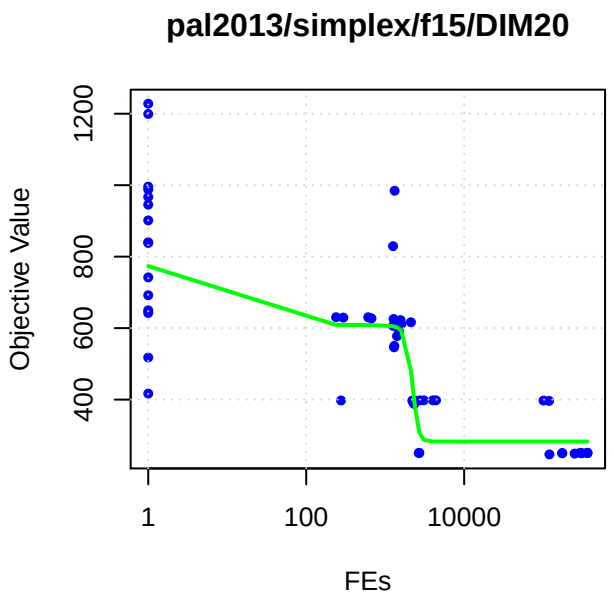
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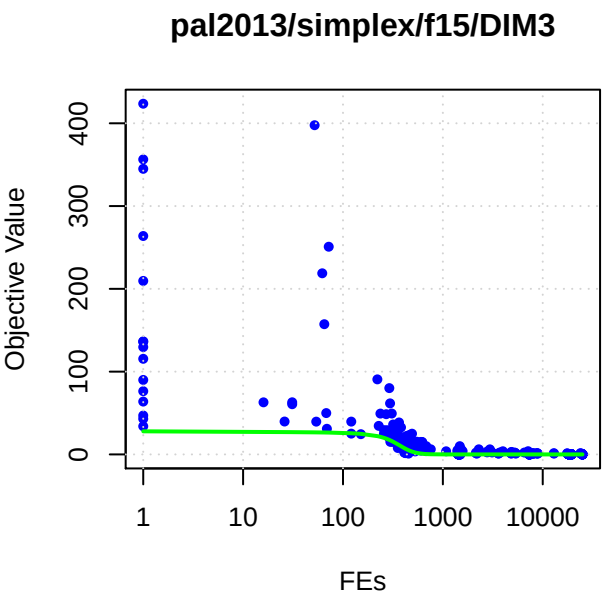
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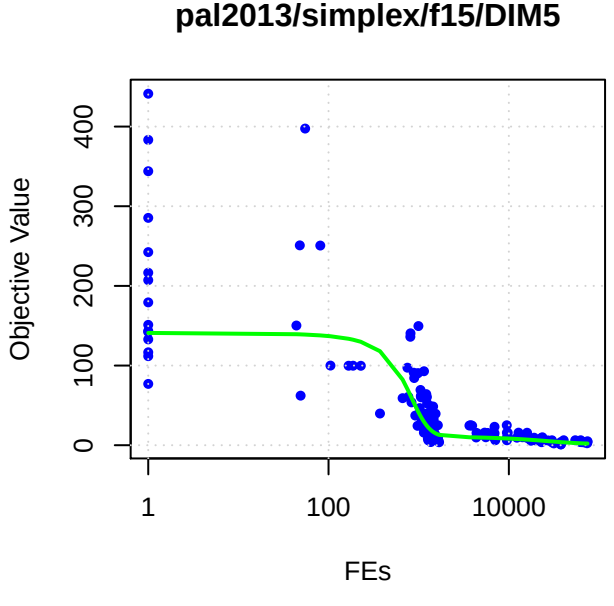
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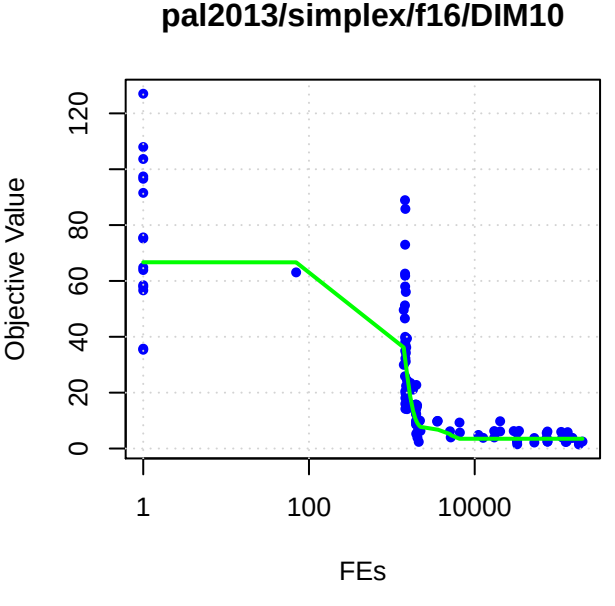
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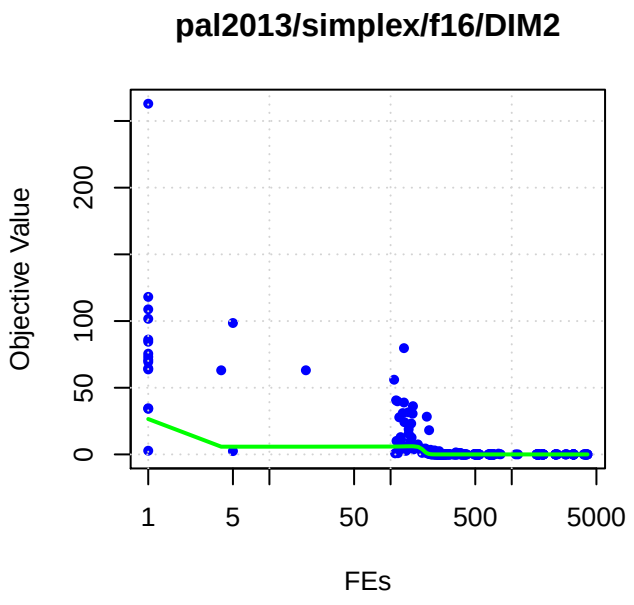
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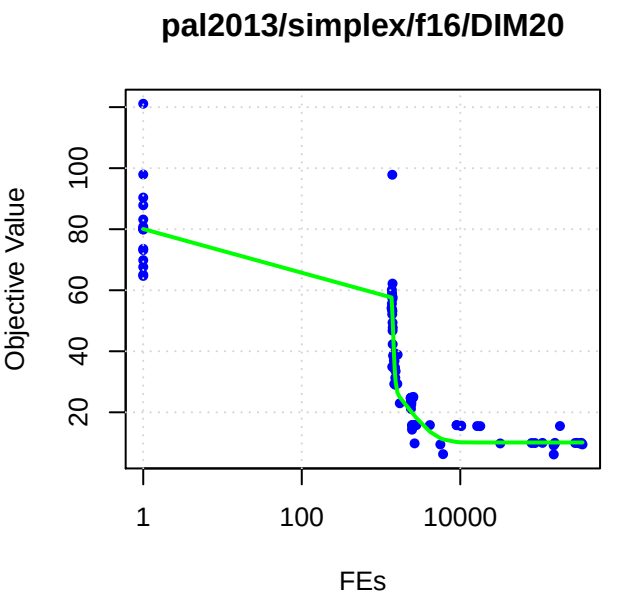
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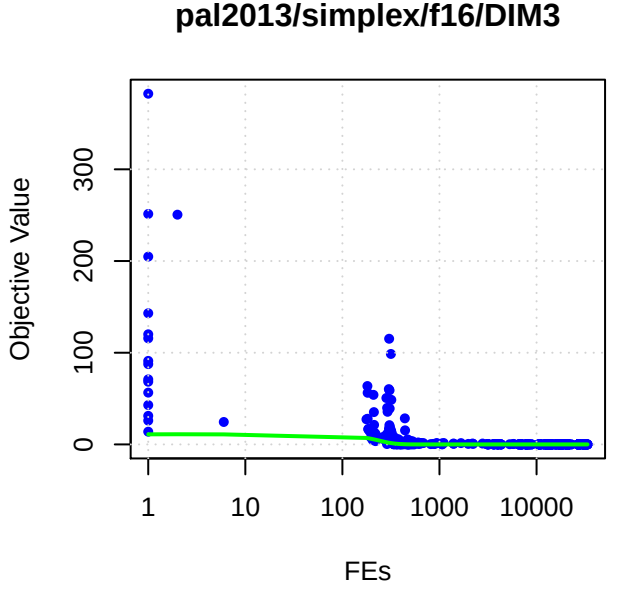
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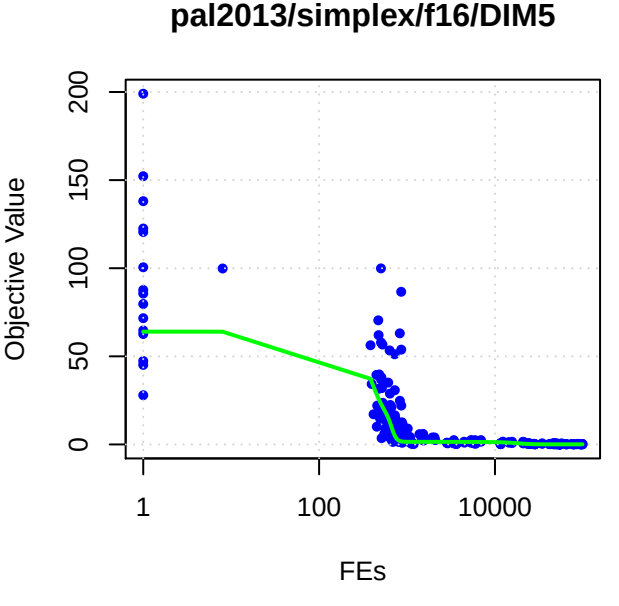
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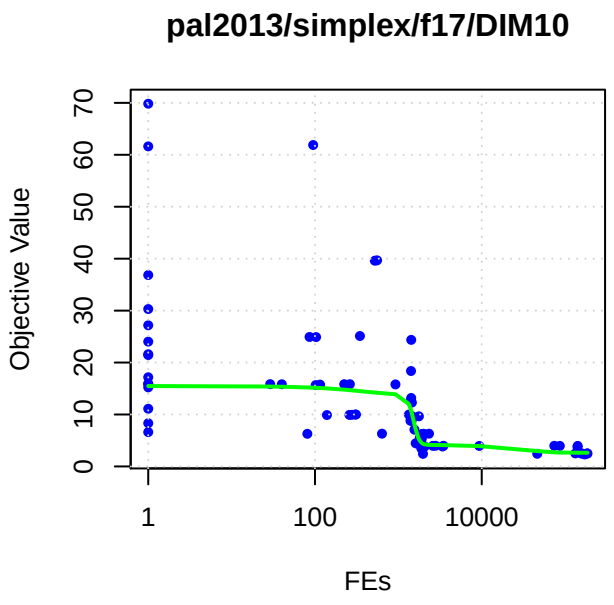
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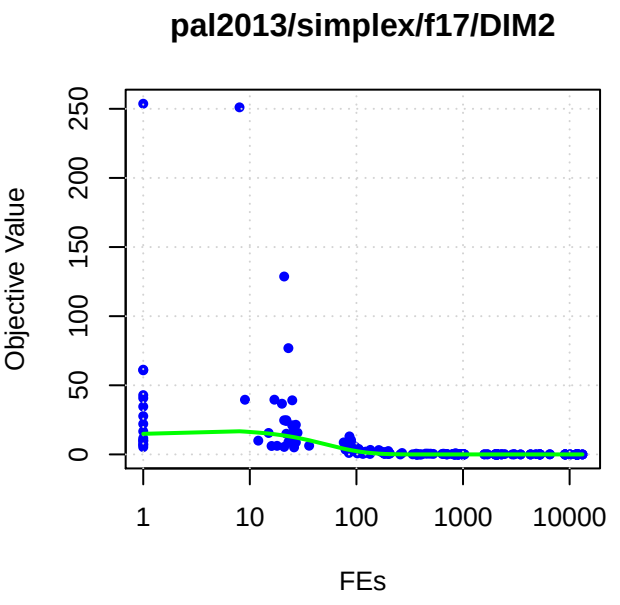
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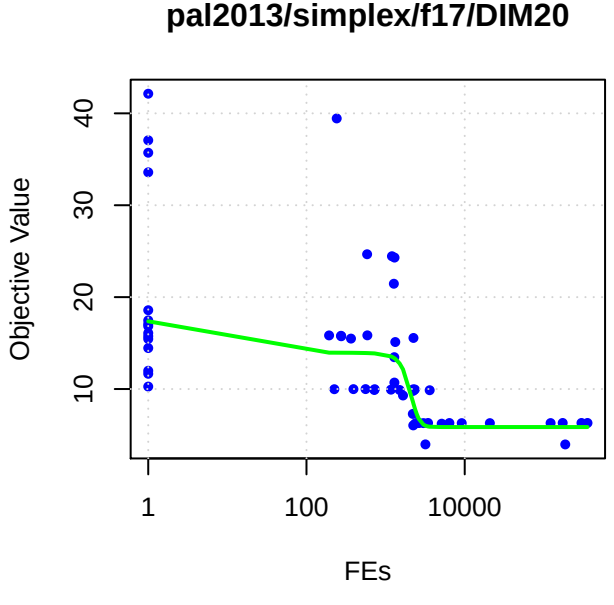
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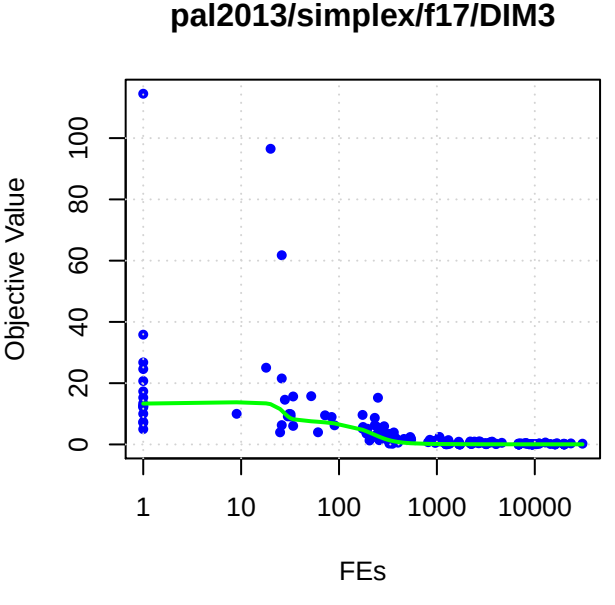
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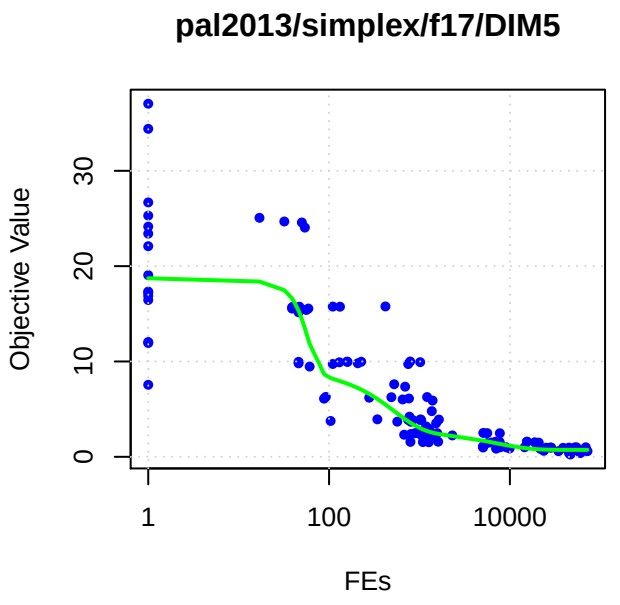
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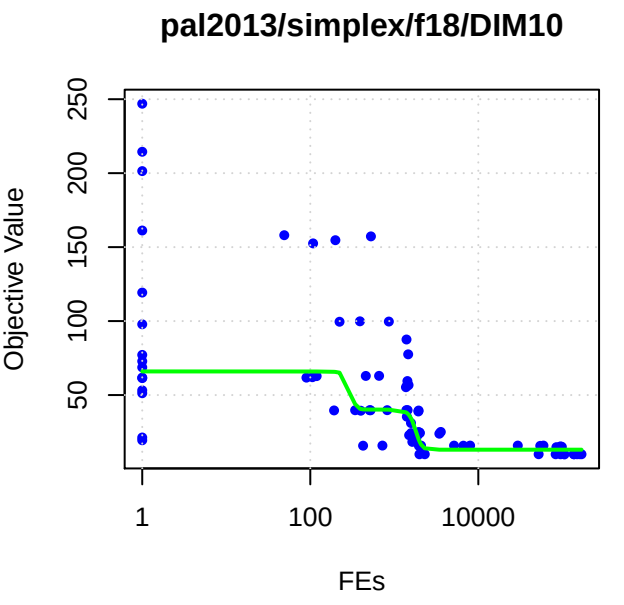
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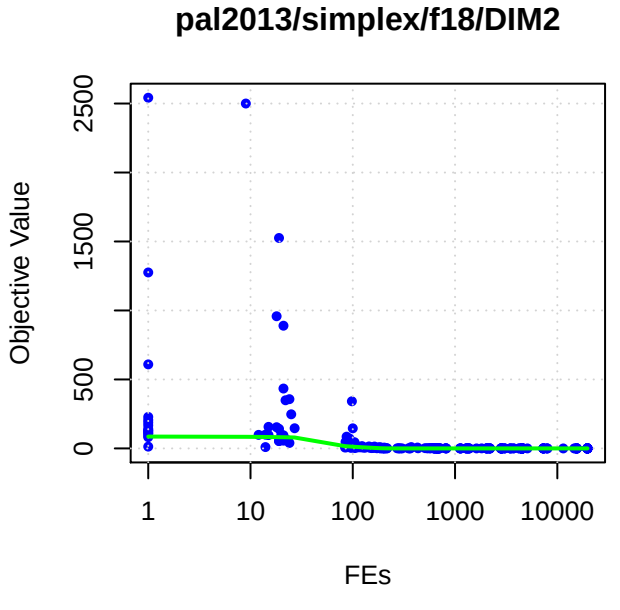
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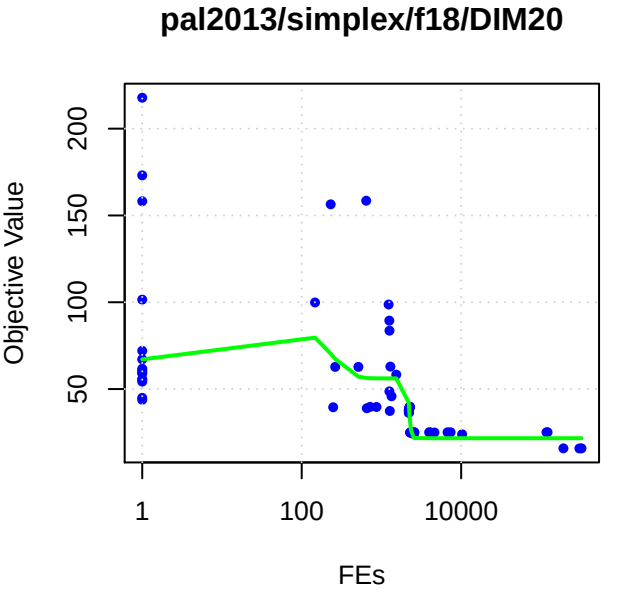
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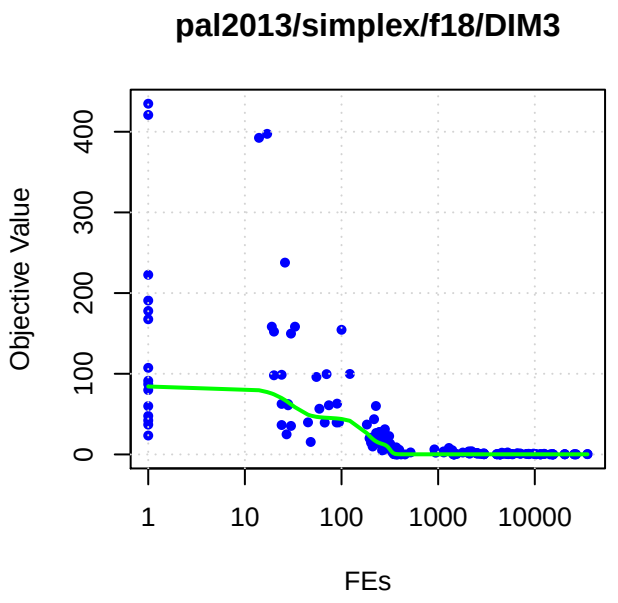
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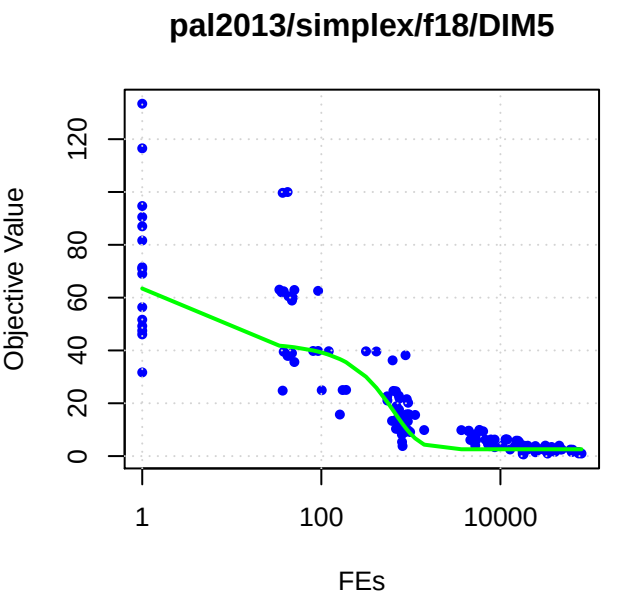
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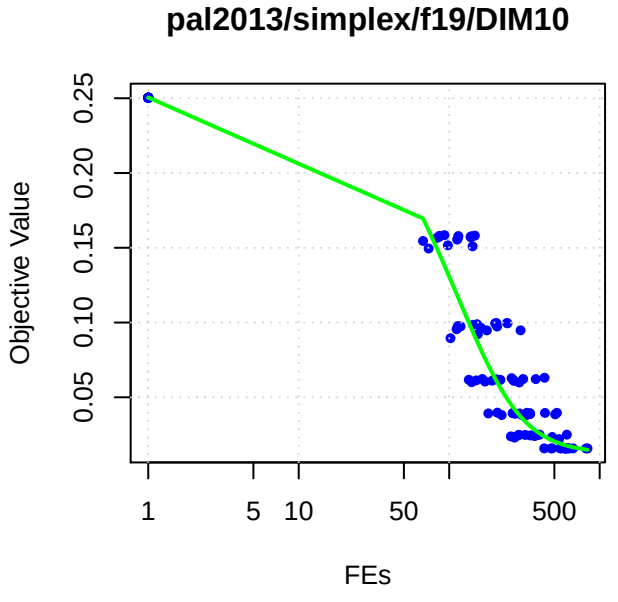
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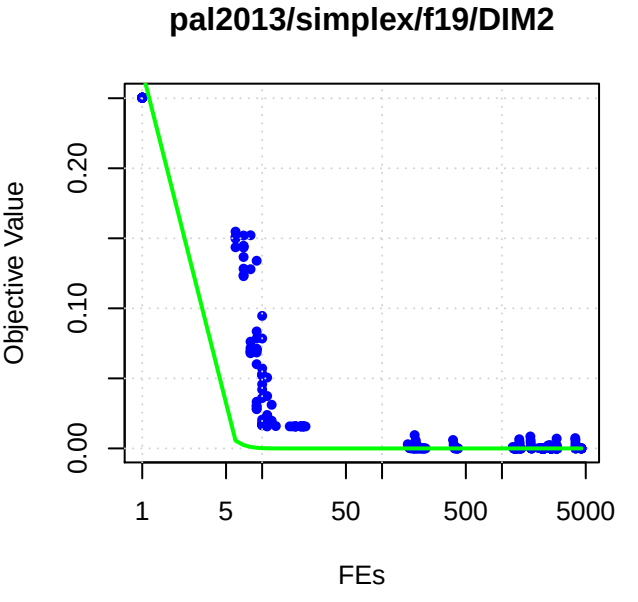
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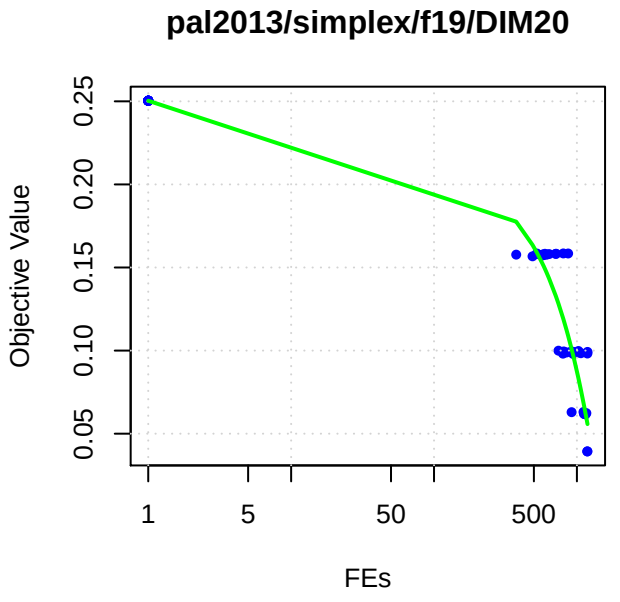
FEs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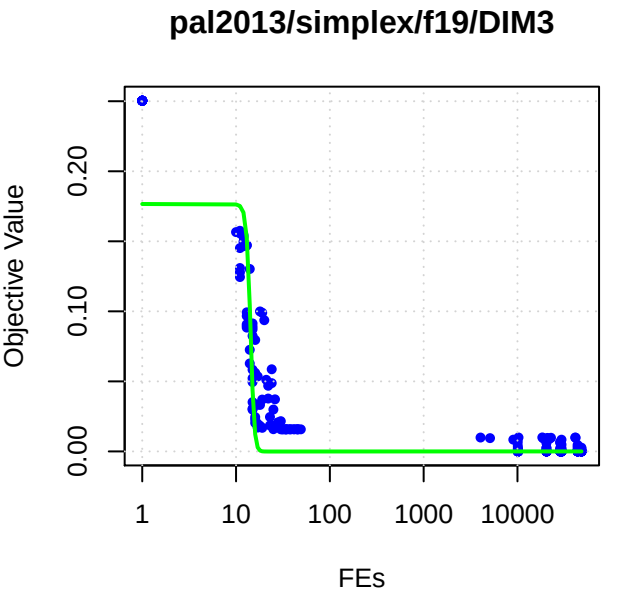
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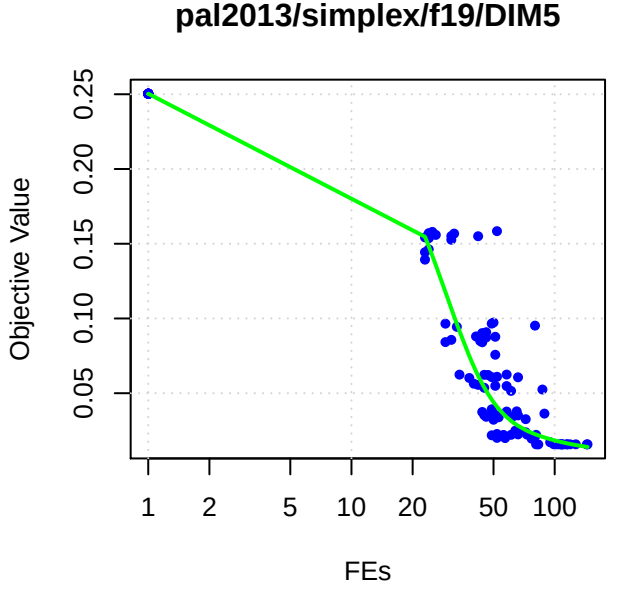
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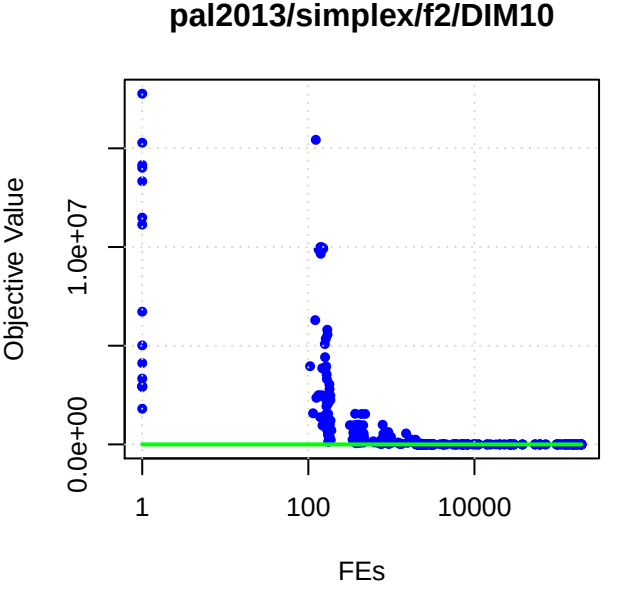
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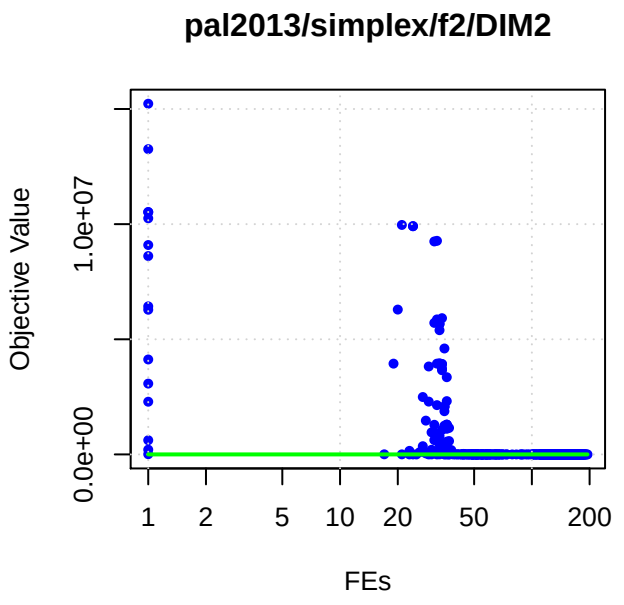
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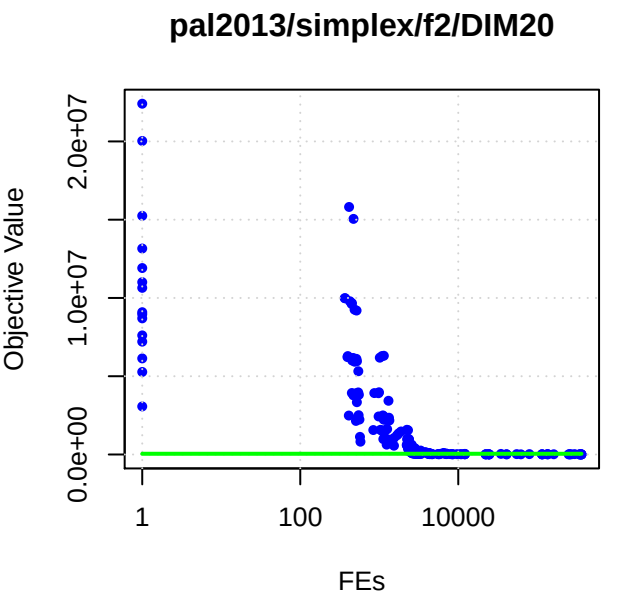
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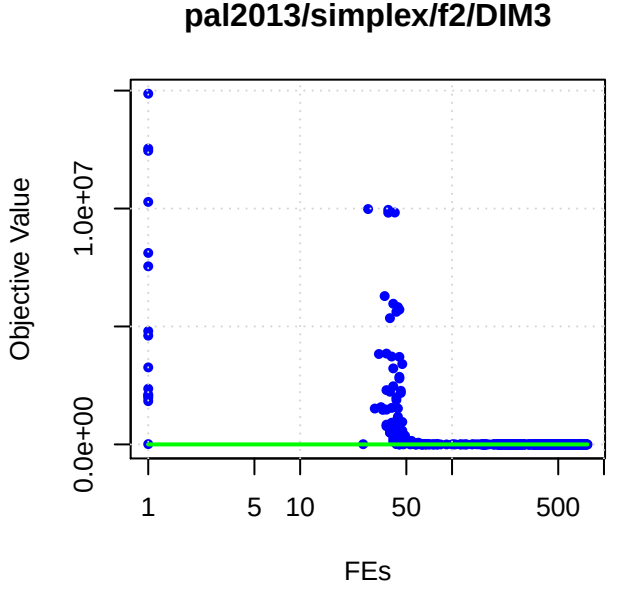
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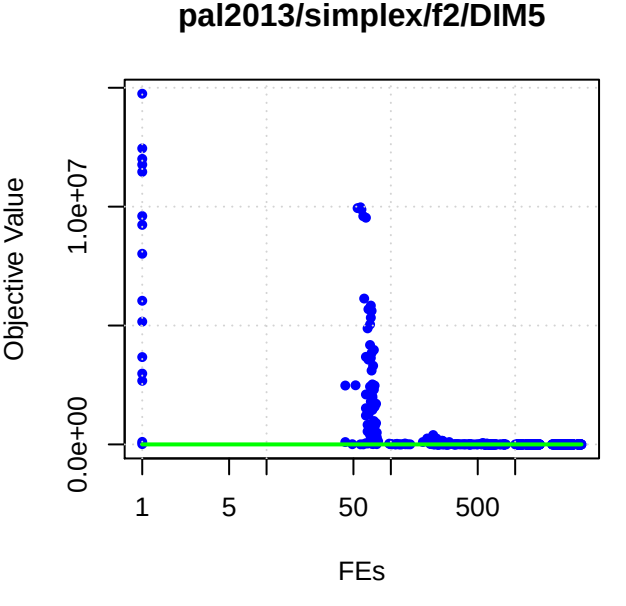
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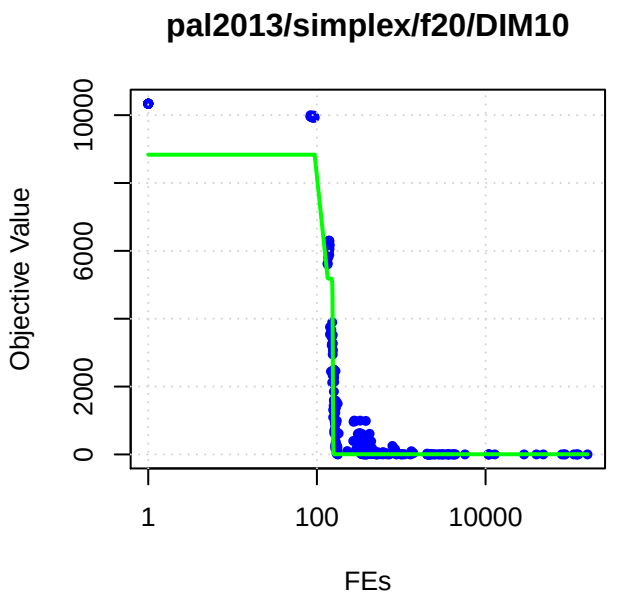
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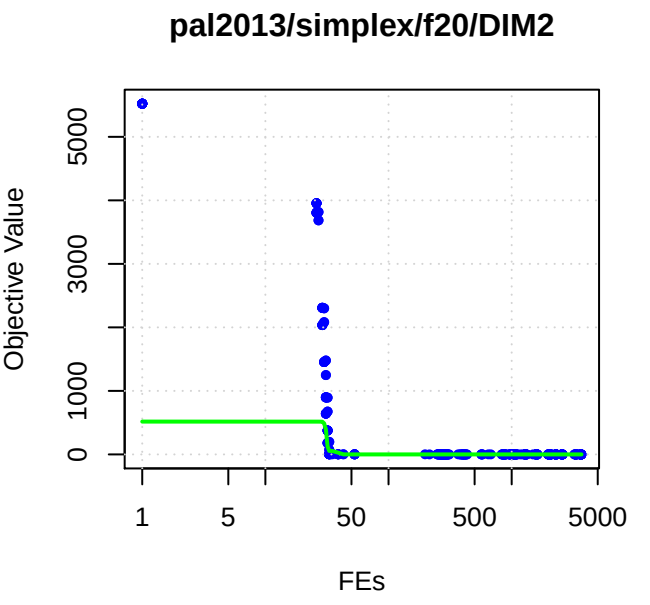
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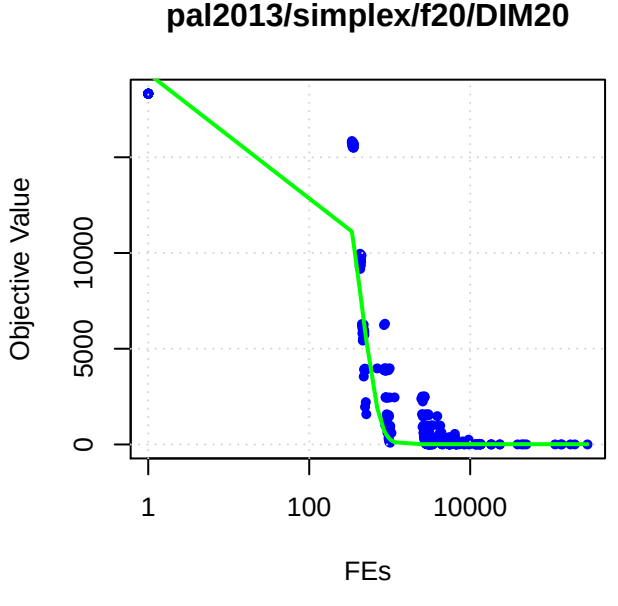
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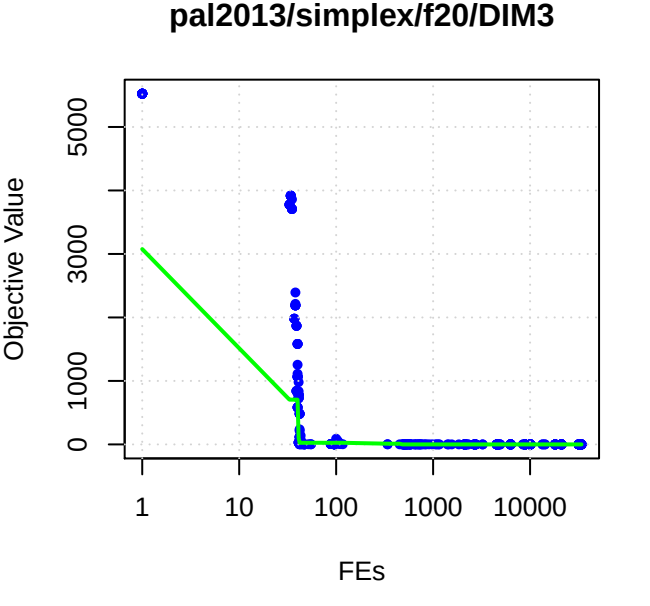
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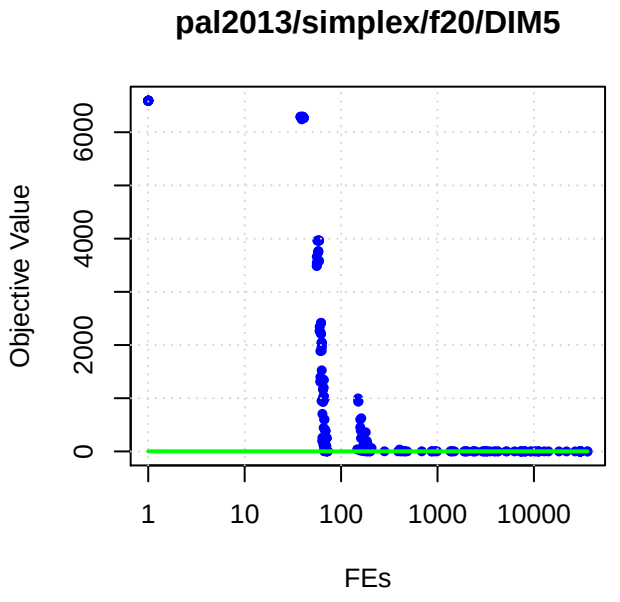
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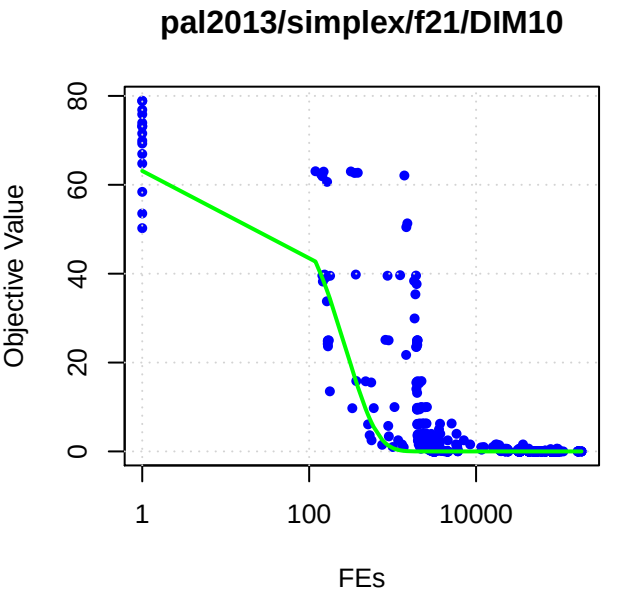
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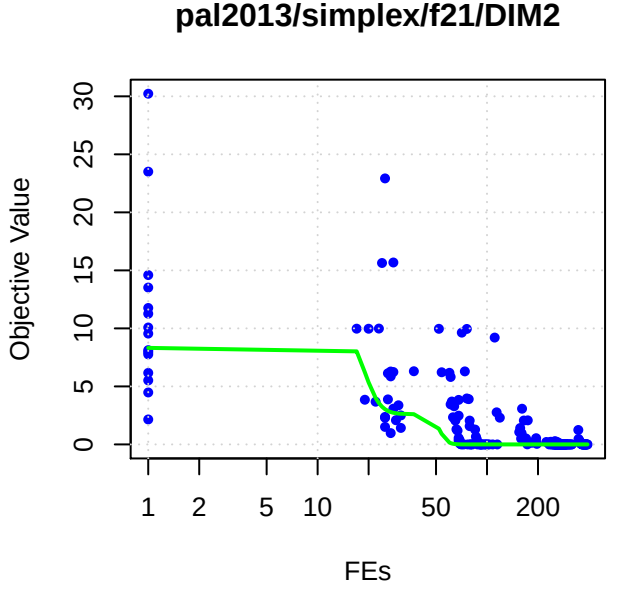
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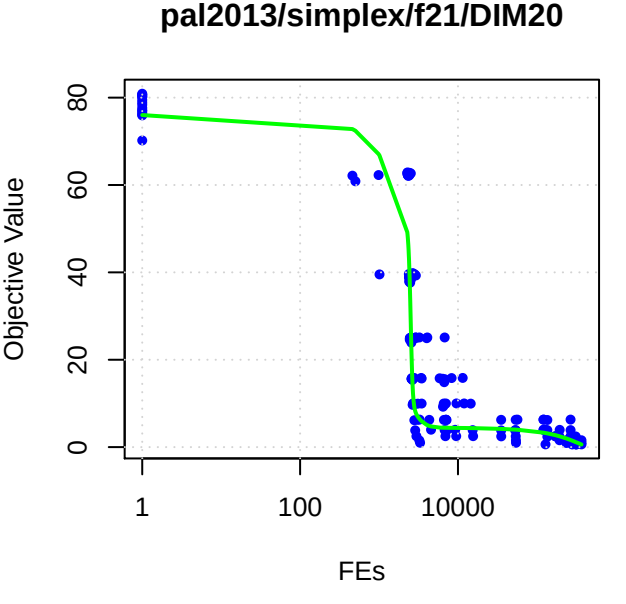
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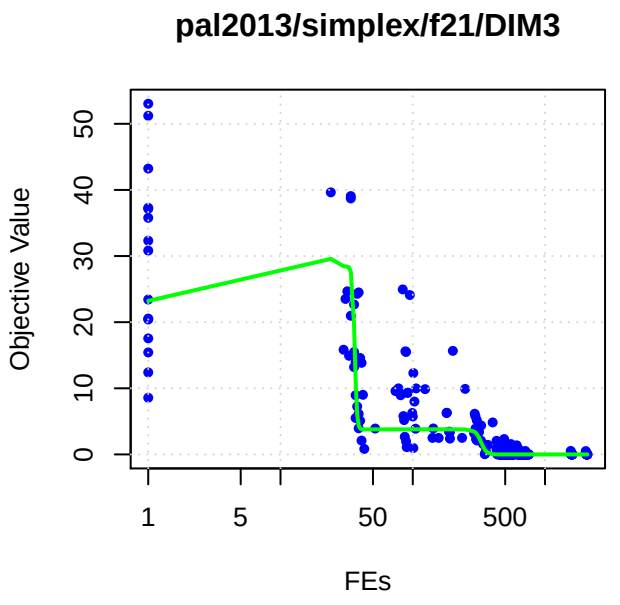
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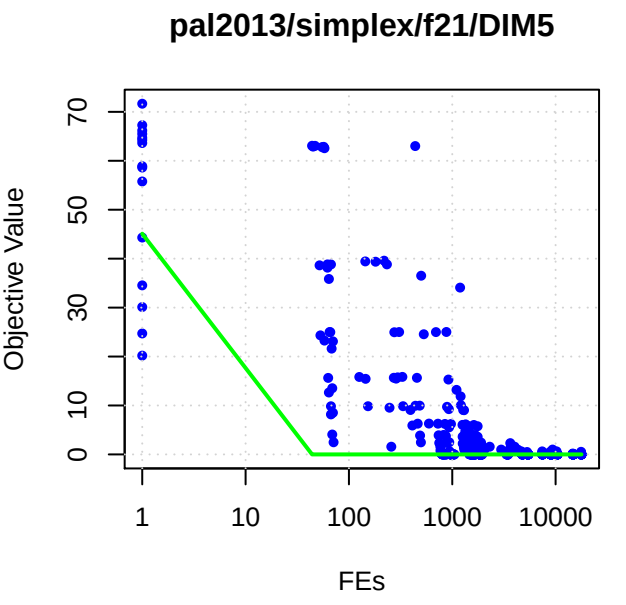
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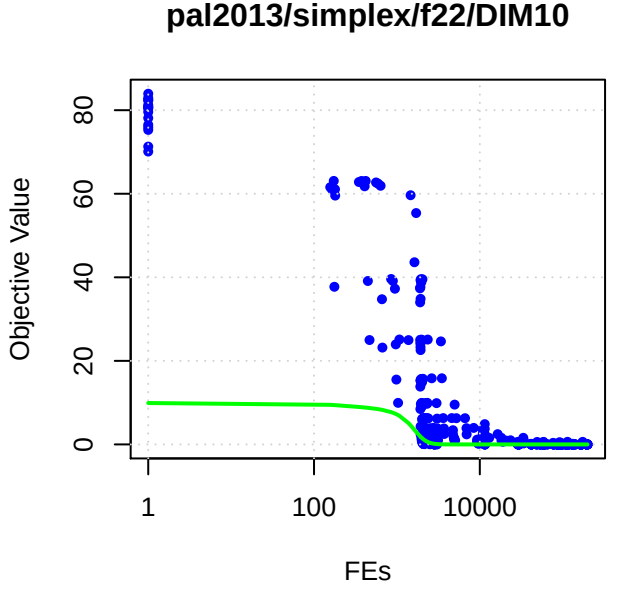
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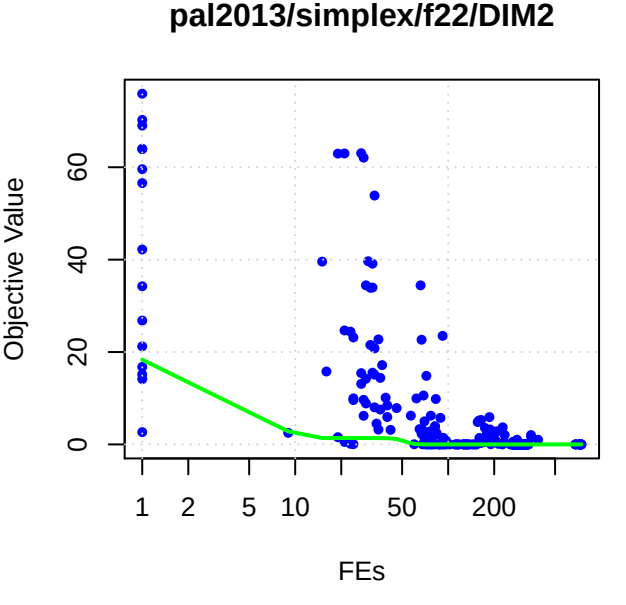
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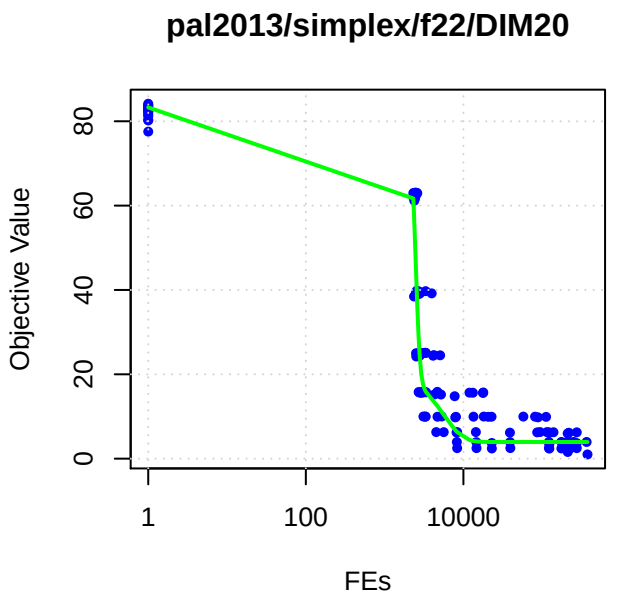
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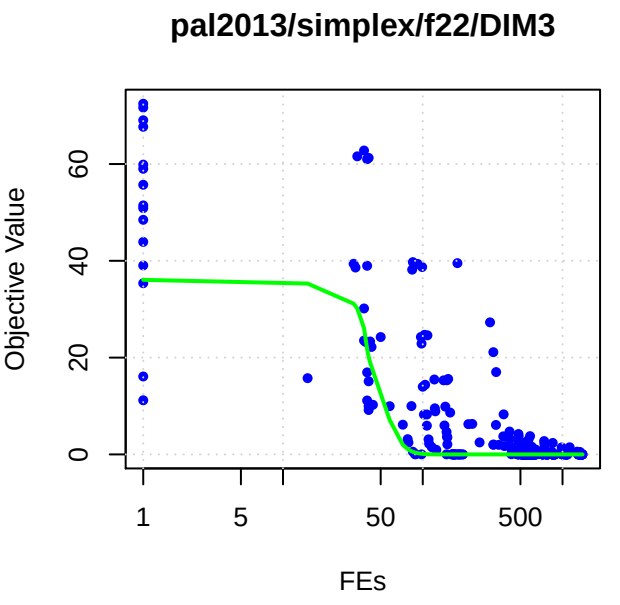
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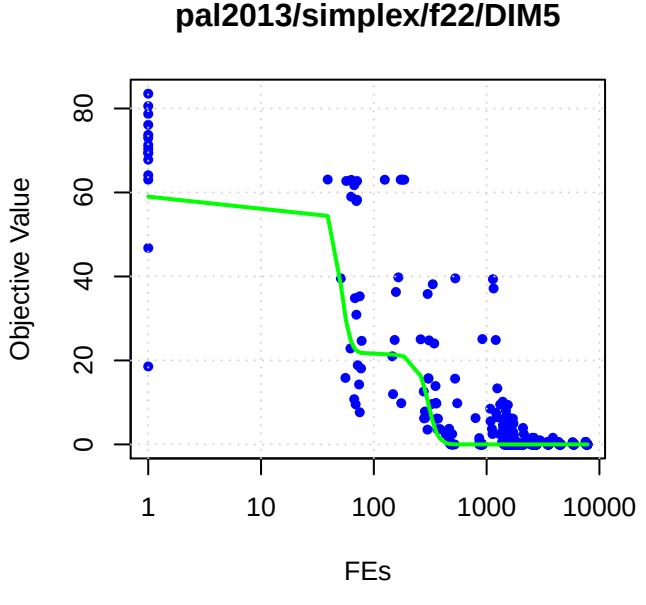
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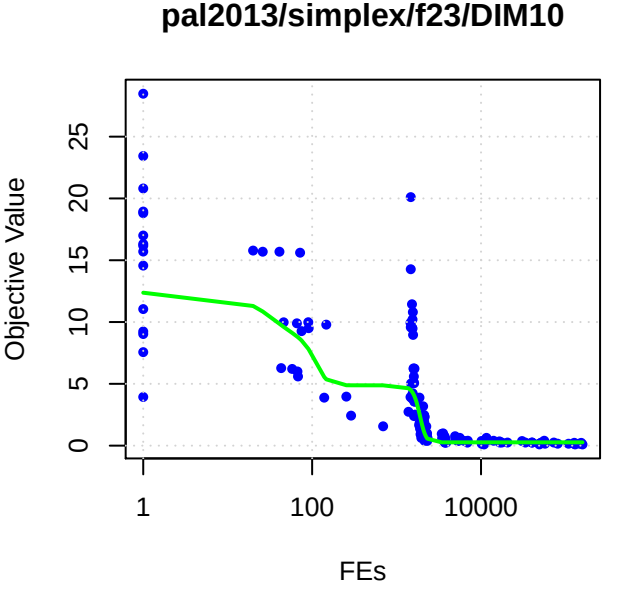
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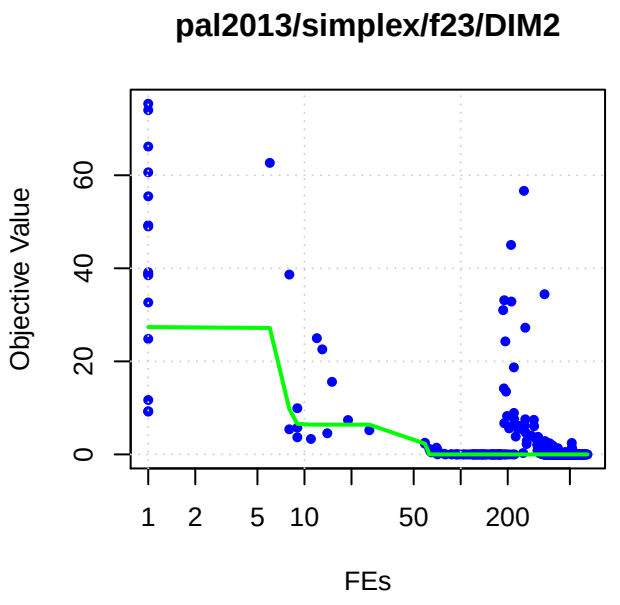
FEs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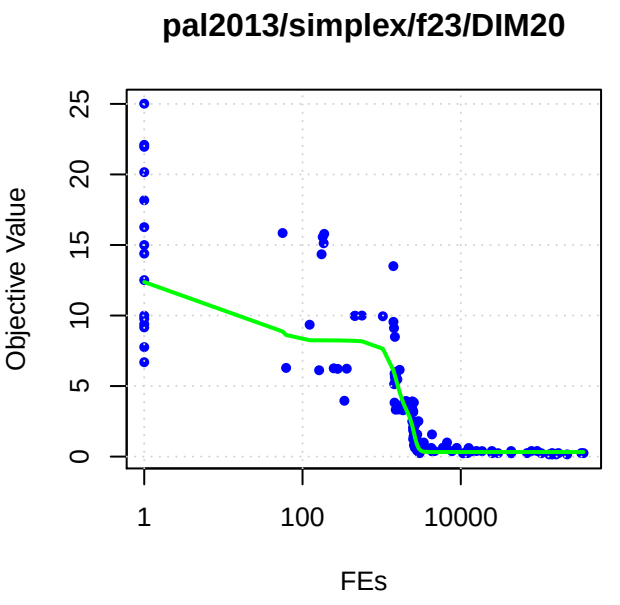
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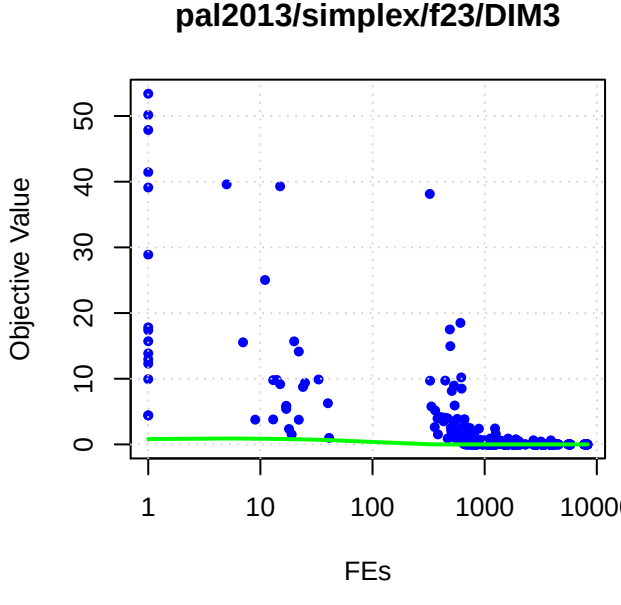
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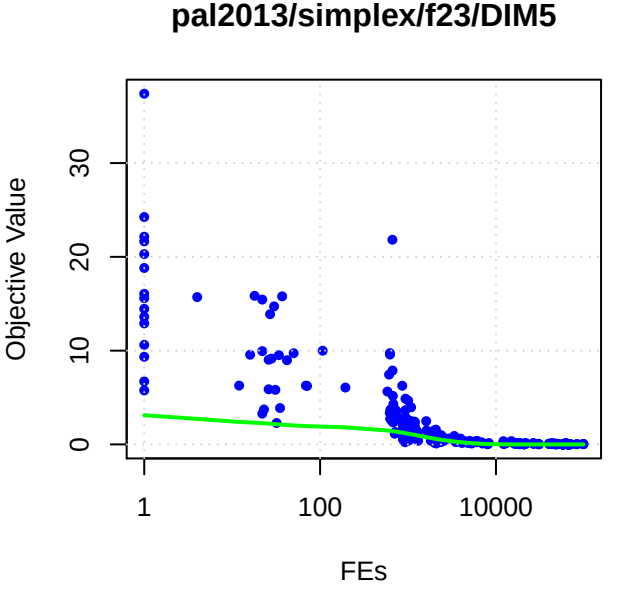
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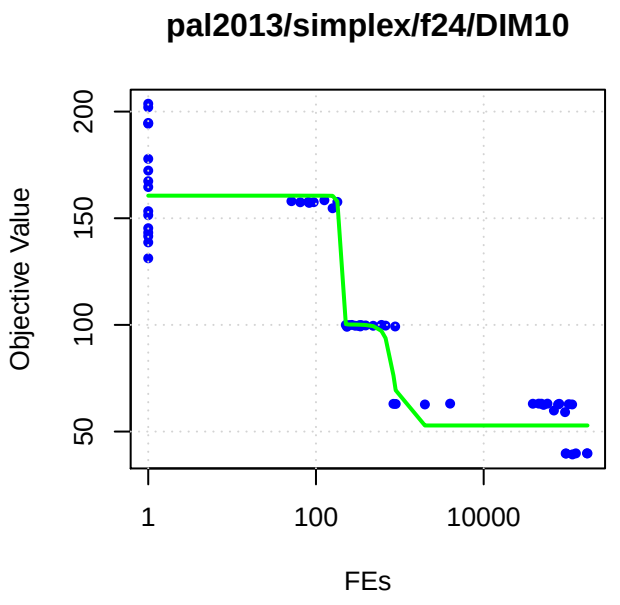
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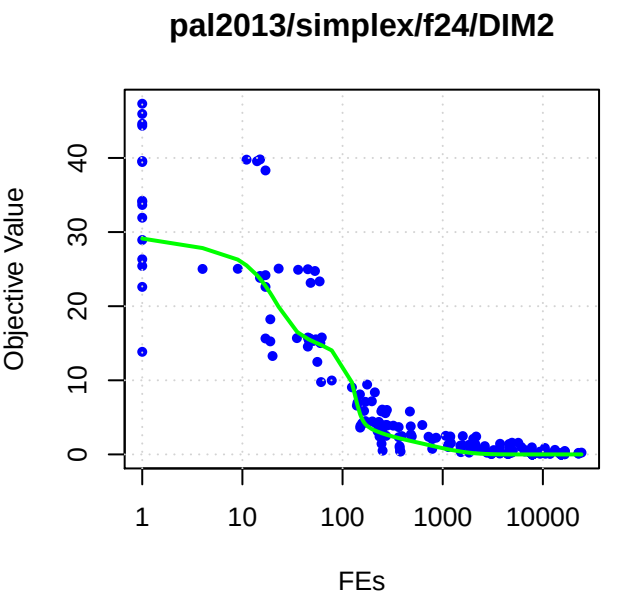
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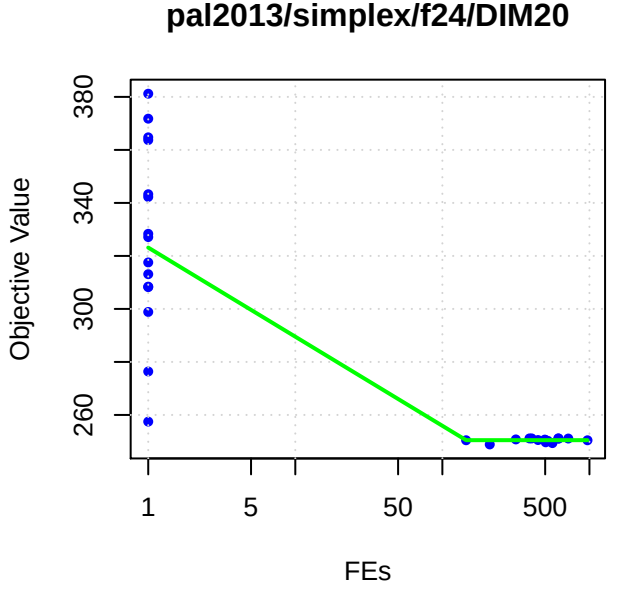
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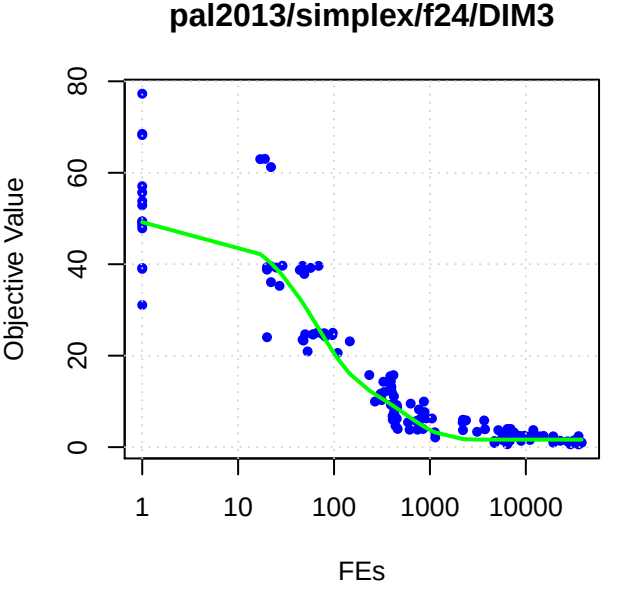
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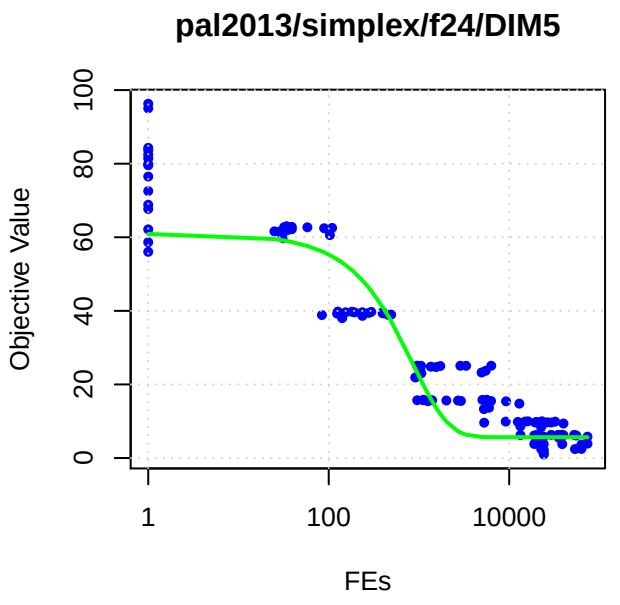
FEs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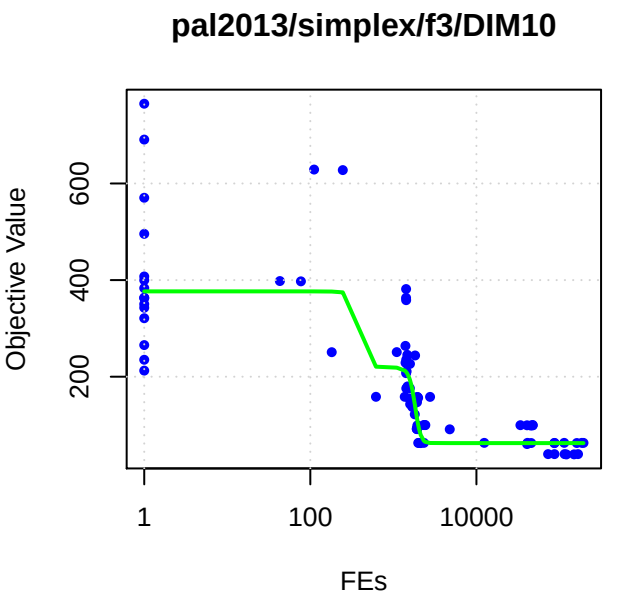
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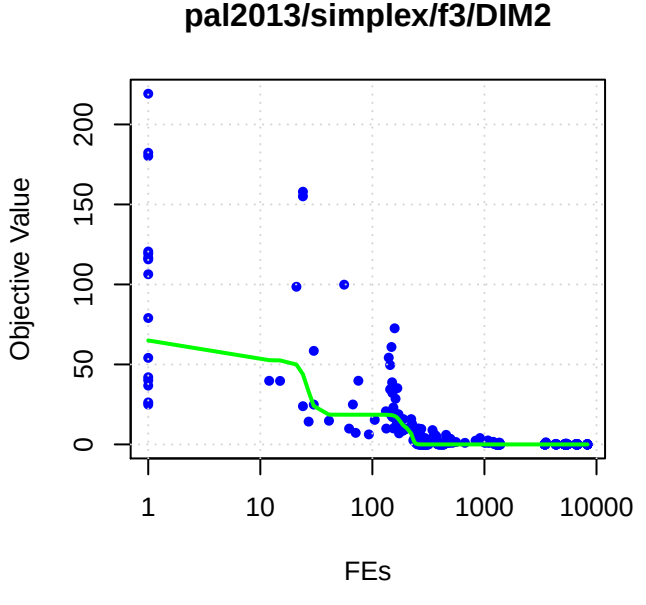
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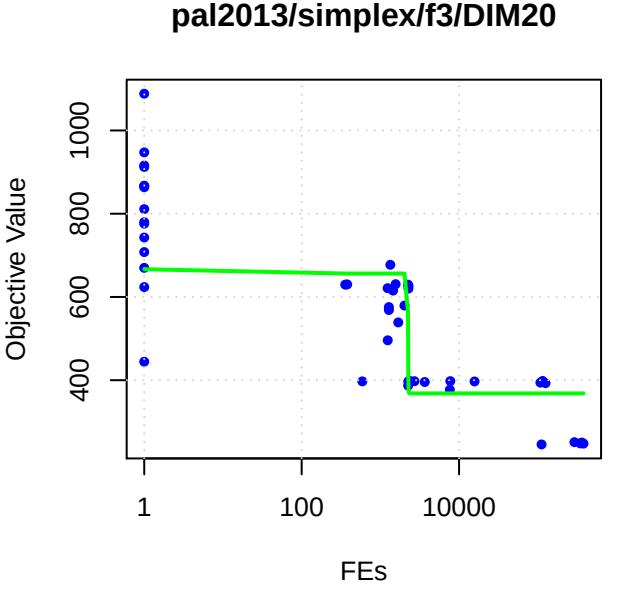
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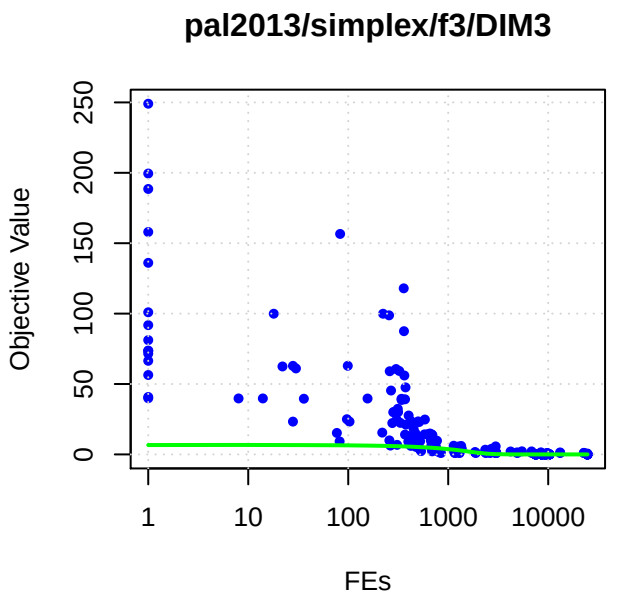
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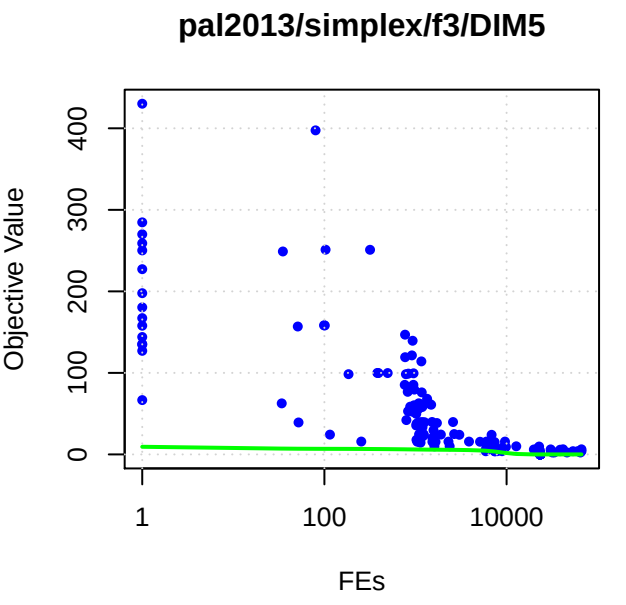
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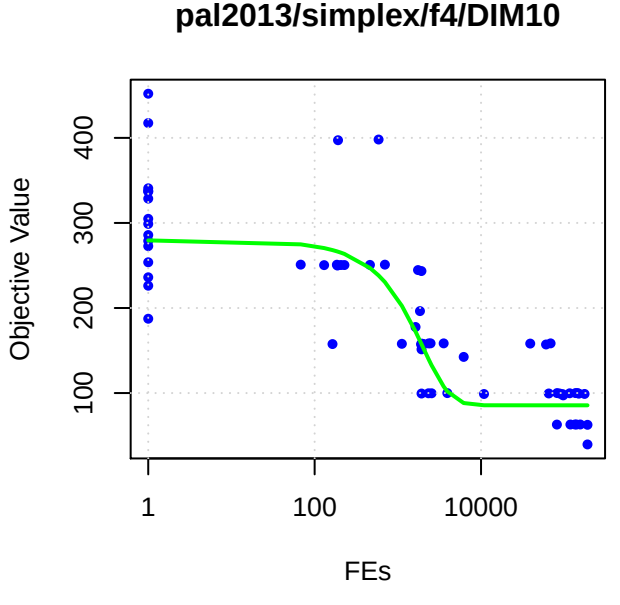
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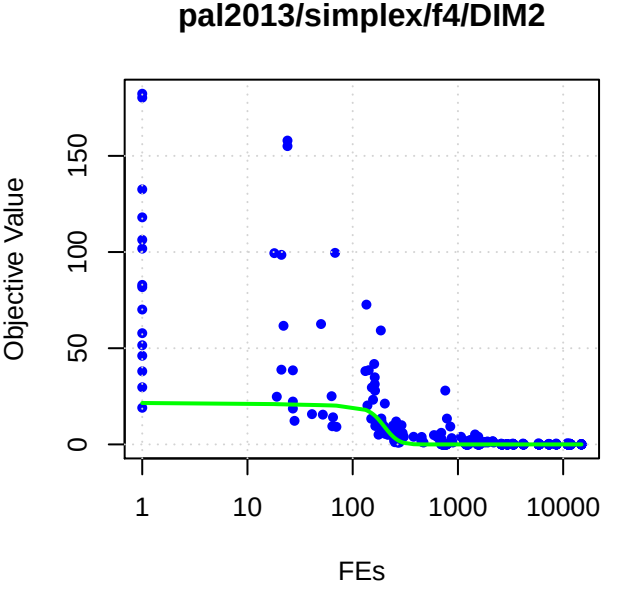
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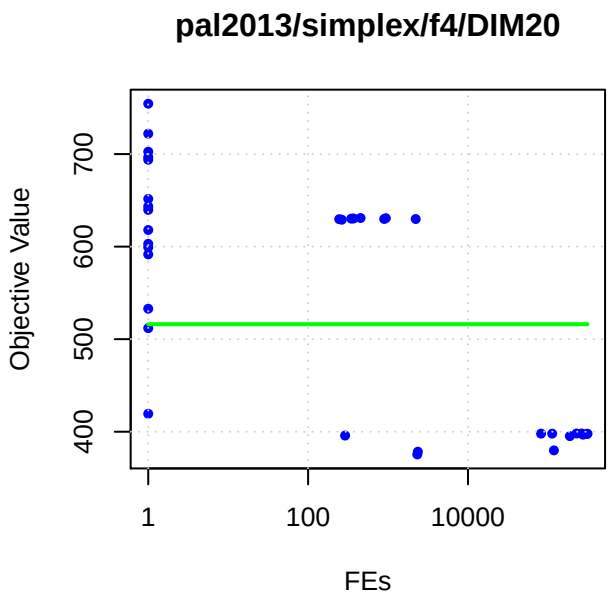
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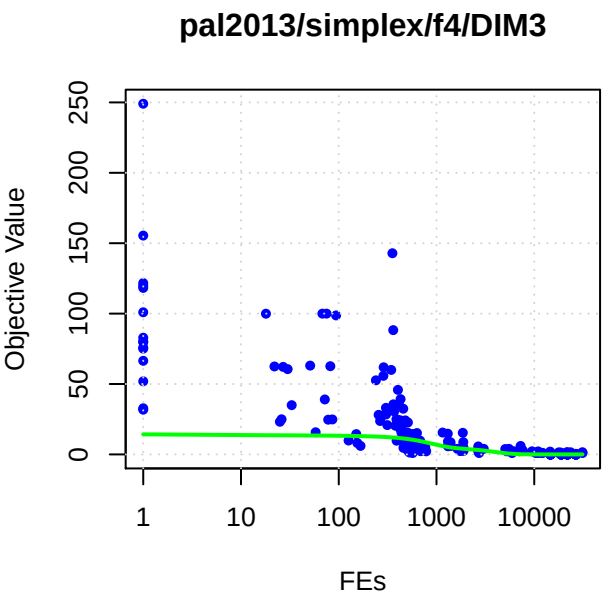
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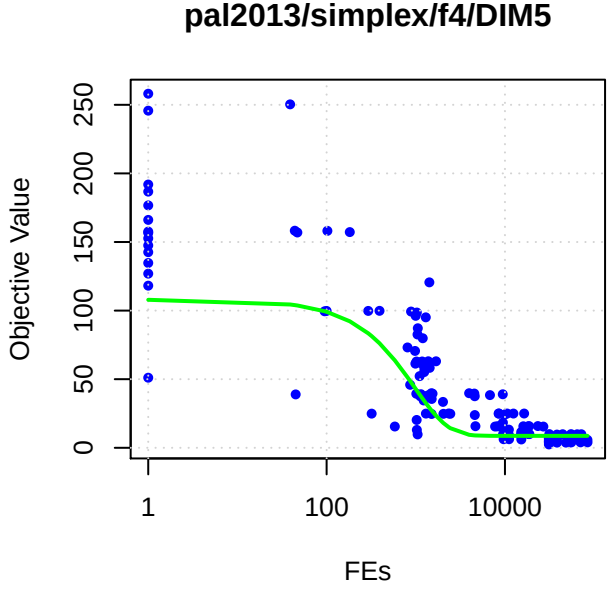
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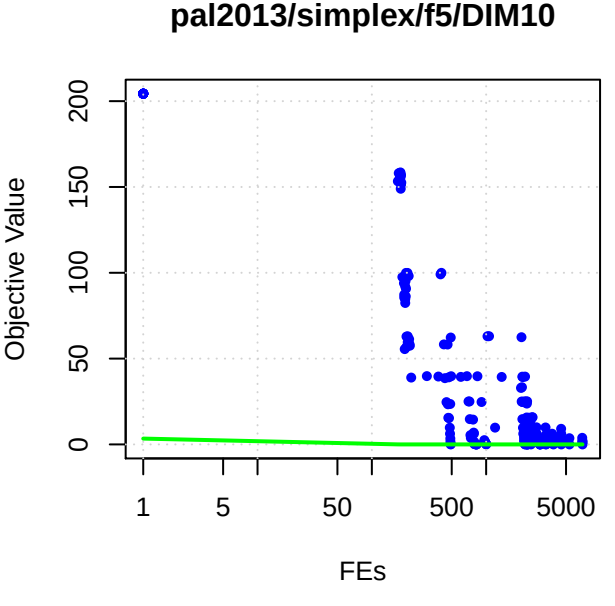
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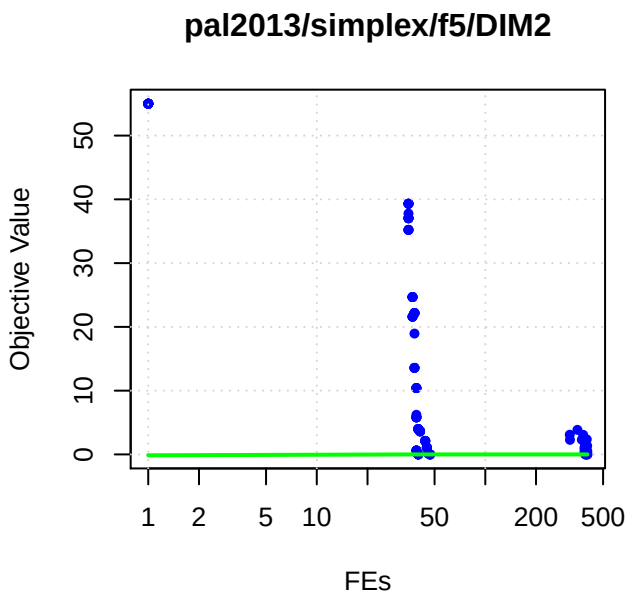
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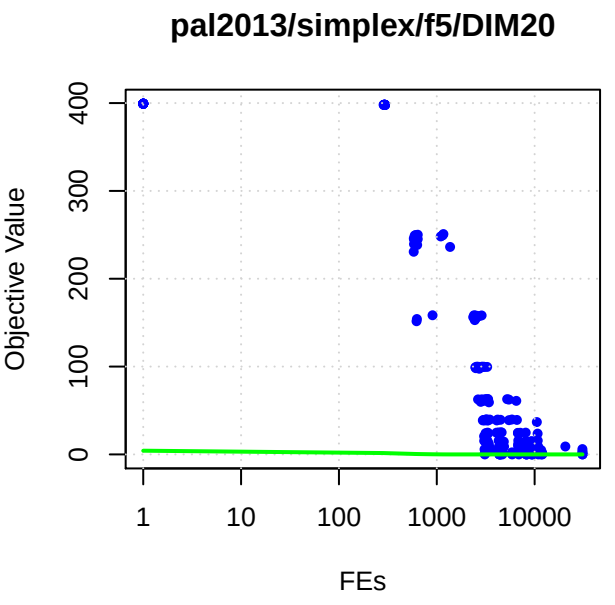
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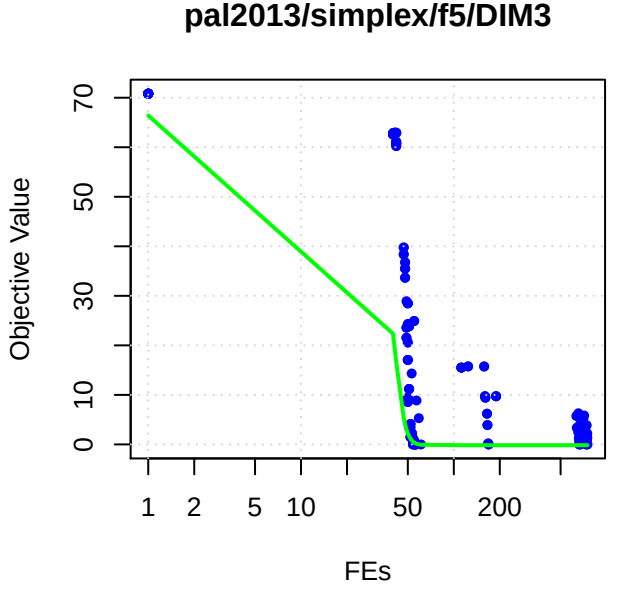
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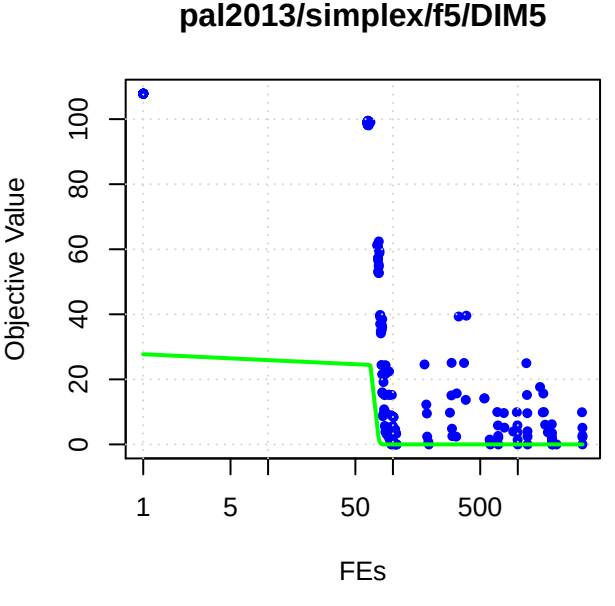
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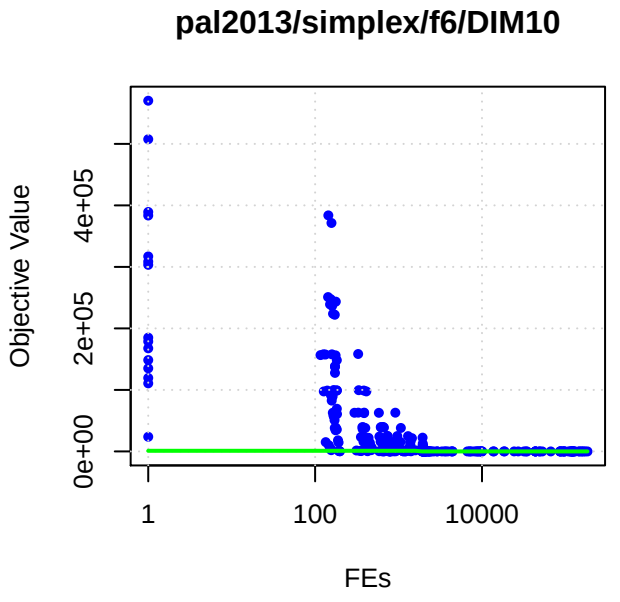
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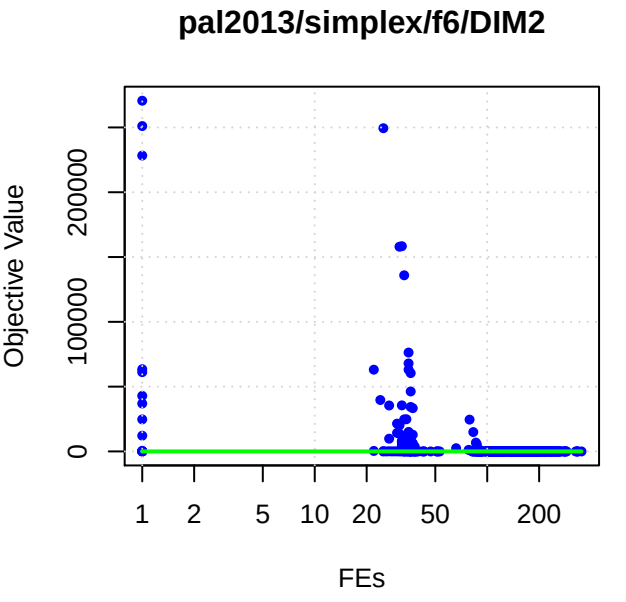
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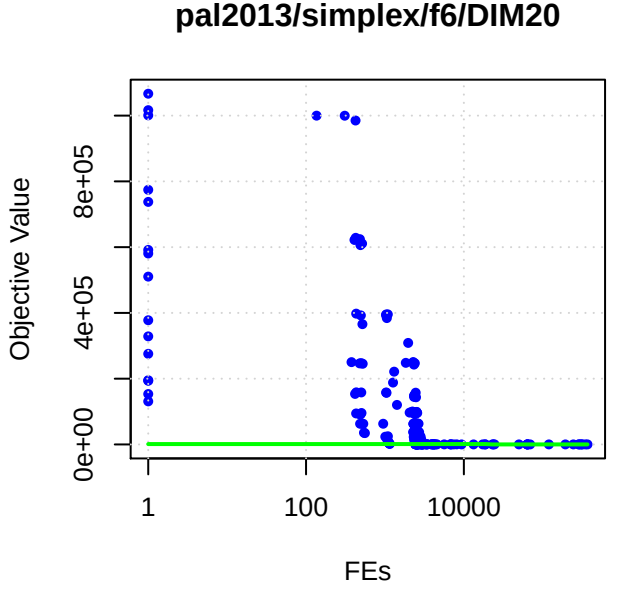
FEs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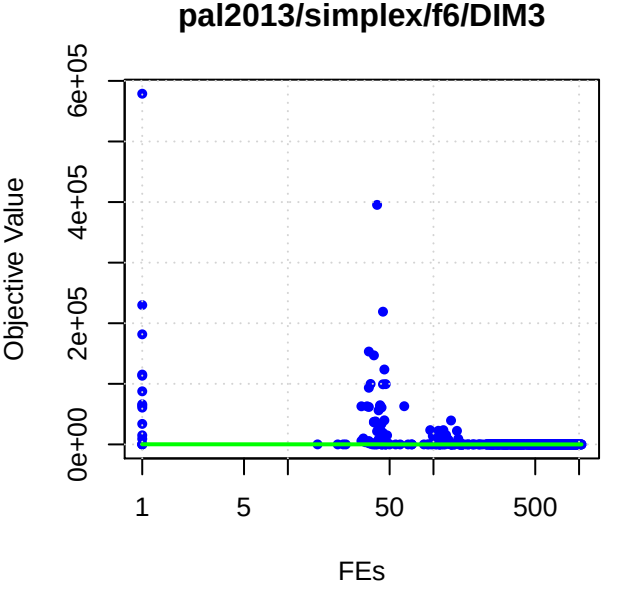
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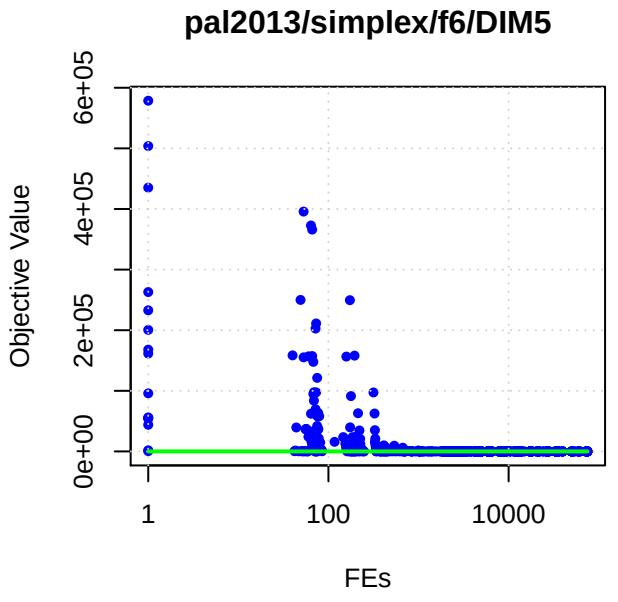
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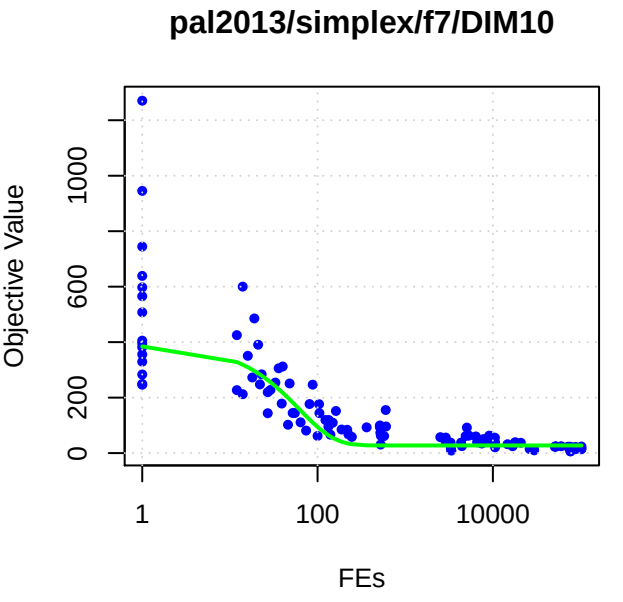
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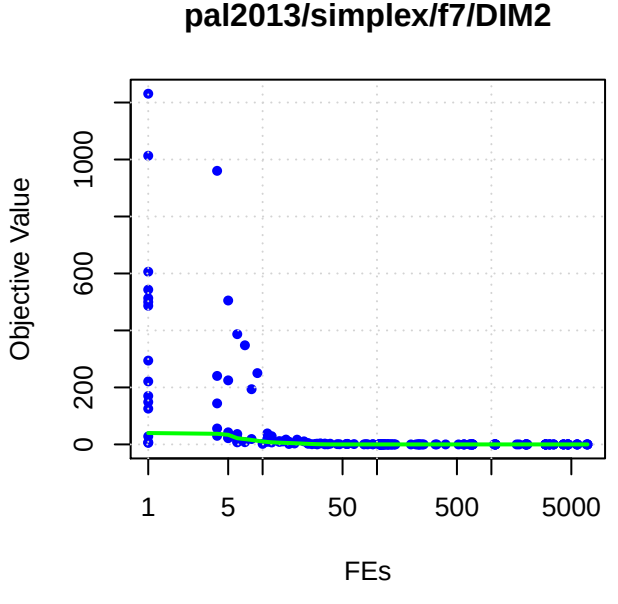
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50
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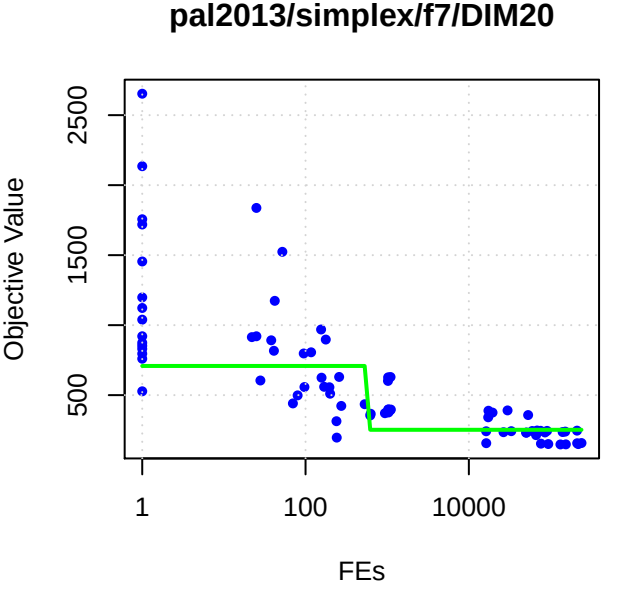
5000
FEs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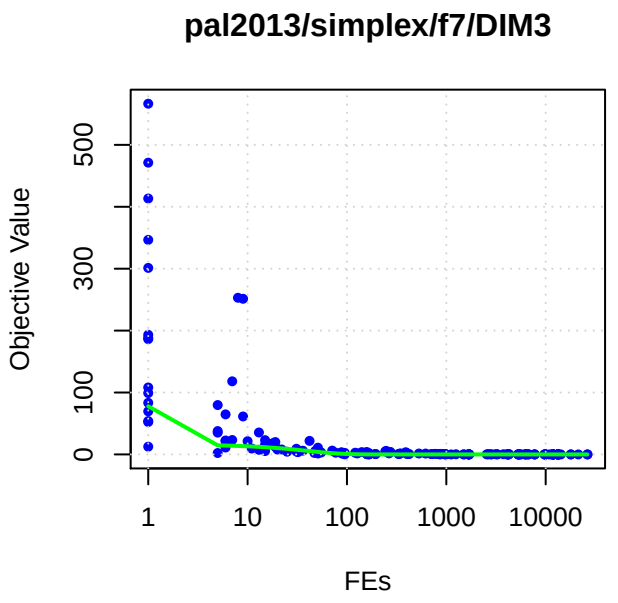
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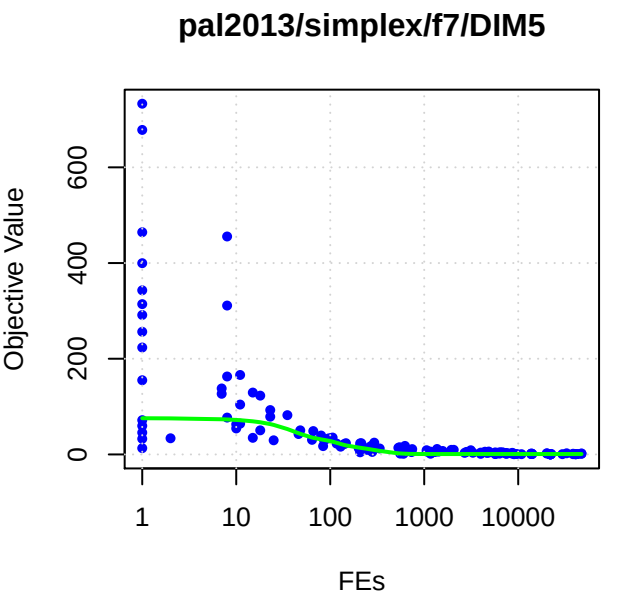
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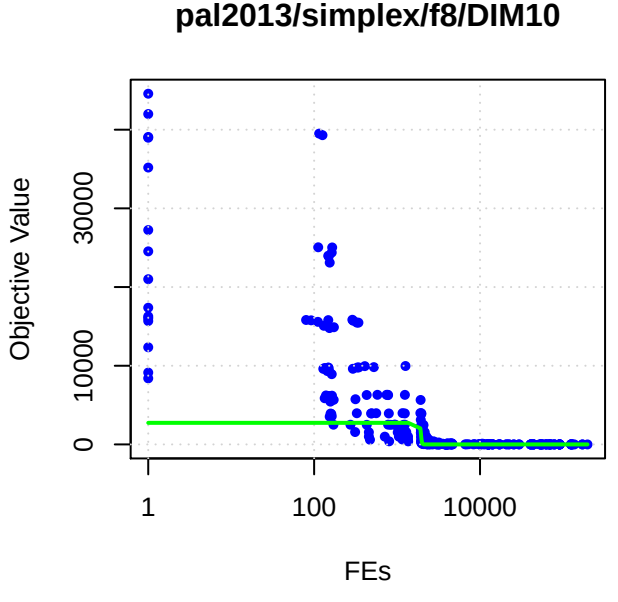
FEs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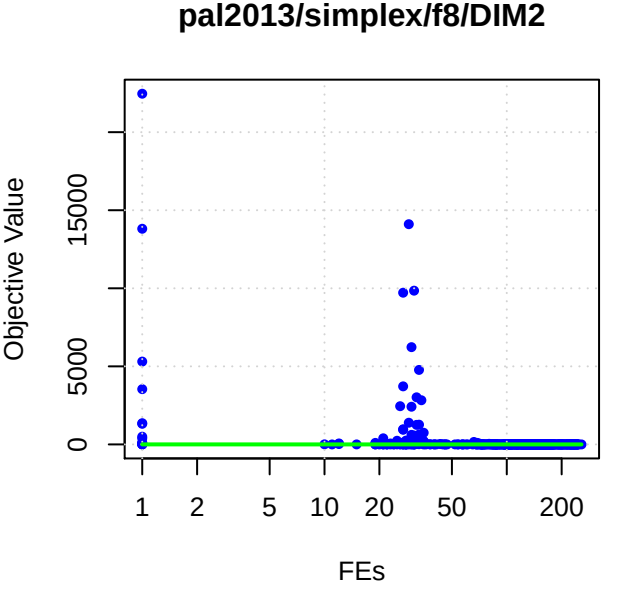
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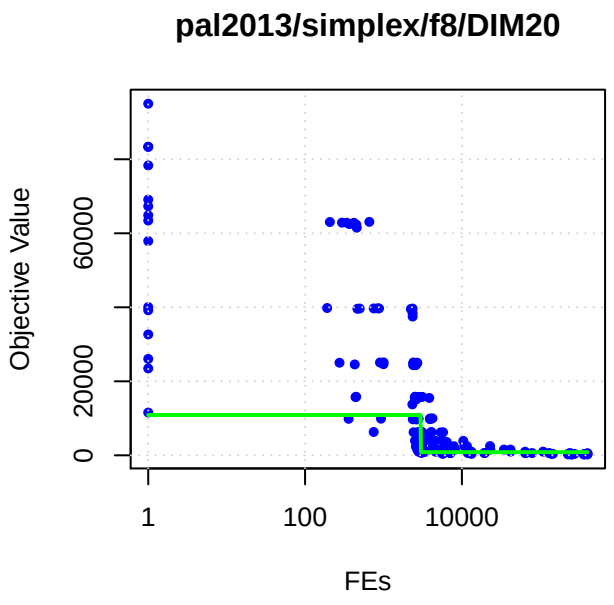
50
200
FEs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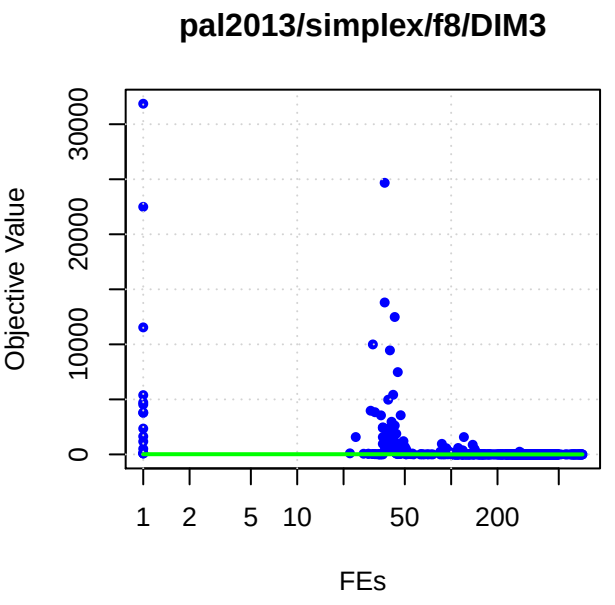
FEs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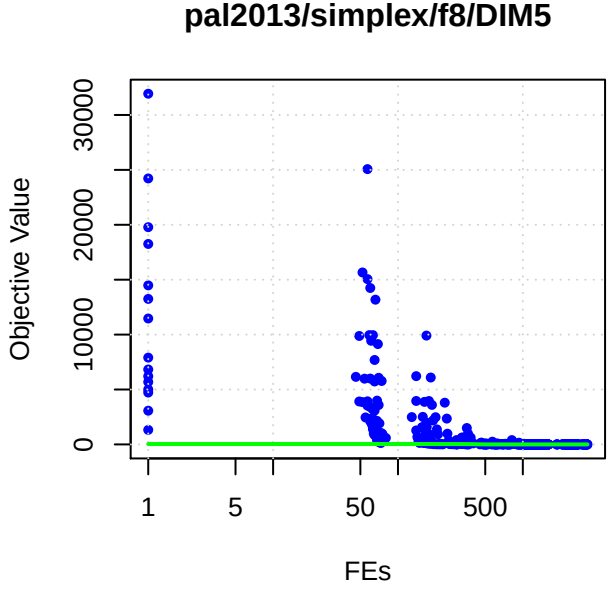
200
FEs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30000
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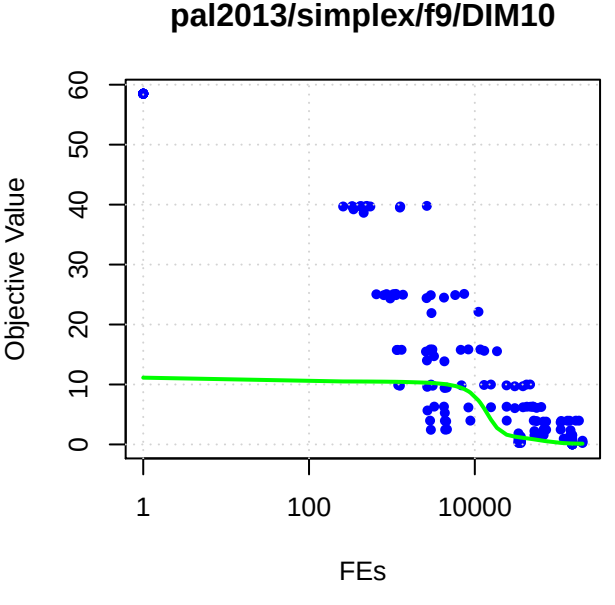
FEs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Objective Value
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40
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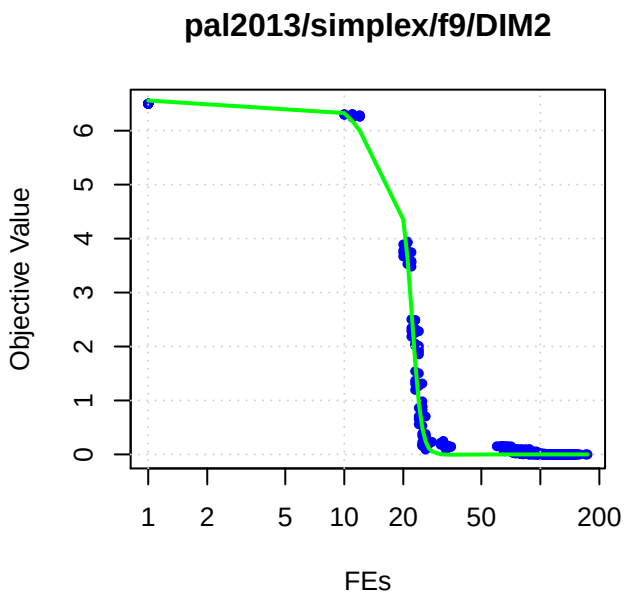
60
1
100
10000
FEs


pal2013/simplex/f9/DIM2
Objective Value
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3
4
5
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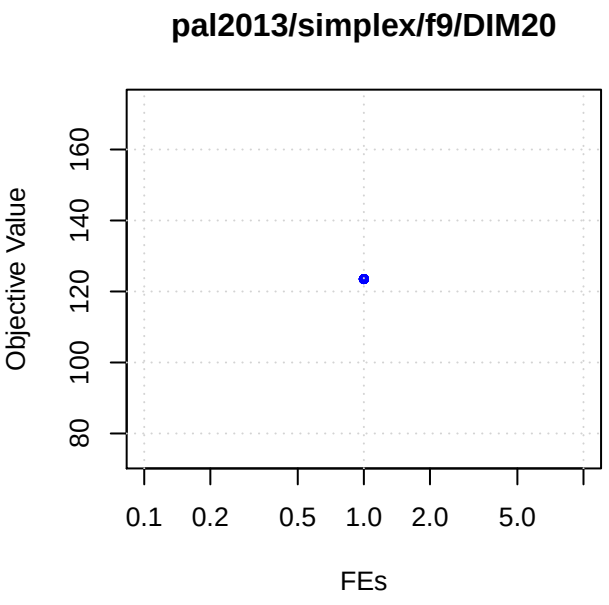
2
5
10
20
50
200
FEs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Objective Value
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120
140
160
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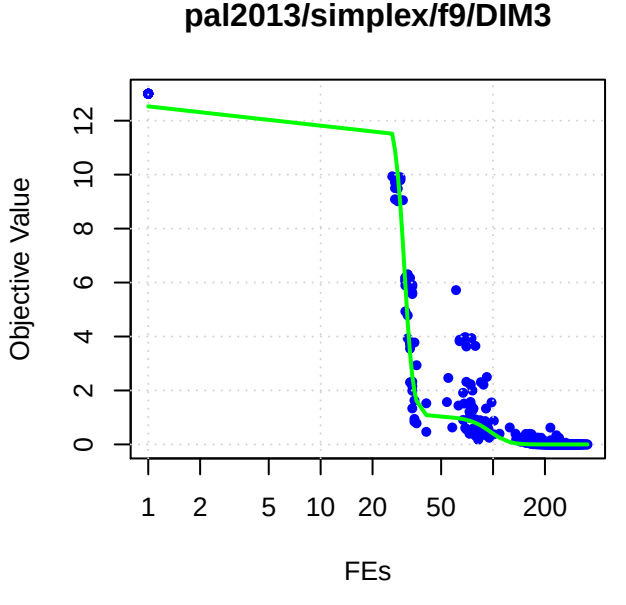
0.2
0.5
1.0
2.0
5.0
FEs


pal2013/simplex/f9/DIM3
Objective Value
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8
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12
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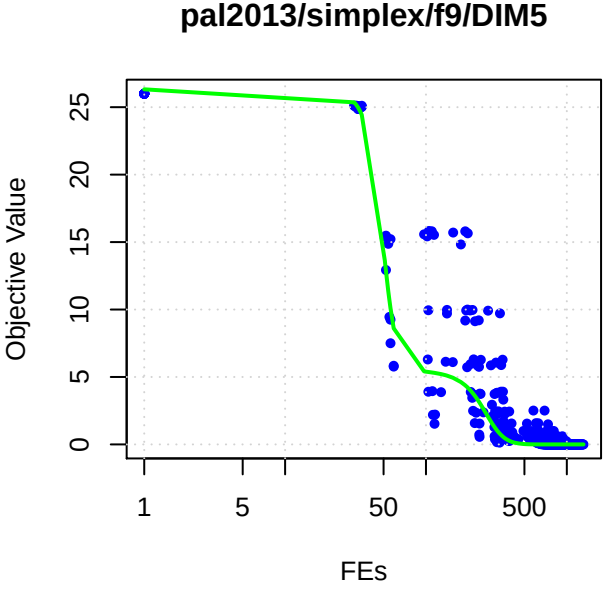
2
5
10
20
50
200
FEs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Objective Value
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20
25
1
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50
500
FEs