Comparison Report

October 24, 2020

Test Run Characteristics Overview

	GCG(3.1.0) SCIP(7.0.0) spx(5.0.0): default		GCG(3.1.0) SCIP(7.0.0) spx(5.0.0): heurpricing-1	
	Nodes	Time	Nodes	Time
noswot	1	14.0	1	20.0
N1C1W4_M.BPP	1	0.5	1	0.5
N1C2W2_O.BPP	1	0.5	1	0.5
N1C3W1_A	13	0.6	12	0.5
p1250-2	9	1.1	11	1.5
p1650-2.txt	117	2.7	97	1.9
p2050-1.txt	35	1.3	42	1.7
TEST0055	17	0.5	167	4.8
TEST0059	91	1.4	1	0.5
gap4_2.txt	13	0.5	13	0.5
gap8_4.txt	9	0.5	13	0.5
strong_d_45_15_12	1	0.5	1	0.5
strong_s_75_15_14	1	0.5	1	0.5
strong_s_75_15_18	1	0.5	1	0.5
geom. mean	6	0.9	5	1.0
sh. geom. mean	18	1.5	19	1.9
arithm. mean	22	1.8	25	2.5
all optimal				
geom. mean	6	0.9	5	1.0
sh. geom. mean	18	1.5	19	1.9
arithm. mean	22	1.8	25	2.5

Contents

1 Performance Profile

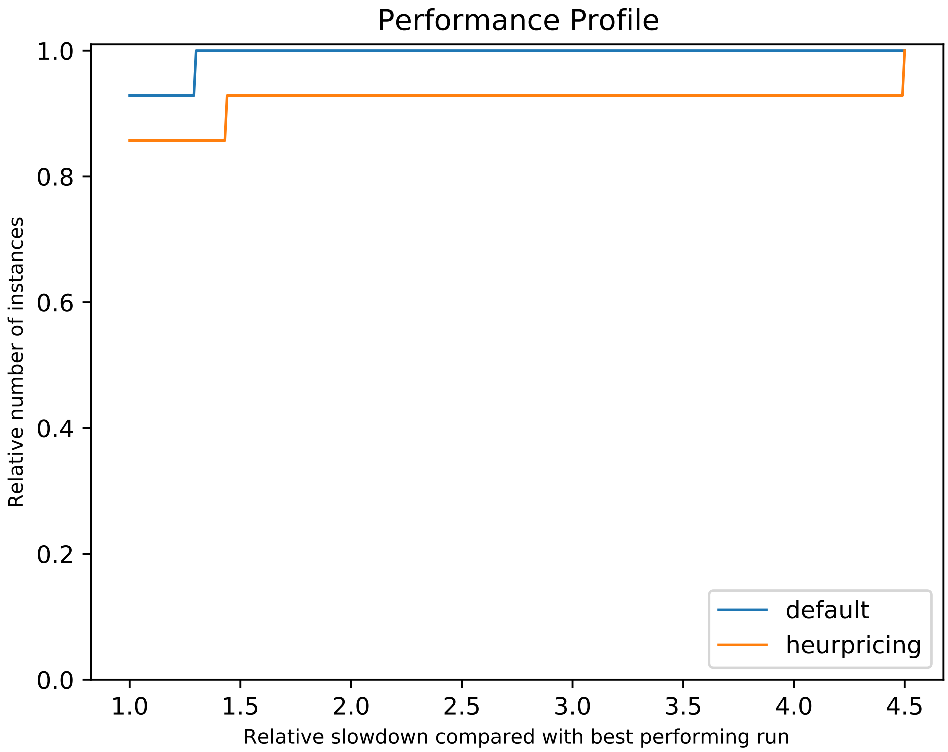

Figure 1: The best performing run is a line with steepness $m = 0$ and y-intercept $f(0) = 1$. For all other runs, the integral over the shown x-interval is lower or equal to the one of the best performing run. The plot can be interpreted as follows: For each point (x, y), x represents the performance in multiples of the duration the best performing run needed and y represents the likelihood for the setting to perform as fast as the best performing run times the multiples. If the underlying function of one setting has first-order stochastic dominance over another, it can be considered to be faster for this test set.
Visualization Path: `plots/performance_profile/performance_profile.pdf`

2 General Visualizations

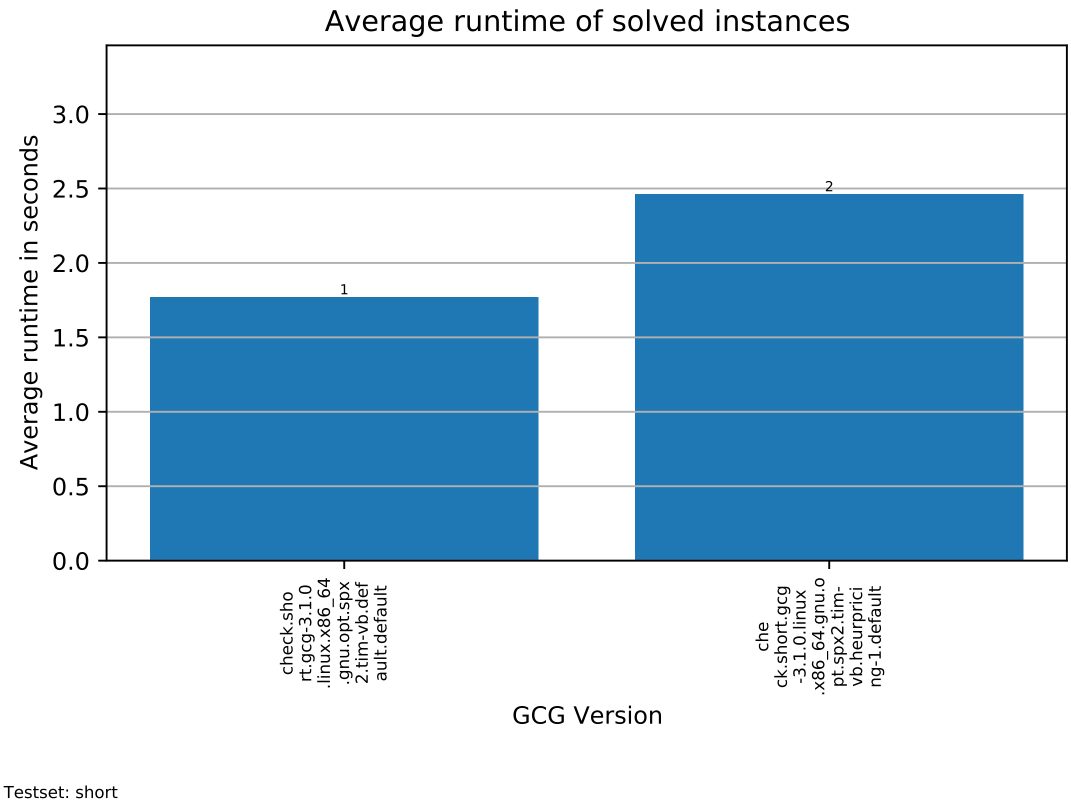

Figure 2: Average solving time.
Visualization Path: `plots/general/averagesolvetime.pdf`

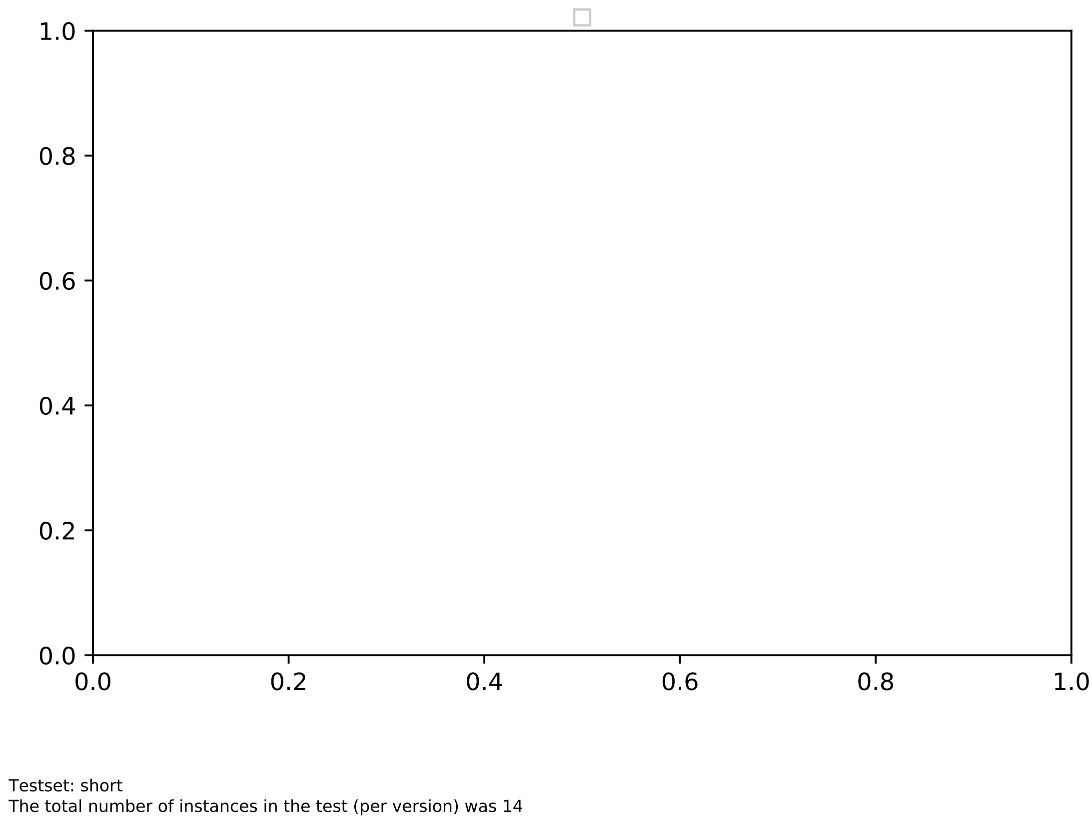

Figure 3: Comparison of Fails.
Visualization Path: `plots/general/failcomparison.pdf`

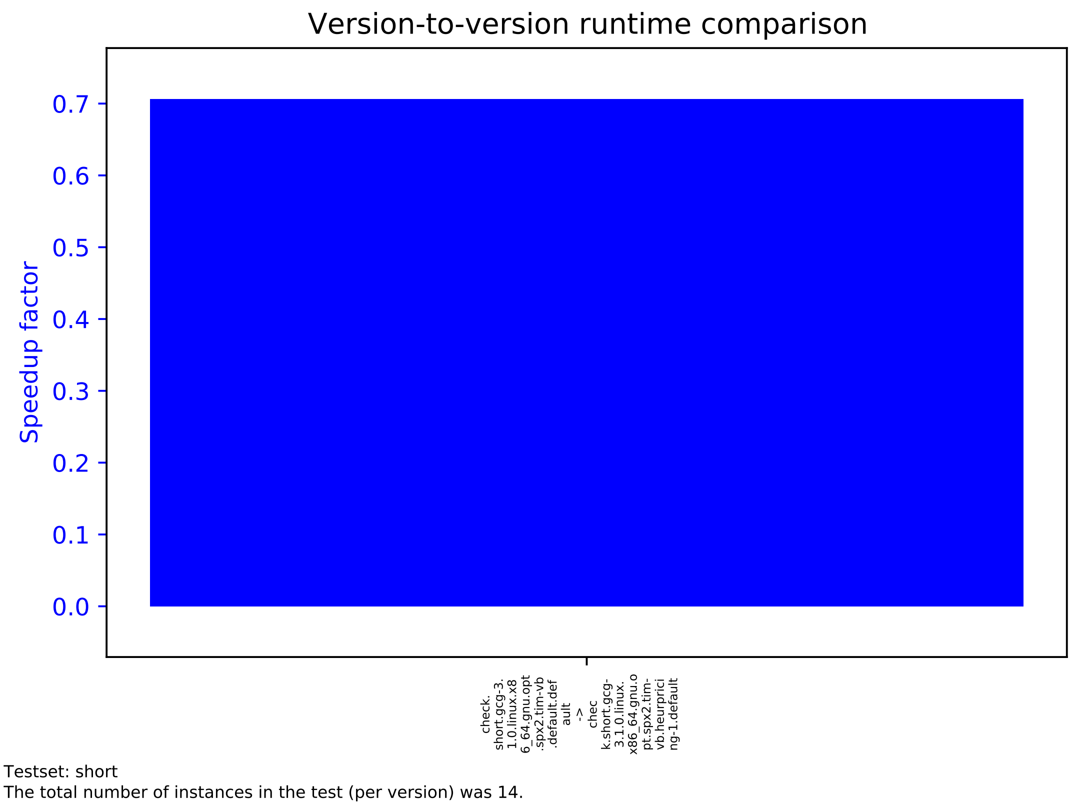

Figure 4: Version to version runtime comparison.
Visualization Path: `plots/general/runtimecomparison.pdf`

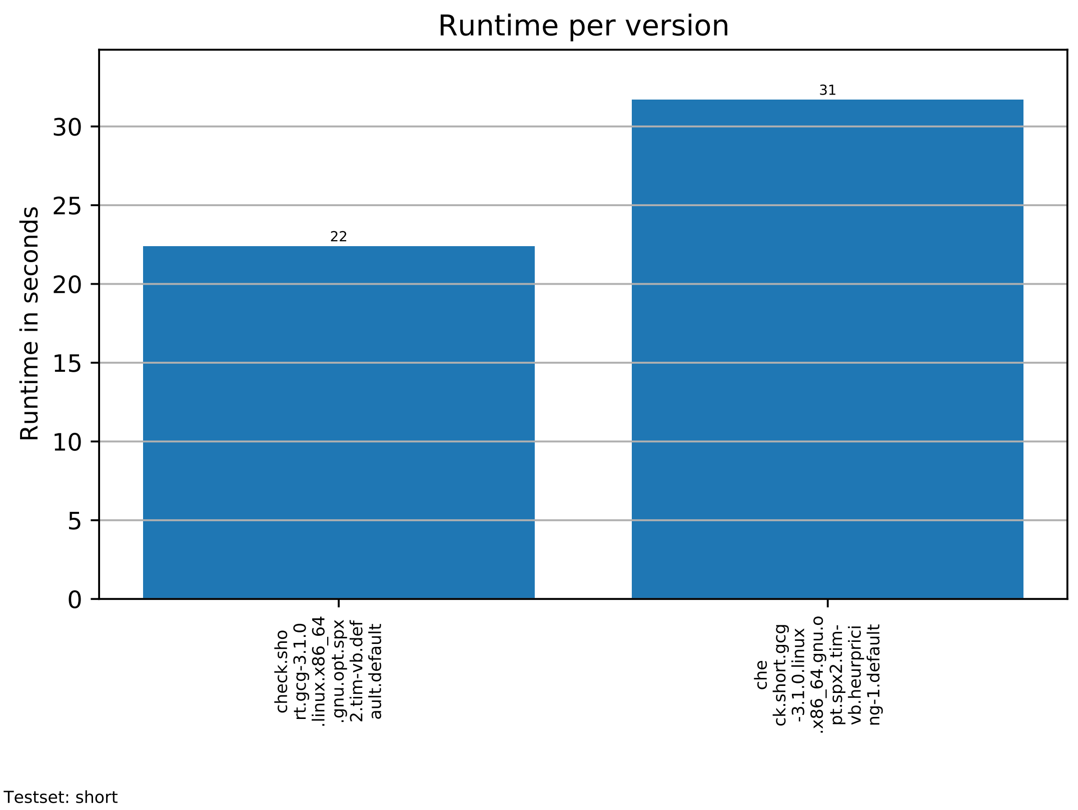

Figure 5: Runtimes per test run.
Visualization Path: `plots/general/runtimes.pdf`

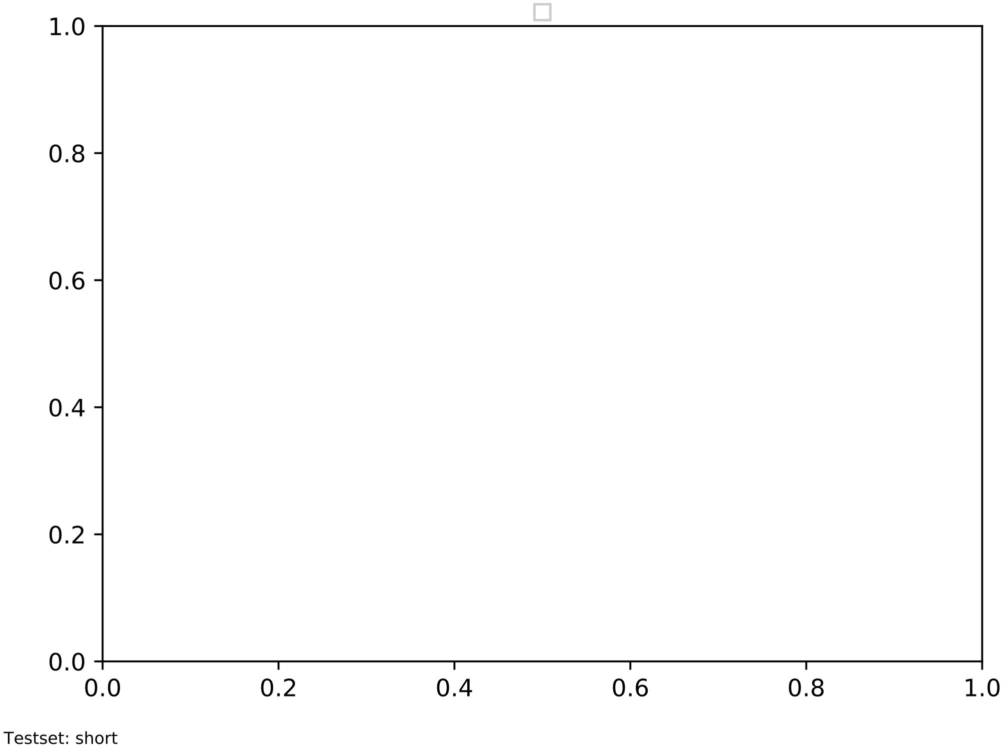

Figure 6: Time comparison per status.
Visualization Path: `plots/general/timecomparisonperstatus.pdf`

3 Time Distribution Plot

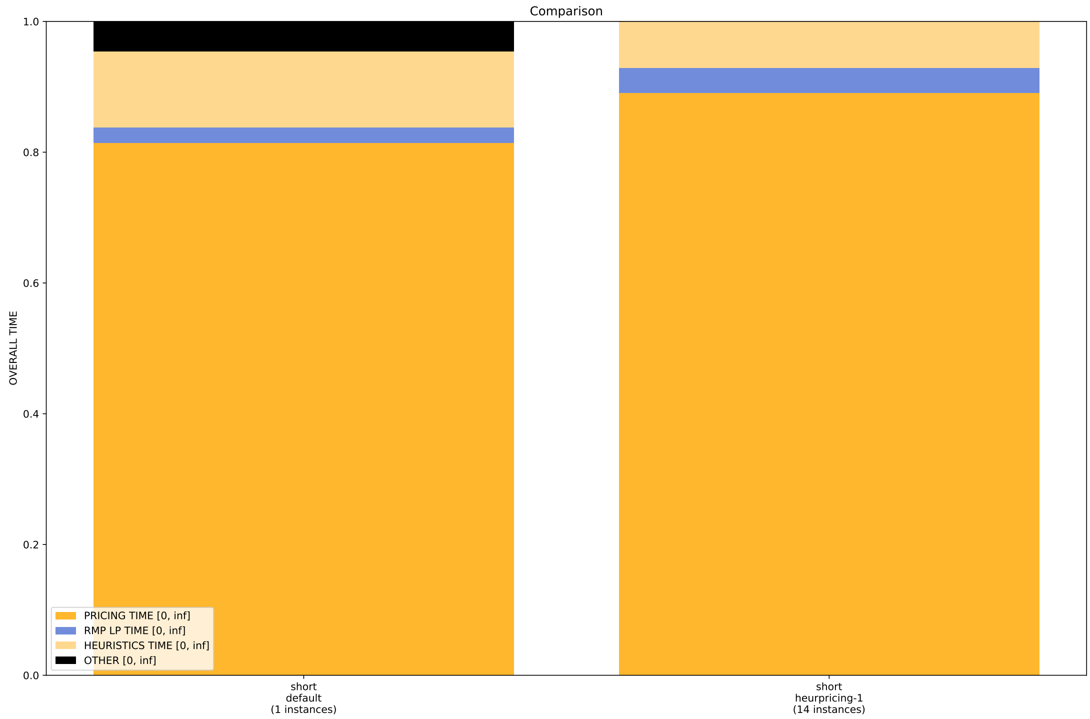

Figure 7: Time Comparison Bar Chart.
Visualization Path: `plots/timedist/short.timedist.compare.pdf`

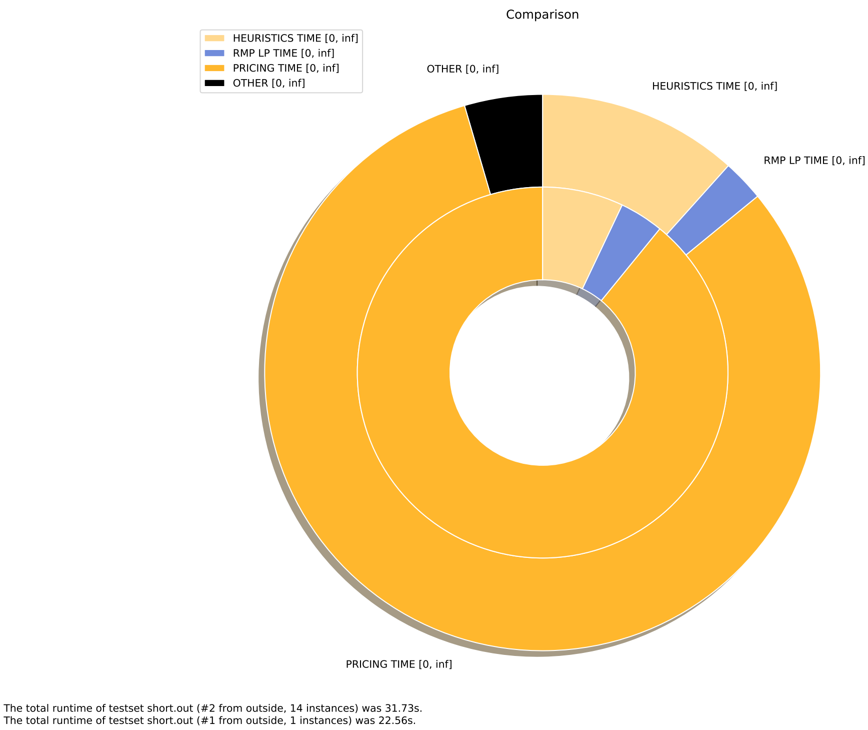

Figure 8: Time Comparison Pie Chart.
Visualization Path: `plots/timedist/short.timedist.comparepie.pdf`

4 Detection Visualizations

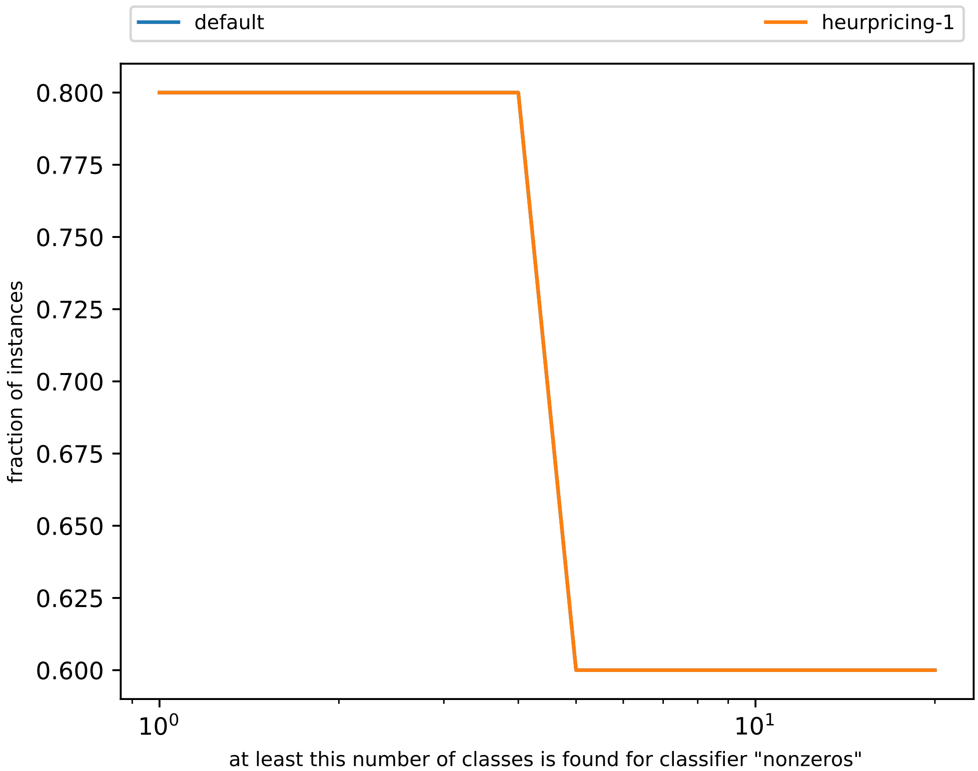

Figure 9:
Visualization Path: `plots/detection/short.detection.classification_classes_nonzeros.pdf`

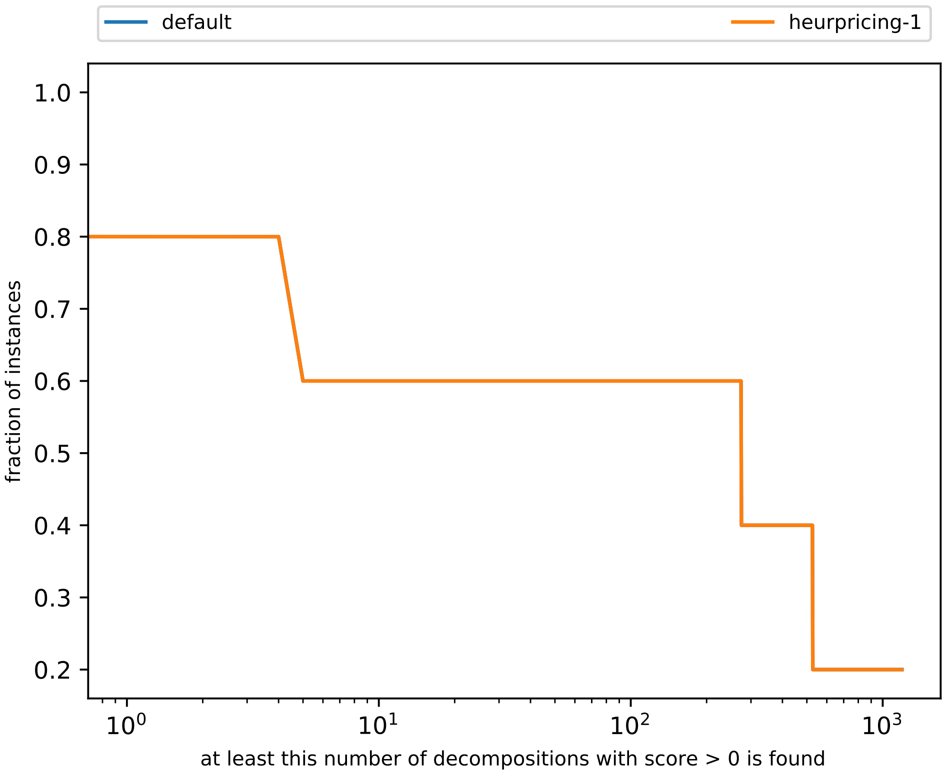

Figure 10:
Visualization Path: `plots/detection/short.detection.decomps.pdf`

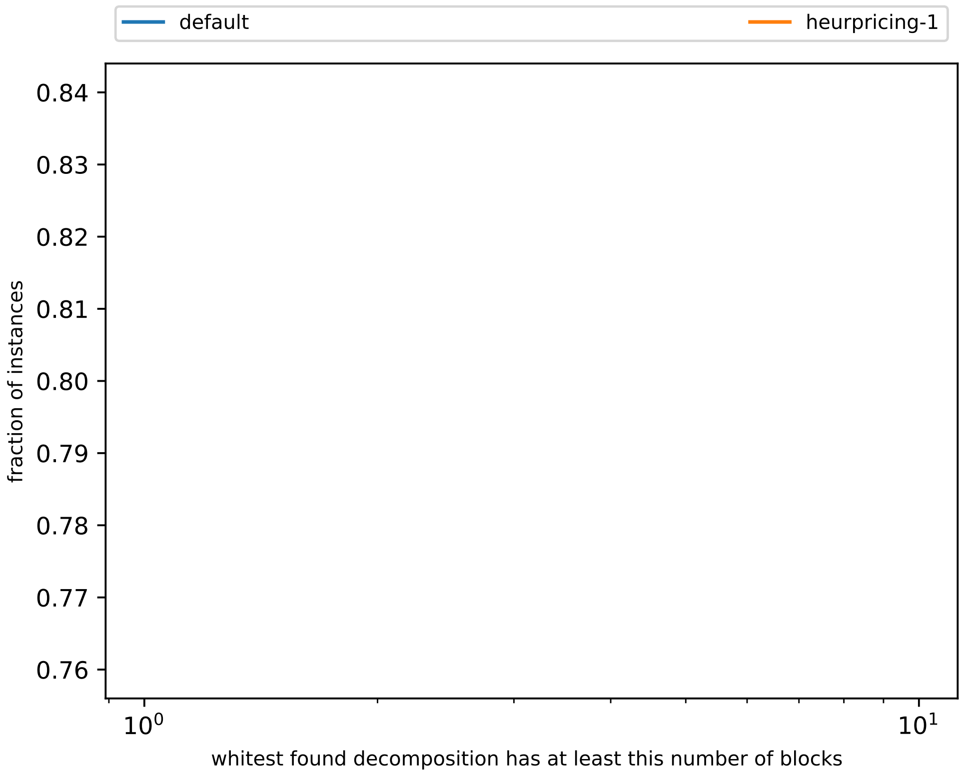

Figure 11:
Visualization Path: `plots/detection/short.detection.nBlocksOfBest.pdf`

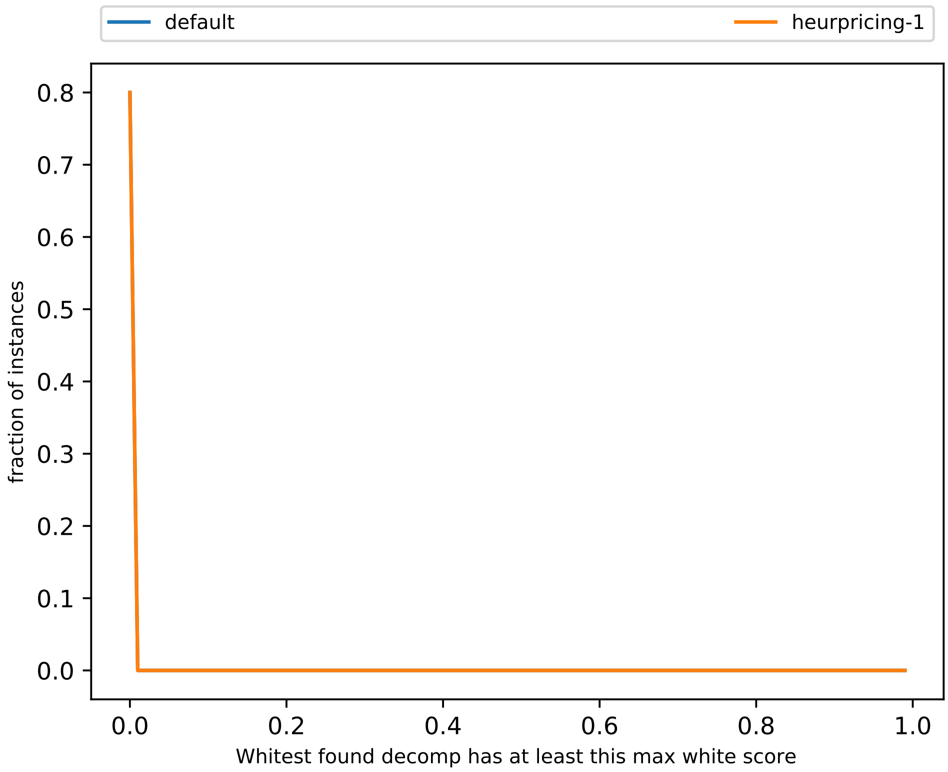

Figure 12:
Visualization Path: `plots/detection/short.detection.quality.pdf`

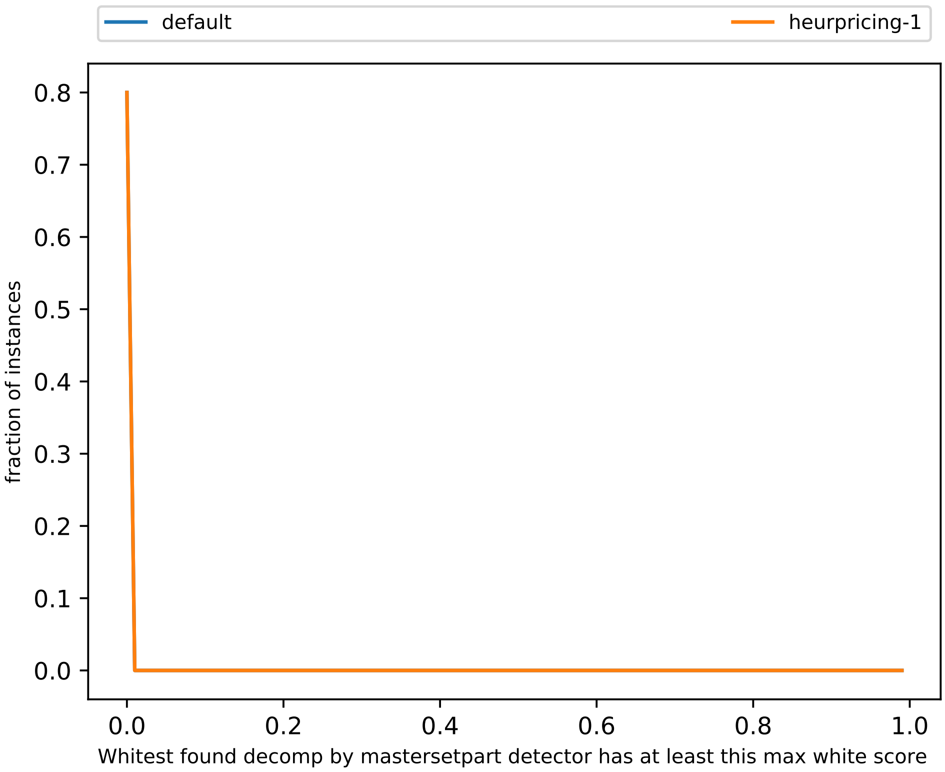

Figure 13:
Visualization Path: `plots/detection/short.detection.quality_SetPartMaster.pdf`

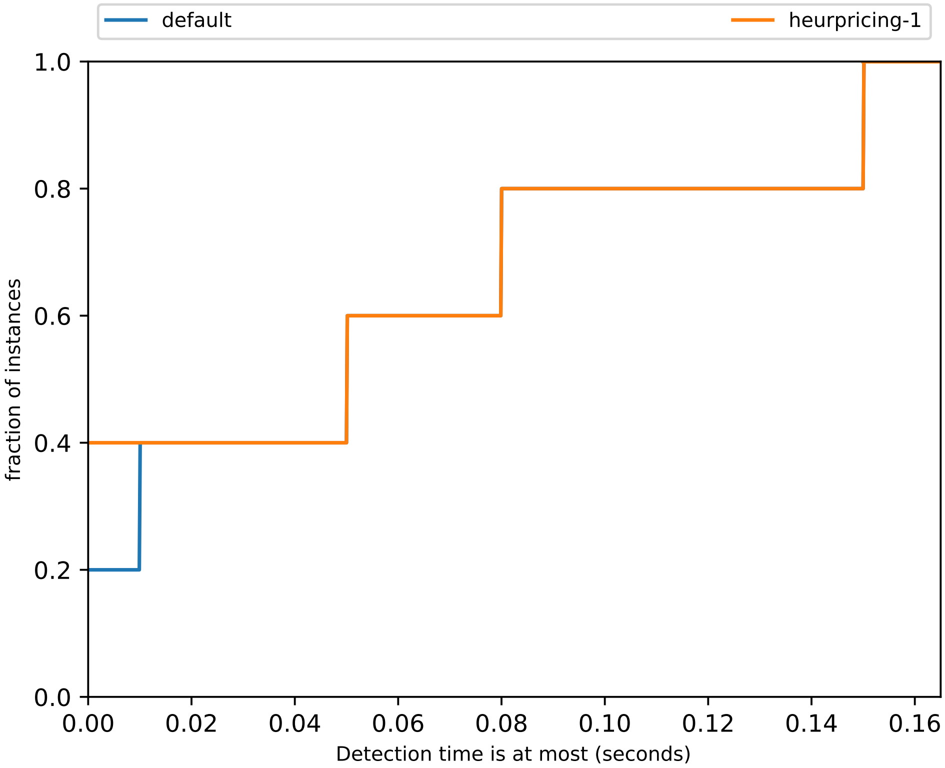

Figure 14:
Visualization Path: `plots/detection/short.detection.times.pdf`

5 Bounds Development (Root Node)

5.1 Instance: gap4_2

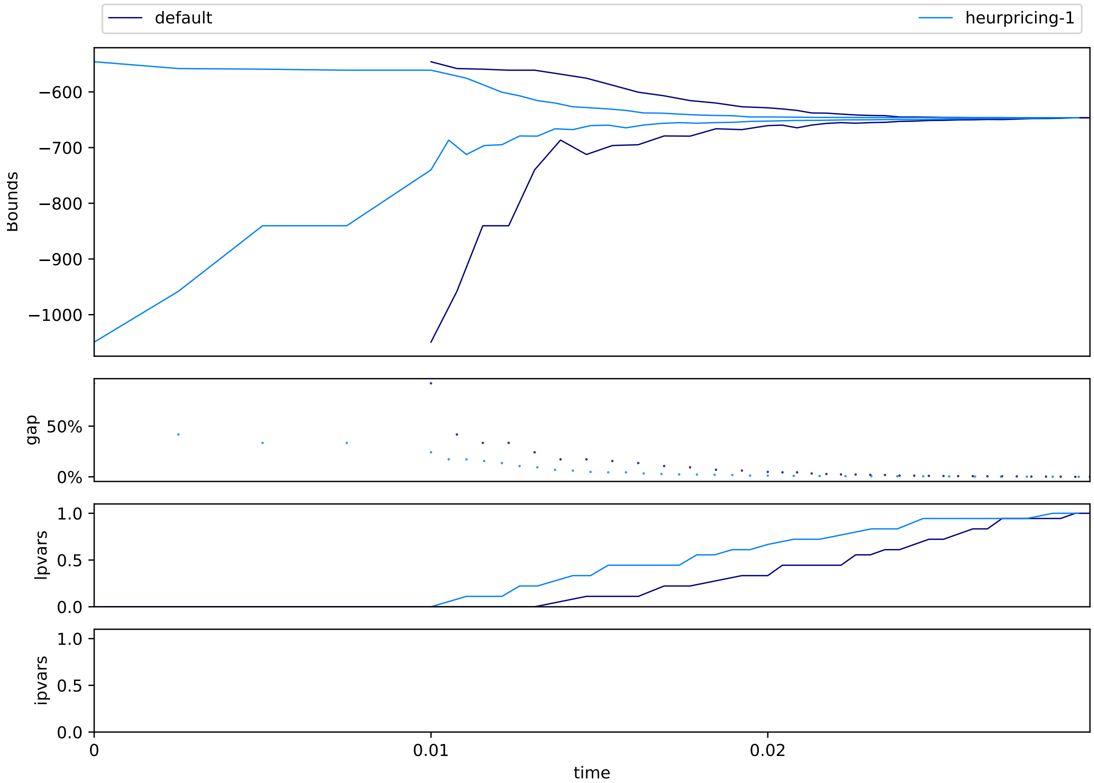

Figure 15: The top subplot shows the development of the primal and dual bounds in the RMP during the pricing in the root node as given by the table root bounds" printed by GCG. Every change represents a pricing iteration and the resulting changes to the bounds. The bounds are complemented by a gap plot. The other two subplots illustrate the point in time in the pricing at which the columns that are finally in the basis are generated.
Visualization Path: `plots/bounds/gap4_2.txt.compare.bounds_time.pdf`

5.2 Instance: gap8_4

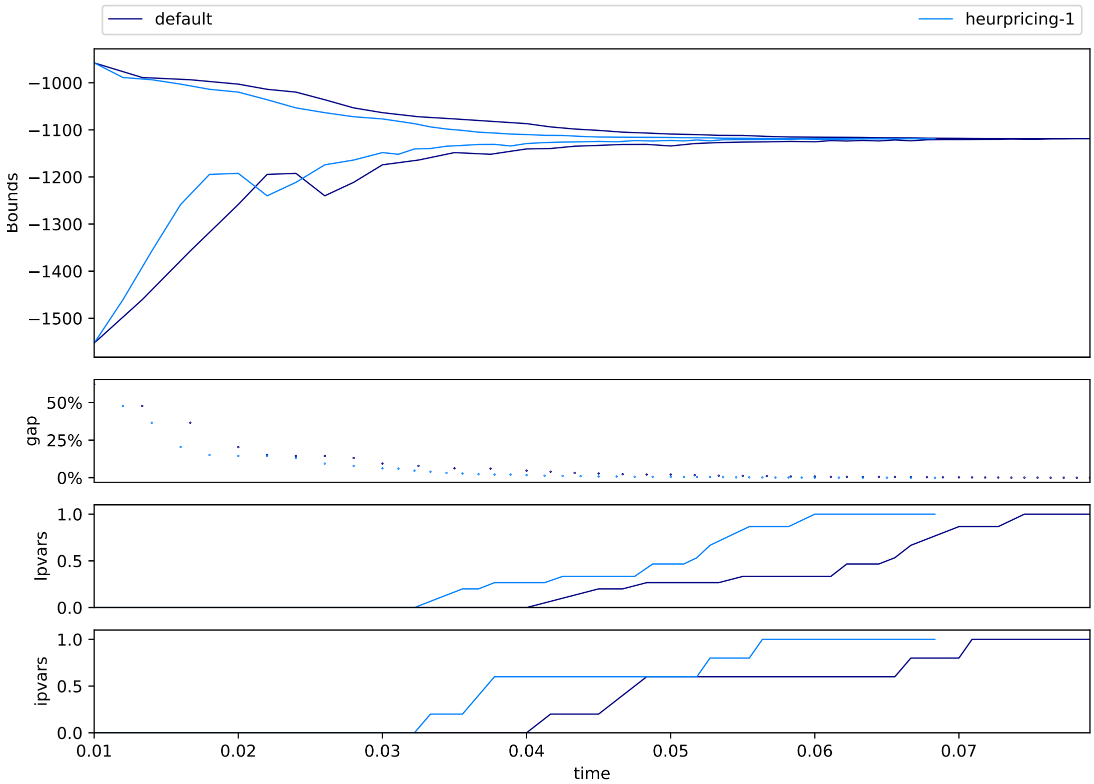

Figure 16: The top subplot shows the development of the primal and dual bounds in the RMP during the pricing in the root node as given by the table root bounds" printed by GCG. Every change represents a pricing iteration and the resulting changes to the bounds. The bounds are complemented by a gap plot. The other two subplots illustrate the point in time in the pricing at which the columns that are finally in the basis are generated.
Visualization Path: `plots/bounds/gap8_4.txt.compare.bounds_time.pdf`

5.3 Instance: N1C1W4_M

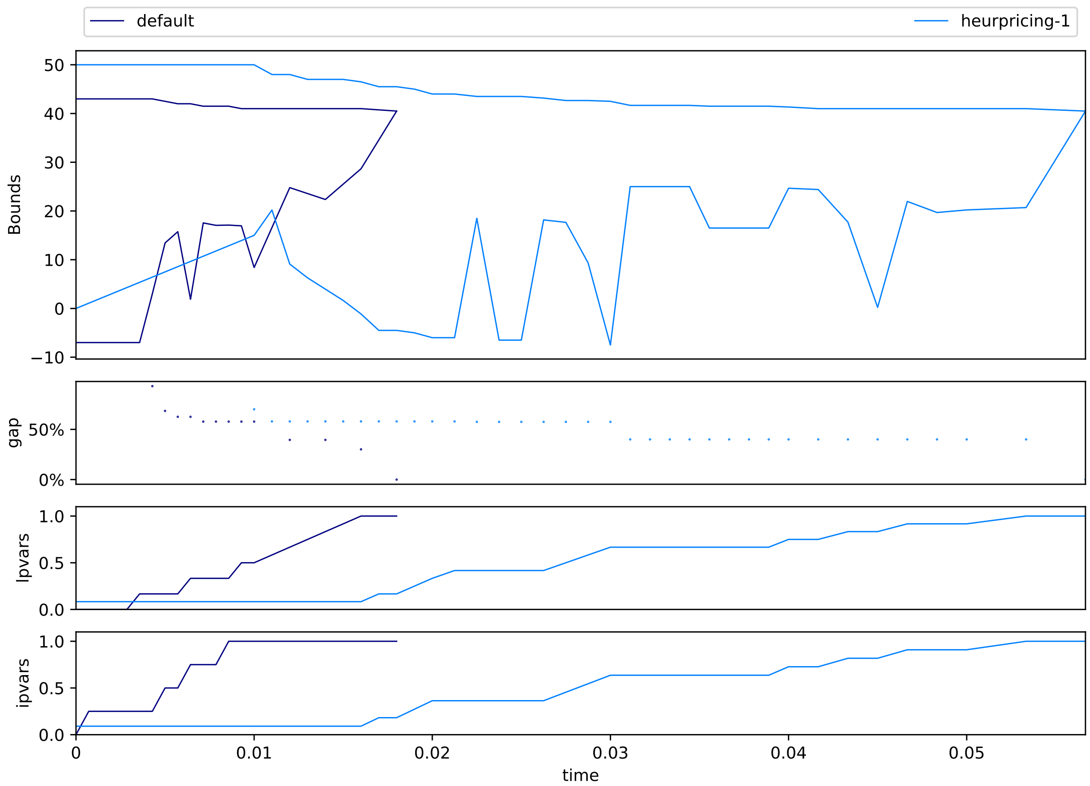

Figure 17: The top subplot shows the development of the primal and dual bounds in the RMP during the pricing in the root node as given by the table root bounds" printed by GCG. Every change represents a pricing iteration and the resulting changes to the bounds. The bounds are complemented by a gap plot. The other two subplots illustrate the point in time in the pricing at which the columns that are finally in the basis are generated.
Visualization Path: `plots/bounds/N1C1W4_M.BPP.compare.bounds_time.pdf`

5.4 Instance: N1C2W2_O

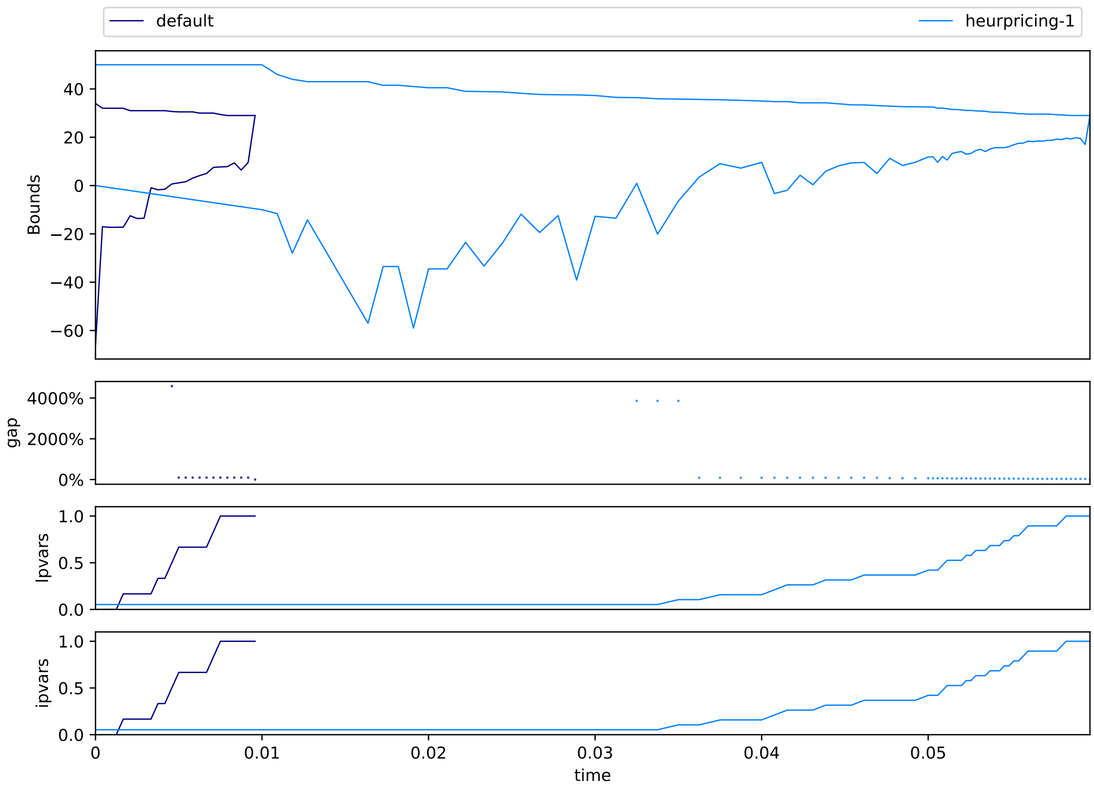

Figure 18: The top subplot shows the development of the primal and dual bounds in the RMP during the pricing in the root node as given by the table root bounds" printed by GCG. Every change represents a pricing iteration and the resulting changes to the bounds. The bounds are complemented by a gap plot. The other two subplots illustrate the point in time in the pricing at which the columns that are finally in the basis are generated.
Visualization Path: `plots/bounds/N1C2W2_O.BPP.compare.bounds_time.pdf`

5.5 Instance: N1C3W1_A

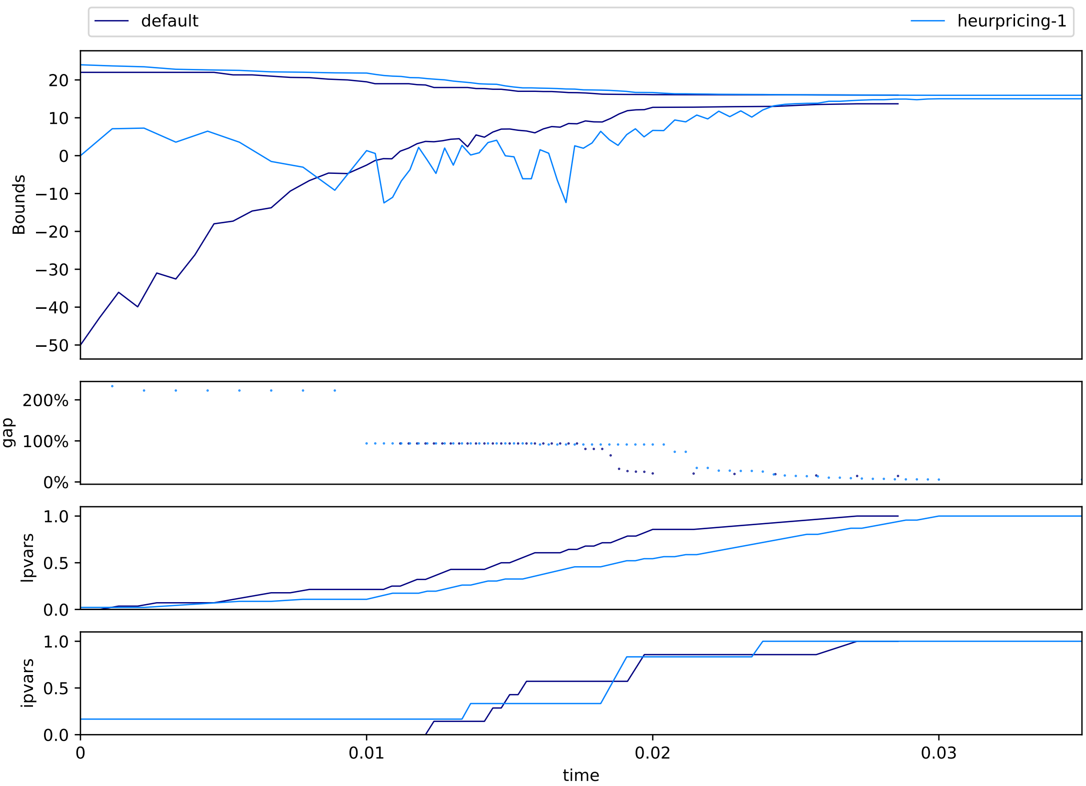

Figure 19: The top subplot shows the development of the primal and dual bounds in the RMP during the pricing in the root node as given by the table root bounds" printed by GCG. Every change represents a pricing iteration and the resulting changes to the bounds. The bounds are complemented by a gap plot. The other two subplots illustrate the point in time in the pricing at which the columns that are finally in the basis are generated.
Visualization Path: `plots/bounds/N1C3W1_A.compare.bounds_time.pdf`

5.6 Instance: noswot

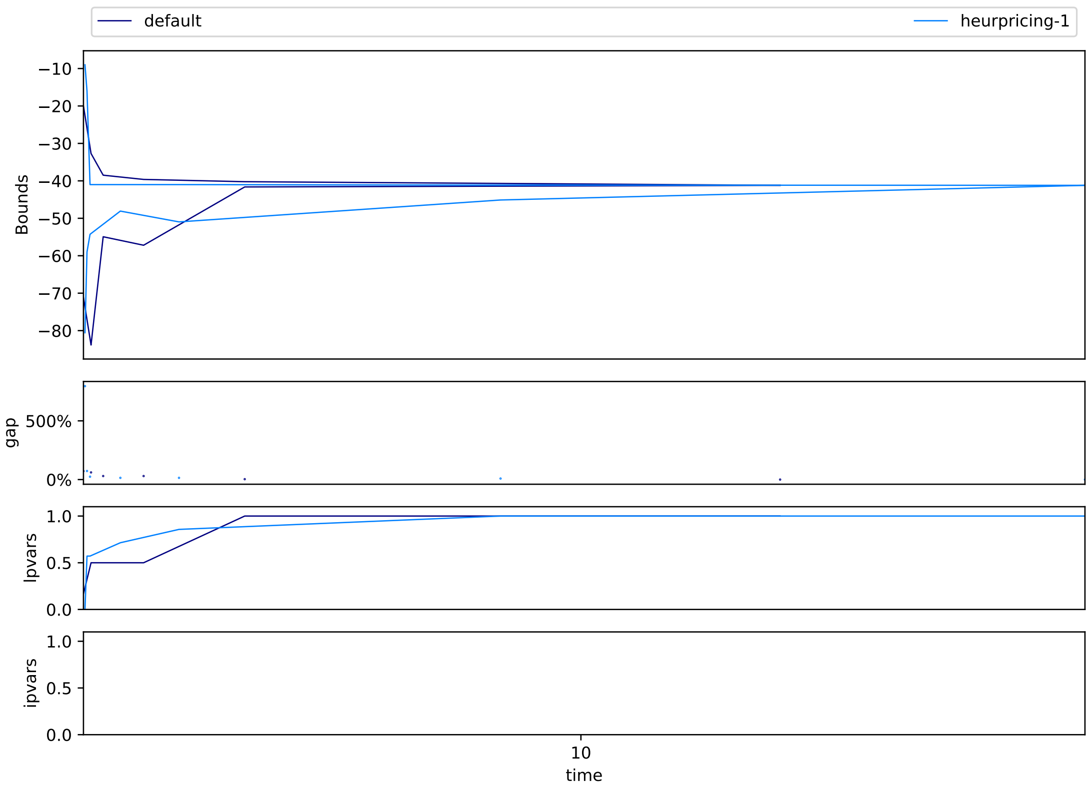

Figure 20: The top subplot shows the development of the primal and dual bounds in the RMP during the pricing in the root node as given by the table root bounds" printed by GCG. Every change represents a pricing iteration and the resulting changes to the bounds. The bounds are complemented by a gap plot. The other two subplots illustrate the point in time in the pricing at which the columns that are finally in the basis are generated.
Visualization Path: `plots/bounds/noswot.compare.bounds_time.pdf`

5.7 Instance: p1250-2

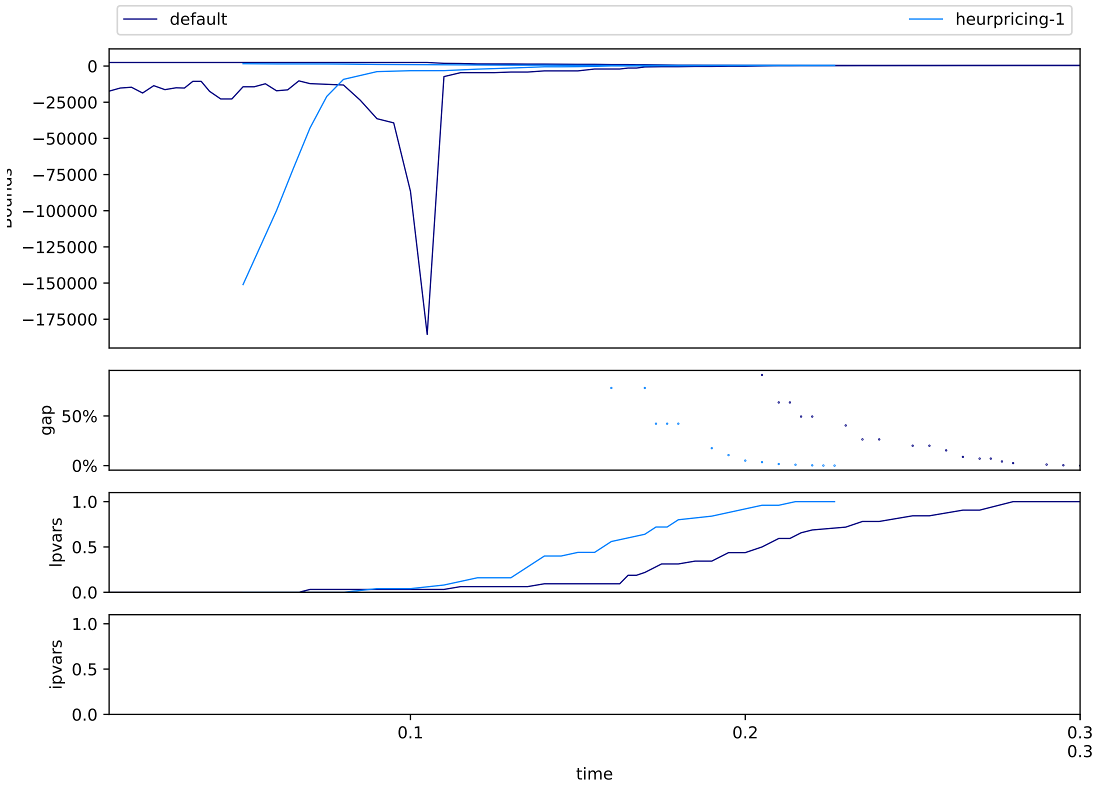

Figure 21: The top subplot shows the development of the primal and dual bounds in the RMP during the pricing in the root node as given by the table root bounds" printed by GCG. Every change represents a pricing iteration and the resulting changes to the bounds. The bounds are complemented by a gap plot. The other two subplots illustrate the point in time in the pricing at which the columns that are finally in the basis are generated.
Visualization Path: `plots/bounds/p1250-2.compare.bounds_time.pdf`

5.8 Instance: p1650-2

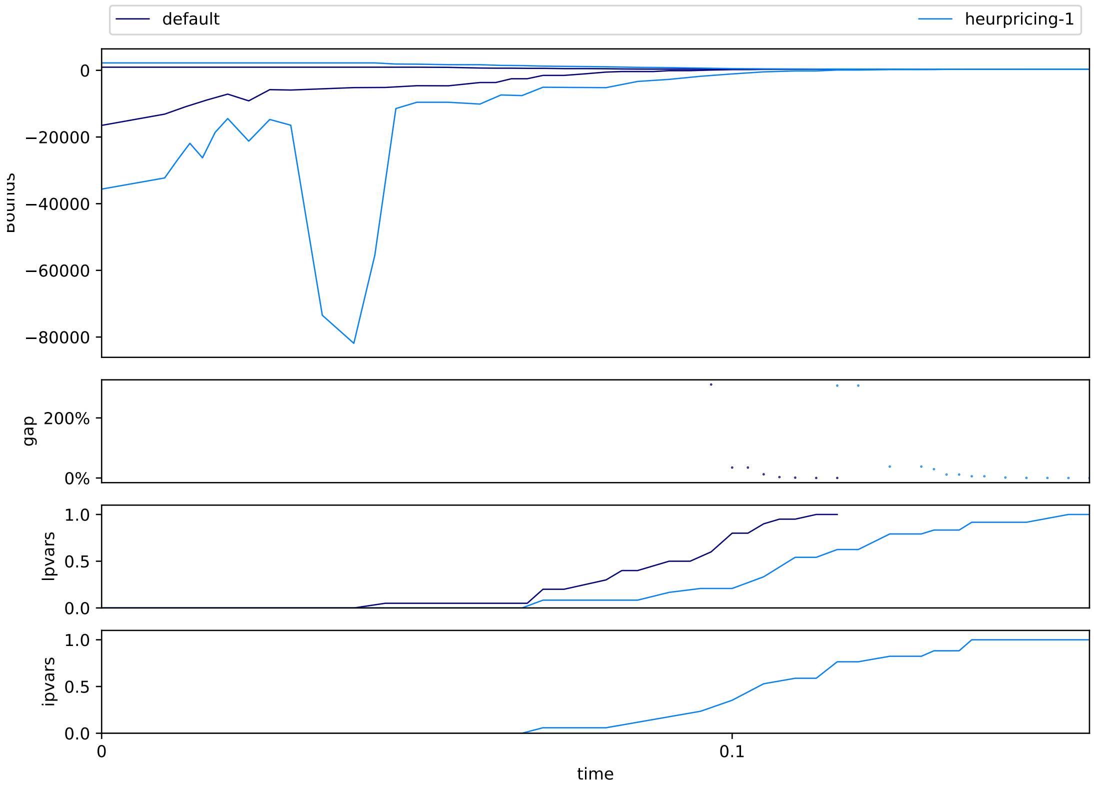

Figure 22: The top subplot shows the development of the primal and dual bounds in the RMP during the pricing in the root node as given by the table root bounds" printed by GCG. Every change represents a pricing iteration and the resulting changes to the bounds. The bounds are complemented by a gap plot. The other two subplots illustrate the point in time in the pricing at which the columns that are finally in the basis are generated.
Visualization Path: `plots/bounds/p1650-2.txt.compare.bounds_time.pdf`

5.9 Instance: p2050-1

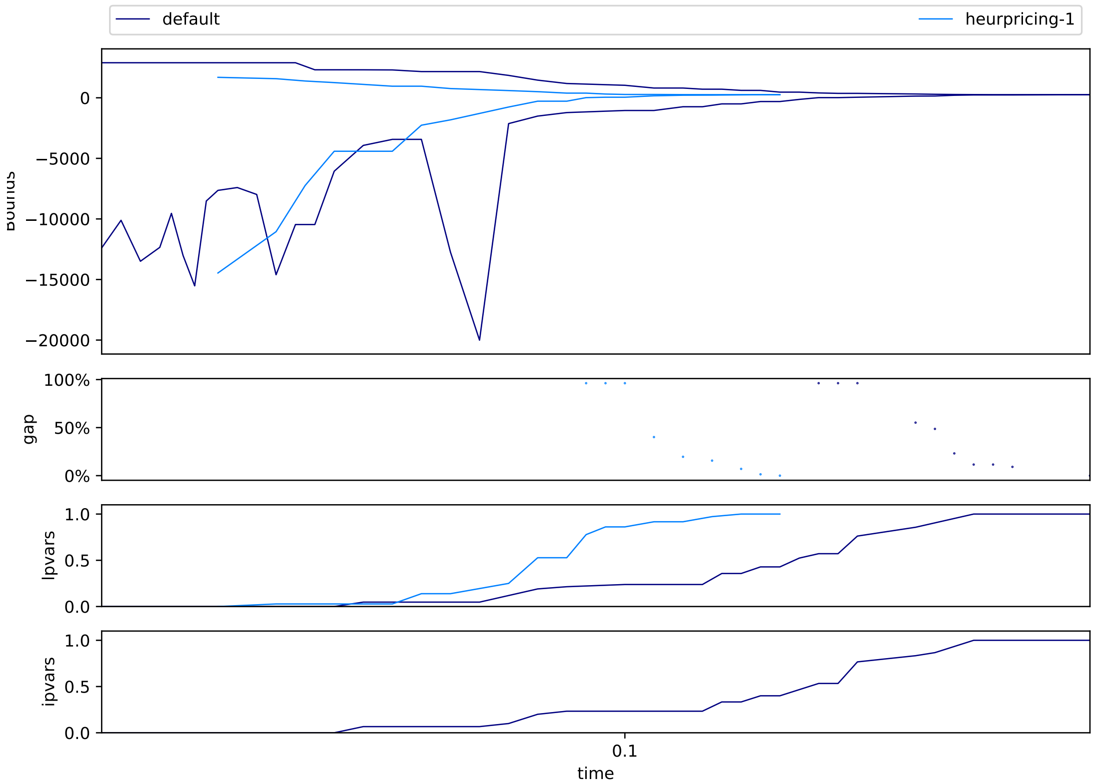

Figure 23: The top subplot shows the development of the primal and dual bounds in the RMP during the pricing in the root node as given by the table root bounds" printed by GCG. Every change represents a pricing iteration and the resulting changes to the bounds. The bounds are complemented by a gap plot. The other two subplots illustrate the point in time in the pricing at which the columns that are finally in the basis are generated.
Visualization Path: `plots/bounds/p2050-1.txt.compare.bounds_time.pdf`

5.10 Instance: TEST0055

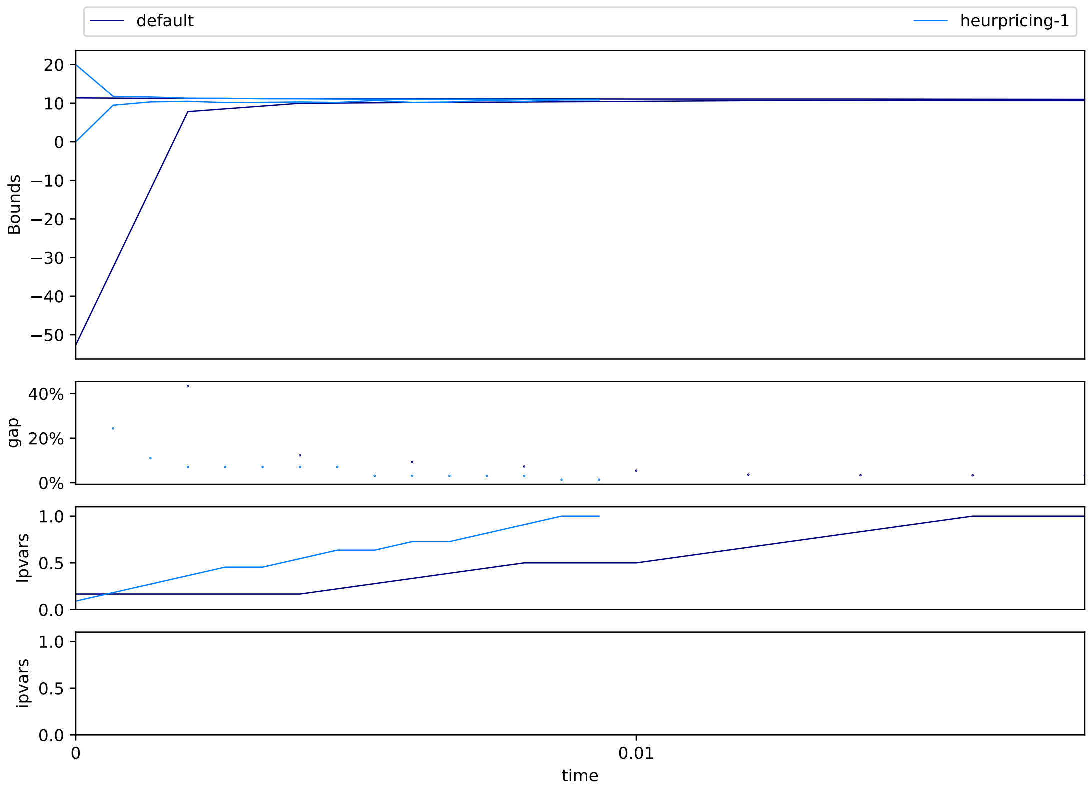

Figure 24: The top subplot shows the development of the primal and dual bounds in the RMP during the pricing in the root node as given by the table root bounds" printed by GCG. Every change represents a pricing iteration and the resulting changes to the bounds. The bounds are complemented by a gap plot. The other two subplots illustrate the point in time in the pricing at which the columns that are finally in the basis are generated.
Visualization Path: `plots/bounds/TEST0055.compare.bounds_time.pdf`

5.11 Instance: TEST0059

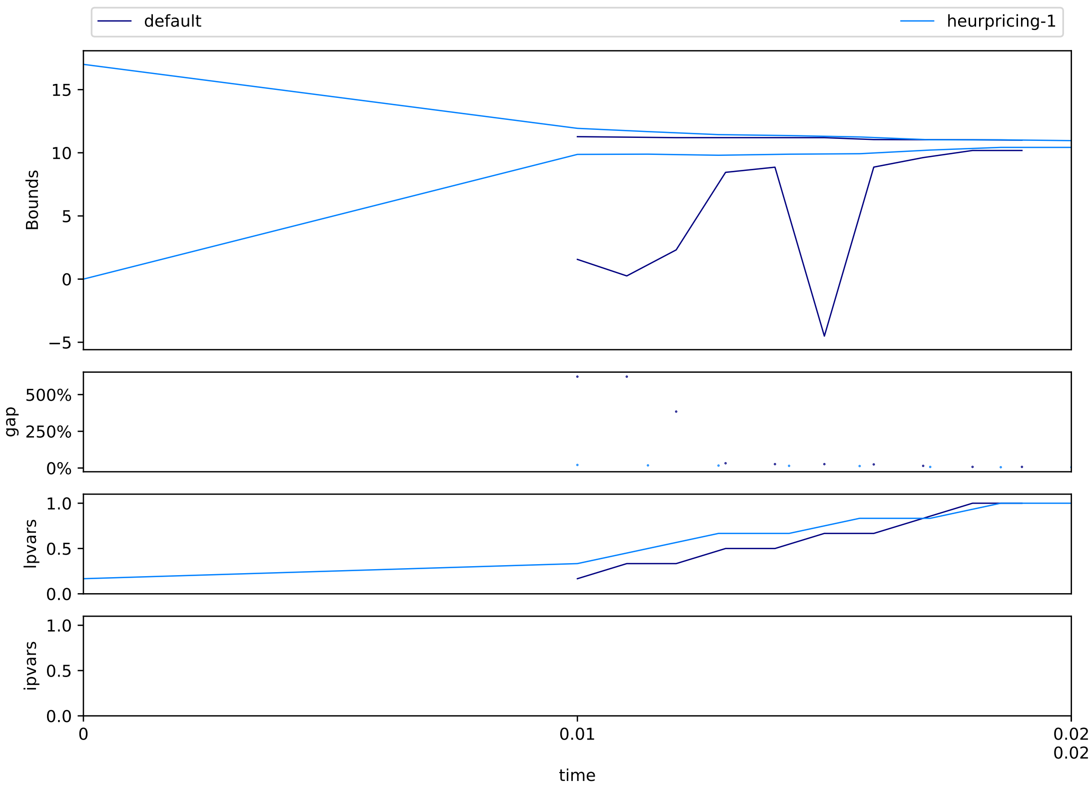

Figure 25: The top subplot shows the development of the primal and dual bounds in the RMP during the pricing in the root node as given by the table root bounds" printed by GCG. Every change represents a pricing iteration and the resulting changes to the bounds. The bounds are complemented by a gap plot. The other two subplots illustrate the point in time in the pricing at which the columns that are finally in the basis are generated.
Visualization Path: `plots/bounds/TEST0059.compare.bounds_time.pdf`