

On Weak Stubborn Sets in Classical Planning: Technical Report

Silvan Sievers¹ and Martin Wehrle

¹University of Basel

silvan.sievers@unibas.ch

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This technical report includes experimental data not included in the main paper. Figures 1 and 2 show the same comparison as Figure 2 of the paper but for the blind and LM-cut heuristics. Figure 3 compare GSSS with CSS without mutex-based interference in the atom-centric algorithm, which equal GWSS in this case. Table 1 provides coverage data for all methods which we tested, including the baseline, i.e., A* without pruning.

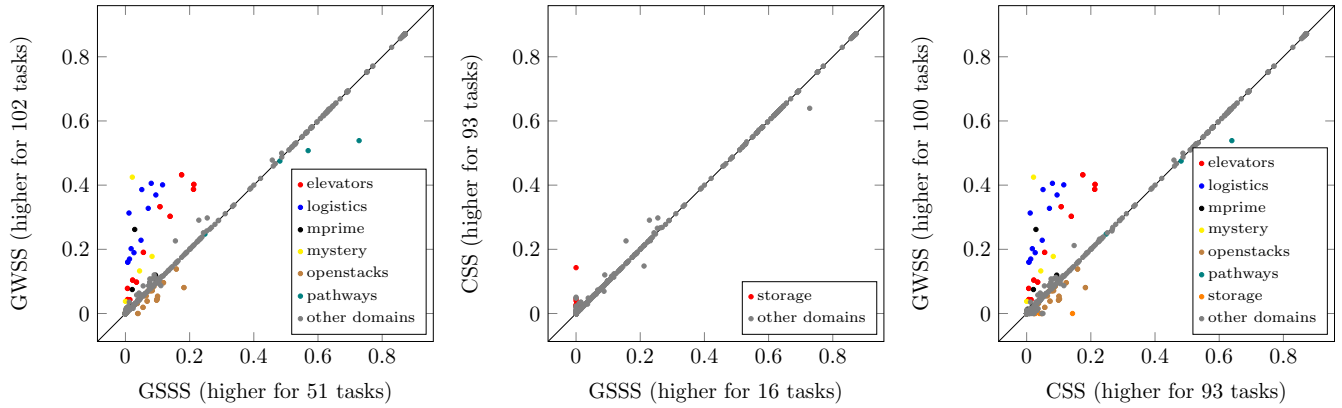


Figure 1: Pruning ratio of GSSS vs. GWSS (left), GSSS vs. CSS (middle), CSS vs. GWSS (right), all with the operator-centric algorithm and mutex-based interference except with CSS. Highlighted domains: difference of pruning ratio above 0.1. Heuristic: blind.

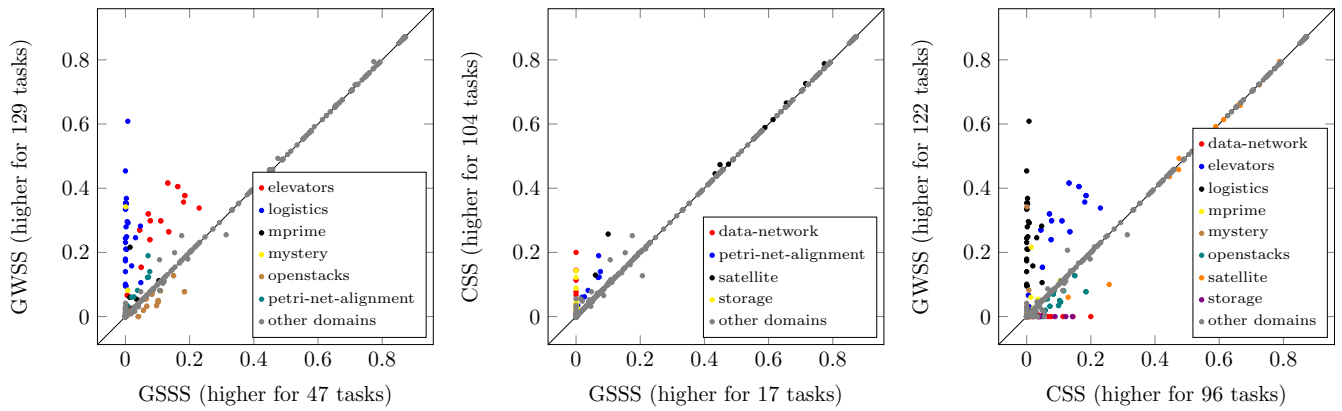


Figure 2: Pruning ratio of GSSS vs. GWSS (left), GSSS vs. CSS (middle), CSS vs. GWSS (right), all with the operator-centric algorithm and mutex-based interference except with CSS. Highlighted domains: difference of pruning ratio above 0.1. Heuristic: LM-cut.

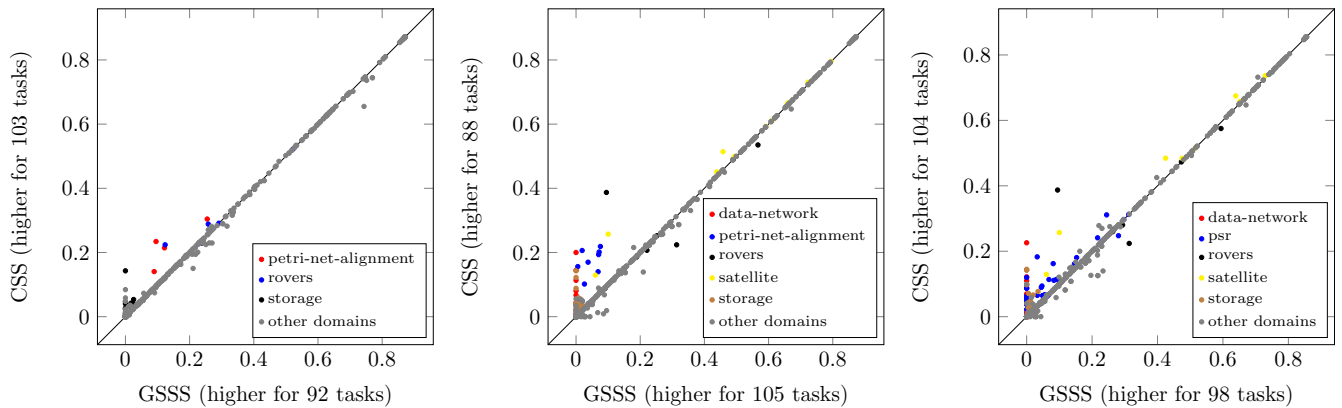


Figure 3: Pruning ratio of GSSS vs. CSS with the atom-centric algorithm, with the blind (left), LM-cut (middle), and SCP (right) heuristics. Highlighted domains: difference of pruning ratio above 0.1.

	blind						LM-cut					SCP						
	base	operator-GSSS	operator-CSS	operator-GWSSS	atom-GSSS	atom-CSS	base	operator-GSSS	operator-CSS	operator-GWSSS	atom-GSSS	atom-CSS	base	operator-GSSS	operator-CSS	operator-GWSSS	atom-GSSS	atom-CSS
airport (50)	22	21	21	21	21	21	28	28	28	28	28	28	28	29	28	27	28	29
data-network-opt18-strips (20)	7	6	6	6	7	7	12	12	12	12	12	12	14	14	13	14	14	14
elevators-opt08-strips (30)	14	15	14	15	15	15	22	22	22	22	22	22	25	25	25	25	25	25
elevators-opt11-strips (20)	12	13	12	13	13	13	18	18	18	18	18	18	19	19	19	19	19	19
freecell (80)	20	10	9	10	14	14	15	15	15	15	15	15	68	49	50	49	60	60
hiking-opt14-strips (20)	11	8	8	8	11	11	9	9	9	9	9	9	14	11	11	11	12	12
logistics00 (28)	10	10	10	10	10	10	20	21	20	21	21	21	24	24	24	24	24	24
logistics98 (35)	2	2	2	2	2	2	6	6	6	6	6	6	12	13	12	13	13	13
miconic (150)	55	50	50	50	55	55	141	141	141	141	141	141	145	143	144	144	145	144
mprime (35)	20	18	18	18	20	20	22	22	22	23	22	22	31	30	30	30	30	30
nomystery-opt11-strips (20)	8	7	7	7	8	8	15	14	14	14	15	15	20	20	20	20	20	20
openstacks-opt08-strips (30)	22	20	20	20	23	23	22	20	20	20	23	23	22	20	20	20	23	23
openstacks-opt11-strips (20)	17	15	15	15	18	18	17	15	15	15	18	18	17	15	15	15	18	18
openstacks-opt14-strips (20)	3	3	3	3	4	4	3	3	3	3	4	4	3	3	3	3	4	4
organic-synthesis-split-opt18-strips (20)	10	9	9	9	9	9	15	15	15	15	15	15	10	9	9	9	9	9
parcprinter-08-strips (30)	10	30	30	30	30	30	19	30	30	30	30	30	19	30	30	30	30	30
parcprinter-opt11-strips (20)	6	20	20	20	20	20	14	20	20	20	20	20	15	20	20	20	20	20
parking-opt11-strips (20)	0	0	0	0	0	0	3	3	3	3	3	3	7	4	4	3	7	7
parking-opt14-strips (20)	0	0	0	0	0	0	4	3	3	3	4	4	6	4	4	4	6	6
pathways (30)	4	4	4	4	4	5	5	5	5	5	5	5	5	5	5	5	5	5
pegsol-08-strips (30)	27	27	27	27	27	27	29	28	28	28	28	28	30	30	30	30	30	30
pegsol-opt11-strips (20)	17	17	17	17	17	17	19	18	18	18	18	18	20	20	20	20	20	20
petri-net-alignment-opt18-strips (20)	4	2	2	2	4	4	9	9	9	9	9	9	0	0	0	0	0	0
pipesworld-notankage (50)	17	14	14	14	15	16	18	17	17	17	18	18	24	24	24	24	24	24
pipesworld-tankage (50)	12	8	8	8	10	10	12	12	12	12	12	12	17	13	12	13	14	14
rovers (40)	6	7	7	7	7	7	8	10	10	10	10	10	8	9	9	9	9	9
satellite (36)	6	6	6	6	6	6	7	12	12	12	12	12	7	9	8	9	9	9
scanalyzer-08-strips (30)	12	8	8	8	9	9	16	14	14	14	15	15	18	16	16	16	18	18
scanalyzer-opt11-strips (20)	9	5	5	5	6	6	13	11	11	11	12	12	15	13	13	13	15	15
snake-opt18-strips (20)	11	4	4	4	9	9	7	6	6	6	7	7	13	7	7	7	11	11
spider-opt18-strips (20)	11	6	6	6	9	9	11	11	11	11	11	11	16	13	13	13	15	15
termes-opt18-strips (20)	10	6	6	6	10	10	6	5	5	5	5	5	13	11	11	11	13	13
tetris-opt14-strips (17)	9	6	6	6	7	7	6	6	6	6	6	6	11	9	9	9	10	10
tidybot-opt11-strips (20)	13	5	5	5	12	12	14	14	14	14	14	14	15	13	13	13	14	14
tidybot-opt14-strips (20)	6	0	0	0	4	4	9	8	8	8	8	8	10	5	5	5	9	9
transport-opt11-strips (20)	6	6	6	6	6	6	6	6	6	6	6	6	13	12	12	12	13	13
transport-opt14-strips (20)	7	6	6	6	6	6	6	6	6	6	6	6	9	8	8	8	8	8
trucks-strips (30)	6	6	5	6	6	6	6	10	10	10	10	10	13	12	12	12	12	12
woodworking-opt08-strips (30)	8	16	16	16	16	16	18	27	27	27	27	27	26	30	30	30	30	30
woodworking-opt11-strips (20)	3	10	10	10	10	10	12	19	19	19	19	19	19	20	20	20	20	20
zenotravel (20)	8	8	7	7	8	8	13	13	13	13	13	13	13	13	13	13	13	13
sum (1251)	461	434	429	433	488	490	659	684	683	685	697	697	814	774	771	772	819	819
other domains (576)	251	251	251	251	251	251	299	299	299	299	299	299	329	329	329	329	329	329
total (1827)	712	685	680	684	739	741	958	983	982	984	996	996	1143	1103	1100	1101	1148	1148

Table 1: Coverage, grouped in three blocks for the three heuristics. GWSS and GSSS with mutex-based interference when combined with the operator-centric algorithm. Other domains aggregates domains in which there is no pruning at all.