

Operator-Potential Heuristics for Symbolic Search: Additional Figures and Tables

Daniel Fišer^{1,2}, Álvaro Torralba³, Jörg Hoffmann¹

¹ Saarland University, Saarland Informatics Campus, Saarbrücken, Germany

² Czech Technical University in Prague, Faculty of Electrical Engineering, Czech Republic

³ Aalborg University, Denmark

danfis@danfis.cz, alto@cs.aau.dk, hoffmann@cs.uni-saarland.de

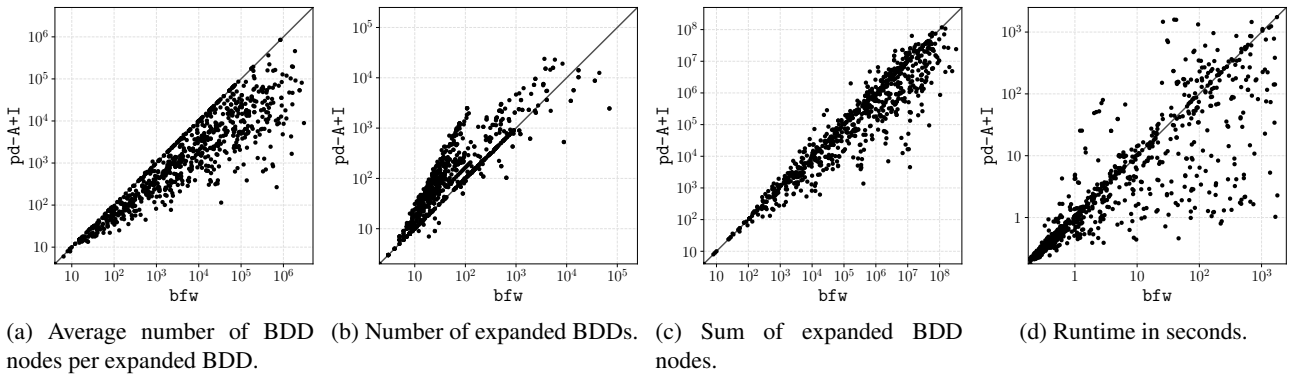


Figure 1: Comparison of symbolic forward uniform-cost search (bfw) against GHSETA* with the best-performing variant of the *path-dependent* operator-potential heuristic (A+I) on tasks that were solved by both variants.

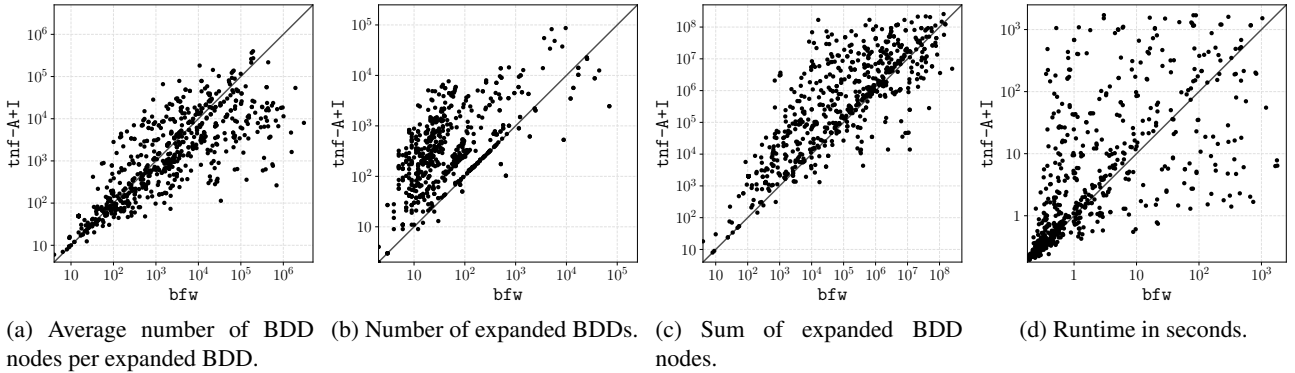


Figure 2: Comparison of symbolic forward uniform-cost search (bfw) against GHSETA* with the best-performing variant of the *consistent* operator-potential heuristic (A+I) for *transition norm form* on tasks that were solved by both variants.

	scrp	A+I	M ₂ +I	comp2	S _{1k} +I	pd-A+I	pd-M ₂ +I	pd-S _{1k} +I	bbi	pot _{A+I}	I	pd-I	bfw	lmc	ms	tnf-A+I	tnf-M ₂ +I	tnf-S _{1k} +I	tnf-I	tot
scrp	-	23	23	19	26	24	24	26	27	26	30	30	31	36	37	39	39	41	40	1112
A+I	13	-	7	17	17	9	13	21	24	26	28	30	33	37	36	37	38	39		1109
M ₂ +I	13	2	-	17	16	10	10	21	23	25	23	28	31	33	36	35	35	37	37	1103
comp2	16	16	18	-	23	18	20	25	22	27	25	27	32	33	38	37	37	38	39	1096
S _{1k} +I	13	3	6	16	-	9	11	14	22	22	22	25	29	29	35	34	34	36	38	1081
pd-A+I	12	2	5	16	15	-	6	17	22	22	23	26	27	30	32	34	34	36	37	1080
pd-M ₂ +I	12	1	1	16	14	0	-	15	21	22	21	25	27	30	31	34	34	36	37	1071
pd-S _{1k} +I	12	0	4	14	2	1	4	-	17	20	17	21	23	25	30	32	32	35	37	1038
bbi	14	14	14	12	16	15	17	19	-	23	20	21	23	24	29	31	31	34	35	1004
pot _{A+I}	5	9	9	13	14	11	11	16	18	-	19	20	23	24	22	29	29	34	33	1000
I	10	2	3	9	5	5	6	9	16	15	-	9	20	21	24	29	29	33	33	996
pd-I	9	2	2	8	5	0	2	7	14	14	2	-	18	19	22	29	28	31	33	966
bfw	10	7	6	7	9	7	8	11	7	17	10	11	-	17	22	28	27	30	31	936
lmc	2	4	5	6	8	8	10	13	13	14	15	18	20	-	21	28	28	32	34	901
ms	1	1	2	4	5	4	5	6	11	4	10	12	16	15	-	24	26	28	31	859
tnf-A+I	4	0	1	6	3	2	2	4	7	7	6	8	12	11	12	-	5	19	25	803
tnf-M ₂ +I	4	0	0	6	3	2	2	4	7	6	5	8	13	12	11	3	-	17	22	789
tnf-S _{1k} +I	3	0	0	5	0	2	2	3	7	2	4	6	10	8	10	2	5	-	18	765
tnf-I	3	0	0	4	2	2	2	3	4	3	0	2	7	8	8	0	0	7	-	695

Table 1: Summary of domain coverage. A value in row x and column y is the number of domains where x solved more tasks than y , it is bold if higher than the value in row y and column x . “tot” shows overall number of solved tasks. Highlighted rows correspond to GHSETA* with operator-potential heuristics.

Domain	GHSETA*																		
	consistent				path-dependent (pd-)				TNF (tnf-)				bfbw	bbi	lmc	ms	pot _{A+I}	comp2	scrp
	I	A+I	S _{1k} +I	M ₂ +I	I	A+I	S _{1k} +I	M ₂ +I	I	A+I	S _{1k} +I	M ₂ +I							
agricola18 (20)	19	16	14	19	18	18	16	18	0	0	0	0	17	19	0	4	3	10	6
airport04 (50)	27	27	27	25	27	27	26	25	20	22	22	20	23	26	27	21	35	28	39
barman11/14 (34)	15	14	14	14	11	11	11	11	0	0	0	0	16	16	8	11	11	15	11
blocks00 (35)	21	31	29	31	21	31	29	31	21	29	22	29	22	33	28	21	28	31	28
caldera18 (20)	17	17	17	16	18	18	17	17	4	6	4	6	18	18	12	12	12	15	13
cavediving14 (20)	7	7	7	7	7	7	7	7	0	0	0	0	7	8	7	7	7	7	7
childsnack14 (20)	4	5	5	5	4	4	4	4	0	0	0	0	4	4	0	0	0	2	0
data-network18 (20)	8	13	9	13	5	9	8	9	4	4	3	4	11	13	13	12	9	13	14
depot02 (22)	7	11	10	11	6	11	10	11	3	5	4	6	6	8	7	10	11	8	14
driverlog02 (20)	13	14	14	14	12	13	13	13	11	13	12	13	11	14	14	13	13	15	15
elevators08/11 (50)	35	35	35	35	35	35	35	35	18	18	20	18	35	43	40	31	31	44	44
floortile11/14 (40)	17	17	17	17	17	17	17	17	11	11	11	11	18	34	34	16	11	33	16
freecell00 (80)	42	68	68	67	42	68	68	67	34	66	64	63	20	27	15	20	72	31	72
ged14 (20)	15	15	18	15	15	15	15	15	15	15	15	15	15	20	19	15	15	20	20
gripper98 (20)	20	20	20	20	20	20	20	20	20	20	20	20	20	20	8	8	8	20	8
hiking14 (20)	14	15	15	15	14	15	15	15	10	11	11	11	16	18	11	14	14	20	15
logistics98/00 (63)	21	28	27	28	21	28	27	28	19	25	24	25	21	25	26	25	24	28	37
maintenance14 (5)	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
movie98 (30)	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
mprime98 (35)	27	30	28	30	27	30	28	30	15	18	17	18	27	16	25	23	24	24	31
mystery98 (30)	16	19	18	19	16	19	19	19	8	9	8	9	15	10	17	17	18	16	19
nomystery11 (20)	14	19	15	19	14	19	15	19	14	18	12	18	12	18	16	14	14	20	20
openstacks06-14 (100)	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91
organic-synth18 (20)	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
parcprinter08/11 (50)	47	48	46	47	36	39	32	38	47	48	46	47	40	36	39	41	47	43	50
parking11/14 (40)	0	13	13	13	0	13	13	13	0	13	13	13	0	6	9	2	16	5	16
pathways06 (30)	5	5	5	5	5	5	5	5	3	3	3	3	5	5	5	4	4	5	5
pegsol08/11 (50)	48	48	48	48	48	48	48	48	48	48	48	48	46	48	48	46	48	48	50
petri-net-align18 (20)	10	11	10	10	5	7	7	7	10	10	10	10	15	19	9	7	13	19	0
pipesw-notank04 (50)	22	25	26	22	22	25	25	22	10	11	11	11	17	16	18	23	30	25	26
pipesw-tank04 (50)	18	20	20	20	18	20	20	20	6	7	7	7	17	15	13	16	19	19	18
psr-small04 (50)	50	50	50	50	50	50	50	50	46	49	48	49	50	50	49	50	50	50	50
rovers06 (40)	13	14	14	14	13	14	14	14	6	7	7	7	14	14	9	7	8	13	10
satellite02 (36)	7	10	9	10	7	10	8	10	4	5	5	5	7	12	7	6	6	10	10
scanalyzer08/11 (50)	23	23	23	23	23	23	23	23	21	23	23	23	21	21	31	23	23	22	33
snake18 (20)	11	11	11	11	11	11	11	11	0	0	0	0	7	0	7	9	15	14	15
sokoban08/11 (50)	48	50	47	50	48	49	47	49	11	23	17	13	48	48	50	50	50	48	50
spider18 (20)	11	13	11	12	11	13	11	12	5	6	3	5	7	7	11	6	16	13	16
storage06 (30)	15	16	16	16	15	16	16	16	12	13	11	14	15	15	15	15	16	15	16
termes18 (20)	12	12	12	12	12	12	12	12	12	12	12	12	12	18	6	12	12	16	14
tetris14 (17)	13	16	16	16	13	16	16	16	8	9	8	10	9	11	9	11	17	13	13
tidybot11/14 (40)	28	34	30	34	32	34	24	34	1	1	1	1	28	10	30	31	32	39	35
tpp06 (30)	12	12	12	12	12	12	12	12	8	8	7	8	8	8	7	7	8	14	8
transport08/11/14 (70)	23	24	23	24	23	24	23	24	21	22	21	22	27	34	23	24	24	37	38
trucks06 (30)	16	16	14	16	16	16	13	16	16	16	14	16	13	13	13	10	14	15	17
visitall11/14 (40)	22	22	22	22	17	18	18	18	13	13	13	13	18	18	18	29	30	33	30
woodworking08/11 (50)	36	46	48	47	32	41	42	41	13	19	21	19	38	48	39	29	29	48	50
zenotravel02 (20)	11	13	12	13	11	13	12	13	11	11	11	11	9	11	11	11	11	13	13
Σ (1697)	996	1109	1081	1103	966	1080	1038	1071	695	803	765	789	936	1004	901	859	1000	1096	1112

Table 2: Number of solved tasks per domain and overall. The best results in each row are highlighted in bold.