

TABLE IV
DETAILED RESULTS BETWEEN FLS AND STATE-OF-THE-ART RESULTS ON INTERSECTION GRAPHS.

Instance	α	$k = 5$					$k = 10$					$k = 15$					$k = 20$				
		SOTA		FLS		#S	SOTA		FLS		#S	SOTA		FLS		#S	SOTA		FLS		#S
		f_b	t	f_b	t		f_b	t	f_b	t		f_b	t	f_b	t		f_b	t	f_b	t	
arc130	6	83	0.1	83	0.5	30															
ash219	29	7	26.0	7	0.1	30	16	43.4	16	2.5	30	26	435.9	26	2.2	30	34	263.9	34	18.0	16
ash331	30	8	24.7	8	0.6	30	21	534.4	21	3.8	30	*	<i>tl</i>	34	19.9	14	*	<i>tl</i>	45	18.2	2
ash85	14	22	219.9	22	3.8	30	*	<i>tl</i>	46	11.8	30										
bcspr01	13	7	0.4	7	0.0	30	16	3.6	16	0.0	30										
bcspr02	16	7	1.5	7	0.0	30	16	13.4	16	0.0	30	24	0.1	24	0.0	30					
bcspr03	32	10	175.0	10	1.4	30	23	45.0	23	9.0	30	35	474.1	35	6.5	30	46	230.5	47	21.6	21
bfw62a	8	22	2.3	22	0.3	30															
can_144	12	*	<i>tl</i>	45	0.0	30	*	<i>tl</i>	90	0.0	30										
can61	6	39	1.0	39	0.0	30															
can62	18	7	11.6	7	0.0	30	17	25.3	17	0.1	30	27	24.9	27	0.0	30					
can73	13	28	160.1	28	0.7	30	*	<i>tl</i>	52	0.1	30										
can96	10	*	<i>tl</i>	38	4.0	30	*	<i>tl</i>	72	0.0	30										
curtis54	9	16	9.7	16	0.0	30															
dwt_59	15	10	17.0	10	0.0	30	25	23.9	25	0.0	30	41	0.5	41	0.1	30					
dwt66	13	15	566.3	15	0.0	30	*	<i>tl</i>	35	0.0	30										
dwt72	24	7	6.4	7	0.0	30	16	28.2	16	5.8	30	26	163.4	26	2.5	30	36	436.9	36	0.0	30
dwt87	16	11	20.3	11	0.0	30	29	1994.2	29	3.1	30	54	16.7	54	0.3	30					
gre_115	33	12	998.3	12	0.4	30	24	3139.1	24	6.8	30	*	<i>tl</i>	38	23.2	24	*	<i>tl</i>	51	20.3	3
ibm32	8	16	0.7	16	0.0	30															
impcol_b	20	5	0.2	5	0.0	30	13	2.1	13	0.0	30	23	9.6	23	0.0	30	38	0.0	38	0.0	30
L100.cavity01	36	10	0.4	10	0.1	30	19	5.2	19	0.2	30	21	3.5	21	0.1	30	32	5.8	32	0.0	30
L100.fidap025	5	—	—	—	—	—															
L100.fidapm02	5	80	0.2	80	0.0	30															
L100.rbs480a	5	66	0.0	66	0.0	30															
L100.steam2	6	56	290.5	56	0.0	30															
L100.wm1	17	15	3.7	15	0.1	30	28	3.7	28	0.2	30	48	0.5	48	0.2	30					
L100.wm2	12	4	0.1	4	0.0	30	41	7.5	41	0.1	30										
L100.wm3	15	4	0.1	4	0.0	30	12	2.9	12	0.3	30	53	0.4	53	0.0	30					
L120.cavity01	36	10	0.7	10	0.3	30	21	9.9	21	0.1	30	23	6.6	23	0.2	30	32	7.2	32	0.2	30
L120.fidap022	5	87	0.1	87	0.0	30															
L120.fidap025	5	—	—	—	—	—															
L120.fidapm02	5	91	0.3	91	0.0	30															
L120.rbs480a	6	76	20.0	76	0.0	30															
L120.wm2	23	3	0.1	3	0.2	30	8	0.5	8	0.1	30	13	0.7	13	0.7	30	41	4.7	41	0.5	30
L125.ash608	37	8	26.5	8	1.1	30	*	<i>tl</i>	19	17.5	21	*	<i>tl</i>	30	18.3	3	*	<i>tl</i>	42	21.6	5
L125.bcsstk05	9	41	159.4	41	0.2	30															
L125.can_161	15	*	<i>tl</i>	36	24.8	21	*	<i>tl</i>	74	16.7	29	*	<i>tl</i>	102	0.1	30					
L125.can_187	20	*	<i>tl</i>	26	18.2	25	*	<i>tl</i>	54	14.2	27	*	<i>tl</i>	76	23.1	1	102	34.6	102	1.0	30
L125.dwt_162	16	*	<i>tl</i>	23	4.3	30	*	<i>tl</i>	50	20.1	2	*	<i>tl</i>	80	0.1	30					
L125.dwt_193	8	56	1271.7	56	2.4	30															
L125.fs_183_1	9	16	2.2	16	1.3	30															
L125.gre_185	19	27	3244.9	27	11.1	30	*	<i>tl</i>	59	27.4	4	*	<i>tl</i>	86	24.4	11					
L125.top163	17	*	<i>tl</i>	26	0.9	30	*	<i>tl</i>	59	9.7	30	*	<i>tl</i>	93	3.5	30					
L125.west0167	39	5	2.7	5	0.1	30	11	30.4	11	0.5	30	17	34.3	17	2.2	30	24	39.0	24	2.3	30
L125.will199	45	5	4.6	5	0.1	30	13	35.3	13	6.1	30	20	47.0	20	19.1	29	27	41.1	27	10.2	30
L80.cavity01	31	10	0.4	10	0.0	30	10	0.1	10	0.0	30	20	1.5	20	0.0	30	31	1.9	31	0.0	30
L80.fidap025	5	—	—	—	—	—															
L80.steam2	6	48	29.7	48	0.0	30															
L80.wm1	15	15	0.8	15	0.1	30	36	3.3	36	0.0	30	49	0.0	49	0.0	30					
L80.wm2	11	4	0.1	4	0.0	30	48	0.7	48	0.0	30										
L80.wm3	13	4	0.0	4	0.0	30	12	0.2	12	0.0	30										
lund_a	10	*	<i>tl</i>	55	26.5	20	*	<i>tl</i>	117	0.2	30										
pores_1	6	20	0.2	20	0.0	30															
rw136	39	7	37.2	7	0.6	30	*	<i>tl</i>	20	23.8	25	*	<i>tl</i>	34	20.7	10	*	<i>tl</i>	48	25.2	3
steam3	7	32	186.3	32	0.0	30															
west0067	12	20	144.6	20	0.0	30	*	<i>tl</i>	38	0.2	30										
west0132	39	5	12.8	5	0.2	30	12	34.7	12	7.0	30	21	39.6	21	2.6	30	29	169.4	29	12.9	30
will57	10	7	0.8	7	0.0	30	22	0.1	22	0.0	30										
#Wins					7	52				14	39				9	26				4	14
#Ties					49	2				25	0				18	1				11	1
#Loses					0	2				0	0				0	0				1	1

"*" indicates instances which can not solved by existing exact algorithm within the time limit (*tl*).

"—" denotes trivial instances, which have more than k connected components before or after preprocessing.

TABLE V
DETAILED RESULTS BETWEEN FLS AND STATE-OF-THE-ART RESULTS ON COLORING/DIMACS GRAPHS.

		$k = 5$					$k = 10$					$k = 15$					$k = 20$				
		SOTA		FLS			SOTA		FLS			SOTA		FLS			SOTA		FLS		
Instance	α	f_b	t	f_b	t	#S	f_b	t	f_b	t	#S	f_b	t	f_b	t	#S	f_b	t	f_b	t	#S
1-FullIn_3	14	7	0.2	7	0.0	30	11	0.1	11	0.0	30	18	21.4	18	0.1	30	22	5.8	22	0.1	30
1-FullIn_4	45	9	13.5	9	0.1	30	13	16.4	13	0.0	30	16	2.5	16	0.0	30	22	5.0	22	0.0	30
1-Inserti_4	32	7	3.0	7	0.0	30	12	2.8	12	0.0	30	16	0.7	17	0.0	30	23	0.5	23	0.0	30
2-FullIn_3	25	8	5.7	8	0.0	30	13	1.3	13	0.0	30	17	0.2	16	0.0	30	23	0.5	23	0.0	30
2-Inserti_3	18	6	0.5	6	0.0	30	10	0.3	10	0.0	30	16	0.2	16	0.0	30	23	0.5	23	0.0	30
2-Inserti_4	74	7	198.3	7	0.3	30	11	163.7	11	3.3	30	17	674.5	17	6.3	30	22	1159.8	22	18.2	30
3-FullIn_3	37	9	25.3	9	0.0	30	14	39.6	14	0.0	30	17	2.9	17	0.0	30	25	23.0	25	0.0	30
3-Inserti_3	27	6	0.8	6	0.0	30	11	1.7	11	0.0	30	16	2.6	16	0.0	30	21	2.8	21	0.0	30
4-FullIn_3	55	9	60.1	9	0.3	30	15	829.8	15	0.1	30	18	160.0	18	0.1	30	23	113.4	23	0.3	30
4-Inserti_3	39	6	2.2	6	0.0	30	11	13.7	11	0.1	30	16	19.1	16	0.4	30	21	15.8	21	0.7	30
5-FullIn_3	72	9	311.3	9	1.4	30	15	2161.9	15	10.6	30	19	247.3	19	1.7	30	22	72.3	22	0.8	30
anna	80	1	0.0	1	0.0	30	1	0.0	1	0.0	30	2	0.0	2	0.0	30	2	0.0	2	0.0	30
david	36	—	—	—	—	—	—	—	—	—	—	4	0.9	4	0.0	30	9	1.2	9	0.0	30
DSJC125.1	34	*	tl	21	16.8	30	*	tl	41	22.8	6	*	tl	56	25.9	17	*	tl	68	16.5	1
DSJC125.5	10	*	tl	102	0.2	30	115	0.0	115	0.0	30										
games120	22	*	tl	19	4.3	30	*	tl	39	19.8	27	*	tl	55	22.2	2	*	tl	67	3.8	30
huck	27	1	0.0	1	0.0	30	3	0.0	3	0.0	30	6	0.0	6	0.0	30	9	0.1	9	0.0	30
jean	38	1	0.0	1	0.0	30	1	0.0	1	0.0	30	2	0.0	2	0.0	30	4	0.0	4	0.0	30
miles1000	8	53	1307.7	53	8.3	30															
miles1500	5	115	0.0	115	0.0	30															
miles250	44	—	—	—	—	—	—	—	—	—	—	4	1.7	4	0.0	30	11	9.7	11	1.1	30
miles500	18	7	11.9	7	1.2	30	*	tl	25	2.4	30	*	tl	55	1.1	30					
miles750	12	20	359.6	20	1.0	30	75	3600.0	75	1.9	30										
mug100_1	33	5	1.2	5	0.0	30	10	8.3	10	0.3	30	15	17.6	15	1.9	30	20	23.9	20	12.6	28
mug100_25	33	5	1.2	5	0.0	30	10	8.7	10	0.7	30	15	5.7	15	11.0	29	20	17.8	20	10.9	11
mug88_1	29	4	0.9	4	0.1	30	9	2.4	9	0.7	30	15	5.8	15	0.0	30	20	11.5	20	0.0	30
mug88_25	29	4	0.1	4	0.0	30	9	2.2	9	0.0	30	14	5.3	14	0.0	30	19	1.0	19	0.1	30
multsol.i.2	90	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	18	0.1	18	0.4	30
multsol.i.3	86	—	—	—	—	—	—	—	—	—	—	18	0.1	18	0.3	30	19	0.3	19	0.4	30
multsol.i.4	86	—	—	—	—	—	—	—	—	—	—	18	37.1	18	0.5	30	19	0.3	19	0.4	30
multsol.i.5	88	—	—	—	—	—	—	—	—	—	—	18	0.2	18	0.4	30	19	0.4	19	0.6	30
myciel3	5	—	—	—	—	—															
myciel4	11	7	0.1	7	0.0	30	12	0.0	12	0.0	30										
myciel5	23	8	0.6	8	0.0	30	13	0.9	13	0.0	30	18	0.4	18	0.0	30	23	0.2	23	0.0	30
myciel6	47	9	6.3	9	0.1	30	14	18.6	14	0.1	30	19	16.3	19	0.1	30	24	20.0	24	0.0	30
myciel7	95	10	580.9	10	1.5	30	15	1733.4	15	1.8	30	20	1416.1	20	2.0	30	25	865.2	25	2.2	30
queen10_10	10	*	tl	70	0.4	30	90	0.2	90	0.0	30										
queen11_11	11	*	tl	81	5.9	30	*	tl	108	0.0	30										
queen12_12	12	*	tl	91	20.2	30	*	tl	126	9.6	11										
queen13_13	13	*	tl	103	27.7	11	*	tl	146	19.5	11										
queen14_14	14	*	tl	115	21.6	4	*	tl	168	23.5	8										
queen5_5	5	20	0.0	20	0.0	30															
queen6_6	6	28	1.4	28	0.0	30															
queen7_7	7	38	25.6	38	0.0	30															
queen8_12	8	*	tl	67	2.0	30															
queen8_8	8	48	411.6	48	0.0	30															
queen9_9	9	59	3078.7	59	0.1	30															
r125.1	49	—	—	—	—	—	—	—	—	—	—	1	0.0	1	0.0	30	5	0.2	5	0.0	30
r125.1c	7	116	0.1	116	0.0	30															
r125.5	5	91	364.2	91	0.1	30															
adjnoun	53	2	0.0	2	0.1	30	6	3.0	6	0.3	30	11	10.7	11	0.4	30	16	18.3	16	1.8	30
celegansne	110	1	0.0	1	0.1	30	1	0.0	1	0.3	30	2	0.1	2	1.3	30	6	11.2	6	13.9	30
chesapeake	17	7	0.2	7	0.0	30	12	0.5	12	0.0	30	17	0.1	17	0.0	30					
dolphins	28	2	0.0	2	0.0	30	7	0.5	7	0.0	30	13	0.8	13	0.0	30	19	2.6	19	0.0	30
football	21	*	tl	21	18.3	29	*	tl	43	27.2	4	*	tl	60	21.1	13	*	tl	71	12.3	8
jazz	40	4	0.7	4	1.4	30	12	269.7	12	9.8	30	25	82.9	25	18.0	25	*	tl	44	25.0	9
karate	20	2	0.0	2	0.0	30	4	0.0	4	0.0	30	6	0.0	6	0.0	30	11	0.0	11	0.0	30
lesmis	35	1	0.0	1	0.0	30	2	0.0	2	0.0	30	3	0.0	3	0.0	30	5	0.0	5	0.0	30
polbooks	43	8	67.1	8	0.2	30	15	388.3	15	1.2	30	19	50.7	19	1.1	30	25	38.1	25	1.8	30
#Wins				10	40				8	33				4	32				4	27	
#Ties				41	8				33	7				34	3				32	4	
#Loses				0	3				0	1				0	3				0	5	

"*" indicates instances which can not solved by existing exact algorithms within the time limit (tl), i.e., one hour.

"—" denotes trivial instances, which have more than k connected components before or after preprocessing.