

Appendix A – Detailed experimental results

Table A.1: Computational results on the CBMix instances.

Instance	τ	LB	B&C&P		MA		SA		Spider		MH		AILS	
			z	sec_{inc}	z	sec_{tot}	avg	z	sec_{tot}	z	sec_{inc}	z	sec_{inc}	z
CBMix1	48	2547	2569	21600.0	2632	108.3	2617.1	15.1	2589	1231.0	2587	1202.3	2585	1114.3
CBMix2	185	11487	-	21600.0	12336	1078.5	12322.4	661.4	12222	4156.0	12241	4858.4	11809	3599.6
CBMix3	79	3514	3684	21600.0	3702	157.0	3695.2	56.0	3767	6612.0	3643	3286.7	3614	1590.1
CBMix4	98	7300	7582	21600.0	7583	548.1	7728.5	76.1	7802	6744.0	7583	3165.3	7511	431.5
CBMix5	65	4387	5548	21600.0	4562	100.0	4685.3	41.5	4688	1349.0	4531	1179.7	4459	876.8
CBMix6	108	6738	7643	21600.0	7087	204.5	7101.4	98.0	7139	6687.0	6968	3587.6	6969	1203.7
CBMix7	168	9046	-	21600.0	9974	662.6	9704.8	351.7	9767	3205.0	9859	3805.0	9461	2802.5
CBMix8	177	9976	12114	21600.0	10714	767.6	10710.2	263.8	10689	1413.0	10658	3913.3	10318	1627.0
CBMix9	50	3837	4044	21600.0	4041	140.8	4132.4	12.5	4147	5517.0	4060	1817.2	4002	761.3
CBMix10	107	7343	7614	21600.0	7755	843.2	7763.2	108.3	7931	4665.0	7755	3065.4	7500	2908.4
CBMix11	82	4318	-	21600.0	4503	414.7	4599.6	49.8	4525	536.0	4561	2036.8	4487	787.9
CBMix12	53	3138	3138	2037.2	3235	71.3	3235.0	21.4	3235	14.0	*3138	500.6	*3138	634.0
CBMix13	141	8681	-	21600.0	9339	550.6	9270.6	312.8	9332	1427.0	9110	3877.2	8984	2823.1
CBMix14	93	8205	-	21600.0	8615	357.2	8769.3	65.3	8638	6404.0	8671	2726.0	8443	735.2
CBMix15	91	8013	8355	21600.0	8359	390.2	8385.3	97.3	8443	3553.0	8359	2489.1	8249	2585.2
CBMix16	169	8446	-	21600.0	9389	536.1	9024.3	445.5	9022	6754.0	8933	3924.3	8714	3141.2
CBMix17	63	3943	-	21600.0	4165	116.1	4107.6	43.0	4235	1271.0	4037	1476.3	4034	966.0
CBMix18	127	6856	7137	21600.0	7411	475.7	7214.6	278.4	7346	1994.0	7254	2593.4	7044	3028.9
CBMix19	212	15628	-	21600.0	17036	1273.4	16677.5	469.8	16692	5688.0	16554	5187.4	16244	1473.4
CBMix20	73	4647	5068	21600.0	4918	164.6	4902.9	50.7	4859	3501.0	4885	2104.0	4794	3322.4
CBMix21	180	17295	18201	21600.0	18509	1370.6	18318.3	530.4	18809	5322.0	18509	4623.4	17889	2961.2
CBMix22	42	1905	1941	21600.0	1941	65.8	1970.5	9.5	1941	492.0	1941	252.1	1941	0.3
CBMix23	20	780	*780	21600.0	*780	20.4	*780	2.7	*780	0.3	*780	43.8	*780	0.0
Sum/Avg.	2431	158030	167806	452.9	166936.0	176.6	167818	3414.6	166028	2683.3	162969	1711.9		
# Optima			1		1		1		1		2		2	
# Best			3		1		1		2		3		22	
# Unsolved			8		0		0		0		0		0	

Table A.2: Computational results on the BHW instances.

Instance	τ	LB	B&C&P ($sec_{tot}=21600$)		Spider ($sec_{tot}=7200$)		AILS ($sec_{tot}=3600$)	
			z	sec_{inc}	z	sec_{inc}	z	sec_{inc}
BHW1	29	337	*337	987.9	*337	6.0	*337	16.5
BHW2	29	470	*470	0.2	*470	36.0	*470	0.4
BHW3	20	415	*415	29.8	*415	18.0	*415	729.1
BHW4	50	240	*240	15.6	*240	1.0	*240	0.0
BHW5	162	502	-	21600.0	506	610.0	*502	129.5
BHW6	110	388	-	21600.0	*388	58.0	*388	4.8
BHW7	229	1047	-	21600.0	1104	6324.0	1074	3289.6
BHW8	117	665	-	21600.0	672	1801.0	668	2597.9
BHW9	178	858	-	21600.0	920	2431.0	875	1396.0
BHW10	142	8310	-	21600.0	8596	6205.0	8584	165.3
BHW11	71	4690	-	21600.0	5023	3012.0	4952	3473.2
BHW12	115	10605	-	21600.0	11042	6059.0	10906	1832.1
BHW13	175	13952	-	21600.0	14510	5723.0	14428	300.5
BHW14	221	24377	-	21600.0	25194	4584.0	24988	652.8
BHW15	128	15130	16929	21600.0	15564	6728.0	15354	1325.7
BHW16	410	42506	-	21600.0	44527	5747.0	43567	3545.0
BHW17	240	25570	-	21600.0	26768	6823.0	26116	3005.5
BHW18	194	14840	16774	21600.0	15833	5532.0	15318	2803.4
BHW19	107	9197	10942	21600.0	9480	3605.0	9397	1359.1
BHW20	293	10730	-	21600.0	16625	6769.0	16162	1417.9
Sum/Avg.	3020	184829			198214	3603.6	194741	1402.2
# Optima			4		5		6	
# Best			4		5		20	
# Unsolved			13		0		0	

Table A.3: Computational results on the DI-NEARP instances.

Instance	τ	LB	Spider ($sec_{tot}=7200$)		AILS ($sec_{tot}=3600$)	
			z	sec_{inc}	z	sec_{inc}
DI-NEARP-n240-Q2k	240	16376	24371	4569.0	23947	303.0
DI-NEARP-n240-Q4k	240	14362	18352	4495.0	18184	1505.3
DI-NEARP-n240-Q8k	240	13442	15937	6421.0	15907	152.5
DI-NEARP-n240-Q16k	240	13116	14953	5274.0	14776	1125.7
DI-NEARP-n422-Q2k	422	11623	19133	6629.0	18943	3471.4
DI-NEARP-n422-Q4k	422	11284	15987	4524.0	15863	698.8
DI-NEARP-n422-Q8k	422	11220	14627	2925.0	14469	3169.2
DI-NEARP-n422-Q16k	422	11198	14357	4661.0	14366	2487.0
DI-NEARP-n442-Q2k	442	35068	52062	7091.0	50573	3328.6
DI-NEARP-n442-Q4k	442	33585	45906	6308.0	45297	672.0
DI-NEARP-n442-Q8k	442	32985	45395	5964.0	43422	743.3
DI-NEARP-n442-Q16k	442	32713	42797	6480.0	42883	841.9
DI-NEARP-n477-Q2k	477	19722	23124	5996.0	22956	1795.8
DI-NEARP-n477-Q4k	477	18031	20198	7006.0	19991	1592.7
DI-NEARP-n477-Q8k	477	17193	18561	2999.0	18490	910.9
DI-NEARP-n477-Q16k	477	16873	18105	4079.0	18078	3528.2
DI-NEARP-n699-Q2k	699	34101	59817	6993.0	58882	2956.4
DI-NEARP-n699-Q4k	699	26891	40473	7178.0	40384	1853.4
DI-NEARP-n699-Q8k	699	23302	30992	6095.0	30566	2973.5
DI-NEARP-n699-Q16k	699	21967	27028	3173.0	26872	2955.2
DI-NEARP-n833-Q2k	833	32435	56877	7135.0	56307	3555.9
DI-NEARP-n833-Q4k	833	29381	42407	6861.0	41162	3143.8
DI-NEARP-n833-Q8k	833	28453	35267	6940.0	34626	3488.3
DI-NEARP-n833-Q16k	833	28233	33013	4046.0	32644	3045.7
Sum/Avg.	12452	533554	729739	5576.8	719588	2095.8
# Optima			0		0	
# Best			2		22	

Table A.4: Computational results on the mggdb-0.25 instances.

Instance	τ	LB	B&C	B&C&P	B&C2		MH		AILS	
			z	z	$(sec_{tot}=21600)$		z	sec_{inc}	$(sec_{tot}=3600)$	
			z	z	z	sec_{inc}	z	sec_{inc}	z	sec_{inc}
mggdb-0.25-1	21	280	*280	*280	*280	30.4	*280	14.6	*280	0.0
mggdb-0.25-2	25	349	*349	352	*349	15.9	359	18.1	*349	12.5
mggdb-0.25-3	22	278	*278	*278	*278	23.5	286	15.1	*278	0.0
mggdb-0.25-4	18	289	*289	*289	*289	6.1	*289	14.6	*289	0.0
mggdb-0.25-5	24	394	*394	*394	*394	62.5	410	24.4	*394	0.0
mggdb-0.25-6	21	292	*292	*292	*292	2.7	295	15.1	*292	0.0
mggdb-0.25-7	20	290	*290	*290	*290	3.2	302	6.3	*290	0.0
mggdb-0.25-8	45	333	-	336	358	21600.0	351	90.4	336	17.0
mggdb-0.25-9	47	308	-	309	349	21600.0	316	82.6	310	27.6
mggdb-0.25-10	22	265	*265	*265	*265	2.7	*265	5.7	*265	0.1
mggdb-0.25-11	41	356	*356	*356	*356	230.6	369	36.8	*356	0.3
mggdb-0.25-12	22	459	*459	*459	*459	616.0	465	18.7	*459	0.1
mggdb-0.25-13	26	388	*388	*388	*388	5716.6	392	30.9	392	44.4
mggdb-0.25-14	20	107	*107	*107	*107	3.1	*107	3.7	*107	0.0
mggdb-0.25-15	20	55	*55	*55	*55	1.2	*55	11.0	*55	0.0
mggdb-0.25-16	25	98	*98	*98	*98	7.3	*98	7.6	*98	0.0
mggdb-0.25-17	25	71	*71	*71	*71	1.8	*71	12.0	*71	0.0
mggdb-0.25-18	32	144	*144	*144	*144	6.1	*144	45.7	*144	0.0
mggdb-0.25-19	10	53	*53	*53	*53	1.4	*53	9.3	*53	0.0
mggdb-0.25-20	20	116	*116	*116	*116	11.7	117	4.9	*116	0.9
mggdb-0.25-21	31	146	*146	*146	*146	27.9	*146	9.4	*146	0.1
mggdb-0.25-22	38	160	-	*160	*160	282.6	168	18.2	*160	27.6
mggdb-0.25-23	48	181	-	*181	*181	19325.6	186	27.6	*181	178.9
Sum/Average no "-"	445	4430	*4430	4433	*4430	356.4	4503	16.0	4434	2.5
Sum/Average all	623	5412	-	5419	5478	3025.2	5524	22.7	5421	13.4
# Optima			19	16	21		10		20	
# Best			19	18	21		10		21	
# Unsolved			4	0	0		0		0	

Table A.5: Computational results on the mggdb-0.30 instances.

Instance	τ	B&C		B&C&P	B&C2 ($sec_{tot}=21600$)		MH		AILS ($sec_{tot}=3600$)	
		LB	z	z	z	sec_{inc}	z	sec_{inc}	z	sec_{inc}
mggdb-0.30-1	21	273	*273	*273	*273	77.9	276	21.4	*273	0.0
mggdb-0.30-2	24	301	*301	*301	*301	11631.5	314	20.0	*301	0.3
mggdb-0.30-3	19	270	*270	*270	*270	17.2	278	15.9	*270	0.0
mggdb-0.30-4	18	260	*260	*260	*260	2.7	*260	25.5	*260	0.0
mggdb-0.30-5	25	388	*388	*388	*388	37.7	399	18.5	*388	0.1
mggdb-0.30-6	22	276	*276	*276	*276	56.8	*276	19.3	*276	0.0
mggdb-0.30-7	20	273	*273	*273	*273	810.1	277	25.0	*273	0.0
mggdb-0.30-8	46	329	-	331	364	21600.0	338	78.1	331	2.1
mggdb-0.30-9	46	281	-	*281	317	21600.0	284	82.7	*281	12.7
mggdb-0.30-10	22	242	*242	*242	*242	8.9	*242	20.8	*242	0.0
mggdb-0.30-11	43	387	*387	-	*387	250.8	399	31.1	*387	0.3
mggdb-0.30-12	21	467	*467	*467	*467	1586.1	472	11.2	*467	0.1
mggdb-0.30-13	24	483	486	*483	*483	20676.0	*483	33.0	*483	3.3
mggdb-0.30-14	17	101	*101	*101	*101	2.5	*101	9.3	*101	0.0
mggdb-0.30-15	19	44	*44	*44	*44	0.8	*44	3.8	*44	0.0
mggdb-0.30-16	24	105	*105	*105	*105	30.6	107	15.5	*105	1.4
mggdb-0.30-17	22	65	*65	*65	*65	1.4	67	4.3	*65	0.0
mggdb-0.30-18	30	144	*144	*144	*144	7.0	*144	9.4	*144	0.0
mggdb-0.30-19	10	51	*51	*51	*51	1.0	*51	6.2	*51	0.0
mggdb-0.30-20	18	94	*94	*94	*94	24.3	97	13.7	*94	0.0
mggdb-0.30-21	28	121	*121	*121	*121	24.9	122	20.8	*121	0.0
mggdb-0.30-22	37	153	-	*153	*153	13595.8	156	24.5	*153	0.2
mggdb-0.30-23	47	167	-	*167	*167	20184.6	171	9.0	171	84.1
Sum/Average no "-"	384	3958	3961	*3958	*3958	1941.6	4010	16.3	*3958	0.2
Sum/Average all	603	5275	-	-	5346	4877.4	5358	22.6	5281	4.6
# Optima			18	21	21		8		21	
# Best			18	22	21		8		22	
# Unsolved			4	1	0		0		0	

Table A.6: Computational results on the `mggdb-0.35` instances.

Instance	τ	LB	B&C	B&C&P	B&C2		MH		AILS	
			z	z	$(sec_{tot}=21600)$		z	sec_{inc}	$(sec_{tot}=3600)$	
			z	z	z	sec_{inc}	z	sec_{inc}	z	sec_{inc}
<code>mggdb-0.35-1</code>	21	252	*252	*252	*252	41.9	*252	21.3	*252	0.0
<code>mggdb-0.35-2</code>	22	284	*284	*284	*284	19.1	*284	16.2	*284	0.0
<code>mggdb-0.35-3</code>	20	243	*243	*243	*243	109.0	*243	18.1	*243	0.0
<code>mggdb-0.35-4</code>	17	242	*242	*242	*242	14.1	*242	25.3	*242	0.0
<code>mggdb-0.35-5</code>	23	309	*309	*309	*309	1056.1	317	26.2	*309	0.3
<code>mggdb-0.35-6</code>	21	262	*262	*262	*262	140.8	*262	13.6	*262	0.0
<code>mggdb-0.35-7</code>	22	272	*272	*272	*272	12.9	*272	19.8	*272	0.0
<code>mggdb-0.35-8</code>	38	315	-	316	337	21600.0	321	24.0	320	7.7
<code>mggdb-0.35-9</code>	45	265	-	266	292	21600.0	274	85.7	267	1.2
<code>mggdb-0.35-10</code>	24	268	*268	*268	*268	6.3	*268	18.9	*268	0.0
<code>mggdb-0.35-11</code>	41	303	*303	313	*303	255.6	313	26.7	*303	0.1
<code>mggdb-0.35-12</code>	20	461	*461	*461	*461	197.5	*461	13.4	*461	0.0
<code>mggdb-0.35-13</code>	24	417	*417	*417	*417	674.1	435	24.6	*417	33.4
<code>mggdb-0.35-14</code>	18	84	*84	*84	*84	45.2	85	10.1	*84	0.0
<code>mggdb-0.35-15</code>	18	44	*44	*44	*44	1.2	*44	7.0	*44	0.0
<code>mggdb-0.35-16</code>	22	75	*75	*75	*75	9276.6	*75	27.5	*75	0.0
<code>mggdb-0.35-17</code>	23	62	*62	*62	*62	2.6	*62	11.0	*62	0.0
<code>mggdb-0.35-18</code>	30	135	*135	*135	*135	12.4	137	9.7	*135	0.0
<code>mggdb-0.35-19</code>	9	51	*51	*51	*51	0.8	*51	4.4	*51	0.0
<code>mggdb-0.35-20</code>	20	96	*96	*96	*96	23.7	*96	3.8	*96	1.5
<code>mggdb-0.35-21</code>	28	120	*120	*120	*120	26.8	122	6.4	*120	0.1
<code>mggdb-0.35-22</code>	36	139	-	*139	*139	266.9	143	21.4	*139	0.2
<code>mggdb-0.35-23</code>	44	179	-	*179	194	21600.0	185	15.0	*179	71.4
Sum/Average no "-"	423	3980	*3980	3990	*3980	627.2	4021	16.0	*3980	1.5
Sum/Average all	586	4878	-	4890	4942	3347.1	4944	21.3	4885	5.0
# Optima			19	20	20		13		21	
# Best			19	22	20		13		21	
# Unsolved			4	0	0		0		0	

Table A.7: Computational results on the `mggdb-0.40` instances.

Instance	τ	LB	B&C	B&C&P ($sec_{tot}=10800$)		B&C2	MH		AILS ($sec_{tot}=3600$)	
			z	z	sec_{inc}	z	z	sec_{inc}	z	sec_{inc}
<code>mggdb-0.40-1</code>	19	279	*279	*279	93.0	-	*279	11.9	*279	0.0
<code>mggdb-0.40-2</code>	22	308	*308	*308	570.7	-	320	28.2	*308	0.4
<code>mggdb-0.40-3</code>	20	225	*225	*225	3.7	-	229	11.1	*225	0.1
<code>mggdb-0.40-4</code>	17	238	*238	*238	0.2	-	*238	20.4	*238	0.0
<code>mggdb-0.40-5</code>	22	344	*344	*344	2.8	-	346	18.8	*344	0.1
<code>mggdb-0.40-6</code>	19	270	*270	*270	10.4	-	281	10.3	*270	0.0
<code>mggdb-0.40-7</code>	19	282	*282	*282	10800.0	-	283	15.9	*282	0.0
<code>mggdb-0.40-8</code>	40	326	-	333	10800.0	-	340	73.9	331	0.4
<code>mggdb-0.40-9</code>	45	273	-	275	10800.0	-	285	34.5	275	1.1
<code>mggdb-0.40-10</code>	22	191	*191	*191	137.1	-	*191	14.5	*191	0.0
<code>mggdb-0.40-11</code>	38	277	283	294	10800.0	-	287	34.1	283	0.3
<code>mggdb-0.40-12</code>	19	412	*412	*412	3.6	-	*412	10.5	*412	0.0
<code>mggdb-0.40-13</code>	23	405	*405	*405	177.6	-	*405	9.6	*405	76.4
<code>mggdb-0.40-14</code>	18	62	*62	*62	0.5	-	*62	2.6	*62	0.0
<code>mggdb-0.40-15</code>	18	37	*37	*37	2.2	-	*37	12.2	*37	0.0
<code>mggdb-0.40-16</code>	21	84	*84	*84	25.9	-	*84	8.4	*84	0.0
<code>mggdb-0.40-17</code>	21	65	*65	*65	3.2	-	*65	1.6	*65	0.0
<code>mggdb-0.40-18</code>	27	119	*119	*119	10800.0	-	122	10.8	*119	0.0
<code>mggdb-0.40-19</code>	10	38	*38	*38	0.1	-	*38	7.3	*38	0.0
<code>mggdb-0.40-20</code>	19	94	*94	*94	5.4	-	*94	21.9	*94	0.1
<code>mggdb-0.40-21</code>	28	104	*104	*104	40.9	-	106	11.5	*104	0.0
<code>mggdb-0.40-22</code>	33	129	-	*129	116.5	-	132	12.8	*129	0.8
<code>mggdb-0.40-23</code>	42	160	-	*160	198.3	-	165	18.7	163	5.2
Sum/Average no ”-”	402	3834	3840	3851	1762.0	-	3879	13.8	3840	4.1
Sum/Average all	562	4722		4748	2408.4	-	4801	17.5	4738	3.7
# Optima			18	20		-	11		19	
# Best			19	21		-	11		22	
# Unsolved			4	0		-	0		0	

Table A.8: Computational results on the `mggdb-0.45` instances.

Instance	τ	LB	B&C	B&C&P ($sec_{tot}=10800$)		B&C2	MH		AILS ($sec_{tot}=3600$)	
			z	z	sec_{inc}	z	z	sec_{inc}	z	sec_{inc}
<code>mggdb-0.45-1</code>	17	259	*259	*259	2.0	-	*259	21.8	*259	0.0
<code>mggdb-0.45-2</code>	21	298	*298	*298	403.9	-	302	15.7	*298	0.0
<code>mggdb-0.45-3</code>	19	237	*237	*237	0.7	-	245	15.6	*237	0.0
<code>mggdb-0.45-4</code>	17	228	*228	*228	1.3	-	*228	25.6	*228	0.0
<code>mggdb-0.45-5</code>	21	350	*350	*350	4.0	-	357	23.5	*350	0.0
<code>mggdb-0.45-6</code>	18	218	*218	*218	1.5	-	225	15.4	*218	0.0
<code>mggdb-0.45-7</code>	20	243	*243	*243	968.3	-	*243	26.6	*243	0.0
<code>mggdb-0.45-8</code>	41	296	-	*296	3.5	-	312	23.2	*296	1.2
<code>mggdb-0.45-9</code>	41	277	-	*277	7207.2	-	287	40.9	*277	99.3
<code>mggdb-0.45-10</code>	22	214	*214	*214	30.6	-	*214	14.4	*214	0.0
<code>mggdb-0.45-11</code>	39	289	297	301	10800.0	-	310	29.3	297	0.7
<code>mggdb-0.45-12</code>	21	393	*393	*393	6.3	-	406	8.3	*393	0.0
<code>mggdb-0.45-13</code>	21	423	*423	*423	2.2	-	*423	16.9	429	8.7
<code>mggdb-0.45-14</code>	16	66	*66	*66	2.4	-	67	20.4	*66	0.0
<code>mggdb-0.45-15</code>	16	34	*34	*34	1.7	-	36	2.6	*34	0.0
<code>mggdb-0.45-16</code>	20	70	*70	*70	12.0	-	*70	1.1	*70	0.0
<code>mggdb-0.45-17</code>	21	53	*53	*53	5.5	-	*53	2.7	*53	0.0
<code>mggdb-0.45-18</code>	25	121	123	123	10800.0	-	123	30.7	123	0.0
<code>mggdb-0.45-19</code>	8	48	*48	*48	0.1	-	*48	4.6	*48	0.0
<code>mggdb-0.45-20</code>	16	78	*78	*78	2.3	-	*78	13.0	*78	0.0
<code>mggdb-0.45-21</code>	24	122	*122	*122	5.9	-	128	22.2	*122	1.2
<code>mggdb-0.45-22</code>	33	136	-	*136	121.5	-	139	17.7	*136	0.1
<code>mggdb-0.45-23</code>	39	144	-	*144	354.0	-	147	17.4	145	116.9
Sum/Average no ”-”	382	3744	3754	3758	1213.2	-	3815	16.3	3760	0.5
Sum/Average all	536	4597		4611	1336.4	-	4700	17.8	4614	9.9
# Optima			17	17		-	9		16	
# Best			19	22		-	10		21	
# Unsolved			4	0		-	0		0	

Table A.9: Computational results on the `mggdb-0.50` instances.

Instance	τ	LB	B&C	B&C&P ($sec_{tot}=10800$)		B&C2	MH		AILS ($sec_{tot}=3600$)	
			z	z	sec_{inc}	z	z	sec_{inc}	z	sec_{inc}
<code>mggdb-0.50-1</code>	18	214	*214	*214	7.5	-	*214	3.6	*214	0.0
<code>mggdb-0.50-2</code>	19	269	*269	*269	40.7	-	281	12.0	*269	0.0
<code>mggdb-0.50-3</code>	19	218	*218	*218	22.4	-	*218	5.8	*218	0.0
<code>mggdb-0.50-4</code>	15	219	*219	*219	0.5	-	*219	9.6	*219	0.0
<code>mggdb-0.50-5</code>	20	292	*292	*292	1.7	-	*292	3.1	*292	0.0
<code>mggdb-0.50-6</code>	17	276	*276	*276	9.4	-	*276	4.0	*276	0.0
<code>mggdb-0.50-7</code>	19	265	*265	*265	15.7	-	274	5.6	*265	0.0
<code>mggdb-0.50-8</code>	37	309	-	310	10800.0	-	310	29.3	310	4.0
<code>mggdb-0.50-9</code>	41	260	-	265	10800.0	-	270	42.9	265	2.1
<code>mggdb-0.50-10</code>	19	194	*194	*194	0.9	-	*194	2.0	*194	0.0
<code>mggdb-0.50-11</code>	38	267	275	-	10800.0	-	278	16.7	275	0.7
<code>mggdb-0.50-12</code>	19	445	*445	*445	8.5	-	*445	8.1	*445	0.0
<code>mggdb-0.50-13</code>	21	259	*259	*259	43.1	-	*259	3.8	261	10.8
<code>mggdb-0.50-14</code>	16	75	*75	*75	2.0	-	76	5.1	*75	0.0
<code>mggdb-0.50-15</code>	15	37	*37	*37	0.5	-	*37	1.2	*37	0.0
<code>mggdb-0.50-16</code>	19	66	*66	*66	14.7	-	*66	14.7	*66	0.2
<code>mggdb-0.50-17</code>	20	53	*53	*53	5.1	-	*53	1.0	*53	0.0
<code>mggdb-0.50-18</code>	25	117	121	121	10800.0	-	122	12.8	121	0.0
<code>mggdb-0.50-19</code>	8	44	*44	*44	0.3	-	*44	1.0	*44	0.0
<code>mggdb-0.50-20</code>	15	81	*81	*81	11.0	-	*81	3.5	*81	0.0
<code>mggdb-0.50-21</code>	24	86	*86	*86	54.3	-	88	4.7	*86	0.3
<code>mggdb-0.50-22</code>	31	123	-	*123	54.6	-	127	5.8	*123	12.1
<code>mggdb-0.50-23</code>	34	125	-	*125	203.9	-	*125	8.4	126	165.0
Sum/Average no "–"	328	3105	3214	3214	613.2	-	3239	5.6	3216	0.5
Sum/Average all	509	4189				-	4349	8.9	4315	8.5
# Optima			17	19		-	14		17	
# Best			19	22		-	15		21	
# Unsolved			4	1		-	0		0	

Table A.10: Computational results on the mgval-0.25 instances.

Instance	τ	B&C		B&C&P	B&C2 ($sec_{tot}=21600$)		MH		AILS ($sec_{tot}=3600$)	
		LB	z	z	z	sec_{inc}	z	sec_{inc}	z	sec_{inc}
mgval-0.25-1A	54	177	*177	-	*177	17.2	*177	5.8	*177	0.5
mgval-0.25-1B	47	217	*217	-	*217	41.9	*217	10.2	*217	18.0
mgval-0.25-1C	51	278	-	-	323	21600.0	335	72.1	292	948.9
mgval-0.25-2A	40	259	*259	-	*259	18.2	*259	6.7	*259	0.7
mgval-0.25-2B	48	336	*336	-	*336	53.0	*336	1672.9	*336	0.0
mgval-0.25-2C	48	479	-	-	512	21600.0	528	107.8	480	110.2
mgval-0.25-3A	44	89	*89	-	*89	16.0	*89	5.2	*89	0.0
mgval-0.25-3B	41	125	*125	-	*125	17.7	*125	797.4	*125	0.0
mgval-0.25-3C	41	153	*153	-	*153	106.1	161	54.8	*153	0.7
mgval-0.25-4A	89	514	*514	-	*514	582.5	*514	3684.5	*514	0.5
mgval-0.25-4B	96	537	*537	-	*537	1328.1	541	4286.7	*537	0.6
mgval-0.25-4C	100	525	*525	-	*525	14925.2	549	2466.2	*525	113.1
mgval-0.25-4D	96	675	-	-	778	21600.0	724	141.4	685	543.7
mgval-0.25-5A	92	485	*485	-	*485	482.3	*485	551.2	*485	1.1
mgval-0.25-5B	86	493	*493	-	*493	918.2	500	5591.1	*493	3.6
mgval-0.25-5C	93	584	*584	-	*584	722.3	599	994.6	*584	11.2
mgval-0.25-5D	85	635	-	-	741	21600.0	681	128.9	645	661.1
mgval-0.25-6A	67	274	*274	-	*274	47.9	*274	7.8	*274	0.3
mgval-0.25-6B	63	263	*263	-	*263	11665.0	*263	18.5	*263	6.1
mgval-0.25-6C	66	316	-	-	378	21600.0	337	21.0	324	19.5
mgval-0.25-7A	84	297	*297	-	*297	407.9	*297	38.9	*297	2.2
mgval-0.25-7B	85	355	*355	-	*355	2153.2	*355	7.7	*355	0.9
mgval-0.25-7C	85	374	-	-	437	21600.0	407	53.6	380	65.6
mgval-0.25-8A	88	510	*510	-	*510	384.1	*510	4348.8	*510	1.8
mgval-0.25-8B	84	423	*423	-	*423	1910.6	*423	3410.2	*423	1.0
mgval-0.25-8C	78	538	-	-	625	21600.0	591	1083.7	544	483.1
mgval-0.25-9A	122	371	*371	-	*371	669.0	*371	2405.3	*371	14.2
mgval-0.25-9B	112	358	*358	-	*358	20123.6	363	1587.6	*358	3.4
mgval-0.25-9C	119	361	365	-	365	21600.0	369	2495.2	368	130.4
mgval-0.25-9D	121	418	-	-	498	21600.0	478	291.7	427	263.2
mgval-0.25-10A	129	492	*492	-	*492	8200.5	*492	5793.9	*492	28.2
mgval-0.25-10B	123	528	*528	-	*528	19187.6	*528	4346.8	*528	63.0
mgval-0.25-10C	125	483	*483	-	*483	20129.2	501	3335.7	*483	18.5
mgval-0.25-10D	119	565.5	-	-	655	21600.0	616	698.0	568	23.2
Sum/Average no "-"	2072	9209	9213	-	9213	5045.5	9298	1917.0	9216	28.1
Sum/Average all	2669	13487.5		-	14160	9427.6	13995	1485.9	13561	104.1
# Optima			24	-	24		17		24	
# Best			25	-	25		17		33	
# Unsolved			9	-	0		0		0	

Table A.11: Computational results on the mgval-0.30 instances.

Instance	τ	B&C		B&C&P	B&C2 ($sec_{tot}=21600$)		MH		AILS ($sec_{tot}=3600$)	
		LB	z	z	z	sec_{inc}	z	sec_{inc}	z	sec_{inc}
mgval-0.30-1A	53	170	*170	-	*170	15.0	*170	5.5	*170	0.2
mgval-0.30-1B	47	194	*194	-	*194	146.6	*194	25.0	*194	18.3
mgval-0.30-1C	48	255	-	-	310	21600.0	280	17.9	280	816.3
mgval-0.30-2A	42	233	*233	-	*233	33.5	*233	2.9	*233	0.0
mgval-0.30-2B	49	347	*347	-	*347	140.7	*347	4080.4	*347	4.6
mgval-0.30-2C	45	489	-	-	534	21600.0	542	79.5	498	8.0
mgval-0.30-3A	46	105	*105	-	*105	73.9	*105	6.7	*105	0.6
mgval-0.30-3B	41	115	*115	-	*115	51.1	*115	49.1	*115	0.0
mgval-0.30-3C	41	149	153	-	153	21600.0	156	106.9	153	18.1
mgval-0.30-4A	87	477	*477	-	*477	2098.6	*477	5383.0	*477	453.2
mgval-0.30-4B	98	531	533	-	533	21600.0	537	3983.5	533	235.6
mgval-0.30-4C	98	492	498	-	498	21600.0	513	401.5	498	718.2
mgval-0.30-4D	94	652	-	-	765	21600.0	718	176.5	653	775.5
mgval-0.30-5A	86	445	*445	-	*445	509.5	*445	362.5	*445	3.1
mgval-0.30-5B	83	484	490	-	490	21600.0	492	3372.8	492	0.4
mgval-0.30-5C	87	549	551	-	551	21600.0	568	510.2	553	0.9
mgval-0.30-5D	86	612	-	-	736	21600.0	675	278.5	618	227.4
mgval-0.30-6A	66	252	*252	-	*252	139.8	*252	288.9	*252	0.3
mgval-0.30-6B	64	262	*262	-	*262	1425.9	268	34.7	263	0.4
mgval-0.30-6C	64	307	-	-	364	21600.0	339	24.3	322	27.6
mgval-0.30-7A	77	324	*324	-	*324	3197.5	*324	54.3	*324	4.5
mgval-0.30-7B	82	344	*344	-	*344	632.3	*344	18.8	*344	1.4
mgval-0.30-7C	85	347	-	-	388	21600.0	380	55.3	354	25.0
mgval-0.30-8A	88	431	*431	-	*431	1108.1	431	3482.7	*431	0.7
mgval-0.30-8B	83	400	*400	-	*400	9578.2	408	1229.5	*400	7.2
mgval-0.30-8C	75	510	-	-	590	21600.0	570	963.9	522	94.5
mgval-0.30-9A	118	357	*357	-	*357	21600.0	*357	65.3	*357	19.8
mgval-0.30-9B	110	348	*348	-	*348	12667.8	356	1985.0	*348	2.3
mgval-0.30-9C	112	335	*335	-	*335	20185.9	347	524.1	*335	8.4
mgval-0.30-9D	122	421.13	-	-	501	21600.0	475	674.0	434	148.9
mgval-0.30-10A	127	484	*484	-	*484	1986.7	*484	534.5	*484	282.2
mgval-0.30-10B	123	441	*441	-	*441	14180.1	*441	3577.3	*441	32.2
mgval-0.30-10C	125	475	478	-	476	21600.0	483	1711.8	476	12.1
mgval-0.30-10D	121	530.8	-	-	640	21600.0	575	309.2	539	996.9
Sum/Average no "-"	2033	8744	8767	-	8765	8774.8	8847	1271.9	8770	53.7
Sum/Average all	2625	12897.93		-	13593	12169.7	13401	1011.1	12990	145.4
# Optima			19	-	19		14		18	
# Best			24	-	25		15		31	
# Unsolved			9	-	0		0		0	

Table A.12: Computational results on the mgval-0.35 instances.

Instance	τ	B&C		B&C&P	B&C2 ($sec_{tot}=21600$)		MH		AILS ($sec_{tot}=3600$)	
		LB	z	z	z	sec_{inc}	z	sec_{inc}	z	sec_{inc}
mgval-0.35-1A	47	158	*158	-	*158	7.5	*158	1.1	*158	0.2
mgval-0.35-1B	48	192	*192	-	*192	313.0	*192	111.0	*192	2.7
mgval-0.35-1C	48	272	-	-	312	21600.0	284	98.2	289	733.3
mgval-0.35-2A	40	286	*286	-	*286	9.5	*286	9.0	*286	0.1
mgval-0.35-2B	46	326	*326	-	*326	577.0	*326	1300.6	*326	11.9
mgval-0.35-2C	45	482	-	-	520	21600.0	523	63.0	485	3.6
mgval-0.35-3A	43	84	*84	-	*84	14.7	*84	5.2	*84	0.1
mgval-0.35-3B	41	113	*113	-	*113	33.0	*113	365.4	*113	0.1
mgval-0.35-3C	40	150	*150	-	*150	21600.0	159	21.5	*150	0.6
mgval-0.35-4A	84	430	*430	-	*430	449.4	*430	4379.0	*430	0.2
mgval-0.35-4B	90	529	531	-	531	21600.0	531	2465.9	531	0.4
mgval-0.35-4C	93	516	*516	-	*516	13985.6	553	116.8	*516	151.0
mgval-0.35-4D	96	640.5	-	-	729	21600.0	661	107.7	643	653.4
mgval-0.35-5A	82	454	*454	-	*454	2396.5	*454	3566.1	455	1.9
mgval-0.35-5B	81	467	*467	-	*467	21600.0	468	2464.5	*467	908.3
mgval-0.35-5C	82	586	*586	-	*586	21600.0	595	3801.8	*586	508.2
mgval-0.35-5D	80	568	-	-	658	21600.0	648	99.4	588	576.4
mgval-0.35-6A	64	248	*248	-	*248	126.4	*248	25.1	*248	0.8
mgval-0.35-6B	62	250	*250	-	*250	717.6	*250	10.2	*250	0.3
mgval-0.35-6C	60	303	-	-	372	21600.0	326	16.9	312	140.2
mgval-0.35-7A	78	264	*264	-	*264	134.3	*264	7.1	*264	1.1
mgval-0.35-7B	79	325	*325	-	*325	1756.4	*325	19.0	*325	1.2
mgval-0.35-7C	82	336	-	-	390	21600.0	351	63.5	*336	31.4
mgval-0.35-8A	84	415	*415	-	*415	296.0	*415	2834.7	*415	0.1
mgval-0.35-8B	78	385	*385	-	*385	999.0	*385	420.5	*385	3.7
mgval-0.35-8C	75	487	-	-	602	21600.0	547	142.0	499	281.6
mgval-0.35-9A	116	324	*324	-	*324	21600.0	*324	397.2	*324	6.9
mgval-0.35-9B	106	331	332	-	*331	12717.9	332	2998.6	*331	662.3
mgval-0.35-9C	115	328	329	-	329	21600.0	338	524.4	*328	172.0
mgval-0.35-9D	115	422	-	-	491	21600.0	473	528.9	430	485.7
mgval-0.35-10A	122	475	*475	-	*475	7015.3	*475	5105.4	479	32.1
mgval-0.35-10B	118	461	*461	-	*461	9490.7	463	3345.8	*461	3.9
mgval-0.35-10C	122	428	431	-	431	21600.0	448	3135.5	430	198.2
mgval-0.35-10D	114	519	-	-	594	21600.0	566	935.2	524	251.0
Sum/Average no "-"	1961	8525	8532	-	8531	8089.6	8616	1497.3	8534	78.5
Sum/Average all	2533	12554.5		-	13109	11665.9	12995	1161.4	12640	171.3
# Optima			21	-	22		16		22	
# Best			22	-	23		18		31	
# Unsolved			9	-	0		0		0	

Table A.13: Computational results on the mgval-0.40 instances.

Instance	τ	LB	B&C ($sec_{tot}=10800$)		z	z	MH		AILS ($sec_{tot}=3600$)	
			z	sec_{inc}			z	sec_{inc}	z	sec_{inc}
mgval-0.40-1A	48	165	*165	1.3	-	-	*165	4.7	*165	7.3
mgval-0.40-1B	43	196	*196	1415.0	-	-	*196	192.4	*196	0.1
mgval-0.40-1C	46	-	-	-	-	-	272	307.8	263	28.2
mgval-0.40-2A	38	222	*222	1.7	-	-	*222	1.2	*222	0.1
mgval-0.40-2B	49	311	*311	1506.0	-	-	*311	886.7	*311	0.0
mgval-0.40-2C	43	-	-	-	-	-	485	63.0	469	1.2
mgval-0.40-3A	41	86	*86	0.4	-	-	*86	3.4	*86	0.1
mgval-0.40-3B	40	110	*110	7.3	-	-	*110	5.3	*110	0.3
mgval-0.40-3C	38	120	148	21600.0	-	-	157	52.2	148	0.9
mgval-0.40-4A	82	400	*400	11152.6	-	-	*400	2079.0	*400	2.2
mgval-0.40-4B	89	395	423	21600.0	-	-	423	254.3	423	0.8
mgval-0.40-4C	89	424	462	21600.0	-	-	487	692.4	462	65.3
mgval-0.40-4D	88	-	-	-	-	-	669	49.1	624	27.8
mgval-0.40-5A	82	426	*426	195.3	-	-	*426	592.6	*426	1.1
mgval-0.40-5B	77	402	424	21600.0	-	-	428	997.9	424	3.8
mgval-0.40-5C	84	488	524	21600.0	-	-	539	879.4	527	3.5
mgval-0.40-5D	79	-	-	-	-	-	665	143.3	614	402.9
mgval-0.40-6A	61	224	*224	150.2	-	-	*224	23.8	*224	11.0
mgval-0.40-6B	58	211	*211	858.3	-	-	*211	13.0	*211	2.1
mgval-0.40-6C	62	-	-	-	-	-	316	12.3	312	1.9
mgval-0.40-7A	76	271	*271	956.9	-	-	*271	26.8	*271	3.1
mgval-0.40-7B	77	270	*270	1609.0	-	-	*270	9.9	*270	1.0
mgval-0.40-7C	80	-	-	-	-	-	336	29.2	332	516.9
mgval-0.40-8A	80	393	*393	4331.6	-	-	*393	3340.8	*393	10.5
mgval-0.40-8B	77	356	371	21600.0	-	-	372	204.2	372	1.9
mgval-0.40-8C	72	-	-	-	-	-	573	102.6	517	767.9
mgval-0.40-9A	114	337	341	21600.0	-	-	341	3573.3	341	7.8
mgval-0.40-9B	105	319	327	21600.0	-	-	331	2582.9	327	6.7
mgval-0.40-9C	104	280	295	21600.0	-	-	301	308.2	295	144.1
mgval-0.40-9D	116	-	-	-	-	-	414	306.9	383	283.0
mgval-0.40-10A	118	406	*406	5107.9	-	-	*406	5247.4	*406	10.2
mgval-0.40-10B	113	431	433	21600.0	-	-	439	4934.1	433	11.5
mgval-0.40-10C	114	417	432	21600.0	-	-	435	1482.2	434	21.5
mgval-0.40-10D	112	-	-	-	-	-	521	315.9	484	54.4
Sum/Average no "-"	1897	7660	7871	10595.7	-	-	7944	1139.5	7877	9.3
Sum/Average all	2458				-	-	12195	875.5	11875	70.7
# Optima			14		-	-	14		14	
# Best			25		-	-	16		31	
# Unsolved			9		-	-	0		0	

Table A.14: Computational results on the mgval-0.45 instances.

Instance	τ	LB	B&C ($sec_{tot}=10800$)		B&C&P z	B&C2 z	MH		AILS ($sec_{tot}=3600$)	
			z	sec_{inc}			z	sec_{inc}	z	sec_{inc}
mgval-0.45-1A	47	168	*168	7.1	-	-	*168	5.5	*168	0.3
mgval-0.45-1B	41	166	*166	3.2	-	-	*166	10.9	*166	1.4
mgval-0.45-1C	44	-	-	-	-	-	313	61.5	258	237.6
mgval-0.45-2A	38	251	*251	0.5	-	-	*251	2.1	*251	0.0
mgval-0.45-2B	46	314	*314	1312.0	-	-	*314	595.2	*314	120.8
mgval-0.45-2C	44	-	-	-	-	-	496	56.2	462	341.9
mgval-0.45-3A	41	82	*82	4.8	-	-	*82	5.3	*82	0.0
mgval-0.45-3B	39	91	*91	3.2	-	-	*91	24.7	*91	0.2
mgval-0.45-3C	38	122	143	21600.0	-	-	143	24.0	143	0.3
mgval-0.45-4A	80	381	*381	1198.9	-	-	*381	1668.4	*381	702.6
mgval-0.45-4B	91	423	471	21600.0	-	-	481	523.3	471	1.4
mgval-0.45-4C	85	434	481	21600.0	-	-	508	418.3	481	2.8
mgval-0.45-4D	87	-	-	-	-	-	626	87.6	577	542.4
mgval-0.45-5A	78	378	391	21600.0	-	-	391	5679.8	392	1.8
mgval-0.45-5B	75	379	416	21600.0	-	-	416	1066.7	416	2.9
mgval-0.45-5C	79	445	492	21600.0	-	-	502	79.2	494	5.6
mgval-0.45-5D	76	-	-	-	-	-	612	121.8	552	307.2
mgval-0.45-6A	60	213	*213	528.5	-	-	*213	18.3	*213	0.3
mgval-0.45-6B	58	210	*210	892.7	-	-	*210	47.1	*210	3.5
mgval-0.45-6C	58	-	-	-	-	-	308	22.2	296	21.5
mgval-0.45-7A	73	261	*261	200.1	-	-	*261	29.5	*261	1.7
mgval-0.45-7B	77	290	294	21600.0	-	-	294	39.5	294	0.9
mgval-0.45-7C	76	-	-	-	-	-	347	33.5	337	14.6
mgval-0.45-8A	76	367	370	21600.0	-	-	370	1201.3	370	3.7
mgval-0.45-8B	72	341	360	21600.0	-	-	376	509.8	364	0.8
mgval-0.45-8C	65	-	-	-	-	-	535	70.7	504	142.8
mgval-0.45-9A	109	299	306	21600.0	-	-	306	5755.0	306	0.9
mgval-0.45-9B	100	311	323	21600.0	-	-	323	1517.4	323	6.6
mgval-0.45-9C	102	273	291	21600.0	-	-	306	1411.0	291	44.0
mgval-0.45-9D	108	-	-	-	-	-	403	430.8	387	434.1
mgval-0.45-10A	115	385	388	21600.0	-	-	388	5186.0	388	2.7
mgval-0.45-10B	108	390	399	21600.0	-	-	399	2682.5	399	7.2
mgval-0.45-10C	111	382	403	21600.0	-	-	418	780.9	403	14.5
mgval-0.45-10D	105	-	-	-	-	-	504	179.4	488	896.7
Sum/Average no "-"	1839	7356	7665	13126.0	-	-	7758	1195.7	7672	27.3
Sum/Average	2370				-	-	11902	892.5	11533	113.7
# Optima			10		-	-	10		10	
# Best			25		-	-	19		31	
# Unsolved			9		-	-	0		0	

Table A.15: Computational results on the mgval-0.50 instances.

Instance	τ	LB	B&C ($sec_{tot}=10800$)		B&C&P	B&C2	MH		AILS ($sec_{tot}=3600$)	
			z	sec_{inc}	z	z	z	sec_{inc}	z	sec_{inc}
mgval-0.50-1A	43	145	*145	-	21600.0	-	*145	1.9	*145	0.0
mgval-0.50-1B	42	170	*170	*170	459.5	-	*170	3.8	*170	0.3
mgval-0.50-1C	40	253	-	270	21600.0	-	*261	9.0	270	15.6
mgval-0.50-2A	38	248	*248	351	21600.0	-	*248	6.0	*248	0.0
mgval-0.50-2B	44	284	*284	-	21600.0	-	*284	226.1	*284	0.8
mgval-0.50-2C	40	453	-	473	21600.0	-	488	23.5	464	0.3
mgval-0.50-3A	40	75	*75	-	21600.0	-	*75	1.2	*75	0.3
mgval-0.50-3B	37	107	*107	-	21600.0	-	*107	66.2	*107	0.0
mgval-0.50-3C	36	137	*137	*137	9.8	-	139	6.8	*137	0.7
mgval-0.50-4A	78	350	*350	-	21600.0	-	*350	70.5	*350	2.8
mgval-0.50-4B	82	400	413	-	21600.0	-	419	361.2	414	71.9
mgval-0.50-4C	83	472	488	-	21600.0	-	512	360.9	488	96.5
mgval-0.50-4D	83	565	-	-	21600.0	-	613	145.2	587	772.3
mgval-0.50-5A	75	367	*367	-	21600.0	-	*367	919.8	*367	3.6
mgval-0.50-5B	73	365	378	-	21600.0	-	378	386.2	378	26.5
mgval-0.50-5C	74	449	459	-	21600.0	-	476	419.9	457	39.4
mgval-0.50-5D	72	527	-	551	21600.0	-	570	193.2	544	180.0
mgval-0.50-6A	53	210	*210	-	21600.0	-	*210	40.1	*210	0.8
mgval-0.50-6B	56	210	*210	-	21600.0	-	*210	21.0	*210	1.2
mgval-0.50-6C	55	281	-	-	21600.0	-	306	17.9	293	2.9
mgval-0.50-7A	74	248	*248	-	21600.0	-	*248	68.5	*248	0.3
mgval-0.50-7B	71	276	*276	-	21600.0	-	*276	36.1	*276	0.3
mgval-0.50-7C	74	306	-	-	21600.0	-	333	120.8	320	56.3
mgval-0.50-8A	74	386	388	-	21600.0	-	388	3230.1	388	2.6
mgval-0.50-8B	68	343	350	-	21600.0	-	356	573.3	350	101.6
mgval-0.50-8C	63	485	-	502	21600.0	-	535	381.4	501	199.5
mgval-0.50-9A	105	306	*306	-	21600.0	-	*306	10.3	*306	110.7
mgval-0.50-9B	97	267	278	-	21600.0	-	278	2599.2	278	256.8
mgval-0.50-9C	100	283	301	-	21600.0	-	303	663.7	293	388.9
mgval-0.50-9D	103	349	-	-	21600.0	-	408	213.1	361	40.0
mgval-0.50-10A	109	378	385	-	21600.0	-	385	5717.7	385	385.1
mgval-0.50-10B	110	364	369	-	21600.0	-	371	2474.8	369	18.8
mgval-0.50-10C	108	396	406	-	21600.0	-	416	675.0	406	160.8
mgval-0.50-10D	110	436	-	-	21600.0	-	492	403.8	456	632.5
Sum/Average no "-"	1770	7236	7348			-	7417	757.6	7339	49.1
Sum/Average all	2285	10891				-	11423	601.4	11135	105.0
# Optima			14	2		-	13		14	
# Best			23	2		-	18		32	
# Unsolved			9	28		-	0		0	

Appendix B – New best known solution for D151-14c

Route 1: 26 113 114 99 43 86 97 98

Route 2: 63 17 147 92 42 93 65 107 44 137 37

Route 3: 68 132 24 96 95 25 58 14 133 110 18

Route 4: 5 10 54 39 89 117 73 106 125 122

Route 5: 11 126 16 127 53 129 29 79 21 118 50 130 78

Route 6: 145 150 64 88 40 136 13 67 134 55

Route 7: 77 119 1 120 80 28 31 82 140 8 60 81

Route 8: 38 62 9 34 74 75 105 30 104 49 76

Route 9: 142 87 148 141 19 94 41 66 111 135 143 109

Route 10: 12 144 4 149 146 56 47 139

Route 11: 103 90 71 123 124 33 72 91 45 15 52 108

Route 12: 32 22 70 116 3 59 20 131 83 2 100

Route 13: 51 101 121 115 36 85 35 84 128

Route 14: 27 138 48 112 61 7 69 23 57 6 102 46

Total distance: 1158.41