

Supplement to “SA-ILS: Hybrid Algorithm for the Team Orienteering Problem with Time Windows”

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1 Detailed Solutions

The detailed solution values obtained by our proposed algorithm, SA-ILS, are presented. Table 1 summarizes the details of the benchmark instances. [1] classified the first two instance sets as the “INST-M” category while the last one is classified into the “OPT” category.

Table 1: Benchmark instances.

References	Instances	Names	$ N $	m
[2]	Solomon Cordeau	$c^*_100, r^*_100, rc^*_100$ $pr01 - pr10$	100 [48, 288]	1 to 4
[3]	Solomon Cordeau	$c^*_200, r^*_200, rc^*_200$ $pr11 - pr20$	100 [48, 288]	1 to 4
[4]	Solomon Cordeau	$c^*_100, r^*_100, rc^*_100$ $c^*_200, r^*_200, rc^*_200$ $pr01 - pr10$	100 100 [48, 288]	up to number of vehicles

The performances of SA-ILS in solving the benchmark instances are compared to the state-of-the-art methods: Iterated Local Search (IterILS) [4], Ant Colony System (ACS) [3, 5], Slow Simulated Annealing (SSA) [6], Granular Variable Neighborhood Search (GVNS) [7], Iterative Three-Component Heuristic (I3CH) [1] and Iterated Local Search (ILS) [8, 9]. The algorithm proposed by [5] has been empirically shown to outperform the original ACS [3]. Here, we refer to the results of both papers, whichever is better. All results of above-mentioned algorithms have been summarized by [1], please refer to <http://www.computational-logistics.org/orlib/topic/TOPTW/> for the details. Here, we report the results of SA-ILS.

Tables 2, 3, 4 and 5 show the solution values obtained by SA-ILS on the instances from the two sets “Solomon 100” and “Solomon 200” with $m = 1, 2, 3$ and 4 respectively. The second column represents the best known solutions (*BKs*) among IterILS, ACS, SSA, GVNS and I3CH. Our SA-ILS was tested by performing 10 runs with different random seeds per each instance. We reported the best found (Max) and the average (Avg) objective function value obtained for each instance. The tables also report the average relative percentage deviation (*AG*), which is the percentage gap between *BK* and

the average obtained solution (Avg). We calculate the best relative percentage deviation (BG) that represents the percentage gap between BK and the best solution obtained (Max). Finally, the average of time spent to obtain the best found BK from 10 runs is also reported (Time (seconds)).

The solutions of instance sets "pr01-10" and "pr11-20" are given in Tables 6, 7, 8 and 9. Finally, tables 10, 11 and 12 report the results of "OPT" category.

Table 2: Detailed results of SA-ILS on Solomon's instances with $m = 1$.

Instance Set	BK	SA-ILS		BG (%)	AG (%)	Time (seconds)	Instance Set	BK	SA-ILS		BG (%)	AG (%)	Time (seconds)
		Max	Avg						Max	Avg			
c101	320	320	320	0.0	0.0	0.8	c201	870	870	870	0.0	0.0	43.7
c102	360	360	360	0.0	0.0	0.6	c202	930	930	929	0.0	0.1	97.0
c103	400	400	400	0.0	0.0	0.5	c203	960	960	960	0.0	0.0	43.6
c104	420	420	420	0.0	0.0	2.8	c204	980	980	971	0.0	0.9	66.6
c105	340	340	340	0.0	0.0	0.6	c205	910	910	910	0.0	0.0	82.7
c106	340	340	340	0.0	0.0	0.9	c206	930	930	929	0.0	0.1	92.9
c107	370	370	370	0.0	0.0	0.9	c207	930	930	930	0.0	0.0	56.2
c108	370	370	370	0.0	0.0	0.9	c208	950	950	950	0.0	0.0	63.9
c109	380	380	380	0.0	0.0	1.3							
r101	198	198	198	0.0	0.0	0.4	r201	797	792	786.2	0.6	1.4	247.4
r102	286	286	286	0.0	0.0	0.7	r202	930	922	906.6	0.9	2.5	265.8
r103	293	293	293	0.0	0.0	1.9	r203	1021	1020	1013.3	0.1	0.8	257.6
r104	303	303	303	0.0	0.0	1.3	r204	1086	1090	1082.7	-0.4	0.3	307.2
r105	247	247	247	0.0	0.0	12.3	r205	953	951	948.5	0.2	0.5	230.1
r106	293	293	293	0.0	0.0	0.7	r206	1029	1032	1018.4	-0.3	1.0	265.7
r107	299	299	299	0.0	0.0	4.6	r207	1072	1069	1059.8	0.3	1.1	296.3
r108	308	308	308	0.0	0.0	2.0	r208	1112	1115	1106	-0.3	0.5	294.9
r109	277	277	277	0.0	0.0	0.7	r209	950	955	946	-0.5	0.4	287.5
r110	284	284	284	0.0	0.0	3.9	r210	987	978	968.7	0.9	1.9	284.7
r111	297	297	297	0.0	0.0	29.6	r211	1046	1047	1033.6	-0.1	1.2	360.6
r112	298	298	298	0.0	0.0	12.7							
rc101	219	219	219	0.0	0.0	0.5	rc201	795	795	794.9	0.0	0.0	90.5
rc102	266	266	266	0.0	0.0	0.7	rc202	936	936	923.7	0.0	1.3	197.3
rc103	266	266	266	0.0	0.0	30.6	rc203	1003	994	981.3	0.9	2.2	138.7
rc104	301	301	301	0.0	0.0	1.3	rc204	1140	1133	1129.6	0.6	0.9	165.7
rc105	244	244	242.8	0.0	0.5	2.9	rc205	859	859	853.8	0.0	0.6	102.2
rc106	252	252	252	0.0	0.0	0.8	rc206	895	899	891.1	-0.4	0.4	180.2
rc107	277	277	277	0.0	0.0	1.6	rc207	983	977	954.4	0.6	2.9	146.2
rc108	298	298	298	0.0	0.0	0.4	rc208	1053	1051	1039.7	0.2	1.3	249.6

Table 3: Detailed results of SA-ILS on Solomon's instances with $m = 2$.

Instance Set	BK	SA-ILS		BG (%)	AG (%)	Time (seconds)	Instance Set	BK	SA-ILS		BG (%)	AG (%)	Time (seconds)
		Max	Avg						Max	Avg			
c101	590	590	590	0.0	0.0	5.7	c201	1460	1450	1444	0.7	1.1	95.1
c102	660	660	658	0.0	0.3	87.1	c202	1470	1470	1455	0.0	1.0	130.8
c103	720	720	720	0.0	0.0	37.6	c203	1480	1470	1458	0.7	1.5	117.2
c104	760	760	760	0.0	0.0	27.8	c204	1480	1490	1476	-0.7	0.3	123.2
c105	640	640	640	0.0	0.0	2.3	c205	1470	1470	1463	0.0	0.5	171.0
c106	620	620	620	0.0	0.0	3.3	c206	1480	1480	1470	0.0	0.7	151.5
c107	670	670	670	0.0	0.0	5.1	c207	1490	1480	1473	0.7	1.1	120.0
c108	680	680	680	0.0	0.0	3.2	c208	1490	1480	1475	0.7	1.0	86.7
c109	720	720	720	0.0	0.0	6.3							
r101	349	349	349	0.0	0.0	28.1	r201	1254	1241	1221.8	1.0	2.6	297.2
r102	508	508	508	0.0	0.0	11.9	r202	1347	1331	1312.2	1.2	2.6	284.2
r103	522	522	521.1	0.0	0.2	118.6	r203	1416	1406	1392.5	0.7	1.7	225.2
r104	552	552	549.1	0.0	0.5	128.4	r204	<i>1458</i>	1458	1448.5	0.0	0.7	287.1
r105	453	453	453	0.0	0.0	13.3	r205	1380	1379	1363.8	0.1	1.2	271.0
r106	529	529	529	0.0	0.0	5.9	r206	1440	1436	1418	0.3	1.5	230.7
r107	536	538	536.7	-0.4	-0.1	212.5	r207	<i>1458</i>	1456	1448	0.1	0.7	296.3
r108	560	560	559.4	0.0	0.1	50.3	r208	<i>1458</i>	1458	1458	0.0	0.0	257.7
r109	506	506	505.2	0.0	0.2	32.0	r209	1405	1404	1390	0.1	1.1	276.8
r110	525	525	524.8	0.0	0.0	92.5	r210	1423	1407	1392.4	1.1	2.2	270.6
r111	544	544	543.7	0.0	0.1	163.5	r211	<i>1458</i>	1452	1446.9	0.4	0.8	274.4
r112	544	544	543.9	0.0	0.0	147.2							
re101	427	427	427	0.0	0.0	1.9	re201	1384	1377	1368.3	0.5	1.1	217.1
re102	505	505	504.1	0.0	0.2	41.9	re202	1509	1503	1481.5	0.4	1.8	251.1
re103	524	524	523.6	0.0	0.1	143.3	re203	1632	1609	1576.3	1.4	3.4	247.9
re104	575	575	571.4	0.0	0.6	42.6	re204	1716	1694	1675.6	1.3	2.4	180.4
re105	480	480	480	0.0	0.0	2.0	re205	1458	1447	1423.6	0.8	2.4	238.9
re106	483	483	482.1	0.0	0.2	112.7	re206	1546	1546	1527.3	0.0	1.2	295.0
re107	534	534	533.1	0.0	0.2	71.5	re207	1587	1571	1550.6	1.0	2.3	189.1
re108	556	556	555.3	0.0	0.1	66.9	re208	1691	1689	1672.5	0.1	1.1	244.8

Table 4: Detailed results of SA-ILS on Solomon’s instances with $m = 3$.

Instance Set	BK	SA-ILS		BG (%)	AG (%)	Time (seconds)	Instance Set	BK	SA-ILS		BG (%)	AG (%)	Time (seconds)
		Max	Avg						Max	Avg			
c101	810	810	810	0.0	0.0	27.4	c201	1810	1810	1803	0.0	0.4	135.3
c102	920	920	919	0.0	0.1	73.3	c202	1810	1800	1782	0.6	1.5	199.3
c103	990	980	977	1.0	1.3	87.9	c203	1810	1780	1773	1.7	2.0	202.9
c104	1030	1030	1017	0.0	1.3	123.5	c204	1810	1800	1785	0.6	1.4	147.2
c105	870	870	867	0.0	0.3	68.9	c205	1810	1810	1798	0.0	0.7	134.3
c106	870	870	867	0.0	0.3	31.3	c206	1810	1810	1806	0.0	0.2	138.1
c107	910	910	910	0.0	0.0	95.2	c207	1810	1810	1802	0.0	0.4	122.8
c108	920	920	916	0.0	0.4	135.1	c208	1810	1810	1806	0.0	0.2	153.1
c109	970	970	963	0.0	0.7	39.0							
r101	484	484	483	0.0	0.2	67.2	r201	1458	1434	1423.5	0.5	1.2	203.8
r102	694	694	688.4	0.0	0.8	110.6	r202	1458	1458	1454.7	0.0	0.2	284.8
r103	747	739	733.7	1.1	1.8	108.7	r203	1458	1458	1458	0.0	0.0	49.9
r104	777	778	775.5	-0.1	0.2	143.7	r204	1458	1458	1458	0.0	0.0	62.9
r105	620	619	616.1	0.2	0.6	113.0	r205	1458	1458	1458	0.0	0.0	41.9
r106	729	729	722.4	0.0	0.9	163.0	r206	1458	1458	1458	0.0	0.0	75.0
r107	760	759	756.2	0.1	0.5	150.0	r207	1458	1458	1458	0.0	0.0	93.7
r108	797	797	797	0.0	0.0	114.1	r208	1458	1458	1458	0.0	0.0	94.6
r109	710	710	707.2	0.0	0.4	104.4	r209	1458	1458	1458	0.0	0.0	64.1
r110	737	736	731.5	0.1	0.7	59.1	r210	1458	1458	1458	0.0	0.0	51.4
r111	774	774	773	0.0	0.1	91.6	r211	1458	1458	1458	0.0	0.0	60.8
r112	776	776	771.3	0.0	0.6	70.8							
rc101	621	621	620	0.0	0.2	6.2	rc201	1698	1690	1676.8	0.5	1.2	153.8
rc102	714	714	711.3	0.0	0.4	85.8	rc202	1724	1724	1712.7	0.0	0.7	114.3
rc103	764	764	754	0.0	1.3	135.1	rc203	1724	1724	1724	0.0	0.0	64.9
rc104	834	835	830.9	-0.1	0.4	92.8	rc204	1724	1724	1724	0.0	0.0	88.4
rc105	682	682	681.6	0.0	0.1	10.9	rc205	1719	1709	1696.7	0.6	1.3	108.8
rc106	706	706	702.8	0.0	0.5	30.6	rc206	1724	1724	1724	0.0	0.0	36.5
rc107	773	773	769.5	0.0	0.5	76.7	rc207	1724	1724	1724	0.0	0.0	51.9
rc108	795	795	794.2	0.0	0.1	90.2	rc208	1724	1724	1724	0.0	0.0	44.8

Table 5: Detailed results of SA-ILS on Solomon’s instances with $m = 4$.

Instance Set	BK	SA-ILS		BG (%)	AG (%)	Time (seconds)	Instance Set	BK	SA-ILS		BG (%)	AG (%)	Time (seconds)
		Max	Avg						Max	Avg			
c101	1020	1020	1016	0.0	0.4	54.3	c201	1810	1810	1810	0.0	0.0	7.5
c102	1150	1150	1134	0.0	1.4	123.3	c202	1810	1810	1810	0.0	0.0	15.3
c103	1210	1190	1181	1.7	2.4	105.3	c203	1810	1810	1810	0.0	0.0	14.0
c104	1260	1250	1235	0.8	2.0	127.3	c204	1810	1810	1810	0.0	0.0	24.5
c105	1070	1060	1053	0.9	1.6	207.5	c205	1810	1810	1810	0.0	0.0	8.3
c106	1080	1080	1067	0.0	1.2	173.0	c206	1810	1810	1810	0.0	0.0	10.8
c107	1120	1120	1105	0.0	1.3	42.8	c207	1810	1810	1810	0.0	0.0	14.1
c108	1130	1130	1119	0.0	1.0	88.1	c208	1810	1810	1810	0.0	0.0	17.0
c109	1190	1190	1176	0.0	1.2	50.6							
r101	611	611	608.4	0.0	0.4	45.9	r201	1458	1458	1458	0.0	0.0	14.4
r102	843	838	823.3	0.6	2.3	94.5	r202	1458	1458	1458	0.0	0.0	28.3
r103	928	918	909.2	1.1	2.0	133.4	r203	1458	1458	1458	0.0	0.0	48.4
r104	972	973	961.5	-0.1	1.1	124.7	r204	1458	1458	1458	0.0	0.0	31.6
r105	778	774	771.9	0.5	0.8	104.7	r205	1458	1458	1458	0.0	0.0	20.6
r106	906	904	889.3	0.2	1.8	154.7	r206	1458	1458	1458	0.0	0.0	30.5
r107	950	945	931.3	0.5	2.0	184.6	r207	1458	1458	1458	0.0	0.0	14.1
r108	994	991	987.4	0.3	0.7	107.6	r208	1458	1458	1458	0.0	0.0	0.4
r109	885	881	869.9	0.5	1.7	102.4	r209	1458	1458	1458	0.0	0.0	23.2
r110	915	909	895.1	0.7	2.2	129.9	r210	1458	1458	1458	0.0	0.0	17.8
r111	952	952	941.6	0.0	1.1	140.9	r211	1458	1458	1458	0.0	0.0	0.3
r112	971	967	963.8	0.4	0.7	88.7							
rc101	811	811	809.9	0.0	0.1	39.0	rc201	1724	1724	1724	0.0	0.0	52.9
rc102	908	904	895.6	0.4	1.4	140.3	rc202	1724	1724	1724	0.0	0.0	11.5
rc103	974	975	959.4	-0.1	1.5	165.7	rc203	1724	1724	1724	0.0	0.0	24.2
rc104	1064	1063	1045.3	0.1	1.8	172.6	rc204	1724	1724	1724	0.0	0.0	47.1
rc105	875	875	870.5	0.0	0.5	53.2	rc205	1724	1724	1724	0.0	0.0	18.8
rc106	909	909	904.8	0.0	0.5	140.8	rc206	1724	1724	1724	0.0	0.0	10.8
rc107	980	985	979.2	-0.5	0.1	63.9	rc207	1724	1724	1724	0.0	0.0	23.2
rc108	1025	1025	1019.4	0.0	0.5	87.3	rc208	1724	1724	1724	0.0	0.0	30.0

Table 6: Detailed results of SA-ILS on Cordeau’s instances with $m = 1$.

Instance Set	BK	SA-ILS		BG (%)	AG (%)	Time (seconds)	Instance Set	BK	SA-ILS		BG (%)	AG (%)	Time (seconds)
		Max	Avg						Max	Avg			
pr01	308	308	308	0.0	0.0	2.4	pr11	353	353	353	0.0	0.0	124.7
pr02	404	404	404	0.0	0.0	43.4	pr12	442	441	440	0.2	0.5	48.2
pr03	394	394	394	0.0	0.0	18.7	pr13	466	458	455.9	1.7	2.2	152.3
pr04	489	489	482.8	0.0	1.3	120.3	pr14	567	552	545.2	2.6	3.8	128.1
pr05	595	592	591.1	0.5	0.7	189.5	pr15	707	707	686.4	0.0	2.9	156.8
pr06	591	579	565	2.0	4.4	90.0	pr16	674	650	636	3.6	5.6	135.2
pr07	298	298	298	0.0	0.0	3.5	pr17	362	362	362	0.0	0.0	37.0
pr08	463	463	463	0.0	0.0	10.1	pr18	539	539	538	0.0	0.2	98.9
pr09	493	493	491.8	0.0	0.2	70.8	pr19	562	560	546.1	0.4	2.8	151.2
pr10	594	583	577.7	1.9	2.7	208.2	pr20	667	648	635.5	2.8	4.7	151.0

Table 7: Detailed results of SA-ILS on Cordeau’s instances with $m = 2$.

Instance Set	BK	SA-ILS		BG (%)	AG (%)	Time (seconds)	Instance Set	BK	SA-ILS		BG (%)	AG (%)	Time (seconds)
		Max	Avg						Max	Avg			
pr01	502	502	502	0.0	0.0	22.3	pr11	566	566	563.5	0.0	0.4	35.1
pr02	715	712	701.8	0.4	1.8	136.6	pr12	774	766	757.8	1.0	2.1	130.4
pr03	742	742	732.3	0.0	1.3	252.7	pr13	832	843	826.8	-1.3	0.6	174.7
pr04	925	926	909.4	-0.1	1.7	218.5	pr14	1017	986	965.4	3.0	5.1	275.4
pr05	1101	1092	1068.7	0.8	2.9	218.5	pr15	1219	1206	1175.6	1.1	3.6	323.2
pr06	1076	1045	1022.2	2.9	5.0	303.0	pr16	1231	1149	1132.7	6.7	8.0	265.8
pr07	566	566	566	0.0	0.0	90.2	pr17	652	646	644.5	0.9	1.2	128.6
pr08	834	830	821.7	0.5	1.5	202.2	pr18	938	946	924.3	-0.9	1.5	220.0
pr09	905	909	888.2	-0.4	1.9	192.4	pr19	1034	1023	993.9	1.1	3.9	321.1
pr10	1129	1111	1074.6	1.6	4.8	232.9	pr20	1232	1203	1172.7	2.4	4.8	314.4

Table 8: Detailed results of SA-ILS on Cordeau's instances with $m = 3$.

Instance Set	BK	SA-ILS		BG (%)	AG (%)	Time (seconds)	Instance Set	BK	SA-ILS		BG (%)	AG (%)	Time (seconds)
		Max	Avg						Max	Avg			
pr01	622	619	614.5	0.5	1.2	95.6	pr11	654	654	652.1	0.0	0.3	57.3
pr02	942	943	932.4	-0.1	1.0	246.1	pr12	1002	993	976.4	0.9	2.6	218.2
pr03	1010	1004	992.3	0.6	1.8	187.3	pr13	1145	1132	1119.1	1.1	2.3	155.6
pr04	1294	1281	1259.8	1.0	2.6	282.7	pr14	1372	1341	1317.2	2.3	4.0	289.6
pr05	1482	1459	1434.3	1.6	3.2	350.1	pr15	1654	1621	1600.5	2.0	3.2	408.6
pr06	1514	1474	1428.6	2.6	5.6	325.0	pr16	1668	1574	1554.5	5.6	6.8	375.7
pr07	744	741	736.2	0.4	1.0	152.1	pr17	841	835	827.4	0.7	1.6	92.9
pr08	1139	1124	1107.4	1.3	2.8	237.6	pr18	1281	1250	1230.4	2.4	4.0	234.2
pr09	1275	1244	1225.3	2.4	3.9	260.1	pr19	1417	1372	1350.4	3.2	4.7	344.1
pr10	1573	1537	1490	2.3	5.3	233.1	pr20	1684	1651	1608.9	2.0	4.5	333.2

Table 9: Detailed results of SA-ILS on Cordeau's instances with $m = 4$.

Instance Set	BK	SA-ILS		BG (%)	AG (%)	Time (seconds)	Instance Set	BK	SA-ILS		BG (%)	AG (%)	Time (seconds)
		Max	Avg						Max	Avg			
pr01	657	657	657	0.0	0.0	8.9	pr11	657	657	657	0.0	0.0	4.3
pr02	1079	1068	1057.3	1.0	2.0	170.9	pr12	1132	1112	1100.9	1.8	2.7	174.8
pr03	1232	1228	1191.7	0.3	3.3	185.2	pr13	1386	1363	1332.4	1.7	3.9	178.7
pr04	1585	1543	1518.5	2.6	4.2	222.9	pr14	1670	1660	1606.5	0.6	3.8	327.3
pr05	1838	1774	1735.3	3.5	5.6	328.9	pr15	2065	1953	1924.4	5.4	6.8	389.0
pr06	1860	1796	1765.8	3.4	5.1	325.2	pr16	2065	1945	1914.8	5.8	7.3	382.4
pr07	876	869	860	0.8	1.8	167.2	pr17	934	930	918.6	0.4	1.6	210.5
pr08	1382	1349	1333.6	2.4	3.5	227.9	pr18	1539	1501	1474.9	2.5	4.2	261.8
pr09	1619	1573	1540.6	2.8	4.8	371.4	pr19	1750	1721	1677.2	1.7	4.2	375.9
pr10	1943	1869	1835.6	3.8	5.5	335.0	pr20	2062	2047	1954.6	0.7	5.2	389.7

Table 10: Detailed results of SA-ILS on new Solomon100's instances

Instance Set	m	BK	SA-ILS		BG (%)	AG (%)	Time (seconds)
			Max	Avg			
c101	10	1810	1770	1741	2.2	3.8	158.6
c102	10	1810	1810	1810	0.0	0.0	85.3
c103	10	1810	1810	1810	0.0	0.0	25.1
c104	10	1810	1810	1810	0.0	0.0	22.6
c105	10	1810	1800	1786	0.6	1.3	157.3
c106	10	1810	1790	1771	1.1	2.2	161.6
c107	10	1810	1810	1801	0.0	0.5	112.2
c108	10	1810	1810	1809	0.0	0.1	102.7
c109	10	1810	1810	1810	0.0	0.0	17.0
r101	19	1458	1458	1453	0.0	0.3	248.2
r102	17	1458	1458	1449.6	0.0	0.6	99.4
r103	13	1458	1455	1448.5	0.2	0.7	171.9
r104	9	1458	1435	1420.8	1.6	2.6	271.4
r105	14	1458	1452	1445.9	0.4	0.8	121.9
r106	12	1458	1455	1439.6	0.2	1.3	211.2
r107	10	1458	1448	1431.3	0.7	1.8	152.8
r108	9	1458	1453	1442.7	0.3	1.0	272.0
r109	11	1458	1453	1438.3	0.3	1.4	226.8
r110	10	1458	1447	1438.7	0.8	1.3	237.2
r111	10	1458	1451	1437.2	0.5	1.4	160.8
r112	9	1458	1452	1443.2	0.4	1.0	270.0
rc101	14	1724	1716	1701.3	0.5	1.3	126.4
rc102	12	1724	1697	1689.5	1.6	2.0	166.8
rc103	11	1724	1716	1708.2	0.5	0.9	166.6
rc104	10	1724	1724	1718.6	0.0	0.3	176.9
rc105	13	1724	1716	1702.9	0.5	1.2	162.6
rc106	11	1724	1701	1682.9	1.3	2.4	113.7
rc107	11	1724	1724	1718.5	0.0	0.3	90.0
rc108	10	1724	1724	1717.4	0.0	0.4	174.0

Table 11: Detailed results of SA-ILS on new Solomon200's instances

Instance Set	m	BK	SA-ILS		BG (%)	AG (%)	Time (seconds)
			Max	Avg			
c201	4	1810	1810	1810	0.0	0.0	8.3
c202	4	1810	1810	1810	0.0	0.0	10.7
c203	4	1810	1810	1810	0.0	0.0	22.9
c204	4	1810	1810	1810	0.0	0.0	46.2
c205	4	1810	1810	1810	0.0	0.0	10.7
c206	4	1810	1810	1810	0.0	0.0	12.9
c207	4	1810	1810	1810	0.0	0.0	25.8
c208	4	1810	1810	1810	0.0	0.0	20.6
r201	4	1458	1458	1458	0.0	0.0	34.8
r202	3	1458	1458	1455	0.0	0.2	191.9
r203	3	1458	1458	1458	0.0	0.0	83.7
r204	2	1458	1458	1447.8	0.0	0.7	318.4
r205	3	1458	1458	1458	0.0	0.0	71.7
r206	3	1458	1458	1458	0.0	0.0	94.7
r207	2	1458	1457	1446.9	0.1	0.8	270.4
r208	2	1458	1458	1458	0.0	0.0	298.4
r209	3	1458	1458	1458	0.0	0.0	70.0
r210	3	1458	1458	1458	0.0	0.0	67.8
r211	2	1458	1457	1446.8	0.1	0.8	330.6
rc201	4	1724	1724	1724	0.0	0.0	21.5
rc202	3	1724	1715	1710.5	0.5	0.8	186.4
rc203	3	1724	1724	1724	0.0	0.0	63.5
rc204	3	1724	1724	1724	0.0	0.0	90.8
rc205	4	1724	1724	1724	0.0	0.0	22.2
rc206	3	1724	1724	1724	0.0	0.0	63.3
rc207	3	1724	1724	1724	0.0	0.0	67.3
rc208	3	1724	1724	1724	0.0	0.0	85.2

Table 12: Detailed results of SA-ILS on new Cordeau's instances

Instance Set	m	BK	SA-ILS		BG (%)	AG (%)	Time (seconds)
			Max	Avg			
pr01	3	657	619	618.2	5.8	5.9	61.9
pr02	6	1220	1199	1190.7	1.7	2.4	199.6
pr03	9	1788	1754	1750.6	1.9	2.1	194.7
pr04	12	2477	2456	2450.4	0.8	1.1	317.2
pr05	15	3351	3340	3324.5	0.3	0.8	354.4
pr06	18	3671	3651	3639.9	0.5	0.8	437.4
pr07	5	948	938	930.2	1.1	1.9	132.4
pr08	10	2006	2006	2002.6	0.0	0.2	231.7
pr09	15	2736	2736	2733.6	0.0	0.1	314.6
pr10	20	3850	3850	3846.5	0.0	0.1	357.3

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