

The Multi-visit Team Orienteering Problem with precedence constraints

Saïd Hanafi^a, Renata Mansini^b, Roberto Zanotti^{b,*}

^a*LAMIH, CNRS UMR 8201, Université Polytechnique Hauts-de-France, France*

^b*Department of Information Engineering, University of Brescia, Italy*

1. Best Known Values

In Tables 1-4 we report, for each benchmark instance, the best known value and the algorithm that has found such value. In case more than one algorithm was able to find the same solution, we indicate the one with the shorter time to best (Column TTB).

Table 1 Set 4: Best known values.

Instance	Algorithm	Value	TTB
p4.2.p0	B&CUT-PKS	584	6395
p4.2.p0t2	IKS15	616	370
p4.2.p0t3	IKS15	665	849
p4.2.p1	B&CUT-PKS	531	5793
p4.2.p1t2	IKS15	549	721
p4.2.p1t3	IKS15	435	582
p4.2.p2	B&CUT	545	6533
p4.2.p2t2	IKS15	567	721
p4.2.p2t3	B&CUT-PKS	642	5735
p4.3.p0	B&CUT-PKS	558	6879
p4.3.p0t2	B&CUT	665	6850
p4.3.p0t3	IKS15	558	722
p4.3.p1	IKS15	416	901
p4.3.p1t2	IKS15	441	897
p4.3.p1t3	IKS15	453	619
p4.3.p2	IKS15	500	866
p4.3.p2t2	B&CUT-PKS	537	6049
p4.3.p2t3	IKS15	510	870
p4.4.p0	B&CUT	510	2284
p4.4.p0t2	B&CUT-PKS	566	3116
p4.4.p0t3	B&CUT-PKS	631	2946
p4.4.p1	B&CUT	452	6220
p4.4.p1t2	B&CUT-PKS	514	6868
p4.4.p1t3	IKS15	534	837
p4.4.p2	B&CUT-PKS	469	6482
p4.4.p2t2	IKS15	462	669
p4.4.p2t3	B&CUT	460	2530

*Corresponding author, Tel.: +39-030-3715935, Fax: +39-030-380014

Email addresses: Said.Hanafi@uphf.fr (Saïd Hanafi), renata.mansini@unibs.it (Renata Mansini), roberto.zanotti@unibs.it (Roberto Zanotti)

Table 2 Set 5: Best known values.

Instance	Algorithm	Value	TTB
p5.2.s0	B&CUT-PKS	465	6646
p5.2.s0t2	B&CUT	520	4874
p5.2.s0t3	IKS15	545	506
p5.2.s1	IKS15	490	672
p5.2.s1t2	IKS15	540	501
p5.2.s1t3	IKS15	590	687
p5.2.s2	IKS15	470	632
p5.2.s2t2	B&CUT-PKS	505	6712
p5.2.s2t3	IKS15	545	874
p5.3.s0	IKS15	340	721
p5.3.s0t2	IKS15	360	843
p5.3.s0t3	IKS15	410	634
p5.3.s1	IKS15	355	669
p5.3.s1t2	IKS15	390	586
p5.3.s1t3	IKS15	440	719
p5.3.s2	IKS15	360	567
p5.3.s2t2	B&CUT-PKS	390	3745
p5.3.s2t3	IKS15	425	848
p5.4.s0	IKS15	375	899
p5.4.s0t2	IKS15	445	889
p5.4.s0t3	IKS15	475	512
p5.4.s1	IKS15	355	404
p5.4.s1t2	IKS15	400	902
p5.4.s1t3	IKS15	420	869
p5.4.s2	B&CUT-PKS	330	1124
p5.4.s2t2	B&CUT	365	6889
p5.4.s2t3	B&CUT-PKS	410	6043

Table 3 Set 6: Best known values.

Instance	Algorithm	Value	TTB
p6.2.n0	IKS15	552	677
p6.2.n0t2	B&CUT-PKS	600	1229
p6.2.n0t3	B&CUT-PKS	672	3748
p6.2.n1	IKS15	636	293
p6.2.n1t2	IKS15	696	707
p6.2.n1t3	B&CUT-PKS	744	1380
p6.2.n2	B&CUT	510	422
p6.2.n2t2	B&CUT-PKS	564	884
p6.2.n2t3	BASIC	624	1775
p6.3.n0	B&CUT	444	2917
p6.3.n0t2	IKS15	498	511
p6.3.n0t3	B&CUT	558	3827
p6.3.n1	BASIC	528	149
p6.3.n1t2	B&CUT-PKS	588	5520
p6.3.n1t3	B&CUT-PKS	636	2849
p6.3.n2	B&CUT-PKS	432	1616
p6.3.n2t2	IKS15	492	798
p6.3.n2t3	B&CUT-PKS	528	2368
p6.4.n0	BASIC	384	75
p6.4.n0t2	IKS15	432	517
p6.4.n0t3	B&CUT	498	5771
p6.4.n1	BASIC	450	73
p6.4.n1t2	BASIC	540	91
p6.4.n1t3	B&CUT	588	4162
p6.4.n2	BASIC	336	1694
p6.4.n2t2	IKS15	402	779
p6.4.n2t3	B&CUT-PKS	462	5018

Table 4 Set 7: Best known values.

Instance	Algorithm	Value	TTB
p7.2.l0	B&CUT	617	2788
p7.2.l0t2	B&CUT	661	6844
p7.2.l0t3	B&CUT	717	4184
p7.2.p1	B&CUT-PKS	493	3556
p7.2.p1t2	B&CUT-PKS	551	4571
p7.2.p1t3	IKS15	590	697
p7.2.p2	B&CUT-PKS	517	6108
p7.2.p2t2	B&CUT	560	5621
p7.2.p2t3	IKS15	612	699
p7.3.l0	B&CUT	521	6974
p7.3.l0t2	IKS15	562	604
p7.3.l0t3	B&CUT	608	2333
p7.3.p1	B&CUT-PKS	435	3023
p7.3.p1t2	B&CUT-PKS	477	4729
p7.3.p1t3	B&CUT-PKS	494	5134
p7.3.p2	B&CUT-PKS	430	6235
p7.3.p2t2	IKS15	461	525
p7.3.p2t3	B&CUT-PKS	484	6743
p7.4.l0	B&CUT-PKS	481	2529
p7.4.l0t2	B&CUT	525	5758
p7.4.l0t3	B&CUT-PKS	558	7169
p7.4.p1	IKS15	429	796
p7.4.p1t2	IKS15	485	547
p7.4.p1t3	IKS15	518	705
p7.4.p2	B&CUT-PKS	440	3438
p7.4.p2t2	IKS15	499	845
p7.4.p2t3	IKS15	513	840