

A. Appendix: Full numerical results

This appendix presents numerical comparisons between the DB- and DM-heuristics, and full numerical results achieved by the DB-heuristic on the ESTEIN instances.

File	n	DM		DB		GS	
		ρ	$t(sec.)$	ρ	$t(sec.)$	ρ	$t(sec.)$
estein10	10	0.969486	0.0016	0.968519	0.0015	0.967491	0.0067
estein20	20	0.970201	0.0020	0.969138	0.0020	0.968440	0.0227
estein30	30	0.971861	0.0031	0.969934	0.0032	0.969331	0.0480
estein40	40	0.971645	0.0037	0.969589	0.0037	0.968613	0.0867
estein50	50	0.972321	0.0034	0.970132	0.0039	0.969668	0.1080
estein60	60	0.972543	0.0040	0.968534	0.0042	0.967253	0.1347
estein70	70	0.973029	0.0044	0.969818	0.0047	0.968902	0.1840
estein80	80	0.973952	0.0050	0.970823	0.0059	0.969605	0.2287
estein90	90	0.971287	0.0066	0.969857	0.0071	0.968804	0.2447
estein100	100	0.971995	0.0069	0.968554	0.0073	0.967308	0.3593
estein250	250	0.971789	0.0148	0.969190	0.0182	0.967930	1.2893
estein500	500	0.970989	0.0239	0.967894	0.0299	0.966743	2.7920
estein1000	1000	0.971227	0.0478	0.968048	0.0581	0.967062	7.6140
estein10000	10000	0.971323	0.4158	0.968107	0.5123	0.967069	463.78 ¹

Table 1: ESTEIN instances in \mathcal{R}^2 (averaged). GS is the GeoSteiner algorithm.

File	n	DM		DB		NO	
		ρ	$t(sec.)$	ρ	$t(sec.)$	ρ	$t(sec.)$
estein10	10	0.954829	0.0021	0.953230	0.0031	0.950768	1.9056
estein20	20	0.954246	0.0036	0.950276	0.0076		
estein30	30	0.957947	0.0045	0.953583	0.0118		
estein40	40	0.953763	0.0055	0.950883	0.0171		
estein50	50	0.954314	0.0067	0.951331	0.0222		
estein60	60	0.954664	0.0087	0.948375	0.0276		
estein70	70	0.951694	0.0092	0.948135	0.0325		
estein80	80	0.950806	0.0099	0.947967	0.0381		
estein90	90	0.952914	0.0115	0.948913	0.0444		
estein100	100	0.954188	0.0131	0.947917	0.0486		
estein250	250	0.954184	0.0316	0.949257	0.1325		
estein500	500	0.953212	0.0629	0.948475	0.2834		
estein1000	1000	0.95333	0.1205	0.948397	0.5823		
estein10000	10000	0.953969	1.2935	0.948438	6.1953		

Table 2: ESTEIN instances in \mathcal{R}^3 (averaged). NO is the numerical approximation.

¹ The computation finished without a result on our machine. The ratio given was found at [D. M. Warne, P. Winter, and M. Zachariasen, *GeoSteiner website*, <http://www.geosteiner.com/>]

Set	n	MST	SMT	ρ	t (sec.)
estein10-00	10	2.11147	2.02067	0.957001	0.00135046
estein10-01	10	1.61457	1.60687	0.99523	0.00145751
estein10-02	10	2.33009	2.22807	0.956218	0.00139717
estein10-03	10	1.81952	1.7986	0.988498	0.00171618
estein10-04	10	1.73717	1.69443	0.975397	0.00150179
estein10-05	10	2.42116	2.3096	0.953922	0.00144689
estein10-06	10	2.33731	2.25155	0.963306	0.00141197
estein10-07	10	2.21278	2.18164	0.985931	0.00175084
estein10-08	10	2.01884	1.98072	0.981115	0.00136819
estein10-09	10	2.10091	2.05933	0.980207	0.00141501
estein10-10	10	2.06038	1.94732	0.945126	0.00142049
estein10-11	10	1.76333	1.75312	0.994215	0.00151671
estein10-12	10	1.82654	1.71389	0.938325	0.00157702
estein10-13	10	2.06534	1.94965	0.943985	0.00224848
estein10-14	10	1.72456	1.67165	0.969315	0.00145692
estein20-00	20	3.21282	3.07207	0.956189	0.00217242
estein20-01	20	2.92182	2.85463	0.977004	0.00202513
estein20-02	20	2.54801	2.45528	0.963606	0.00222623
estein20-03	20	2.537	2.47046	0.973775	0.00187521
estein20-04	20	3.07311	2.96473	0.964731	0.00212333
estein20-05	20	3.22076	3.13157	0.972307	0.00207633
estein20-06	20	3.12491	3.0722	0.983132	0.00183503
estein20-07	20	3.4827	3.31699	0.952419	0.00183994
estein20-08	20	3.183	3.13363	0.984491	0.0021931
estein20-09	20	3.12344	3.01187	0.964281	0.00189427
estein20-10	20	2.38992	2.31805	0.969928	0.00190567
estein20-11	20	2.77501	2.65375	0.956302	0.00184403
estein20-12	20	3.12048	3.02285	0.968712	0.00258351
estein20-13	20	3.03434	2.93301	0.966606	0.00182168
estein20-14	20	2.83805	2.79148	0.983589	0.00206626
estein30-00	30	3.65878	3.58205	0.97903	0.00248801
estein30-01	30	3.67824	3.57665	0.972382	0.00236815
estein30-02	30	3.76858	3.65806	0.970673	0.00294075
estein30-03	30	3.85458	3.71141	0.962857	0.0034112
estein30-04	30	3.74951	3.61384	0.963817	0.00220389
estein30-05	30	3.61114	3.50218	0.969827	0.00236439
estein30-06	30	3.93167	3.81368	0.969989	0.00251494
estein30-07	30	3.76791	3.68953	0.979198	0.0100107
estein30-08	30	3.31183	3.181	0.960496	0.00250347
estein30-09	30	3.84241	3.71899	0.967881	0.00270458
estein30-10	30	3.66658	3.59019	0.979165	0.00240834
estein30-11	30	3.53772	3.43098	0.969829	0.00294687
estein30-12	30	3.30439	3.22245	0.9752	0.00238261
estein30-13	30	4.0545	3.85675	0.951226	0.00378568
estein30-14	30	3.86941	3.78213	0.977445	0.00238862

Table 3: Full results achieved on the 2-dimensional ESTEIN instances ($n = 10, 20, 30$) using the DB-heuristic.

Set	n	MST	SMT	ρ	t (sec.)
estein40-00	40	4.03362	3.93507	0.975568	0.00260272
estein40-01	40	4.20052	4.07292	0.969623	0.00928366
estein40-02	40	4.50049	4.38888	0.975201	0.00301583
estein40-03	40	3.95143	3.85602	0.975856	0.00447031
estein40-04	40	4.72655	4.54325	0.96122	0.00304592
estein40-05	40	4.57058	4.42237	0.967572	0.00262022
estein40-06	40	4.15706	4.03816	0.971399	0.00253789
estein40-07	40	4.4273	4.28087	0.966926	0.00359665
estein40-08	40	4.83554	4.62453	0.956363	0.00376915
estein40-09	40	5.27566	5.08377	0.963627	0.00448982
estein40-10	40	4.2182	4.14144	0.981802	0.00350844
estein40-11	40	4.01668	3.92134	0.976262	0.00379723
estein40-12	40	4.71341	4.5605	0.967558	0.00399331
estein40-13	40	4.51137	4.35982	0.966407	0.00241112
estein40-14	40	4.65634	4.50944	0.968451	0.00298974
estein50-00	50	4.96763	4.83742	0.973789	0.00383122
estein50-01	50	5.14314	4.95493	0.963407	0.0045773
estein50-02	50	4.92898	4.74717	0.963114	0.00444849
estein50-03	50	4.59987	4.46907	0.971566	0.00381761
estein50-04	50	5.02338	4.87042	0.969551	0.00420633
estein50-05	50	5.09947	4.92394	0.965578	0.00442327
estein50-06	50	4.50109	4.36399	0.969541	0.00416809
estein50-07	50	4.82849	4.7035	0.974114	0.00365025
estein50-08	50	4.82491	4.67686	0.969315	0.00394546
estein50-09	50	4.7632	4.62779	0.971573	0.00347358
estein50-10	50	4.78786	4.67047	0.975482	0.00468646
estein50-11	50	4.81026	4.6747	0.971819	0.00291385
estein50-12	50	4.82544	4.66508	0.966768	0.00378463
estein50-13	50	4.84539	4.71324	0.972727	0.00315979
estein50-14	50	4.73466	4.60986	0.97364	0.0031819
estein60-00	60	4.93917	4.78522	0.96883	0.00418293
estein60-01	60	4.95833	4.81349	0.970789	0.00443149
estein60-02	60	5.13451	4.94873	0.963819	0.00385449
estein60-03	60	4.99571	4.85015	0.970863	0.00320684
estein60-04	60	5.03032	4.83599	0.961367	0.00419603
estein60-05	60	5.40162	5.25467	0.972794	0.0037747
estein60-06	60	5.40313	5.21593	0.965354	0.00730513
estein60-07	60	5.25224	5.11732	0.974311	0.00378122
estein60-08	60	5.07575	4.91658	0.968641	0.00385653
estein60-09	60	5.19936	5.06686	0.974516	0.00555403
estein60-10	60	5.08631	4.93627	0.970502	0.00474673
estein60-11	60	5.49385	5.30755	0.966089	0.00410998
estein60-12	60	5.47048	5.29219	0.967407	0.00352937
estein60-13	60	5.21858	5.03618	0.96505	0.00381103
estein60-14	60	5.13621	4.97017	0.967672	0.00339537

Table 4: Full results achieved on the 2-dimensional ESTEIN instances ($n = 40, 50, 60$) using the DB-heuristic.

Set	n	MST	SMT	ρ	t (sec.)
estein70-00	70	5.58791	5.43408	0.97247	0.00625206
estein70-01	70	5.53935	5.32908	0.96204	0.00393337
estein70-02	70	5.55708	5.39745	0.971275	0.0051059
estein70-03	70	5.65368	5.49927	0.972688	0.00485618
estein70-04	70	5.65575	5.4767	0.968341	0.00378644
estein70-05	70	5.71604	5.53666	0.968619	0.00497968
estein70-06	70	5.68572	5.51366	0.969739	0.00422727
estein70-07	70	5.64316	5.48686	0.972302	0.00470333
estein70-08	70	5.60491	5.48135	0.977955	0.00464806
estein70-09	70	5.69944	5.5214	0.968761	0.00466716
estein70-10	70	5.90443	5.71836	0.968488	0.0043067
estein70-11	70	5.73675	5.53222	0.964347	0.0038587
estein70-12	70	5.61712	5.45307	0.970795	0.00526094
estein70-13	70	5.5079	5.3584	0.972857	0.00483577
estein70-14	70	5.721	5.5299	0.966598	0.00539521
estein80-00	80	6.44382	6.2614	0.97169	0.00530333
estein80-01	80	5.85718	5.70315	0.973703	0.00708881
estein80-02	80	6.05439	5.8799	0.971181	0.00519794
estein80-03	80	5.74802	5.62935	0.979356	0.00537463
estein80-04	80	5.88444	5.75687	0.97832	0.00567191
estein80-05	80	6.34446	6.18862	0.975437	0.0046769
estein80-06	80	6.30885	6.03627	0.956794	0.00471356
estein80-07	80	6.17257	5.96158	0.965818	0.00489818
estein80-08	80	6.35417	6.11311	0.962063	0.00775445
estein80-09	80	5.88623	5.72195	0.972092	0.00802098
estein80-10	80	5.93977	5.7741	0.972109	0.00527504
estein80-11	80	5.79133	5.68164	0.98106	0.00531659
estein80-12	80	6.16889	5.97829	0.969103	0.00755058
estein80-13	80	6.36334	6.12017	0.961786	0.0047203
estein80-14	80	6.3242	6.14607	0.971833	0.00719695
estein90-00	90	6.29063	6.06485	0.964107	0.00535215
estein90-01	90	6.43717	6.2342	0.968469	0.0211428
estein90-02	90	6.63911	6.46341	0.973535	0.00661498
estein90-03	90	6.43773	6.27348	0.974486	0.00631394
estein90-04	90	6.65917	6.3968	0.9606	0.00842766
estein90-05	90	6.17564	6.05076	0.979777	0.00561453
estein90-06	90	6.48048	6.24959	0.96437	0.0065101
estein90-07	90	6.50668	6.30999	0.969771	0.00618488
estein90-08	90	6.12547	5.953	0.971843	0.00505039
estein90-09	90	6.52315	6.3342	0.971035	0.00644978
estein90-10	90	6.50892	6.29203	0.966678	0.0071627
estein90-11	90	6.24838	6.08374	0.97365	0.0049566
estein90-12	90	6.48832	6.30932	0.972413	0.00656221
estein90-13	90	6.30815	6.09414	0.966074	0.00588674
estein90-14	90	6.43972	6.25328	0.971049	0.00491927

Table 5: Full results achieved on the 2-dimensional ESTEIN instances ($n = 70, 80, 90$) using the DB-heuristic.

Set	n	MST	SMT	ρ	t (sec.)
estein100-00	100	6.60852	6.40689	0.969489	0.00650217
estein100-01	100	6.83285	6.60801	0.967094	0.00525675
estein100-02	100	6.7625	6.53233	0.965963	0.00532606
estein100-03	100	6.79778	6.59083	0.969557	0.00541798
estein100-04	100	6.90325	6.68939	0.96902	0.00709658
estein100-05	100	6.69425	6.4688	0.966322	0.00559831
estein100-06	100	7.27726	7.00055	0.961975	0.00696447
estein100-07	100	6.63145	6.39752	0.964724	0.00537702
estein100-08	100	7.16529	6.92428	0.966364	0.00650436
estein100-09	100	6.95398	6.71972	0.966313	0.00630941
estein100-10	100	7.03095	6.83295	0.971839	0.0128175
estein100-11	100	6.85487	6.67682	0.974026	0.00672706
estein100-12	100	6.68322	6.51179	0.974349	0.01421
estein100-13	100	7.1371	6.89262	0.965744	0.00764077
estein100-14	100	6.38253	6.22633	0.975526	0.00713755
estein250-00	250	10.6052	10.2869	0.96999	0.0162908
estein250-01	250	10.4208	10.1332	0.972403	0.0161945
estein250-02	250	10.3915	10.064	0.968476	0.0218057
estein250-03	250	10.7388	10.4097	0.96935	0.0164224
estein250-04	250	10.6104	10.2477	0.96582	0.0148917
estein250-05	250	10.5379	10.2326	0.971023	0.0243497
estein250-06	250	10.4267	10.1414	0.972645	0.0138211
estein250-07	250	10.6885	10.3205	0.965572	0.0141605
estein250-08	250	10.6404	10.3241	0.970271	0.0209141
estein250-09	250	10.6076	10.2554	0.9668	0.0365949
estein250-10	250	10.2222	9.89917	0.968398	0.0179254
estein250-11	250	10.8584	10.4911	0.966181	0.0128494
estein250-12	250	10.4982	10.1748	0.969196	0.0145102
estein250-13	250	10.5855	10.2862	0.971732	0.0146695
estein250-14	250	10.4839	10.1693	0.96999	0.0175006
estein500-00	500	14.8291	14.3481	0.967564	0.0284031
estein500-01	500	14.7147	14.2123	0.965853	0.028832
estein500-02	500	14.8043	14.3238	0.967543	0.0290716
estein500-03	500	14.9447	14.4439	0.966488	0.0353334
estein500-04	500	14.4965	14.1003	0.97267	0.0302939
estein500-05	500	15.0407	14.5495	0.967344	0.0318813
estein500-06	500	14.5517	14.0745	0.967206	0.0290821
estein500-07	500	14.6164	14.1629	0.968974	0.0281605
estein500-08	500	14.6932	14.2082	0.966993	0.0293271
estein500-09	500	14.1706	13.6767	0.965144	0.0277416
estein500-10	500	14.654	14.1951	0.968686	0.0280678
estein500-11	500	14.8745	14.4083	0.968655	0.0271924
estein500-12	500	14.6337	14.1544	0.967242	0.0315889
estein500-13	500	15.147	14.6727	0.968692	0.0305938
estein500-14	500	14.5801	14.1332	0.96935	0.032697

Table 6: Full results achieved on the 2-dimensional ESTEIN instances ($n = 100, 250, 500$) using the DB-heuristic.

Set	n	MST	SMT	ρ	t (sec.)
estein1000-00	1000	20.9596	20.2566	0.966458	0.0635876
estein1000-01	1000	20.7829	20.0959	0.966941	0.0650119
estein1000-02	1000	20.6178	19.9865	0.969378	0.0512139
estein1000-03	1000	20.9238	20.2552	0.968044	0.0541472
estein1000-04	1000	20.7008	20.0822	0.97012	0.0531543
estein1000-05	1000	20.9762	20.3252	0.968967	0.0533813
estein1000-06	1000	20.9567	20.3003	0.968681	0.0549868
estein1000-07	1000	20.9334	20.2442	0.967074	0.0583528
estein1000-08	1000	20.7907	20.1151	0.967504	0.0551014
estein1000-09	1000	20.8304	20.1521	0.967438	0.0585356
estein1000-10	1000	20.9711	20.3399	0.9699	0.0808909
estein1000-11	1000	21.1125	20.3819	0.965393	0.0551481
estein1000-12	1000	20.6511	20.0242	0.969643	0.0522093
estein1000-13	1000	21.3105	20.5929	0.966323	0.0613565
estein1000-14	1000	20.85	20.2006	0.968853	0.0551641
estein10000-0	10000	65.0675	62.9923	0.968107	0.512327

Table 7: Full results achieved on the 2-dimensional ESTEIN instances ($n = 1000, 10000$) using the DB-heuristic.

Set	n	MST	SMT	ρ	t (sec.)
estein10-00	10	3.33254	3.21346	0.964269	0.00310085
estein10-01	10	3.30121	3.10008	0.939072	0.00322206
estein10-02	10	3.17651	3.00851	0.947111	0.00292717
estein10-03	10	3.03209	2.85374	0.941178	0.00253659
estein10-04	10	3.06878	2.95705	0.96359	0.00297465
estein10-05	10	3.41494	3.11734	0.912854	0.00241723
estein10-06	10	3.53768	3.27921	0.92694	0.00377883
estein10-07	10	3.10757	2.94078	0.946328	0.00308923
estein10-08	10	2.7329	2.62509	0.960551	0.00342402
estein10-09	10	3.1246	2.97064	0.950725	0.00278501
estein10-10	10	3.26161	3.19043	0.978176	0.00274602
estein10-11	10	3.07887	2.91954	0.948249	0.00314752
estein10-12	10	2.90027	2.82079	0.972596	0.00294082
estein10-13	10	3.21875	3.13832	0.975014	0.00379837
estein10-14	10	3.01279	2.92783	0.9718	0.00340518
estein20-00	20	4.97097	4.64244	0.933911	0.00644657
estein20-01	20	4.6131	4.46309	0.967482	0.00785263
estein20-02	20	4.94092	4.56536	0.923988	0.00728033
estein20-03	20	4.57347	4.33782	0.948474	0.00800148
estein20-04	20	4.93447	4.77452	0.967586	0.00715473
estein20-05	20	5.38111	5.21938	0.969945	0.00668372
estein20-06	20	4.81786	4.65125	0.965418	0.0072113
estein20-07	20	5.20534	4.90297	0.941912	0.00804888
estein20-08	20	5.06873	4.8335	0.953591	0.0071541
estein20-09	20	4.85265	4.69029	0.966543	0.00714787
estein20-10	20	4.77163	4.55506	0.954612	0.00746737
estein20-11	20	4.60359	4.33363	0.941359	0.00890259
estein20-12	20	5.13724	4.84463	0.943041	0.00930354
estein20-13	20	5.58437	5.14794	0.921848	0.00725144
estein20-14	20	4.91812	4.69402	0.954434	0.0077371
estein30-00	30	7.01432	6.64887	0.9479	0.0129158
estein30-01	30	6.65878	6.46753	0.97128	0.0113876
estein30-02	30	6.47612	6.15262	0.950046	0.0159266
estein30-03	30	6.71635	6.4346	0.95805	0.010681
estein30-04	30	6.95497	6.53684	0.93988	0.0111985
estein30-05	30	6.47014	6.30651	0.974709	0.0130222
estein30-06	30	7.25329	6.8459	0.943835	0.0112408
estein30-07	30	6.15538	5.90154	0.958761	0.0107095
estein30-08	30	6.89295	6.51398	0.945021	0.0114818
estein30-09	30	6.63351	6.30648	0.950699	0.00974598
estein30-10	30	7.02758	6.69541	0.952734	0.0121405
estein30-11	30	6.57286	6.33709	0.96413	0.0135396
estein30-12	30	6.85188	6.46326	0.943284	0.0111899
estein30-13	30	6.33981	6.02687	0.95064	0.0105373
estein30-14	30	7.0321	6.70007	0.952784	0.0118205

Table 8: Full results achieved on the 3-dimensional ESTEIN instances ($n = 10, 20, 30$) using the DB-heuristic.

Set	n	[MST]	[SMT]	ρ	t (sec.)
estein40-00	40	7.66669	7.37741	0.962268	0.0180641
estein40-01	40	7.76159	7.47006	0.962439	0.0179595
estein40-02	40	8.62943	8.20407	0.950708	0.0188185
estein40-03	40	7.44513	7.07306	0.950026	0.0163952
estein40-04	40	8.04469	7.69721	0.956807	0.0136856
estein40-05	40	8.65937	8.1817	0.944838	0.0155147
estein40-06	40	8.16906	7.77553	0.951827	0.0155326
estein40-07	40	8.47427	8.07613	0.953018	0.017339
estein40-08	40	8.96284	8.41721	0.939123	0.0165263
estein40-09	40	8.98378	8.56077	0.952914	0.0161538
estein40-10	40	8.03186	7.68783	0.957168	0.0169359
estein40-11	40	7.6789	7.36979	0.959746	0.0153943
estein40-12	40	8.75273	8.2232	0.939502	0.0184292
estein40-13	40	8.1323	7.68032	0.944422	0.0202934
estein40-14	40	8.00802	7.515	0.938434	0.0190431
estein50-00	50	9.46093	8.96813	0.947912	0.020854
estein50-01	50	9.50813	9.0722	0.954151	0.0219805
estein50-02	50	9.60233	9.0649	0.944032	0.0244265
estein50-03	50	9.06019	8.68157	0.95821	0.0236699
estein50-04	50	9.23986	8.86492	0.959422	0.0226077
estein50-05	50	9.48477	8.92977	0.941486	0.0216521
estein50-06	50	9.287	8.79628	0.94716	0.0219936
estein50-07	50	9.15102	8.74983	0.956159	0.0229743
estein50-08	50	8.6114	8.25788	0.958948	0.020929
estein50-09	50	8.96103	8.40794	0.938278	0.0208262
estein50-10	50	9.72393	9.15541	0.941534	0.0223468
estein50-11	50	8.99159	8.69148	0.966623	0.0216586
estein50-12	50	9.20068	8.75787	0.951872	0.0227311
estein50-13	50	10.3316	9.87252	0.955562	0.0231095
estein50-14	50	9.87496	9.36748	0.948609	0.0208277
estein60-00	60	10.1596	9.64762	0.949606	0.0339409
estein60-01	60	10.5666	9.96608	0.943169	0.026065
estein60-02	60	10.9501	10.2583	0.936829	0.0280368
estein60-03	60	10.186	9.70248	0.952534	0.0302115
estein60-04	60	11.161	10.6281	0.952258	0.0279274
estein60-05	60	10.6887	10.2567	0.959585	0.0249242
estein60-06	60	11.6261	10.9559	0.942353	0.0263327
estein60-07	60	11.0703	10.4657	0.945385	0.0243614
estein60-08	60	10.6514	10.0734	0.945731	0.0318409
estein60-09	60	10.6696	10.0913	0.945799	0.0273425
estein60-10	60	10.3296	9.80177	0.948898	0.0270166
estein60-11	60	11.5656	10.9824	0.949578	0.0259962
estein60-12	60	11.0637	10.5676	0.955162	0.0259447
estein60-13	60	10.4158	9.9146	0.95188	0.0291619
estein60-14	60	11.3753	10.7708	0.946858	0.0250462

Table 9: Full results achieved on the 3-dimensional ESTEIN instances ($n = 40, 50, 60$) using the DB-heuristic.

Set	n	MST	SMT	ρ	t (sec.)
estein70-00	70	11.7109	11.061	0.944503	0.0351188
estein70-01	70	12.0846	11.4676	0.948946	0.0306555
estein70-02	70	11.8165	11.2621	0.953081	0.030539
estein70-03	70	11.8165	11.2648	0.953313	0.0316725
estein70-04	70	11.826	11.3136	0.956667	0.0339192
estein70-05	70	11.9274	11.2611	0.944131	0.0321719
estein70-06	70	11.8306	11.1936	0.946155	0.0319406
estein70-07	70	11.8438	11.2016	0.945781	0.0356908
estein70-08	70	11.7712	11.1313	0.945638	0.0314176
estein70-09	70	12.1782	11.4944	0.943855	0.0364491
estein70-10	70	11.9779	11.3187	0.944962	0.0316326
estein70-11	70	11.9486	11.35	0.949907	0.0310728
estein70-12	70	11.2702	10.7211	0.951277	0.0341807
estein70-13	70	12.1057	11.4423	0.945199	0.0311336
estein70-14	70	12.0685	11.4483	0.948608	0.0301711
estein80-00	80	13.238	12.5405	0.947315	0.0395741
estein80-01	80	12.8044	12.0927	0.944419	0.038779
estein80-02	80	12.6707	12.0502	0.95103	0.0363135
estein80-03	80	11.8787	11.2525	0.947285	0.0385691
estein80-04	80	13.3848	12.6839	0.947631	0.0376041
estein80-05	80	13.7129	13.0318	0.950329	0.0358476
estein80-06	80	13.9391	13.1302	0.941969	0.0364761
estein80-07	80	12.8821	12.3074	0.955385	0.039121
estein80-08	80	13.6495	12.868	0.942751	0.039919
estein80-09	80	13.2128	12.5116	0.946934	0.0378601
estein80-10	80	12.7368	11.9799	0.940573	0.0391097
estein80-11	80	12.2738	11.7409	0.956588	0.0389822
estein80-12	80	13.6879	12.9413	0.945459	0.0367149
estein80-13	80	13.4411	12.7088	0.945519	0.0367538
estein80-14	80	13.2343	12.6563	0.956326	0.0406094
estein90-00	90	14.0648	13.3874	0.951839	0.041162
estein90-01	90	13.9575	13.1793	0.944248	0.0455673
estein90-02	90	14.1526	13.4362	0.949387	0.0439253
estein90-03	90	13.1386	12.5723	0.956899	0.0466149
estein90-04	90	13.7569	13.0676	0.949896	0.0422649
estein90-05	90	13.8111	13.0882	0.947659	0.0455083
estein90-06	90	13.7461	13.0351	0.94828	0.0459572
estein90-07	90	14.3591	13.5647	0.944676	0.0441879
estein90-08	90	13.2578	12.6468	0.95391	0.043781
estein90-09	90	14.1914	13.4748	0.949505	0.0460118
estein90-10	90	14.0389	13.3302	0.949519	0.0441016
estein90-11	90	14.0244	13.2328	0.943556	0.0492735
estein90-12	90	14.0708	13.3512	0.948859	0.0450415
estein90-13	90	13.4268	12.7139	0.946908	0.0435151
estein90-14	90	14.3308	13.5936	0.948558	0.0390582

Table 10: Full results achieved on the 3-dimensional ESTEIN instances ($n = 70, 80, 90$) using the DB-heuristic.

Set	n	MST	SMT	ρ	t (sec.)
estein100-00	100	15.1935	14.4259	0.949478	0.0492333
estein100-01	100	15.0617	14.2078	0.943307	0.0469419
estein100-02	100	15.4134	14.5797	0.945915	0.0488328
estein100-03	100	15.8369	15.066	0.951322	0.0466102
estein100-04	100	15.8219	15.0185	0.949221	0.048563
estein100-05	100	14.4905	13.7347	0.947838	0.0476394
estein100-06	100	15.5273	14.5953	0.939971	0.0477556
estein100-07	100	15.8046	15.0511	0.952324	0.048862
estein100-08	100	15.4278	14.568	0.944268	0.0486659
estein100-09	100	15.3972	14.6258	0.949901	0.0466952
estein100-10	100	15.475	14.7115	0.95066	0.0487807
estein100-11	100	15.2883	14.4726	0.946643	0.0529386
estein100-12	100	14.9266	14.214	0.952263	0.0492446
estein100-13	100	14.8634	14.1777	0.953866	0.0493168
estein100-14	100	15.7385	14.822	0.941771	0.0488409
estein250-00	250	26.9975	25.5359	0.945861	0.135863
estein250-01	250	27.4092	26.0612	0.950821	0.136011
estein250-02	250	26.6891	25.3406	0.949476	0.13191
estein250-03	250	27.1691	25.7987	0.949558	0.134495
estein250-04	250	26.9568	25.6393	0.951126	0.128589
estein250-05	250	27.8833	26.5113	0.950796	0.130168
estein250-06	250	27.5863	26.1714	0.94871	0.125153
estein250-07	250	27.4988	26.0764	0.948274	0.130225
estein250-08	250	28.1783	26.6911	0.94722	0.134818
estein250-09	250	26.6414	25.3136	0.950158	0.136289
estein250-10	250	26.0041	24.6544	0.948095	0.135896
estein250-11	250	26.6477	25.2953	0.94925	0.1331
estein250-12	250	27.0666	25.7394	0.950967	0.127768
estein250-13	250	27.3973	26.0742	0.951708	0.135239
estein250-14	250	27.4486	25.9894	0.94684	0.132261
estein500-00	500	42.8324	40.6168	0.948274	0.285892
estein500-01	500	42.5191	40.383	0.94976	0.28047
estein500-02	500	42.3945	40.0949	0.945758	0.285161
estein500-03	500	42.9536	40.718	0.947953	0.296155
estein500-04	500	42.3192	40.2006	0.949936	0.297544
estein500-05	500	42.9438	40.7688	0.949351	0.271046
estein500-06	500	41.9621	39.7073	0.946265	0.2786
estein500-07	500	42.0414	39.8713	0.948381	0.283957
estein500-08	500	42.7926	40.5305	0.94714	0.271252
estein500-09	500	41.7776	39.6945	0.95014	0.277944
estein500-10	500	41.3443	39.2483	0.949303	0.298214
estein500-11	500	42.9622	40.8109	0.949927	0.287873
estein500-12	500	42.1053	40.0827	0.951963	0.284248
estein500-13	500	43.2336	40.7806	0.943262	0.275038
estein500-14	500	42.446	40.3118	0.94972	0.277907

Table 11: Full results achieved on the 3-dimensional ESTEIN instances ($n = 100, 250, 500$) using the DB-heuristic.

Set	n	MST	SMT	ρ	t (sec.)
estein1000-00	1000	67.0264	63.6071	0.948986	0.603652
estein1000-01	1000	66.6223	63.2023	0.948665	0.574634
estein1000-02	1000	67.2279	63.8675	0.950014	0.575013
estein1000-03	1000	66.8637	63.375	0.947825	0.580834
estein1000-04	1000	66.8818	63.43	0.948389	0.60227
estein1000-05	1000	66.7787	63.31	0.948056	0.598397
estein1000-06	1000	66.9816	63.5482	0.948741	0.565859
estein1000-07	1000	67.0887	63.6062	0.94809	0.573483
estein1000-08	1000	66.8243	63.3821	0.948489	0.587895
estein1000-09	1000	66.7329	63.2771	0.948214	0.570573
estein1000-10	1000	68.2402	64.6733	0.947731	0.588959
estein1000-11	1000	66.0117	62.7892	0.951184	0.582077
estein1000-12	1000	66.2443	62.885	0.94929	0.571546
estein1000-13	1000	67.8424	64.1307	0.94529	0.583852
estein1000-14	1000	67.0087	63.4568	0.946994	0.575205
estein10000-0	10000	305.303	289.561	0.948438	6.19529

Table 12: Full results achieved on the 3-dimensional ESTEIN instances ($n = 1000, 10000$) using the DB-heuristic.