Appendix B

Tables B1 and B2 present the results of the computational experiments of $PPART_*$ and TE models for each instance of the sets with $|V| = 100, 200$, while Tables B3 and B4 show the results of $PPART_*$ only for $|V| = 300, 400$. Columns d and L describe the density and the number of labels of the original graph, respectively; $time$ reports the total time (in seconds) of the entire execution, while $time_r$ reports the total time spent at the root node of the *branch-and-bound* algorithm; ub, lb and lb_r, the upper bound, lower bound and lower bound of the root node found by the method, respectively; $cuts$ and $cuts_r$, the amount of cuts added dynamically in the entire execution and in the root node resolution, respectively. Finally, $nodes$ stands for the number of nodes solved in the *branch-and-bound* tree. Each line of the tables stands for a single instance of the set.

Table B1
Detailed computational results for instances with $|V| = 100$.

Instances		***PPART**$_*$*								***TE***							
$\|L\|$	***d***	***time***	***time**$_r$*	***ub***	***lb***	***lb**$_r$*	***cuts***	***cuts**$_r$*	***nodes***	***time***	***time**$_r$*	***ub***	***lb***	***lb**$_r$*	***cuts***	***cuts**$_r$*	***nodes***
50	ld	1.15	0.42	13.0	13.0	0.2	1920	1920	196	7.08	0.03	13.0	13.0	3.5	2265	77	4224
50	md	1.86	0.60	23.0	23.0	0.3	4263	4263	195	0.49	0.01	23.0	23.0	6.0	801	18	444
50	hd	2.62	0.95	31.0	31.0	0.4	5835	5835	201	0.17	0.02	31.0	31.0	10.0	521	101	182
67	ld	1.26	0.49	15.0	15.0	0.2	1955	1955	199	98.73	0.03	15.0	15.0	2.2	8555	72	16341
67	md	2.58	0.68	30.0	30.0	0.3	4199	4199	205	48.78	0.03	30.0	30.0	6.0	5878	134	11986
67	hd	5.15	1.18	36.0	36.0	0.5	6546	6546	396	0.92	0.03	36.0	36.0	20.0	1094	156	987
83	ld	1.20	0.35	14.0	14.0	0.2	1948	1948	197	35.75	0.05	14.0	14.0	4.3	5345	113	9972
83	md	3.15	0.87	32.0	32.0	0.4	4722	4722	197	214.88	0.03	32.0	32.0	6.0	9521	41	25155
83	hd	4.94	1.49	38.0	38.0	0.7	7547	7547	195	6.70	0.02	38.0	38.0	7.0	2196	25	4795
100	ld	1.35	0.49	14.0	14.0	0.2	1940	1940	195	325.31	0.02	14.0	14.0	2.0	16739	22	30441
100	md	4.16	0.98	35.0	35.0	0.4	4765	4765	197	2042.61	0.01	35.0	35.0	4.3	21331	10	82179
100	hd	3.73	1.10	37.0	37.0	0.5	6902	6902	195	10.98	0.01	37.0	37.0	6.0	4041	15	2890
117	ld	1.29	0.46	14.0	14.0	0.2	1943	1943	195	266.36	0.11	14.0	14.0	2.7	15293	30	27832
117	md	4.69	1.11	35.0	35.0	0.4	4831	4831	197	3601.02	0.01	36.0	30.5	4.0	36622	7	69294
117	hd	5.81	1.34	42.0	42.0	0.5	8415	6828	197	206.29	0.11	42.0	42.0	11.7	14375	225	12675
133	ld	1.36	0.43	14.0	14.0	0.2	1938	1938	195	760.43	0.08	14.0	14.0	3.0	15564	221	56070
133	md	4.63	1.12	37.0	37.0	0.4	4877	4877	199	3601.02	0.01	41.0	24.0	3.0	73489	4	35432
133	hd	5.45	1.33	47.0	47.0	0.5	9009	7357	199	1057.00	0.05	47.0	47.0	6.0	20183	73	47524
150	ld	1.26	0.42	15.0	15.0	0.2	1946	1946	195	758.31	0.01	15.0	15.0	2.0	22968	5	51739
150	md	4.49	1.12	38.0	38.0	0.4	4802	4802	201	3601.02	0.01	42.0	21.0	3.0	80901	6	26992
150	hd	6.55	1.79	38.0	38.0	0.7	7812	7714	197	173.60	0.01	38.0	38.0	4.5	12735	8	11742
164	ld	1.24	0.43	13.0	13.0	0.2	1946	1946	188	1634.16	0.06	13.0	13.0	2.0	40336	178	49286
164	md	4.38	1.11	37.0	37.0	0.4	4735	4735	198	3601.05	0.01	43.0	19.5	3.5	78995	8	27535
164	hd	4.81	1.29	36.0	36.0	0.7	6969	6969	193	548.03	0.03	36.0	36.0	8.5	19920	34	29294
183	ld	1.27	0.54	13.0	13.0	0.2	1934	1934	190	2066.17	0.10	13.0	13.0	3.4	28871	228	85072
183	md	3.81	1.06	35.0	35.0	0.4	4852	4852	197	3601.06	0.01	41.0	20.0	3.3	92128	10	23524
183	hd	6.64	1.47	40.0	40.0	0.7	7712	7712	195	1177.09	0.01	40.0	40.0	3.5	22967	27	42280
200	ld	1.26	0.41	14.0	14.0	0.2	1934	1934	196	3601.05	0.02	17.0	12.0	1.8	48784	46	90090
200	md	4.40	1.24	39.0	39.0	0.4	4839	4839	201	3601.06	0.05	42.0	19.0	5.0	87556	83	25479
200	hd	6.73	1.86	42.0	42.0	0.8	7757	7757	193	3601.05	0.01	74.0	27.0	3.0	65624	7	32427

Table B2
Detailed computational results for instances with $|V| = 200$.

Instances		*PPART*$_*$								*TE*							
$\|L\|$	***d***	***time***	***time***$_r$	***ub***	***lb***	***lb***$_r$	***cuts***	***cuts***$_r$	***nodes***	***time***	***time***$_r$	***ub***	***lb***	***lb***$_r$	***cuts***	***cuts***$_r$	***nodes***
100	ld	16.13	2.77	29.0	29.0	0.2	7776	7776	399	3601.03	0.03	35.0	19.1	4.5	49106	46	57172
100	md	33.75	5.10	51.0	51.0	0.3	13524	13524	403	751.55	0.03	51.0	51.0	6.0	12133	16	87787
100	hd	130.33	7.91	69.0	69.0	0.4	22279	22279	3249	5.31	0.10	69.0	69.0	13.0	2988	70	2750
133	ld	17.15	2.54	29.0	29.0	0.2	7764	7764	397	3601.08	0.01	34.0	15.0	3.3	83095	9	33926
133	md	68.87	12.31	43.0	43.0	0.5	19464	19464	395	66.98	0.02	43.0	43.0	3.5	4317	7	15275
133	hd	101.33	10.60	75.0	75.0	0.6	29087	29087	427	26.72	0.21	75.0	75.0	37.0	3611	158	11338
166	hd	92.05	11.69	86.0	86.0	0.6	28803	28803	481	3601.06	0.06	86.0	78.4	8.0	5990	28	443904
167	ld	19.77	3.17	25.0	25.0	0.2	7840	7840	397	3601.06	0.01	34.0	12.0	2.3	87247	5	31050
167	md	46.69	5.64	52.0	52.0	0.4	16960	16431	399	3601.15	0.08	72.0	30.4	9.6	84540	62	19960
200	ld	18.77	3.36	30.0	30.0	0.2	8650	7846	397	3601.08	0.01	33.0	14.3	2.5	77480	4	34661
200	md	74.27	8.38	71.0	71.0	0.4	22082	18678	405	3601.23	0.17	79.0	27.0	8.0	81954	150	21901
200	hd	109.85	13.81	85.0	85.0	0.7	32421	29953	409	3601.10	0.10	85.0	68.1	7.5	28759	45	41157
233	ld	18.82	3.35	27.0	27.0	0.2	7775	7775	394	3601.06	0.01	33.0	11.6	2.5	88868	3	24414
233	md	60.41	6.89	64.0	64.0	0.4	19734	19212	395	3601.06	0.02	84.0	23.5	4.0	77673	9	21923
233	hd	90.77	11.43	83.0	83.0	0.5	40402	30707	395	3601.05	0.04	89.0	66.7	8.0	27252	17	64736
267	ld	20.34	2.16	30.0	30.0	0.2	8218	7796	399	3601.10	0.02	33.0	12.0	3.3	106038	45	20311
267	md	60.47	7.25	63.0	63.0	0.4	19182	19066	395	3601.08	0.02	84.0	21.0	3.0	87043	7	16410
267	hd	155.35	15.69	89.0	89.0	0.7	30601	30601	395	3601.54	0.53	138.0	43.2	10.5	73550	346	20655
300	ld	24.15	3.94	33.0	33.0	0.2	8462	7875	395	3601.14	0.09	34.0	11.6	2.0	101875	118	22986
300	md	92.98	9.72	73.0	73.0	0.4	20457	19064	401	3601.10	0.02	81.0	21.4	3.5	96495	9	16647
300	hd	132.97	12.87	95.0	95.0	0.7	32722	30885	395	3601.05	0.03	136.0	37.8	6.0	79035	11	20227
333	ld	21.54	2.17	31.0	31.0	0.2	7863	7849	397	3601.06	0.01	35.0	9.6	2.4	99117	4	23837
333	md	78.69	9.36	68.0	68.0	0.4	19545	19545	397	3601.08	0.03	87.0	19.0	4.0	87070	12	17448
333	hd	164.39	17.39	93.0	93.0	0.7	32692	30954	397	3601.10	0.03	136.0	37.0	4.5	79094	9	27636
367	ld	21.71	3.41	29.0	29.0	0.2	7878	7749	397	3601.07	0.01	34.0	9.3	2.5	100400	4	21730
367	md	103.60	11.06	75.0	75.0	0.4	20179	19616	399	3601.08	0.02	85.0	19.5	4.0	96041	5	11474
367	hd	156.05	16.51	102.0	102.0	0.7	31073	31073	399	3601.49	0.40	137.0	32.0	8.0	84164	251	17491
400	ld	19.67	1.97	26.0	26.0	0.2	7861	7861	396	3601.08	0.01	34.0	8.7	2.0	101754	4	20348
400	md	97.86	11.38	68.0	68.0	0.4	19595	19595	395	3601.10	0.02	85.0	16.6	4.0	87751	8	17248
400	hd	154.28	15.50	92.0	92.0	0.7	31115	31115	394	3601.07	0.06	145.0	31.1	6.5	81195	22	21207

Table B3
Detailed computational results for instances with $|V| = 300$.

Instances		***PPART**$_*$*							
$\|L\|$	***d***	***time***	***time**$_r$*	***ub***	***lb***	***lb**$_r$*	***cuts***	***cuts**$_r$*	***nodes***
150	ld	149.52	14.59	45.0	45.0	0.2	21432	17749	599
150	md	491.72	21.24	89.0	89.0	0.4	40410	40410	1854
150	hd	413.03	24.79	115.0	115.0	0.4	55087	55087	3062
201	ld	163.34	16.21	50.0	50.0	0.2	22608	17809	603
201	md	537.87	53.69	90.0	90.0	0.5	44629	44629	601
201	hd	1609.49	39.89	130.0	130.0	0.5	65938	65938	9291
249	ld	158.19	16.17	49.0	49.0	0.2	17837	17837	599
249	md	524.30	36.81	98.0	98.0	0.5	44551	44551	603
249	hd	1100.68	66.41	135.0	135.0	0.7	70205	70205	1219
300	ld	165.45	17.03	49.0	49.0	0.2	18510	17829	601
300	md	752.52	33.34	113.0	113.0	0.4	45122	44502	601
300	hd	821.83	61.70	114.0	114.0	0.8	71278	71278	595
351	ld	132.42	14.45	44.0	44.0	0.2	17871	17871	593
351	md	604.23	30.54	110.0	110.0	0.5	44643	44478	601
351	hd	1226.90	42.91	140.0	140.0	0.7	72992	70238	599
399	ld	163.86	20.32	46.0	46.0	0.2	18530	17821	599
399	md	615.35	33.35	114.0	114.0	0.4	44565	44565	599
399	hd	1066.48	68.39	130.0	130.0	0.8	71423	71423	595
450	ld	165.92	19.69	49.0	49.0	0.2	19392	17788	599
450	md	712.05	30.03	124.0	124.0	0.4	48767	44592	601
450	hd	1026.47	37.57	150.0	150.0	0.5	91646	70862	597
492	ld	169.06	19.34	46.0	46.0	0.2	20569	17777	597
492	md	737.07	30.42	125.0	125.0	0.4	44489	44489	601
492	hd	884.47	31.90	132.0	132.0	0.7	75030	70459	595
549	ld	184.40	21.16	49.0	49.0	0.2	19202	17800	599
549	md	618.42	30.19	112.0	112.0	0.4	44557	44557	599
549	hd	770.39	47.73	120.0	120.0	0.8	71401	71401	595
600	ld	175.19	16.33	47.0	47.0	0.2	18423	17851	601
600	md	560.63	23.51	111.0	111.0	0.5	44632	44632	595
600	hd	1024.11	53.83	130.0	130.0	0.7	71160	71160	593

Table B4
Detailed computational results for instances with $|V| = 400$.

Instances		***PPART**$_*$*							
$\|L\|$	***d***	***time***	***time**$_r$*	***ub***	***lb***	***lb**$_r$*	***cuts***	***cuts**$_r$*	***nodes***
200	ld	462.36	26.82	63.0	63.0	0.2	32184	31606	801
200	md	2085.85	43.43	123.0	123.0	0.4	75466	75466	10020
200	hd	1614.08	51.84	153.0	153.0	0.4	104817	103875	5252
268	ld	410.86	23.45	61.0	61.0	0.2	31801	31801	797
268	md	1753.58	86.91	122.0	122.0	0.5	79409	79409	811
268	hd	3601.40	61.32	200.0	149.0	0.5	119268	119268	10989
332	ld	466.22	24.13	63.0	63.0	0.2	32715	31726	795
332	md	3174.13	79.11	149.0	149.0	0.4	81093	79259	879
332	hd	3060.11	138.30	151.0	151.0	0.7	127455	127231	803
400	ld	494.68	22.12	66.0	66.0	0.2	32842	31807	795
400	md	2790.23	63.16	165.0	165.0	0.4	80947	79364	809
400	hd	3567.26	128.30	155.0	155.0	0.8	126974	126974	795
468	ld	548.25	24.82	67.0	67.0	0.2	35215	31781	801
468	md	2678.16	84.64	153.0	153.0	0.4	80914	79255	801
468	hd	2612.40	80.67	188.0	188.0	0.7	130781	125899	799
532	ld	509.48	21.82	63.0	63.0	0.2	32243	31802	797
532	md	2430.93	67.74	158.0	158.0	0.4	79385	79385	799
532	hd	3602.01	240.94	209.0	1.7	0.7	136155	126495	575
600	ld	489.57	26.28	63.0	63.0	0.2	31823	31823	795
600	md	2081.83	68.36	139.0	139.0	0.5	79592	79592	793
600	hd	3601.54	78.53	217.0	2.6	0.7	135055	125968	678
656	ld	537.71	21.71	65.0	65.0	0.2	31746	31746	798
656	md	2366.03	63.61	155.0	155.0	0.4	79318	79318	801
656	hd	2072.75	49.72	208.0	208.0	0.6	128016	120089	799
732	ld	512.08	22.37	60.0	60.0	0.2	32597	31733	796
732	md	1940.26	53.29	137.0	137.0	0.5	79508	79508	795
732	hd	3601.06	69.06	191.0	3.0	0.7	138465	124829	645
800	ld	572.28	23.33	65.0	65.0	0.2	33851	31789	799
800	md	2411.12	45.90	168.0	168.0	0.4	103911	79206	799
800	hd	2891.97	97.32	165.0	165.0	0.8	127245	127245	793