Detailed Data for Test Problem Sets 1 and 2

The first three columns of the tables give problem number and size where m is the number of polytope-defining inequalities and n the number of variables. For the KT and MKT algorithms, the tables give both the number of outer-iterations (i.e., the number of subproblems solved) and the number of inner-iterations (i.e., the number of Newton iterations), separated by a slash. The time is measured by CPU seconds. On Problems 22 and 120 of the test set 2, the KT algorithm failed to solve the first subproblem (i.e., at the zero-th outer iteration). For these 2 problem, we set the outer iteration number to 0 and give the number of inner iterations the algorithm took before it stopped.

Table 1: Results on Test Set 1: Problems 1-47

Prob	Size		KT		MKT		F1PD		F2PD	
No.	m	n	Iter	Time (sec)	Iter	Time (sec)	Iter	Time (sec)	Iter	Time (sec)
1	288	80	8/369	155.83	8/43	10.14	21	8.82	18	4.40
2	286	79	9/416	194.64	9/79	19.18	20	9.00	21	5.80
3	272	72	9/375	137.47	9/48	9.30	15	5.33	15	3.22
4	260	66	10/431	145.55	10/58	9.81	17	5.54	17	3.38
5	256	64	10/410	132.96	10/49	8.04	14	4.39	14	2.69
6	246	59	10/414	117.01	10/53	7.44	15	4.09	15	2.50
7	244	58	10/411	116.80	10/52	7.11	14	3.79	15	2.52
8	236	54	10/405	98.98	10/57	7.05	15	3.55	16	2.33
9	234	53	10/414	101.27	10/54	6.51	15	3.54	15	2.21
10	232	52	10/425	101.98	10/53	6.17	15	3.54	16	2.37
11	230	51	9/386	87.61	9/52	5.98	15	3.31	15	2.11
12	228	50	9/384	85.17	9/54	6.08	15	3.26	15	2.01
13	226	49	10/441	96.21	10/56	6.06	15	3.20	16	2.19
14	224	48	10/433	88.96	10/58	6.19	16	3.33	16	2.07
15	222	47	10/439	88.64	10/55	5.57	16	3.18	16	1.95
16	220	46	10/432	83.21	10/55	5.41	16	3.08	16	1.96
17	218	45	10/433	81.07	10/54	5.16	16	2.94	16	1.81
18	216	44	10/439	80.37	10/55	5.10	16	2.95	16	1.76
19	212	42	9/405	69.66	9/52	4.58	15	2.54	15	1.55
20	210	41	9/391	65.11	9/53	4.57	13	2.14	13	1.36
21	208	40	10/423	67.76	10/63	5.26	16	2.57	15	1.47
22	206	39	10/434	66.50	10/61	4.91	16	2.53	15	1.49
23	206	39	10/434	66.50	10/63	5.10	15	2.30	15	1.46
24	204	38	10/431	64.24	10/60	4.67	16	2.43	15	1.35
25	202	37	9/393	55.93	9/63	4.84	15	2.11	15	1.31
26	200	36	9/393	53.98	10/59	4.29	15	2.04	15	1.26
27	198	35	10/429	57.06	10/60	4.24	15	1.99	15	1.22
28	196	34	10/428	55.18	10/67	4.64	15	1.92	15	1.20
29	194	33	10/430	53.54	10/66	4.45	16	1.99	15	1.16
30	192	32	10/424	50.88	10/58	3.83	15	1.83	15	1.15
31	192	32	10/434	52.16	10/61	4.05	15	1.85	14	1.05
32	190	31	10/411	46.93	10/56	3.46	15	1.75	15	1.10
33	188	30	10/410	44.56	10/57	3.39	15	1.69	15	1.04
34	186	29	10/406	42.55	10/56	3.21	14	1.51	14	0.97
35	184	28	10/410	41.42	10/60	3.34	13	1.34	13	0.83
36	184	28	10/406	40.98	10/60	3.37	14	1.45	14	0.91
37	182	27	10/417	40.33	10/56	3.03	13	1.29	14	0.86
38	180	26	10/413	37.95	10/58	3.03	13	1.25	14	0.81
39	180	26	10/413	37.95	10/57	2.93	14	1.35	14	0.84
40	178	25	10/403	35.61	10/56	2.76	13	1.19	13	0.72
41	176	24	10/406	34.18	10/51	2.40	13	1.21	13	0.69
42	174	23	10/418	33.77	10/54	2.46	12	0.99	13	0.68
43	172	22	10/404	31.10	10/50	2.17	12	0.95	13	0.66
44	172	22	10/405	31.17	10/52	2.28	12	0.97	13	0.66
45	168	20	10/404	28.50	10/57	2.31	13	0.96	14	0.63
46	164	18	10/384	24.35	10/56	2.10	13	0.89	12	0.51
47	162	17	10/400	15.91	10/48	1.61	10	0.42	10	0.39

Table 2: Results on Test Set 2: Problems 1-48

Prob	Size		KT		MKT		F1PD		F2PD	
No.	m	n	Iter	Time (sec)	Iter	Time (sec)	Iter	Time (sec)	Iter	Time (sec)
1	147	50	11/463	34.60	11/73	3.78	21	1.71	16	0.98
2	147	49	9/426	32.07	12/88	4.44	20	1.59	16	0.96
3	147	48	7/376	27.92	9/67	3.43	18	1.41	14	0.81
4	147	49	9/390	29.09	12/83	4.20	25	2.09	18	1.11
5	147	48	7/370	27.43	9/65	3.31	18	1.47	14	0.80
6	147	47	7/407	29.87	9/64	3.22	17	1.39	14	0.85
7	147	48	9/403	29.54	10/77	3.92	26	2.05	19	1.19
8	147	47	8/391	28.61	10/74	3.64	19	1.51	16	0.95
9	147	49	9/395	29.52	11/72	3.60	20	1.70	16	0.99
10	147	48	7/385	29.59	11/73	3.61	16	1.32	14	0.86
11	147	48	9/414	31.41	12/83	4.13	24	2.00	19	1.19
12	147	47	8/380	27.81	10/74	3.75	18	1.44	16	0.92
13	147	48	9/398	30.07	12/79	3.91	21	1.79	17	1.05
14	147	47	8/383	28.59	10/73	3.66	19	1.58	16	0.94
15	147	47	9/389	28.83	10/74	3.66	23	1.84	18	1.06
16	137	35	7/513	26.29	7/55	2.11	20	1.11	15	0.61
17	137	35	7/491	25.08	7/49	1.84	14	0.79	13	0.54
18	137	35	7/383	19.23	7/50	1.89	16	0.91	13	0.57
19	137	34	6/383	19.22	7/47	1.74	13	0.70	13	0.51
20	137	34	7/415	20.74	7/49	1.79	15	0.85	13	0.53
21	132	30	6/336	14.67	6/48	1.62	15	0.74	13	0.46
22	134	33	0/166	8.36	7/55	1.94	21	1.13	16	0.61
23	137	36	7/354	17.94	7/64	2.53	21	1.20	17	0.69
24	137	35	7/358	18.02	7/63	2.45	18	1.00	16	0.72
25	137	34	7/396	19.95	7/57	2.22	20	1.09	18	0.73
26	137	34	8/409	20.60	9/73	2.70	20	1.15	17	0.70
27	136	33	6/320	15.61	6/59	2.20	23	1.29	18	0.71
28	136	32	7/506	25.15	8/71	2.61	20	1.13	18	0.75
29	137	36	7/484	25.32	7/58	2.28	16	0.89	13	0.53
30	137	35	8/588	30.33	9/58	2.14	14	0.80	13	0.53
31	137	35	6/432	22.19	7/57	2.17	21	1.15	15	0.61
32	137	34	7/437	21.98	7/53	1.97	16	0.87	13	0.52
33	137	34	7/422	21.24	7/45	1.62	13	0.73	13	0.53
34	137	36	7/361	18.32	7/63	2.43	21	1.16	17	0.70
35	137	35	7/359	18.19	7/61	2.36	19	1.08	17	0.71
36	137	35	6/299	15.09	6/66	2.67	23	1.34	19	0.84
37	137	34	7/366	18.47	8/68	2.56	19	1.05	17	0.69
38	137	35	6/299	15.08	6/57	2.24	20	1.14	17	0.69
39	137	34	6/296	14.70	6/57	2.19	20	1.14	18	0.76
40	136	33	6/323	15.77	6/59	2.22	24	1.33	19	0.75
41	147	48	9/390	29.49	11/74	3.67	21	1.68	17	1.02
42	147	47	7/357	26.46	10/85	4.29	15	1.18	13	0.76
43	147	46	7/462	34.29	7/59	3.04	19	1.47	15	0.85
44	147	47	8/363	26.70	13/75	3.55	17	1.34	14	0.82
45	147	46	7/419	30.84	14/88	4.19	15	1.16	13	0.74
46	147	46	8/372	26.95	12/80	3.84	15	1.15	13	0.75
47	147	45	7/354	24.79	12/79	3.74	14	1.06	13	0.71
48	147	44	7/442	30.97	12/82	3.88	17	1.26	14	0.76

Table 3: Results on Test Set 2: Problems 49-96

Prob	Size		KT		MKT		F1PD		F2PD	
No.	m	n	Iter	Time (sec)	Iter	Time (sec)	Iter	Time (sec)	Iter	Time (sec)
49	147	46	8/368	26.21	10/65	3.14	17	1.30	14	0.79
50	147	45	7/371	26.21	13/82	3.84	15	1.13	13	0.72
51	147	45	8/370	25.95	11/71	3.40	16	1.21	14	0.78
52	147	43	7/370	24.92	12/75	3.44	15	1.08	13	0.68
53	147	46	7/359	25.71	11/72	3.46	15	1.14	12	0.68
54	147	47	11/479	35.21	11/84	4.22	19	1.49	17	0.99
55	147	46	8/401	27.98	12/80	3.83	15	1.12	14	0.76
56	147	46	10/459	31.92	12/80	3.81	17	1.28	16	0.87
57	147	45	9/430	29.70	13/74	3.40	15	1.12	14	0.75
58	147	45	8/396	26.77	9/67	3.23	13	0.94	12	0.65
59	135	39	7/389	20.67	7/55	2.16	14	0.81	13	0.56
60	135	38	7/403	21.29	9/61	2.31	14	0.80	12	0.52
61	135	38	7/461	24.80	8/59	2.30	15	0.87	12	0.51
62	135	38	7/390	20.77	9/61	2.30	14	0.81	12	0.51
63	135	37	8/383	19.70	11/67	2.42	15	0.84	14	0.58
64	135	39	8/381	20.03	11/64	2.32	12	0.70	11	0.47
65	135	38	7/340	17.95	10/58	2.12	11	0.63	11	0.49
66	135	38	7/350	18.56	10/60	2.20	11	0.63	11	0.48
67	135	38	6/345	18.53	10/70	2.60	14	0.81	12	0.52
68	135	37	7/455	23.12	8/53	1.98	13	0.71	12	0.49
69	135	38	7/381	19.89	9/62	2.34	14	0.80	12	0.50
70	135	36	7/389	19.86	10/65	2.31	14	0.79	13	0.53
71	135	35	7/472	23.91	7/55	2.07	15	0.82	13	0.52
72	135	35	7/357	17.73	9/55	1.93	11	0.61	11	0.44
73	135	34	7/393	19.29	9/62	2.20	15	0.81	13	0.50
74	135	35	7/399	20.11	11/61	2.12	13	0.71	12	0.49
75	135	35	7/472	23.92	7/55	2.07	15	0.82	13	0.52
76	135	35	7/356	17.67	10/59	2.06	13	0.71	12	0.48
77	135	36	7/459	23.39	9/63	2.30	14	0.76	12	0.49
78	135	37	6/379	19.85	7/55	2.10	13	0.73	12	0.51
79	137	39	7/425	23.02	13/83	3.19	15	0.87	13	0.56
80	137	40	7/415	22.99	10/65	2.63	14	0.84	12	0.53
81	147	45	8/398	26.92	9/66	3.17	13	0.95	12	0.63
82	135	38	7/381	19.86	10/66	2.43	14	0.80	12	0.50
83	134	37	7/365	18.55	10/58	2.07	13	0.72	12	0.50
84	134	37	7/376	19.15	7/55	2.07	14	0.77	12	0.51
85	134	37	7/418	21.52	8/58	2.15	14	0.77	12	0.50
86	135	39	7/410	21.69	8/59	2.30	14	0.80	12	0.52
87	137	37	7/373	19.62	9/65	2.45	16	0.92	13	0.54
88	128	36	7/385	17.27	7/57	1.99	16	0.79	13	0.51
89	128	36	7/395	17.23	10/60	1.98	13	0.63	12	0.46
90	137	39	7/338	18.27	10/61	2.34	11	0.65	11	0.48
91	128	37	6/316	14.37	11/71	2.40	14	0.72	13	0.50
92	137	38	6/399	21.73	13/79	2.96	13	0.76	12	0.51
93	137	38	8/370	19.65	12/65	2.35	11	0.64	11	0.48
94	137	37	7/372	19.61	11/74	2.80	15	0.85	13	0.55
95	137	37	6/384	20.61	11/67	2.48	14	0.81	12	0.51
96	137	39	7/389	21.29	10/68	2.62	13	0.76	12	0.53

Table 4: Results on Test Set 2: Problems 97-143

Prob	Size		KT		MKT		F1PD		F2PD	
No.	m	n	Iter	Time (sec)	Iter	Time (sec)	Iter	Time (sec)	Iter	Time (sec)
97	137	38	5/346	18.75	8/59	2.35	15	0.86	12	0.51
98	137	39	6/364	20.08	10/63	2.47	13	0.78	12	0.52
99	137	39	7/425	23.03	13/83	3.15	15	0.87	13	0.56
100	137	38	7/394	21.05	11/67	2.52	15	0.86	13	0.56
101	128	37	7/350	15.76	11/68	2.30	15	0.76	13	0.50
102	128	36	6/306	13.53	11/69	2.29	16	0.79	14	0.54
103	137	40	7/416	23.02	10/65	2.58	14	0.84	12	0.53
104	147	47	7/353	26.40	10/70	3.44	15	1.18	13	0.76
105	147	48	9/401	31.14	12/80	3.96	24	1.94	18	1.07
106	147	47	9/428	32.29	12/83	4.07	20	1.58	16	0.93
107	147	46	7/419	30.25	10/73	3.59	14	1.06	12	0.68
108	147	46	9/446	31.81	12/78	3.73	19	1.43	15	0.83
109	147	45	7/359	25.30	9/70	3.43	14	1.05	13	0.75
110	147	44	7/552	39.44	7/59	2.98	16	1.18	14	0.76
111	147	47	7/396	29.70	8/68	3.46	15	1.17	13	0.77
112	147	48	9/438	33.47	12/82	4.06	16	1.30	14	0.84
113	147	48	7/432	33.53	10/70	3.54	14	1.13	12	0.73
114	147	49	9/396	29.62	11/71	3.56	20	1.60	16	0.94
115	147	48	8/425	31.56	12/80	3.94	17	1.33	14	0.80
116	147	47	7/410	30.40	9/66	3.32	18	1.39	14	0.82
117	147	48	9/420	30.96	12/83	4.10	24	1.87	19	1.10
118	147	47	7/407	30.10	7/54	2.77	17	1.32	13	0.76
119	147	47	9/431	31.60	11/81	3.99	21	1.64	17	0.97
120	147	46	0/164	12.65	8/69	3.55	25	1.91	18	1.01
121	147	46	8/411	29.85	8/70	3.53	20	1.53	16	0.91
122	147	48	9/391	28.62	12/79	3.89	21	1.66	17	0.98
123	147	47	9/449	32.80	9/74	3.73	21	1.63	17	0.97
124	147	46	8/423	30.63	8/68	3.40	18	1.37	15	0.84
125	147	47	9/403	29.17	10/75	3.71	22	1.69	17	0.98
126	147	46	8/395	28.53	13/84	4.01	19	1.45	16	0.90
127	147	43	7/521	36.15	7/67	3.29	19	1.37	15	0.79
128	147	46	9/419	30.14	11/77	3.73	24	1.84	18	1.01
129	147	45	9/402	28.43	11/74	3.52	23	1.73	17	0.95
130	147	45	7/416	30.03	7/59	3.00	16	1.21	13	0.73
131	147	49	9/389	29.05	12/82	4.11	23	1.87	17	1.02
132	147	48	7/373	27.86	12/80	3.96	18	1.41	15	0.87
133	147	47	7/410	30.43	9/66	3.32	17	1.32	14	0.80
134	147	48	9/419	30.81	12/83	4.11	24	1.88	19	1.10
135	147	47	7/400	29.58	7/54	2.81	17	1.32	14	0.81
136	147	47	9/432	31.51	11/81	3.98	20	1.56	17	0.97
137	147	46	8/419	30.38	8/67	3.36	18	1.38	15	0.85
138	147	49	9/410	30.74	12/86	4.34	21	1.67	17	1.01
139	147	48	8/402	29.83	10/74	3.71	18	1.41	15	0.87
140	147	47	8/420	30.66	10/74	3.66	18	1.42	15	0.85
141	147	48	6/381	28.65	8/62	3.24	17	1.34	14	0.81
142	147	50	12/514	38.50	12/86	4.40	27	2.17	20	1.18
143	147	49	8/415	31.70	8/77	4.11	21	1.67	18	1.06