

3-5-Man chess data

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3-5-MAN CHESS DATA

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ABSTRACT

This reports the work of Karrer and Wirth in identifying percentage results and, respectively, the Depth to Mate (DTM) and Depth to Conversion (DTC) data in all 2-5-man chess endgames.

1. INTRODUCTION

Karrer (2000) mined Nalimov's endgame tables (EGTs) to produce a complete list of DTM maximals and statistics, wtm and btm. Wirth (2000) then computed the 4-1 EGTs to complete his 2-5-man DTC suite and to produce the analogous data for the DTC metric which was compared with Thompson's 'CD' data (2000).

Wirth (2000) also provided the results percentages, wtm and btm. As he also provided the number of positions won in a specific number of plies, quick wins based on shallow tactical devices may be discounted as required from these percentages. As Wirth eliminates from his EGTs duplicates of positions with two Kings on a long diagonal, his statistics are marginally more accurate than Nalimov's. Both, for reasons of comparability, discount only those unreachable positions where the side-not-to-move is in check. Most obvious among residual unreachables, White is credited with 77 unreachable KNNK wins in 1 move.

Tamplin (2001) provides an excellent query interface to these DTM and DTC EGTs, the latter via Lincke (2001) where even the 4-man tables are to the DTC metric. Here are some sidelights on Table 1's statistics.

- Independent maxDTM computations by Rasmussen (2000) agreed completely with Karrer's data.
- Thompson's 5-man EGTs maximise the DTC of the next position rather than postponing the next conversion to mate or a subgame: the weaker side is allowed to capture voluntarily as a human player might do. This produced different maxDTC data for KRKNP, KRRKN and KBNKP. Thompson (2001) now maximises the current DTC by maximising the number of men on the board first. Note that under DTC, the stronger side may unnaturally force-sacrifice surplus force, e.g., as in KQQQK.
- Wirth used the existing ETH(Zürich) software RETROENGINE which assumes that captures are made by the winner. Where this need not be so as in wKc3Rb4c2/bKa1, Wirth's depths in plies are 1 ply too great: the wtm maxDTCs for KQRKR and KRRKQ are therefore suspect. Similarly, Thompson (2001), e.g., with Ra4+ and Kd4/5/6 alongside Ra2+ for wKc5Rb4c2/bKa1Na7a8, can rate moves equi-optimal which differ in depth by one ply. It is unlikely that any player has incurred a 50-move draw on these grounds yet.

2. REFERENCES

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	Force	GBR	#	w-b	% of unbroken positions								maxDTC								maxDTM							
					=		1-0		0-1		counts				depths, moves				counts				depths, moves					
					wtm	btm	wtm	btm	wtm	btm	wtm	btm	wtm	btm	wtm	btm	wtm	btm	wtm	btm	wtm	btm	wtm	btm	wtm	btm	wtm	btm
1	KK	0000.00	2	1-1	100.00	100.00	0.00	0.00	0.00	0.00	0	0	0	0	—	—	—	—	0	0	0	0	—	—	—	—		
2	KBK	0010.00	3	2-1	100.00	100.00	0.00	0.00	0.00	0.00	0	0	0	0	—	—	—	—	0	0	0	0	—	—	—	—		
3	KNK	0001.00	3	2-1	100.00	100.00	0.00	0.00	0.00	0.00	0	0	0	0	—	—	—	—	0	0	0	0	—	—	—	—		
4	KPK	0000.10	3	2-1	23.49	41.91	76.51	58.09	0.00	0.00	3	2	0	0	19	19	—	—	3	2	0	0	28	28	—	—		
5	KQK	1000.00	3	2-1	0.00	10.32	100.00	89.68	0.00	0.00	1	8	0	0	10	10	—	—	1	8	0	0	10	10	—	—		
6	KRK	0100.00	3	2-1	0.00	9.97	100.00	90.03	0.00	0.00	121	390	0	0	16	16	—	—	121	390	0	0	16	16	—	—		
7	KBKB	0040.00	4	2-2	100 - ε	100 - ε	ε	0.00	0.00	ε	52	14	14	52	1	0	0	1	52	14	14	52	1	0	0	1		
8	KBKN	0013.00	4	2-2	100 - ε	100 - ε	ε	0.00	0.00	ε	2	1	1	5	1	0	0	1	2	1	1	5	1	0	0	1		
9	KBKP	0010.01	4	2-2	94.76	76.43	ε	ε	5.24	23.57	104	28	6	14	1	0	5	6	104	28	20	8	1	0	19	29		
10	KNKN	0004.00	4	2-2	100 - ε	100 - ε	ε	0.00	0.00	ε	5	1	1	5	1	0	0	1	5	1	1	5	1	0	0	1		
11	KNKP	0001.01	4	2-2	87.06	67.44	ε	ε	12.93	32.56	29	7	3	3	7	6	12	13	29	7	4	13	7	6	28	29		
12	KPKP	0000.11	4	2-2	33.81	33.81	44.50	21.69	21.69	44.50	1	1	1	1	14	14	14	14	12	1	1	12	33	33	33	33		
13	KQKB	1030.00	4	2-2	0.31	23.12	99.69	76.88	0.00	0.00	798	3804	0	0	12	12	—	—	2	6	0	0	17	17	—	—		
14	KQKN	1003.00	4	2-2	0.65	19.52	99.35	80.48	0.00	0.00	4	17	0	0	19	19	—	—	3	12	0	0	21	21	—	—		
15	KQKP	1000.01	4	2-2	0.63	12.08	99.37	80.17	ε	7.75	1	1	20	20	27	27	1	2	3	13	2	8	28	28	10	29		
16	KQKQ	4000.00	4	2-2	57.80	57.80	4174	0.45	0.45	4174	5	3	3	5	10	9	9	10	2	2	2	2	13	12	12	13		
17	KQKR	1300.00	4	2-2	0.80	5.83	99.01	65.51	0.19	28.66	2	11	55	291	31	31	2	3	10	59	4	23	35	35	18	19		
18	KRKB	0130.00	4	2-2	64.88	96.77	35.12	3.23	0.00	0.00	29	1	0	0	18	18	—	—	29	1	0	0	29	29	—	—		
19	KRKN	0103.00	4	2-2	51.67	89.11	48.33	10.89	ε	ε	2	2	1	4	27	27	0	1	1	1	1	4	40	40	0	1		
20	KRKP	0100.01	4	2-2	8.40	17.50	9143	66.10	0.17	16.40	28	42	3	3	16	16	10	11	82	2	1	1	26	32	42	43		
21	KRRK	0400.00	4	2-2	70.21	70.21	29.12	0.67	0.67	29.12	58	108	108	58	4	3	3	4	136	18	18	136	19	19	19	19		
22	KB BK	0020.00	4	3-1	50.76	58.82	49.24	41.18	0.00	0.00	15	45	0	0	19	19	—	—	15	45	0	0	19	19	—	—		
23	KB NK	0011.00	4	3-1	0.49	18.10	99.51	81.90	0.00	0.00	138	370	0	0	33	33	—	—	138	370	0	0	33	33	—	—		
24	KB PK	0010.10	4	3-1	4.05	16.78	95.95	83.22	0.00	0.00	2	8	0	0	21	21	—	—	1	2	0	0	31	31	—	—		
25	KNNK	0002.00	4	3-1	99.99	100 - ε	0.01	ε	0.00	0.00	77	15	0	0	1	0	—	—	77	15	0	0	1	0	—	—		
26	KNP K	0001.10	4	3-1	3.70	18.50	96.30	81.50	0.00	0.00	24	32	0	0	22	22	—	—	26	22	0	0	27	28	—	—		
27	KPP K	0000.20	4	3-1	1.61	7.91	98.39	92.09	0.00	0.00	62	21	0	0	16	16	—	—	9	10	0	0	32	32	—	—		
28	KQB K	1010.00	4	3-1	0.00	9.38	100.00	90.62	0.00	0.00	311	2054	0	0	7	7	—	—	4	8	0	0	8	10	—	—		
29	KQN K	1001.00	4	3-1	0.00	9.64	100.00	90.36	0.00	0.00	172	1012	0	0	8	8	—	—	1	8	0	0	9	10	—	—		
30	KQP K	1000.10	4	3-1	0.00	2.85	100.00	97.15	0.00	0.00	750	1862	0	0	7	7	—	—	4	22	0	0	10	28	—	—		
31	KQQK	2000.00	4	3-1	0.00	2.07	100.00	97.93	0.00	0.00	20	62	0	0	4	4	—	—	118	8	0	0	4	10	—	—		
32	KQRK	1100.00	4	3-1	0.00	1.04	100.00	98.96	0.00	0.00	8	42	0	0	5	5	—	—	6	896	0	0	6	16	—	—		
33	KRB K	0110.00	4	3-1	0.00	8.80	100.00	91.20	0.00	0.00	3	15	0	0	12	12	—	—	28	906	0	0	16	16	—	—		
34	KRN K	1001.00	4	3-1	0.00	9.18	100.00	90.82	0.00	0.00	1427	4568	0	0	12	12	—	—	22	865	0	0	16	16	—	—		
35	KRP K	0100.10	4	3-1	0.00	2.46	100.00	97.54	0.00	0.00	1066	4664	0	0	8	8	—	—	45	22	0	0	16	28	—	—		
36	KRRK	0200.00	4	3-1	0.00	0.29	100.00	99.71	0.00	0.00	15	76	0	0	6	6	—	—	1444	896	0	0	7	16	—	—		

Table 1a. 2-4-man chess endgame statistics.

Force	#	w-b	% of unbroken positions								maxDTC								maxDTM							
			=		=		1-0		0-1		counts		depths, moves		counts		depths, moves		counts		depths, moves					
			wtm	btm	wtm	btm	wtm	btm	wtm	btm	1-0	0-1	wtm	btm	1-0	0-1	wtm	btm	1-0	0-1	wtm	btm	1-0	0-1		
37	KBBKB	0050.00	5	3-2	84.36	98.63	15.64	1.37	0.00	0.01	503	6	141	464	6	6	1	2	111	12	141	464	22	22	1	2
38	KBBKN	0023.00	5	3-2	51.77	66.12	48.23	33.88	ε	ε	32	43	44	222	66	66	0	1	32	43	44	222	78	78	0	1
39	KBBKP	0020.01	5	3-2	50.23	54.13	48.01	34.46	1.76	11.41	34	69	5	11	21	21	8	9	1	15	54	82	74	73	82	83
40	KBBKQ	3020.00	5	3-2	20.15	2.87	15.29	0.64	64.56	96.49	242	58	74	15	4	3	71	71	39	70	74	15	21	20	81	81
41	KBBKR	0320.00	5	3-2	83.43	97.22	16.51	1.51	0.06	1.28	26	7	2	6	7	6	8	9	36	6	1	6	23	22	30	31
42	KB NKB	0041.00	5	3-2	74.46	98.75	25.54	1.25	ε	ε	21	18	133	445	13	12	1	2	9	1	133	445	39	39	1	2
43	KB NKN	0014.00	5	3-2	67.88	96.15	32.12	3.85	ε	ε	2	1	104	533	77	76	0	1	2	1	104	533	107	106	0	1
44	KB NKP	0011.01	5	3-2	5.45	22.98	91.38	62.35	3.16	14.67	1	2	523	535	27	27	8	9	9	9	33	33	104	104	54	55
45	KB NKQ	3011.00	5	3-2	6.44	1.71	24.98	0.70	68.58	97.59	67	1	22	4	5	5	42	42	4	4	22	4	36	35	53	53
46	KB NKR	0311.00	5	3-2	73.81	94.68	26.01	1.58	0.18	3.74	115	23	4	2	6	5	12	13	72	42	3	17	36	35	39	41
47	KB P KB	0040.10	5	3-2	58.70	86.90	41.30	13.09	ε	0.01	14	14	508	1524	40	39	2	3	14	14	508	1524	51	50	2	3
48	KB P KN	0013.10	5	3-2	43.38	73.03	56.62	26.97	ε	ε	16	6	23	86	42	42	3	4	1	1	1	3	100	96	7	8
49	KB P KP	0010.11	5	3-2	9.21	23.93	87.20	58.98	3.59	17.09	92	52	34	30	53	53	6	7	92	52	2	3	67	67	50	51
50	KB P KQ	3010.10	5	3-2	11.49	2.82	21.32	0.36	67.19	96.82	30	30	3	2	4	3	42	42	25	4	3	2	35	34	50	50
51	KB P KR	0310.10	5	3-2	67.26	73.15	30.95	3.46	1.80	23.39	76	53	5	6	13	12	20	21	3	3	5	6	45	44	38	39
52	KNNKB	0032.00	5	3-2	99.98	100 - ε	0.02	ε	ε	ε	251	82	51	109	4	3	0	1	251	82	51	109	4	3	0	1
53	KNNKN	0005.00	5	3-2	99.92	99.99	0.08	0.01	ε	ε	20	10	56	293	7	6	0	1	20	10	56	293	7	6	0	1
54	KNNKP	0002.01	5	3-2	66.40	73.61	31.31	13.56	2.30	12.84	2	4	1	1	114	114	12	13	2	4	11	9	115	114	73	74
55	KNNKQ	3002.00	5	3-2	42.78	6.02	0.01	ε	57.22	93.98	2387	465	10	2	1	0	63	63	2387	465	10	2	1	0	72	72
56	KNNKR	0302.00	5	3-2	99.61	93.76	0.01	ε	0.38	6.24	2	1	6	11	3	2	10	11	2	1	4	18	3	2	40	41
57	KNP KB	0031.10	5	3-2	61.16	88.09	38.84	11.91	ε	ε	11	3	5	18	31	30	8	9	11	3	5	18	43	42	8	9
58	KNP KN	0004.10	5	3-2	50.81	77.22	49.19	22.78	ε	ε	9	2	27	132	48	48	3	4	5	12	27	61	97	97	3	7
59	KNP KP	0001.11	5	3-2	13.24	27.49	79.66	50.15	7.11	22.35	2	6	6	9	33	33	13	14	10	10	3	3	57	57	57	58
60	KNP KQ	3001.10	5	3-2	11.90	2.27	17.86	0.49	70.24	97.24	2	2	1	1	5	4	43	43	1	6	1	2	41	33	62	55
61	KNP KR	0301.10	5	3-2	69.34	68.52	26.68	2.19	3.98	29.29	8	36	7	1	18	18	42	43	3	1	7	1	44	43	66	67
62	KP P KB	0030.20	5	3-2	45.63	75.36	54.37	24.63	ε	0.01	31	34	14	34	18	17	3	4	1	1	14	34	43	43	3	4
63	KP P KN	0003.20	5	3-2	35.30	62.39	64.69	37.59	ε	0.02	3	5	21	12	30	29	13	14	2	1	12	31	50	50	16	17
64	KP P KP	0000.21	5	3-2	9.96	18.89	78.55	52.44	11.48	28.67	2	11	66	58	28	28	11	12	6	7	3	3	127	127	42	43
65	KP P KQ	3000.20	5	3-2	12.62	1.53	16.02	0.07	71.37	98.40	14	15	19	8	6	5	30	30	7	2	12	6	124	100	41	41
66	KP P KR	0300.20	5	3-2	20.05	18.19	35.41	6.59	44.53	75.22	1	1	2	3	25	24	25	25	1	1	1	3	54	53	41	40
67	KQB KB	1040.00	5	3-2	0.26	19.78	99.74	80.22	ε	ε	597	2743	187	645	8	8	1	2	4	11	187	645	17	17	1	2
68	KQB KN	1013.00	5	3-2	0.55	16.73	99.45	83.27	ε	ε	91	454	30	153	7	7	0	1	1	14	30	153	21	21	0	1
69	KQB KP	1010.01	5	3-2	0.01	14.12	99.99	84.90	ε	0.98	2	8	791	789	12	12	1	2	1	34	14	1	32	33	17	24
70	KQB KQ	4010.00	5	3-2	44.04	62.29	55.65	7.19	0.31	30.53	31	1	1	1	30	30	16	17	33	1	1	1	33	33	23	24
71	KQB KR	1310.00	5	3-2	0.62	27.51	99.34	71.81	0.03	0.69	1	6	8848	52298	19	19	1	2	1	6	2	11	40	40	25	30

Table 1b. 5-man chess endgame statistics: 3-2, Part I.

Force	#	w-b	% of unbroken positions								maxDTC								maxDTM							
			=		1-0		0-1		counts				depths, moves				counts				depths, moves					
			wtm	btm	wtm	btm	wtm	btm	1-0	0-1	wtm	btm	wtm	btm	1-0	0-1	1-0	0-1	wtm	btm	wtm	btm	1-0	0-1		
72	KQNKB	103100	5	3-2	0.24	20.89	99.76	79.11	ε	ε	203	569	28	64	9	9	0	1	98	259	28	64	17	17	0	1
73	KQKN	1004.00	5	3-2	0.61	17.82	99.39	82.18	ε	ε	10	54	31	166	9	9	0	1	1	15	31	166	21	21	0	1
74	KQNKP	100101	5	3-2	0.10	14.97	99.90	83.12	ε	191	7	8	928	911	17	17	1	2	2	7	1	31	30	41	22	29
75	KQNKQ	400100	5	3-2	49.57	62.25	50.09	4.29	0.34	33.46	7	1	1	4	35	35	13	14	7	1	2	6	41	41	23	24
76	KQNKR	130100	5	3-2	0.71	27.20	99.24	69.83	0.04	2.97	2	12	15	86	22	22	2	3	1	5	9	17	38	38	38	41
77	KQP KB	1030.10	5	3-2	0.12	16.75	99.88	83.25	ε	ε	1271	4925	374	1290	9	9	1	2	16	68	374	1290	28	29	1	2
78	KQP KN	1003.10	5	3-2	0.33	12.48	99.67	87.52	ε	ε	1	6	3	9	10	10	1	2	4	24	1	3	30	30	7	8
79	KQP KP	1000.11	5	3-2	ε	7.41	100 - ε	89.15	0.00	3.43	17436	59666	16	16	6	6	2	3	1	6	4	3	105	122	14	34
80	KQP KQ	4000.10	5	3-2	31.21	51.20	68.39	13.61	0.40	35.19	5	4	2	13	114	103	15	16	5	13	24	268	124	123	28	29
81	KQP KR	1300.10	5	3-2	0.29	6.14	99.59	74.15	0.13	19.72	4	20	5177	26128	20	20	2	3	7	11	6	32	37	43	27	33
82	KQQKB	2030.00	5	3-2	0.00	0.05	100.00	99.95	0.00	0.00	1031	4239	0	0	4	4	—	—	3	11	0	0	15	17	—	—
83	KQQKN	2003.00	5	3-2	ε	0.09	100 - ε	99.91	0.00	0.00	10	50	0	0	5	5	—	—	2	15	0	0	19	21	—	—
84	KQQKP	2000.01	5	3-2	ε	0.65	100 - ε	99.34	ε	0.01	35764	49022	140	140	3	3	1	2	1	3	140	4	22	30	2	13
85	KQQKQ	5000.00	5	3-2	0.82	32.76	99.10	66.65	0.09	0.59	2	21	25	115	25	25	6	7	4	44	1	35	30	30	12	13
86	KQQKR	2300.00	5	3-2	0.01	0.20	99.97	99.68	0.02	0.12	2	12	2383	16681	14	14	1	2	2	100	1017	27	35	35	2	19
87	KQRKB	1130.00	5	3-2	0.03	11.63	99.97	88.37	0.00	0.00	1005	3433	0	0	5	5	—	—	18	197	0	0	29	29	—	—
88	KQRKN	1103.00	5	3-2	0.11	7.75	99.89	92.25	ε	ε	285	1399	36	149	5	5	0	1	6	35	36	149	40	40	0	1
89	KQRKP	1100.01	5	3-2	ε	1.36	100 - ε	98.34	ε	0.30	153744	225124	683	683	3	3	1	2	1	3	2	6	40	67	35	43
90	KQRKQ	4100.00	5	3-2	2.76	21.23	97.01	54.34	0.24	24.43	3	31	1	2	60	60	8	9	3	31	11	79	67	67	37	38
91	KQRKR	1400.00	5	3-2	0.12	17.66	99.85	82.09	0.03	0.25	4	22	8040	56088	16	16	1	2	5	82	2810	139	34	35	2	20
92	KRB KB	0140.00	5	3-2	1.82	31.12	98.18	68.88	ε	ε	25	35	251	836	25	25	1	2	14	9	251	836	30	30	1	2
93	KRB KN	0113.00	5	3-2	1.07	24.04	98.93	75.96	ε	ε	10	39	105	476	21	21	0	1	6	30	105	476	40	40	0	1
94	KRB KP	0110.01	5	3-2	0.94	17.06	99.06	80.50	ε	2.44	2	12	4	12	11	11	4	5	1	4	1	6	28	36	65	70
95	KRB KQ	3110.00	5	3-2	47.94	25.58	38.70	3.21	13.36	71.20	1	3	5	4	7	6	41	42	79	31	3	4	21	20	70	70
96	KRB KR	0410.00	5	3-2	58.74	94.08	41.21	5.07	0.05	0.85	28	19	3	11	59	58	3	4	28	19	3	11	65	64	26	30
97	KRNKB	013100	5	3-2	2.28	32.37	97.72	67.63	ε	ε	3	6	41	89	25	25	0	1	1	1	41	89	31	31	0	1
98	KRNKN	0104.00	5	3-2	1.02	24.64	98.98	75.36	ε	ε	5	18	101	468	24	24	0	1	1	3	101	468	37	40	0	1
99	KRNKP	010101	5	3-2	1.53	17.10	98.45	78.39	0.01	4.51	69	85	2	2	15	15	10	11	2	2	2	7	29	29	63	68
100	KRNKQ	310100	5	3-2	41.12	19.71	35.44	2.10	23.43	78.19	24	5	7	3	9	8	46	46	72	15	3	1	20	19	69	69
101	KRNKR	040100	5	3-2	63.29	93.60	36.63	3.24	0.07	3.16	1	1	1	3	33	32	4	5	1	1	1	17	37	36	39	41
102	KRP KB	0130.10	5	3-2	3.60	32.61	96.40	67.39	ε	ε	11	26	502	1672	62	62	1	2	3	13	502	1672	73	73	1	2
103	KRP KN	0103.10	5	3-2	2.51	24.70	97.49	75.30	ε	ε	2	7	4	12	46	46	1	2	6	24	2	6	54	54	7	8
104	KRP KP	0100.11	5	3-2	0.33	6.51	99.44	83.26	0.24	10.23	7	8	17	22	10	10	10	11	3	3	5	6	56	68	100	103
105	KRP KQ	3100.10	5	3-2	11.84	7.12	37.70	183	50.46	91.04	5	5	5	1	9	8	78	79	45	1	3	1	68	59	103	104
106	KRP KR	0400.10	5	3-2	33.02	54.39	66.57	25.54	0.41	20.07	33	4	23	80	60	60	6	7	33	4	2	32	74	74	28	33
107	KRRKB	0230.00	5	3-2	0.73	22.40	99.27	77.60	0.00	0.00	1	2	0	0	10	10	—	—	39	232	0	0	29	29	—	—
108	KRRKN	0203.00	5	3-2	0.28	14.97	99.72	85.03	ε	ε	1	6	45	184	8	8	0	1	6	32	45	184	40	40	0	1
109	KRRKP	0200.01	5	3-2	ε	5.71	99.99	93.28	ε	1.01	16	48	988	988	9	9	1	2	1	1	1	1	33	40	40	50
110	KRRKQ	3200.00	5	3-2	36.78	36.96	58.13	11.01	5.09	52.03	14	4	2	3	16	15	20	20	14	6	3	5	29	28	49	49
111	KRRKR	0500.00	5	3-2	0.71	33.41	99.25	66.17	0.04	0.42	3	15	6150	42805	25	25	1	2	2	10	1980	139	31	31	2	20

Table 1c. 5-man chess endgame statistics: 3-2, Part II.

Force	#	w-b	% of unbroken positions								maxDTC								maxDTM							
			=		=		1-0		0-1		counts				depths, moves				counts				depths, moves			
			wtm	btm	wtm	btm	wtm	btm	wtm	btm	1-0		0-1		1-0		0-1		1-0		0-1		1-0		0-1	
											wtm	btm	wtm	btm	wtm	btm	wtm	btm	wtm	btm	wtm	btm	wtm	btm	wtm	btm
112	KBBBK	0090.00/30	5	4-1	26.05	3160	73.95	68.40	0.00	0.00	48	140	0	0	11	11	—	—	2	45	0	0	16	19	—	—
113	KBBNK	0021.00	5	4-1	0.02	4.06	99.98	95.94	0.00	0.00	663	1754	0	0	14	14	—	—	4	832	0	0	33	33	—	—
114	KBBPK	0020.10	5	4-1	1.67	6.83	98.33	93.17	0.00	0.00	4	3	0	0	16	16	—	—	1	4	0	0	30	31	—	—
115	KBNNK	0012.00	5	4-1	0.02	8.41	99.98	91.59	0.00	0.00	21	50	0	0	14	14	—	—	1	3	0	0	34	34	—	—
116	KBNPK	0011.10	5	4-1	ε	0.83	100 - ε	99.17	0.00	0.00	1	5	0	0	11	11	—	—	1	2831	0	0	33	33	—	—
117	KBPPK	0010.20	5	4-1	0.20	1.27	99.80	98.73	0.00	0.00	56	46	0	0	16	16	—	—	3	63	0	0	25	32	—	—
118	KNNNK	0009.00/30	5	4-1	1.27	25.01	98.73	74.99	0.00	0.00	43	163	0	0	21	21	—	—	43	163	0	0	21	21	—	—
119	KNNPK	0002.10	5	4-1	1.62	12.01	98.38	87.99	0.00	0.00	20	32	0	0	16	16	—	—	90	198	0	0	28	28	—	—
120	KNPPK	0001.20	5	4-1	0.02	1.03	99.98	98.97	0.00	0.00	44	105	0	0	12	12	—	—	1	66	0	0	32	32	—	—
121	KPPPK	0000.30	5	4-1	0.06	0.63	99.94	99.37	0.00	0.00	6	6	0	0	12	12	—	—	7	6	0	0	33	33	—	—
122	KQBBK	1020.00	5	4-1	0.00	5.03	100.00	94.97	0.00	0.00	10850	61334	0	0	6	6	—	—	36905	105	0	0	6	19	—	—
123	KQBNK	1011.00	5	4-1	ε	1.11	100 - ε	98.89	0.00	0.00	16504	69137	0	0	5	5	—	—	1082	849	0	0	7	33	—	—
124	KQBPK	1010.10	5	4-1	0.00	1.22	100.00	98.78	0.00	0.00	16724	75101	0	0	6	6	—	—	1	4	0	0	9	31	—	—
125	KQNNK	1002.00	5	4-1	0.00	9.07	100.00	90.93	0.00	0.00	12262	58699	0	0	7	7	—	—	59	8	0	0	8	9	—	—
126	KQNPk	1001.10	5	4-1	0.00	1.03	100.00	98.97	0.00	0.00	1678	8471	0	0	6	6	—	—	67	197	0	0	9	27	—	—
127	KQPPK	1000.20	5	4-1	ε	0.67	100 - ε	99.33	0.00	0.00	9493	28496	0	0	6	6	—	—	14918	63	0	0	9	32	—	—
128	KQQBK	2010.00	5	4-1	0.00	2.67	100.00	97.33	0.00	0.00	825	3167	0	0	4	4	—	—	3793	28	0	0	4	8	—	—
129	KQQNK	2001.00	5	4-1	0.00	2.39	100.00	97.61	0.00	0.00	2282	7648	0	0	4	4	—	—	7873	8	0	0	4	9	—	—
130	KQPPK	2000.10	5	4-1	0.00	2.06	100.00	97.94	0.00	0.00	25977	77812	0	0	4	4	—	—	1E+05	32	0	0	4	10	—	—
131	KQQQK	9000.00/30	5	4-1	0.00	3.96	100.00	96.04	0.00	0.00	9854	42894	0	0	3	3	—	—	18820	892	0	0	3	4	—	—
132	KQQRK	2100.00	5	4-1	0.00	3.06	100.00	96.94	0.00	0.00	2	12	0	0	4	4	—	—	31	45	0	0	4	6	—	—
133	KQRBK	1110.00	5	4-1	0.00	1.68	100.00	98.32	0.00	0.00	13	72	0	0	5	5	—	—	4174	168	0	0	5	16	—	—
134	KQRNK	1101.00	5	4-1	0.00	1.42	100.00	98.58	0.00	0.00	678	2930	0	0	5	5	—	—	69499	123	0	0	5	16	—	—
135	KQRPK	1100.10	5	4-1	ε	1.08	100 - ε	98.92	0.00	0.00	5217	20520	0	0	5	5	—	—	21	270	0	0	7	16	—	—
136	KQRRK	1200.00	5	4-1	0.00	1.97	100.00	98.03	0.00	0.00	2913	13057	0	0	4	4	—	—	7373	10811	0	0	4	7	—	—
137	KRBBK	0120.00	5	4-1	ε	4.30	100 - ε	95.70	0.00	0.00	4	12	0	0	11	11	—	—	190	105	0	0	12	19	—	—
138	KRBNK	0111.00	5	4-1	ε	0.47	100 - ε	99.53	0.00	0.00	2578	8114	0	0	8	8	—	—	9	849	0	0	29	33	—	—
139	KRBPk	0110.10	5	4-1	ε	0.63	100 - ε	99.37	0.00	0.00	2006	6175	0	0	8	8	—	—	1	4	0	0	16	31	—	—
140	KRNNK	0102.00	5	4-1	ε	8.52	100 - ε	91.48	0.00	0.00	6	30	0	0	11	11	—	—	1	104	0	0	15	16	—	—
141	KRNPK	0101.10	5	4-1	ε	0.54	100 - ε	99.46	0.00	0.00	4494	11986	0	0	8	8	—	—	9	197	0	0	17	27	—	—
142	KRPPK	0100.20	5	4-1	ε	0.25	100 - ε	99.75	0.00	0.00	93	284	0	0	8	8	—	—	32	63	0	0	15	32	—	—
143	KRRBK	0210.00	5	4-1	ε	0.78	100 - ε	99.22	0.00	0.00	1254	4742	0	0	6	6	—	—	2	168	0	0	10	16	—	—
144	KRRNK	0201.00	5	4-1	0.00	0.63	100.00	99.37	0.00	0.00	3273	11652	0	0	6	6	—	—	3	123	0	0	10	16	—	—
145	KRRPK	0200.10	5	4-1	ε	0.34	100 - ε	99.66	0.00	0.00	8908	30941	0	0	6	6	—	—	3	270	0	0	14	16	—	—
146	KRRRK	0900.00/30	5	4-1	0.00	0.90	100.00	99.10	0.00	0.00	10	49	0	0	5	5	—	—	95	10811	0	0	5	7	—	—

Table 1d. 5-man chess endgame statistics: 4-1.