



The rook - drawing by Neiko Neidze

Editorial Board

John Roycroft,
17 New Way Road,
London,
England NW9 6PL
e-mail: roycroft@dcs.qmw.ac.uk

Ed van de Gevel,
Binnen de Veste 36,
3811 PH Amersfoort,
The Netherlands
e-mail: egevel@qad.nl

Harold van der Heijden,
Michel de Klerkstraat 28,
7425 DG Deventer,
The Netherlands
e-mail: harold_van_der_heijden@wxs.nl

Spotlight-column:
Jürgen Fleck,
Neuer Weg 110,
D-47803 Krefeld,
Germany
e-mail: juergenfleck@t-online.de

Originals-column:
Noam D. Elkies
Dept of Mathematics,
SCIENCE CENTER
One Oxford Street,
Harvard University
CAMBRIDGE
Mass 02138
U.S.A.
e-mail: elkies@math.harvard.edu

Treasurer:
Jaap de Boer,
Zevenenderdrift 40,
1251 RC Laren,
The Netherlands

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C Lars Rasmussen's computer lists the reciprocal zugzwangs in the GBR class **0400.10**. Depth figures are 'ultimate', not to 'conversion'.

- 1: wKa1, Ra8, Pa7; bKc1, Rc7 =/21
- 2: wKa2, Ra8, Pa7; bKc2, Rc7 =/20
- 3: wKa3, Ra8, Pa7; bKc3, Rc7 =/19
- 4: wKa4, Ra8, Pa7; bKc4, Rc7 =/18
- 5: wKa5, Ra8, Pa7; bKc5, Rc7 =/17
- 6: wKa8, Ra6, Pa7; bKb4, Rb5 =/40
- 7: wKa8, Rb8, Pa7; bKc7, Rc8 =/17
- 8: wKc7, Ra8, Pa7; bKa5, Ra6 =/17
- 9: wKc7, Rb7, Pa7; bKa5, Ra8 =/16
- 10: wKc7, Rb7, Pa7; bKc5, Ra8 =/24
- 11: wKe4, Ra8, Pa7; bKd6, Rd7 =/21
- 12: wKf7, Re7, Pa7; bKf5, Rh8 =/28
- 13: wKd4, Ra7, Pb7; bKb3, Rb5 =/23
- 14: wKd5, Ra7, Pb7; bKb5, Rb6 =/25
- 15: wKd7, Rb8, Pb7; bKb5, Rb6 =/18
- 16: wKd7, Rc7, Pb7; bKd5, Rb8 =/22
- 17: wKe8, Rb8, Pb7; bKe6, Ra7 =/23
- 18: wKf4, Rb8, Pb7; bKe6, Re7 =/22
- 19: wKf7, Re7, Pb7; bKf5, Rh8 =/25
- 20: wKf8, Rb8, Pb7; bKf6, Ra7 =/22
- 21: wKg1, Rb8, Pb7; bKf3, Rf7 =/25
- 22: wKg8, Rb8, Pb7; bKg6, Ra7 =/20
- 23: wKh8, Rb8, Pb7; bKh6, Ra7 =/21
- 24: wKa5, Rd7, Pc7; bKc5, Rc6 =/24
- 25: wKa7, Rb7, Pc7; bKa5, Rc8 =/17
- 26: wKa7, Rc8, Pc7; bKc5, Rc6 =/20
- 27: wKb1, Rb7, Pc7; bKd1, Rc8 =/25
- 28: wKb2, Rb7, Pc7; bKd2, Rc8 =/24
- 29: wKb3, Rb7, Pc7; bKd3, Rc8 =/23
- 30: wKb4, Rb7, Pc7; bKd4, Rc8 =/22
- 31: wKb5, Rb7, Pc7; bKd5, Rc8 =/21
- 32: wKb6, Rb7, Pc7; bKd6, Rc8 =/20
- 33: wKb6, Ra7, Pc7; bKd7, Rc8 =/19
- 34: wKc6, Rb6, Pc7; bKc8, Ra6 =/10
- 35: wKd6, Rb6, Pc7; bKc8, Ra8 =/ 4
- 36: wKe4, Rb7, Pc7; bKc3, Rc5 =/23
- 37: wKe5, Rb7, Pc7; bKc5, Rc6 =/24
- 38: wKe7, Rc8, Pc7; bKc5, Rc6 =/19
- 39: wKe7, Rd7, Pc7; bKc5, Rc8 =/20
- 40: wKf7, Re7, Pc7; bKf5, Rh8 =/22
- 41: wKg4, Rc8, Pc7; bKf6, Rf7 =/20
- 42: wKh1, Rc8, Pc7; bKg3, Rg7 =/24
- 43: wKh1, Rc8, Pc7; bKg5, Rg7 =/24
- 44: wKh2, Rc8, Pc7; bKg4, Rg7 =/23
- 45: wKh2, Rc8, Pc7; bKg6, Rg7 =/23
- 46: wKh3, Rc8, Pc7; bKg5, Rg7 =/22
- 47: wKh7, Rg7, Pc7; bKe8, Rc6 =/29
- 48: wKb5, Re7, Pd7; bKd5, Rd6 =/24
- 49: wKb7, Rc7, Pd7; bKb5, Rd8 =/19
- 50: wKb7, Rd8, Pd7; bKd5, Rd6 =/19
- 51: wKc6, Ra7, Pd7; bKe7, Rd8 =/18
- 52: wKf5, Rc7, Pd7; bKd5, Rd6 =/24
- 53: wKf7, Rd8, Pd7; bKd5, Rd6 =/18
- 54: wKf7, Re7, Pd7; bKf5, Rd8 =/19
- 55: wKg1, Rg7, Pd7; bKh3, Rf8 =/23
- 56: wKg2, Rg7, Pd7; bKh4, Rf8 =/22
- 57: wKh4, Rd8, Pd7; bKg6, Rg7 =/20
- 58: wKa2, Ra4, Pa6; bKc3, Ra7 =/35
- 59: wKa3, Ra5, Pa6; bKc3, Ra7 =/30
- 60: wKa3, Ra7, Pa6; bKc3, Rc6 =/36
- 61: wKa3, Ra8, Pa6; bKc3, Rc4 =/35
- 62: wKa4, Ra5, Pa6; bKc4, Ra7 =/29
- 63: wKa4, Ra7, Pa6; bKc4, Rc6 =/33
- 64: wKb8, Ra8, Pa6; bKf6, Re7 =/42
- 65: wKc6, Rb6, Pa6; bKc4, Ra7 =/33
- 66: wKe4, Ra8, Pa6; bKe6, Rd7 =/27
- 67: wKf6, Re6, Pa6; bKf4, Rh7 =/37
- 68: wKb8, Rb7, Pb6; bKd8, Ra6 =/22
- 69: wKc7, Rc6, Pb6; bKa6, Rb5 =/24
- 70: wKc7, Rb8, Pb6; bKb5, Ra6 =/25
- 71: wKc7, Rb7, Pb6; bKc5, Ra6 =/26
- 72: wKd6, Rc6, Pb6; bKd4, Rd7 =/23
- 73: wKd7, Rb7, Pb6; bKd5, Ra6 =/27
- 74: wKf4, Rb8, Pb6; bKf6, Re7 =/23
- 75: wKf6, Re6, Pb6; bKf4, Rh7 =/27
- 76: wKf8, Rb8, Pb6; bKf6, Ra6 =/31
- 77: wKg7, Rb7, Pb6; bKg5, Rh6 =/29
- 78: wKg8, Rb8, Pb6; bKg6, Ra6 =/28
- 79: wKh8, Rb8, Pb6; bKh6, Ra6 =/29
- 80: wKa6, Rb6, Pc6; bKa4, Rc7 =/20
- 81: wKb6, Rb7, Pc6; bKa8, Rb8 =/12
- 82: wKb8, Ra6, Pc6; bKd8, Rc7 =/18
- 83: wKc8, Rc7, Pc6; bKe8, Rb6 =/24
- 84: wKe6, Rd6, Pc6; bKe4, Rc7 =/23
- 85: wKf6, Re6, Pc6; bKf4, Rh7 =/25
- 86: wKg4, Rc8, Pc6; bKg6, Rf7 =/27
- 87: wKg7, Rc7, Pc6; bKg5, Rh6 =/28
- 88: wKh1, Rc8, Pc6; bKg5, Rg6 =/25
- 89: wKh3, Rc8, Pc6; bKg5, Rg6 =/23
- 90: wKb6, Rc6, Pd6; bKb4, Rd7 =/22
- 91: wKc6, Rc7, Pd6; bKb8, Rc8 =/16
- 92: wKc7, Rb7, Pd6; bKe6, Ra8 =/25

93: wKc7, Rb7, Pd6; bKe8, Ra8 =/25
94: wKc8, Ra6, Pd6; bKe8, Rd7 =/24
95: wKd8, Rd7, Pd6; bKf8, Rc6 =/26
96: wKe7, Rh7, Pd6; bKc6, Rg8 =/27
97: wKe7, Rh7, Pd6; bKc8, Rg8 =/27
98: wKe7, Rd8, Pd6; bKd5, Ra6 =/24
99: wKe7, Rd7, Pd6; bKe5, Ra6 =/25
100: wKf6, Re6, Pd6; bKf4, Rd7 =/22
101: wKa2, Ra3, Pa5; bKc2, Ra6 =/30
102: wKb6, Ra6, Pa5; bKg6, Rf5 =/39
103: wKb6, Ra6, Pa5; bKh6, Rg5 =/41
104: wKc5, Rb5, Pa5; bKe5, Ra6 =/30
105: wKc8, Ra8, Pa5; bKe7, Rd7 =/31
106: wKe3, Ra6, Pa5; bKg5, Rf5 =/41
107: wKf3, Ra6, Pa5; bKh5, Rg5 =/43
108: wKa5, Ra8, Pb5; bKc7, Rb7 =/25
109: wKb6, Rb7, Pb5; bKa4, Ra8 =/29
110: wKd4, Rd5, Pb5; bKe7, Rc1 =/33
111: wKd5, Rc5, Pb5; bKd3, Rb6 =/29
112: wKe1, Ra5, Pb5; bKg2, Rf2 =/38
113: wKe2, Ra5, Pb5; bKg3, Rf3 =/34
114: wKe5, Rc5, Pb5; bKe3, Rb6 =/30
115: wKf5, Rc5, Pb5; bKf3, Rb6 =/31
116: wKg5, Rc5, Pb5; bKg3, Rb6 =/32
117: wKg5, Rf5, Pb5; bKg3, Rd6 =/34
118: wKg7, Rb7, Pb5; bKh5, Rh6 =/30
119: wKa5, Rb5, Pc5; bKa3, Rc6 =/25
120: wKb5, Rb8, Pc5; bKd7, Rc7 =/24
121: wKc7, Rc6, Pc5; bKa5, Rb5 =/28
122: wKc7, Re5, Pc5; bKa5, Rb5 =/28
123: wKe4, Re5, Pc5; bKf6, Rd8 =/33
124: wKe5, Rd5, Pc5; bKe3, Rc6 =/28
125: wKf5, Rd5, Pc5; bKf3, Rc6 =/29
126: wKf5, Re5, Pc5; bKf3, Rh6 =/30
127: wKf5, Rh5, Pc5; bKg7, Rg6 =/33
128: wKg5, Rd5, Pc5; bKg3, Rc6 =/30
129: wKg5, Rf5, Pc5; bKg3, Re6 =/31
130: wKa5, Rc5, Pd5; bKb3, Rd8 =/27
131: wKb5, Rc5, Pd5; bKb3, Rd6 =/26
132: wKd3, Rc5, Pd5; bKf5, Re5 =/36
133: wKd6, Ra6, Pd5; bKd8, Rb8 =/26
134: wKd7, Rd6, Pd5; bKb5, Rc5 =/29
135: wKd8, Rd7, Pd5; bKf8, Rc5 =/28
136: wKe8, Rh5, Pd5; bKf6, Rd6 =/24
137: wKf5, Re5, Pd5; bKf3, Rd6 =/28
138: wKb5, Ra5, Pa4; bKh5, Rg4 =/42
139: wKe4, Rb4, Pa4; bKg4, Ra5 =/42
140: wKe4, Rd4, Pa4; bKg4, Rc5 =/43

141: wKa5, Ra4, Pb4; bKc4, Rb1 =/34
142: wKb6, Rb5, Pb4; bKb2, Rb3 =/33
143: wKb7, Rb5, Pb4; bKd6, Ra4 =/32
144: wKd1, Ra4, Pb4; bKf2, Re2 =/34
145: wKe1, Ra4, Pb4; bKg2, Rf2 =/37
146: wKe3, Ra4, Pb4; bKg4, Rf4 =/37
147: wKf3, Ra4, Pb4; bKh4, Rg4 =/42
148: wKb5, Rb4, Pc4; bKd4, Rc1 =/33
149: wKb6, Rc8, Pc4; bKb4, Ra5 =/27
150: wKc7, Rc5, Pc4; bKe6, Rb4 =/35
151: wKe4, Re5, Pc4; bKf7, Rd8 =/34
152: wKd5, Ra6, Pd4; bKf5, Rc8 =/37
153: wKd6, Ra6, Pd4; bKd8, Rc8 =/27
154: wKf1, Rc4, Pd4; bKh2, Rg2 =/39
155: wKf5, Re5, Pd4; bKf3, Rh6 =/31
156: wKf3, Ra1, Pa3; bKh2, Ra4 =/35
157: wKf6, Rg3, Pa3; bKh7, Ra8 =/51
158: wKb4, Rb6, Pb3; bKd5, Ra8 =/41
159: wKb5, Rb4, Pb3; bKb1, Rb2 =/35
160: wKd1, Ra3, Pb3; bKf2, Re2 =/38
161: wKd2, Re3, Pb3; bKf4, Ra3 =/40
162: wKe2, Re3, Pb3; bKf5, Ra3 =/52
163: wKe2, Ra3, Pb3; bKg3, Rf3 =/44
164: wKe4, Ra3, Pb3; bKg5, Rf5 =/42
165: wKf4, Ra3, Pb3; bKh5, Rg5 =/43
166: wKb3, Rb4, Pc3; bKg6, Rf8 =/39
167: wKb5, Rc8, Pc3; bKb3, Ra4 =/34
168: wKc4, Rc8, Pc3; bKa3, Rb3 =/36
169: wKc4, Rc6, Pc3; bKe5, Rb8 =/38
170: wKe5, Rd5, Pc3; bKg5, Rc6 =/37
171: wKf2, Rg3, Pc3; bKh4, Rh1 =/40
172: wKf4, Ra4, Pc3; bKf2, Re8 =/34
173: wKf4, Ra3, Pc3; bKh5, Rg5 =/52
174: wKc1, Rc3, Pd3; bKe1, Re3 =/54
175: wKc2, Re1, Pd3; bKa3, Rb3 =/34
176: wKd2, Rb8, Pd3; bKa3, Rd7 =/36
177: wKd5, Re3, Pd3; bKf7, Rc3 =/43
178: wKe6, Rh3, Pd3; bKf8, Rd4 =/54
179: wKe6, Rd6, Pd3; bKg6, Ra3 =/40
180: wKe7, Rc4, Pd3; bKg5, Rf4 =/35
181: wKg4, Rd4, Pd3; bKg2, Rf3 =/46
182: wKa1, Rh2, Pa2; bKf1, Ra8 =/50
183: wKd4, Rg2, Pa2; bKh5, Rc1 =/52
184: wKa6, Rb6, Pb2; bKa2, Ra1 =/37
185: wKb1, Rf2, Pb2; bKg4, Rh8 =/51
186: wKb1, Rf6, Pb2; bKg4, Rb8 =/52
187: wKb3, Rb5, Pb2; bKd4, Ra8 =/44
188: wKb4, Rb6, Pb2; bKd5, Rd8 =/42

189: wKb5, Rb3, Pb2; bKd4, Rb1 =/40
 190: wKb6, Rb4, Pb2; bKd5, Rb1 =/42
 191: wKc1, Rf2, Pb2; bKg4, Rb8 =/50
 192: wKe1, Ra2, Pb2; bKg2, Rf2 =/49
 193: wKf1, Rg2, Pb2; bKh7, Re8 =/49
 194: wKf2, Rg2, Pb2; bKh6, Re8 =/48
 195: wKf3, Rg2, Pb2; bKh5, Re8 =/47
 196: wKf4, Rb1, Pb2; bKh3, Rb3 =/36
 197: wKf4, Rg2, Pb2; bKh5, Rb8 =/46
 198: wKc1, Rb2, Pc2; bKa1, Ra4 =/38
 199: wKc4, Rc6, Pc2; bKe5, Re8 =/39
 200: wKc5, Rc3, Pc2; bKe4, Rc1 =/38
 201: wKd5, Rh2, Pc2; bKe3, Rc3 =/36
 202: wKe6, Rh3, Pc2; bKe4, Rd4 =/30
 203: wKb2, Ra4, Pd2; bKf2, Rf3 =/52
 204: wKc5, Rd4, Pd2; bKa3, Rd1 =/36
 205: wKc5, Ra6, Pd2; bKe5, Rh4 =/35
 206: wKd1, Rg7, Pd2; bKh3, Ra8 =/50
 207: wKd3, Rb3, Pd2; bKd1, Ra1 =/33
 208: wKe6, Rd6, Pd2; bKg6, Rf3 =/43
 209: wKf2, Re2, Pd2; bKh2, Rd3 =/37

C Lars Rasmussen's computer lists the reciprocal zugzwangs in the GBR class **0130.10**. Depth figures are 'ultimate', not to conversion.

1: wKa3, Ra4, Pa7; bKb5, Ba8 =/18
 2: wKa6, Rb7, Pa7; bKa8, Bc7 =/ 5
 3: wKa6, Rh7, Pa7; bKa8, Bg7 =/ 9
 4: wKc6, Ra8, Pa7; bKa6, Bc1 =/14
 5: wKc6, Rb7, Pa7; bKa8, Bc7 =/16
 6: wKd7, Ra8, Pa7; bKd5, Bb6 =/17
 7: wKe7, Ra8, Pa7; bKe5, Bb6 =/18
 8: wKe8, Ra8, Pa7; bKe4, Bb6 =/19
 9: wKa6, Ra7, Pb7; bKc6, Bb8 =/18
 10: wKa6, Ra8, Pb7; bKc7, Bb8 =/ 8
 11: wKa8, Rb8, Pb7; bKb6, Ba6 =/17
 12: wKd6, Ra7, Pb7; bKb8, Bb5 =/10
 13: wKe7, Rb8, Pb7; bKe5, Bc6 =/17
 14: wKe8, Rb8, Pb7; bKe6, Ba6 =/15
 15: wKf3, Rb6, Pb7; bKb8, Bf1 =/23
 16: wKf7, Rb8, Pb7; bKf5, Bc6 =/18
 17: wKf8, Rb8, Pb7; bKf4, Bc6 =/19
 18: wKf8, Rb8, Pb7; bKf6, Ba6 =/15
 19: wKg8, Rb8, Pb7; bKg6, Ba6 =/14
 20: wKh8, Rb8, Pb7; bKh6, Ba6 =/15
 21: wKa3, Ra7, Pc7; bKd7, Bg4 =/21
 22: wKa6, Rf7, Pc7; bKc8, Bd4 =/21

23: wKa6, Rg7, Pc7; bKc8, Be3 =/19
 24: wKa6, Rh7, Pc7; bKc8, Bf2 =/19
 25: wKa8, Rc8, Pc7; bKa6, Bb6 =/14
 26: wKf7, Rc8, Pc7; bKf5, Bd6 =/17
 27: wKf8, Ra7, Pc7; bKd7, Bd5 =/29
 28: wKg7, Rc8, Pc7; bKg5, Bd6 =/18
 29: wKg8, Rc8, Pc7; bKg4, Bd6 =/19
 30: wKa7, Rd8, Pd7; bKa5, Bc6 =/17
 31: wKb6, Rg7, Pd7; bKd8, Be4 =/20
 32: wKb6, Rh7, Pd7; bKd8, Bf3 =/18
 33: wKb8, Rb7, Pd7; bKd8, Ba5 =/19
 34: wKc5, Rh7, Pd7; bKc7, Bf1 =/25
 35: wKd4, Rh7, Pd7; bKd8, Bf1 =/26
 36: wKg6, Ra7, Pd7; bKe6, Bd8 =/31
 37: wKg6, Rb7, Pd7; bKe6, Ba5 =/30
 38: wKg6, Rb7, Pd7; bKe7, Bd8 =/30
 39: wKg7, Rb7, Pd7; bKe7, Ba5 =/29
 40: wKg7, Rd8, Pd7; bKg5, Be6 =/17
 41: wKg8, Rb7, Pd7; bKe7, Bd8 =/28
 42: wKg8, Rb7, Pd7; bKe7, Be5 =/27
 43: wKh7, Rd8, Pd7; bKh5, Be6 =/18
 44: wKh8, Rd8, Pd7; bKh4, Be6 =/19
 45: wKa2, Ra3, Pa6; bKb4, Ba7 =/22
 46: wKa3, Ra4, Pa6; bKb5, Bc6 =/21
 47: wKa4, Rb7, Pa6; bKa8, Bd8 =/19
 48: wKa7, Ra8, Pa6; bKc7, Bc8 =/20
 49: wKa8, Ra7, Pa6; bKb6, Bc1 =/26
 50: wKa8, Ra7, Pa6; bKb6, Bc5 =/26
 51: wKa8, Rc8, Pa6; bKb6, Bc7 =/25
 52: wKd4, Rc5, Pa6; bKb6, Bc6 =/28
 53: wKd7, Rf7, Pa6; bKb6, Bh4 =/24
 54: wKe8, Rd8, Pa6; bKc7, Ba7 =/21
 55: wKa5, Ra6, Pb6; bKc5, Bb7 =/20
 56: wKa5, Ra6, Pb6; bKc6, Bb8 =/19
 57: wKa5, Ra7, Pb6; bKc6, Bb7 =/ 9
 58: wKe3, Ra7, Pb6; bKb8, Be1 =/17
 59: wKa6, Ra7, Pc6; bKb8, Bc7 =/21
 60: wKd3, Rc7, Pc6; bKc5, Bc1 =/22
 61: wKe4, Rc8, Pc6; bKd6, Bb2 =/20
 62: wKf2, Re7, Pc6; bKc8, Bh3 =/15
 63: wKg4, Ra8, Pc6; bKc7, Bd8 =/26
 64: wKb7, Rb6, Pd6; bKd7, Ba4 =/31
 65: wKc5, Ra6, Pd6; bKe6, Bb8 =/13
 66: wKe5, Rg6, Pd6; bKc6, Bf8 =/14
 67: wKf8, Rb6, Pd6; bKd7, Bd5 =/35
 68: wKg4, Ra6, Pd6; bKe6, Bd8 =/17
 69: wKh7, Rh6, Pd6; bKf7, Bd8 =/27
 70: wKa1, Ra2, Pa5; bKb3, Ba6 =/28

71: wKa2, Ra3, Pa5; bKb4, Bc5 =/23
72: wKa3, Ra4, Pa5; bKb5, Bc8 =/30
73: wKa4, Rf5, Pa5; bKa6, Bh4 =/26
74: wKa6, Ra8, Pa5; bKc7, Bb8 =/11
75: wKa7, Ra6, Pa5; bKb5, Bc2 =/25
76: wKa7, Ra6, Pa5; bKb5, Bc4 =/21
77: wKa8, Ra6, Pa5; bKc7, Bc3 =/28
78: wKc4, Re2, Pa5; bKa6, Ba3 =/32
79: wKc6, Rb6, Pa5; bKa8, Ba7 =/21
80: wKd3, Ra7, Pa5; bKb5, Ba1 =/29
81: wKa4, Ra5, Pb5; bKc5, Bb7 =/23
82: wKd6, Rc6, Pb5; bKb7, Be8 =/19
83: wKe7, Rf6, Pb5; bKb7, Bg2 =/30
84: wKf8, Rf5, Pb5; bKd6, Ba8 =/44
85: wKa7, Rc3, Pc5; bKb5, Bg2 =/38
86: wKc7, Rb6, Pc5; bKa7, Ba5 =/11
87: wKc7, Rc6, Pc5; bKc4, Bc3 =/21
88: wKd3, Rc4, Pc5; bKd5, Ba5 =/23
89: wKe4, Rc7, Pc5; bKc4, Be1 =/22
90: wKe6, Rd6, Pc5; bKc7, Bf8 =/18
91: wKe7, Ra5, Pc5; bKc6, Bc4 =/40
92: wKe8, Ra5, Pc5; bKc7, Bc4 =/41
93: wKf6, Re5, Pc5; bKc6, Bg4 =/37
94: wKf6, Rc8, Pc5; bKd5, Bb1 =/37
95: wKf8, Ra5, Pc5; bKb7, Bc4 =/42
96: wKf8, Ra5, Pc5; bKd7, Bc4 =/42
97: wKf8, Ra5, Pc5; bKe6, Bc6 =/34
98: wKg5, Re5, Pc5; bKc6, Bd7 =/38
99: wKb3, Rd7, Pd5; bKd4, Bc5 =/57
100: wKb6, Rb5, Pd5; bKd6, Ba3 =/41
101: wKb6, Rc6, Pd5; bKd7, Ba8 =/13
102: wKc4, Ra5, Pd5; bKe5, Bb7 =/20
103: wKd7, Rd6, Pd5; bKd4, Bd3 =/21
104: wKe4, Rg5, Pd5; bKc5, Bf7 =/21
105: wKe4, Rh5, Pd5; bKc5, Bg8 =/22
106: wKf4, Rd7, Pd5; bKd4, Bf1 =/21
107: wKf6, Re6, Pd5; bKd7, Bg8 =/16
108: wKf7, Rb5, Pd5; bKd6, Bd4 =/43
109: wKa1, Ra2, Pa4; bKb3, Bc8 =/32
110: wKa2, Ra3, Pa4; bKb4, Bc7 =/43
111: wKa6, Ra5, Pa4; bKb4, Bc1 =/19
112: wKa6, Ra5, Pa4; bKb4, Bc3 =/21
113: wKa8, Rb7, Pa4; bKa5, Bb6 =/47
114: wKa1, Rb2, Pb4; bKb5, Bd3 =/37
115: wKa2, Rb2, Pb4; bKa4, Bd3 =/35
116: wKa7, Rb2, Pb4; bKb5, Bd3 =/41
117: wKa8, Rb8, Pb4; bKc6, Bb6 =/25
118: wKb7, Rb8, Pb4; bKb5, Bb6 =/19

119: wKc2, Rb3, Pb4; bKc4, Bd5 =/35
120: wKc3, Rb1, Pb4; bKb5, Ba3 =/16
121: wKc3, Rb3, Pb4; bKb5, Bc1 =/28
122: wKc8, Rf7, Pb4; bKc6, Bg3 =/26
123: wKd2, Rb1, Pb4; bKc4, Bb5 =/45
124: wKg4, Rb8, Pb4; bKa6, Bb6 =/41
125: wKa6, Rc2, Pc4; bKc5, Bd8 =/33
126: wKb5, Ra4, Pc4; bKb3, Bd3 =/23
127: wKb8, Rc7, Pc4; bKb6, Bc6 =/20
128: wKc1, Rc7, Pc4; bKc3, Ba4 =/27
129: wKc5, Rb4, Pc4; bKc3, Bc2 =/21
130: wKc6, Rb5, Pc4; bKa6, Ba4 =/17
131: wKc8, Rc7, Pc4; bKc5, Bc6 =/23
132: wKd7, Rc2, Pc4; bKc5, Bf8 =/32
133: wKd8, Rc7, Pc4; bKd6, Ba6 =/20
134: wKd8, Rc7, Pc4; bKd6, Bc6 =/24
135: wKd8, Rc8, Pc4; bKd6, Ba4 =/25
136: wKe6, Ra4, Pc4; bKc5, Bc3 =/35
137: wKe7, Ra4, Pc4; bKc6, Bc3 =/36
138: wKf6, Rc8, Pc4; bKd6, Bb1 =/37
139: wKf7, Ra4, Pc4; bKb6, Bc3 =/37
140: wKf7, Ra4, Pc4; bKd6, Bc3 =/37
141: wKa1, Rc1, Pd4; bKb3, Bc4 =/24
142: wKa3, Rd8, Pd4; bKc3, Bb5 =/38
143: wKa7, Rd8, Pd4; bKc6, Bd3 =/54
144: wKa8, Rd8, Pd4; bKc6, Ba6 =/56
145: wKa8, Rd8, Pd4; bKc6, Bb1 =/55
146: wKb3, Rg4, Pd4; bKd5, Be1 =/27
147: wKb3, Rh4, Pd4; bKd5, Bd2 =/28
148: wKb5, Rb4, Pd4; bKd5, Ba2 =/26
149: wKb8, Rd8, Pd4; bKc6, Bc4 =/55
150: wKb8, Rd8, Pd4; bKc6, Be4 =/37
151: wKc2, Rd3, Pd4; bKc4, Bb5 =/36
152: wKc3, Ra4, Pd4; bKe4, Bb6 =/25
153: wKc6, Rd6, Pd4; bKc4, Bf7 =/31
154: wKc7, Rd2, Pd4; bKd5, Bf3 =/40
155: wKc8, Rd7, Pd4; bKc6, Bd6 =/22
156: wKc8, Rd7, Pd4; bKc6, Bf6 =/31
157: wKd6, Rd5, Pd4; bKd3, Bd2 =/23
158: wKd8, Rd7, Pd4; bKd5, Bd6 =/22
159: wKe2, Rd3, Pd4; bKe4, Bf5 =/36
160: wKe6, Rd6, Pd4; bKe4, Bb7 =/23
161: wKe8, Rd7, Pd4; bKe6, Bb6 =/26
162: wKe8, Rd7, Pd4; bKe6, Bd6 =/23
163: wKf6, Rb4, Pd4; bKd5, Bd3 =/36
164: wKa5, Ra4, Pa3; bKb3, Bc2 =/23
165: wKa5, Ra4, Pa3; bKb3, Bc8 =/23
166: wKc5, Ra1, Pa3; bKb3, Ba4 =/36

167: wKa2, Rb2, Pb3; bKb4, Bd1 =/30
 168: wKb7, Rb1, Pb3; bKb5, Ba3 =/33
 169: wKc1, Rb2, Pb3; bKc3, Bd4 =/40
 170: wKc7, Rb1, Pb3; bKc5, Ba3 =/34
 171: wKd7, Rb1, Pb3; bKb5, Ba3 =/35
 172: wKh8, Rg3, Pb3; bKd4, Bb5 =/40
 173: wKb2, Rc2, Pc3; bKc4, Be1 =/28
 174: wKb4, Ra3, Pc3; bKb2, Bd2 =/26
 175: wKc4, Rb3, Pc3; bKc2, Be1 =/24
 176: wKc4, Rb3, Pc3; bKc2, Be1 =/24
 177: wKc5, Rb4, Pc3; bKa5, Ba3 =/17
 178: wKc5, Rc4, Pc3; bKc2, Be1 =/23
 179: wKc5, Rb4, Pc3; bKc7, Ba3 =/21
 180: wKd2, Rc2, Pc3; bKc4, Ba1 =/15
 181: wKd6, Rc1, Pc3; bKc4, Bf7 =/35
 182: wKd7, Rc1, Pc3; bKc4, Bd5 =/38
 183: wKe1, Ra3, Pc3; bKd3, Bc2 =/31
 184: wKe7, Rc1, Pc3; bKc4, Bg8 =/37
 185: wKf7, Re3, Pc3; bKd5, Be5 =/32
 186: wKg4, Rh3, Pc3; bKe4, Ba3 =/37
 187: wKa2, Rd7, Pd3; bKc2, Bb4 =/37
 188: wKa8, Ra4, Pd3; bKc3, Bb4 =/54
 189: wKa8, Rb3, Pd3; bKc5, Bb4 =/65
 190: wKb4, Rb3, Pd3; bKd4, Ba1 =/29
 191: wKb5, Ra3, Pd3; bKd4, Be5 =/57
 192: wKc1, Rd2, Pd3; bKc3, Bb4 =/57
 193: wKc2, Rd2, Pd3; bKd4, Bf1 =/28
 194: wKc2, Ra3, Pd3; bKe3, Bb5 =/28
 195: wKc8, Rb3, Pd3; bKc5, Bb4 =/33
 196: wKd5, Rd4, Pd3; bKd2, Bd1 =/24
 197: wKe1, Rd2, Pd3; bKe3, Bf4 =/54
 198: wKe2, Rd2, Pd3; bKd4, Bb1 =/15
 199: wKe5, Rd5, Pd3; bKe3, Bb6 =/26
 200: wKf1, Rb3, Pd3; bKe3, Bh4 =/35
 201: wKf2, Ra3, Pd3; bKd4, Bh5 =/29
 202: wKf4, Rh3, Pd3; bKd4, Bg1 =/34
 203: wKg2, Rd7, Pd3; bKe2, Bf4 =/36
 204: wKg7, Rf3, Pd3; bKe5, Bf5 =/35
 205: wKh1, Ra4, Pd3; bKg3, Bf2 =/67
 206: wKh1, Rb3, Pd3; bKg3, Bd4 =/64
 207: wKh2, Rg3, Pd3; bKf4, Bf1 =/27
 208: wKh6, Rd4, Pd3; bKf6, Bc2 =/48
 209: wKh7, Rd4, Pd3; bKf7, Bc2 =/49
 210: wKh8, Rd4, Pd3; bKf7, Bb1 =/50
 211: wKa4, Ra3, Pa2; bKb2, Ba7 =/22
 212: wKa7, Ra6, Pa2; bKb5, Bc4 =/37
 213: wKc3, Ra1, Pa2; bKa3, Bc8 =/34
 214: wKa3, Ra2, Pb2; bKc2, Be1 =/23

215: wKc1, Rb1, Pb2; bKa2, Bb3 =/28
 216: wKa3, Rb2, Pc2; bKc3, Bc4 =/34
 217: wKb1, Rc1, Pc2; bKc3, Ba4 =/31
 218: wKc4, Rb3, Pc2; bKa4, Ba2 =/22
 219: wKc4, Rb3, Pc2; bKc6, Ba2 =/22
 220: wKd1, Rc1, Pc2; bKb2, Bc3 =/31
 221: wKd1, Rc1, Pc2; bKc3, Ba4 =/32
 222: wKe1, Ra2, Pc2; bKc3, Bg4 =/33
 223: wKe1, Rc1, Pc2; bKe3, Be4 =/30
 224: wKa6, Rb2, Pd2; bKc4, Bb4 =/33
 225: wKe8, Rf2, Pd2; bKd3, Bb8 =/33

C Lars Rasmussen's computer lists all the reciprocal zugzwangs in the GBR class **0103.10**. Depth figures are 'ultimate', not to conversion.

1: wKb8, Ra8, Pa7; bKd7, Sd8 =/18
 2: wKd8, Ra8, Pa7; bKd6, Sb5 =/18
 3: wKf8, Rh7, Pa7; bKa8, Se4 =/20
 4: wKg8, Rh7, Pa7; bKa8, Sg3 =/21
 5: wKh8, Rh7, Pa7; bKa8, Sf1 =/22
 6: wKa5, Rb8, Pb7; bKc6, Sc7 =/13
 7: wKa6, Ra7, Pb7; bKb8, Sb6 =/12
 8: wKc5, Rb8, Pb7; bKa6, Sa7 =/7
 9: wKd7, Rb8, Pb7; bKb6, Sa5 =/28
 10: wKd7, Rb8, Pb7; bKb6, Sd2 =/28
 11: wKd8, Rc7, Pb7; bKb8, Sf1 =/18
 12: wKd8, Rc7, Pb7; bKb8, Sd6 =/27
 13: wKd8, Rb8, Pb7; bKc6, Sg6 =/32
 14: wKa6, Rb7, Pc7; bKc8, Se5 =/17
 15: wKb5, Rc8, Pc7; bKd6, Sd7 =/14
 16: wKb6, Rb7, Pc7; bKc8, Sc6 =/12
 17: wKd5, Rc8, Pc7; bKb6, Sb7 =/10
 18: wKe4, Re7, Pc7; bKc8, Sb4 =/15
 19: wKe7, Rc8, Pc7; bKc6, Sb5 =/25
 20: wKe7, Rc8, Pc7; bKc6, Se2 =/25
 21: wKe8, Rc8, Pc7; bKd6, Sh6 =/29
 22: wKg2, Rc3, Pc7; bKc8, Sd2 =/18
 23: wKa8, Ra7, Pd7; bKb6, Sd8 =/14
 24: wKb4, Rb7, Pd7; bKd8, Se4 =/17
 25: wKc5, Rd8, Pd7; bKe6, Se7 =/12
 26: wKe4, Ra7, Pd7; bKc6, Sf7 =/19
 27: wKe5, Rd8, Pd7; bKc6, Sc7 =/11
 28: wKf4, Rf7, Pd7; bKd8, Sc4 =/15
 29: wKf5, Ra7, Pd7; bKd6, Sf7 =/18
 30: wKf6, Ra7, Pd7; bKd6, Sd8 =/17
 31: wKf6, Rb7, Pd7; bKd6, Sc6 =/18
 32: wKh2, Rd3, Pd7; bKd8, Se2 =/19

33: wKh8, Rd8, Pd7; bKh6, Sf6 =/18
34: wKa1, Rb2, Pa6; bKa7, Sa3 =/32
35: wKa8, Ra7, Pa6; bKb6, Sc1 =/17
36: wKa8, Ra7, Pa6; bKb6, Sc2 =/18
37: wKa8, Ra7, Pa6; bKc8, Sb4 =/16
38: wKa8, Ra7, Pa6; bKc8, Sb8 =/14
39: wKa8, Ra7, Pa6; bKc8, Sc5 =/14
40: wKb7, Ra7, Pa6; bKc5, Sb5 =/16
41: wKe6, Rd6, Pa6; bKb5, Sc8 =/22
42: wKh8, Ra4, Pa6; bKa7, Sh5 =/31
43: wKa3, Rb7, Pb6; bKc5, Sd4 =/33
44: wKa3, Rd5, Pb6; bKc6, Se6 =/21
45: wKa4, Rb4, Pb6; bKa6, Sd6 =/31
46: wKa4, Rb7, Pb6; bKc5, Sc6 =/31
47: wKa5, Ra6, Pb6; bKb8, Sd4 =/17
48: wKa8, Rb7, Pb6; bKa5, Sb5 =/18
49: wKa8, Rb8, Pb6; bKa6, Sb5 =/19
50: wKb8, Rb7, Pb6; bKa6, Sb5 =/17
51: wKc4, Rb7, Pb6; bKa5, Sa6 =/12
52: wKc4, Rb5, Pb6; bKc6, Sa6 =/19
53: wKf2, Re6, Pb6; bKb8, Sf5 =/18
54: wKf6, Re6, Pb6; bKc5, Sd8 =/22
55: wKg8, Rb8, Pb6; bKa6, Sh3 =/30
56: wKh8, Rd7, Pb6; bKb8, Sh5 =/25
57: wKa4, Ra1, Pc6; bKa6, Sb5 =/16
58: wKa5, Rb6, Pc6; bKc7, Se4 =/20
59: wKa7, Rc7, Pc6; bKb5, Sa4 =/18
60: wKa7, Rc8, Pc6; bKb5, Sc5 =/17
61: wKa8, Rh6, Pc6; bKc7, Sc8 =/18
62: wKa8, Rd7, Pc6; bKc8, Sb5 =/15
63: wKd8, Rc7, Pc6; bKc5, Sd6 =/19
64: wKe7, Rc7, Pc6; bKd5, Se4 =/19
65: wKe7, Rc8, Pc6; bKd5, Sc5 =/17
66: wKf7, Re6, Pc6; bKb6, Sc8 =/18
67: wKg2, Rf6, Pc6; bKc8, Sg5 =/21
68: wKg4, Rc1, Pc6; bKb6, Se6 =/19
69: wKg6, Rf6, Pc6; bKd5, Se6 =/19
70: wKg6, Rf6, Pc6; bKd5, Se8 =/23
71: wKh6, Rg6, Pc6; bKe7, Se6 =/22
72: wKh8, Rc8, Pc6; bKb6, Sh2 =/22
73: wKh8, Re5, Pc6; bKd6, Sf6 =/23
74: wKa7, Ra6, Pd6; bKb5, Sd7 =/17
75: wKa7, Rb6, Pd6; bKe6, Sd8 =/21
76: wKb4, Rb1, Pd6; bKb6, Sc5 =/18
77: wKb7, Rd7, Pd6; bKc5, Sb4 =/18
78: wKb7, Rd8, Pd6; bKc5, Sd5 =/17
79: wKe8, Rd7, Pd6; bKd5, Se6 =/18
80: wKf4, Ra6, Pd6; bKd5, Sf6 =/18

81: wKf4, Rf1, Pd6; bKf6, Se5 =/19
82: wKf5, Ra6, Pd6; bKd5, Sd7 =/17
83: wKf5, Rb6, Pd6; bKd5, Sc5 =/18
84: wKf5, Rb6, Pd6; bKd5, Sf8 =/18
85: wKf7, Rd7, Pd6; bKe5, Sf4 =/19
86: wKf7, Rd8, Pd6; bKe5, Sd5 =/17
87: wKg7, Rf6, Pd6; bKc6, Sd8 =/20
88: wKh2, Rg6, Pd6; bKd8, Sh5 =/22
89: wKh4, Rd1, Pd6; bKc6, Sf6 =/20
90: wKh6, Rg6, Pd6; bKe5, Sf6 =/19
91: wKh6, Rg6, Pd6; bKe5, Sf8 =/21
92: wKh8, Rf8, Pd6; bKg6, Sf6 =/20
93: wKa6, Ra8, Pa5; bKc7, Sc8 =/17
94: wKa7, Ra6, Pa5; bKb5, Sc1 =/18
95: wKa8, Ra6, Pa5; bKc7, Sc6 =/17
96: wKb2, Rc3, Pa5; bKb5, Se5 =/30
97: wKd1, Rc7, Pa5; bKb5, Sf5 =/29
98: wKd4, Rc5, Pa5; bKb4, Sb8 =/22
99: wKe1, Ra2, Pa5; bKa6, Se4 =/32
100: wKe3, Ra8, Pa5; bKb4, Sa6 =/26
101: wKe8, Rd4, Pa5; bKa7, Se5 =/30
102: wKf8, Rd4, Pa5; bKa6, Se5 =/29
103: wKh3, Rb6, Pa5; bKa7, Sf5 =/37
104: wKa4, Ra5, Pb5; bKb7, Sd3 =/21
105: wKb3, Ra5, Pb5; bKc5, Se2 =/21
106: wKb7, Rb6, Pb5; bKa5, Sb4 =/17
107: wKc3, Rb4, Pb5; bKc5, Sa5 =/24
108: wKc3, Rb8, Pb5; bKc5, Sa5 =/16
109: wKd3, Rb8, Pb5; bKb4, Se6 =/21
110: wKe4, Rb8, Pb5; bKc5, Sb4 =/27
111: wKe6, Rb8, Pb5; bKc5, Sb4 =/25
112: wKe8, Rd4, Pb5; bKc7, Sb6 =/23
113: wKf5, Re5, Pb5; bKc4, Sd5 =/17
114: wKf5, Rb7, Pb5; bKd6, Sb2 =/28
115: wKg4, Rb7, Pb5; bKd6, Sc7 =/26
116: wKg4, Rf7, Pb5; bKd6, Sd5 =/25
117: wKg5, Rf5, Pb5; bKc4, Sd5 =/22
118: wKa4, Rb5, Pc5; bKc6, Se3 =/24
119: wKa7, Rc7, Pc5; bKb5, Sa5 =/23
120: wKa7, Rc7, Pc5; bKb5, Se5 =/23
121: wKa7, Rc8, Pc5; bKb5, Sc4 =/24
122: wKa7, Rh5, Pc5; bKc6, Sc7 =/22
123: wKa7, Rd6, Pc5; bKc7, Sb4 =/19
124: wKa8, Rc7, Pc5; bKb4, Sa5 =/24
125: wKa8, Rd6, Pc5; bKc7, Sc6 =/30
126: wKb8, Rc7, Pc5; bKc4, Sa5 =/23
127: wKc8, Rc7, Pc5; bKb5, Se5 =/21
128: wKc8, Rc7, Pc5; bKd5, Sa5 =/23

129: wKd7, Rc7, Pc5; bKd5, Sc4 =/24
130: wKd8, Rc7, Pc5; bKc4, Se5 =/24
131: wKe3, Rc8, Pc5; bKc4, Sf6 =/26
132: wKe7, Rc7, Pc5; bKd5, Sa5 =/25
133: wKe7, Rc7, Pc5; bKd5, Sf2 =/25
134: wKe7, Rc7, Pc5; bKd5, Sg3 =/20
135: wKe7, Rc7, Pc5; bKd5, Sg5 =/25
136: wKf6, Re5, Pc5; bKb5, Sc7 =/22
137: wKg2, Rb7, Pc5; bKd8, Sd2 =/31
138: wKg3, Rc1, Pc5; bKb5, Sd8 =/24
139: wKg5, Rf5, Pc5; bKd4, Se5 =/19
140: wKg8, Rc7, Pc5; bKe6, Sd7 =/27
141: wKg8, Rb5, Pc5; bKe7, Sa6 =/32
142: wKh6, Rh7, Pc5; bKf6, Se5 =/27
143: wKh8, Rh7, Pc5; bKd7, Se7 =/26
144: wKa6, Ra5, Pd5; bKb4, Sd6 =/18
145: wKa6, Rb5, Pd5; bKe5, Sd7 =/25
146: wKa8, Rd7, Pd5; bKb4, Sb5 =/26
147: wKa8, Rd7, Pd5; bKd4, Sb5 =/26
148: wKb7, Rd7, Pd5; bKc5, Sa2 =/19
149: wKb7, Rd7, Pd5; bKc5, Sb5 =/24
150: wKb7, Rd7, Pd5; bKc5, Sf5 =/24
151: wKb7, Rd8, Pd5; bKc5, Sa3 =/25
152: wKb7, Rd8, Pd5; bKc5, Sd4 =/25
153: wKb8, Rd7, Pd5; bKc4, Sb5 =/25
154: wKc8, Rd7, Pd5; bKd4, Sb5 =/22
155: wKd8, Rd7, Pd5; bKc5, Sf5 =/22
156: wKd8, Rd7, Pd5; bKc5, Sb5 =/24
157: wKe1, Rd6, Pd5; bKb7, Sc3 =/25
158: wKe1, Rh5, Pd5; bKf4, Sf5 =/21
159: wKe2, Rd6, Pd5; bKe4, Sf8 =/23
160: wKe7, Rd7, Pd5; bKe5, Sd4 =/23
161: wKe8, Rd7, Pd5; bKd4, Sf5 =/23
162: wKf3, Rd8, Pd5; bKd4, Sg6 =/26
163: wKf7, Rd7, Pd5; bKe5, Sb5 =/26
164: wKf7, Rd7, Pd5; bKe5, Sg2 =/24
165: wKf7, Rd7, Pd5; bKe5, Sh3 =/20
166: wKf7, Rd7, Pd5; bKe5, Sh5 =/24
167: wKf8, Rh5, Pd5; bKf6, Sd6 =/18
168: wKg6, Rf5, Pd5; bKc5, Sd7 =/25
169: wKg8, Rh5, Pd5; bKf6, Se4 =/22
170: wKg8, Rh5, Pd5; bKf6, Sf5 =/20
171: wKg8, Rh7, Pd5; bKg6, Sf5 =/19
172: wKh2, Rc7, Pd5; bKe8, Se2 =/33
173: wKh3, Rd1, Pd5; bKc5, Se8 =/26
174: wKh5, Rg5, Pd5; bKe4, Sf5 =/23
175: wKh7, Rg5, Pd5; bKe4, Sf5 =/23
176: wKh8, Rh5, Pd5; bKe4, Sf5 =/23

177: wKh8, Rh5, Pd5; bKf6, Sg5 =/23
178: wKh8, Rc5, Pd5; bKf7, Sb6 =/31
179: wKa5, Ra1, Pa4; bKb3, Sc3 =/17
180: wKa5, Ra7, Pa4; bKc6, Sc7 =/19
181: wKa8, Rc4, Pa4; bKb6, Sc6 =/23
182: wKb1, Rc2, Pa4; bKb4, Se4 =/34
183: wKb8, Ra8, Pa4; bKb6, Sa5 =/36
184: wKd3, Rc4, Pa4; bKb3, Sb7 =/23
185: wKd8, Rc8, Pa4; bKb7, Sa6 =/28
186: wKe7, Rc2, Pa4; bKb4, Se4 =/27
187: wKe7, Ra5, Pa4; bKc6, Sc5 =/27
188: wKf7, Ra1, Pa4; bKb4, Sa5 =/33
189: wKf7, Ra2, Pa4; bKb4, Sb3 =/32
190: wKg8, Rc4, Pa4; bKa5, Se6 =/26
191: wKh7, Rd3, Pa4; bKa6, Sf5 =/39
192: wKa1, Rb8, Pb4; bKb3, Sa4 =/28
193: wKc2, Rb3, Pb4; bKc4, Sa4 =/28
194: wKd2, Rb7, Pb4; bKb3, Se5 =/23
195: wKe8, Rb8, Pb4; bKa6, Se5 =/20
196: wKf1, Ra6, Pb4; bKc7, Sc1 =/34
197: wKf3, Rf6, Pb4; bKd3, Se2 =/28
198: wKf4, Re4, Pb4; bKc3, Sd4 =/18
199: wKg3, Rb6, Pb4; bKd5, Sc6 =/30
200: wKg3, Rf6, Pb4; bKd5, Sd4 =/29
201: wKg4, Rf4, Pb4; bKc3, Sd4 =/22
202: wKa3, Rb4, Pc4; bKc5, Se2 =/28
203: wKa4, Rc3, Pc4; bKc5, Sd2 =/25
204: wKa5, Rc3, Pc4; bKc5, Sf1 =/26
205: wKa6, Rh4, Pc4; bKc5, Sc6 =/25
206: wKa8, Ra4, Pc4; bKb6, Sa6 =/31
207: wKa8, Ra6, Pc4; bKc7, Sc6 =/31
208: wKb7, Ra4, Pc4; bKc5, Se7 =/20
209: wKb8, Rc7, Pc4; bKb4, Se4 =/23
210: wKb8, Re8, Pc4; bKb6, Sb4 =/30
211: wKb8, Re8, Pc4; bKb6, Sd4 =/34
212: wKc1, Rc8, Pc4; bKc3, Sf6 =/22
213: wKc8, Re8, Pc4; bKd6, Sc6 =/34
214: wKd1, Rc5, Pc4; bKd3, Se7 =/25
215: wKd8, Rc7, Pc4; bKd4, Sa4 =/28
216: wKd8, Rc8, Pc4; bKd6, Sc5 =/33
217: wKd8, Re8, Pc4; bKd6, Sb8 =/35
218: wKe1, Rh4, Pc4; bKe3, Sf2 =/23
219: wKe1, Re2, Pc4; bKf4, Se4 =/24
220: wKe2, Rc7, Pc4; bKc3, Sf5 =/23
221: wKe8, Rc8, Pc4; bKd6, Sa4 =/32
222: wKe8, Rc8, Pc4; bKd6, Se4 =/32
223: wKe8, Re4, Pc4; bKd6, Se6 =/32
224: wKf5, Re4, Pc4; bKb4, Sc6 =/27

225: wKf8, Rc8, Pc4; bKb6, Sf5 =/27
 226: wKf8, Rb5, Pc4; bKd7, Sa4 =/35
 227: wKf8, Rc5, Pc4; bKe6, Sf5 =/31
 228: wKf8, Rf7, Pc4; bKe6, Sf5 =/29
 229: wKg3, Rg6, Pc4; bKe3, Sf2 =/31
 230: wKg4, Rf4, Pc4; bKd3, Se4 =/20
 231: wKg6, Ra6, Pc4; bKe5, Se8 =/30
 232: wKg6, Rc6, Pc4; bKe5, Sd6 =/29
 233: wKg7, Rc6, Pc4; bKd8, Sd7 =/33
 234: wKg7, Rc5, Pc4; bKe6, Sd4 =/34
 235: wKg7, Rc5, Pc4; bKe6, Se7 =/32
 236: wKg7, Rh6, Pc4; bKe7, Sd7 =/32
 237: wKg8, Rc5, Pc4; bKf6, Sf5 =/32
 238: wKh8, Rh6, Pc4; bKe7, Sf6 =/33
 239: wKa1, Rb2, Pd4; bKa5, Sb4 =/24
 240: wKa2, Ra3, Pd4; bKb4, Sa5 =/25
 241: wKa3, Ra4, Pd4; bKb5, Sd3 =/24
 242: wKa5, Ra4, Pd4; bKb3, Sd5 =/19
 243: wKa5, Re4, Pd4; bKc4, Sg6 =/26
 244: wKa5, Rb4, Pd4; bKe4, Sd6 =/31
 245: wKa7, Re6, Pd4; bKc7, Se1 =/29
 246: wKa8, Rd5, Pd4; bKb6, Sa5 =/29
 247: wKa8, Re4, Pd4; bKc7, Sb5 =/30
 248: wKa8, Rd8, Pd4; bKe6, Sa5 =/28
 249: wKb1, Rb2, Pd4; bKa4, Sb4 =/23
 250: wKb2, Rd1, Pd4; bKc4, Sb8 =/29
 251: wKb2, Rh4, Pd4; bKd3, Sb4 =/22
 252: wKb3, Rh4, Pd4; bKd3, Sd5 =/21
 253: wKb4, Rd3, Pd4; bKd5, Se2 =/27
 254: wKb8, Rd7, Pd4; bKc4, Sa3 =/26
 255: wKb8, Rb4, Pd4; bKc6, Sb6 =/32
 256: wKb8, Rb4, Pd4; bKc6, Se7 =/32
 257: wKc8, Rd7, Pd4; bKc4, Sf4 =/26
 258: wKc8, Rf8, Pd4; bKc6, Sc4 =/31
 259: wKc8, Rf8, Pd4; bKc6, Se4 =/33
 260: wKd1, Rd8, Pd4; bKd3, Sa6 =/21
 261: wKd1, Rd8, Pd4; bKd3, Sg6 =/21
 262: wKe1, Rd5, Pd4; bKe3, Sf7 =/27
 263: wKe8, Rd7, Pd4; bKe4, Sb4 =/28
 264: wKf1, Rf2, Pd4; bKg4, Sf4 =/23
 265: wKf2, Rd7, Pd4; bKd3, Sg5 =/25
 266: wKf4, Rd3, Pd4; bKd5, Sc2 =/26
 267: wKf8, Rd8, Pd4; bKe6, Sb4 =/33
 268: wKf8, Rd8, Pd4; bKe6, Sf4 =/33
 269: wKf8, Rf4, Pd4; bKe6, Sf6 =/33
 270: wKg2, Rg3, Pd4; bKf4, Sg5 =/26
 271: wKg3, Rc4, Pd4; bKe4, Sa6 =/27
 272: wKg5, Rf4, Pd4; bKc4, Sd6 =/31
 273: wKg5, Rc4, Pd4; bKe4, Sa6 =/26
 274: wKg8, Rd8, Pd4; bKc6, Sg5 =/28
 275: wKg8, Rc5, Pd4; bKe7, Sb4 =/36
 276: wKg8, Rd5, Pd4; bKf6, Sg5 =/32
 277: wKh3, Rh6, Pd4; bKf3, Sg2 =/30
 278: wKh4, Rg4, Pd4; bKe3, Sf4 =/22
 279: wKh6, Rb6, Pd4; bKf5, Sd8 =/30
 280: wKh6, Rd6, Pd4; bKf5, Se6 =/29
 281: wKh6, Rd6, Pd4; bKf5, Sf6 =/30
 282: wKh6, Rh4, Pd4; bKf5, Se6 =/36
 283: wKh6, Rh4, Pd4; bKf6, Sc3 =/32
 284: wKh7, Rc4, Pd4; bKf6, Sb5 =/36
 285: wKh7, Rd5, Pd4; bKf6, Se4 =/37
 286: wKh7, Rd5, Pd4; bKf6, Sf7 =/33
 287: wKh8, Rd6, Pd4; bKf5, Sf6 =/34
 288: wKh8, Rd5, Pd4; bKg6, Sg5 =/33
 289: wKa8, Ra7, Pa3; bKb5, Sa5 =/39
 290: wKc5, Ra2, Pa3; bKa4, Sa5 =/32
 291: wKc5, Ra1, Pa3; bKb3, Sc3 =/31
 292: wKd1, Ra1, Pa3; bKa4, Sd4 =/39
 293: wKd2, Rc3, Pa3; bKb2, Sb6 =/25
 294: wKe6, Rc1, Pa3; bKb3, Se3 =/32
 295: wKf8, Ra8, Pa3; bKb3, Sf5 =/35
 296: wKa7, Rb8, Pb3; bKa3, Sd3 =/22
 297: wKa7, Rc3, Pb3; bKb5, Sd4 =/26
 298: wKa8, Rc8, Pb3; bKb6, Sa6 =/28
 299: wKa8, Rb7, Pb3; bKc5, Sc6 =/24
 300: wKa8, Ra6, Pb3; bKc7, Sc6 =/24
 301: wKa8, Rc8, Pb3; bKd6, Sc6 =/27
 302: wKb1, Ra3, Pb3; bKc3, Se2 =/27
 303: wKb4, Ra3, Pb3; bKb2, Sd2 =/18
 304: wKb6, Ra6, Pb3; bKb4, Se7 =/27
 305: wKb8, Rb7, Pb3; bKa5, Sb5 =/24
 306: wKc1, Rb1, Pb3; bKa2, Sb4 =/28
 307: wKc1, Rb1, Pb3; bKa3, Sc6 =/29
 308: wKd3, Rc3, Pb3; bKb5, Sa1 =/18
 309: wKd4, Rd5, Pb3; bKb4, Sb7 =/22
 310: wKf2, Rf5, Pb3; bKd2, Se1 =/30
 311: wKf3, Re3, Pb3; bKc2, Sd3 =/19
 312: wKf4, Ra3, Pb3; bKd5, Sd4 =/30
 313: wKf5, Ra3, Pb3; bKd5, Sc6 =/33
 314: wKf5, Rb6, Pb3; bKd5, Sc5 =/31
 315: wKf8, Rb7, Pb3; bKa3, Sf5 =/28
 316: wKf8, Rb7, Pb3; bKc3, Sf5 =/28
 317: wKg2, Rb5, Pb3; bKd4, Sc5 =/31
 318: wKg3, Rf3, Pb3; bKc2, Sd3 =/25
 319: wKg7, Rb5, Pb3; bKd6, Se5 =/45
 320: wKa2, Rb3, Pc3; bKc4, Se1 =/32

321: wKa5, Rc1, Pc3; bKc4, Sg7 =/32
322: wKa7, Ra8, Pc3; bKa5, Sd6 =/32
323: wKb1, Rc1, Pc3; bKd2, Sc4 =/28
324: wKb6, Ra3, Pc3; bKc4, Se6 =/26
325: wKb8, Rd8, Pc3; bKc5, Sd6 =/33
326: wKc8, Rc7, Pc3; bKb5, Sc5 =/27
327: wKc8, Rc7, Pc3; bKd5, Sc5 =/29
328: wKd1, Rc1, Pc3; bKb2, Sc4 =/29
329: wKd1, Rc1, Pc3; bKb3, Sd6 =/29
330: wKf4, Re3, Pc3; bKb3, Sc5 =/31
331: wKf8, Re8, Pc3; bKd5, Sf5 =/38
332: wKgl, Re1, Pc3; bKf3, Se3 =/30
333: wKg2, Rg5, Pc3; bKe2, Sf1 =/31
334: wKg2, Rh3, Pc3; bKe2, Sd2 =/37
335: wKg3, Rf3, Pc3; bKd2, Se3 =/22
336: wKg5, Rc6, Pc3; bKe5, Sd5 =/34
337: wKg8, Rf7, Pc3; bKc5, Se6 =/46
338: wKh3, Re1, Pc3; bKf3, Se3 =/36
339: wKa1, Ra2, Pd3; bKb3, Sa4 =/27
340: wKa4, Ra3, Pd3; bKb2, Sd4 =/21
341: wKa4, Re3, Pd3; bKc3, Sg5 =/31
342: wKa4, Rf3, Pd3; bKc3, Sh7 =/32
343: wKa4, Rb3, Pd3; bKe3, Sd5 =/35
344: wKa8, Rd5, Pd3; bKb6, Sc6 =/42
345: wKa8, Rd8, Pd3; bKb6, Sb4 =/39
346: wKb5, Rd1, Pd3; bKd4, Sh7 =/34
347: wKb5, Rf3, Pd3; bKd4, Sd5 =/32
348: wKc1, Rd1, Pd3; bKe2, Sd4 =/30
349: wKc1, Rh3, Pd3; bKe2, Sd4 =/24
350: wKc8, Re8, Pd3; bKd5, Se6 =/34
351: wKd8, Rd7, Pd3; bKc5, Sd5 =/28
352: wKd8, Rd7, Pd3; bKe5, Sd5 =/30
353: wKe1, Rd1, Pd3; bKc2, Sd4 =/30
354: wKe1, Rd1, Pd3; bKc3, Se6 =/30
355: wKe8, Rc8, Pd3; bKd5, Sc6 =/35
356: wKgl, Rg2, Pd3; bKf3, Sg4 =/30
357: wKg2, Rc3, Pd3; bKe3, Sa5 =/32
358: wKg4, Rf3, Pd3; bKc3, Sd5 =/35
359: wKg4, Rc3, Pd3; bKe3, Sa5 =/31
360: wKh1, Rc3, Pd3; bKb6, Sf4 =/30
361: wKh1, Rg2, Pd3; bKf4, Sg4 =/35
362: wKh1, Rf1, Pd3; bKg3, Sf3 =/31
363: wKh2, Rc3, Pd3; bKb5, Sf4 =/29
364: wKh2, Rh5, Pd3; bKf2, Sg1 =/31
365: wKh3, Rg3, Pd3; bKe2, Sf3 =/25
366: wKh4, Rg3, Pd3; bKf4, Sf2 =/35
367: wKh4, Rh3, Pd3; bKf4, Sg4 =/39
368: wKh5, Rd6, Pd3; bKf5, Se5 =/35

369: wKh6, Ra3, Pd3; bKf6, Sf4 =/38
370: wKh8, Rg7, Pd3; bKd5, Sf6 =/47
371: wKa6, Ra5, Pa2; bKb4, Sc3 =/23
372: wKb1, Ra1, Pa2; bKd2, Sa4 =/32
373: wKc1, Ra1, Pa2; bKc3, Sa3 =/29
374: wKa3, Ra2, Pb2; bKc2, Sb3 =/20
375: wKa3, Ra2, Pb2; bKc4, Sb3 =/24
376: wKa6, Rc2, Pb2; bKb4, Sd3 =/25
377: wKc8, Rc7, Pb2; bKb4, Sc5 =/30
378: wKd1, Rb1, Pb2; bKd3, Sc4 =/31
379: wKd3, Re2, Pb2; bKb3, Sc6 =/36
380: wKf3, Ra2, Pb2; bKd3, Sd1 =/19
381: wKf3, Ra2, Pb2; bKd4, Sd3 =/32
382: wKh1, Rd2, Pb2; bKb3, Se1 =/35
383: wKa1, Ra2, Pc2; bKb4, Sa4 =/29
384: wKa1, Ra2, Pc2; bKc3, Sd2 =/32
385: wKa2, Rc1, Pc2; bKc3, Sb5 =/31
386: wKa3, Rb2, Pc2; bKc3, Sc1 =/30
387: wKa3, Rc1, Pc2; bKc3, Sc7 =/32
388: wKb3, Rb2, Pc2; bKa1, Se1 =/12
389: wKc4, Rc3, Pc2; bKe2, Sa1 =/18
390: wKd1, Rc1, Pc2; bKa2, Sc4 =/30
391: wKd8, Rd7, Pc2; bKc4, Sd5 =/33
392: wKe3, Rd2, Pc2; bKc3, Sc1 =/30
393: wKe3, Rf2, Pc2; bKc3, Sd6 =/38
394: wKf7, Rh2, Pc2; bKc3, Sf4 =/34
395: wKh1, Rh2, Pc2; bKe3, Se1 =/33
396: wKh5, Rg2, Pc2; bKb6, Sd4 =/36
397: wKh7, Rg2, Pc2; bKb6, Sd4 =/46
398: wKa3, Ra2, Pd2; bKb1, Sd3 =/20
399: wKb2, Rd1, Pd2; bKd3, Sc5 =/33
400: wKb3, Ra2, Pd2; bKd3, Sc6 =/40
401: wKb3, Rc2, Pd2; bKd3, Sd1 =/30
402: wKb3, Rd1, Pd2; bKd3, Sd7 =/34
403: wKc8, Rc7, Pd2; bKd4, Sc5 =/32
404: wKe1, Rd1, Pd2; bKb2, Sd4 =/31
405: wKe8, Re7, Pd2; bKd4, Se5 =/33
406: wKf1, Rg2, Pd2; bKc1, Sd3 =/25
407: wKf1, Re2, Pd2; bKc2, Sd3 =/24
408: wKf1, Rh2, Pd2; bKd1, Sd3 =/22
409: wKf3, Re2, Pd2; bKd3, Sd1 =/30
410: wKf3, Rg2, Pd2; bKd3, Se6 =/38
411: wKh1, Rc2, Pd2; bKb4, Sf3 =/31
412: wKh3, Rg2, Pd2; bKf3, Sf1 =/16
413: wKh3, Rh2, Pd2; bKf3, Sg3 =/34

GBR code

(after Guy/Blandford/Roycroft) concisely denotes chessboard force in at most 6 digits. Examples: two white knights and one black pawn codes into **0002.01**; wQ bQ wR codes as **4100**; wBB vs bN codes as **0023**; the full complement of 32 chessmen codes as **4888.88**. The key to encoding is to compute the sum '1-for-W-and-3-for-BI' for each piece type in QRBN sequence, with white pawns and black pawns uncoded following the 'decimal point'. The key for decoding is to divide each QRBN digit by 3, when the quotient and remainder are in each of the 4 cases the numbers of BI and W pieces respectively.

The *GBR* code permits unique sequencing, which, together with the fact that a computer sort of several thousand codes and the reference attached to each is a matter of a second or two, enormously facilitates the construction of look-up directories.

A consequence of the foregoing is the code's greatest overall advantage: its user-friendliness. The *GBR* code has the unique characteristic of equally suiting humans and computers. No special skill or translation process is required whether the code is encountered on a computer printout or whether it is to be created (for any purpose, including input to a computer) from a chess diagram.

A natural extension of the *GBR* code is to use it to represent a complete position. A good convention is to precede the *GBR* code with the squares of the kings, and follow the code with the squares of the pieces, in W-before-BI within code digit sequence, preserving the 'decimal point' to separate the pieces from the pawns, if any (where all W pawns precede all BI). The 223-move optimal play solution position in the endgame wR wB bN bN would be represented: a7d3 **0116.00**

b2b3c6d6 3/3+. The '3/3' is a control indicating 3 W and 3 BI men, with '+' meaning W wins, while '=' would mean White draws. The win/draw indicators are optional. Note that although in this example there are no pawns the *GBR* code decimal point and immediately following pair of zeroes are obligatory (enabling a scan of a text file searching for encoded chess positions) but the absence of a decimal point in the list of squares confirms that there are no pawns. A position with pawns but no pieces would be coded in this manner: a2c4 **0000.32** .d4e3f2e4f3 4/3 WTM. To indicate Black to move (but still with the implied win or draw for White) it is suggested that '-+' and '-=' be employed. Where the position result is unknown or undecided or unknowable it is suggested that the computer chess convention 'WTM' (White to move) and 'BTM' be followed. The redundancy check piece-count (including the '/' separator) and terminating full stop are both obligatory.