# CHAPTER III

# ONE AGAINST ONE

Let us start with some basic insights from the endgame knowledge. The most fundamental endgames include those with two pieces, which is the subject of this chapter. We consider that a position is trivial if the side to play is forced to make an immediate capture or can win by making an immediate sacrifice. Many endgames in Antichess are trivial with a win in 1 ply (the player to move must make an immediate capture) or in 2 plies (the player can win by an immediate sacrifice).

However, apart from the trivial endgames and the general endgame conclusions, there are exceptions, which are zugzwang positions with a win in 3 plies. According to Beasley [3] there are two types of such exceptions: *attack and wait* and *domination*. In the attack and wait type of exceptions, a player can attack his opponent without allowing him to sacrifice in return. After that his opponent must move away and the player then sacrifices on the square which he has just been attacking. In the domination type of exceptions, the player does not threaten anything in the position but the opponent's piece has no safe move and will have to allow the player's piece to sacrifice itself on the next move.

Endgames with two pieces are very important for Antichess players of all levels. The general results (in a play with at least 4 plies) in one against one pawnless endgames are related with the following rough scale: ♘ < ♔ ≤ ♗ ≤ ♕=♖. A knight is the weakest piece and loses from all other pieces including a knight (see Section III.6). A king draws against a king or a bishop, and loses against a queen or a rook, while endgames with line-moving pieces are trivial. Additionally, our knowledge of pawnless endgames enables the results for endgames including pawns by considering all possible promotions. However, a pawn versus a knight deserves a special attention (see Section III.7).

Historically, the treatment of one against one endgames includes the following authors: Klüver in 1924 [10], Leoncini and Magari in 1980 [11], and Beasley in 1996 [5]. However, it seems that every pre-computer writer who attempted to give a complete exposition appears to have overlooked at least one exception where the normal rule did not apply. Thanks to the definitive analysis given by computer, we finally get the first one against one endgame expositions containing the general results and identifying all exceptional cases. It is worth noting that these important works gave Beasley [3] and Liardet [12, *Finales de deux pièces*],

both in 1999.

Statistical details for certain type of endgames can be very important. For this purpose we always count positions which can be rotated or reflected into each other as the same. For example, we can say that there are 518 different positions (or twice more if we care which side is to move) in any pawnless one against one endgame. Since trivial endgames spoil the general results with no useful purpose, we shall often disregard them.

## III.1   ♜/♛/♝ vs ♖/♕/♗

Endgames in which each side has a line-moving piece (queen, rook, or bishop) are normally trivial. Of course, a bishop versus a bishop, with bishops of opposite colours is also trivial with an obvious draw. Still, here we recognize several attack and wait exceptions. A rook or a queen can win against a bishop to play (#2, #3), while a bishop can win against a rook to play (#1). However, there are no exceptions where a queen wins against a rook to play, or vice versa. All exceptions are similar to these shown in the following diagrams.

#1

#2

#3
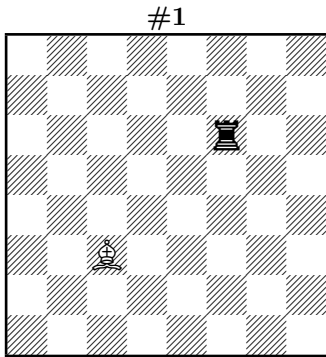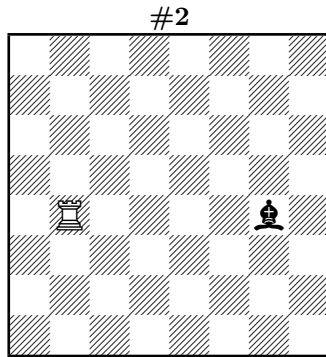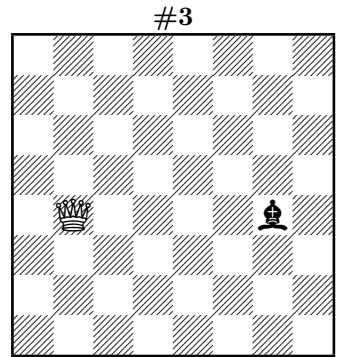


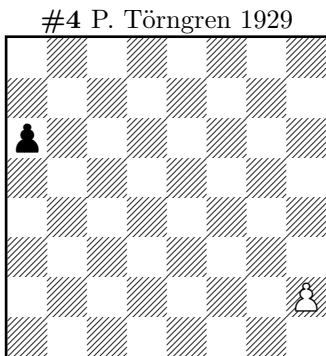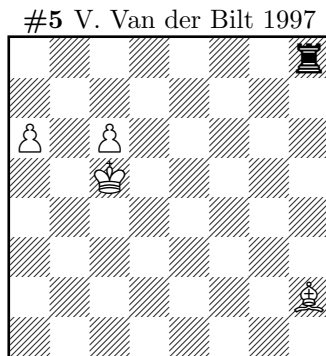Black to play, White to win     Black to play, White to win     Black to play, White to win
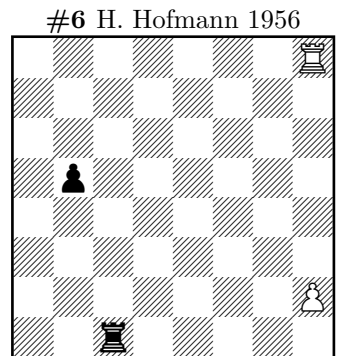
Position #1:   A bishop can win against a rook to play in 30 positions similar to this one.
Position #2:   A rook can win against a bishop to play in 10 positions similar to this one.
Position #3:   A queen can win against a bishop to play in 6 positions similar to this one.

#4 P. Törngren 1929     #5 V. Van der Bilt 1997     #6 H. Hofmann 1956
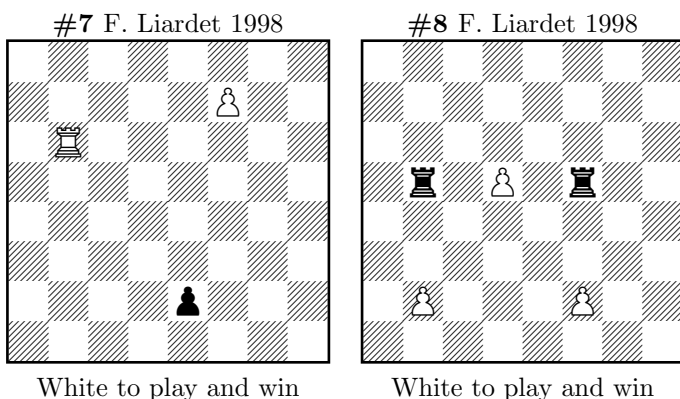


White to play and win     White to play and win     White to play and win

Position #4: [*Tidskrift för Schack*, xi-xii.1929] 1. h3! a5 2. h4 a4 3. h5 a3 4. h6 a2 5. h7 a1♖ [5... a1♘ 6. h8♗+−] [5... a1♕ 6. h8♖+− see Section III.2] 6. h8♗+−.

Position #5: [Internet] The original solution is 1. ♗b8! ♖xb8 2. ♔b6 ♖xb6 3. a7! [3. c7? ♖xa6−+] 3... ♖xc6 4. a8♗!+−. However, White can obtain three kings against a rook and win slowly (see #127) with 1. c7 ♖xh2 2. ♔c6 ♖e2 3. a7 ♖e4 4. c8♕! ♖e2 5. ♔8b7 ♖e4 6. a8♕+− or 1. a7 ♖xh2 2. a8♕! ♖e2 3. ♔b7 ♖e3 4. c7 ♖e2 5. c8♕+−.

Position #6: [*Die Schwalbe*, vi.1956] 1. h4! b4 [1... ♖c8 2. ♖xc8 b4 3. h5 b3 4. h6 b2 5. h7+−] 2. h5 b3 3. h6 b2 [3... ♖b1 4. h7 ♖b2 5. ♖c8!+−] 4. h7 ♖b1 5. ♖a8! ♖a1 6. ♖xa1 bxa1♖ 7. h8♗!+−.



#7 F. Liardet 1998      #8 F. Liardet 1998

White to play and win      White to play and win

Position #7: [*Phénix* 65, vii-viii.1998] This ingenious study is the best illustration of our exceptions, 1. ♖f6! [1. f8♖? e1♗!−+ with two different exceptions of type #1] [1. f8♕? e1♕!= is just a draw, see Section IV.5] 1... e1♗ [1... e1♘ 2. ♖f3 ♘f3 3. f8♖+−] [1... e1♕ 2. ♖a6+− with a promotion to bishop, see Section IV.2] 2. ♖f2 ♗xf2 3. f8♖+− with an exceptional win of type #2.

Position #8: [*Bulletin Genevois des Echecs* 36, ix-xii.1998] 1. d6! ♖xb2 [1... ♖xf2 2. d7 ♖fxb2 3. d8♘!+−] 2. d7 ♖fxf2 [2... ♖bxf2 3. d8♘+−] 3. d8♗!+− with exceptions of type #1.

## III.2   ♖/♕ vs ♔

A rook versus a king is a basic endgame for beginners. It is easy to conclude that a rook always wins against a king, without exceptions. The rook tends with every move to take away a rank or a file from the king. It mostly uses the opposition of two squares diagonally to bring the king to the corner enabling the winning zugzwang. A queen versus a king is very similar, although the queen can more quickly bring the king to the corner and win.

#9 — White to win

#10 — White to win
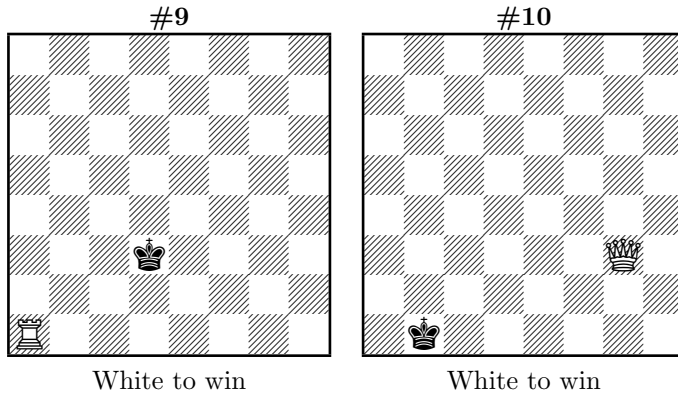
Position #9: The longest win has Black to play and takes 18 moves, 1...♔d4 2. ♖f1 ♔d5 3. ♖f3 ♔c6 4. ♖e3 ♔c5 5. ♖e7 ♔c4 6. ♖e6 ♔c3 7. ♖e5 ♔b2 8. ♖d5 ♔b3 9. ♖d7 ♔b4 10. ♖d6 ♔b3 11. ♖d5 ♔a2 12. ♖c5 ♔a3 13. ♖c7 ♔a4 14. ♖c6 ♔a3 15. ♖c5 ♔a2 16. ♖c4 ♔a1 17. ♖c3+−.

Position #10: The longest win has Black to play and takes 6 moves, 1...♔c1 2. ♕g8 ♔d1 [2...♔d2 3. ♕f7+− is one move faster] 3. ♕f7 ♔d2 4. ♕b7 ♔d1 [4...♔e1 5. ♕c6+−] 5. ♕b6+−.

## III.3  ♗/♔ vs ♔

It is obvious that in the endgame with a king versus a king nobody can win, so it is a draw. The king should be at least three squares away from his rival, but neither can force the other to come closer. Generally, a bishop versus a king is a draw, since the king can easily avoid the following exceptions.



#11 — Black to play, White to win

#12 — Black to play, White to win
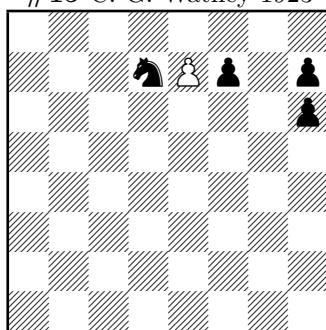
#13 — Black to play, White to win
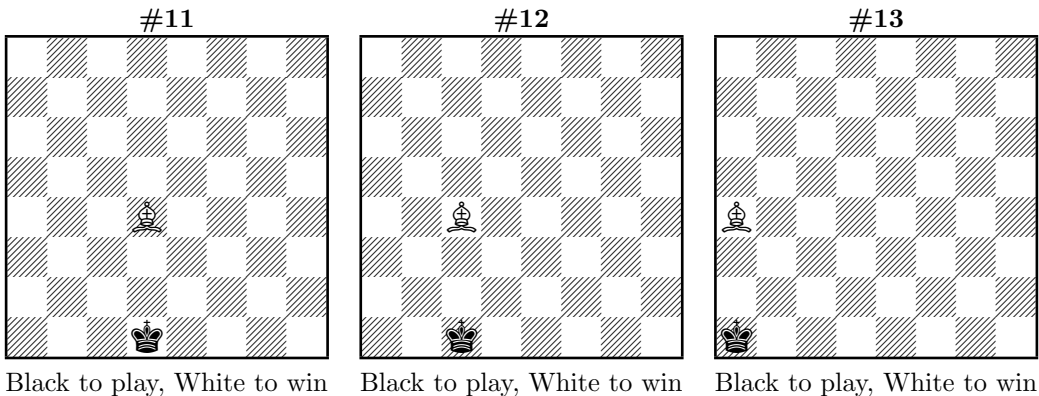
Position #11: A bishop can win against a king in 3 diagrammed positions and all of them are domination exceptions. However, in a similar position with the pieces on the b-line, the king can hold the draw by escaping to the corner.
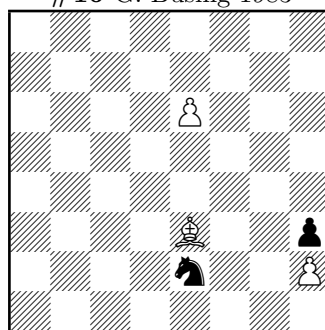
**#14** S. Goldovski 1999
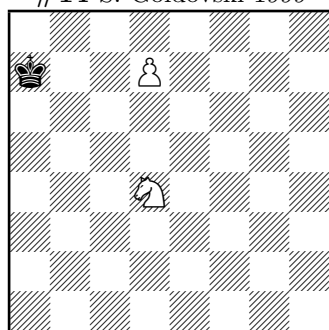


White to play and win in 5

**#15** C. G. Watney 1923



White to play and draw

**#16** G. Büsing 1983



White to play and draw

Position #14: [*The Problemist*, iii.1999] Although not formally published until 1999, this had been circulating privately since 1997, and it anticipates the discovery of similar knight manoeuvres by computer [4]. 1. ♘b5 ♚a8 2. ♘c7 [2. ♘a7? ♚xa7 3. d8♔!=] 2...♚a7 3. ♘a8 [3. ♘a6 ♚xa6 4. d8♖+− also wins, but not in 5] 3...♚xa8 4. d8♗+−.

Position #15: [*Chess Amateur*, iv.1923] 1. e8♔! ♘f6! 2. ♚xf7 ♘g8! 3. ♚xg8 h5 4. ♚xh7 h4 5. ♚h6 h3 6. ♚h5 h2 7. ♚g4! h1♔!=.

Position #16: [*Jugendschach*, 1983] 1. ♗g1! [1. ♗c1 ♘xc1 2. e7 ♘d3 3. e8♗ ♘f2 4. ♗f7 ♘h1 5. ♗a2 ♘g3 6. hxg3 h2 7. g4 h1♖−+] [1. ♗d4 ♘xd4 2. e7 ♘f5 3. e8♗ ♘e3−+] 1...♘xg1 2. e7 ♘e2 3. e8♕! ♘g3 4. hxg3 h2 5. ♕e3 h1♔ 6. ♕g1=.

## III.4 ♖/♕/♗ vs ♘

A knight is the weakest piece in the endgame. It is immobile and can easily be pushed into zugzwang, because its move completely changes the squares that it attacks. Usually one can win using the attack and wait method. It immediately works for a rook or a queen, while for a bishop, if both pieces are on squares of the opposite colour, we need one additional move to win. Therefore a line-moving piece wins against a knight, but there are some exceptions where a knight can win (but not against a queen).
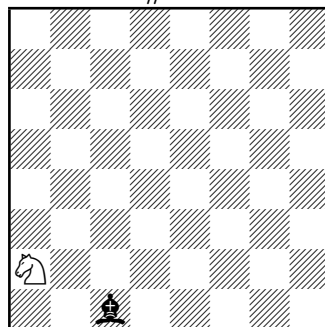
**#17**
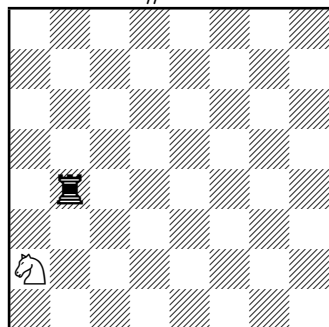


Black to play, White to win

**#18**
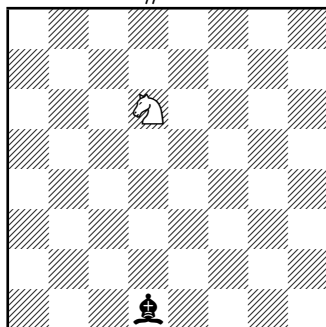


Black to play, White to win

**#19**



Black to play, White to win

Position #17: A rook is trapped in an attack and wait zugzwang. This is one of 2 such exceptions, since it stands with the pieces translated one rank lower.

Position #18: A unique position with a bishop in a domination zugzwang. White can reach this position relatively often if the black bishop originated from a pawn promotion, see Section III.7.
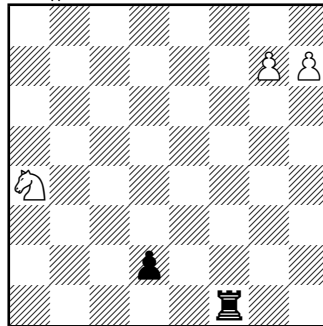
Position #19: A unique position with a bishop in an attack and wait zugzwang. This position is also important for Section III.7.
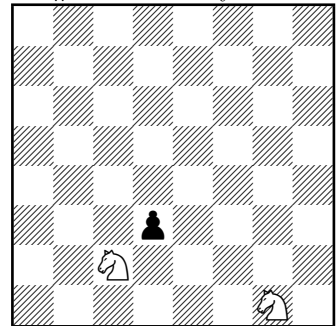


**#20** F. Liardet 1998
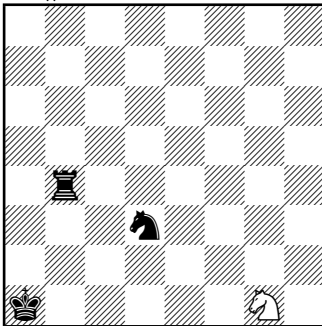
White to play and win



**#21** F. Liardet 1998

White to play and win



**#22** J. Beasley 1997

White to play and win

Position #20: [*Variant Chess* 30, winter 1998] 1. ♘e2! ♘c1 [1...♖d4 2. ♘xd4 ♘b2 3. ♘c2+− see Section III.6] 2. ♘xc1 ♚a2 [2...♖b3 3. ♘xb3+− see Section III.5] 3. ♘xa2+−.

Position #21: [*Variant Chess* 27, spring 1998] 1. g8♗! [1. ♘c5? d1♗−+] [1. h8♘? ♖f7 2. ♘xf7 d1♖ (2...d1♗=) 3. ♘h8!=] [1. g8♔? ♖f8 2. ♔xf8 d1♖ 3. h8♘ ♖d3=] 1...♖f7 [1...♖d1 2. ♗e6+−] 2. ♗xf7 d1♖ [2...d1♔ 3. ♘b2 ♔e1 4. ♘d1 ♔xd1 5. h8♖+− see Section IV.2] 3. ♗h5! [the bishop dominates the rook in a remarkable fashion] 3...♖b1 [3...♖d3 4. ♗f3 ♖xf3 5. ♘c3 ♖xc3 6. h8♗+−] [3...♖e1 4. ♗e2 ♖xe2 5. ♘b2 ♖xb2 6. h8♗!+−] 4. ♘b6 ♖xb6 5. ♗g6 ♖xg6 6. h8♘!+−.

Position #22: [*The Problemist*, i.1997] 1. ♘e2! dxc2 [1...dxe2 2. ♘d4 e1♗ 3. ♘e6+−] 2. ♘c3 c1♗ 3. ♘a2+−, and we have #19.

# III.5 ♔ vs ♘

A king versus a knight is a normally win. The king should go to the centre, keeping a safe distance from the knight, and soon the knight will be in zugzwang. Although we always play on the 8x8 board, it is interesting that this manoeuvre is not possible on a larger board, such as 13x13 or higher, where the knight may be able to run indefinitely (see Beasley [3]).