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I would like to extend my appreciation to Alex Baburin for his work in his online newspaper *Chess Today*. After seeing some fascinating pawn endings appear in CT's 'Endgame Kaleidoscope' I was inspired to flesh out his excellent analysis and seek out more endgames, which led to the production of this book.

I would also like to thank my students, John Michael Burke and Praveen Balakrishnan, for providing games for the book.

I used the chess engine Fritz 13 (with some help from Rybka 2.3.2a 32-bit) and the online Shredder endgame database. Chess engines have grown tremendously in strength to the point where all works of analysis rely heavily on their input. Fritzy uncovered a host of hidden possibilities missed by players, analysts, and myself. These discoveries made the book a whole lot richer. Readers, however, should be aware of the limitations chess engines have in the endgame. Fritz 13 was adept at finding conclusive continuations – forced Zugzwangs, pawn breakthroughs, and the like. But in positions where the key question is how to make progress, it often faltered, producing winning evaluations without any apparent winning plan. Players should be especially conscious of that when scrutinizing their own games.

Endgame tablebases provide a true assessment for all positions with six or fewer pieces. All such positions in this book thus have that extra quality assurance. Tablebases are most often cited here in queen & pawn v. queen endings, partly because proper play in such endings is difficult to explain as well as lengthy and beyond the scope of the agenda here. As I have said in the chapters, tablebase wins and draws are very difficult to execute properly for humans. In the pure pawn endings, tablebase analysis is quite enlightening and understandable, though most of these positions have been worked out by humans.

Finally, I would like to dedicate this book to past and potentially future Olympians, my wife Deborah and my children Aidan and Amy.

Joel Benjamin, Waldwick NJ, December 2014

Chapter 3 Bishop Endings

Color complex is the most important feature of bishop endings. Almost invariably, the pawns are better off placed on the opposite color of the bishops (opposite colored bishops have their own dynamic). That factor can often provide opportunities for favorable pawn endings.

Technical Liquidations

Game 3.1 Alexey Alexandrov Oleg Maiorov Krasnodar 1998



48...≜xb3!

On 48...axb3 49.axb3 White will push through his kingside pawns.

49.**≜xb**3



We have a typical positional draw here.

The white king cannot support his pawns without allowing the c3-pawn to queen.

Game 3.2





34...**≝**a5!

An unconventional trade. The defender can normally hold a four-on-three bishop ending with the pawns all on the same side. But here the pawns being fixed on the same color as the bishops proves fatal. Thus Black avoids potential counterplay by simplifying.

35. Ixa5 @xa5 36. @c5 \$d5 37. @e7 e4 38. @g5 @c7 39. \$f2 \$c4 40. @h6 \$d3 The vulnerability of the g3-pawn enabled Black to take a dominant king position, and now breakthrough tactics come into play.

41.皇g5 f4!

The first, but not last time we will see this move.



42.gxf4

45...<u></u>≜c7

46.ঔe1

46. $\hat{\mathbb{Q}}$ e7 would resist better, but simply 46...f4 is good enough to win, as long as Black is mindful of the bishop and wrong rook pawn combination: 47.exf4 $\hat{\mathbb{Q}}$ xf4 48. $\hat{\mathbb{Q}}$ c5 $\hat{\mathbb{Q}}$ e5



analysis diagram

49. 堂g2 (White has to avoid the pawn ending: 49. 皇b6 皇d4+ 50. 皇xd4 堂xd4 51. 堂e2 e3 52. 堂e1 堂e4 53. 堂e2 堂f4 54. 堂e1 堂g4 55. 堂e2 堂xh4 56. 堂xe3 堂g3 escorts the h-pawn home) 49... 皇d4 50. 皇d6 e3 51. 堂f3 皇c3 52. 皇f4 e2 53. 皇g3 堂d2 54. 堂e4 堂d1 55. 堂f3 皇e1 56. 皇d6 皇xh4 57. 皇b4 皇g5 and 58... 皇d2 will force a queen. **46... 皇d6**

A cute Zugzwang, though 46... 違g3+ 47. 當f1 f4 would work as well.

47.ঔf2

47.當d1 違c5; 47.違h6 違g3+.

47...f4

White resigned. In the end White cannot hide from the pawn ending, for example: 48. ± 16 fxe3+ 49. $\pm xe3$ $\pm g3+!$ etc.

Forcing liquidation from a bishop ending may be more difficult than from a queen ending, but offering the trade is an easy and important tool for making progress.

Game 3.3

Ali Alaca Serkan Soysal

Turkish League 2013



Black has two trumps here: a solid passed pawn and a fixed target on e4 to prey on.

66...≗h5 67.≗f5? ≗d1

68. \$\overline\$c8 \$\overline\$g6 69. \$\overline\$d7 \$\overline\$f6 70. \$\overline\$f5 \$\overline\$e2 71. \$\overline\$f2 \$\overline\$h5 72. \$\overline\$c8 \$\overline\$e7 73. \$\overline\$g3 \$\overline\$d6 74. \$\overline\$g4 \$\overline\$g6 75. \$\overline\$f3 \$\overline\$c5 76. \$\overline\$e3 \$\overline\$c4 77. \$\overline\$e6+ \$\overline\$c3 78. \$\overline\$g4 \$\overline\$f7 79. \$\overline\$d7 \$\overline\$h5 \$\overline\$c2 81. \$\overline\$d7 \$\overline\$d1 82. \$\overline\$d3 \$\overline\$f7 \$\overline\$f3 \$\overline\$f5 \$\overline\$c2 81. \$\overline\$d7 \$\overline\$d1 82. \$\overline\$d3 \$\overline\$f7 \$\overline\$d3 \$\overline\$f7 \$\overline\$f5 \$\overline\$c2 81. \$\overline\$f5 \$\overline\$c3 \$\ove

82...違e2+ 83.當e3 當e1 would save a bit of time.

83.\$e3 \$e1 84.\$f3



85.<u></u>⊈g4?!

White enters the pawn ending through ignorance, miscalculation, or desperation. While 85. 堂e3 g4 is just as hopeless, 85. 堂g3 would force Black to exercise further technique. 85... 堂e2 and now:

A) 86.違e6 當e3 87.違f5 違e2 88.違g6 違f3 89.違e8 g4 wins the e4-pawn;

 89. 逾b7 89... 逾d1 90. 逾c6 continues resistance) 89. 逾f5. Now the bishop has to stay put to prevent either black piece from taking on e4. Black wins by triangulating: 89... 增d3 90. 增f2 增d4 91. 增g3 增e3 and the pawn drops again thanks to Zugzwang.

85...ዿxg4+ 86.\$xg4 \$e2 87.\$xg5 \$e3 0-1

Tempo Games

In bishop endings, an extra pawn with pawns spread over the board will usually be good for a win. The following is a surprising exception.

Game 3.4

Aleksander Sznapik Waldemar Swic

Lodz 1978



With his extra, outside passed pawn, Black looks forward to diverting White's king and penetrating on the other side. **55. @c4!!**

The b-pawn will drop straight off in the pawn ending, but a decisive march to the kingside for Black's king seems inevitable.

55...ዿxc4 56.ኇxc4 d5+



analysis diagram

61.堂d3!! (not 61.堂d5 堂e3 62.e5 dxe5 63.堂xe5 堂f3 64.堂f6 堂g4 65.堂g7 堂xh4 66.堂xh7 堂xg5—+; White has to keep the black king from heading for the h4-pawn) 61...堂f2 (61...堂g3 62.堂d4 堂xh4 63.堂d5 堂xg5 64.堂xd6 h5 65.e5 h4 66.e6 h3 67.e7 h2 68.e8罾 h1罾 69.戄e5+ and Black cannot avoid a perpetual) 62.堂d4 (62.堂d2 堂g3) 62...堂e2 63.堂c4! 堂e3 64.堂d5 and Black cannot make progress because 64...堂d3?? 65.e5! dxe5 66.堂xe5 gives White an extra tempo to clean out Black's pawns and win.



57.當xb4!

Only in this way can the white king ward off its counterpart. If 57.exd5+?? * 합d6 58. \$\vert xb4 \$\vert xd5-+.

57...dxe4

61. 當f3 當f5 62. 當g3 with a draw. The players agreed to a draw because 58. 當c4 draws as in the previous note.

Game 3.5

Oliver Renet Ulf Andersson

Clermont-Ferrand 1989



White is getting squeezed a bit here, with a few pawns stuck on dark squares. Should White make a break for it in the pawn ending?

39.<u>⊈</u>c3?

You have to be pretty sure to play such a move. A waiting move like 39. 皇e3 looks awfully tough to break down.

39...g5?

One of the premier endgame players of our time miscalculates, probably on the cusp of making the time control. 39... 毫xc3! 40. 堂xc3 堂e5 41. 堂d3 g5! (not 41...d5 42.exd5 堂xd5 43.h4=) wins easily, as all White tries fail: 42.h4 (42.h3 d5 43.exd5 堂xd5 44.h4 g4-+ 42. 堂e3 g4 43. 堂d3 d5 44.exd5 堂xd5-+) 42...gxh4 43.gxh4 d5 44.exd5 堂xd5 45. 堂c3 堂e4 46. 堂c2 and Black can win by going after either pawn.

. 40. ≗d4!

Renet redeems his previous blunder, and the win has vanished.

40...d5

41. @xe5 @xe5 42.exd5 @xd5 43.h3 ½-½ After 43...g4 44.h4 or 43...h4 44.g4 White holds the opposition.

Game 3.6

Peter Leko Julio Granda Zuniga Tromsø 2013

Tromsø 2013



There isn't much going on in the position, so Leko looks to squeeze something out of his slightly better king position in the pawn ending.

35.≗h3 ≗xh3

Black doesn't have to trade. He is unlikely to lose after 35... 追b3 36.a5



Julio Granda Zuniga

36.ঔxh3 b5

Granda forces White to use up reserve moves on the queenside to eliminate potential Zugzwangs.

37.a5

White dreams of snacking on b7 and liberating this pawn. 37.axb5 comes into consideration, to try to free up the d5-square, but 37...cxb5 38. \$g4 \$g6 39.f4 f6= blocks off White from ever getting there.

37...ģg6 38.ģg4 f6



39.f3

This allows an immediate draw. White can poke around a bit with 39.f4 but accurate play holds the balance: 39... exf4 40. \$\$ xf4 \$\$ f7 41. \$\$ e3 (41. \$\$ f5 當e7 42.e5 fxe5 43.當xe5 當d7=) 41... ģe6 42. ģd4 ģd6 43.c4 bxc4 44. \$\dot{s}xc4 \$\dot{s}d7 (44... \$\dot{s}e5 45. \$\dot{s}c5\$ \$\$xe4 46.\$\$b6 f5 47.\$\$xb7 f4 48.a6 f3 49.a7 f2 50.a8 響 f1 響 51. 響e8+ 會d4 52. ₩xc6 is technically a tablebase draw. but in human terms it would be a serious error to allow! For example, after 52... 響c4 53.b5 響f7+ 54. 當b6 Black can draw with 54... 響f8, 54... 響f5, or 45. \$\$c5 \$\$c7 46.b5 cxb5 47. \$\$xb5 ∲d7=.

39...f5+ 40.∲h4

Game 3.7

Igor Yagupov Vladimir Paleologu

Cappelle-la-Grande 2014



The symmetrical pawn structure does not mean an easy draw for Black. His queenside pawns are potential targets for the bishop, and their weakness allows White's king to grab a dominant position in the center.

27.ģe2 ģf8 28.ģd3 ģe8 29.ģc4 a6 30.ģd5 ģd7 31.a4



31...a5

This may be the wrong rook pawn. Black probably wanted to avoid b4-b5, permanently targetting the b6-pawn and taking away the c6-square, which may be important in the pawn ending. It would have been desirable to get in 31...h5. The idea, which we often see in rook endings, is to shorten the board so that the h-pawn doesn't end up vulnerable to attack. It would also take away reserve tempo moves from White. These factors actually decide the game in the end.

Black was not having any part of putting his bishop on f6 and inviting the pawn ending.

36.<u>ĝ</u>e5 <u>ĝ</u>e7

Black is understandably hesitant to allow the pawn ending after 36... §f2 37. §d4 §xd4 38. §xd4.



analysis diagram

After all, here White has a better king position and more reserve tempo moves:

A) 38... 266 39.264 2646 40.g5266 41.b4! axb4 42.28xb4 26743.255 25b7 White has two reserve tempi with his h-pawn and will win after two Zugzwangs: 44.h3! 25a7(44...267 45.26a6 25c6 46.26a7 25c747.h4 25c6 48.25b8+-) 45.25c6 25a646.h4 25a5 (46...26a7 47.25c7 25a648.25b8) 47.25b7 b5 48.axb5 25xb549.25c7 25c5 50.25d7 25d5 51.25e725c4 52.25xf7 25xf4 53.25g7, etc.;

 46.堂b5 g5 47.hxg5+ hxg5 48.堂c4! wins easily. There is another approach with 40.堂e4 堂d6 (40...f5+ 41.gxf6 堂xf6 42.堂d5 堂f5 43.堂c6 堂xf4 44.堂xb6 g5 45.堂xa5+-) 41.f5 堂c5 42.堂e5, which can lead to various winning queen endings, for example 42... b5 43.axb5 堂xb5 44.f6 堂c5 45.h3 a4 46.h4 堂c6 47.堂d4 堂b5 48.堂d5 堂b4 49.堂d6 堂b3 50.堂e7 堂xb2 51.堂xf7 a3 52.堂g8 a2 53.f7 a1 響 54.f8 響, etc. **37.**盒d4



37...**≗d**8??

After 37... 🖄 c7 White's position looks beautiful but I don't see a plan to penetrate.

38.g5!

This move shows why one has to be flexible in placing their pawns in a bishop ending. Normally one places pawns on the safe color, but here the pawns help to dominate the opposing bishop. **38... 2c7 39. 2e5 2d8 40. 2d6**



Zugzwang! Black cannot avoid the pawn ending. 40...f6 41.h4 f5 42.b3 would induce collapse.

40... 皇c7 41. 皇xc7 堂xc7 42.h3 堂d7 43.h4 堂c7 44. 堂e5 堂d7 45. 堂f6 堂e8 46. 堂g7 堂e7 47. 堂xh7 堂e6 48. 堂g8 堂e7 49. 堂g7 堂e6 50. 堂f8 f6 51. 堂g7 fxg5 52.fxg5 堂f5 53. 堂f7 Black resigned.

King Activity

Game 3.8

Nigel Short Rafael Vaganian Hastings 1983



The position looks completely routine, but Vaganian finds a way to test his teenage opponent.

32...f6!

It's not ideal to put this pawn on the same color as the bishops, but Black opens a fast track to the center for the king.

33. ė́e2 ė́f7 34.h3

34...∲e6



35.a4?!

This move is better never than late. White could still avoid the upcoming trade with 35. 息d2 當d5 36. 當d3 b5 37.g4. White's queenside pawns are not fixed on dark squares, nor are Black's kingside pawns ideal either. Beliavsky Mikhalchishin and recommended 35. 當d3 鼻e5 36. 鼻xe5 當xe5 37. 當c4 \$\$e4 38.a4 in order to create counterplay on the queenside. It looks like quite a gamble, but at least White could conceivably win in some lines. The easiest route to a draw for White is to avoid all the pawn endings.

35... ģe5 36. ģd3 ģxc3 37. ģxc3 ģd5



Rafael Vaganian



38.슣d3

The aforementioned grandmasters suggested 38.b4 as White's last chance, but I don't think it's completely gotten away yet.

38...\$c5 39.\$c3 a5 40.b3

40...h5 41.g3 g5



42.g4?

42...h4 43.f3 🖄 d5 44.b4

After 44.當d3 當e5 45.當e3 f5 White is in Zugzwang and Black still has a pawn move in reserve – a fatal combination. 44...當e5 45.bxa5 當f4 46.當d4 當xf3 47.當c5 當g3 48.當b6 當xh3 49.當xb7 當xg4 50.a6 h3 51.a7 h2 52.a8響 h1響+ 53.當b8 響xa8+ 54.當xa8 f5

And White resigned.

The Race

The pawn ending from the following game is quite well-known, but it is instructive to see how the players got there.

Lev Polugaevsky Karen Grigorian

Leningrad ch-URS 1971



35...b6!?

Black can certainly wait with this move. 35...&b5 keeps the white king from invading (36.&g4 &d7+ 37.&h5&e8+), offering excellent chances for a fortress. White has a plan to advance his b-pawn to b6, but in that case a timely ...b7-b6 from Black should suffice.

36.c6!?

This is the introduction to a diabolical trap. Instead, White would be hard-pressed to make progress if he had played 36.b4 axb4 37.axb4 bxc5 38.bxc5 &b5.

36...ዿ̀b5 37.h4



37...≜xc6?

Game 3.9

This is a botched calculation (possibly under time pressure). When a player of Polugaevsky's caliber allows the pawn ending, it might be wise to look a little more carefully. In some variations Black can go into the pawn ending, but generally he does not need to.

A) Here 37...a4 is interesting but also incorrect: 38.b4 (38.bxa4? \hat{k} xa4 39. \hat{b} g4 g6=) 38... \hat{b} d6 39. \hat{b} g4 g6 40. \hat{b} f3! (after 40. \hat{k} f7? \hat{k} e2+ 41. \hat{c} h3 g5 White is stymied on the kingside) 40... \hat{b} e7 (40... \hat{k} xc6 loses as in the game: 41. \hat{k} xc6 \hat{c} xc6 42. \hat{b} g4 \hat{c} b5 43.h5 gxh5+ 44. \hat{c} f5! \hat{c} c4 45. \hat{c} xe5 \hat{c} b3 46. \hat{c} d4 \hat{c} xa3 47. \hat{c} c3 \hat{c} a2 48. \hat{b} c2) 41.c7 \hat{c} d7 42. \hat{k} f7 and White wins a pawn cleanly;

However, Black need not take the pawn; after 38... 違a6 White has the same problems penetrating, but with his queenside fixed on the wrong color now: 39. 鸷g4 g6 40. 鸷f3 違c8 produces an easy draw. On 38. 鸷g4 g6 39. 鸷f3, the pawn is no longer taboo: 39... 皇xc6! 40. 皇xc6 曾xc6 41. 當g4 當c5 42.h5 gxh5+ 43. 當f5 當d4 44.a4 h4 45.gxh4 h5 leaves White in fatal Zugzwang.

After 42...axb4 43.axb4 🖄c4 44.🖄xe5 🖄xb4 45.🖄d5 White will force a queen trade after both sides promote.

43.g4 🖄c4 44.🖄xe5 🖄b3



45.호d4! 호xa3 46.호c3 호a2 47.호c2! 1-0 But not 47.e5?? 호b1 and Black is the new favorite!

Sacrifices and Countersacrifices

Game 3.10

Nikita Maiorov Kadir Guseinov

Litohoro jr 1999



Black has a critical choice to make at the outset.

43...a4!?

Black banks on having enough time to bring the king back before White manages to eliminate his kingside pawns. While this seems sufficient for victory, I would have felt more comfortable trying to queen the a-pawn outright. In this type of situation a rook pawn is particularly useful because the defender cannot count on sacrificing the bishop for it. 43... \$c4 44.e4 (44.當e5 遑b5 45.遑d5 當c3 46.當d6 a4 47.當c5 鼻e2 48.鼻xf7 鼻d1 49.e4 違b3) 44... 違b5 45. 違d5 a4 46. 當e3 當d5-+) 46...當c3 (46... 黛c4 also wins easily, for example: 47. 當d4 (47. 違xc4 '\$xc4 48.\$d2 \$d4 49.f3 a3 50.\$c2 \$\$e3 and Black cleans up the kingside) 47... 違xd5 48.exd5 a3 and Black will queen with check) 47. 黛xf7 a3 48.e5 <u>ĝ</u>c4 49.<u>ĝ</u>xc4 ĝxc4 50.e6 a2 51.e7 a1響 52.e8響 響e1+-+. Of course that would have ruined the game for our purposes.



55...f5

This wins easily, of course. When I showed this in one of my classes, one of my young students, Alexis Hedvat, suggested the move



Evgeny Tomashevsky

55...f6, for which I am grateful because it led me to discover great hidden nuances in this ending: 56.堂g6 (56.堂g7 堂e6 57.堂g6 堂e5-+) 56...堂e6 57.堂h6! (57.堂g7 f5-+ 57.堂h5 堂d5!!-+) 57...堂d5 58.堂g7! 堂e5 59.堂g6=. This led to the further discovery that 55...堂e6 wins because 56.堂h6 f6 puts White in Zugzwang.

56.gxf5 🐝f6!

Bishops of opposite colors

Liquidation happens far less frequently with opposite colored bishops because they aren't traded in the conventional way. So temporary sacrifices become a particularly useful tool for a successful liquidation.

Game 3.11 Evgeny Tomashevsky Alejandro Franco Alonso Eilat tt 2012



69...ዿੈg4 70.ஜੈxd5 ዿੈf3+ 71.ஜੈe5 ዿੈe2

With three passed pawns White has a surplus to use to deflect Black's king. If 71...\$g4 72.d5 \$h3 73.\$d6 \$g2 74.\$c5 \$e4 75.d6 \$e6 76.f7 \$xf7 77.\$b6+-.

72.g6+ \$\$xg6 73.\$\$e6 \$\$c4+ 74.d5 \$\$b3 75.f7 \$\$xd5+ 76.\$\$xd5 \$\$xf7 77.\$\$d6 Black resigned.

The white king scoops up the b-pawn and escorts home the a-pawn.

Exercises (Hints on page 83)



How does White win?



```
Evaluate 1... 🖞 f4.
```

Exercise 3.5



Does it matter where White's bishop goes on the long diagonal?

Exercise 3.1



Should White play 35.d5 or should he prepare it with 35.a3 ?



Evaluate the pawn endings after 43... 堂e6 44. 皇e4 and 43... 堂c7 44. 皇e4.

Exercise 3.6



Should White test the pawn ending with $39. \hat{\underline{\&}} xf7$?

Exercise 3.2

Exercise 3.7



If White takes the f4-pawn, should Black trade bishops?

Hints for Exercises Chapter 3

- 1. Choose your ending
- 2. How much to trade?
- 3. Need for speed
- 4. Tempo, tempo
- 5. Zugzwang
- 6. Queen ending?
- 7. Can't be everywhere