

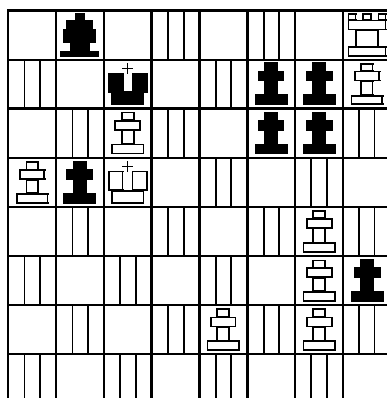
Newsgroups: rec.games.chess
From: ganong@nexus.yorku.ca (Rick Ganong)
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This post refers to the mate in 1 en passant problem mentioned in Tim Philips's recent post, or rather my follow-up to that.

When my student essentially solved the problem, I decided to LaTeX up something I could give to future solvers or attempters. I just found that file. Please excuse the facetious last page. (Don't read past the position if you want to solve the thing yourself.)
The file follows.

Rick Ganong

White Mates in 1
Sam Loyd
Amer. Chess Journal, Nov. 1876



Wh: P a5, c6, e2, g2,3,4, h7; Rh8; Kc5
Bl: P b5, f6,7, g6,7, h3; Bb8; Kc7

A real TOUR DE FORCE by one of the all-time great chess composers. One learns a lot about how chess works, and about rigor in proof, by solving this gem.

CLAIM: Black's last move was b7–b5.

The proof requires several steps.

1. The board is not in its original position, so Black DID move before!
2. Since pieces do not disappear when they move, and only change shape on their own 8th rank (by pawn promotion), the piece Black moved last is still on the board.
3. The Wh B at f1 was captured by some Bl piece other than a P.
Pf: The two pawns initially restricting that B have never moved. So the B never moved, and has been captured. A Bl P could only capture it from e2 or g2, and those squares have been occupied throughout the game by their original inhabitants.
4. Bl has made exactly 7 captures – six of them by the Ps on the files d–h and one by a Piece.
Proof: Clearly 6 captures were made by the pawns originally on the squares d7 (four), e7 (one), h7 (one). See item 3 and note that Wh has 9 pieces left.
5. The Bl pawns on files a,b,c never left their files by capturing. So if Bl's Pb5 was the last piece moved, it came from b7 on that move. Moreover, the Pb5 was originally at b7.
Pf: Item 4. And we could not have had Wh in check with Bl to move.
6. The P on h7 was originally at d2.
Pf: Wh's e,g pawns never moved. The f,h pawns each captured once and are visible on g3, g4 (in some order). The c pawn could not reach h7 except by capture from g6, and

there has been a Bl pawn on h7 or g6 throughout the game.

7. Wh made at most two captures with pieces other than the d,f,h pawns.

8. None of White's Ps on files a,b,c was captured.

Pf: Such a capture, given item 7, could only have been a capture of White's c pawn on e6. But then one more White capture would have been required, to produce the pawn now on e6. That contradicts item 7.

9. White promoted exactly one pawn.

Pf: Note that exactly one pawn is missing, originally from file a,b, or c, and see item 8.

10. The Wh Pb2 captured at least once during its life.

Pf: By item 8, either the Wh b-pawn captured to leave the b file, or this P promoted on the b file. But the Bl b pawn has never left its file, by item 5. (And it is still there.)

11. Black has not promoted a pawn.

Pf: (There are other proofs.) By items 4,5, the only possible promotions are original a-pawn on a1 and original c-pawn on c1. By items 4,5, the opposing Wh P must have cleared the way for the black P to march, by capturing. By items 7, 10, one deduces that the P promoted must have been the Bl c-pawn, and that the Wh c-pawn captured on the d file, the Bl c-pawn marched past, and the Wh b-pawn captured on the c file. But then one cannot account for the absence of the Bl a-pawn, since more Wh captures are required for it to disappear through death or promotion, and there are none, by item 7.

COMMENT: One can deduce that the Wh b-pawn captured exactly once and itself went on to promote. Moreover, as the famous Swiss composer André Chéron points out in his analysis of this composition, the Wh R at h8 could be the original b-pawn, or could have come from a1 or h1 originally, with the promoted b-pawn having been captured by a P as in item 4. This is important to note, apparently, as there is a custom in chess compositions that every Piece appearing in the initial position at least COULD be an original Piece and not the result of a promotion.

12. Black's last move was not ef.

Pf: If it had been, the B on b8 would have to be the result of a promotion, contradicting item 11.

13. Clearly Black's last was not a move by any other P on files f,g or h, nor was it a move by the B, nor was it a K move from b8, b6, c6, or d6.

14. Black's last was not Kb7 or d7 – c7.

Pf: If it were, the Pc6 had just arrived there by capture from d5. But items 6, 7, 10 then give a contradiction.

15. Black's last was not a K move from c8 or d8. Pf: Since the Rh8 could not have arrived there by moving or capture (either as R or as P in a previous incarnation) on White's previous move, White's previous move would have had to be Ne8–c7+ or Bd8–c7+. And Black captured on c7. But that contradicts item 4.

By items 2, 5, 12–15, the proof is complete.

So the solution is: ab mate.

For the TRUE story, see the next page.

In fact, the position is so unusual that many readers doubt that even the great Loyd could have created so beautiful a problem. A recent search through his papers confirmed these doubts. It seems that one evening in late 1876, Loyd's cousin Fred and brother-in-law Elmer sat down for one of their regular contests at chess. Being, both, utterly ATROCIOUS players, and possessed of fierce tempers, they asked Loyd – as they always did – to keep a record of the moves, so as to be able to settle disputes should they arise (as they invariably did).

There followed such a shockingly MINDLESS sequence of moves that one marvels that Loyd retained consciousness through it. Fred (playing White) seemed to have the worse of it for much of the game. Then around move 35, he began to make some (for him) strong moves to reach the position given in Loyd's problem. The next day, Elmer, no doubt rankling from his string of losses around moves 35–39, challenged the legality of Fred's en passant capture mating him on move 46. Neither player could remember any of the moves of the game, and sought out Loyd to settle the dispute.

Loyd, quite a strong player, had mislaid the game score (it was only recently found among his papers), and of course could not remember such a ridiculous sequence of moves as that which produced the position just before mate was given. But he did recall the final position, and was able to convince himself (by a proof like ours, no doubt) that Fred had indeed not cheated. (And only then did the great Loyd realize that such HIDEOUS INCOMPETENCE had presented him with one of his most beautiful studies, which he proceeded to publish.) The game score follows in algebraic notation. What must amaze any reader is that such a colossally poor game could be produced by two opponents, yet contain no outright ILLEGAL moves.

White: Fred Black: Elmer

1. b4 a5 2. ba Nf6 3. Bb2 Ne4 4. Nc3 Ng3 5. Nf3 Nf1: 6. Nd4 Ra6
7. a4 Rh6 8. Ne6 de 9. Ne4 Nc6 10. Ng3 Qd5 11. c4 Qg5 12. Bf6 ef
13. Nf5 ef 14. Qb3 Ng3 15. Qf3 Bd6 16. Qg4 fg 17. hg Nb4 18. Rh3 gh
19. Kd1 Nd5 20. Kc2 Nf4 21. Rb1 Kd8 22. Rb5 Re8 23. Rc5 Re3 24. Rc7: Bg4
25. f3 Be5 26. Rc8+ Kd7 27. Rh8 Bd6 28. a6 Be5 29. a7 Bd6 30. a8Q Be5
31. Qa5 Bd6 32. Qf5+ Ke7 33. Qg6 hg 34. a5 Bc5 35. de Ba7 36. c5 Bb8
37. ef Ba7 38. fg5 Bb8 39. gh6 Ba7 40. h7 Bb8 41. c6 Ba7 42. Kc3 Bb8
43. Kb4 Kd6 44. fg Kc7 45. Kc5 b5 46. ab mate.