THE PUZZLING SIDE OF CHESS

Jeff Coakley

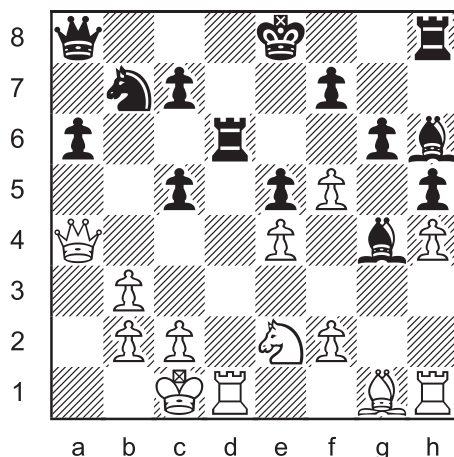## ILLEGAL POSITIONS: MISSION IMPOSSIBLE

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The positions in this column are intentionally illegal. Your mission, should you choose to accept it, is to figure out why. As always, should you or any member of your team be caught or stumped, the secretary will disavow all knowledge of your actions.
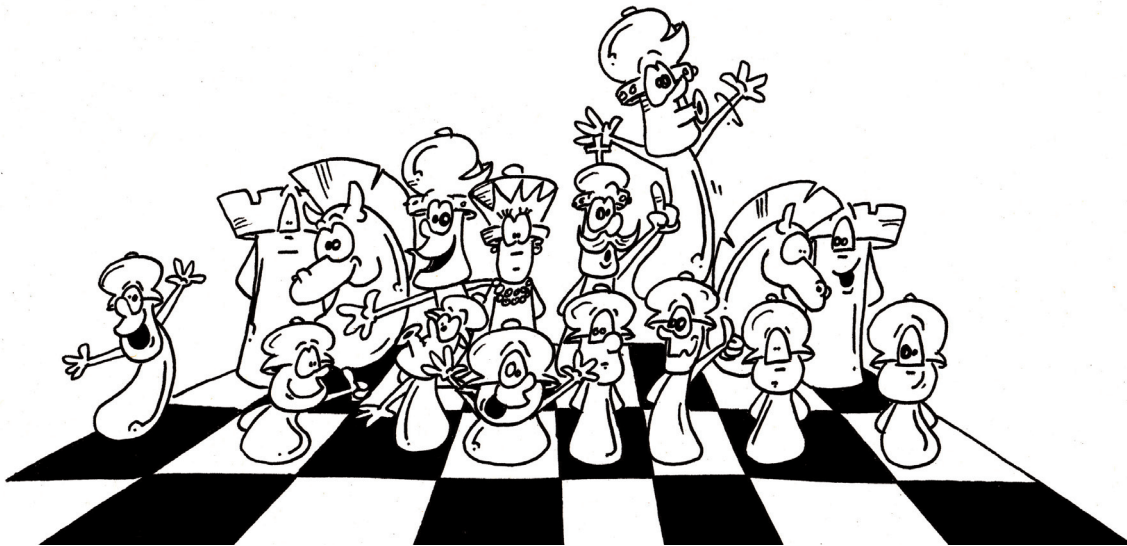
A chess position is *legal* if it can be reached in an actual game, starting from the initial array and following the rules of normal play. Legality has nothing to do with strategy. A legal position may be the result of some very silly moves.
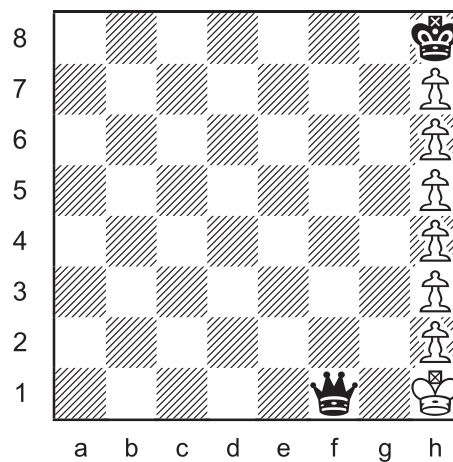
Who's the Goof? 11

Why is this position illegal?

Who's the Goof? is featured every three months on *The Puzzling Side of Chess*. For problems 1-10, see columns 12 and 19 in the archives.
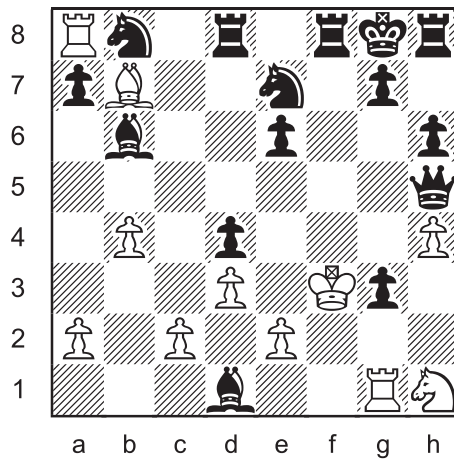
Who's the Goof? 12

Why is this position illegal?

Who's the Goof? is a kind of negative *proof game*. The goal is to prove that a position could **not** happen in a real game. Solving the puzzle usually involves "backwards thinking" (retrograde analysis).

To show that a goof exists, it is sufficient to demonstrate a logical contradiction in the given position.

A quick glance will reveal that the next position is highly improbable. But improbable things can happen. Imagine a million monkeys playing chess for a thousand years on computers which only allow legal moves. Even they could not reach this position. Why is it impossible?
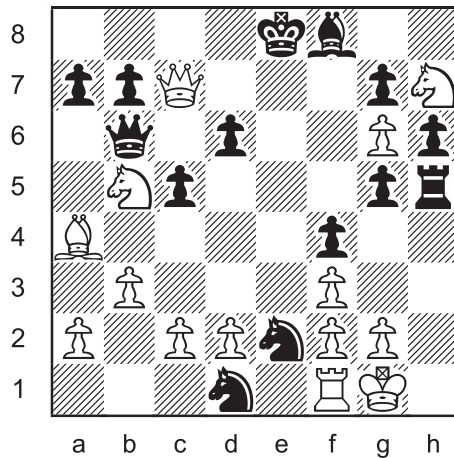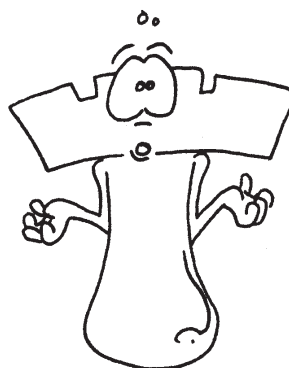
Who's the Goof? 13

Why is this position illegal?

For those members of your *IM force* that survived the previous puzzle, here is one more *mission impossible* to test their grit and powers of deduction.

Who's the Goof? 14
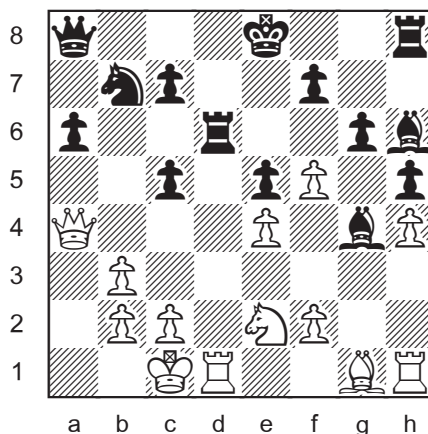

Why is this position illegal?

SOLUTIONS

All *goofs* by J. Coakley. Problem 11 is from *Scholar's Mate 91* (2008), problem 12 from *Scholar's Mate 38* (1997) and *Winning Chess Puzzles For Kids* (2006). The others are *ChessCafe.com* originals (2013).
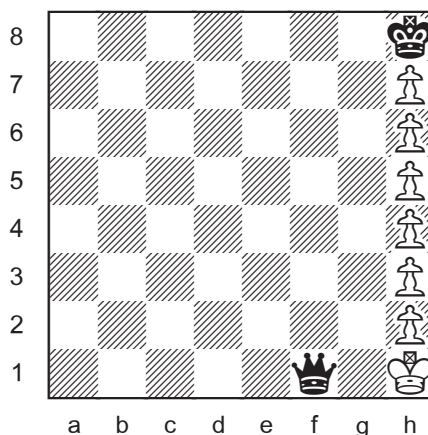
PDF hyperlinks. You can advance to the solution of any puzzle by clicking on the underlined title above the diagram. To return to the puzzle, click on the title above the solution diagram.

Who's the Goof? 11

Both kings are in check. One of them is a goof.

Who's the Goof? 12

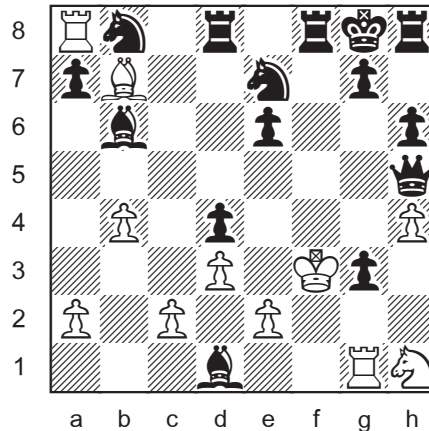There are **not enough missing black pieces** to explain the white pawn formation. Fifteen captures are required to make sextupled pawns on the h-file. But Black is only missing fourteen pieces.

An alternative explanation of the goof, which is essentially the same, is to blame the black queen. Fifteen captures were made by the white pawns, so Black should be left with a lone king. The black queen cannot exist.

Who's the Goof? 13

The goof is the **white bishop on b7**. It cannot be the bishop that started on f1 and it cannot be a promoted pawn.

All of the other unusual features in this position can be explained by legal moves.

The double check by the black queen and rook (f8) is the result of an *en passant* capture. The previous moves, with a white pawn on g2 and black pawn (from g3) on f4, were 1...Qh5+ 2.g2-g4 f4xg3+.

Therefore, on the previous turn, there were unmoved white pawns on e2 and g2. That means that White's original light-squared bishop never moved. It was captured on f1. So the bishop on b7 must be a promoted pawn.

Let's continue the investigation by taking an inventory of pieces, and identifying other necessary captures and promotions.

Black has fifteen pieces on the board, including a third rook and a bishop on d1 which must be promoted pawns. We can deduce that the only black piece that has been captured is the original light-squared bishop.

The missing black pawns are from the b-file and c-file. They could have promoted on b1 and d1.

The black b-pawn would need two captures to promote into a rook on b1 (for example, b7-b5xa4xb3-b2-b1=R). It could then retreat to the 8th rank.

The black c-pawn would need one capture (on d2) to promote into a bishop on d1.

White is missing five pieces: queen, dark-squared bishop, knight, and two pawns.

The g-pawn was just captured en passant on g3. The missing f-pawn must have promoted into a light-squared bishop on e8 or g8, and later moved to b7.
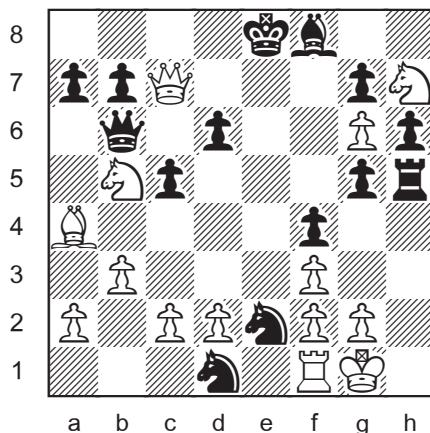
Thus, the capture of all five missing white pieces is accounted for. The original light-squared bishop was captured on f1. The g-pawn was captured on g3. The queen, dark-squared bishop, and knight were captured by the black b-pawn and c-pawn on their way to promotion.

The final step in proving that the position is illegal is to show that the white f-pawn could not promote into a light-squared bishop.

Until last turn (before the en passant capture), Black had a pawn on the f-file, standing in the path of the white f-pawn. In order to get by the black f-pawn, the white f-pawn would need to make a capture onto an adjacent file. It did not capture on the g-file because then there would be no way past the black pawn on g7. Remember, black is only missing one piece, so only one capture by the white f-pawn is possible.

A similar problem would occur on the e-file. The black pawn on e6 is the original e-pawn. It did not capture from d7 or f7 because all the missing white pieces were captured elsewhere. The only way that the white f-pawn could get past the black e-pawn and f-pawn would be to capture on e7 while the black f-pawn was still on f7. However, e7 is a dark square and Black is only missing a light-squared bishop. That means the white f-pawn never reached the last rank, and it is impossible for the bishop on b7 to be a promoted pawn. Therefore, the position is illegal.

Who's the Goof? 14

The nature of his crime is well concealed, but the main culprit in this case is the **missing white rook from a1**. However, the black kingside pawns may be charged as accessories.

The illegal activity took place at least two turns ago.

As usual, an inventory of pieces and the identification of necessary captures and promotions is useful preparation for the rest of the investigation.
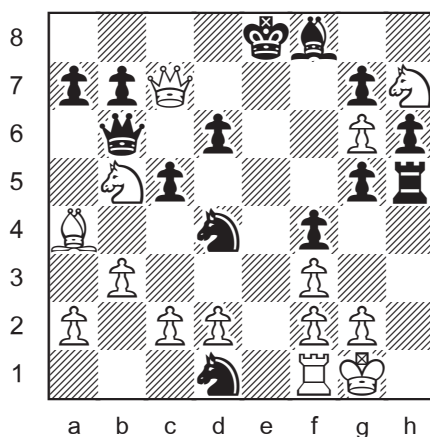
White is missing a rook and a dark-squared bishop. Black is missing a rook and a light-squared bishop.

White has doubled pawns on the f-file and g-file. So the two missing black pieces were captured by pawns on f3 and somewhere on the g-file.

The black kingside pawn formation also requires two captures. The two missing white pieces were captured by pawns somewhere on the f-file and g-file.

So all missing pieces (captures) are accounted for. There are no promotions to worry about since both sides have eight pawns.

White is in checkmate, and it is easy to see that the last move was ...Ne2#. The knight could have come from c1, c3, d4, or g3. For argument's sake, let's say it came from d4. This diagram shows the position before that move.

The question then is "What was White's last move?"

It was not a pawn move. Five of the white pawns are still unmoved on the second rank. The b-pawn moved previously to free the bishop from c1. The e-pawn captured earlier on f3 to free the bishop from f1. The h-pawn, which captured at some point on the g-file, did not just move from g5 or h5 (to g6) because those squares are occupied.

The last move was not by the rook. It could only move to f1 from e1, where it would be giving check. *It cannot be White's turn if Black is in check*.
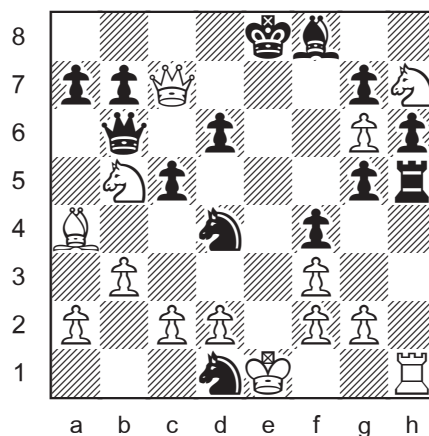
The same thing applies to the queen and the knight on h7. They would be checking the black king on any square they could have moved from.

The bishop could not have moved. It is completely blocked in on a4.

The last move was not with the knight at b5. Since there are no missing black pieces "available", the knight could not have captured on that square. The b5 square would have been empty, which means that the black king would be in check from the bishop before the knight moved there.

That leaves the king. He did not move from h1 or h2 because he would be in an impossible check on those squares. The black rook would have no legal move on the previous turn to reach h5. The rook would already be checking the king (on h1 or h2) from any square it could move from.

As you probably realized already, there is one other possibilty: castling. Here is the position before that move.

Because White has just "uncastled", we know that the king has not moved previously. However, if the e1 square was occupied, then the white rook from a1 had no outlet from behind the white wall of pawns. It could not have been captured by the black pawns. Therefore the position is illegal.

There are **not enough missing white pieces** for the two captures required by the black pawns.

The above diagram, with the white king on e1, presents a rare situation in the practice of chess law. The position is illegal if White has the right to castle, but legal if the right to castle has been lost. (The king could have cleared e1 for the rook and then returned.)

An equivalent perspective on this puzzle is that the initial position is illegal because White had no legal move on the previous turn (before the knight check on e2). The white rook from a1 was necessarily captured by a black pawn on the kingside, and it went through e1 to get there. Therefore, White could not have castled on the previous turn. And the white rook is off the hook.

This column will self-destruct in five seconds. Good luck!