

CHESS PUZZLES BASED ON RETROGRADE ANALYSIS

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PREREQUISITES

- Things you need for this session:
 - Rules of chess
 - Unparalleled imagination and creativity!
- Things you don't need for this session:
 - Knowledge/experience of how to actually win a game
 - An actual chessboard

TYPES OF CHESS PROBLEMS

- White/black to play and win in X moves:
 - Correct solution is usually a single sequence of legal moves
- White/black to play and win/draw:
 - Typically involving end-game chess theory and strategic planning
 - Several cases/branches of gameplay based on sequence of moves
- Retrograde analysis
 - Reconstruct the history of a game based on legal moves
- Bonus: Construction problems
 - For e.g. “Construct a provable position such that both sides are stalemated”
 - A relatively smaller category of puzzles as far as I know

INTRO TO RETROGRADE ANALYSIS

- Given a game position (and possibly some additional information), deduce the previous move(s) and/or some other answers about the game
- The only constraint is *legal validity* of moves as per chess rules, not whether they are sensible moves to help win an actual game!
- The most elementary advice:

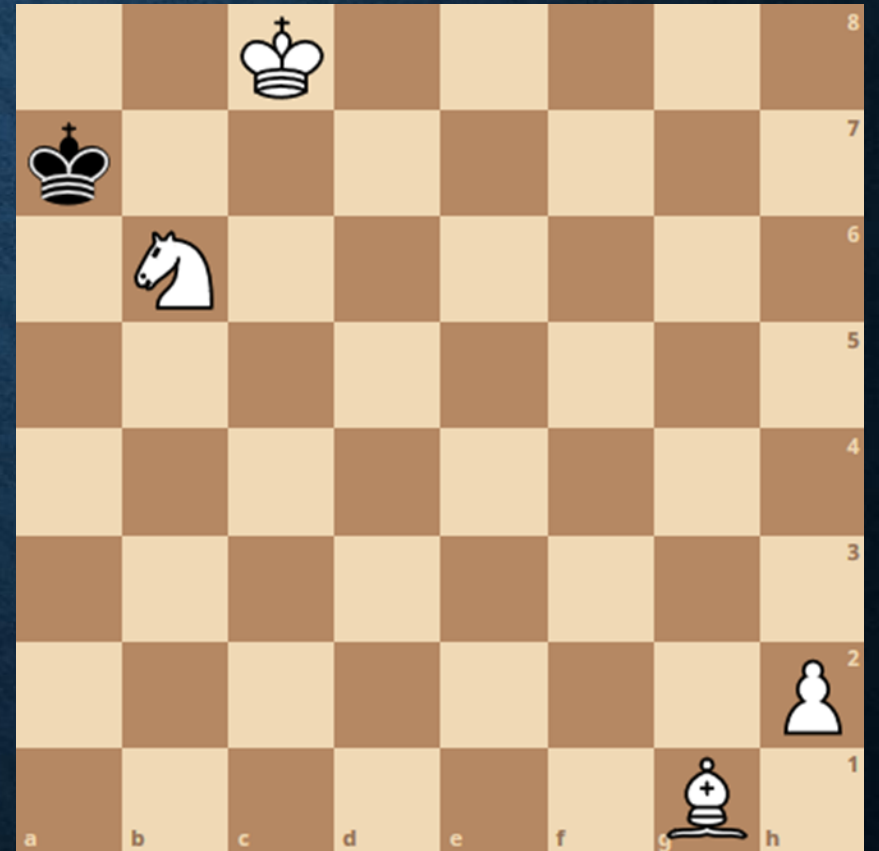
***When you have eliminated the impossible;
whatever remains, however improbable, must be the truth***

– Sherlock Holmes

RETRO ANALYSIS 101

- White to play. What was the last move by each side?

-1. Na8+ Kxa8



RETRO ANALYSIS 102

- Each side has made exactly 3 moves. What are they?



RETRO ANALYSIS 102

- Each side has made exactly 3 moves. What are they?

1. e4 e6
2. Bb5 c6
3. Bxc6 dxc6

OR

1. e4 c6
2. Bb5 e6
3. Bxc6 dxc6

Usually it's nice to have a unique solution to such problems.

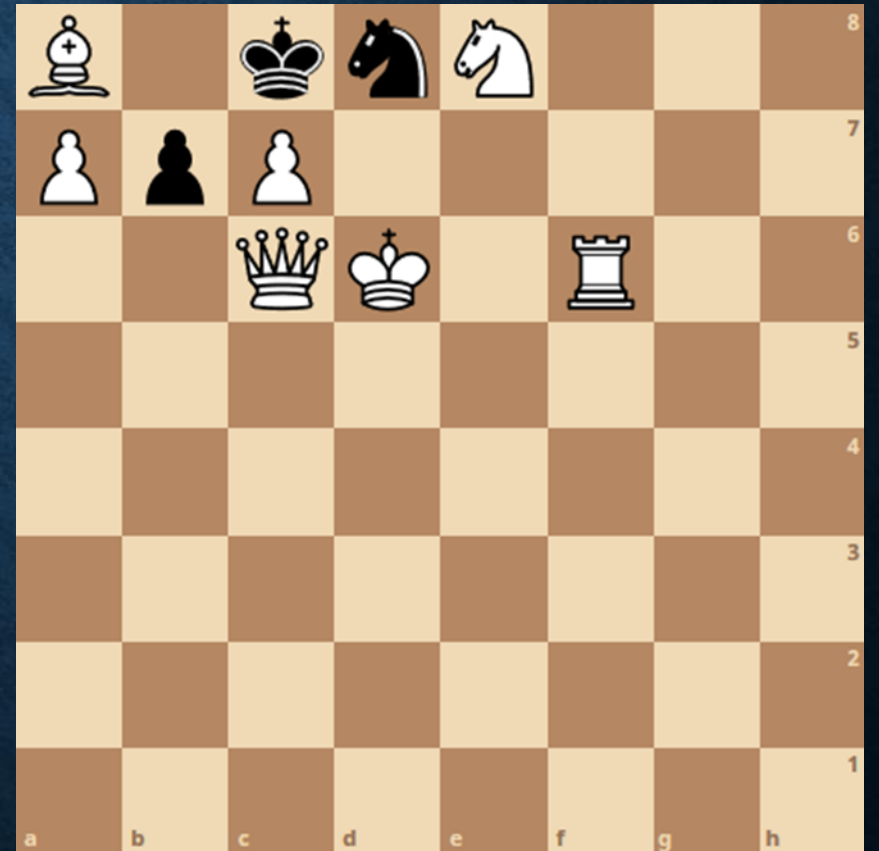
We will 'fix' this soon.. stay tuned!



RETRO ANALYSIS 103

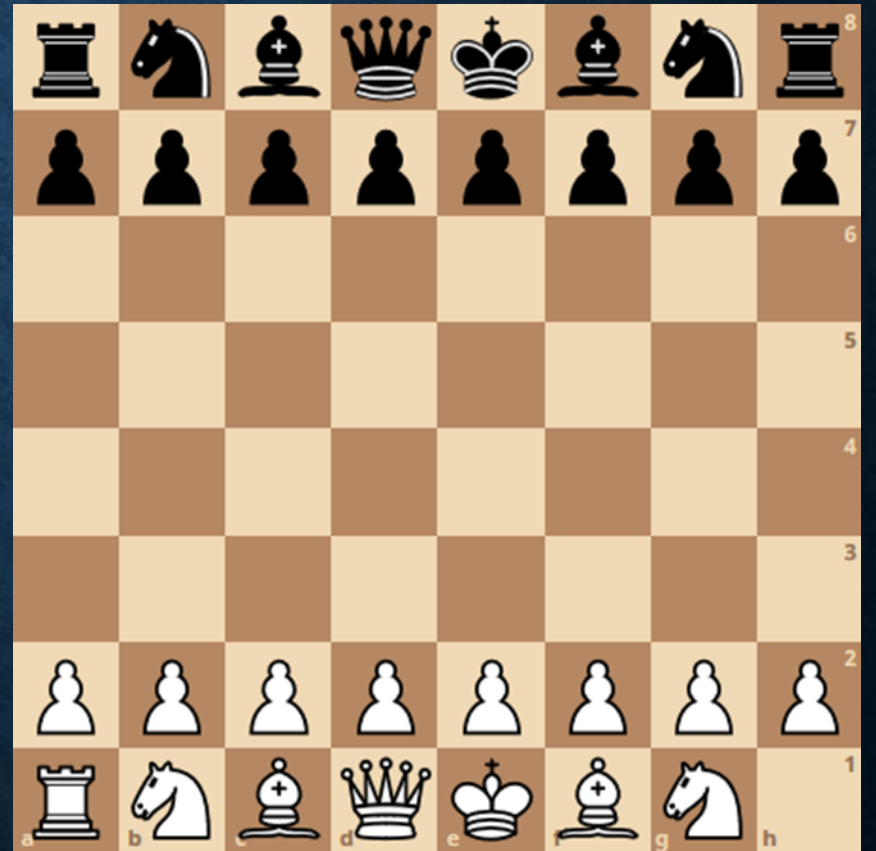
- Colour the pieces; and deduce the last move.

-1. P_{c7}xN_{d8}=R+



RETRO ANALYSIS 104

- Black to play. Indicate a move that each side **must** have played



RETRO ANALYSIS 104

- Black to play. Indicate a move that each side **must** have played
- Only knights and rooks could have moved
- Even moves by Black; odd by White
- White must have played Rh1 -> g1
- Black must have played Nh3 x Rg1

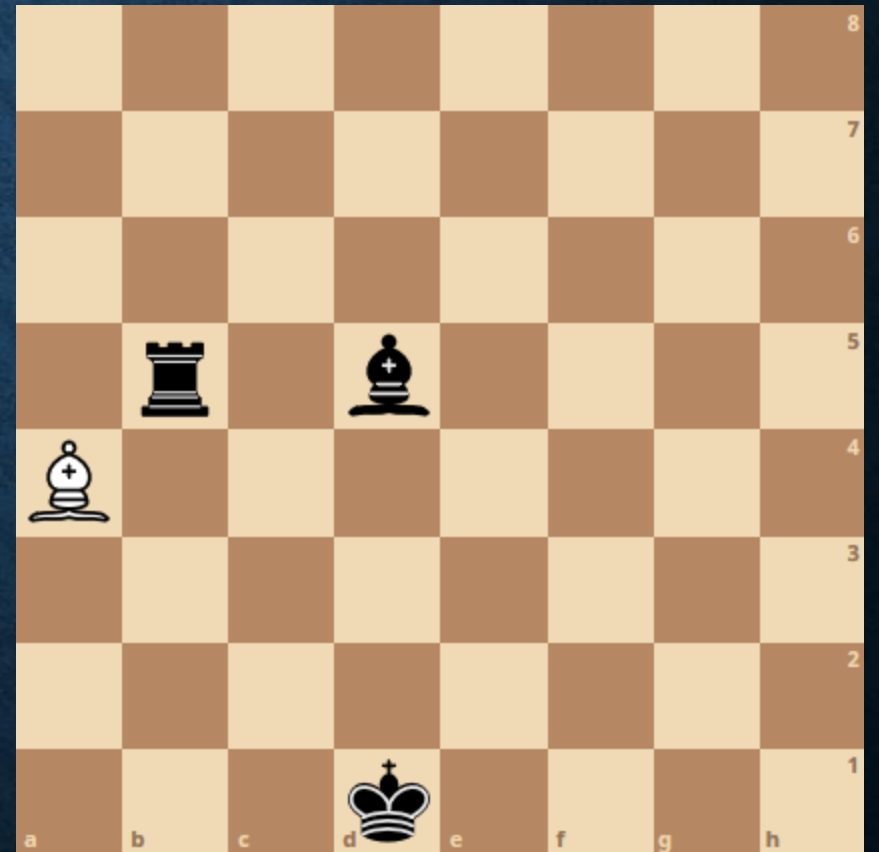


LEVELLING UP..

- Don't forget Sherlock Holmes' most elementary rule:
When you have eliminated the impossible; whatever remains, however improbable, must be the truth
- Use any pieces blocking each other to establish the order of moves
- Watch out for special moves: pawn promotions, en-passant etc.
 - If a pawn is still on its original square, it has never been moved
 - Every double check is a discovered check
- Other useful mathematical ideas: parity, colorings, graph theory
- But the most important idea: simply counting

RETRO ANALYSIS 201

- The white king is invisible. Where is he?



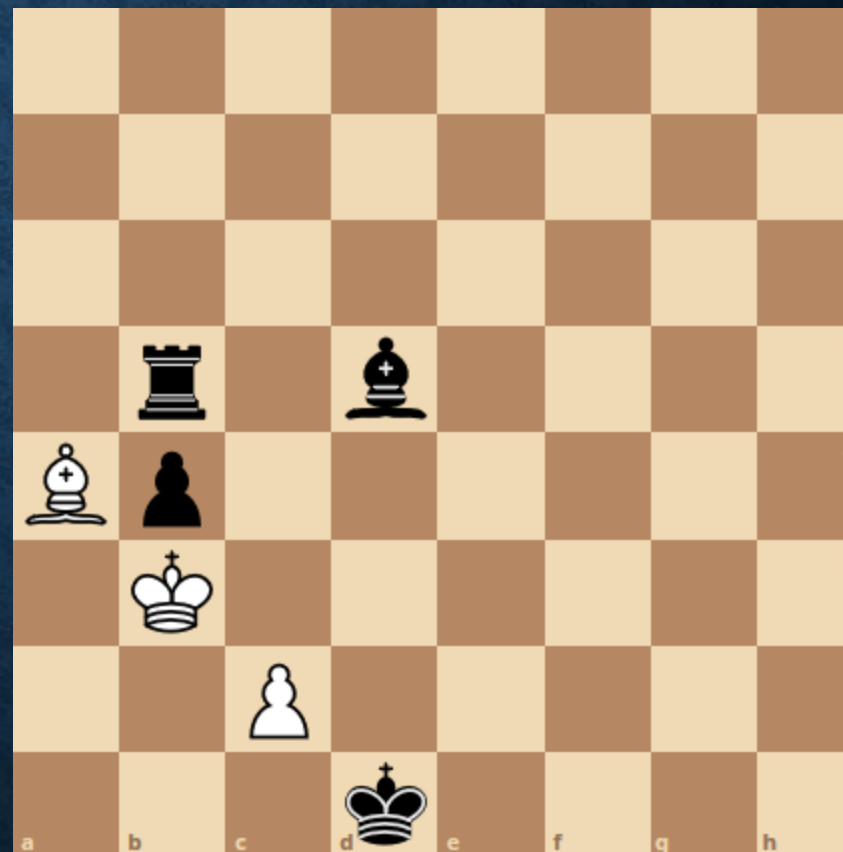
RETRO ANALYSIS 201

- The white king is invisible. Where is he?

-3. ... Bd5+

-2. c4 bxc3+

-1. Kxc3+



RETRO ANALYSIS 202

- Now each side has made exactly 4 moves! What are they?



RETRO ANALYSIS 202

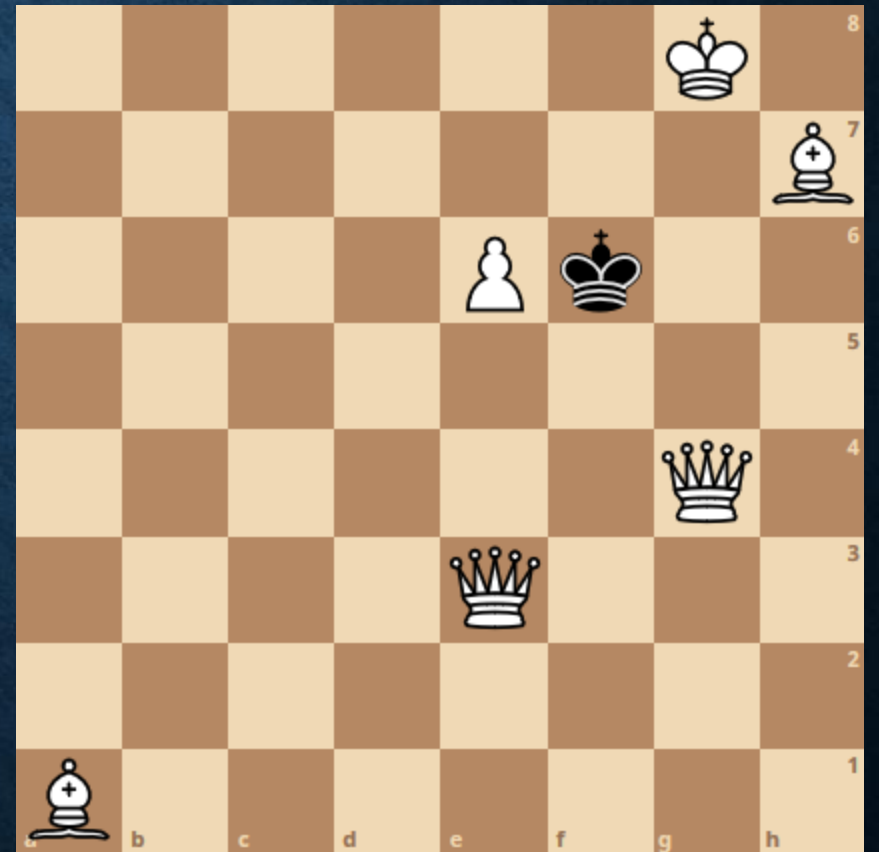
- Now each side has made exactly 4 moves! What are they?

1. e4	e6
2. Bb5	Ke7
3. Bxd7	c6
4. Be8	Kxe8



RETRO ANALYSIS 203

- Each side has made exactly 3 moves. What are they?



RETRO ANALYSIS 204

- Each side has made exactly 4 moves. What are they?



RETRO ANALYSIS 301

- Each side has made exactly 8 moves. What are they?



RETRO ANALYSIS 302

- Each side has made exactly 9 moves. What are they?



RETRO ANALYSIS 317

- Each side has made exactly 12 moves! What are they?



RETRO ANALYSIS 403

- Each side has made exactly 20 moves!! What are they?



RETRO ANALYSIS 425

- Each side has made exactly 27 moves!! What are they?



THE LAST STRAW...

RETRO ANALYSIS 777

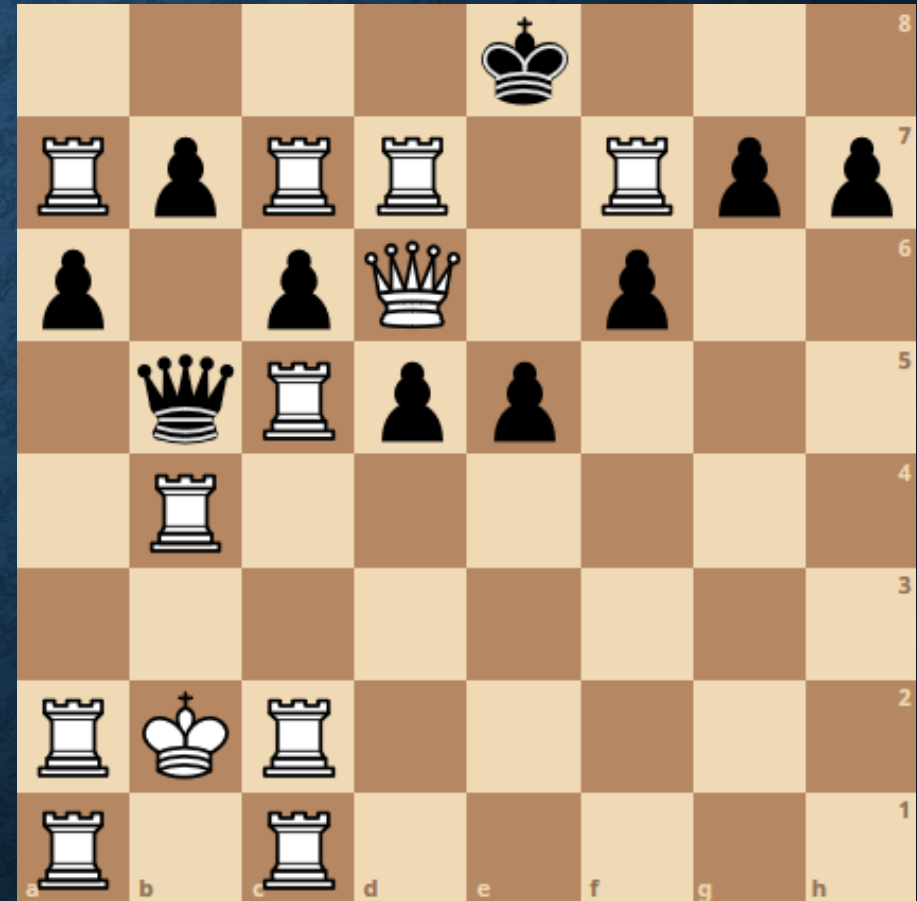
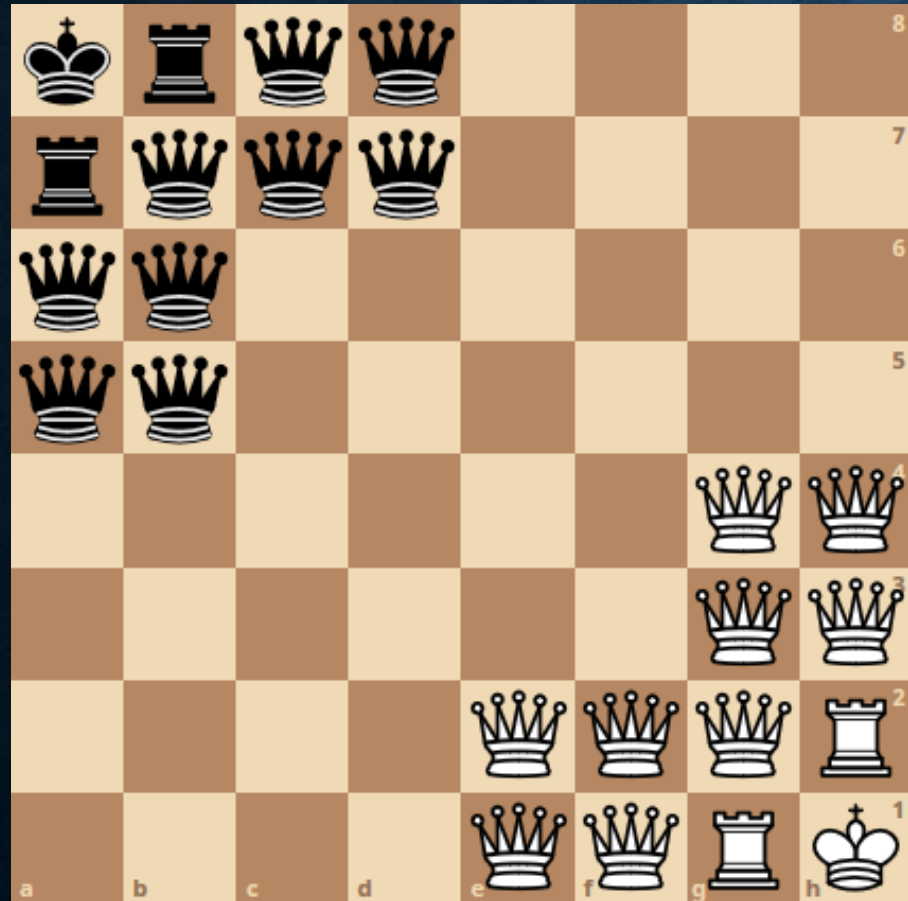
What is the first move by
the Black king?



What were the last 96 moves!!?



PROOF GAMES



LINKS FOR FURTHER READING

- <https://www.janko.at/Retros/index.htm>
- <https://www.amazon.com/Chess-Mysteries-Sherlock-Holmes-Recreational/dp/0486482014>
- <http://www.gilith.com/chess/coaching/puzzles.html>
- <http://www.mathpuzzle.com/retrograde.html>

CONSTRUCTION PUZZLES

Construct a position where...

- Each player has exactly 1 legal move, for 3 consecutive turns (total 6 moves)
- White has 2 rooks and a king; black only has a king, and white can win in 1 move, in 4 different ways.
- If White can king-side castle, White wins in 1 move; else White loses in 1 move
- If White can play en-passant, White wins in 1 move; else White loses in 1 move

THANK YOU!