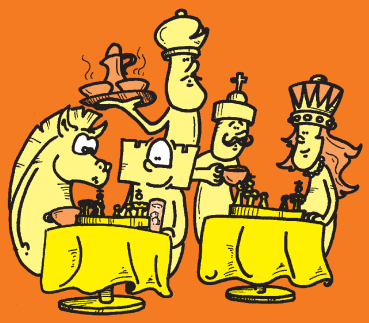


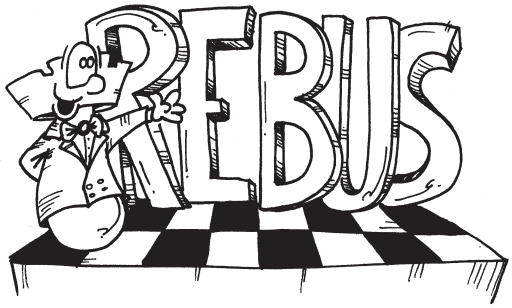
THE PUZZLING SIDE OF CHESS

number 188 March 31, 2020

REBUSLAND

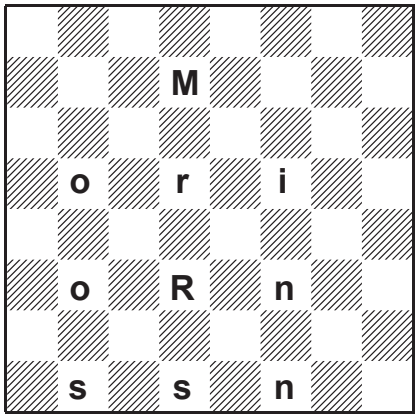
Jeff Coakley & Andrey Frolkin

Strange days have found us. But life goes on. This article, long in the planning, categorises the four basic types of chess rebuses and presents two original examples of each. An index to our joint compositions published since 2016 is also appended. The list includes 25 problems from the *Puzzling Side*. Here is number 26, dedicated to a mutual musical hero, Jim Morrison of the Doors.



Rebus 26

"*Morrison*"



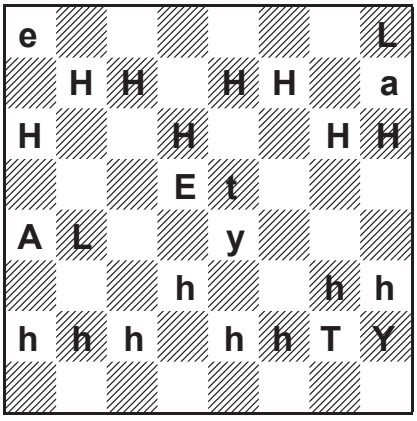
Each letter represents a different type of piece.
Uppercase is one colour, lowercase is the other.
Determine the position and, if possible, the last move.

A rebus is an exercise in deductive reasoning, for composers and solvers. The analysis is primarily a process of elimination, discarding piece assignments with impossible consequences until only the truth remains. Identifying illegal positions is an essential skill. One useful tool we developed in this regard is *pro-passer theory*, described in detail with the solution to the next problem.

This rebus is very complicated, like the times we live in. Stay healthy.

Rebus 27

"*Healthy*"



Each letter represents a different type of piece.
Uppercase is one colour, lowercase is the other.
Determine the position and the last move.

The first two problems were *standard rebuses*. “Standard” in the sense that 85% of published rebuses are this type. Each letter stands for a different type of piece. Uppercase is one colour, lowercase the other.

But there are three other basic types of rebuses in which the letters represent colours in a different way.

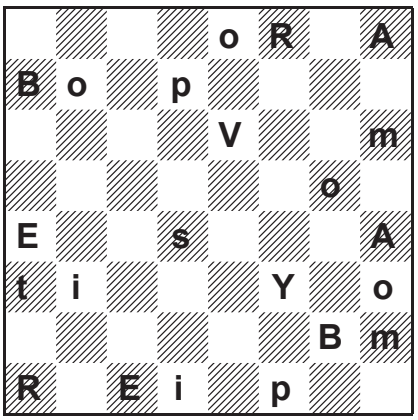
REBUS TYPES

1. Standard (uppercase/lowercase, same letters for both cases)
2. Split-alphabet (uppercase/lowercase, different letters for each case)
3. Split-colour (single case, different letters for each colour)
4. Colour-free (single case, same letters for both colours)

The second type, *split-alphabet* rebuses, is the least explored region in Rebusland. One set of letters for the white pieces. A separate set for the black pieces. With up to twelve total letters, it is great for spelling longer words.

Rebus 28

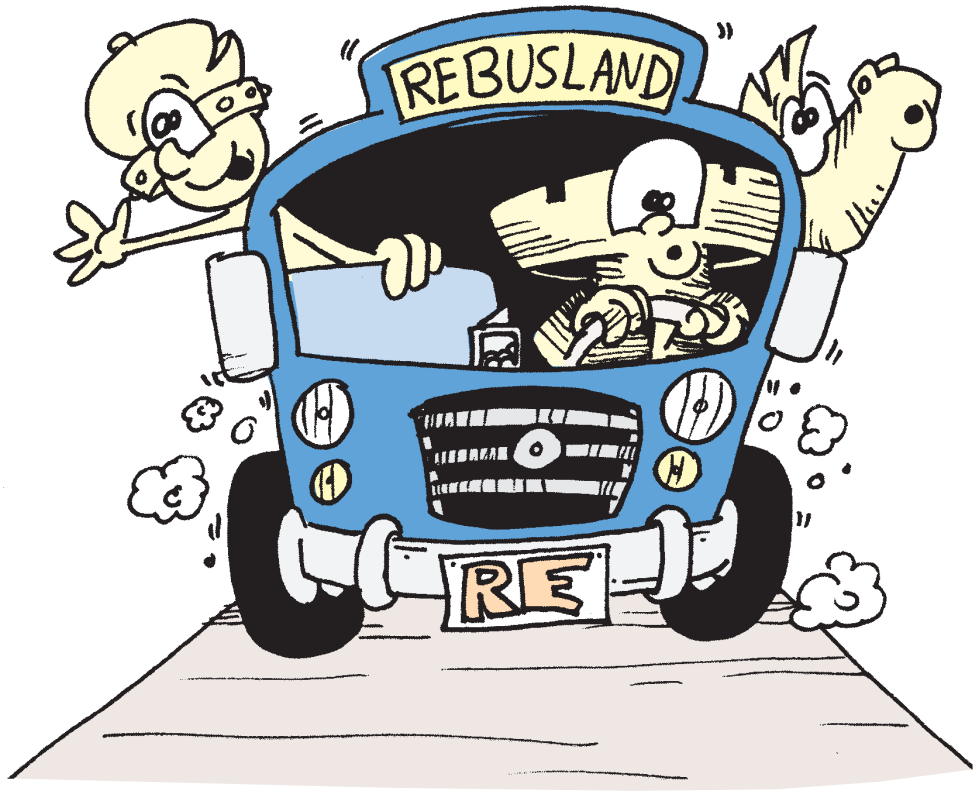
“*Bravery & Optimism*”



Each letter represents a different type of piece of a specific colour.
Uppercase is one colour, lowercase is the other.
For example, maybe ‘t’ is a white rook and ‘R’ is a black rook.
Determine the position and, if possible, the last move.

Crunching the Numbers

Solving a rebus with a brute-force “trial and error” method is not recommended. In a standard rebus with six letters, there are 1440 ways to assign pieces (6! x 2). For a split-alphabet rebus with twelve letters, the number exceeds one million. 1,036,800 ways to assign pieces (6! x 6! x 2). If the kings are known, a mere 28,800.

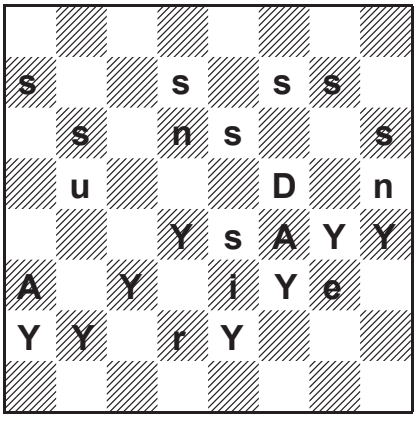


Rebus 28 was a relatively easy problem based on *reverse tactics.* There was no real “retro content”. It could be solved by simply identifying illegal checks. “Impossible double checks”, “both kings in check”, these are the stones that pave the deductive road.

The following split-alphabet finds us waiting for the sun.

Rebus 29

“*Sunnier Day*”



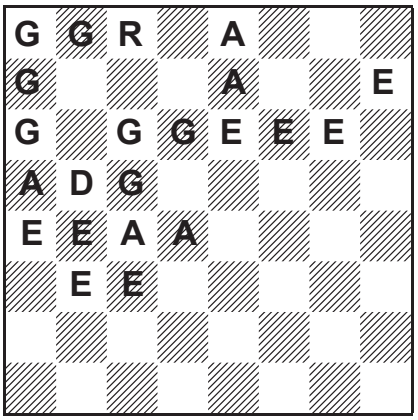
Each letter represents a different type of piece of a specific colour.
Uppercase is one colour, lowercase is the other.
For example, maybe ‘A’ is a white knight and ‘n’ is a black knight.
Determine the position and the last move.

The third type of rebus is called *split-colour*. All letters are the same case, usually capitals. Each letter is a piece-type of one colour. The white king is one letter. The black king is another. Like split-alphabet rebuses, there can be up to twelve letters.

Both examples given here are quite challenging. Rebus 30 asks for the last two moves. Can you make the retro “grade”?

Rebus 30

“*grade*”



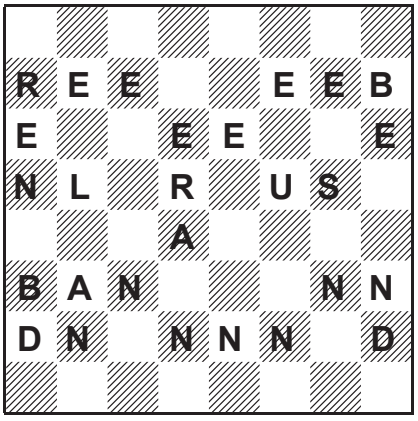
Each letter represents a different type of piece of a specific colour. For example, maybe A is a white knight and G is a black knight. Determine the position and last 2 moves.

R x Л

Next stop, Rebusland. Please have your passport and visa ready.

Rebus 31

"*Rebusland*"



Each letter represents a different type of piece of a specific colour. For example, maybe A is a white knight and B is a black knight. Determine the position and last move.

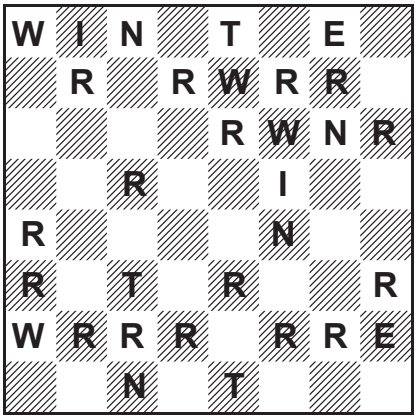
In its common form, a rebus is a row of images which depict a meaningful sentence. In a chess rebus, the images are letters on the board which represent a legal position.

Riddle: "What if we said these puzzles were too easy?"

Inevitably we have arrived at the fourth type of rebus. In *colour-free* problems, each type of piece is represented by one letter. No indication is given for which instances of a letter are white and which are black. Usually, most letters represent pieces of both colours. But some letters may be all white, or others all black. Like standard rebuses, there is a maximum of six letters.

Rebus 32

"*Winter*"

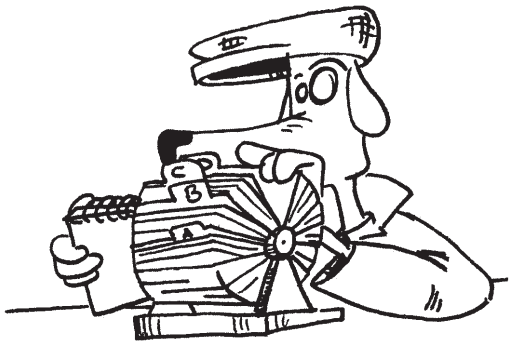


Each letter represents a different type of piece.
No indication is given for colour.
Some instances of a letter can be white,
other instances of the same letter can be black.
Determine the position and last move.

Before proceeding to the final puzzle, a few words on other topics.

In a future article, we will return to Rebusland for a survey of special stipulations that can be used in rebuses. They include ambiguity, multicoding, ghost letters, misspellers, board orientation, and adding pieces to legalise the position. Stay tuned.

An index of our published rebuses since 2016 is provided as an appendix at the end of this column. Currently 137 problems.

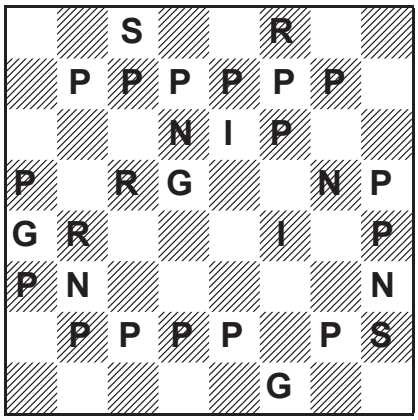


Colour-free rebuses all have a nearly full board of pieces with a closed balance of material. The current record for fewest pieces is 27, first achieved in Frolkin / Kornilov 1983 (*Europe Échecs 292*). A tip of the hat to Andrei Kornilov, one of the original pioneers in Rebusland.

Rebus 33 requests you ascertain the last three moves.

Rebus 33

"*Spring*"



Each letter represents a different type of piece.
No indication is given for colour.
Some instances of a letter can be white,
other instances of the same letter can be black.
Determine the position and last 3 moves.

The winter chill behind us. Spring hopes eternal.

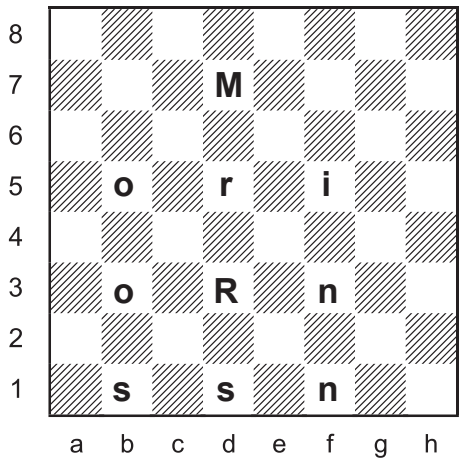
SOLUTIONS

All rebuses are joint compositions by Andrey Frolkin and Jeff Coakley, *Puzzling Side of Chess* (2020).

Solutions are given with *rebus notation*, an abbreviated method of describing logical deductions. The notation is mostly self-explanatory. See rebus 01 in column 133 for a detailed explanation.

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.

Rebus 26

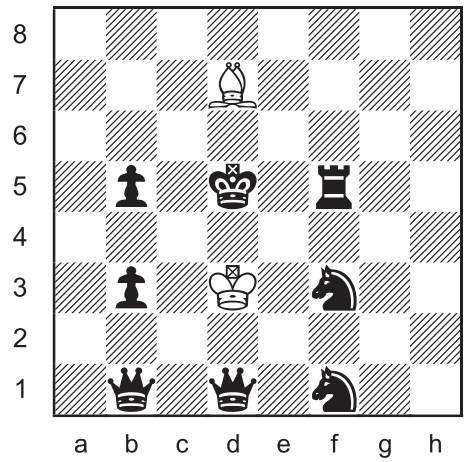


"*Morrison*"

M = bishop
O = pawn
R = king
I = rook
S = queen
N = knight

caps = white

last move:
1...cxd1=Q++



(2 + 8)

R = ♔ Only letter with one uppercase, one lowercase.

At least one of the letters NOIS is a bishop or a queen. Therefore the king on d3 is in <u>check</u> along a diagonal.

However, only one of those letters can be a bishop or a queen. If the letters NOIS include queen <u>and</u> bishop, the king on d3 is in an impossible double check. This means that M = (♕♗).

M = ♗ If M = ♕ Both kings in check.

I = ♖ If ♖ = (SON) The king on d3 would be in an impossible double check by queen and rook.

O = ♙ The only remaining letter not on the 1st rank.

♕ = (SN) The king on d3 is in <u>double check</u> by two queens. This could only happen by a promotion on d1.

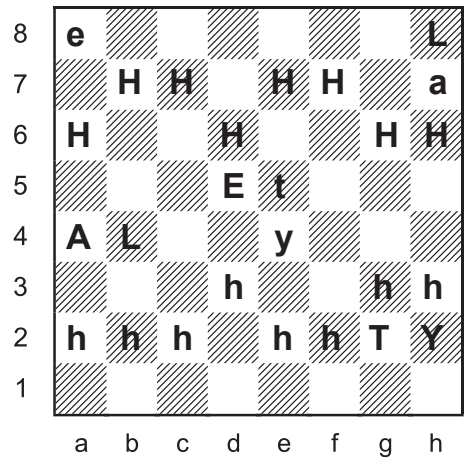
S = ♕ Last move: 1...cxd1=Q++ caps = white

N = ♘

The type of piece captured on d1 is indeducible.

Rebus 27

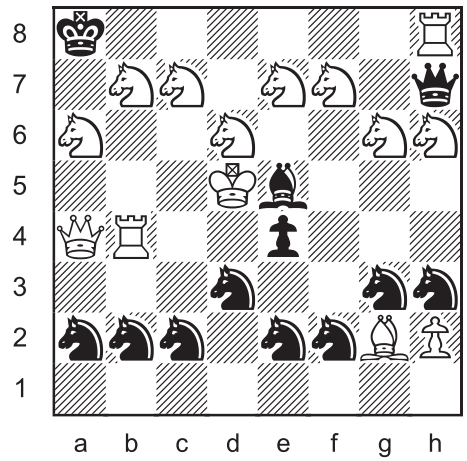
"*healthy*"



H = knight
E = king
A = queen
L = rook
T = bishop
Y = pawn

caps = white

last move
1.Ne8-c7++



(14 + 12)

♔ = (AETY) The letters with one uppercase, one lowercase.

T ≠ ♔ If T = ♔

H ≠ ♕♖ (e7+, f2+) Both kings in check.

H ≠ ♗ (d6+, h3+) Both kings in check.

H ≠ ♘ (f7+, g6+) Impossible double check.

H = ♙

caps = black If caps = white, too many captures (8) are needed for 16 passed pawns.

The white king on e5 is in check by the pawn on d6.
Last move 1...d7-d6+.
Therefore the black light-square bishop was captured earlier on c8.

AE ≠ ♗ (a4, d5) On light squares.

L ≠ ♗ (b4, h8) Both on dark squares.

Y ≠ ♗ (h2) The black king (g2) is inside the white wall of pawns. That could only happen if White played g2-g3 to let the king enter through h3 (before h2-h3 was played). Which means that a black bishop cannot be on h2.

♗ = Ø? No letter can be a bishop. T ≠ ♔

The next two steps in the solution, proving that AY≠ ♔, is facilitated by the use of *pro-passer theory*, a description of which is given below.

PRO-PASSER THEORY

Pro-passer theory is an analytic tool for determining the legality of a position based on the number of passed pawns, promoted pieces, and missing pieces.

A pro-passer is a promoted piece or a passed pawn. In this theory, they count as the same thing.

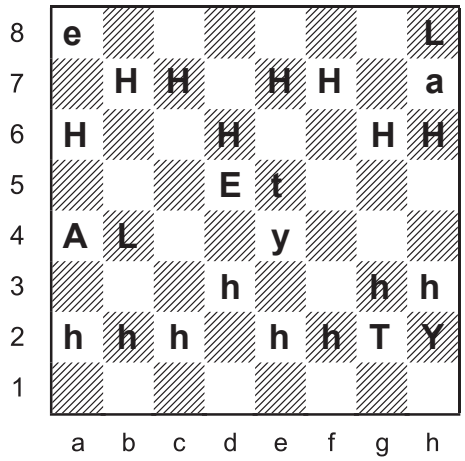
Missing pieces are divided into two categories: pawns and officers. 'Pawn x officer' captures can create 2 pro-passers (one per side). 'Pawn x pawn' captures can create 3 pro-passers (two for capturing side).

For a position to be legal, there must be a sufficient number of missing officers and pawns to create the required number of pro-passers.

If the calculation shows insufficient missing pieces, the position is illegal.

However, a favourable count, with an apparently sufficient number of missing pieces, does not prove that the number of pro-passers is legal. There are numerous situations that can still make the position illegal: doubled pawns, inverted pawns, the colour of promotion squares for promoted bishops, or the need for additional captures. If these things are a factor, deeper analysis is required.

Rebus 27 *continued*



A ≠ ♔

If A = ♔

H ≠ ♕♖ (f7+, h6+)

Impossible double check.

H ≠ ♗ (c2+, g6+)

Both kings in check.

H ≠ ♙

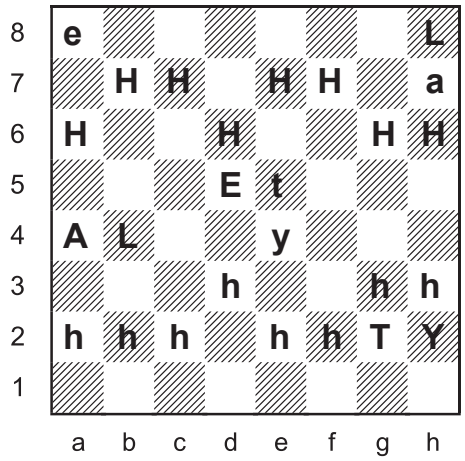
If H = ♙, caps = black

The white king (h7) is inside the black wall of pawns. That is only possible if Black played ...g7-g6 to let the king through h6. Therefore no black rooks could escape from behind the pawns by the cross-capture ...gxh6, ...hxg6.

So ♖≠ ELTY (d5, b4, g2, h2)

♖ = Ø? No letter can be a rook.

Rebus 27 *continued*
(If A = ♔)



H ≠ ♘ If H = ♘ Check from b2.
L ≠ ♕♖ (b4+, h8+) Both kings in check.
L ≠ ♗ (h8) On 8th rank.
L = ♗ (b4, h8) Both on dark squares.
E ≠ ♗ (a8) On 8th rank.
♗ = (TY)

There are 12 promoted knights, one promoted bishop, and two passed pawns (Y or T) for a total of 15 pro-passers. The missing pieces are 1 pawn and 5 officers, which is insufficient to explain 15 pro-passers. (1 x 3) + (5 x 2) = 13

H = Ø? No piece can be assigned to H. A ≠ ♔

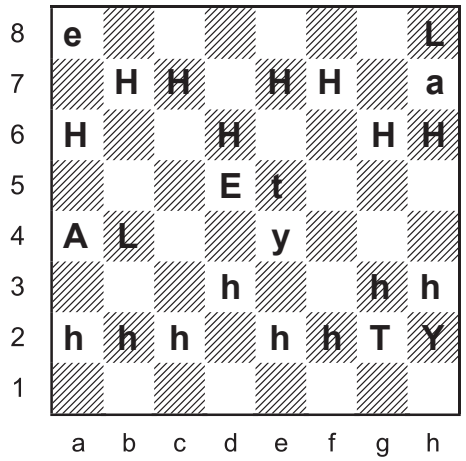
Y ≠ ♔ If Y = ♔
H ≠ ♕♗ (g3+, g6+) Both kings in check.
H ≠ ♗ If H = ♗, caps = black

The black king (h2) is inside the white wall of pawns. That is only possible if White played g2-g3 to let the king through h3. Therefore no white rooks could escape from behind the white pawns by the cross-capture gxh3, hxg3.

So ♖ ≠ AET (h7, a8, e5)
L = ♖ (b4+) Check.
T ≠ ♕♗ (g2+) Impossible double check.
T = ♘
E ≠ ♗ (a8) A bishop cannot be on a8 with a black pawn on b7 (and no promotion possible).
E ≠ ♕ (d5+) Impossible double check.
E = Ø? No piece can be assigned to E.

Rebus 27 *continued*

(If Y = ♔)



H ≠ ♘ If H = ♘ Check from d6.

E ≠ ♙ (a8) On 8th rank.

E ≠ ♕♗ (d5+) Impossible double check.

E = ♖

T ≠ ♕♗ (g2+) Impossible double check.

T = ♙

AL = (♕♗)

One L is a promoted piece, either a second queen or second dark-square bishop.

There are 12 promoted knights, one promoted queen or bishop (L), and two passed pawns (T) for a total of 15 pro-passers.

The missing pieces are 1 pawn and 5 officers, which is insufficient to explain 15 pro-passers.

(1 x 3) + (5 x 2) = 13

H ≠ ♖ If H = ♖ Check from h3.

E ≠ ♙ (a8) On 8th rank.

E ≠ ♕♗ (d5+) Both kings in check.

E = ♘

T ≠ ♕♗ (g2+) Both kings in check.

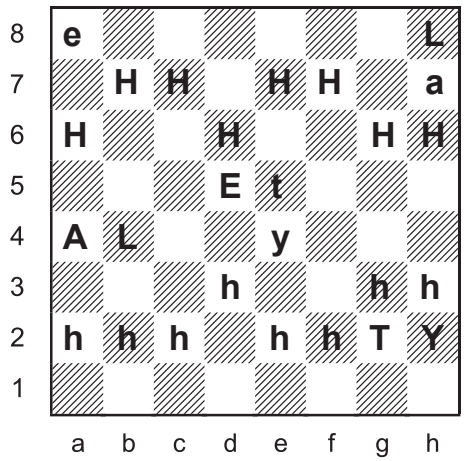
T = ♙

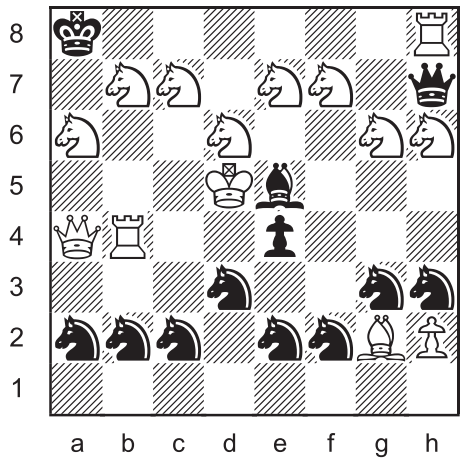
AL = (♕♗)

Exactly as above with H = ♘, there are insufficient missing pieces to explain 15 pro-passers.

H = Ø? No piece can be assigned to letter H. Y ≠ ♔

Rebus 27
continued





E = ♔

(14 + 12)

H ≠ ♕♖ (a6+, d3+) Both kings in check.

H ≠ ♗ (a2+, b7+) Both kings in check.

H ≠ ♙ If H = ♙, caps = black

The white king (a8) is inside the black wall of pawns. That is only possible if Black played ...g7-g6 to let the king through h6. So no black rooks escaped from behind the black pawns by the cross-capture ...gxh6, ...hxg6.

Thus ♖ ≠ ALTY (a4, b4, g2, h2)

♖ = Ø? No letter can be a rook.

H = ♘ Check from c7.

A = ♕ T ≠ ♕ (e5+) Both kings in check.

Y ≠ ♕ (e4+) Both kings in check.

L ≠ ♕ (b4, h8) A second uppercase queen would be a 13th promotion. Counting two pawns, there would be 15 pro-passers. Too many for the missing pieces (1 pawn, 4 officers).

L = ♖ L ≠ ♙ (h8) On 8th rank.

L ≠ ♗ (b4, h8) Two bishops on dark squares would mean a 13th promotion.

Check from h8.

Y = ♙ Y ≠ ♗ (e4+) Both kings in check.

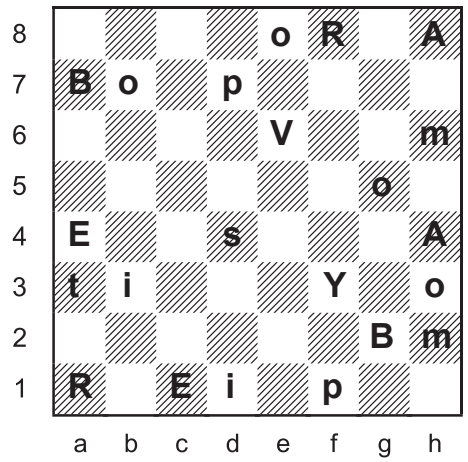
caps = white If caps = black, a white pawn on e4 would check the king on d5. Both kings in check.

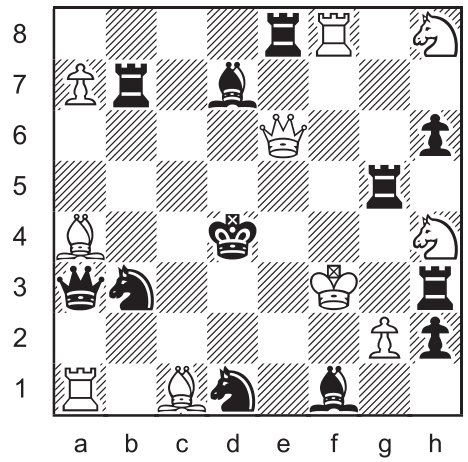
T = ♗

last move 1.Ne8-c7++

This move was not a capture because there are 14 pro-passers (12 promoted knights, 2 passed pawns), which required the capture of all six missing pieces (2 pawns, 4 officers). (2 x 3) + (4 x 2) = 14

Rebus 28





(10 + 12)

"*Bravery & Optimism*"

white
B = pawn
R = rook
A = knight
V = queen
E = bishop
Y = king

black
o = rook
p = bishop
t = queen
i = knight
s = king
m = pawn

last move:
1...gxh2+

♔ = (VY)(st) Letters with a single instance.
♙ ≠ AEIOPR On 1st or 8th rank.

Y = ♔ If V = ♔ <u>Check</u> by O (e8, g5, or h3).
I ≠ ♕♗ (b3+) Impossible double check.
I = (♖♘)
P ≠ ♕♗ (d7+) Impossible double check.
P = (♖♘)
O ≠ ♖♘ PI = (♖♘)
O ≠ ♕ (e8+ h3+) Impossible double check.
O ≠ ♗ (h3+) Impossible check. No last move.
(No discovered check. SM ≠ ♖♘)
O = Ø? No piece can be assigned to letter O.

Y (king on f3) is in <u>check</u> by O (b7, g5, or h3).

I = ♘ I ≠ ♕♗ (d1+) Impossible double check.
I ≠ ♖ (b3+) Impossible double check.

P = ♗ P ≠ ♕♖ (f1+) Impossible double check.

O = ♖ O ≠ ♕ (b7+ h3+) Impossible double check.

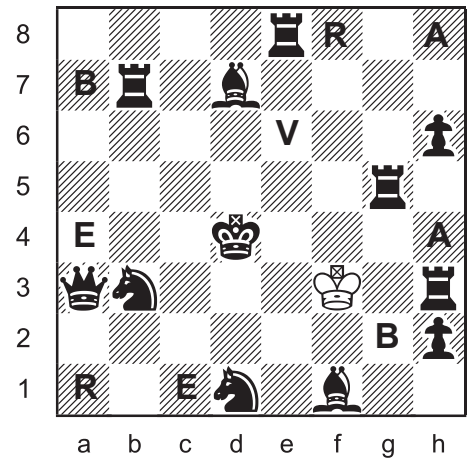
M = ♙ The only way to explain check by the rook on h3 is with the discovered check 1...gxh2+.

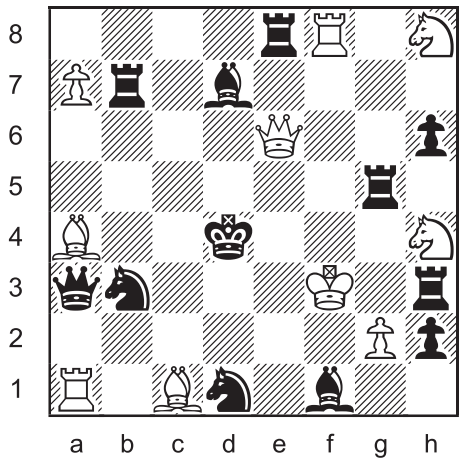
caps = white

S = ♔ If T = ♔
E = ♘ E ≠ ♕♗ (c1+) Both kings in check.
E ≠ ♖ (a4+) Both kings in check.
R ≠ ♕♗ (f8+) Both kings in check.
R ≠ ♖ (a1+) Both kings in check.
R = Ø? No piece can be assigned to letter R.

T = ♕ Only remaining lowercase letter.

Rebus 28 *continued*



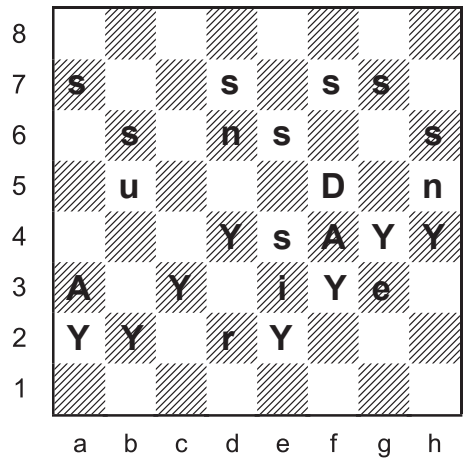


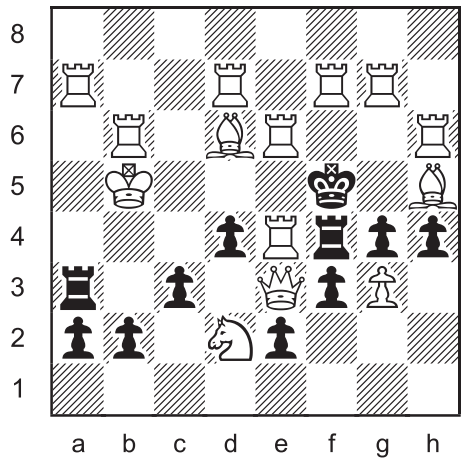
(10 + 12)

A = ♘ A ≠ ♕♗ (h8+) Both kings in check.
A ≠ ♖ (h4+) Both kings in check.
E = ♗ E ≠ ♕♖ (a4+) Both kings in check.
R = ♖ R ≠ ♕ (a1+) Both kings in check.
B = ♙ B ≠ ♕ (a7+) Both kings in check.
V = ♕

Somewhere Safe to Fly

Rebus 29





(14 + 11)

"*Sunnier Day*"

white
s = rook
u = king
n = bishop
i = queen
e = pawn
r = knight

black
D = king
A = rook
Y = pawn

last move:
1.Re7-f7#

D = ♔ Only uppercase singleton.

♔ = (UIER) Lowercase letters with a single instance.

S ≠ ♘ (g7+ h6+) Impossible double check.

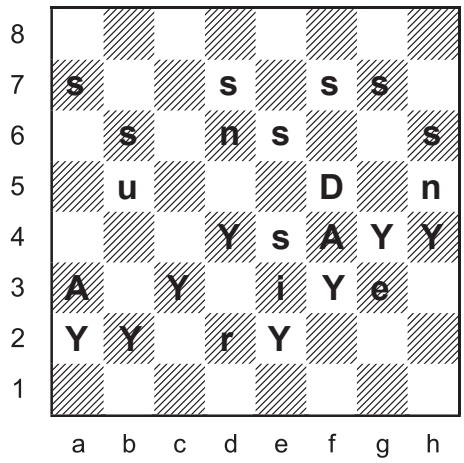
S ≠ ♕♗ (e4+ e6+) Impossible double check.

S ≠ ♙ If S = ♙, the king on f5 (D) is in <u>check</u> from e4 or e6.

- N = ♗
  - N ≠ ♕♖ (h5+) Impossible double check.
  - N ≠ ♘ (d6+) Impossible double check.
- caps = black If caps = white, the last move was 1...e7-e6+, which means that the black dark-square bishop never moved and was captured earlier on f8. But Black has two bishops (N) on the board and 8 pawns.
- S = white ♙ <u>Check</u> (e4+).
- IER ≠ ♔ Regardless of piece assignment, there would be a check by letter Y. Both kings in check.
- U ≠ ♔ If U = ♔
  - Y ≠ ♕♖ (b2+) Both kings in check.
  - Y ≠ ♗ (e2+) Both kings in check.
  - Y ≠ ♘ (c3+ d4+) Both kings in check.
  - Y ≠ ♙
    - If Y = ♙, there are 16 passed pawns. That takes at least 8 captures. There are 7 missing pieces.
  - Y = Ø? No piece can be assigned to Y.
- ♔ = Ø? No letter can be the second king.

S = ♖ <u>Check</u> by the rook on f7.

Rebus 29 *continued*

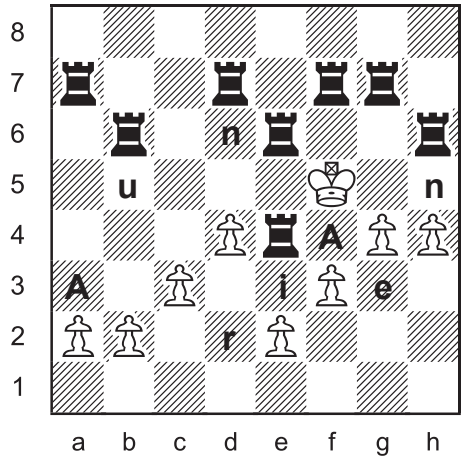


So far we know that D is one king and that he is in check by a rook (S) on f7. So the other king cannot be in check.

Y ≠ ♕♖♗♘ Regardless of piece assignment, the other king (UIER) would be in check by Y.

Y = ♙

caps = black If caps = white, see diagram below.



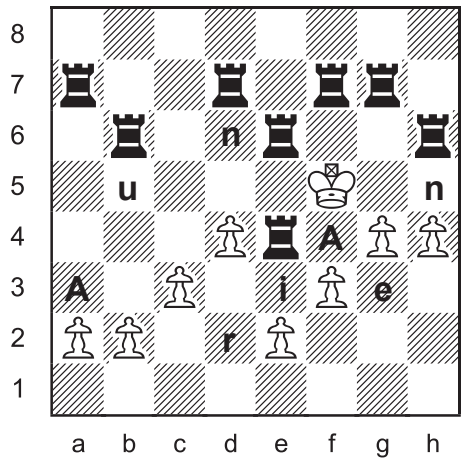
try caps = white

The position is illegal because, with the given pawn formation, there are not enough missing pieces to account for the 6 promoted rooks.

There are seven missing pieces. Two are black. Five are white officers.

The most promotions that can be achieved with the capture of 5 white officers by black pawns is 5. White pawns would have to make captures to allow another promotion. Since the 8 white pawns are all on separate files, there had to be two captures. Either the same pawn capturing twice, returning to its original file, or two adjacent pawns making a cross-capture. That accounts for both missing black pieces.

Rebus 29 *continued*



try caps = white

Black pawns captured the missing white officers in order to promote. Ideally, taking 5 officers allows 5 promotions, but in this scenario, only 4 promotions are possible.

The complication is the fate of the black a-pawn. Here are three possibilities.

(a) The black a-pawn was captured on the a-file. In that case, the white pawns made no captures, and there is no 6th promotion.

(b) The black a-pawn captured on the b-file and is still on the board at b5. U = ♙. However, the capture ...axb did not create a passed pawn. So only 4 missing white officers are available elsewhere, and only 4 promotions could be achieved by their capture. In that case, two captures by white pawns would have to allow two promotions.

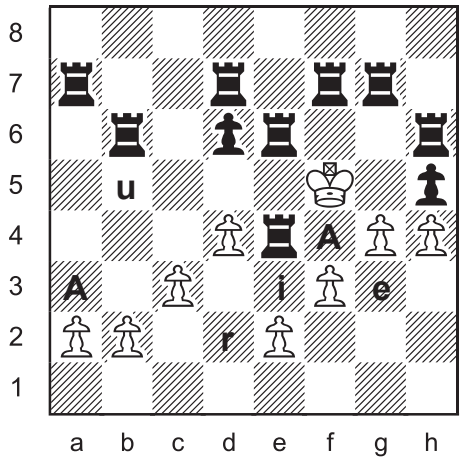
(c) The black a-pawn made two captures and promoted on c1. In that case, 3 missing white officers remain for capture elsewhere. Again, only 4 promotions are accounted for, and two captures by white pawns would have to allow two promotions.

To allow two black promotions, two adjacent white pawns must each capture to the adjacent file. This cross-capture could occur on the cd, fg, or gh files. We consider three cases.

If R or E = ♙, then Black has a passed pawn which requires an additional capture. Impossible.

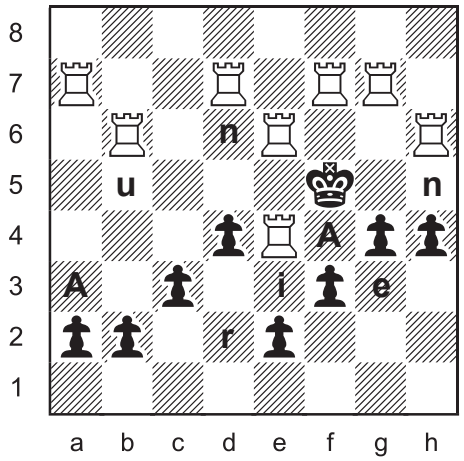
If U or I = ♙, Black is missing a pawn and a minor piece. If the missing pawn is taken in the cross-capture, there would only be one additional promotion. If two officers are taken in the cross-capture, then one of the captured officers must be replaced by another promotion. The net result would be one additional promotion. Insufficient either way.

If N = ♙, see diagram at right.



try caps = white N = pawn

Black is missing a bishop and a knight. To create two passed pawns, the white captures must occur on the fg files and they have to happen in a specific order. White begins with f2-f3. Then, with the black g-pawn advanced to g3, White captures f3xg4. Then, the black f-pawn advances to f2, followed by White's g2xf3. Black has two passed pawns on the fg files. Everything seems in order. But what about White's light-square bishop? Forever trapped inside the f1-g2-h1-h3 cage, it could never be captured to create a black passed pawn. So the position with caps = white is illegal.



caps = black See diagram at right.

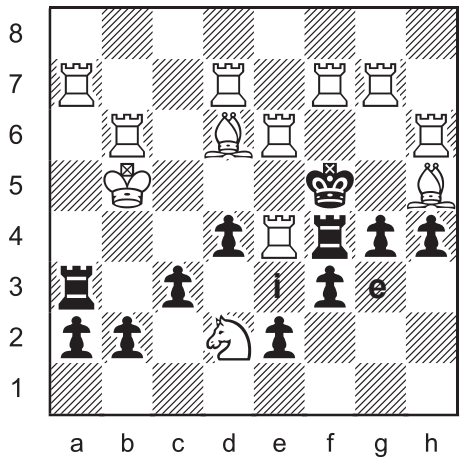
U = ♔ RIE ≠ ♔ Check by black pawn. Both kings in check.

A = ♖ A ≠ ♗ Both A's on dark squares.
A ≠ ♘ (a3+) Both kings in check.

That takes care of the black pieces.

N = ♗ N ≠ ♕♖ (h5+) Impossible double check.
N ≠ ♘ (d6+) Impossible double check.
N ≠ ♙ If N = ♙, White has 2 passed pawns and 6 promoted rooks. Black has 8 passed pawns. This situation would require at least 8 captures.

R = ♘ I ≠ ♘ (e3+) Both kings in check.
E ≠ ♘ (g3+) Both kings in check.



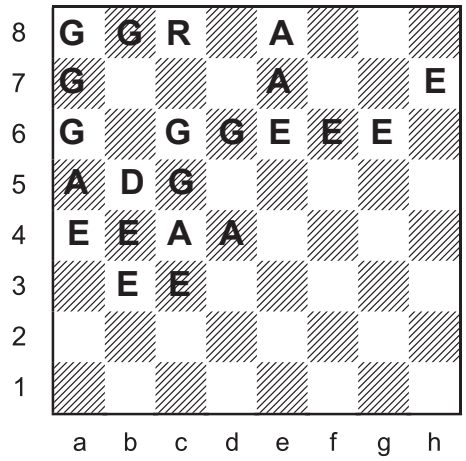
Let's update the diagram. In this position, the capture of all 7 missing pieces was necessary to achieve 6 promotions. This time there is no complication with a missing a-pawn. There are no captures to spare, so the last move had to be 1.Re7-f7#.

IE = (♕♙)

I = ♕ If I = ♙, White has a passed pawn on e3. This is the equivalent of a 7th promotion, which would require an additional capture.

E = ♙ A legal position.

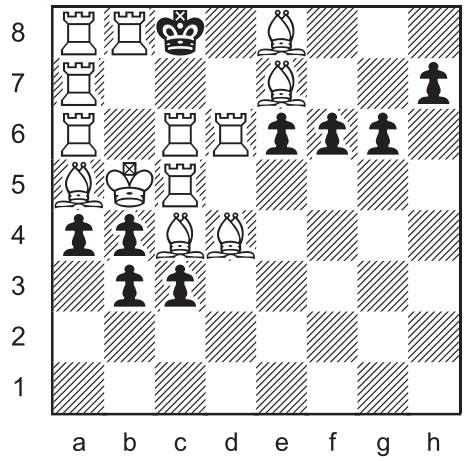
Rebus 30



"grade"

G = white rook
R = black king
A = white bishop
D = white king
E = black pawn

last moves:
1...Nd7xNb8
2.c7xNb8=R#



(13 + 9)

RD = ♔ The only two letters with a single instance.

G = ♖
- G ≠ ♙ On 8th rank.
- G ≠ ♕ Triple check regardless of colours.
- G ≠ ♘ (a7+) Impossible check regardless of colours.
- G ≠ ♗ If G and D are opposite colours, impossible double check (a6+, c6+).

  If G and R are opposite colours, impossible check from a6. Discovered check by a rook (A = ♖ and Rb7-d7+) is impossible because the rook on e8 would also give check. Discovered check by a knight (A = ♘ and Nb7-a5+) is impossible because the knight on d7 would also give check.

One king is in <u>double check</u> by two rooks (b8 c5 or b8 c6). This is only possible with the promotion c7xb8=R++. So G is a white rook, R is the black king, and D is the white king.

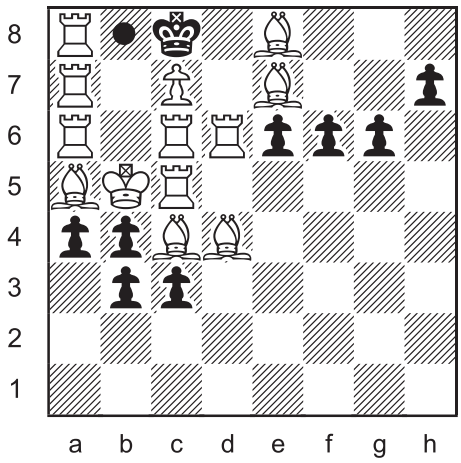
A = ♗
- A ≠ ♙ On 8th rank.
- A ≠ ♕ Impossible multiple checks regardless of colours. Third check from a5 or e8.
- A ≠ ♘ Impossible multiple checks regardless of colours. Third check from d4 or e7.

A is a white bishop. A ≠ black ♗ (c4+) Both kings in check.

There are 5 promoted white rooks and 3 promoted white bishops, so the 8 E's must be black.

E = ♙
- E ≠ ♕♖ (b4+) Both kings in check.
- E ≠ ♗ (a4+) Both kings in check.
- E ≠ ♘ (c3+) Both kings in check.

Everything is solved except for determining the last two moves.



We already know that the last move was 1.c7xb8=R#. See diagram for the position before this move. But which kind of piece was captured on b8 and what was Black's previous move?

Black's previous move was not by the king. He would have been in an impossible multiple check on d7 or d8 and in an impossible rook check (a7+) on b7.

Black's previous move was not by the pawns on a4 b3 b4 c3 h7 because they have no "reverse mobility". It was not ...d7xe6 because that would require too many captures (4) by black pawns.

White has 8 promoted pieces, so all white pawns promoted. Black has 8 pawns. There are 10 missing pieces, all officers (3 white, 7 black).

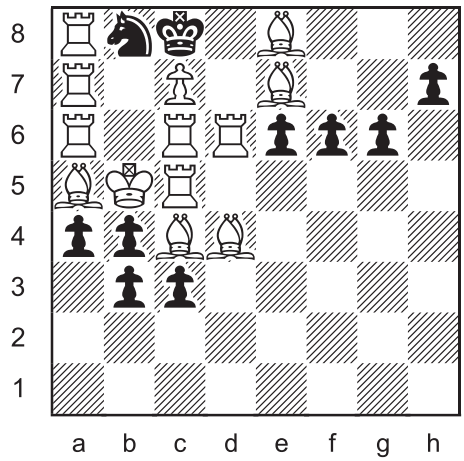
Black has doubled b-pawns and no d-pawn, which means that there were two captures by black pawns. That accounts for two missing white pieces, leaving one available for capture elsewhere.

Black is missing 7 pieces. One was captured on b8 on the last move. That leaves 6 missing black pieces to explain 7 white promotions and a white passer on c7.

The white c-pawn could have reached c7 without making a capture (after the black c-pawn captured somewhere on the b-file). The white d-pawn could have promoted on d8 without making a capture after the black d-pawn captured somewhere on the c-file.

The other 6 white pawns had to make a capture to promote. The captures on the kingside had to be done in a specific order.
The h-pawn had to capture on g7 after Black played ...g7-g6. But before that, the white g-pawn had to capture on f7 after Black played ...f7-f6. And before that, the white f-pawn had to capture on e7 after Black played ...e7-e6. (The white e-pawn captured on the d-file.)
So the black pawns on e6 f6 g6 all moved earlier.

Therefore the previous move by Black had to be by the piece that was captured on b8. It was not a queen or rook because if it came from b6 or b7, it would already be checking the white king. It was not a bishop because there are no squares it could come from. So it had to be a knight. The only square it could move from is d7.

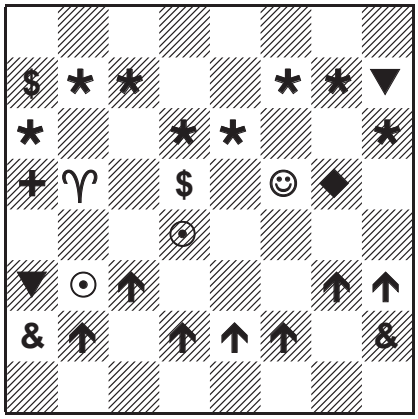


The knight move from d7 had to be a capture. If b8 were vacant, there would be an impossible check from the white rook on a8. The white piece captured on b8 could not be a queen because White would not have a legal move on the preceding turn. The non-capture Qb6-b8+ is impossible because the white rook on a8 would already give check. The capture Qb6xb8+ is impossible because all missing black pieces are accounted for elsewhere. The only other missing white pieces are knights.

Therefore the last two moves were 1...Nd7xNb8 2.c7xNb8=R#. The disappearance of two knights with underpromotion to rook.

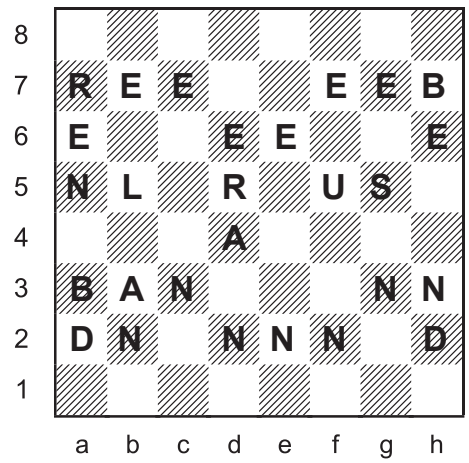
REBUSLAND SPECIAL

Letters are not essential in a chess rebus. They can be replaced with any kind of symbol. This works easily for problems with only capital letters. Here is an alternative setting for rebus 31.



Each symbol represents a different type of piece of a specific colour.
Determine the position and last move.
See next page for solution.

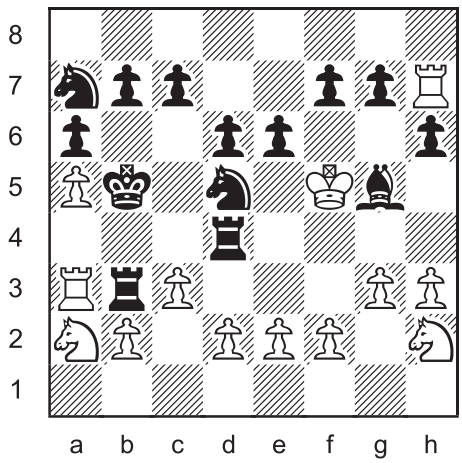
Rebus 31



"*Rebusland*"

R = black knight
E = black pawn
B = white rook
U = white king
S = black bishop
L = black king
A = black rook
N = white pawn
D = white knight

last move:
1...d7xBe6#



(13 + 14)

♔ = (LUS) The only letters with a single instance.

L = ♔ U and S are adjacent, so they cannot both be kings.

It seems likely that E and N are pawns. And that is the case. Proving it is not easy. We will do that on the next page, but first let's solve the rest of the problem.

E = black ♙ N = white ♙
With colours reversed (E = white), there would be 16 passed pawns, which would require 8 captures. Only 5 pieces are missing.

L = black ♔ If L = white ♔ Impossible check by pawn a6.

U = white ♔ If S = white ♔ Impossible check by pawn h6.

The white king is in <u>check</u> by the pawn on e6.

The last move was either 1...d7xe6+ or 1...e7-e6, which means that there were unmoved pawns on b7 d7 or on e7 g7. So one of the black bishops was captured on its original square (c8 or f8).

There are also unmoved pawns on b2 d2, so one white bishop was captured on its original square (c1).

Therefore, any letter with two instances is not a bishop (or a queen). No promotions are possible with 16 pawns on the board.

RBAD ≠ ♗ These four letters must be the rooks and knights.

A = black ♖ A ≠ ♘ Impossible multiple checks regardless of knight's colour (d4+, e6+).

A ≠ white ♖ Both kings in check (b3+, e6+).

R = black ♘ R ≠ ♖ Impossible multiple checks regardless of knight's colour (d5+, e6+).

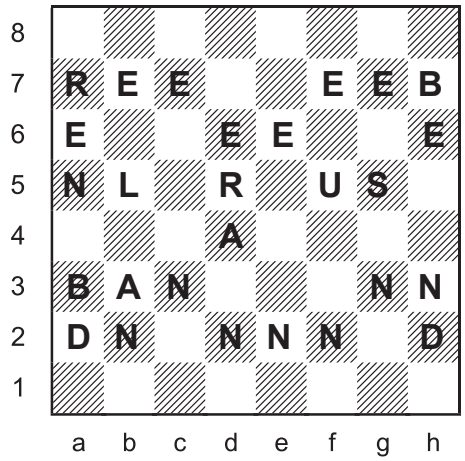
R ≠ white ♘ Both kings in check (a7+, e6+).

B = white ♖ B ≠ white ♘ Both kings in check (a3+, e6+).

D = white ♘

Rebus 31 *continued*

The only way for black rooks (b3 d4) to have escaped from behind the black wall of pawns is by the cross-capture ...e7xd6 and ...d7xe6. So the last move was 1...d7xe6+.



Three white pieces were captured. One was the dark-square bishop captured on c1. The other two (queen and bishop) were captured on d6 and e6. The light-square bishop must have been captured on the light square e6. Last move: 1...d7xBe6#.

At this point we have 13 white pieces on the board and 3 white pieces captured. So the one remaining letter (S) must be black.

S = black ♗ S ≠ black ♕ Impossible double check (g5+, e6+).

Now for a proof that EN = ♙. Obviously, E and N are opposite colours.

If neither E nor N are pawns, then both kings are in check. One by E and the other by N, regardless of piece assignment. Each of the king candidates (LUS) is “attacked” by E and N along a rank or file, on a diagonal, and *knightwise*.

If one of the letters E and N is an officer and the other is a pawn, then one side has 6 promoted pieces and the other side has 8 pawns. This means that the promoting side could not have captured any pawns. So a single capture could only achieve one promotion.

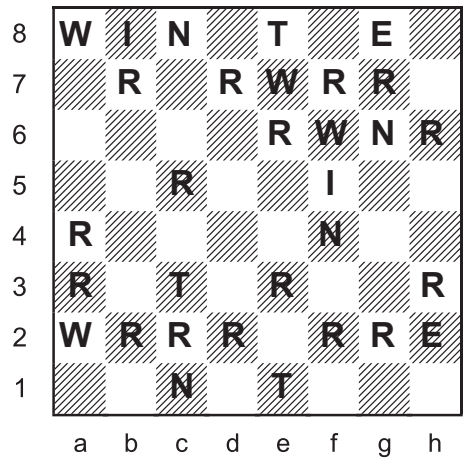
> A ‘pawn x officer’ by the promoting side allows one promotion.
> A ‘pawn x pawn’ capture by the side with 8 pawns allows one promotion for the opponent.

In this situation, 6 promotions require 6 captures, but only 5 pieces are missing.

E and N must both be pawns.

What if we said these puzzles were too easy?
“I would not believe you.”
eye-wood-knot-bee-leave-ewe

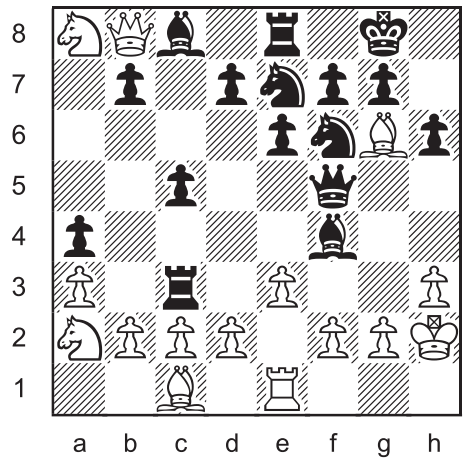
Rebus 32



"*winter*"

W = knight
I = queen
N = bishop
T = rook
E = king
R = pawn

last move:
1...Bg5-f4+



(15 + 16)

There are 31 pieces on the board, including 16 R's, so many deductions are very easy.

R = ♙ Since only one capture was possible, we know that the R's on the 2nd and 3rd ranks are white and those on the 4th to 7th ranks are black.

N = ♗ There are unmoved pawns on b2 d2 and b7 d7.
If N ≠ ♗, then two bishops were captured on c1 and c8.
But only one piece is missing.
The bishops on c8 and f4 (dark) are black.
The bishops on c1 and g6 (light) are white.

♔♕ = (EI) Letters with one uppercase, one lowercase.

E = ♔ If I = ♔
The king on f5 must be black. Otherwise there is an impossible check by the pawn on e6.
Both kings are in check by a bishop (f4+, g6+).

I = ♕

T = ♖ No white rooks could escape from behind the white wall of pawns.
W ≠ ♖ There are 4 W's (3 in front of white pawns).
The rook on e1 is white. The rooks on c3 e8 are black.

W = ♘

Piece assignment is solved, but colouring of WEI must still be decided.

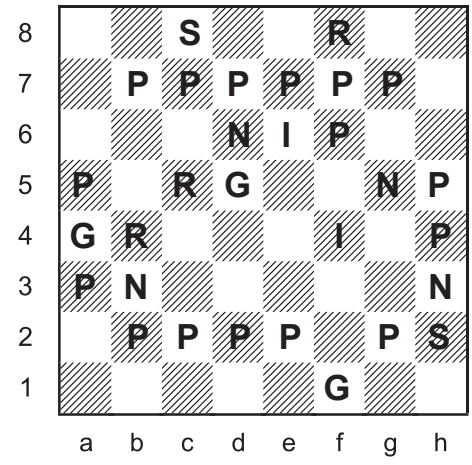
If the king on g8 is white, there is an impossible check by the black rook on e8. Therefore the king on g8 is black and the king on h2 is white. The king on h2 is in <u>check</u> by the bishop on f4.

The knights on e7 and f6 are black, otherwise both kings would be in check. The knights on a2 and a8 are white.

The last move had to be 1...Bg5-f4+. This move was not a capture because the only missing piece is a white rook which was captured earlier inside the white wall of pawns.

If the queen on b8 is black, then the white king on h2 would already be in check before 1...Bg5-f4+. Therefore the queen on b8 is white and the queen on f5 is black.

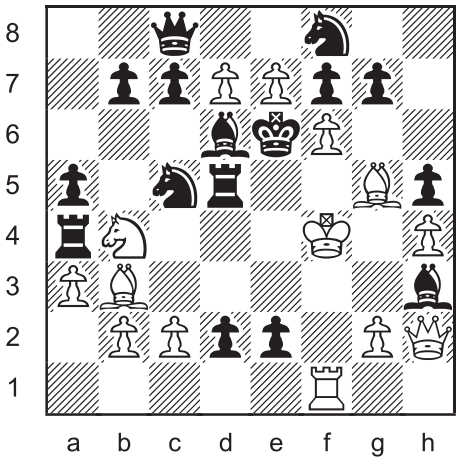
Rebus 33



"*spring*"

S = queen
P = pawn
R = knight
I = king
N = bishop
G = rook

last moves:
1...Ne4-c5+
2.Nd5-b4+
2...Re5-d5+



(14 + 16)

P = ♙ There are 16 P's. There were no promotions.

♔♕ = (SI) Letters with one uppercase, one lowercase.

♖♗♘ = (RNG)

N = ♗ R ≠ ♗ All three instances are on dark squares.
G ≠ ♗ All three instances are on light squares.

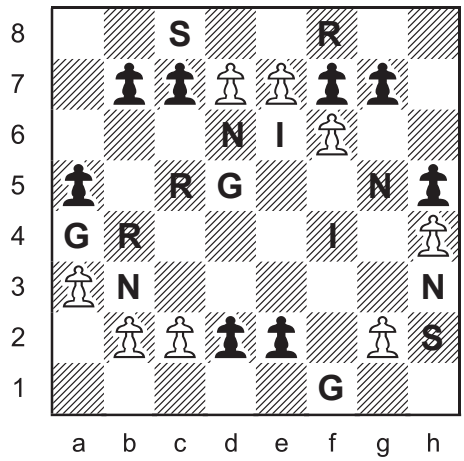
All four bishops are on the board. None are on their original squares. For them to escape the 1st and 8th ranks, some of the pawns on the 2nd rank must be black and some on the 7th rank white.

There are two missing pieces (one rook, one knight). Their capture could create two sets of inverted pawns (white above black) on adjacent files. The only cross-capture that allows all bishops to escape is on the ed files.

The pawns on d2 e2 are black. The pawns on d7 e7 are white. On the other files, the pawns "on the bottom" are white.

Time for a fresh diagram.

Rebus 33 continued



I = ♔ I am king.

S ≠ ♔ A black king on c8 would be in an impossible check by the pawn on d7, which could not have captured from c6 since it is the original e-pawn.

A white king cannot be on the 8th rank because there is no way past the pawns on b7 c7 f7 g7.

S = ♕

The king on e6 is black. If it were white, there would be an impossible check by the pawn on f7.

The king on f4 is white. It is in check by one of the dark-square bishops on d6 or g5.

The bishop on g5 is white. If it were black, the last move would have to be a capture. Both missing pieces were capture by pawns. So the white king on f4 is in <u>check</u> by the black bishop on d6.

The bishop on h3 is black. If white, both kings are in check. The remaining bishop on b3 is white.

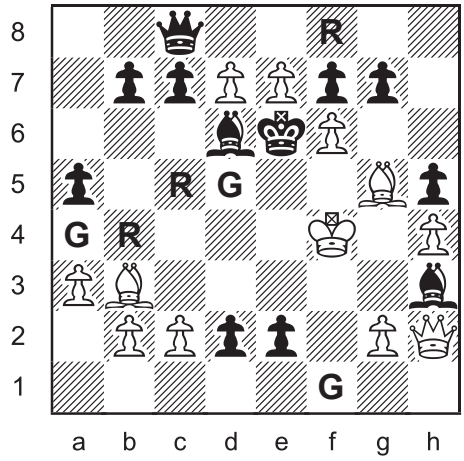
The queen on h2 is white. If black, there would be an impossible double check. The queen on b5 is white.

Let's update the graphics again.

<u>Crunch Time</u>

In case you were wondering, there are nearly half a billion ways to assign pieces in a twelve letter split-colour rebus. 479,001,600 to be exact (12!). If the kings are known, there are still 3,628,800.

Perhaps some kind mathematician will calculate the numbers for a six letter colour-free rebus with 32 pieces. Thanks!



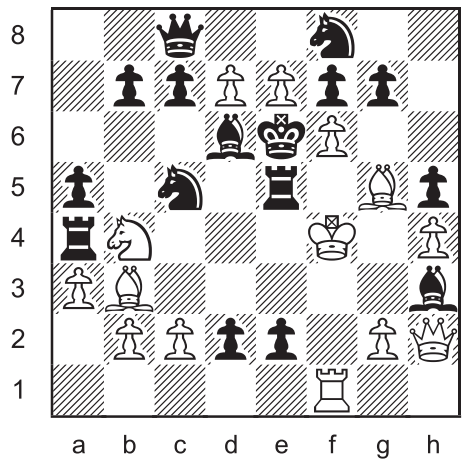
G = ♖ Check from the bishop on d6 can only be explained with a discovered check on the last move by ...Re5-d5+ This move was not a capture because both missing pieces were captured by pawns. The rook on d5 is black.

The rook on f1 is white. If black, impossible double check.

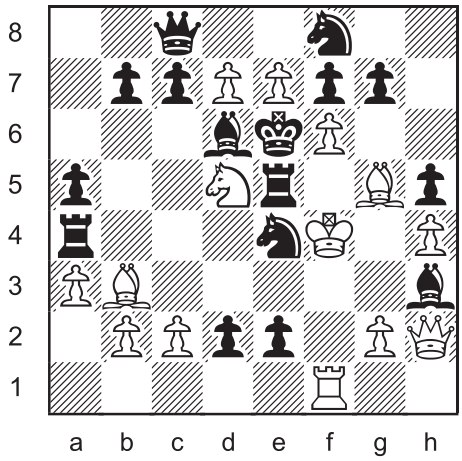
R = ♘ The knights on c5 and f8 are black. If white, both kings in check. The knight on b4 is therefore white.

The pieces taken in the cross-capture on the ed files were necessarily the same colour. The missing knight is white, so the missing rook must also be white. So the rook on a4 is black.

The position before ...Re5-d5+

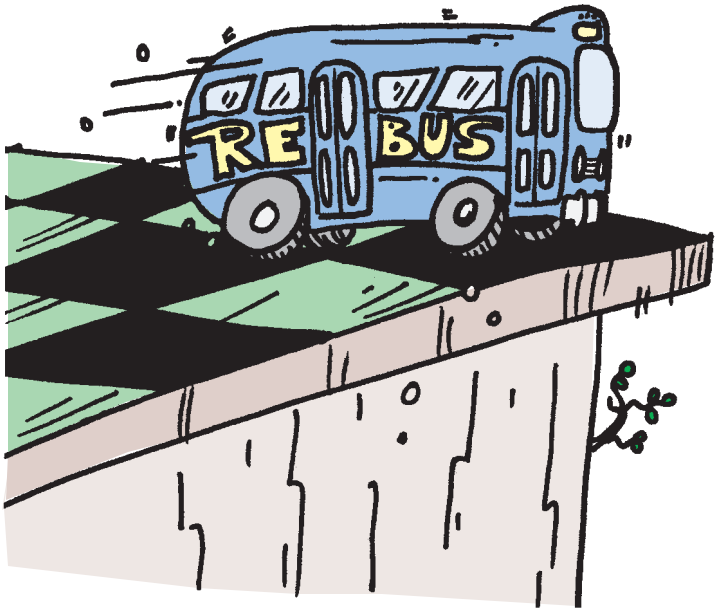


Black is in check by the bishop on b3. This is only possible if the previous move was Nd5-b4+. Before that move, the white king was in check from the rook on a4, which could only happen by ...Ne4-c5+.



position 3 moves ago

1. . . . Ne4-c5+
2. Nd5-b4+ Re5-d5+



The future is uncertain. And the end is always near.

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