



# THE PUZZLING SIDE OF CHESS

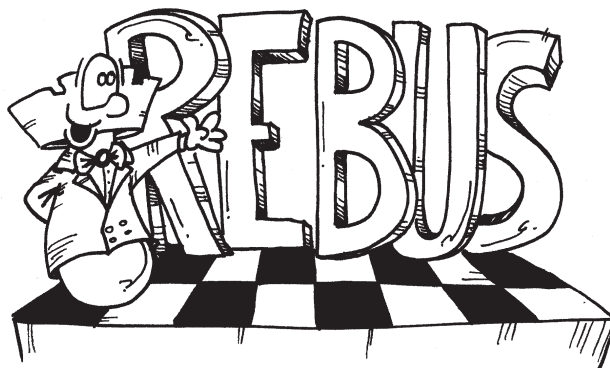
Jeff Coakley

## YEAR OF THE REBUS

number 133

February 18, 2017

A chess *rebus* is a sudoku-style puzzle in which the pieces in a given position are represented by letters. The goal is to “decode the board”, determining the colour and type of each piece, and if possible, the last move. A fun task that requires various degrees of deductive analysis.



### Rebus 01

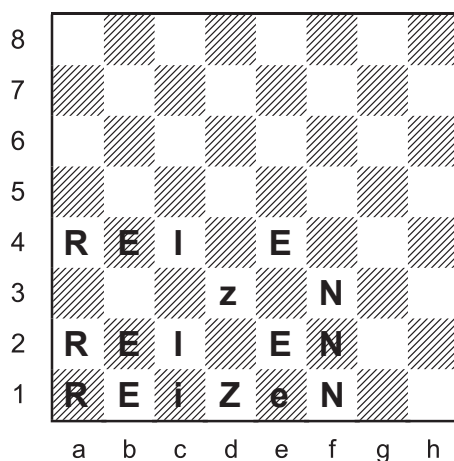
8	R		e		B			s
7								
6				r	r	U	r	
5					b			
4								
3								
2								
1								
	a	b	c	d	e	f	g	h

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

My interest in chess rebuses began last January when Grigory Popov presented the following problem in his *Saturday Puzzles* column on the *SuperProblem.ru* website.

Composed by Andrey Frolkin of Kiev, the rebus was dedicated to Ukrainian composer Yevhen Reytsen (*Reizen*) on the occasion of his 80th birthday. It was accompanied by a painting, shown below, by Andrey's wife Nina Omelchuk.

### Rebus 02

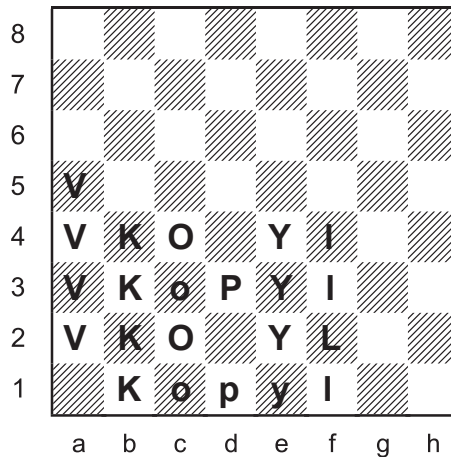


Each letter represents a different type of piece.  
 Uppercase is one colour, lowercase is the other.  
 Determine the position and, if possible, the last move.



A week later, a second rebus and painting were posted, honouring another Ukrainian composer, Valery Kopyl. Be warned, the retro content of this problem is more complex than the first.

### Rebus 03



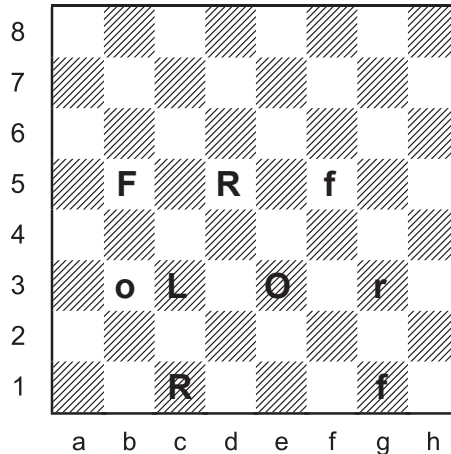
Each letter represents a different type of piece.  
 Uppercase is one colour, lowercase is the other.  
 Determine the position and, if possible, the last move.



The aim of Grigory Popov's column was to showcase problems that cannot be solved by computers. He requested that readers submit original compositions. So I decided to try making a rebus of my own. Lo and behold, whatever that means, the twin positions on the next page were published in February 2016.

### Rebus 04

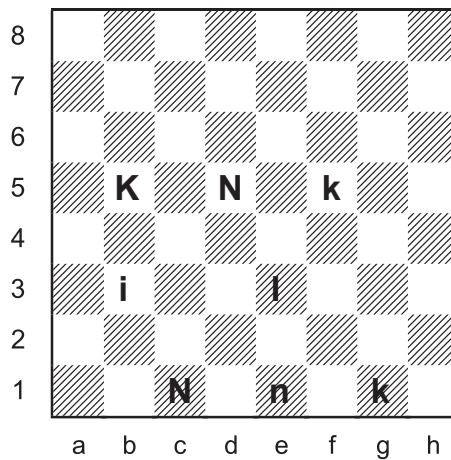
*"Rolf"*



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.

### Rebus 05

*"Niki"*



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.

I wanted to dedicate my puzzles to Andrey Frolkin, the man who invented this type of problem 35 years ago. Unfortunately there are seven letters in 'Frolkin' and a normal rebus only holds six. But I succeeded nevertheless, by splitting his name in two and jumbling the letters. Thus were Rolf and Niki born.

I sent copies of the problems to Andrey, which began a long and continuing correspondence on a variety of topics. Our numerous mutual interests quickly led to friendship, for which I'm very grateful.

We also began to compose rebuses together, sharing ideas, checking each other's work, and refining the finished products. One feature that became central to most of our collaborations was the use of *multiple potential king pairs*.

In the preceding five problems, it was easy to determine which letters were the kings because there was only a single pair of letters with one uppercase and one lowercase. Increasing the number of possible "king pairs" not only makes a rebus more difficult to solve, but also provides additional opportunities for retro content.

The most basic type of position with two potential king pairs is the *full board rebus*. All 32 pieces are alive and well.

### Rebus 06

*"boards"*

8		B		r		d		
7	o	o				o		
6		a		d	o	D	o	
5	b		o	s		o	O	
4	B		O	o		O	s	
3		O	D	O	O	A	O	
2	O	S					b	
1				R	S			
	a	b	c	d	e	f	g	h

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.

2016 was indeed the "year of the rebus". The growing pile of joint compositions now contains over a hundred problems. Many of them have appeared in online chess magazines. If you're interested, see these three articles:

**ChessProblems.ca Bulletin**

- Issue 8 (April 2016): The Elvis Effect, Multiple Potential King Pairs
- Issue 9 (August 2016): Exploring Colours in Chess Rebuses

- Sepa64.blogspot.ca Problemas** (Spanish Society of Chess Problemists)
- Boletin 15 (July 2016): New Directions in Chess Rebuses (in English)

The final puzzle turns the *stump control* up a notch. Or two.

### Rebus 07

*"Jennifer"*

8	E	F	e	I				
7				E	R			
6	J							
5	E					j		
4	N			i				
3			R			E		
2								
1	e		F	n		F		
	a	b	c	d	e	f	g	h

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.



*Andrey Frokin 1979*

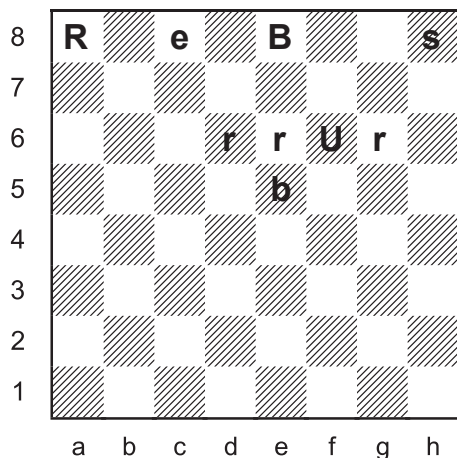
# SOLUTIONS

**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.

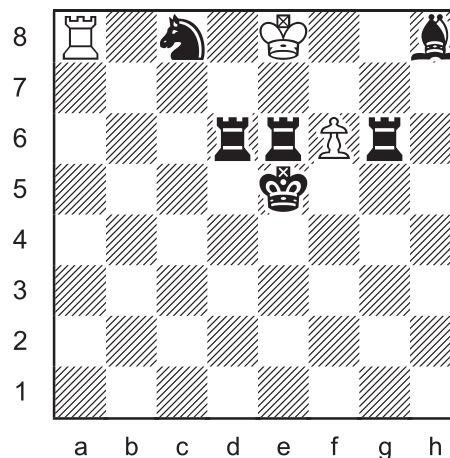
## Rebus 01

Andrey Frolkin & Jeff Coakley 2017

*Puzzling Side of Chess*



R = rook  
 E = knight  
 B = king  
 U = pawn  
 S = bishop  
 caps = white  
 last move:  
 1...Ne7>c8+



(3 + 6)

Solutions are given with *rebus notation*, an abbreviated method of describing logical deductions. The notation is mostly self-explanatory, but detailed lengthy explanations are given for this first problem.

B = Kings are represented by the letter B/b.

B is the only letter with one uppercase, one lowercase.  
 Every position must have two kings!


















The notation says nothing about case or colours. All letters in rebus notation are capitals. All figurine pieces are white.  
 In this column, we never write b = .

≠ (REBS) The letters R,E,B,S are not pawns. They each appear on the 8th rank. Nowhere land for pawns.

The king on e8 is in check by R (e6+, g6+, or d6+).





The notation states that e8 is “under attack” on a file by r/e6, on a diagonal by r/g6, and “knightwise” by r/d6. It does not say which letter ‘r’ gives check, only that one of them is necessarily checking. It also does not preclude r/e6 or r/g6 from being a queen.

The word check is underlined to show that it is important for further deductions.

- R ≠  (e6+, g6+) Impossible double check.  
R is not queen because of checks from e6 and g6.
- R ≠  R is not knight.
- If R =  (d6+) If R is knight, there is a check from d6.
- E ≠   (c8+) Impossible double check.  
If R is knight, then E cannot be queen or rook because of checks from d6 and c8.
- E =  If R is knight, then E must be bishop since it cannot be queen, rook, or pawn.
- S ≠   (h8+) Impossible double check.  
If R is knight, then S cannot be queen or rook because of checks from d6 and h8.
- S = ∅? No piece can be assigned to letter S.  
If R is knight and E is bishop, then it is impossible to assign a piece to S since it cannot be a queen, rook, or pawn. This impossibility is shown by the *null set* symbol ∅.
- The question mark indicates a logical contradiction which proves that a hypothesis (if R = ) is false.
- R ≠  R is not bishop.
- If R =  (g6+) If R is bishop, there is a check from g6.
- E ≠   (c8+) Impossible double check.
- E = 
- S ≠   (h8+) Impossible double check.
- S = ∅? If R is bishop, then it is impossible to assign a piece to S without creating an illegal position.
- R =  (e6+) R is rook because it cannot be king, queen, bishop, knight, or pawn. The rook on e6 is checking the king on e8.

The last move had to be a discovered check.

The rook on e6 did not just move there from e7 because it would already be giving check.

- E =  This is the only possibility for a discovered check.
- S ≠   (h8+) Impossible double check.
- S =  S is bishop because it cannot be queen, rook, or pawn.



U ≠ ♔ (f6+)

Both kings in check.

U = ♙

U is not queen because of checks from e6 and f6.

U is pawn since it cannot be queen.

Caps = White

The pawn on f6 must be white. If it were black, then both kings would be in check (e6+, f6+).

Last move: 1...Ne7>c8+

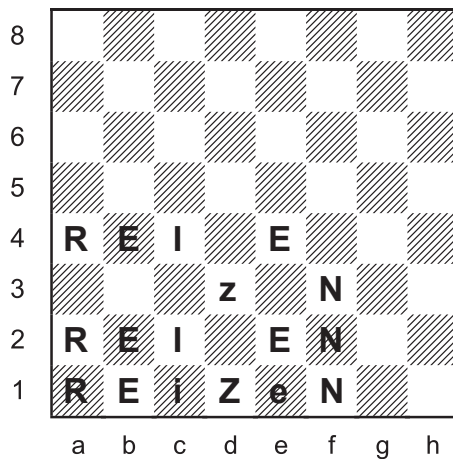
The symbol > indicates that the move may or may not have been a capture.

Case solved.

### Rebus 02

Andrey Frolkin 2016

SuperProblem.ru Saturday Puzzle #1



R = queen

E = rook

I = knight

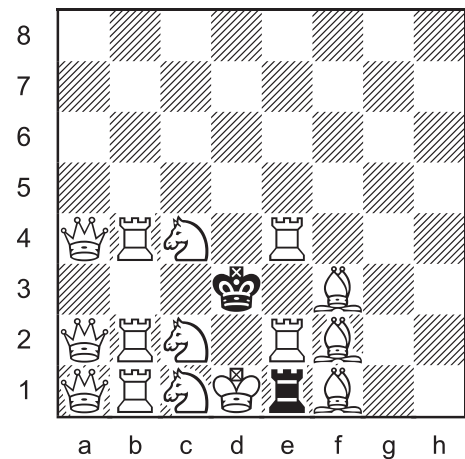
Z = king

N = bishop

caps = white

last move:

1...d2xe1=R+



Z = ♔

Only letter with one uppercase, one lowercase.

(15 + 2)

♙ = ∅

There are no pawns. All five letters appear on the 1st rank.

E ≠ ♔ ♕ (e2+, e4+) Impossible double check.

E ≠ ♞ (b2+) Impossible check (no last move).

E = ♖ (e1+) Check.

Last move: 1...d2xe1=R+ Only way to explain check by rook.

The type of piece captured is unknown.

Caps = White

Promotion on e1.

I ≠ ♔ ♕ (c2+, c4+) Impossible multiple checks.

I = ♞

N ≠ ♔ (f3+)

Both kings in check.

N = ♗

R = ♖

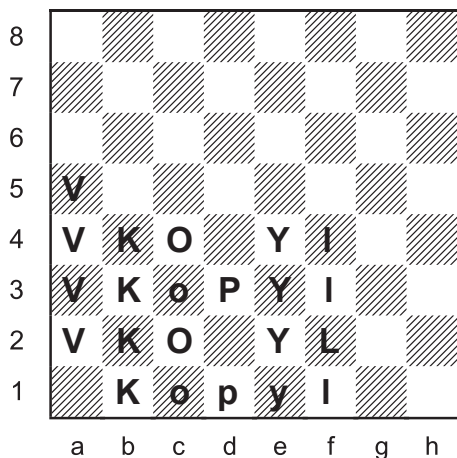
Did you know that 'reizen' is the Dutch verb for "travel"?

Ik zou graag naar Oekraïne reizen.

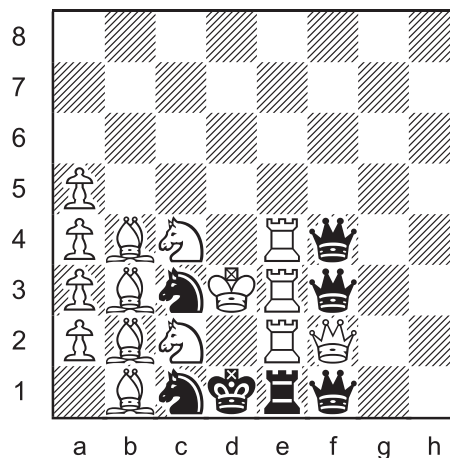
### Rebus 03

Andrey Frolkin 2016

SuperProblem.ru Saturday Puzzle #2



V = pawn  
 K = bishop  
 O = knight  
 P = king  
 Y = rook  
 L = bishop  
 caps = white  
 last move:  
 1...d2xc1=N+



(15 + 7)

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

V = ♖ The other five letters appear on the 1st rank.

O ≠ ♗♘ (c2+) Impossible check (no last move).

O ≠ ♖ (c3+) Impossible check (no last move).

O = ♘ (c1+) Check.

Last move: 1...d2xc1=N+ Only way to explain check by knight.

Caps = White Promotion on c1.

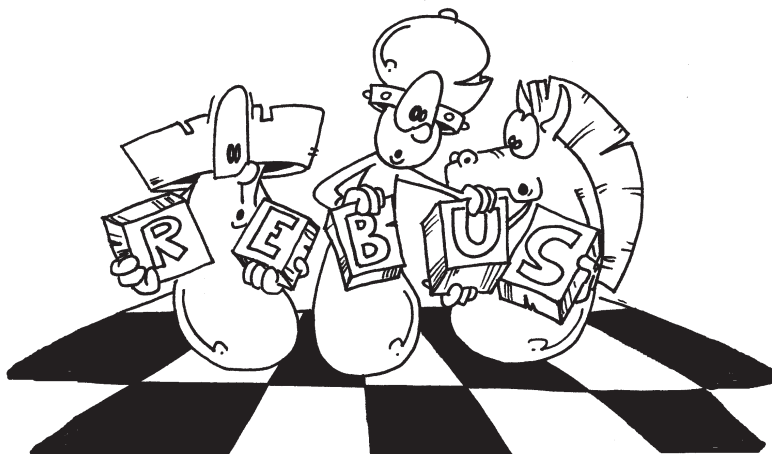
Y ≠ ♔♗ (e2+) Impossible check and both kings in check.

Y = ♖

L ≠ ♗ White is only missing one piece. It was captured on the dark square c1. If L = bishop, then the missing White piece would be a light-square bishop, which is impossible.

L = ♔

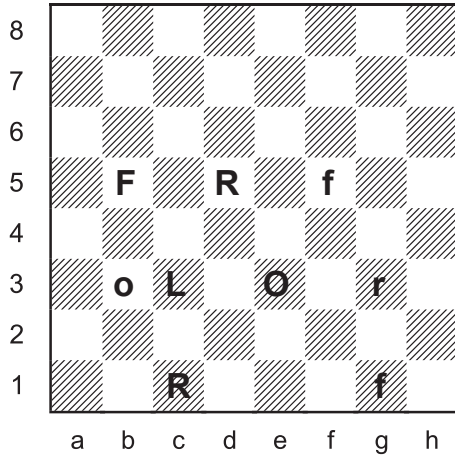
K = ♗



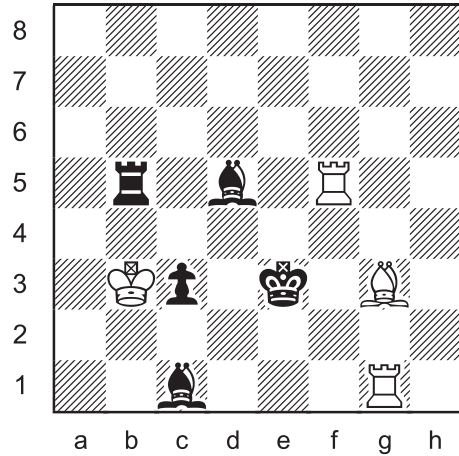
# Rebus 04

J. Coakley 2016

SuperProblem.ru Saturday Puzzle #5



R = bishop  
 O = king  
 L = pawn  
 F = rook  
 caps = black  
 last move:  
 1...b4xc3 e.p.+



(4 + 5)

O = Only letter with one uppercase, one lowercase.

≠ (FR) These letters appear on the 1st rank.

One of the kings is in check by F ( b5+, g1+, f5+)

One of the kings is in check by R ( g3+, d5+, c1+)

Therefore there must be a double check. The only legal possibility for a double check is an *en passant* capture. This determines which pieces are assigned to the remaining letters.

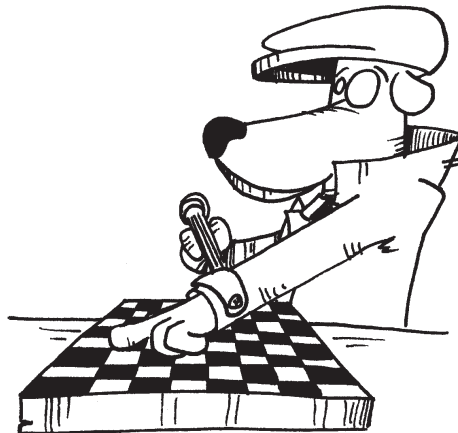
F = (b5+)

R = (d5+)

L =

Last two moves: 1.c2-c4 b4xc3 e.p.+

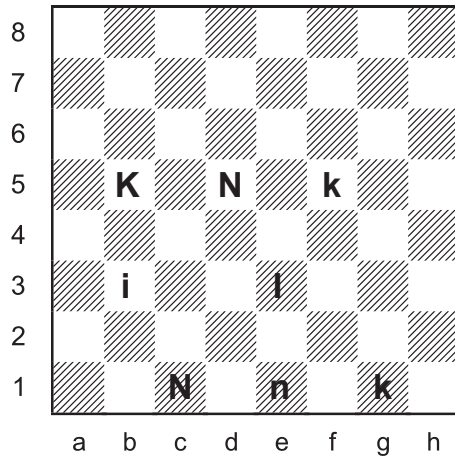
Caps = Black      The pawn that captured on c3 must be black.



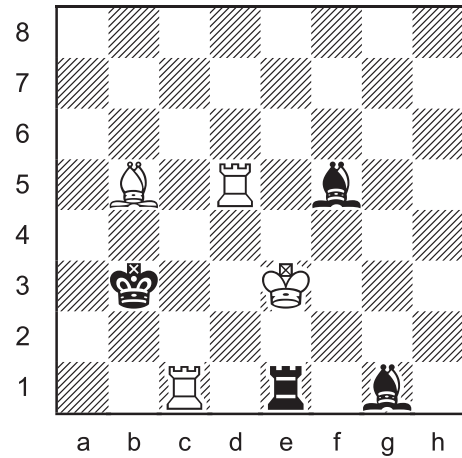
## Rebus 05

J. Coakley 2016

*SuperProblem.ru Saturday Puzzle #6*



N = rook  
 I = king  
 K = bishop  
 caps = white  
 last move:  
 1...f2xe1=R+



(4 + 4)

The letters have been changed, but this position is the same as the previous rebus except for two differences. The piece on g3 is now on e1, and the square c3 is vacant.

I = Only letter with one uppercase, one lowercase.

≠ (KN) These letters appear on the 1st rank.

One of the kings is in check by K (b5+, g1+, f5+).

One of the kings is in check by N (e1+, d5+, c1+).

Therefore there must be a double check. The only legal possibility for a double check is a pawn promotion. This determines which pieces are assigned to the remaining letters.

N = (e1+)

K = (g1+)

Last move: 1...f2xe1=R+

Caps = White      Promotion on 1st rank.

### *Brute Force or Logical Reason?*

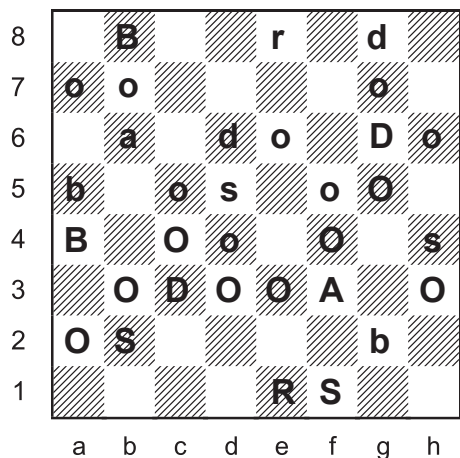
Trying to solve these puzzles with the brute force method is not recommended. In a six letter rebus, there are 1440 different ways to assign the pieces (6! x 2). If the kings are known, there are still 240 ways to assign the other pieces.

**1440**

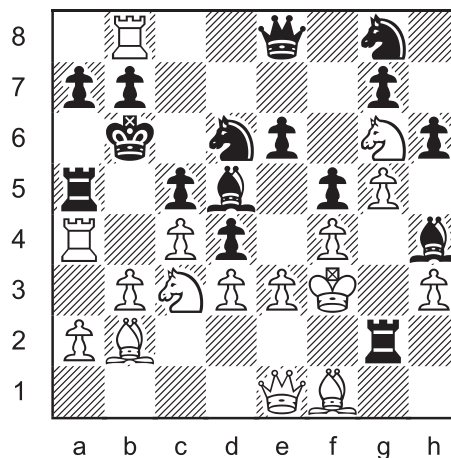
## Rebus 06

Andrey Frolkin & Jeff Coakley 2017

*Puzzling Side of Chess*



B = rook  
 O = pawn  
 A = king  
 R = queen  
 D = knight  
 S = bishop  
 caps = white  
 last move:  
 1...Ne4-d6+



(16 + 16)

With a full board of pieces, some deductions are very easy. There is one king, one queen, and eight pawns for each side. The pawn formation makes the assignment of colours obvious.

O = ♙

Caps = White

♔♚ = (AR) Only letters with one uppercase, one lowercase.

♖♗♘ = (BDS)

R ≠ ♚ If R = ♚

A = ♚

S ≠ ♗ If S = ♗ (h4+) Impossible check.

The bishop had no legal move on the last turn to reach h4. There was no discovered check by 1...Rg3-g2+ because if B = ♖, then both kings are in check (h4+, b8+).

D ≠ ♘ If D = ♘ (g6+) Check.

B ≠ ♖ (b8+) Both kings in check.

B ≠ ♘ (g2+) Both kings in check.

B = ∅? No piece can be assigned to B.

B ≠ ♗ If B = ♗ (a4+) Check.

The bishop had no legal move on the last turn to reach a4. There was no discovered check by 1.Nb5-c3+ with D = ♘ because Black would have no legal move on their previous turn. The white king on e1 would be in an impossible check from the black bishop on a5.

♗ = ∅?

No letter can be bishop.

*continued next page*

A = ♔

R = ♚

B ≠ ♘ (a4+) Impossible check (no last move).

S ≠ ♘ (h4+) Impossible check (no last move).

D = ♘

B ≠ ♗ (g2+) Impossible check (no last move).

B = ♖

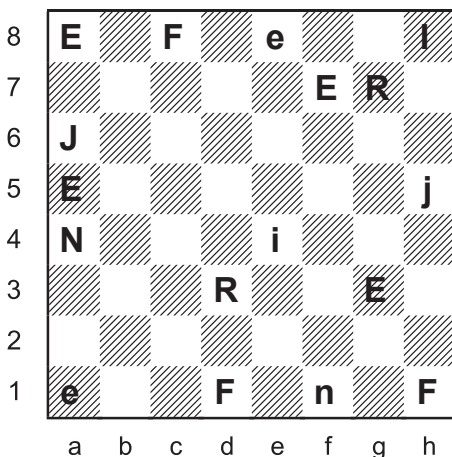
S = ♗ (d5+)

Last move: 1...Ne4-d6+ A discovery is the only way to explain the check from d5.

### Rebus 07

Andrey Frolikin & Jeff Coakley 2017

*Puzzling Side of Chess*



J = king

E = rook

N = queen

I = bishop

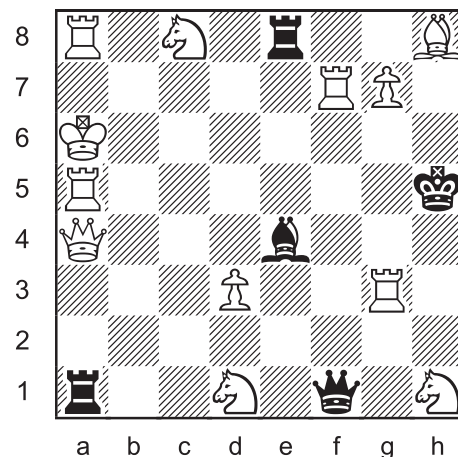
F = knight

R = pawn

caps = white

last move:

1.Kb5>a6+



(12 + 5)

♔ = (JIN) Only letters with one uppercase, one lowercase.

♖ = (JR) The other letters appear on the 1st or 8th rank.

I ≠ ♔ If I = ♔

One of the kings is in check by E (♖e8+, ♗a8+, ♘g3+).

E ≠ ♔ Both kings in check.

F ≠ ♔ (h1+) Impossible double check or both kings in check.

J ≠ ♔ (h5+) Impossible double check or both kings in check.

N ≠ ♔ (a4+) Impossible double check or both kings in check.

R ≠ ♔ (d3+) Impossible double check or both kings in check.

♔ = ∅? No letter can be queen.

N ≠ ♔

If N = ♔

One king is in check by E (♖a1+, ♖f7+, ♗e8+, ♘g3+).

E ≠ ♔ Impossible double check or both kings in check.

F ≠ ♔ (d1+) Impossible double check or both kings in check.

I ≠ ♔ (e4+) Impossible double check or both kings in check.

R ≠ ♔ (d3+) Impossible double check or both kings in check.

J = ♔

R = ♖ Only letter besides J not on 1st or 8th rank.

E ≠ ♖ (a1+, f7+) Both kings in check.

F ≠ ♖ (d1+) Impossible double check or both kings in check.

I ≠ ♖ (e4+) Impossible double check or both kings in check.

♖ = ∅? No letter can be rook.

J = ♔

R = ♖

The king on h5 is in check by E

(♖a5+, ♗f7+, ♘g3+).

E ≠ ♔ (a5+, f7+) Impossible double check.

F ≠ ♔ (d1+, h1+) Triple check.

I ≠ ♔ (h8+) Impossible double check.

N = ♔

F ≠ ♖ (h1+) Impossible double check.

I ≠ ♖ (h8+) Impossible double check.

E = ♖ (a5+) Check.

F ≠ ♗ (d1+) Impossible double check.

F = ♘

I = ♗

Caps = White There cannot be a black bishop on h8 if there is black pawn on g7. Those pieces must be white.

Last move: 1.Kb5>a6+ Only way that check from a5 could happen.

Until next time!

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Paintings by Nina Omelchuk.

8	E		F	e			I	
7					E	R		
6	J							
5	E						j	
4	N			i				
3			R			E		
2								
1	e			F		n	F	
	a	b	c	d	e	f	g	h