



# THE PUZZLING SIDE OF CHESS

Jeff Coakley

## THE OLD SWITCHEROO

number 4

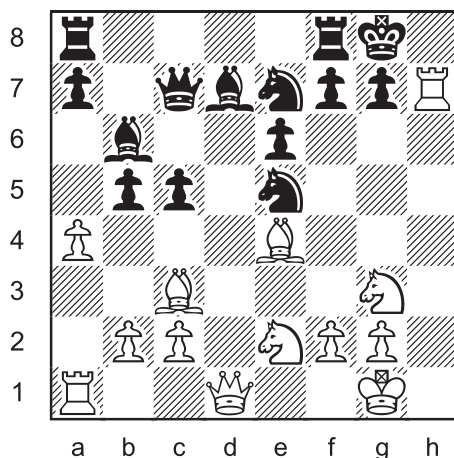
July 14, 2012

Did you ever play the *shell game*, where someone switches a pea around under three walnut shells?



A *switcheroo* is a chess puzzle with a similar idea! But instead of a pea, we switch pieces. No actual chess moves are made. The goal is to put the black king in checkmate by switching the position of two pieces. The pieces simply trade squares. This example shows how the puzzle works.

### Switcheroo 00

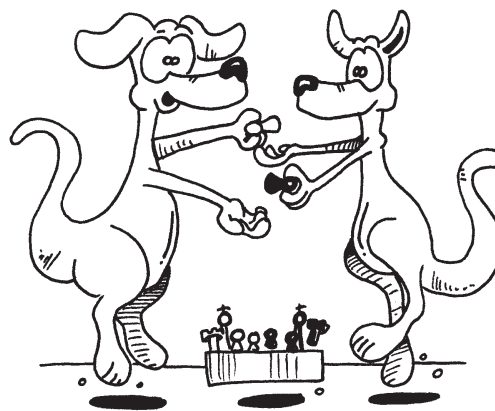


Any two pieces can switch places. Colours do not matter. You can trade white with white:  $Qd1 \leftrightarrow Rh7$ , or black with black:  $Ne5 \leftrightarrow Kg8$ . Switching the black king is a common trick. You can also trade white with black:  $Ne7 \leftrightarrow Ng3$  or  $Be4 \leftrightarrow Kg8$ . All four of these switches are valid solutions to this puzzle. But normally, there is only a single answer to each switcheroo.

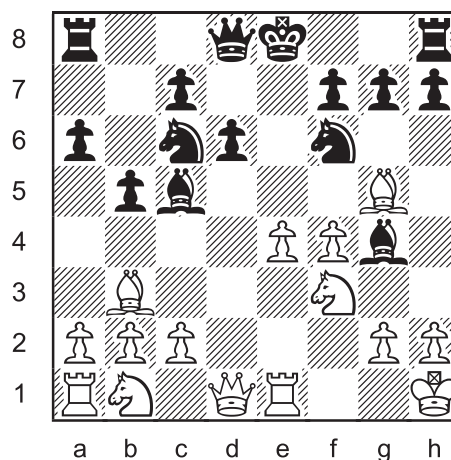
One important rule is that *the position after the switch must be legal*. A position is legal if it could occur in an actual game. This rule implies several things.

- a) A pawn cannot be put on the first or eighth rank.  $Kg8 \leftrightarrow a4?$ ,  $Qd1 \leftrightarrow g7?$ ,  $Ra1 \leftrightarrow g7?$  are not allowed.
- b) Both kings cannot be in check.  $Ne2 \leftrightarrow Ne7?$  is no good.
- c) There must be a way to reach the resulting position with a legal white move.  $Ne2 \leftrightarrow Kg8?$  is not a solution. The black king would be in an impossible double check. Illegal checks are a frequent "violation" in switcheroos.
- d) A black king cannot be placed on the first rank inside the white pawn formation, unless there was a legal way for him to get there.  $Qd1 \leftrightarrow Kg8?$  is not permitted because the black king could never have passed by the unmoved pawns on b2, c2, f2, and g2.

As you can see from items c and d, retrograde analysis is sometimes required to decide if a switch is legal.



### Switcheroo #1



Switch two pieces so that Black is in checkmate. Any two pieces may trade places. Colours do not matter. The resulting position must be legal. No fair placing both kings in check or putting pawns on the 1st or 8th rank.

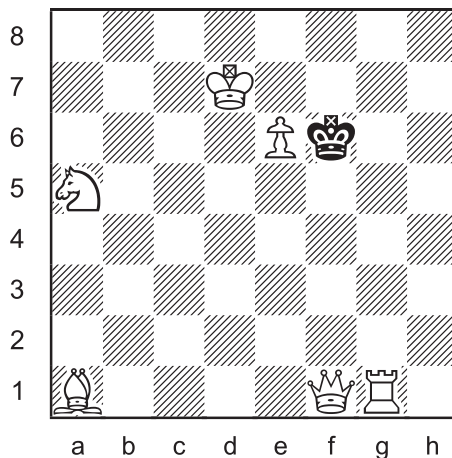


Some players may have found the first three switcheroos too easy. In an attempt to stump a few of the master solvers, here is one more.

The black king is not only in check, he is already mated. However, the position is illegal. Can you find the switch that makes a legal checkmate?

### **Switcheroo 04**

Noam Elkies 2012



Switch two pieces so that  
Black is in checkmate.

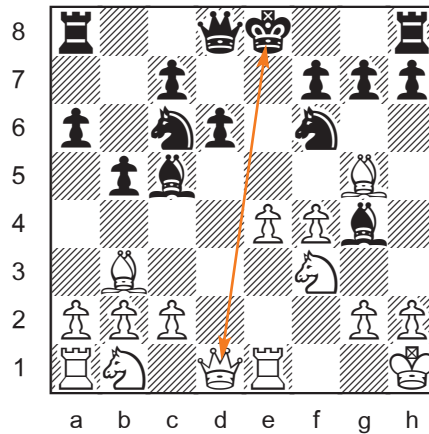
This puzzle was composed by renowned problemist Noam Elkies, professor of mathematics at Harvard University. Thanks to him and to Dan Heisman, *Novice Nook* columnist, for their interest in switcheroos.

## **SOLUTIONS**

Switcheroos 0, 1, 2, 3 by J. Coakley. Problems 0, 1, 2 are from *Winning Chess Puzzles For Kids* (2006). Problem 3 is a *ChessCafe.com* original (2012), as is number 4 by Noam Elkies.

*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.

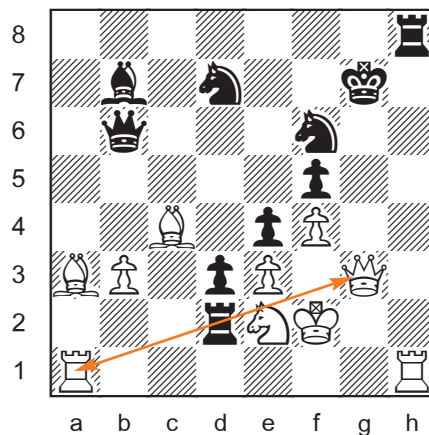
## Switcheroo 01



Qd1↔Ke8

The white queen and black king switch places. The position after the switch is very weird, but it is legal. The last move could have been Re2-e1#. It would take a lot of strange manoeuvring by the white pieces, but the black king could have reached d1 along the path d4-e3-e2-d1.

## Switcheroo 02



Ra1↔Qg3

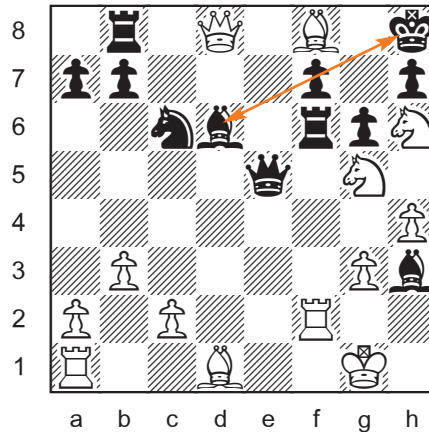
The rook takes over the checking duties while the queen pins the knight on f6.

(Ne2↔f5? is not the correct solution because it is an impossible double check.)

(f4↔Kg7? is a triple check!?)

[ *This switcheroo is a corrected version of the originally published problem which had dual solutions.* ]

### Switcheroo 03



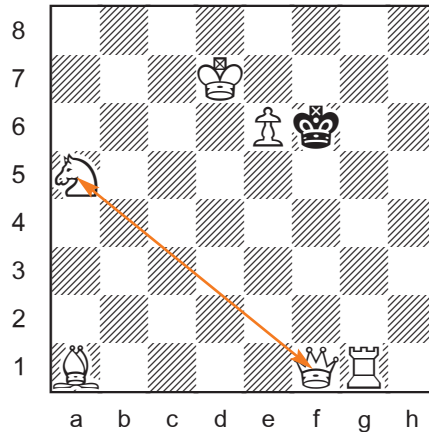
Bd6↔Kh8

The double check by the white queen and bishop is legal. The last move was  $\text{exd8=Q\#}$ .

(Rf6↔Kh8? is an impossible double check.)

(Ng5↔Kh8? is an impossible check by the pawn on h4.)

### Switcheroo 04



Na5↔Qf1

Only this switch can legalize the check by the bishop at a1.

The previous moves, in long notation, were

1.d4-d5+ discovered check

1...e7-e5

2.d5xe6# en passant

Good one, eh?

Until next time!