XYZ-Wing

From sudokuwiki.com, the puzzle solver's site

This is an extension of Y-Wing or (XY-Wing). John MacLeod defines one as *"three cells that contain only 3 different numbers between them, but which fall outside the confines of one row/column/box, with one of the cells (the 'apex' or 'hinge') being able to* see *the other two; those other two having only one number in common; and the apex having all three numbers as candidates."*

It follows therefore that one or other of the three cells must contain the common number; and hence any extraneous cell (there can only be two of them!) that "sees" all three cells of the Extended Trio cannot have that number as its true value.

It gets its name from the three numbers X, Y and Z that are required in the hinge. The outer cells in the formation will be XZ and YZ, Z being the common number.

XYZ-Wing eg 1

In this example the candidate number is **7** and R3C5 is the *Hinge*. It can see a 1/7 in R2C4 and a 5/7 in R3C8. We can reason this way: If R2C4 contains a 1 then R3C5 and R3C8 become a naked pair of 5/7 - and the naked pair rule applies. Same with R3C8. If that's a 5 then R2C4 and R3C5 become a naked pair of 1/7 each. If any of the three are 7 then 7 is still part of the formation. Any 7 visible to all three cells must be removed, in this case in R3C6.

(Note: Turn OFF Y-Wings and Unique Rectangles)

XYZ-Wing eg 1: Load Example
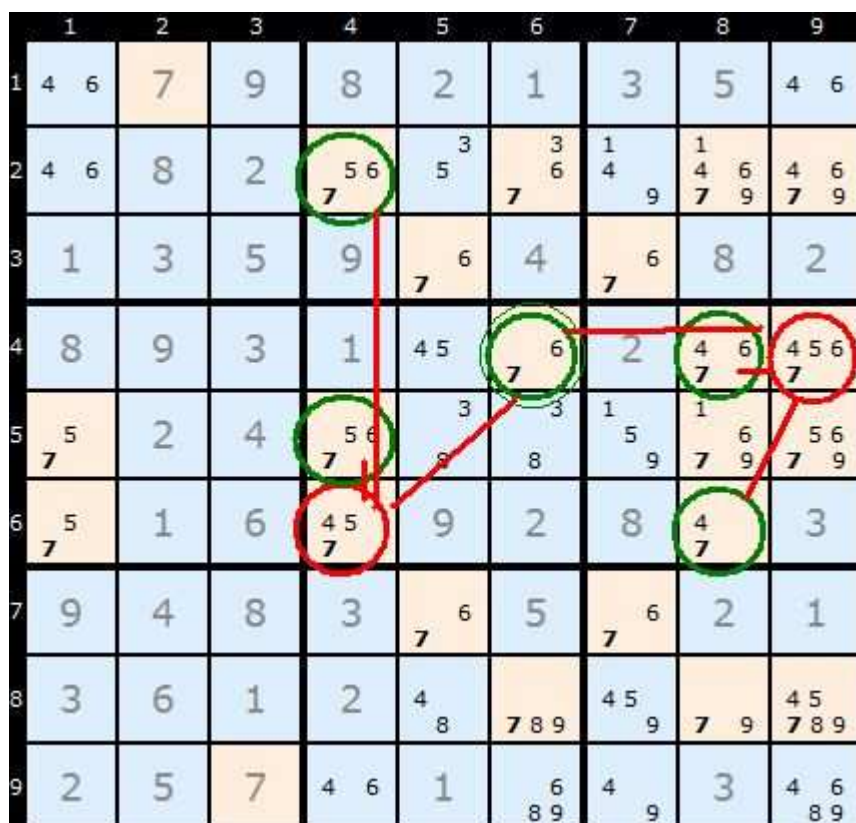
The second example shows a two XYZ-Wings with a few steps in between. R4C6 is happens to be common to both XYZ-Wings and the candidate in question, number 7, is also common to both.
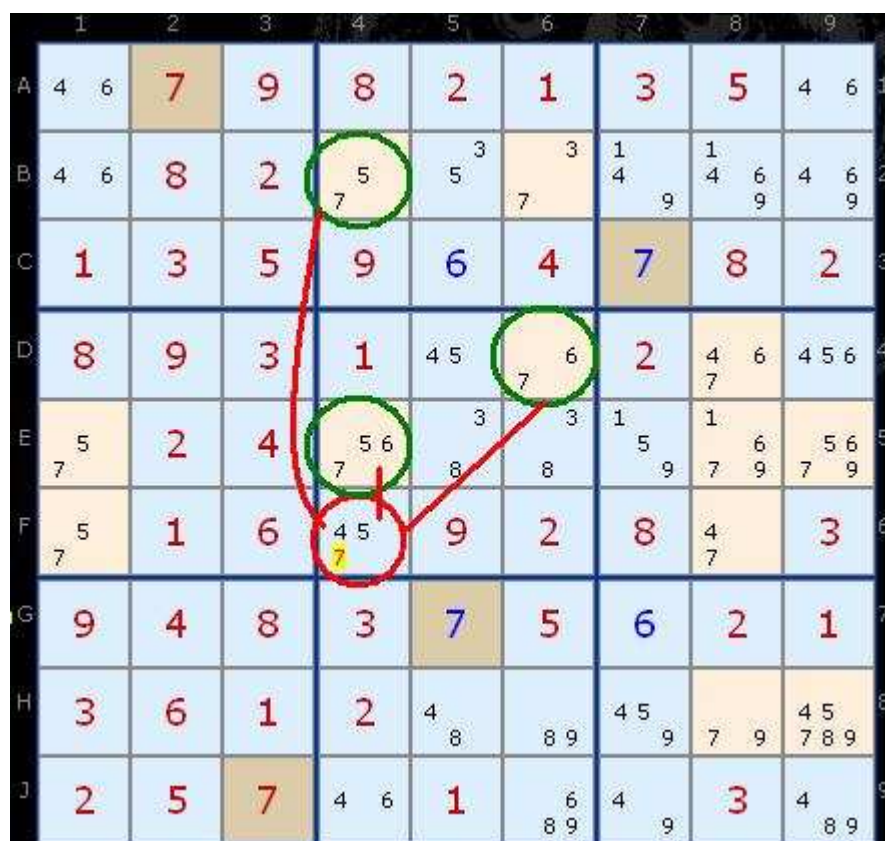
Aligned Pair Exclusion

The logic on an XYZ-Wing is completely different and lot simpler than the **Aligned Pair Exclusion** described below but the funny thing is that **XYZ-Wing** is a total sub-set of **APE**. Every **XYZ-Wing** can be solved by **APE** (but not vis versa).

(Note: Turn OFF Unique Rectangles)

XYZ-Wing eg 2: Load Example or : From the Start

XYZ-Wing, Example 3 (same puzzle, a few steps further on):

XYZ-Wing eg 3

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