BUG

From sudokuwiki.org, the puzzle solver's site

BUG stands for **Bi-Value Universal Grave**

As of July 2015 this strategy has been re-instated in the solver..

The principle behind BUG is the observation that any Sudoku where all remaining cells contain just two candidates is fatally flawed. There would have been a last remaining cell with three candidates. The odd number that couldn't be paired with another cell would have to be the solution for that cell in order to prevent the bi-value 'Graveyard'.

Update July 2015

Thanks to Peter Hopkins for re-engaging me with BUG. He has found the original discussion which goes back to November 2005. Here is the link. From my testing of large data sets I believe that every instance of BUG can be solved by an XY-Chain. Hence it is positioned just before that strategy in the solver - it is an easy solution if you can recognise the pattern. Other simpler strategies may also do the same job but not as completely as XY-Chains.

Here is an example written up by Peter

The BUG cell is **D8**.

Removing candidate 1 from the cell does not create a deadly pattern, since candidate 1 would appear in Row D, Column 8 and Box 6 just once. Removing candidate 2 results in:

- Row D containing candidates 1, 2, 3, 4 and 8 all exactly twice.
- Column 8 containing candidates 1, 2, 3 and 4 all exactly twice.
- Box 6 containing candidates 1, 2, 3 and 4 all exactly twice.
- Every other unit containing unsolved cells in which all candidates appear exactly twice.

Thus, in order to kill the BUG, **D8** must be 2.

BUG Exemplars

These puzzles require the Bi-Value Universal Grave strategy at some point.
Only the first is somewhat trivial. They make good practice puzzles.

- Exemplar 1 (score 94)
- Exemplar 2 (score 358)
- Exemplar 3 (score 444)
- Exemplar 4 (score 625)
- Exemplar 5 (score 680)
- Exemplar 6 (score 732)

Go back to Avoidable Rectangles