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## 5 Sudoku

ICL\_VAL: Value propagation or consistency (naive).

ICL\_BND: Bounds propagation or consistency.

ICL\_DOM: Domain propagation or consistency.

ICL\_DEF: The default consistency for a constraint.

After the experiment (refer to the log A01\_log.txt), we found that ICL\_VAL and ICL\_DEF have the same and the most size of search tree. ICL\_BND has less size of search tree. ICL\_DOM has the least size of tree.

|  |  |  |  |
| --- | --- | --- | --- |
| Option | Depth | Memory | Used Node |
| ICL\_VAL/ICL\_DEF | 11 | 67295 | 20 |
| ICL\_BND | 7 | 50631 | 9 |
| ICL\_DOM | 0 | 31668 | 1 |

For all the solutions, refer to A01\_log.txt.

## 7 n-Queens with 0/1 Variables

The constraints in this model:

1. All the variables should be 0 or 1.
2. All sum of all row or column should be 1.
3. For all the diagonals, the sum should be less or equal than 1.

For the branching of the value, there’s no difference because there are only two possible values 0 or 1.

Advantage:

This model has small constrains which is 2n+(n-1)\*2+(n-2)\*2 = 6n-6.

Disadvantage:

This model has more variables which is n2.