sudoku

November 2, 2018

In [4]:
```
%matplotlib inline

import matplotlib.pyplot as plot
plot.rcParams['figure.figsize'] = [8, 8]

import solver_w_search
from board_io import string_to_board, board_to_string
from board_plot import plot_board, plot_solve
```

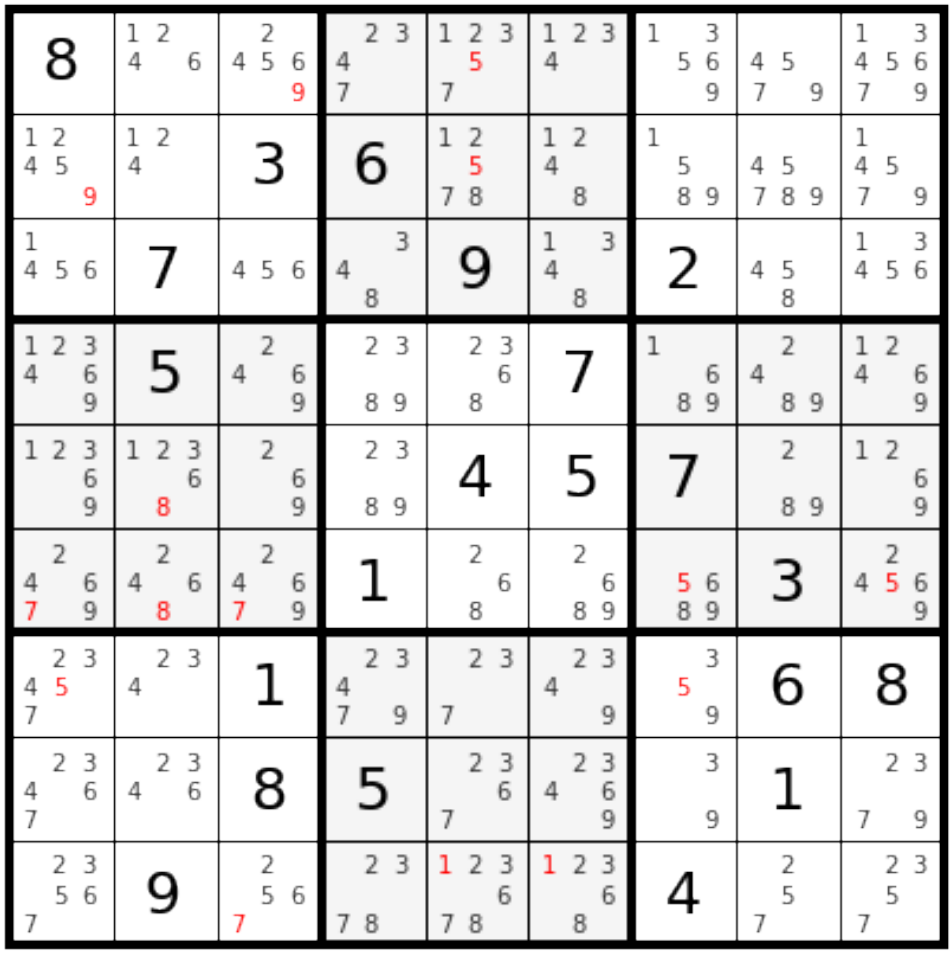
In [2]:
```
board_template = """

 8 . . | . . . | . . .
 . . 3 | 6 . . | . . .
 . 7 . | . 9 . | 2 . .
-------+-------+-------
 . 5 . | . . 7 | . . .
 . . . | . 4 5 | 7 . .
 . . . | 1 . . | . 3 .
-------+-------+-------
 . . 1 | . . . | . 6 8
 . . 8 | 5 . . | . 1 .
 . 9 . | . . . | 4 . .

"""
board = string_to_board(board_template)
print board_to_string(board)
```

```
8...36...7..9.2...5...7...457...1...3...1...68..85...1..9...4..
```

In [6]:
```
solver_w_search.eliminate_plus(board)
plot_board(board, True, True)
```

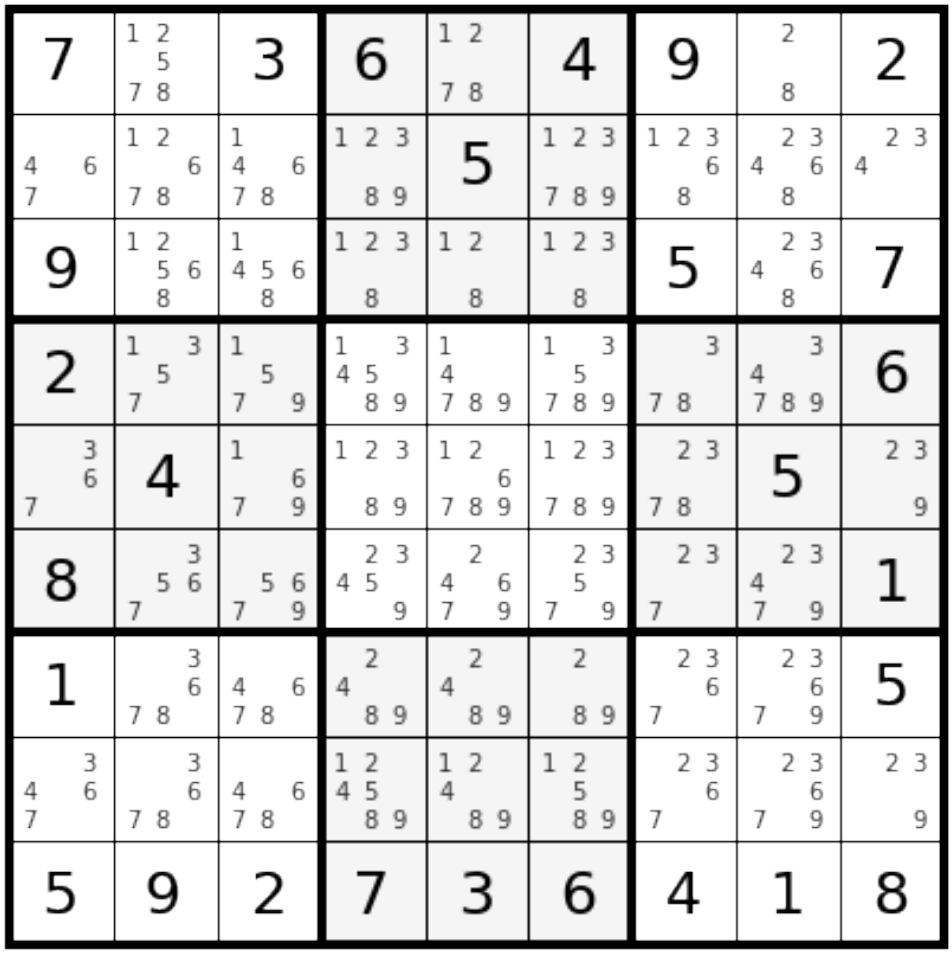


In [7]:
```
solver_w_search.solve = plot_solve

board = string_to_board('..36.49.....5....9.......72.......6.4.....5.8.......11.......5
board = solver_w_search.solve(board)
print board_to_string(board)
```

```
753614982628957134914382567275193846341268759869475321136849275487521693592736418
```

		3	6		4	9		
				5				
9								7
2								6
	4						5	
8								1
1								5
	9	2	7	3	6	4	1	


7 | 1 2 5 7 8 | 3 | 6 | 1 2 7 8 | 4 | 9 | 2 8 | 2
4 6 7 | 1 2 6 7 8 | 1 4 6 7 8 | 1 2 3 8 9 | 5 | 1 2 3 7 8 9 | 1 2 3 6 8 | 2 3 4 6 8 | 2 3 4
9 | 1 2 5 6 8 | 1 4 5 6 8 | 1 2 3 8 | 1 2 8 | 1 2 3 8 | 5 | 2 3 4 6 8 | 7
2 | 1 3 5 7 | 1 5 7 9 | 1 3 4 5 8 9 | 1 4 7 8 9 | 1 3 5 7 8 9 | 3 7 8 | 3 4 7 8 9 | 6
3 6 7 | 4 | 1 6 7 9 | 1 2 3 8 9 | 1 2 6 7 8 9 | 1 2 3 7 8 9 | 2 3 7 8 | 5 | 2 3 9
8 | 3 5 6 7 | 5 6 7 9 | 2 3 4 5 9 | 2 4 6 7 9 | 2 3 5 7 9 | 2 3 7 | 2 3 4 7 9 | 1
1 | 3 6 7 8 | 4 6 7 8 | 2 4 8 9 | 2 4 8 9 | 2 8 9 | 2 3 6 7 | 2 3 6 7 9 | 5
3 4 6 7 | 3 6 7 8 | 4 6 7 8 | 1 2 4 5 8 9 | 1 2 4 8 9 | 1 2 5 8 9 | 2 3 6 7 | 2 3 6 7 9 | 2 3 9
5 | 9 | 2 | 7 | 3 | 6 | 4 | 1 | 8

7	5	3	6	1	4	9	8	2
6	2 6 8	6 8	2 3 8 9	5	7	1	3 6	4
9	1 2 6 8	4	2 3 8	2 8	2 3 8	5	3 6	7
2	1 3 7	1 5 7 9	1 3 4 5 8 9	4 7 8 9	1 3 5 8 9	3 7 8	3 4 7 9	6
3 6	4	1 6 7 9	1 2 3 8 9	2 6 7 8 9	1 2 3 8 9	2 3 7 8	5	3 9
8	3 6 7	5 6 7 9	2 3 4 5 9	2 4 6 7 9	2 3 5 9	2 3 7	2 3 4 7 9	1
1	3 6 7 8	4 6 7 8	2 4 8 9	2 4 8 9	2 8 9	2 3 6 7	2 3 6 7 9	5
4	3 6 7 8	4 6 7 8	1 2 4 5 8 9	2 4 8 9	1 2 5 8 9	2 3 6 7	2 3 6 7 9	3 9
5	9	2	7	3	6	4	1	8

7	5	3	6	1	4	9	8	2
6	2	8	9	5	7	1	3	4
9	1	4	2 3 8	2 8	2 3 8	5	6	7
2	7	5 9	1 3 5 8	 8 9	1 3 5 8 9	3 8	4	6
3	4	1	2 8	2 6 7 8	2 8	2 7 8	5	9
8	6	5 9	2 3 4 5	2 4 7 9	2 3 5 9	2 3 7	2 7	1
1	3	6 7	2 4 8	2 4 8 9	2 8 9	2 6 7	2 7 9	5
4	8	6 7	1 2 5	2 9	1 2 5 9	2 6 7	2 7 9	3
5	9	2	7	3	6	4	1	8

7	5	3	6	1	4	9	8	2
6	2	8	9	5	7	1	3	4
9	1	4	2 3 8	2 8	2 3 8	5	6	7
2	7	5 9	1 3 5 8	 8 9	1 3 5 8 9	3 8	4	6
3	4	1	2 8	6	2 8	7	5	9
8	6	5 9	4	7	3 5 9	3	2	1
1	3	6 7	2 4 8	4	2 8 9	2 6 7	 7 9	5
4	8	6 7	1 2 5	2 9	1 2 5 9	2 6 7	 7 9	3
5	9	2	7	3	6	4	1	8

7	5	3	6	1	4	9	8	2
6	2	8	9	5	7	1	3	4
9	1	4	2 3	8	2 3	5	6	7
2	7	5	1 3	9	3	8	4	6
3	4	1	2	6	2 8	7	5	9
8	6	9	4	7	5	3	2	1
1	3	6	8	4	9	2	7	5
4	8	7	5	2	1	6	9	3
5	9	2	7	3	6	4	1	8

7	5	3	6	1	4	9	8	2
6	2	8	9	5	7	1	3	4
9	1	4	3	8	2	5	6	7
2	7	5	1	9	3	8	4	6
3	4	1	2	6	8	7	5	9
8	6	9	4	7	5	3	2	1
1	3	6	8	4	9	2	7	5
4	8	7	5	2	1	6	9	3
5	9	2	7	3	6	4	1	8