

# Experiments

Shidoku (4x4 sudoku board)  
non-forward checking:0.019s  
forward checking:0.014s

shidoku(No solution found by inference)  
non-forward checking:0.026s  
forward checking:0.013s

Sudoku (9x9 board)  
non-forward checking: Non-Terminating  
forward checking:0.405s

Small map  
non-forward checking:0.010s  
forward checking:0.010s

Small map (No solution direct contradiction)  
non-forward checking:0.009s  
forward checking:0.009s

Small map (No solution found by inference)  
non-forward checking:0.010s  
forward checking:0.009s

As you can see by the sample csp's that we provided forward checking is almost always faster than non-forward checking. The only instance in which that was not the case was on very small csp's in which there were no solution and a conclusion had to be deduced by the solver itself. The example in which there was the program concluded no solution by a direct contradiction (Where values were given multiple distinct values in the csp or assignments that contradict) the no solution conclusion was found by our parser and the runtime was therefore not determined by forward checking. Another observation was that when forward checking is run for the first time the runtime was significantly longer, which could indicate that forward checking is accessing the hard drive much more than non-forward checking, and more strongly affected by caching. However, subsequent runs on the same csp would give a consistent and short runtime.