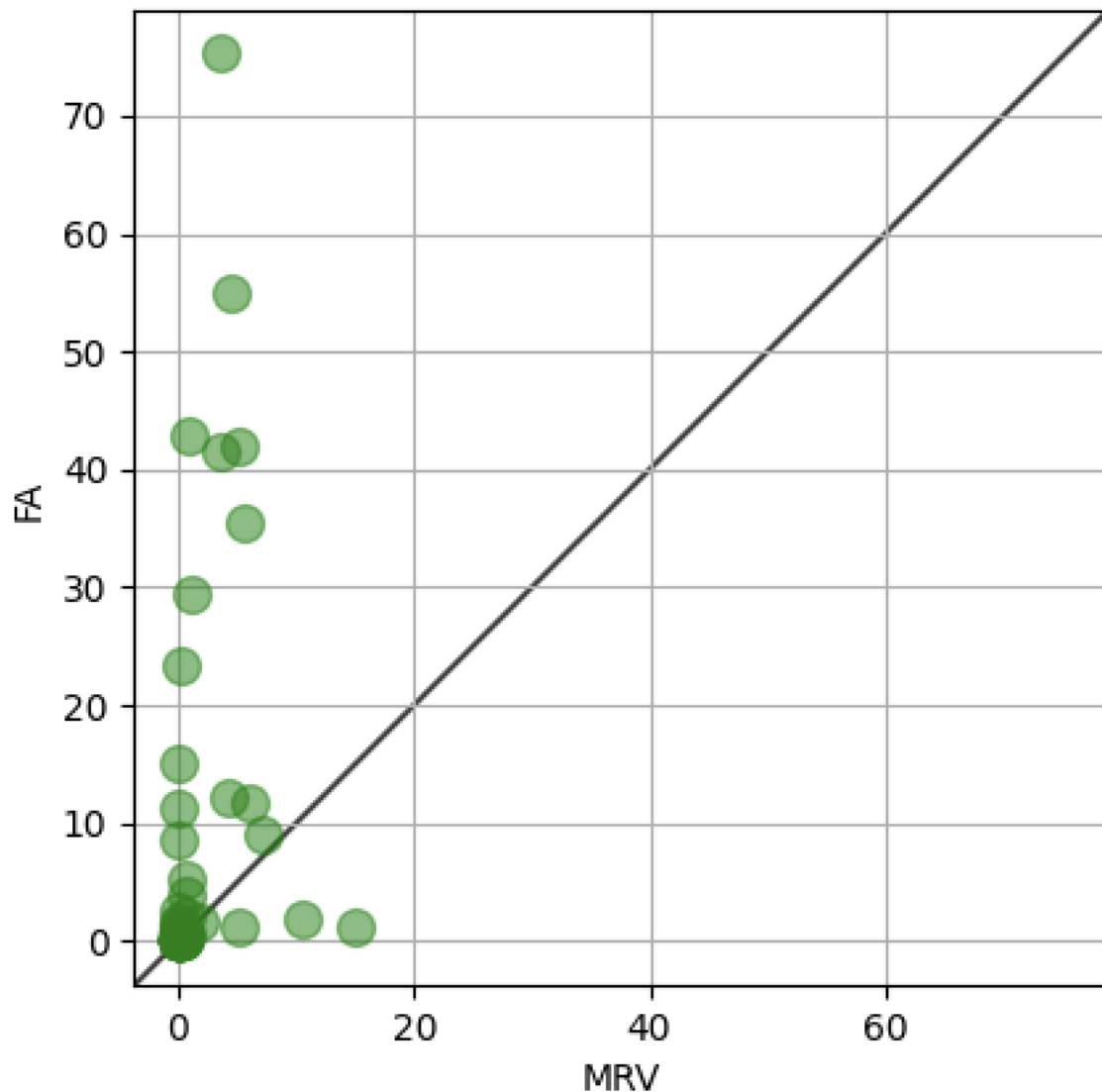


Constraint Satisfaction – MRV vs FA



The diagonal line represents the breakpoint between which heuristic had better performance. Data points appearing above the line indicate that the Minimum Remaining Value (MRV) outperformed the First Available heuristic, while point below the line indicate the FA heuristic achieved better performance than MRV. This then shows that the MRV heuristic typically outperforms FA. The reason for this is MRV selects the most constrained variable first which effectively reduces the search spaces and focuses on the most difficult portions of the puzzle which results in earlier conflict detection and less backtracking. The majority of puzzles have comparable runtimes because simpler puzzles with a higher density of initial clues do not benefit nearly as much from the narrowed focus of MRV. However, for some simple puzzles FA actually outperforms MRV because of the increased overhead required to run the MRV heuristic compared to FA which can rapidly trial and error and find a solution quicker.