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Artificial Intelligence

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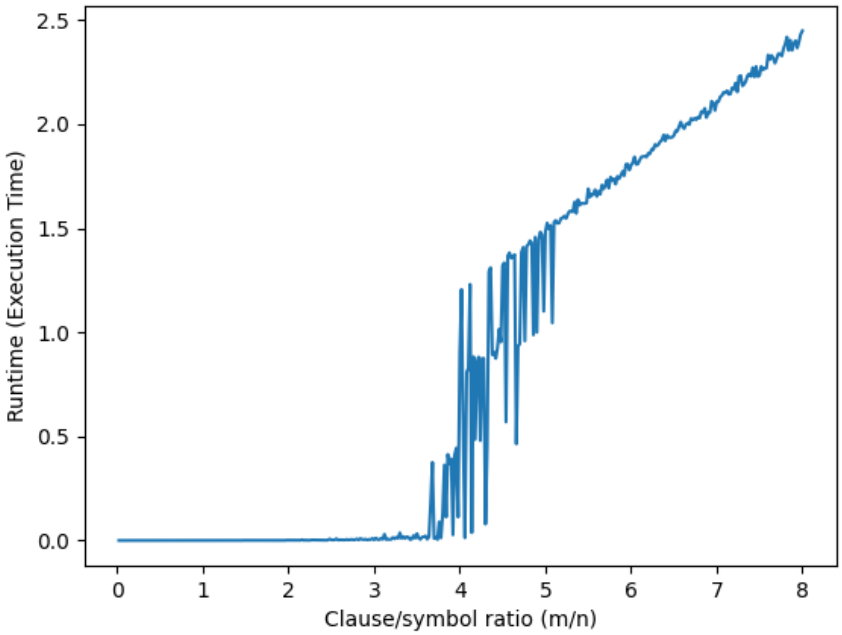
Project 5 Extra Credit Report

Approach

Similar to how I implemented dpll, my approach for WalkSAT was to follow the references provided in the textbook and then adapt them to work for my needs. In this case, the only changes that needed to be implemented were changing the functions to except numerical symbols and changing the evaluation of the clauses to be considering only AND and OR statements. Fortunately, I had already written a clause evaluation method in my dpll implementation, so I was able to reuse that, and converting to numerical symbols is a simple process. This implementation finds the correct answer for all test cases (as indicated in each tests text file) except for "testcase-aim-50-1_6-yes1-4.txt", which my dpll implementation also struggled with.

Graph



The graph above was generated using the same additional test method discussed in my main report. The only difference being that the y-axis is measured in execution time instead of recursive calls because the WalkSAT module is not a recursive function. For this reason, the graph looks very different than the previous graph and I do not believe it shows anything particularly useful. It simply shows that with a ratio larger than 4, time will increase linearly.