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Program 2 Analysis

This analysis discusses results found using an implementation of Edsger Dijkstra’s *Dining Philosopher’s Problem*. According to instruction, 10 tests of 5, 50, and 500 philosophers were run. At the end of each of 30 total tests I conducted I recorded the mean times for the various three states (thinking, hungry, eating), as well as the total number of starved philosophers. After completing my testing, I noticed trends which are best demonstrated using appropriate graphs:

The most noticable of trends is the tendency in which philosophers are starved. Judging by how the data is spread, it seems as if ~80% of philosophers starve in my implementation. This is unsurprising given that each philosopher has a 50% chance of starving in each completed run() cycle due to the guidelines for philosopher starvation . Another interesting trend is that in almost every case, a philosopher spends the most time being hungry, then thinking, and the least amount of time eating. This makes sense because a philosopher can go through a whole cycle and do nothing but wait and be hungry. Every philosopher thinks at least once, but only under strict conditions may a philosopher get to eat at any point in its life. The most important pattern to realize, however, is that the number of philosophers used doesn’t make the elapsed time per philosopher any longer. This is because each philosopher is only dependent on the adjacent forks and has no connection to any other philosopher at the table. In fact, the higher number of philosophers just provides a larger sample size, and as a result, should provide a more linear distribution for the various states (thinking, hungry, eating).