

The difference in algorithms are that with semaphores problem by using ability of blocking two forks in the same time the process can block other two processes at once which so omit the deadlock problem that one process could grab one fork and could grab second one. We initialize semaphores to one so that first process can pass but second one which will try to grab forks will be blocked until the first process will not unblock the forks.

In seventh problem we can't block two processes in one moment so we have to make the communications between threads. We initialize 5 mutexes (representing philosophers trying to eat) to zero so that if they can't eat they freezes until the philosopher next to them will not let them to eat. It is why we set each five mutexs to zero so the first one will be let it in and the rest next to him will wait until the eating one will not put mutex up. We also put mutex up and the end of eating so we will not be freezed after finishing eating.