IN1011 Lecture 5 Exercise

The following is the *dining philosophers problem*.

k philosophers are sat at a round table to ponder life's mysteries and have a meal together. Each philosopher has their bowl of noodles placed in front of them. Between each adjacent pair of philosophers is a single chopstick. A philosopher can eat only when they have 2 chopsticks. Each philosopher will attempt to pick up one of the chopsticks closest to them if it is available, and will only attempt to pick up the other chopstick closest to them if they picked up the first chopstick.

1. using semaphores, illustrate what concurrency problem can occur here;
2. using semaphores, give a solution (or 2) to the dining philosophers problem that does not suffer from the concurrency problem above.