Objectives:

From time to time, a philosopher gets hungry and tries to pick up the two chopsticks that are closest to her (the chopsticks that are between her and her left and right neighbours).

1. A philosopher may pick up only one chopstick at a time.
2. Obviously, she cannot pick up a chopstick that is already in the hand of a neighbour.
3. When a hungry philosopher has both her chopsticks at the same time, she eats without releasing her chopsticks.
4. When she is finished eating, she puts down both of her chopsticks and starts thinking again.

It is a simple representation of the need to allocate several resources among several processes in a deadlock- and starvation free manner.

1. One simple solution is to represent each chopstick by a semaphore.
2. A philosopher tries to grab the chopstick by executing a wait operation on that semaphore; she releases her chopsticks by executing the signal operation on the appropriate semaphores.