

## Analyzing locks

B

A

a) [husbandHungry, wifeHungry, spoonOwner]

[true, true, B]  $\longrightarrow$  [true, true, A]



The current implementation provides mutual exclusion, there is no state in which the spoon is used by both at the same time. Instead we have a livelock, both threads hand the lock to each other without making any real progress

b) The problem is the livelock. If both are hungry, one must eat first. Otherwise there cannot be any progress. For example, if both are hungry, we just continue and eat.

[true, true, B]  $\longrightarrow$  [false, true, B]



[false, true, A]



[false, false, A]