

(d)

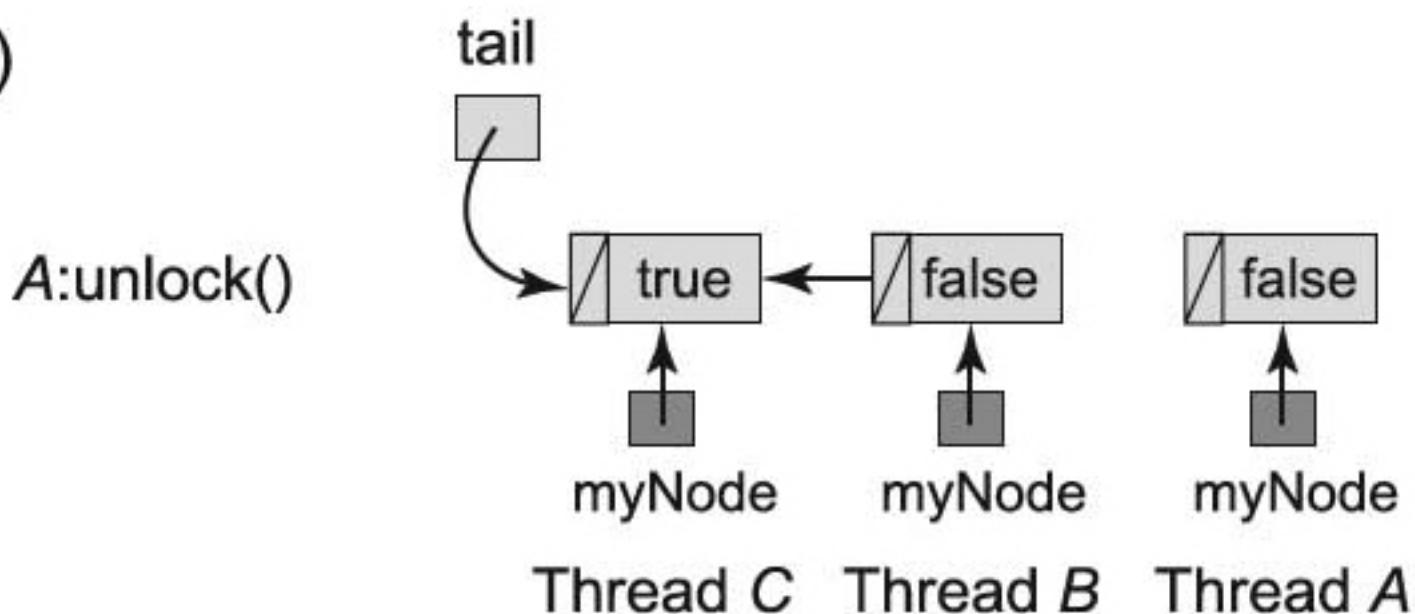


FIGURE 7.12D A lock acquisition and release in an MCSLock. (a) Initially the tail is *null*. (b) To acquire the lock, thread *A* places its own QNode at the tail of the list and since it has no predecessor, it enters the critical section. (c) Thread *B* enqueues its own QNode at the tail of the list and modifies its predecessor's QNode to refer back to its own. Thread *B* then spins on its locked field waiting until *A*, its predecessor, sets this field from *true* to *false*. Thread *C* repeats this sequence. (d) To release the lock, *A* follows its next field to its successor *B* and sets *B*'s locked field to *false*. It can now reuse its QNode.