

QLOCK

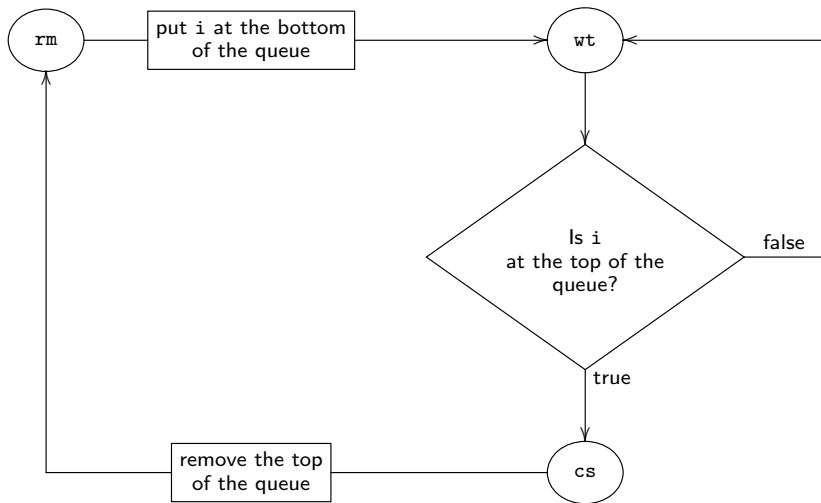
Mutual exclusion protocol

Assume that many agents (or processes) are competing for a common resource, but that at any given moment of time only one agent can use the resource, that is, the agents exclude or prevent each other from accessing the resource.

A protocol that can guarantee this kind of mutual-exclusion property is called a mutual exclusion protocol.

Short description

- Initially, each process i is in the remainder section (rm) .
- After process i puts its name at the bottom of a waiting queue, i is in the waiting section (wt).
- Process i will be in the critical section (cs) and have access to the information when it will be the first in the queue.
- When it leaves the source process i will be removed from the queue entering again in the remainder section.



Properties to prove

- ① Only one agent can be in the critical section at a given moment.
- ② Given any state S there exists a reachable state R from S which is indistinguishable from the initial state by means of observers, that is, all agents are in the remainder section and the waiting queue is empty.