

Synchronization

Note Title

1/22/2009

- mutual exclusion (locks, cond. var.)

- semaphores

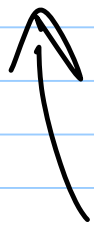
Dijkstra's PV semaphore counting sem...

shared variable that counts arb. high
but dec. only to zero

V - incr. semaphore `sem_post()`

P - attempt to decrement semaphore
if already 0, thread blocks
until another thread invokes V

`sem_wait()`



initials of ops in Dutch

producer/consumer example

how does cons know whether queue is empty?

initially $qnum = 0$

producer

enqueue
sem_post($qnum$)

consumer

sem_wait($qnum$)
dequeue

add second semaphore that encodes # of free slots
in queue

- Barrier sync

n threads call barrier

none threads proceed until all reach barrier

