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To make sure our mutual exclusion implementation is correct, we tentatively proposed to include a hashmap that map the process id to a Boolean value. The Boolean value indicates whether P\_i is under critical section or not.

On leaving the critical section, the process will send all deferred REPLY messages and set its Boolean to false in map.

Condition for critical section entry is P\_i has received REPLY messages from all processes. When entering the CS, set the Boolean to true for P\_i.

To make sure the implementation is correct, we can add the condition check that when we set the Boolean value to true, the hashmap.values() doesn’t contain any true value.

The complexity for this check is O(n) where n is the number of processes in the system.