

Concurrent Algorithms 2009: Exercise 3

October 12, 2009

1 Problem 1

In the class, you have seen many algorithms that implement a register with given properties from registers with weaker properties. Can you implement an atomic MWMR M -valued register from (any number of) safe SRSW bits using only those algorithms?

2 Problem 2

In the class, you have seen a proof of the following theorem: there is no algorithm that implements an atomic SWSR register using a *bounded* regular SWSR register if the readers cannot write. Show where the proof breaks if:

1. The regular SWSR register can hold infinitely many values (i.e., is unbounded),
2. Readers can write, or
3. You want to implement a regular SWSR register from bounded safe SWSR registers.