

Exercise 4

1 From Single-writer to Multi-writer Atomic Registers

In the shared-memory model, implement a MRMW atomic register using MRSW atomic registers.

- a) Describe an algorithm that uses the following idea: For every writer P_i , there is a separate base-register x_i , containing a timestamp/value pair (τ, x) . P_i writes to x_i . Which timestamp does it use? To read, it will be necessary to read all base-registers.
- b) Prove that the algorithm implements an MRMW atomic register.