



Principles of Distributed Computing

Exercise 5

1 Replicated Read-Write Register

Algorithm 7.2 works only for a single reader and a single writer.

- a) What is the problem with two concurrent writers (assuming both start with the same value τ)? Can it be fixed by assuming they use properly synchronized access to a shared τ ?
- b) Show a problem that may occur with two concurrent readers.
(Hint: consider a parallel write operation)
- c) Devise an algorithm that prevents the problem of $m > 1$ concurrent readers.
(Hint: introduce $O(m^2)$ additional replicated single-reader single-writer objects.)