

Homework 5

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Problem 1. Suppose every method call of `CoarseList` is linearized at the instant the lock is acquired. Explain why we cannot use the abstraction map described in class (also in Section 9.3 of the textbook). Give an alternative abstraction map that works for these linearization points.

Problem 2. Explain why the fine-grained locking algorithm is not subject to deadlock.

Problem 3. Is the optimistic list implementation still correct if we switch the order in which `add()` locks the `pred` and `curr` entries?

Problem 4. Would the lazy algorithm still work if we marked a node as removed simply by setting its next field to *null*? Why or why not? What about the lock-free algorithm?