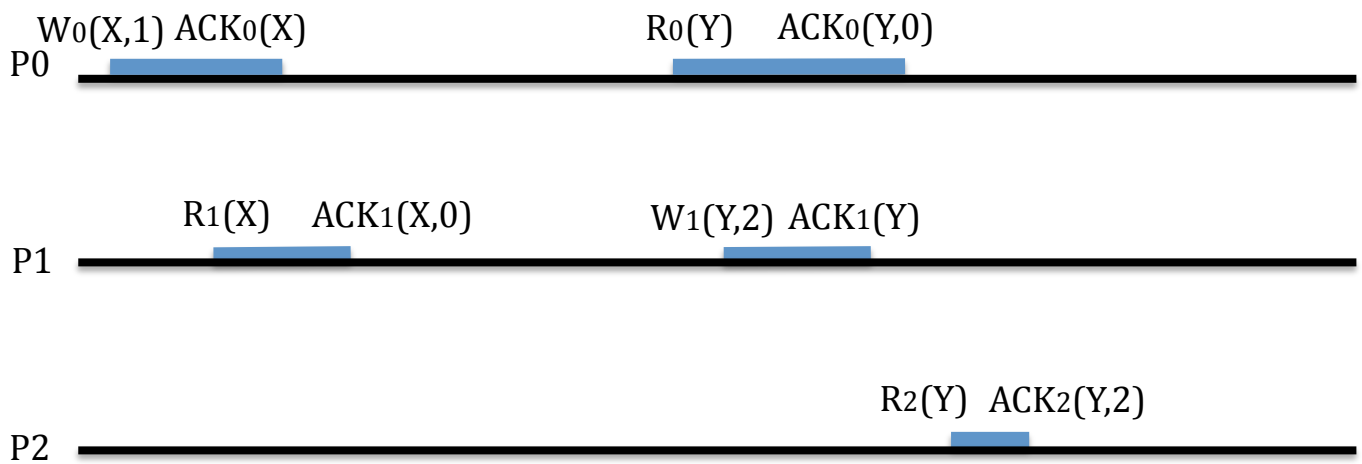


CS 425/ECE 428 Distributed Systems
Homework 3
Due by 7 p.m. on February 18, 2016
Submit electronically via Compass2g.

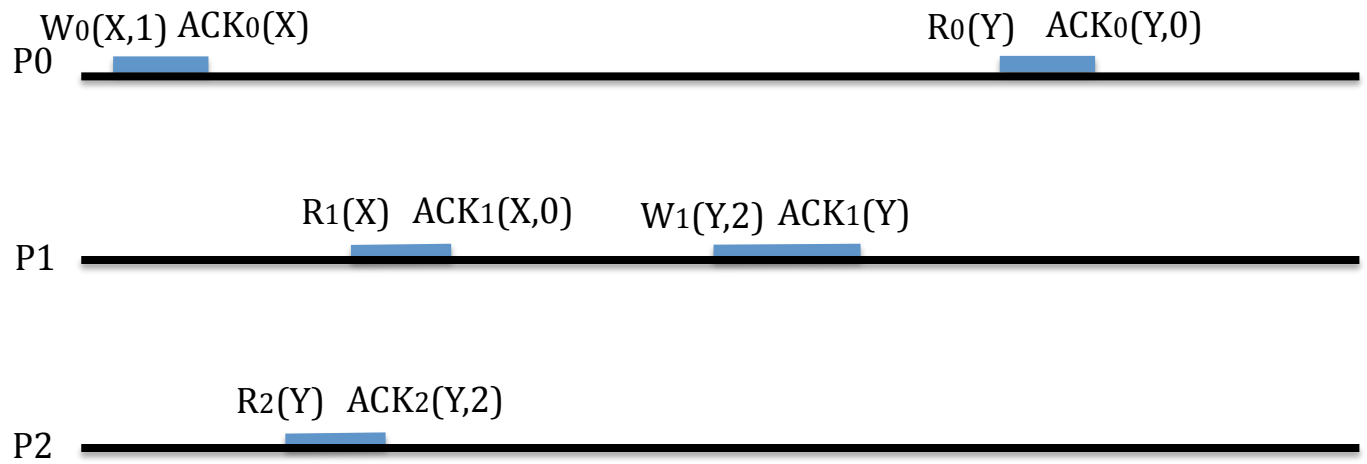
1 In each part of this question, if you answer NO, then delete a minimum number of operations to ensure that the modified execution will satisfy the specified property - circle the operations that you want to delete.

Assume that all variables are initialized to 0.

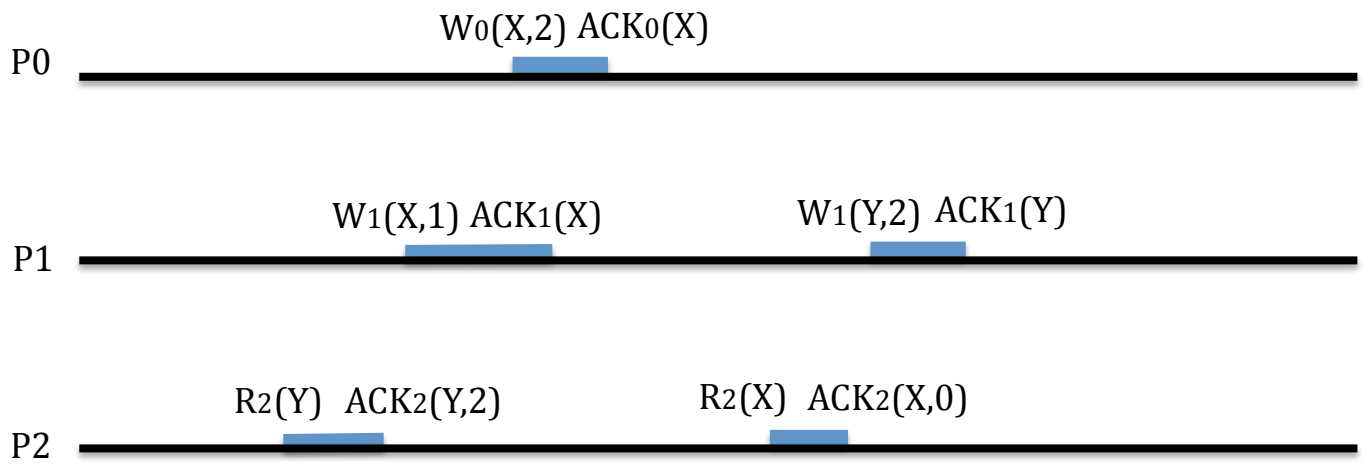
(a) Is the execution below linearizable?



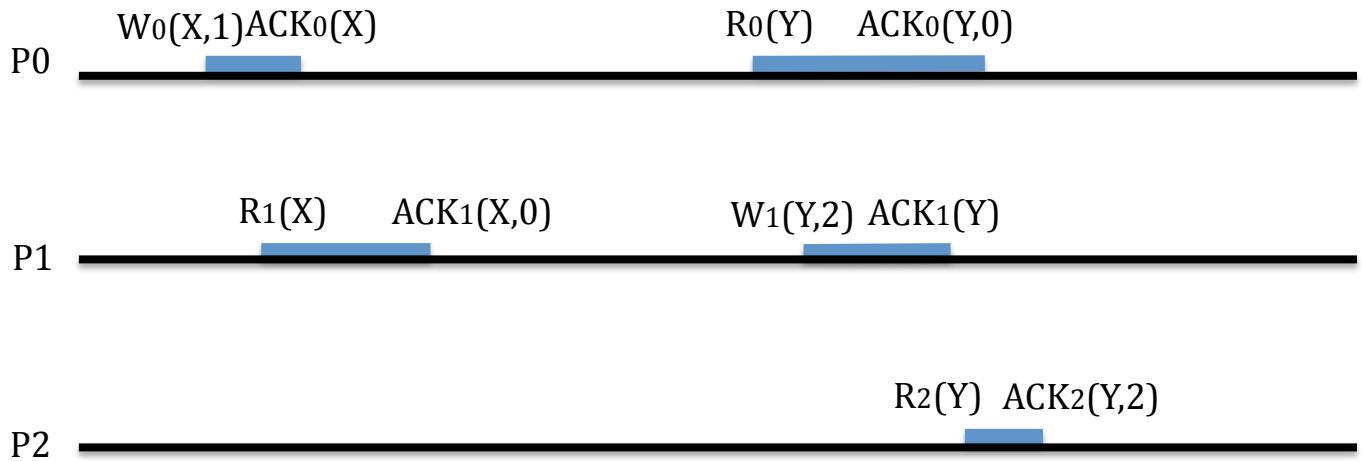
(b) Is the execution below sequentially consistent?



(c) Is the execution below sequentially consistent?



2 Given below is a linearizable execution, please draw linearization points (as triangles) for each of the operations.



3 Please state True or False:

(a) Algorithm 2 discussed in the class notes on shared memory guarantees linearizability.

(b) Algorithm 3 discussed in the class notes on shared memory guarantees sequential consistency.

(c) Algorithm 1 discussed in the class notes on shared memory does not guarantee sequential consistency.

(d) Every linearizable execution is sequentially consistent.

(e) Every sequentially consistent execution is linearizable.