

COMP9315 14s2 ... Q8

(a) not conflict serializable

- conflict between $T1:R(X) \rightarrow T2:W(X)$
- conflict between $T2:W(X) \rightarrow T1:W(X)$
- precedence graph thus has a cycle

(b) not view serializable

- supplied schedule
 - first reader is T1
 - T reads initial version of X
 - last writer is T1
- is it view equivalent to T1 then T2?
 - first reader is T1
 - T1 reads initial version of X
 - last writer is T2
 - not view equivalent
- is it view equivalent to T2 then T1?
 - first reader is T1
 - T1 reads version of X written by T2
 - last writer is T1

(c) $t0: X(T1) = 1, \quad X(T2) = 1, \quad RTS(X) = 0, \quad WTS(X) = 0$
 $t1: X(T1) = 1, \quad X(T2) = 1, \quad RTS(X) = t1, \quad WTS(X) = ?$
 $t2: X(T1) = 10, \quad X(T2) = 5, \quad RTS(X) = t1, \quad WTS(X) = t2$
 $t3: X(T1) = 10, \quad X(T2) = 5, \quad RTS(X) = t1, \quad WTS(X) = t3$

(d) $X = 5$

T2 writes X at t2 giving value 5

T1 writes X at t3 giving value 10

T2 commits successfully

T1 attempts to commit, but sees that X has been modified and aborts

(the answer was given away in part (e) of the question)

(e) There will be two versions of X with different timestamps
Which version should be used is ambiguous for later TxS