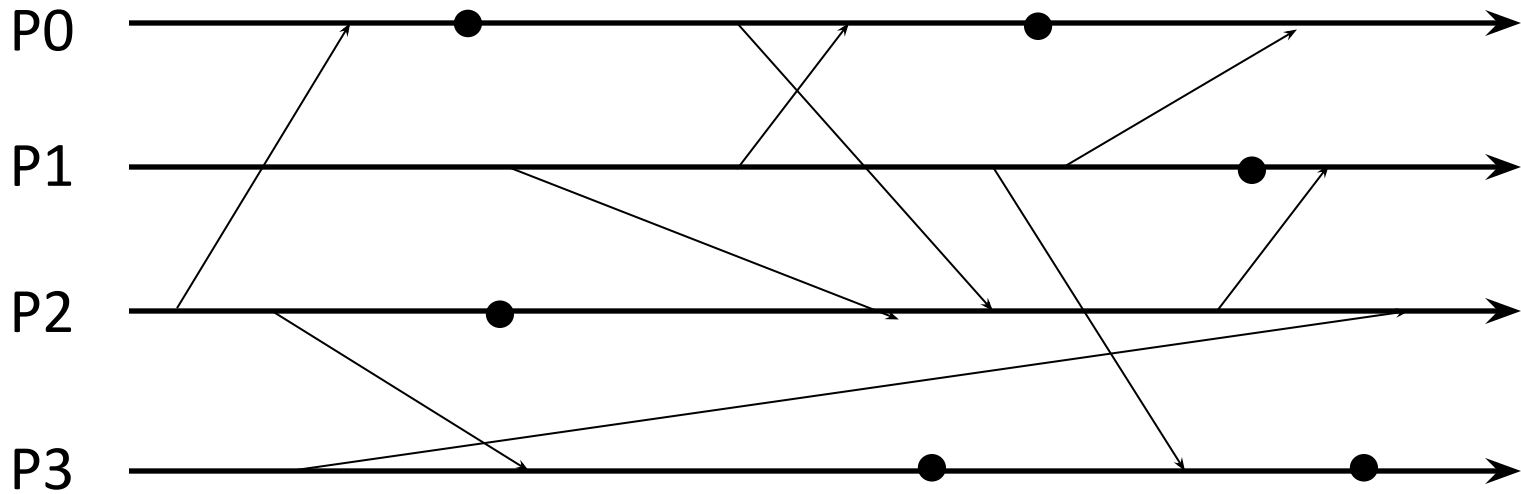
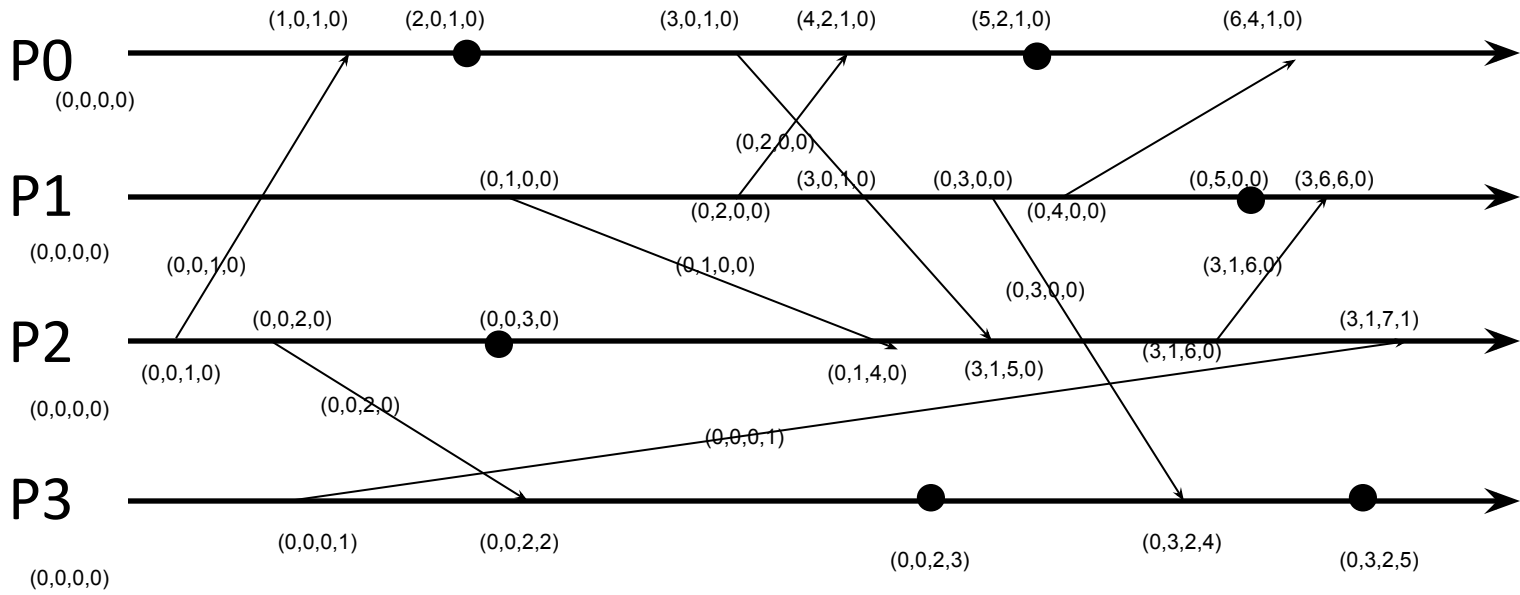


I. Mark one pair of events that are concurrent with each other.



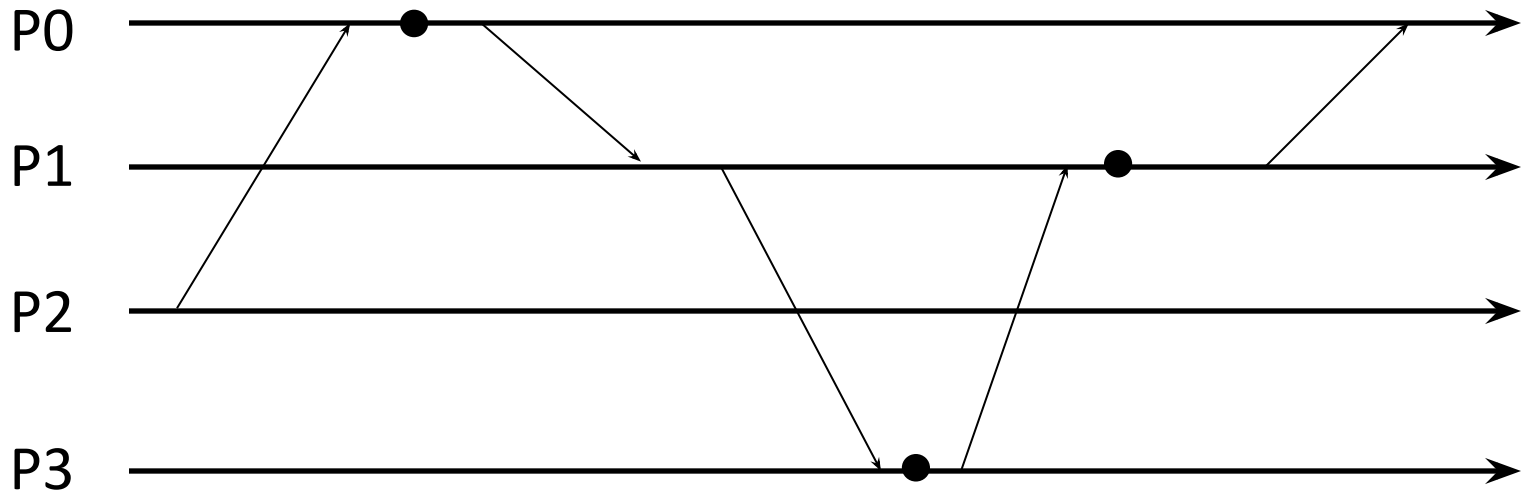
I. Mark one pair of events that are concurrent with each other.



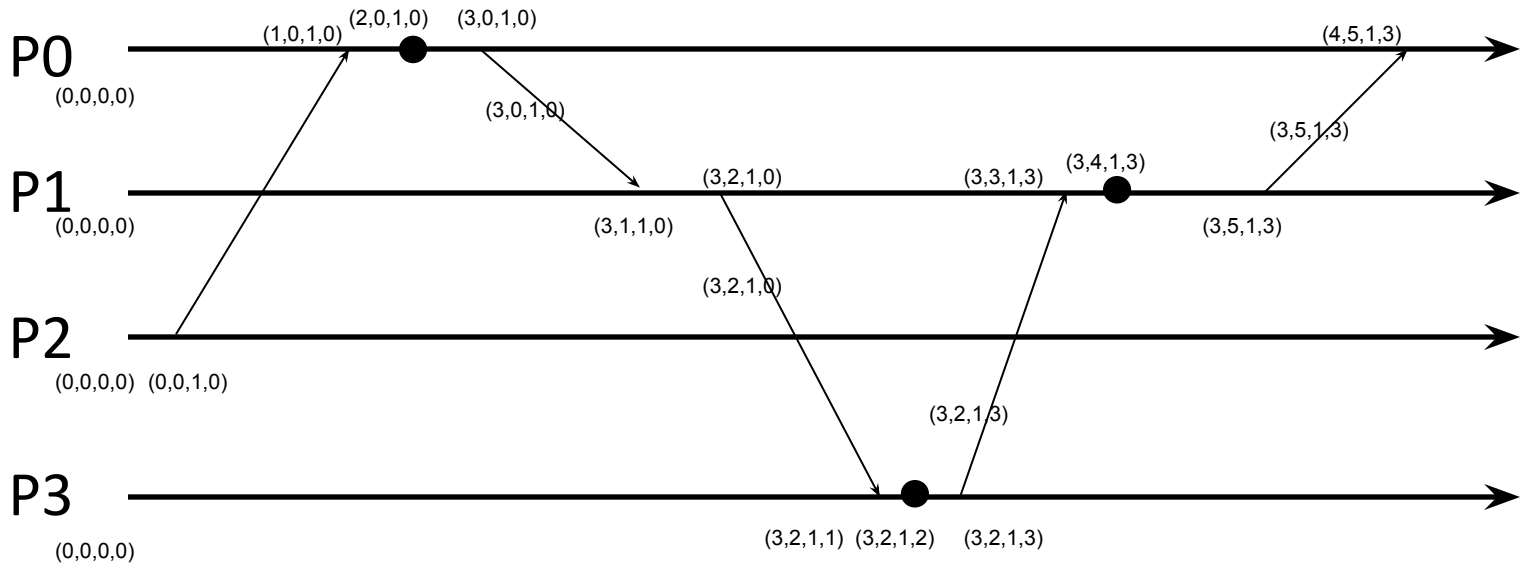
The following events are concurrent:

- (0,0,0,1) ||| (1,0,1,0)
- (0,0,2,2) ||| (2,0,1,0)
- (0,0,2,3) ||| (3,1,5,0)

II. Mark one pair of events that are concurrent with each other.

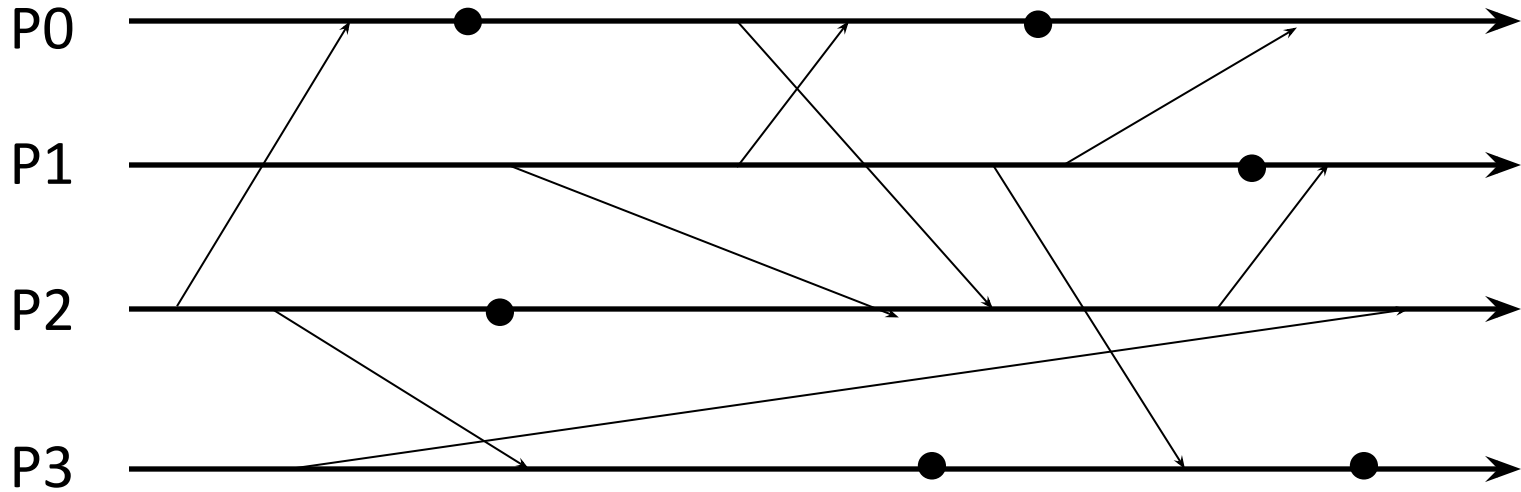


II. Mark one pair of events that are concurrent with each other.

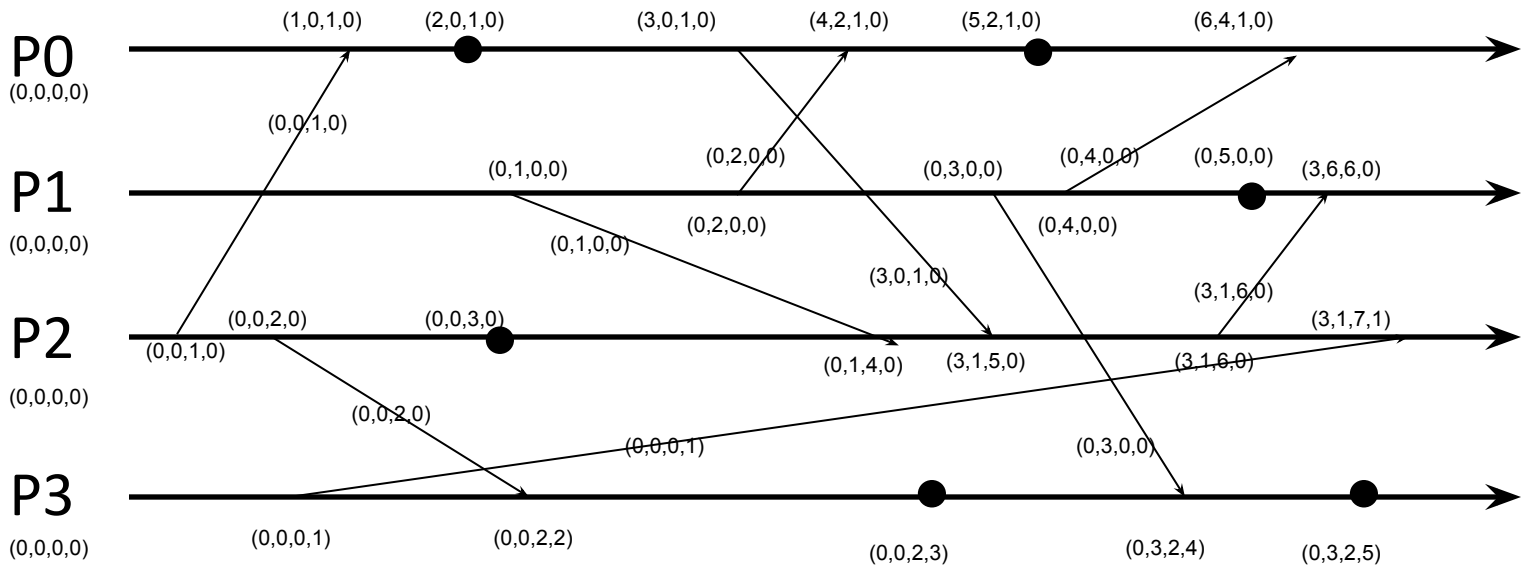


- All events are causally related to each other i.e. there are no concurrent events. For any two event VT1 and VT2; $VT1 \leq VT2$

iii. Identify an event at process P2 that happens before an event at P1.

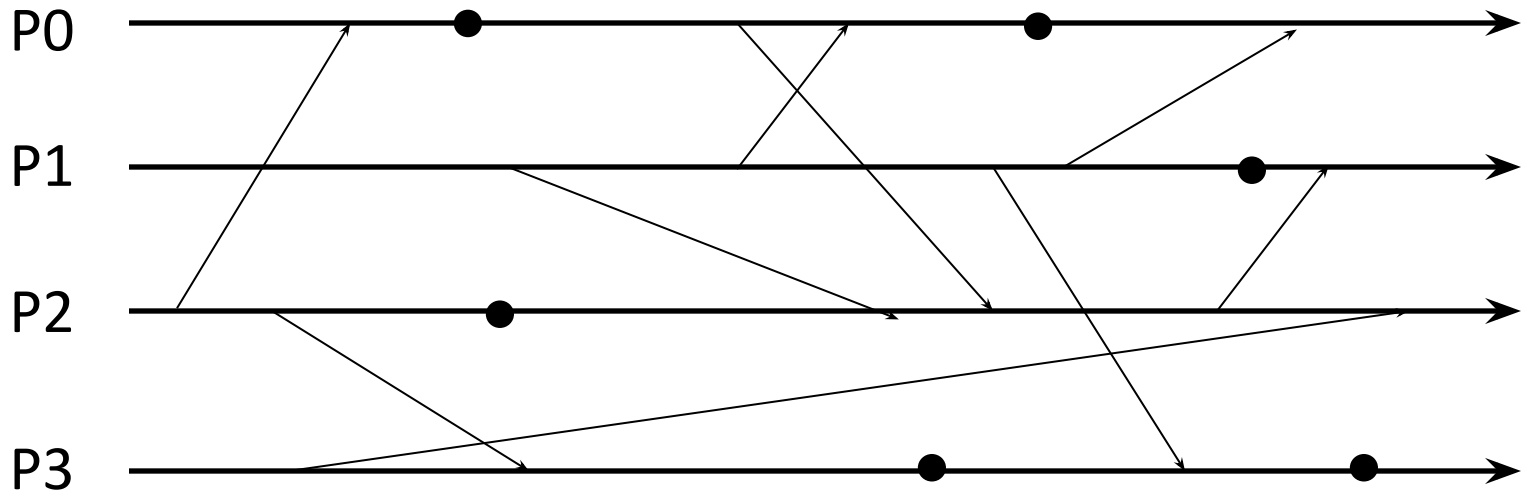


iii. Identify an event at process P2 that happens before an event at P1.

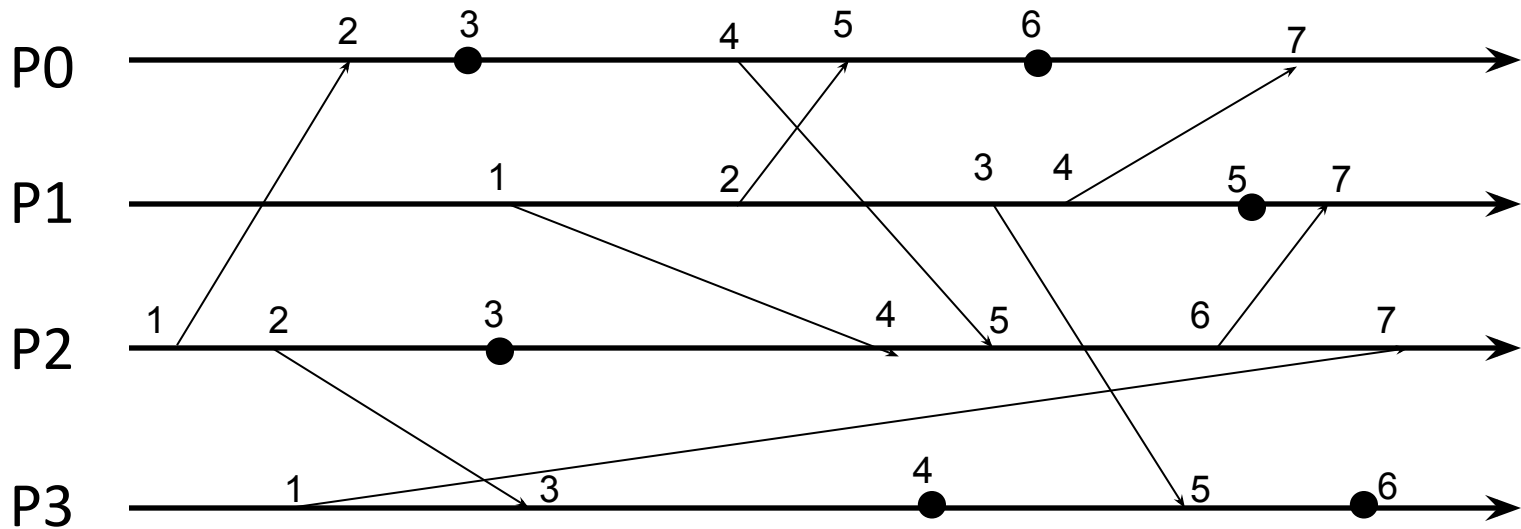


- (0,0,1,0) → (3,6,6,0)
- (3,1,6,0) → (3,6,6,0)
- (3,1,5,0) → (3,6,6,0)

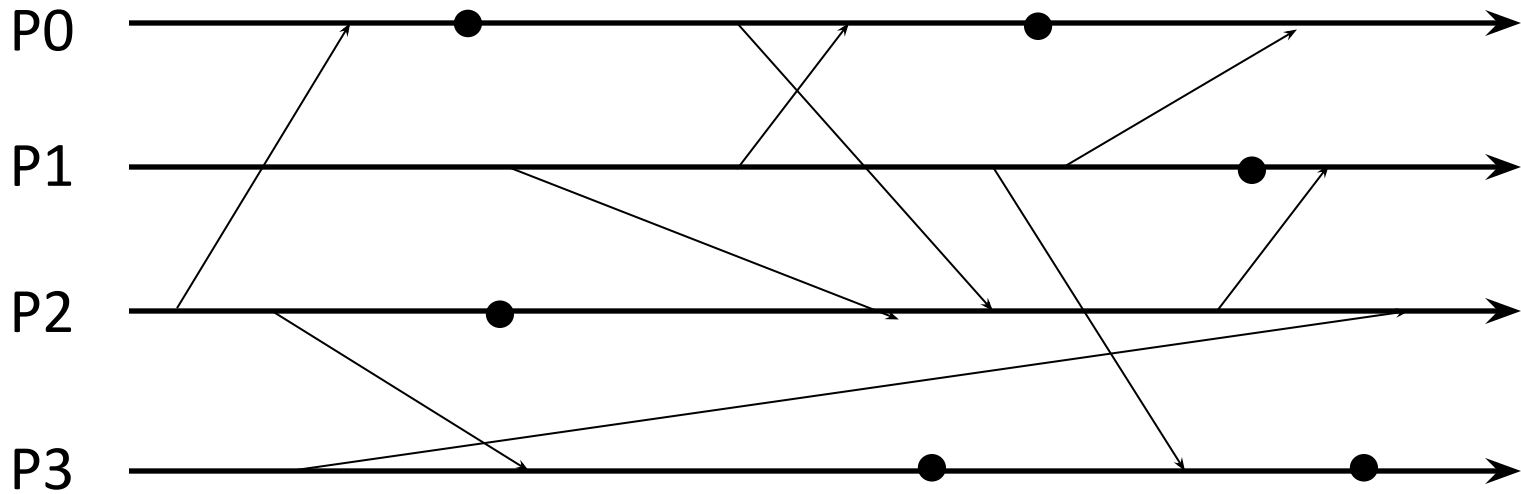
IV. Mark all Lamport timestamps on this figure for all events.
All processes start with zero timestamps.



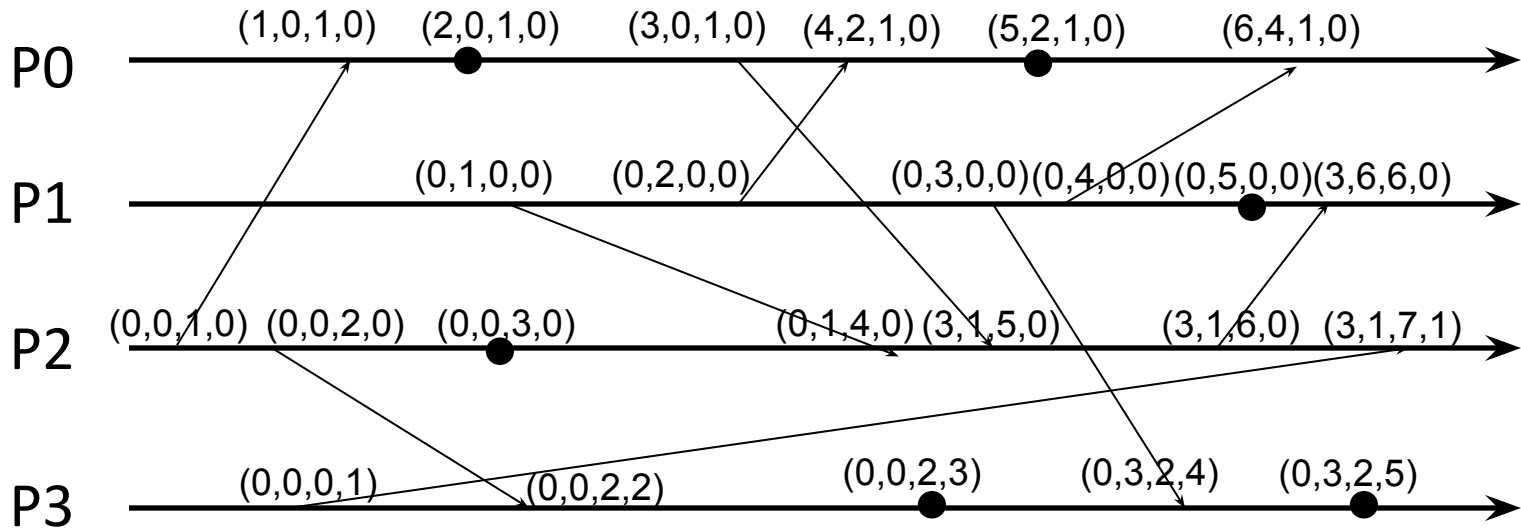
IV. Mark all Lamport timestamps on this figure for all events.
All processes start with zero timestamps.



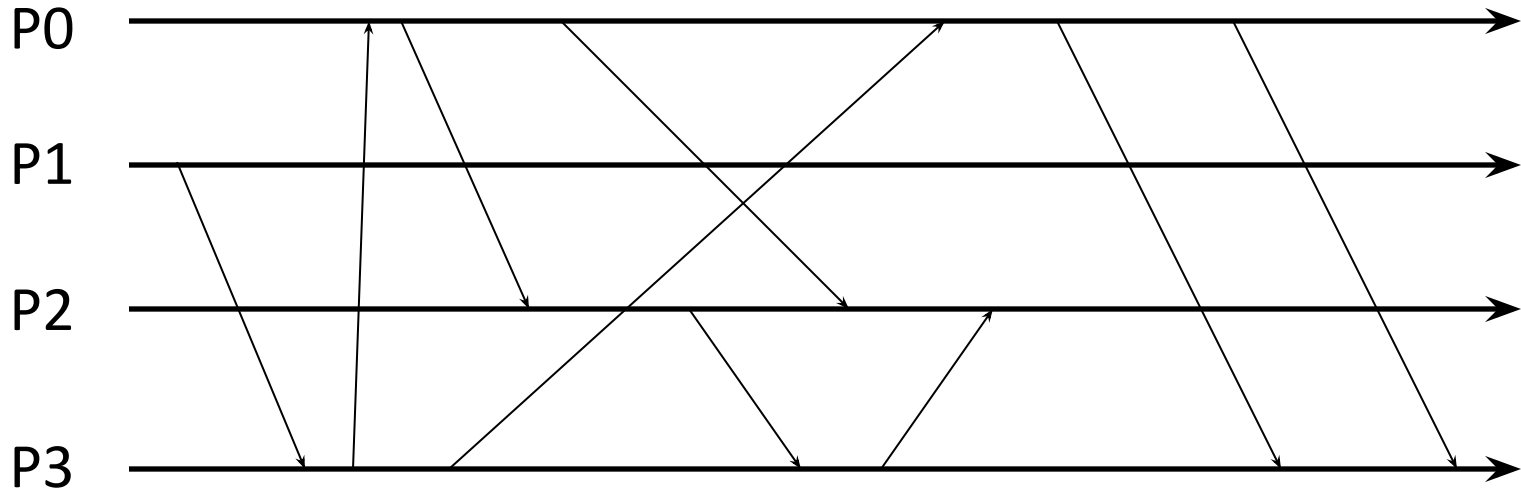
V. Mark all vector timestamps on this figure for all events.
All processes start with zero timestamps.



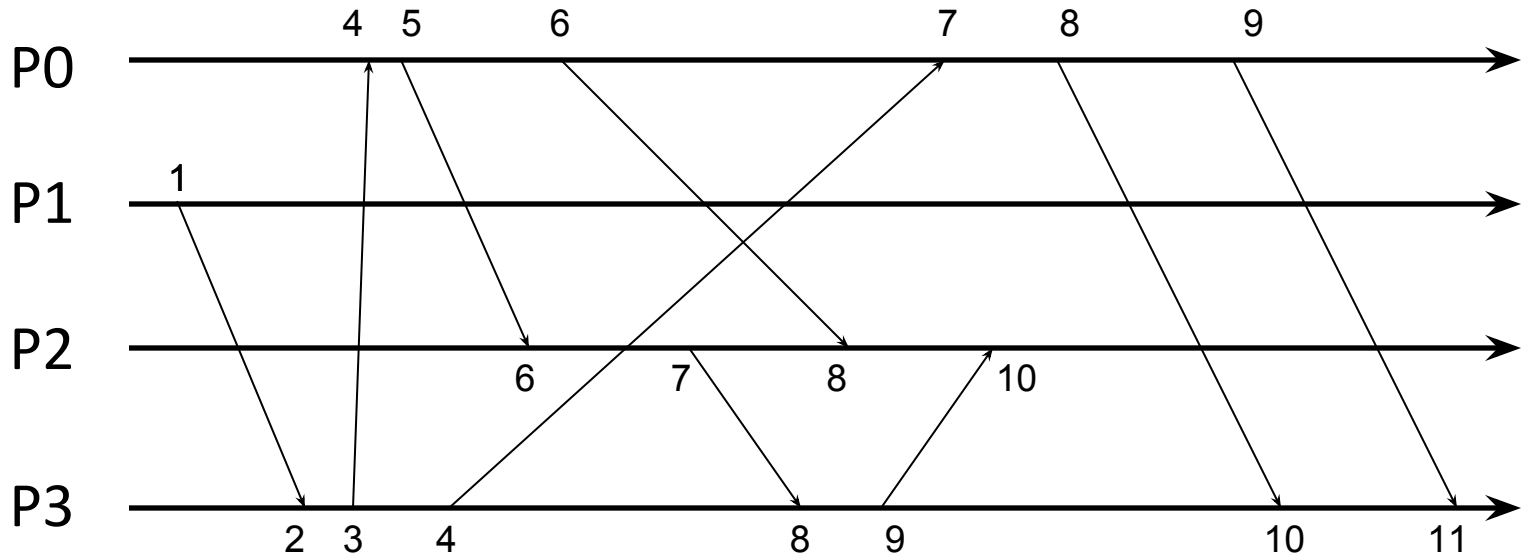
V. Mark all vector timestamps on this figure for all events.
 All processes start with zero timestamps.



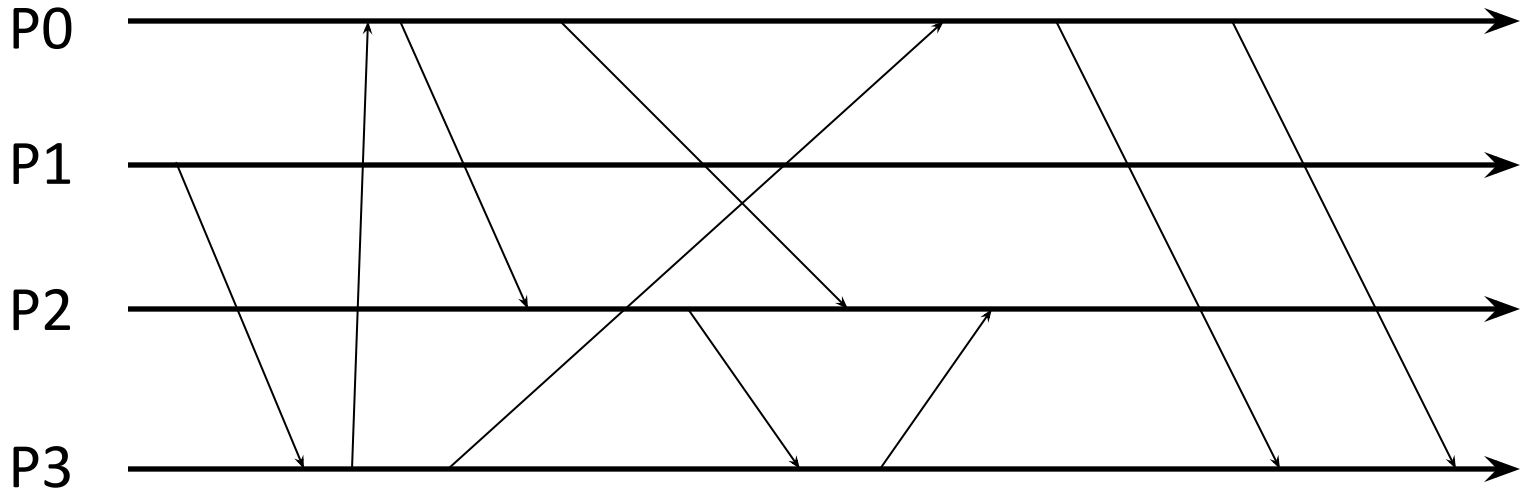
**VI. Mark all Lamport timestamps on this figure for all events.
All processes start with zero timestamps.**



**VI. Mark all Lamport timestamps on this figure for all events.
All processes start with zero timestamps.**



VII. Mark all vector timestamps on this figure for all events.
All processes start with zero timestamps.



VII. Mark all vector timestamps on this figure for all events.
All processes start with zero timestamps.

