

Lecture 11

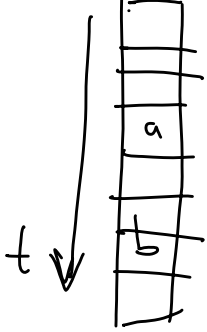
Note Title

9/28/2004

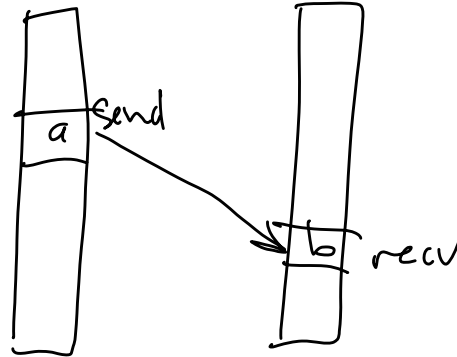
Logical locks

$a \rightarrow b$

instr



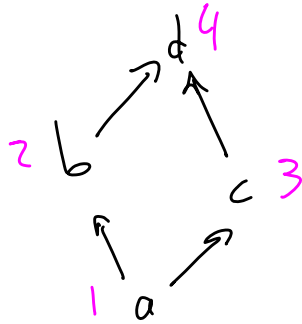
a happened before b

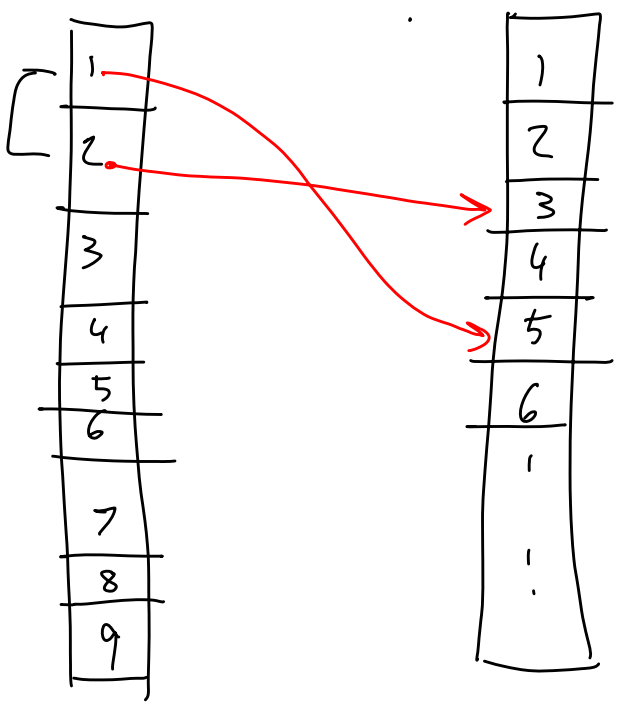
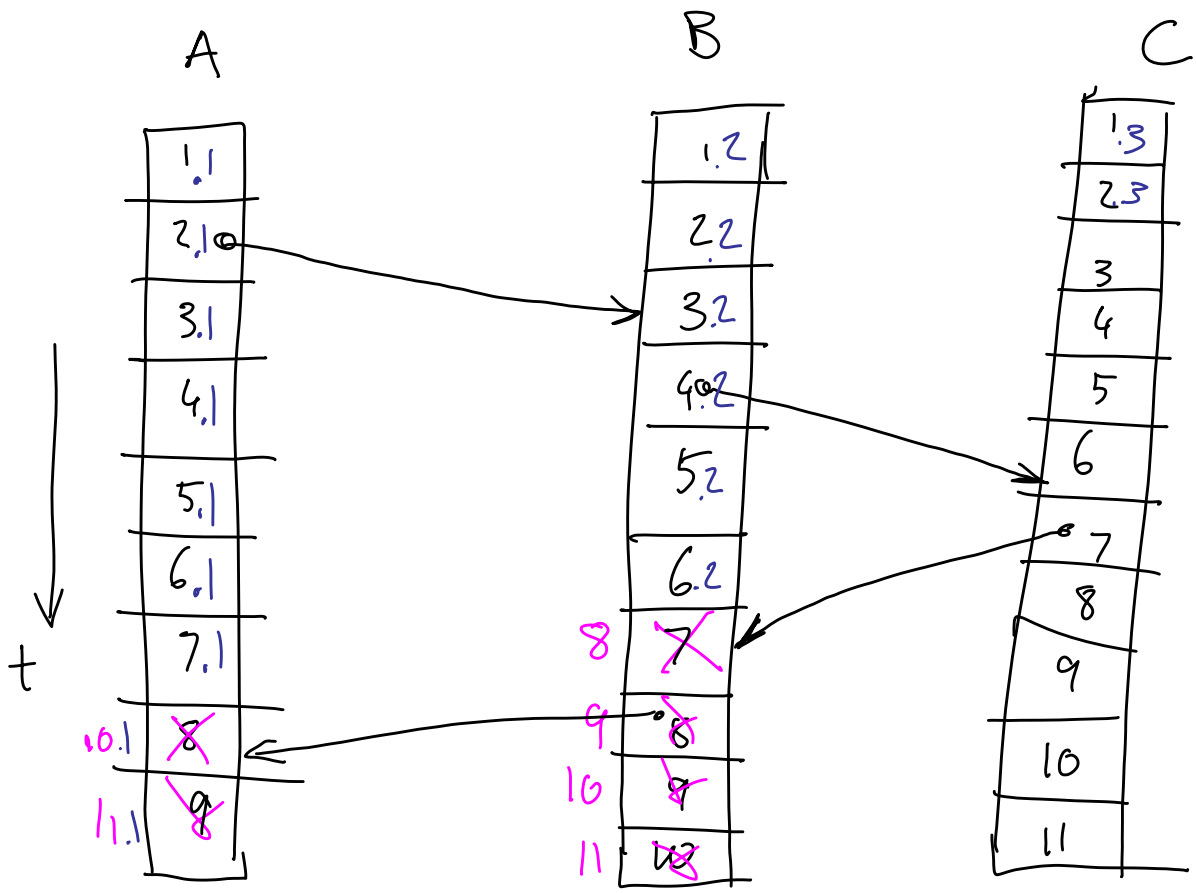


$\forall a$ assign $C(a)$

If $a \rightarrow b$ then $C(a) < C(b)$

Optionally, $\forall a, b (a \neq b) \quad C(a) \neq C(b)$

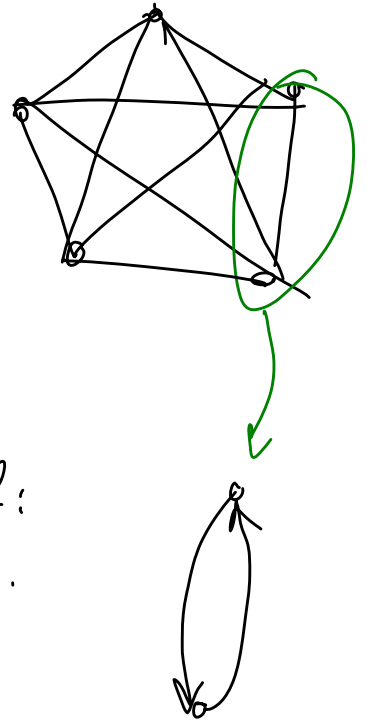
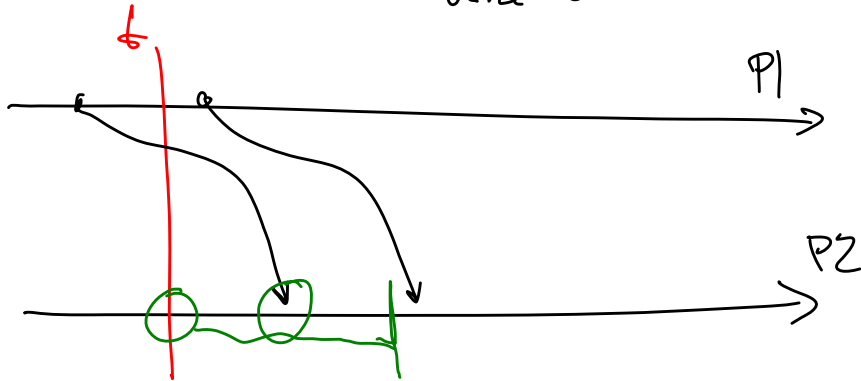




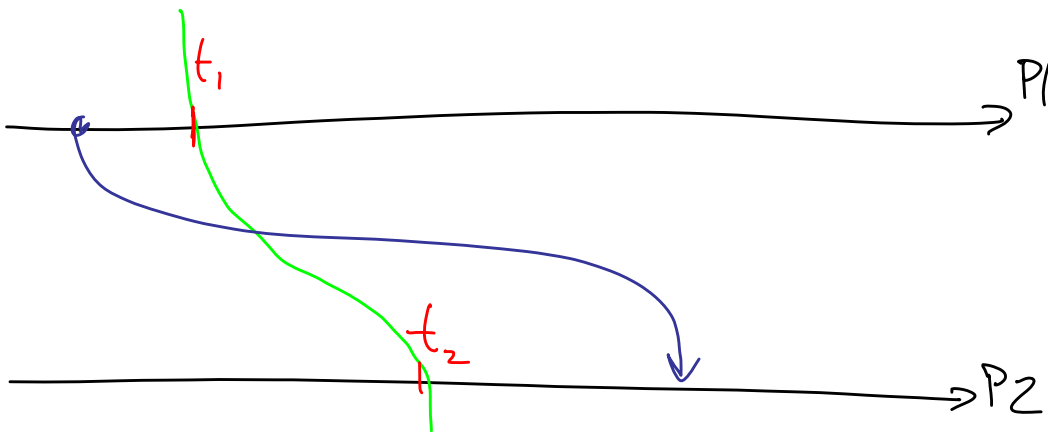
Global state

Ideal: $t = \text{snapshot time} \Rightarrow \text{take local snapshot}$
 $= \text{record ops happened } \leq t$

$\& \text{ record messages sent } \leq \text{time } t \text{ but not received } \leq \text{time } t$



W/in each channel:
 ordered delivery.



$\forall i, j$ in channel $P_i \rightarrow P_j$ record all messages sent before t_i
 and received after t_j

Snapshot started by P_1 : sends a message to all processes (including itself).

