

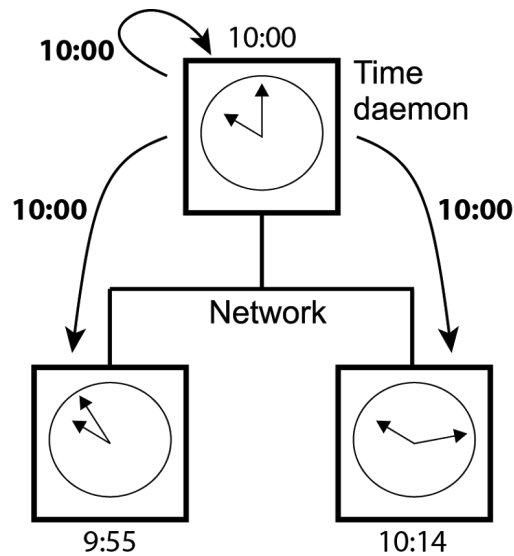
Discussion Section 5

Distributed Systems

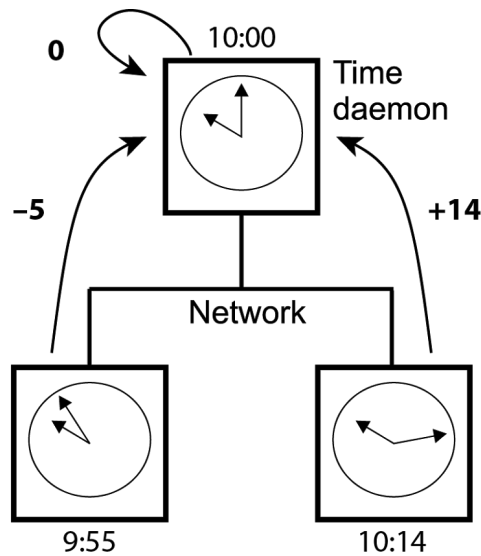
SPRING 2014

Assignment 3 (Question 4)

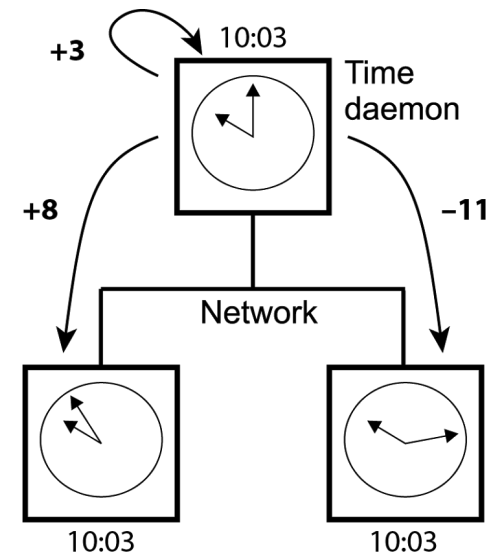
Just make sure to take the average of the 3 computers!



(a)



(b)

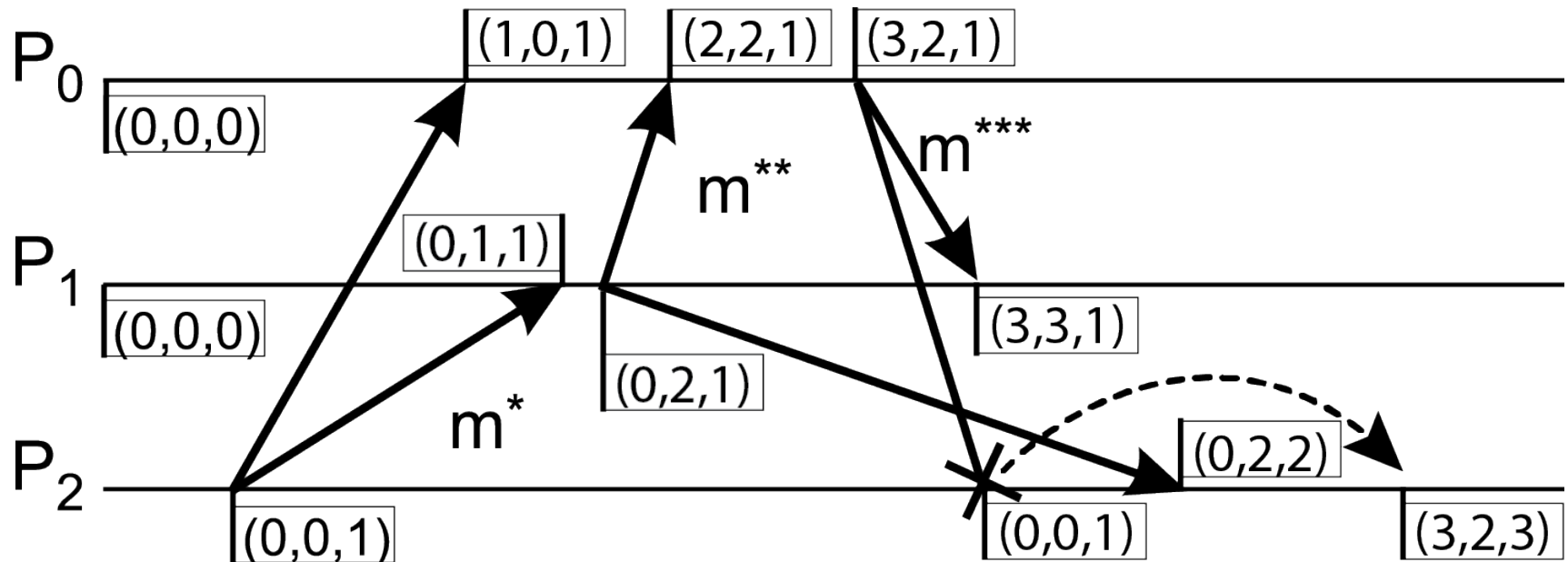


(c)

Assignment 3 (Question 6)

Just pay attention to the notation! An **X** means that a particular message was not received there as it was expected.

Then you need to show where is the message delivered



Assignment 4 (Question 3b)

Given :

Output : 011111

Process P1	Process P2	Process P3
<pre>x = 1; print (y, z);</pre>	<pre>y = 1; print (x, z);</pre>	<pre>z = 1; print (x, y);</pre>
<pre>y=1; z=1; print (x,y); x=1; print (y,z); print (x,z);</pre>	<pre>z=1; y=1; print (x,z); x=1; print (y,z); print (x,y);</pre>	<pre>y=1; print (x,y); z=1; print (y,z); x=1; print (x,z);</pre> 

Assignment 4 (Question 5)

Release Consistency

P1	W(x)a	W(x)b	W(y)c								
P2				R(y)c	Acq(Lx)	R(x)(a)	W(x)d	Rel(Lx)	W(y)c		
P3										R(y)c	R(x)a

- Updates ALL the shared data at the time of release of the lock
- It is not required to acquire a synchronization variable before reading or writing shared data.

Assignment 4 (Question 5)

Entry Consistency

P1	W(x)a	W(x)b	W(y)c						
P2			R(y)c	Acq(Lx)	R(x)(a)	W(x)d	Rel(Lx)	W(y)c	
P3								R(y)c	R(x)a

Entry consistency affects only the shared data associated with the synchronization variable (whereas release consistency affects all shared data)

Chapter 7

Weak Consistency Models

Q: What is the main reason is for considering weak consistency models

Ans :

- Synchronization is difficult to achieve, therefore, if there is not a strict need for synchronizing, then we can relax the consistency constraints.
- Weak consistency is used when low latency is required
- Strong consistency models ensure that only consistent state can be seen and thus have high latency

Chapter 7

Read-your-writes Consistency

Q : Give a simple implementation of read-your-writes consistency for displaying Web pages that have just been updated.

Ans :

Read-your-write consistency - A write operation should be seen by a successive read operation by the same process

- Browser always checks if it is displaying the most recent version by sending a request to the web server