## Notation

 In all timelines shown in these slides, assume that the timeline at the top is for process p<sub>1</sub>, the next timeline is for process p<sub>2</sub>, and the last timeline is for process p<sub>3</sub>

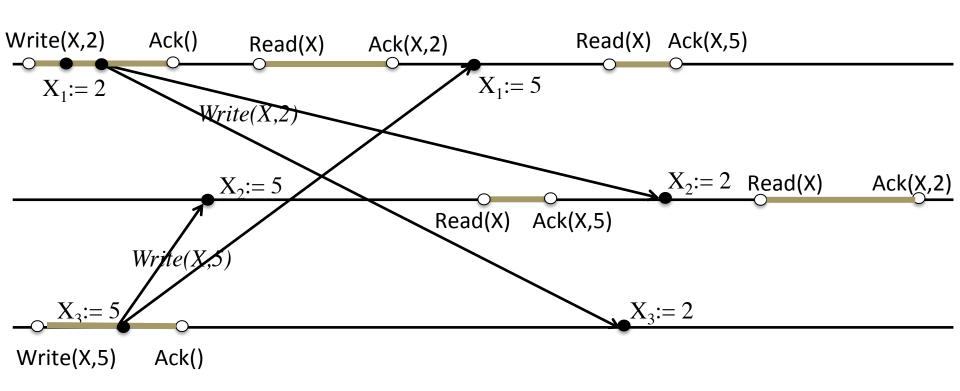


Figure 1: Algorithm 1

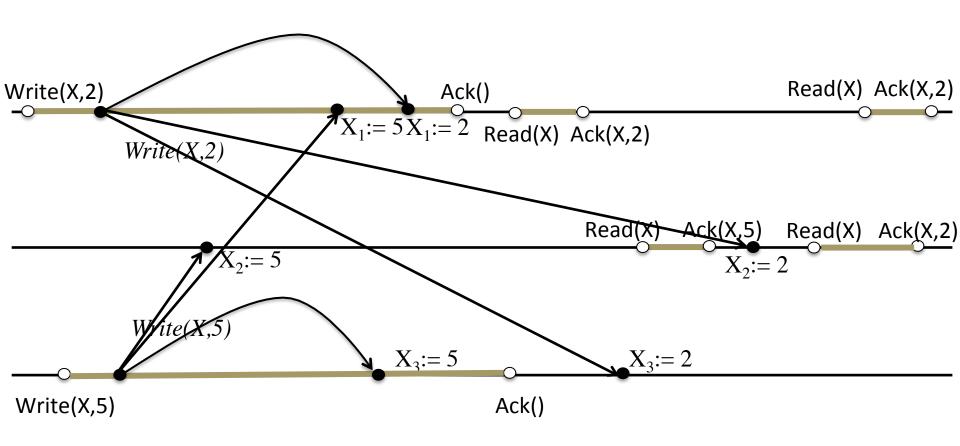


Figure 2: Algorithm 2

The figure shows the time at which the totally-ordered multicast messages are delivered

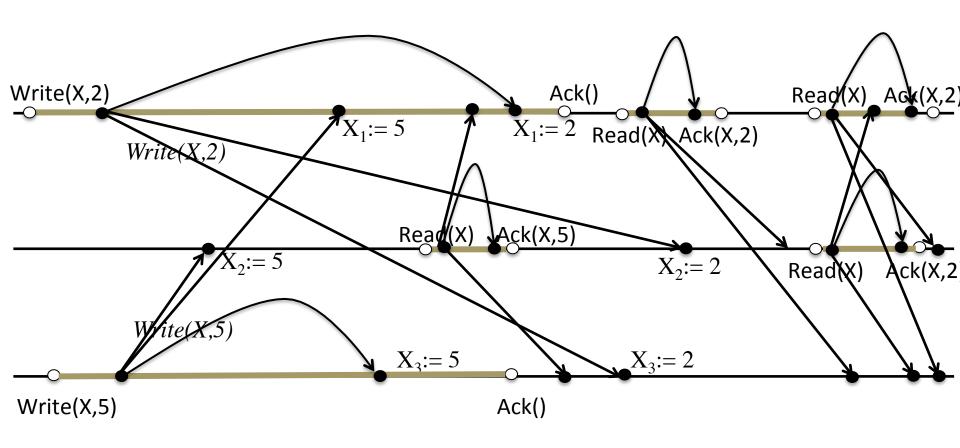
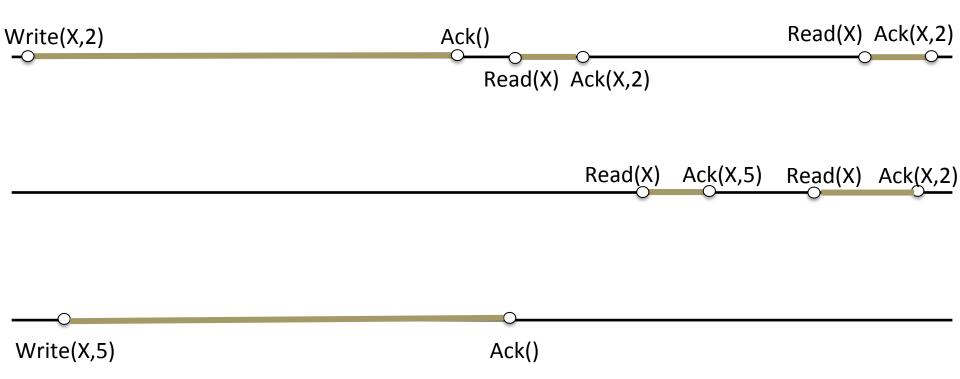


Figure 3: Algorithm 3

The figure shows the time at which the totally-ordered multicast messages are *delivered* 



Figure 4: Redrawn Figure 1



## Figure 5: Redrawn Figure 2

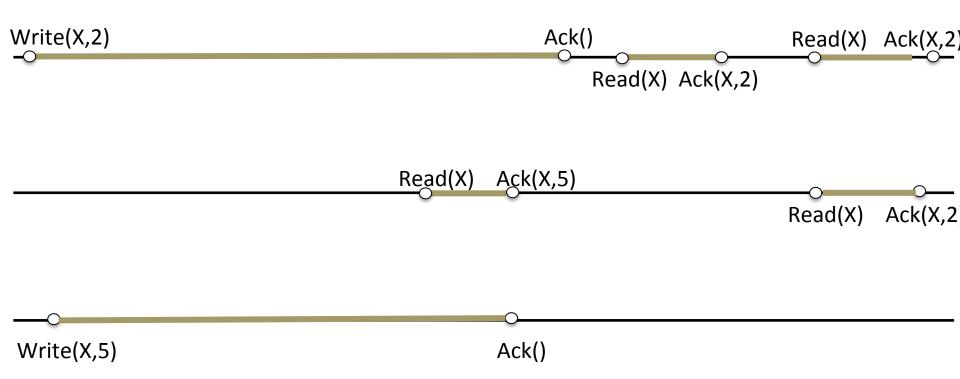


Figure 6: Redrawn Figure 3

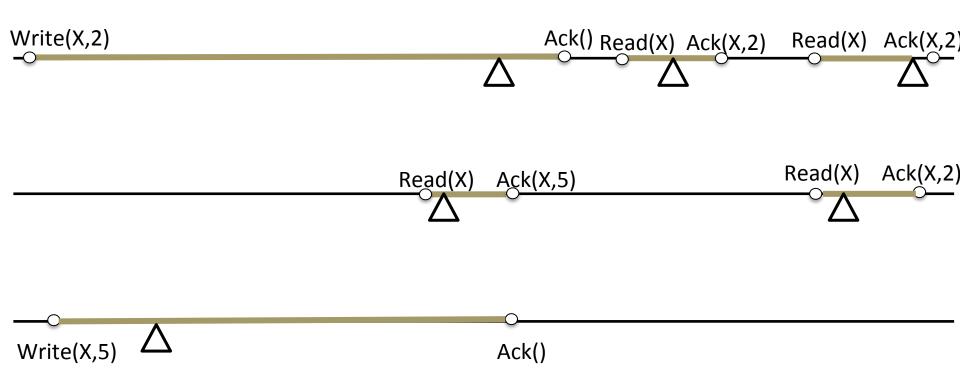


Figure 7: Execution of Figure 6 with linearization points marked by triangles

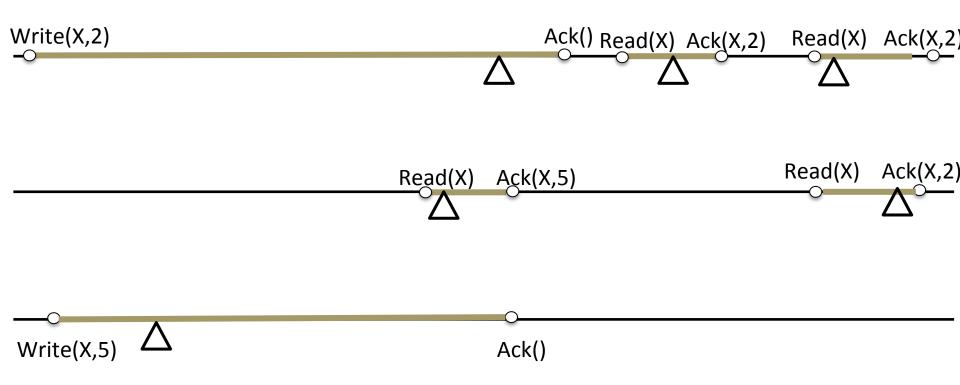


Figure 8: Alternate linearization points (compare with Figure 7)

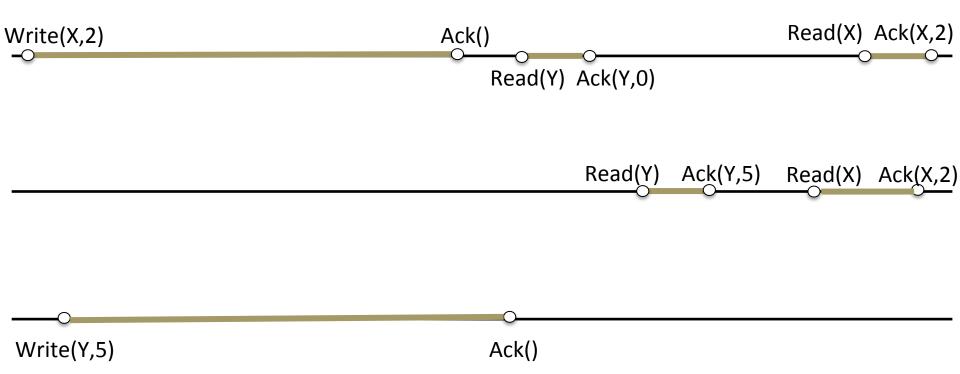


Figure 9: Execution *E* 

Write(X,2) <del>-</del> ○	Ack()	Read(X) Ack(X,2)
		Read(X) Ack(X,2)

## Figure 10: Execution E|X

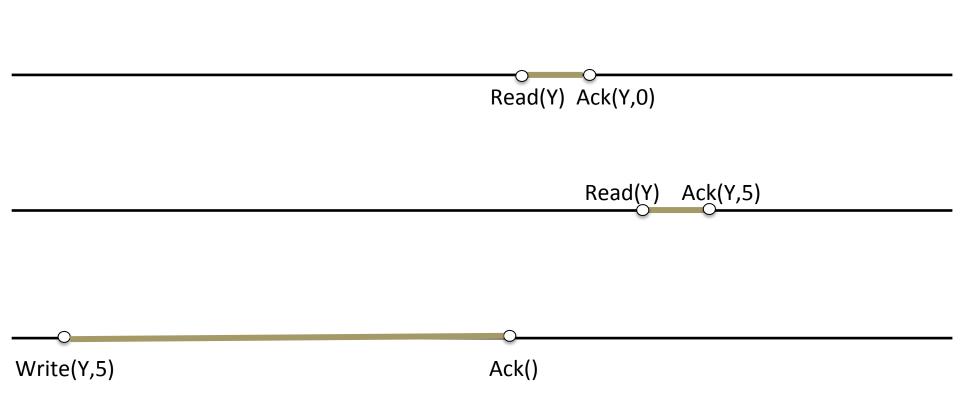


Figure 11: Execution  $E \mid Y$ 

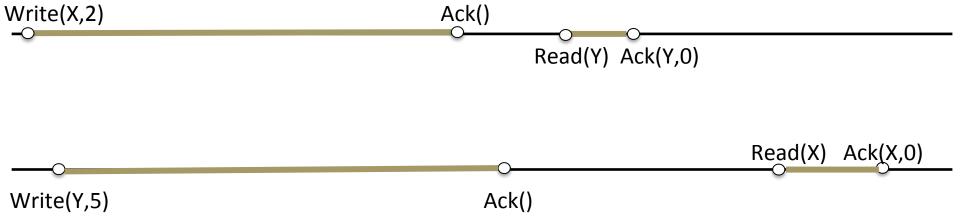


Figure 12: Execution *F*