

Logic Simulation

discrete-event sim.

$t \leftarrow 0$

while ($t < t_{end}$ & queue not empty)

remove event from queue

$t \leftarrow$ event time

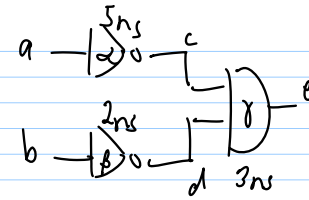
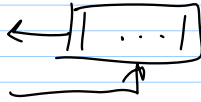
process event

if new event generated

insert in queue

endif

endwhile



t	a	b	c	d	e
0	0	0	0	0	0
1	1	0	0	0	0
	eval	α	2		
2	0	0	0	0	0
	eval	β			
4	0	0	0	1	0
	eval	γ			

queue
 [(t=1, a=0) (t=2, b=0)]
 [(t=2, b=0)]
 [(t=2, b=0) (t=6, c=1)]
 [(t=6, c=1)]
 [(t=4, d=1) (t=6, c=1)]
 [(t=6, c=1)]

6	0	0	1	1	0	()
	eval	δ				[(t=9, e=1)]
9	0	0	1	1	1	()

while (not done)

send start message for current time points

parallel (on each proc)

update sim time

recv state change msgs from other procs

perform evals for current time

send state change msg to other proc.

send done msg (including next time info)

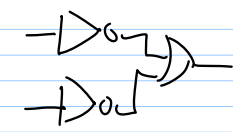
end parallel

recv done msg

update current time (min)

endwhile

t	evaluate	msgs
0		in $\rightarrow \alpha$ (t=1, a=0) in $\rightarrow \beta$ (t=2, b=0)
1	α	$\alpha \rightarrow \gamma$ (t=6, c=1)
2	β	$\beta \rightarrow \gamma$ (t=4, d=1)
4	γ	
6	γ	$\gamma \rightarrow \text{out}$ (t=9, e=1)

local clock 

msgs	local time		
	α	β	γ
in $\rightarrow \alpha$ (t=1, a=0)	1		
in $\rightarrow \beta$ (t=2, b=0)		2	
eval α, β			
$\alpha \rightarrow \gamma$ (t=6, c=1)			4
$\beta \rightarrow \gamma$ (t=4, d=1)			4
eval γ			
$\gamma \rightarrow \text{out}$ (t=7, e=1)	1	2	4

conservative local clock alg

msgs	local time			γ is D
	α	β	γ	
in $\rightarrow \alpha$ (t=1, a=0)	0	0	0	
in $\rightarrow \beta$ (t=2, b=0)	1	2		
eval α, β				
$\alpha \rightarrow \gamma$ (t=6, c=1)				
$\beta \rightarrow \gamma$ (t=4, d=1)			4	
in $\rightarrow \alpha$ (t= ∞ , a=0)	∞			
in $\rightarrow \beta$ (t= ∞ , b=0)		∞		
eval α, β, γ				

$\alpha \rightarrow \gamma$ (t=6, c=1)			
$\beta \rightarrow \gamma$ (t=4, d=1)			6
eval γ			
$\gamma \rightarrow \text{out}$ (t=9, e=1)			∞
eval γ			
$\gamma \rightarrow \text{out}$ (t= ∞ , e=1)	∞	∞	∞

optimistic local clock

	local time		
msgs	α	β	γ
$\alpha \rightarrow \beta$	0	0	0
$\alpha \rightarrow \gamma$	1	2	
$\beta \rightarrow \gamma$			4
eval α			6
eval β			
...			