

Simulation Begins!

We now increase our time to 0ns. Proc-a gets executed first (though remember, the order doesn't really matter). One column = one action taken (mode change/signal change)

Time	0-0
proc-a	R E S
a _{proj}	U 0
a _{actual}	U

Now, we have proc-b: since it's resumed, it must be executed, copying a_{actual}'s 'U' value into itself. Same with proc-c.

Time	0-0
proc-b	R E S
proc-c	R E S
b _{proj}	U U
b _{actual}	U
c _{proj}	U U
c _{actual}	U

Now, all processes are suspended, which means we can go to the next delta cycle. First, the only changed value is a, so we copy over the projected to a_{actual}. This then prompts a change in proc-b, which relies on a's value

Proc-b sees the change, gets set to resume, begins executing to calculate b_{proj}, then suspends.

← extension here

Time	0...	0
proc-b	S	R E S
aactual	U	0
bproj	U	0
bactual	U	

← start of delta cycle

At this point, all processes are suspended, so we begin another delta cycle, copying bproj to b actual. This prompts proc-c to resume, and calculate cproj.

Time	0...	0
proc-c	S	R E S
bactual	U	0
cproj	U	0
cactual	U	

Again, all of our processes are now suspended. We begin the next delta cycle, with cproj getting copied.

Time	0...	
cproj	0	
cactual	U	0

Now, all processes are suspended, AND there are no more projected values to copy, so we increase the time. Proc-a is done waiting, and it resumes, changing aproj to 1.

Time	0	1
proc-a	S	R E S
a _{proj}	0	1
a _{actual}	0	

And now, this whole process is repeated again:

- 1) All suspended, so $a_{actual} \leftarrow a_{proj}$
- 2) Proc-b resumes, calculating b_{proj}
- 3) All suspended, so $b_{actual} \leftarrow b_{proj}$
- 4) Proc-c resumes, calculating c_{proj}
- 5) All suspended, so $c_{actual} \leftarrow c_{proj}$
- 6) No more projected values to copy, increment time to 2 ns
- 7) All processes suspended, no more changes in values.

Let's take a look at the simulation

Time	0	1	...	1						2
proc-a		S								S
proc-b		S		R E	S					S
proc-c		S				R E	S			S
a _{proj}		1								1
a _{actual}		0	1							1
b _{proj}		0		1						1
b _{actual}		0			1					1
c _{proj}		0				1				1
c _{actual}		0					1			1

And that's it! Hopefully this explanation has been useful.