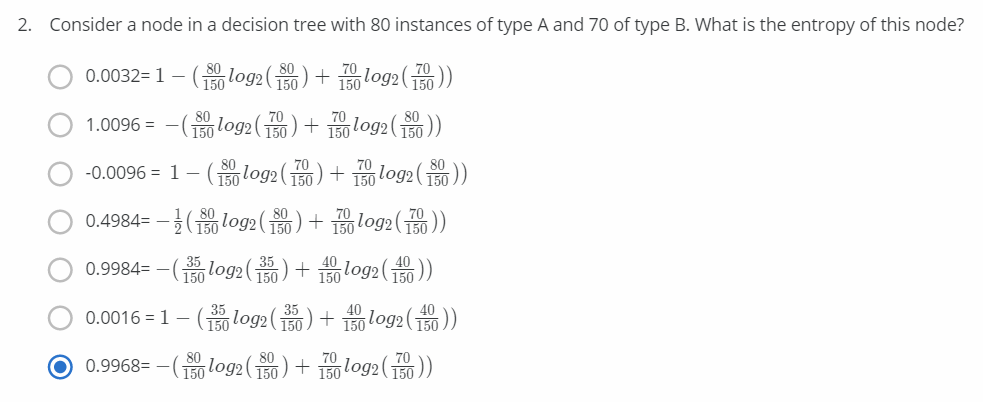


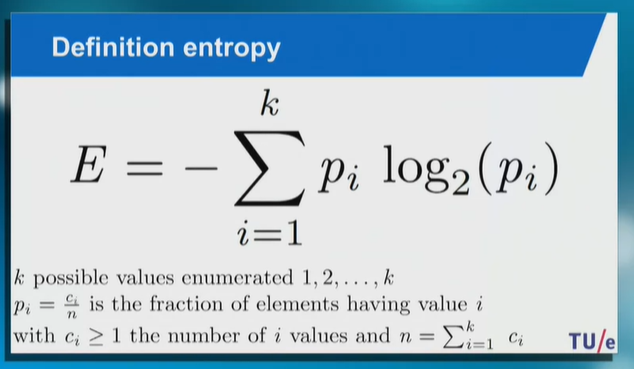
Play-Out is when we start from a process model and generate behavior, e.g. traces.

Play-In is when we start from event data and generate a process model, e.g. a Petri net.

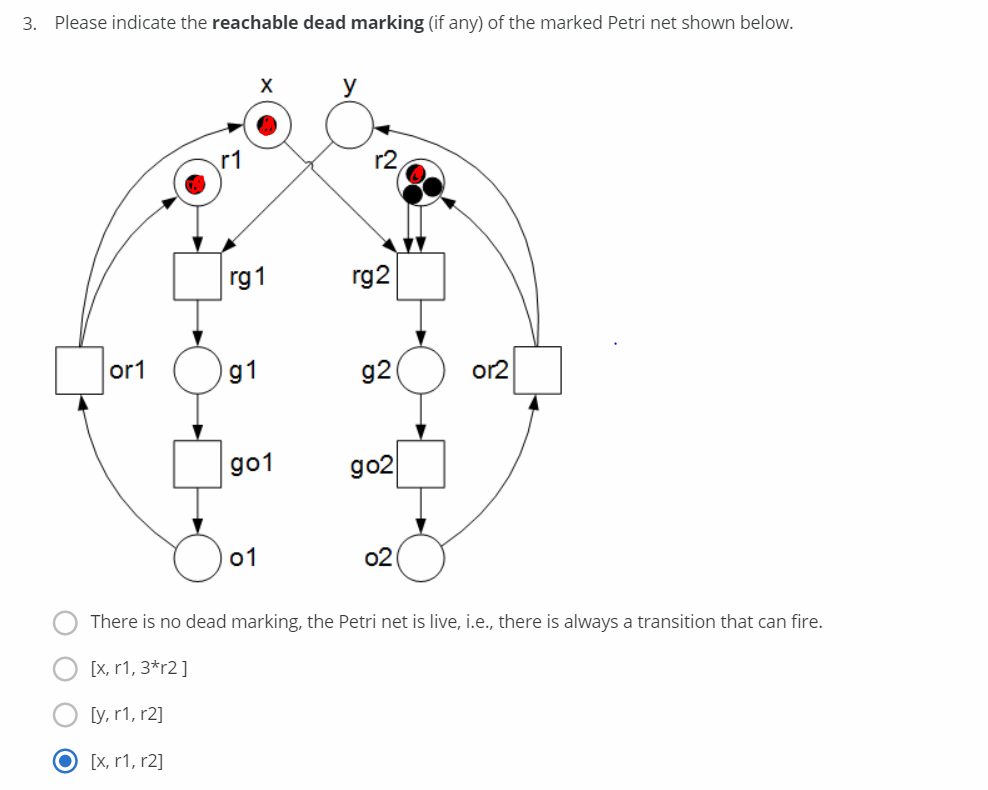
Replay is when we start from both a process model and a collection of observed behavior, e.g. traces, and compare these by replaying the traces on the process model.



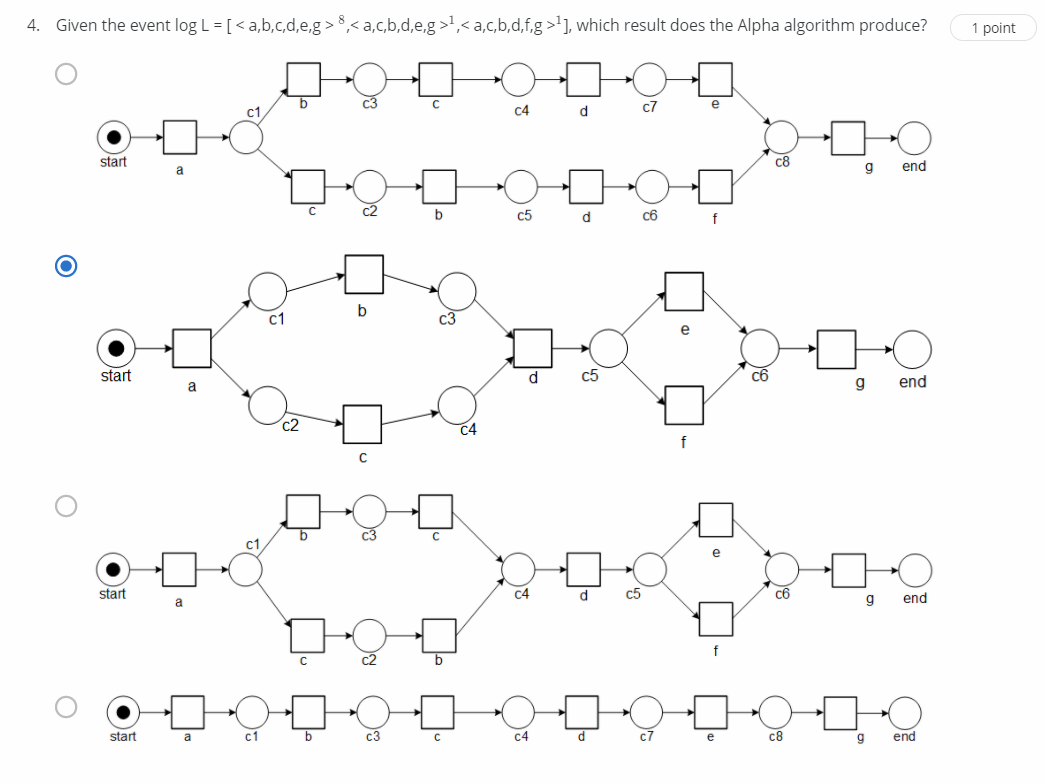
**Entropy** is a measure of the randomness in the information being processed.



E = - (80/150 log(80/150) + 70/150 log(70/150)) = -(-0.483-0.512) = 0.995



Answer: {x,r1,r2}

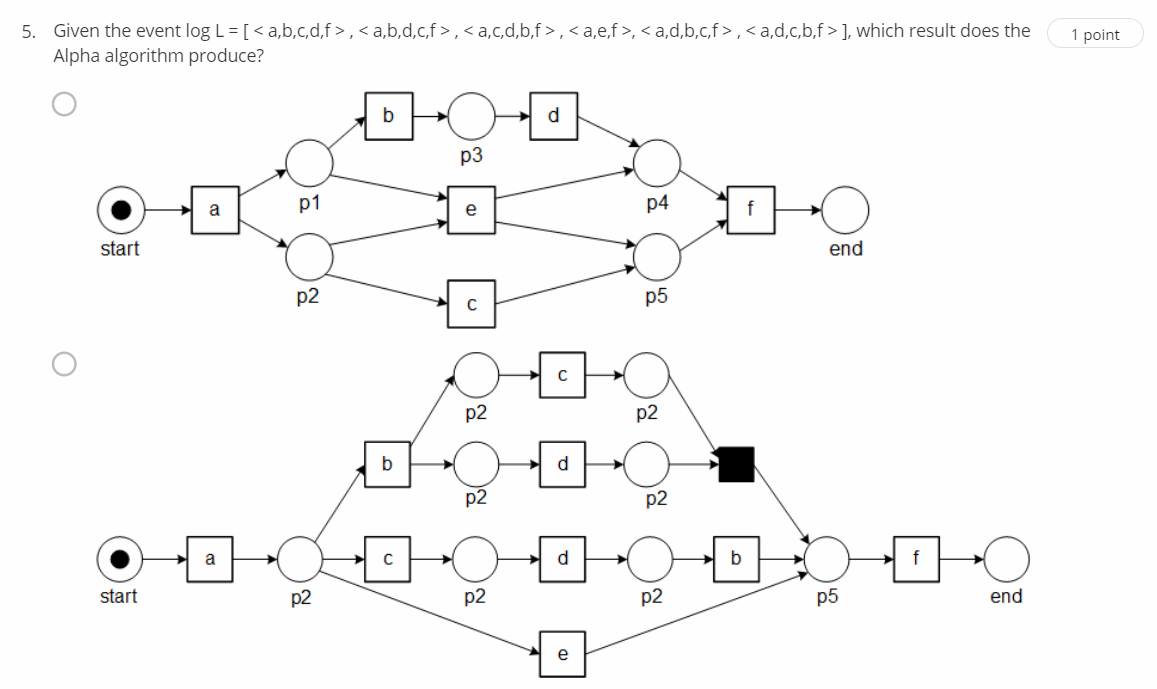


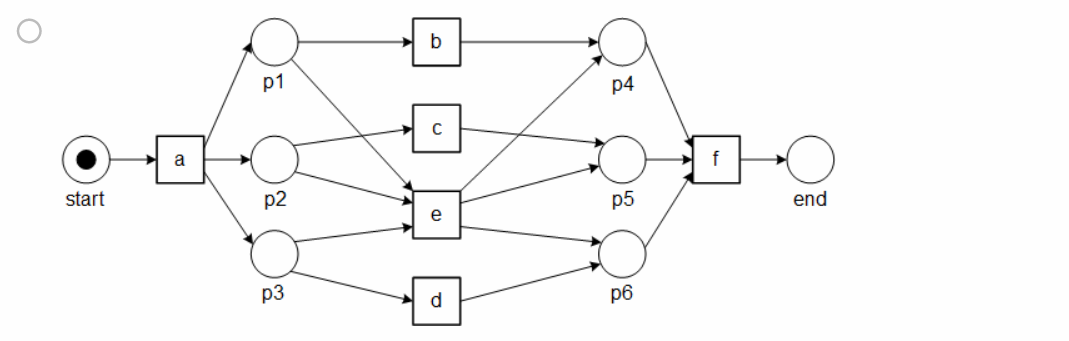
First option: Wrong => <a,c,b,d,e,g>

Second option: Correct => Follows all traces in event log

Third option: Wrong => Even though it follows the event log, more transitions are used to build the model

Fourth option: Wrong => Only one trace is possible <a,b,c,d,e,g>

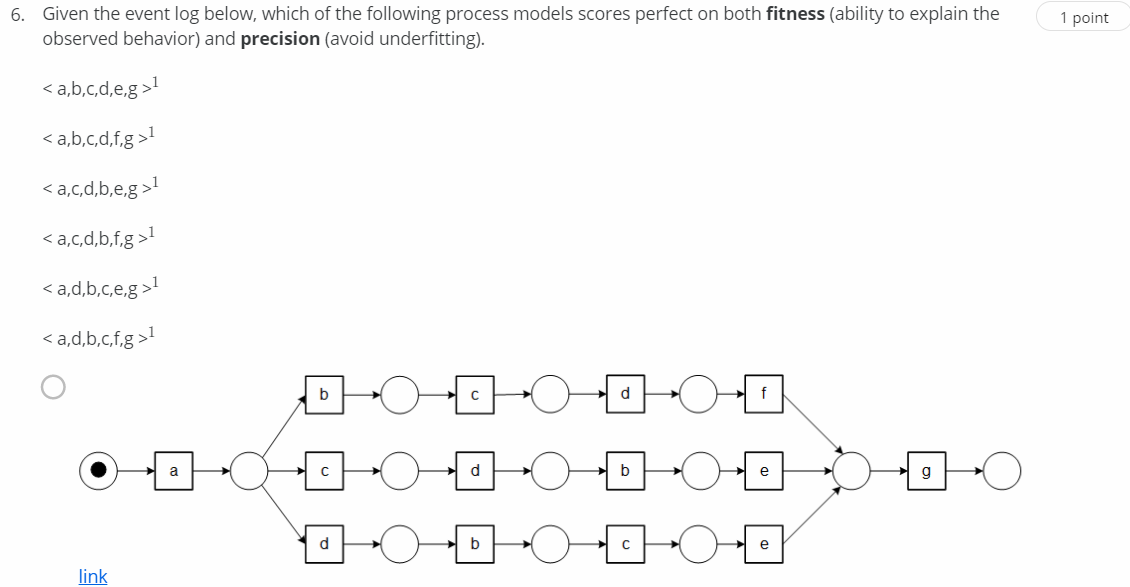


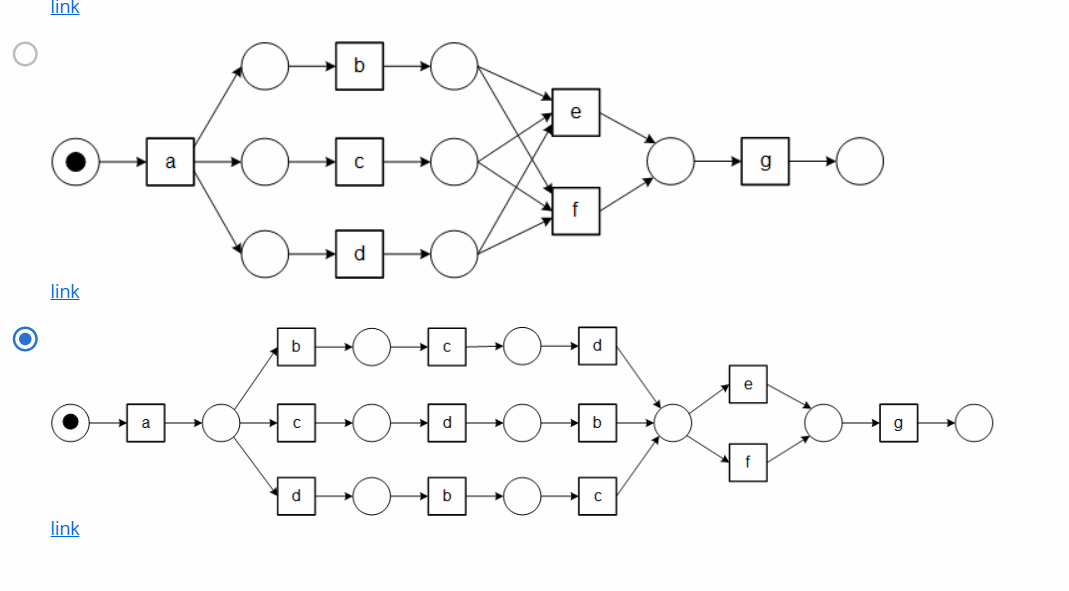


First option: Wrong => <a,c,d,b,f> trace is not possible

Second option: Wrong => <a,d,b,c,f> trace is not possible

Third option: Correct => Satisfies all possibilities

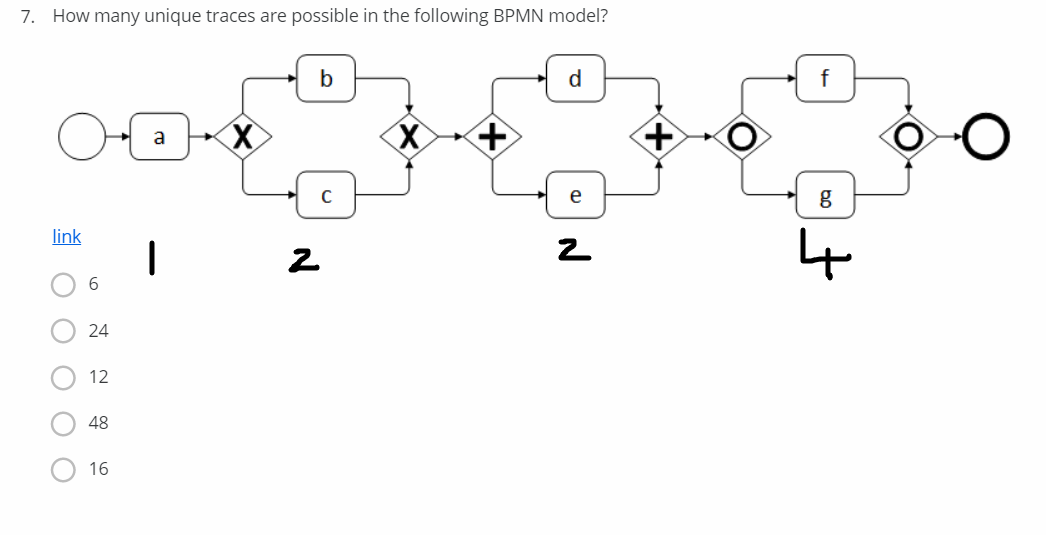




First option: Wrong => <a,b,c,d,e,g> is not possible

Second option: Wrong => It follows all traces in event log but it gives extra traces like <a,b,d,c,e,g>, <a,b,d,c,f,g> etc

Third option: Correct => It exactly fits the event log



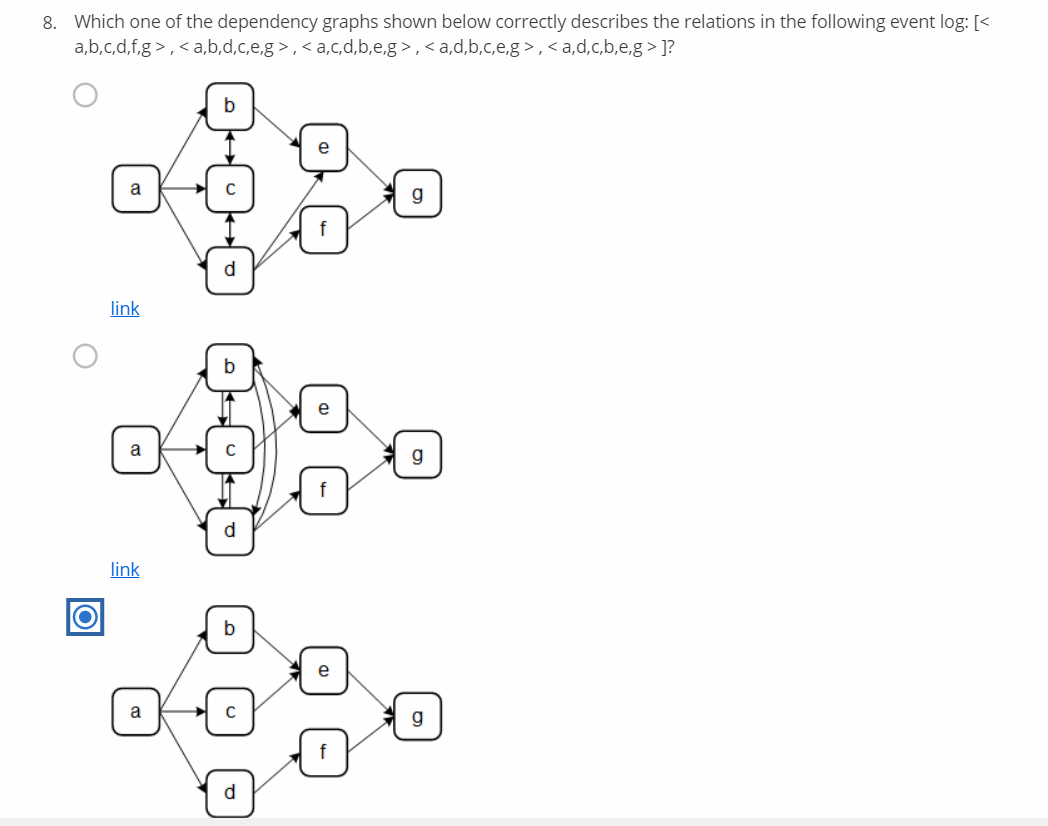
For a => 1 possibility

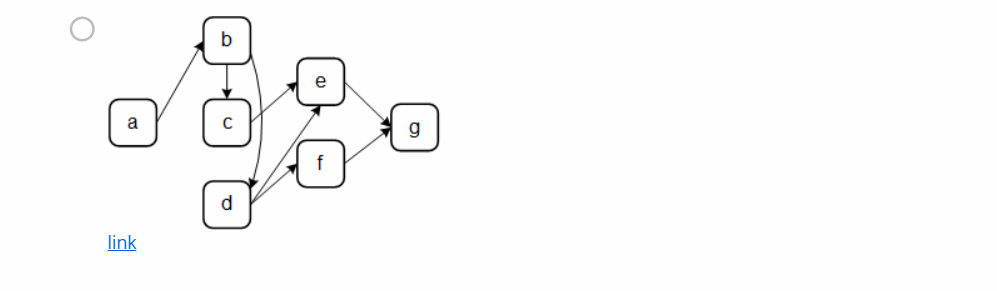
b & c => b or c => 2 possibilities

d & e => de or ed => 2 possibilities

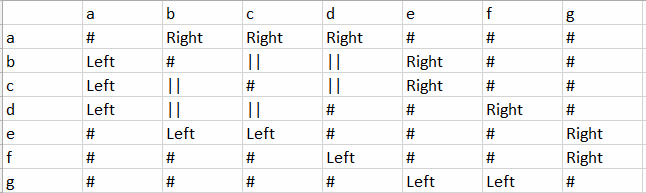
f & g => f, g, fg, gf => 4 possibilities

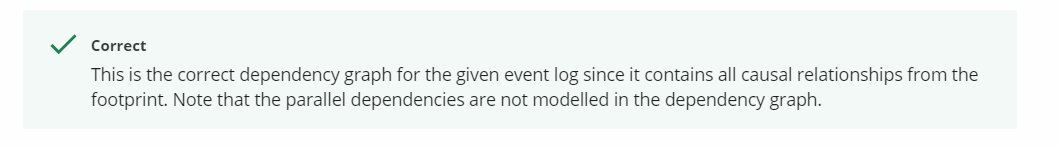
Total = 1\*2\*2\*4 = 16



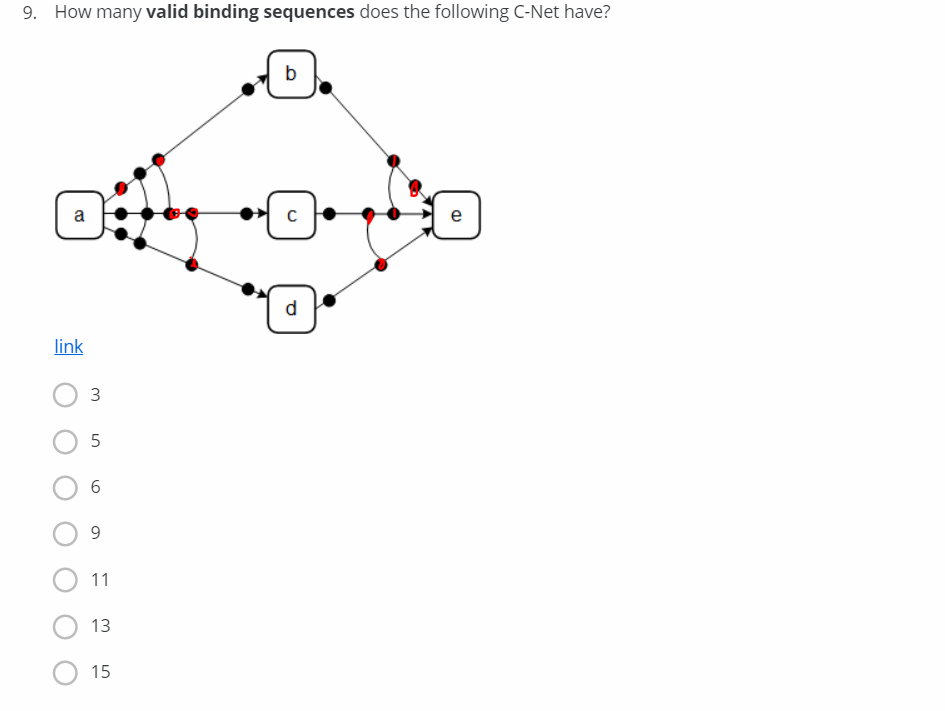


Footprint of the event log:





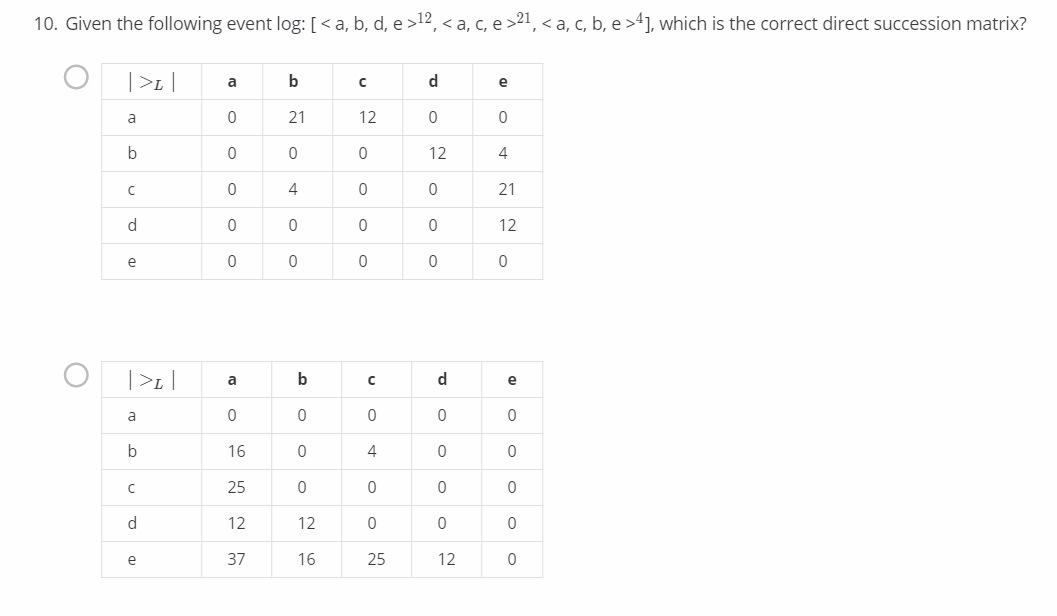
Without considering the parallel dependencies (||), third option is the correct dependency graph

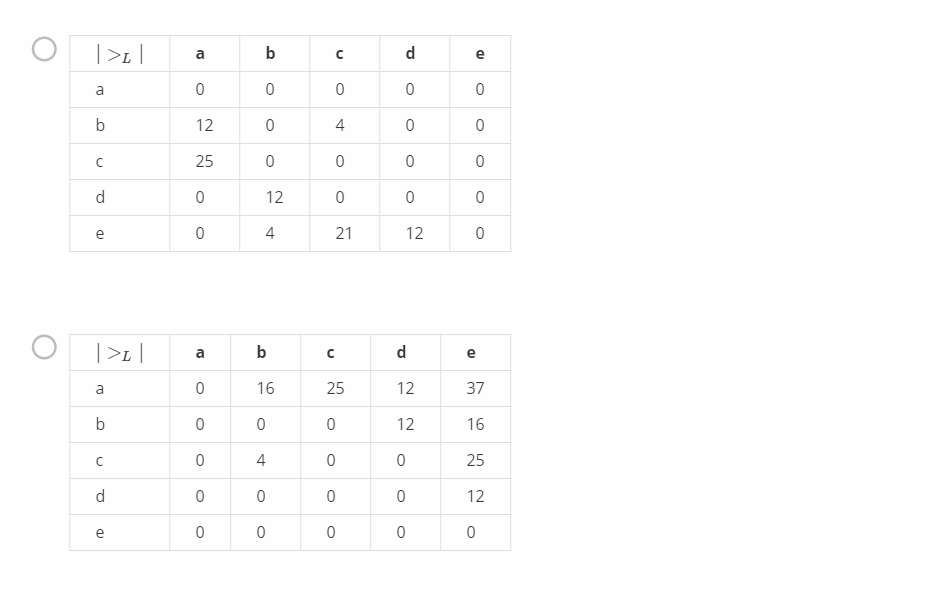


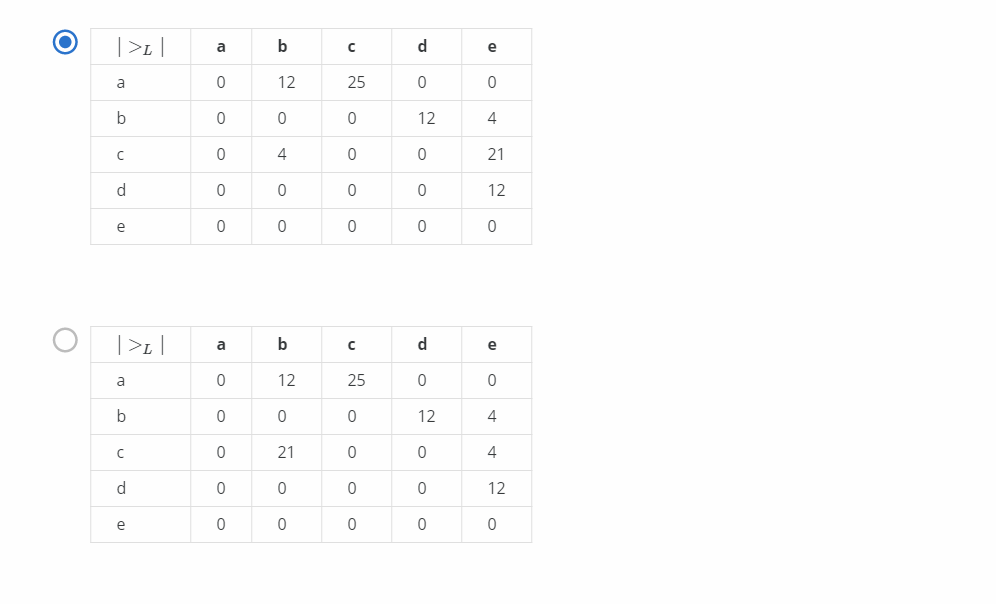
Single binding - 1

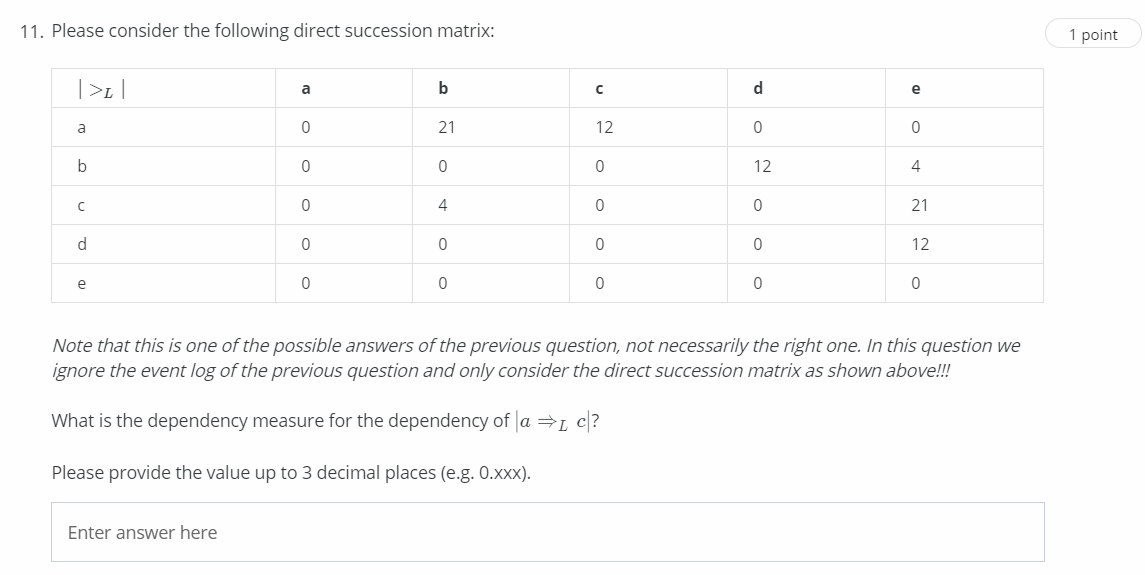
Double binding - 2

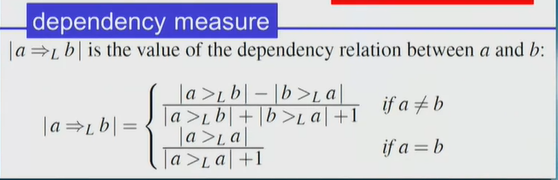
Total = 1\*1+2\*2 = 5



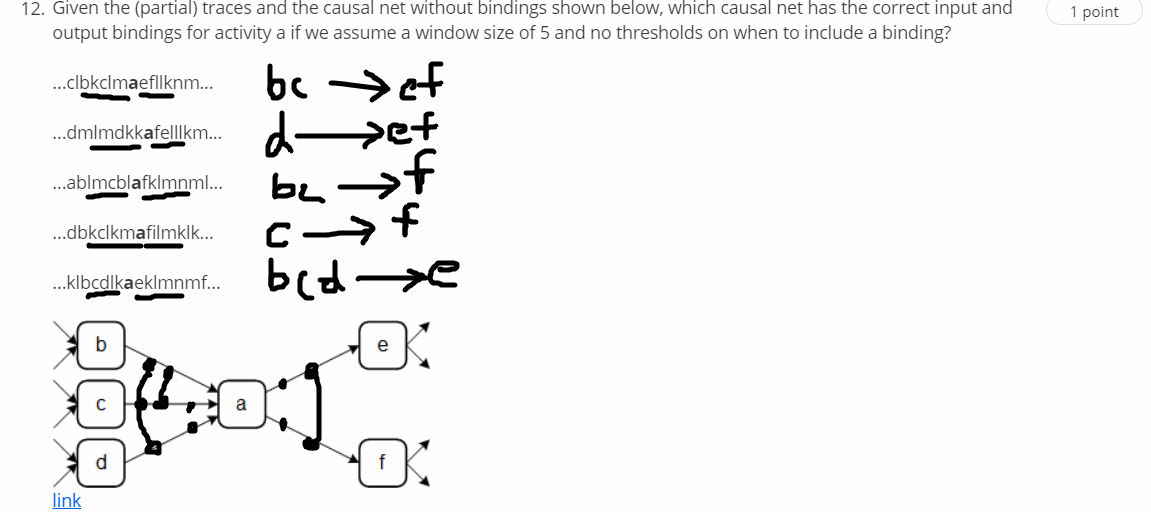


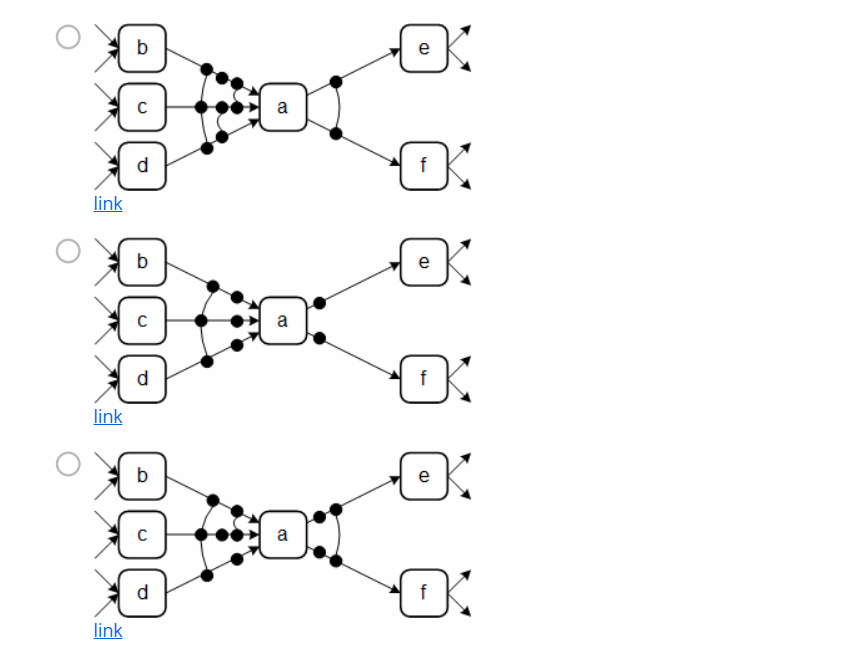




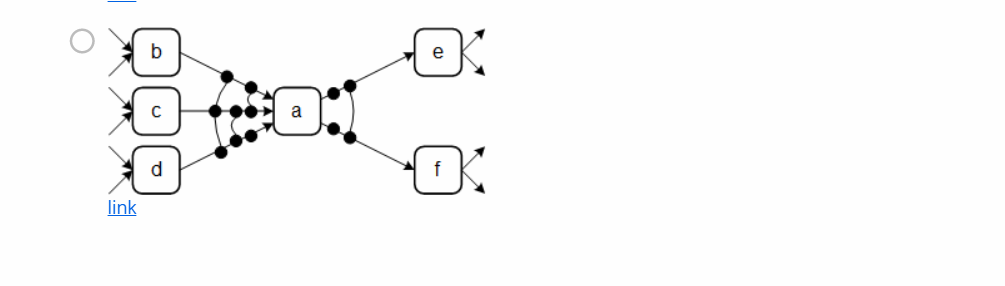


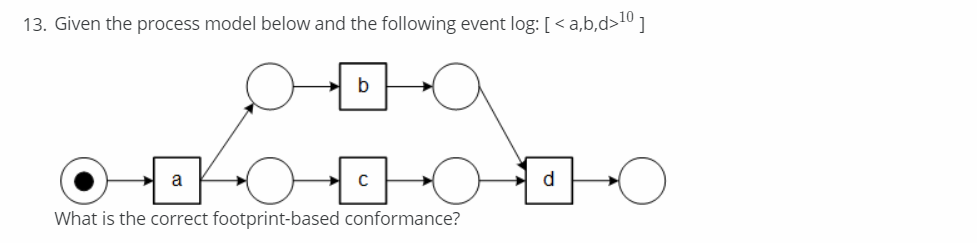
a =>Lc = (12-0)/12+1 = 12/13 = 0.923

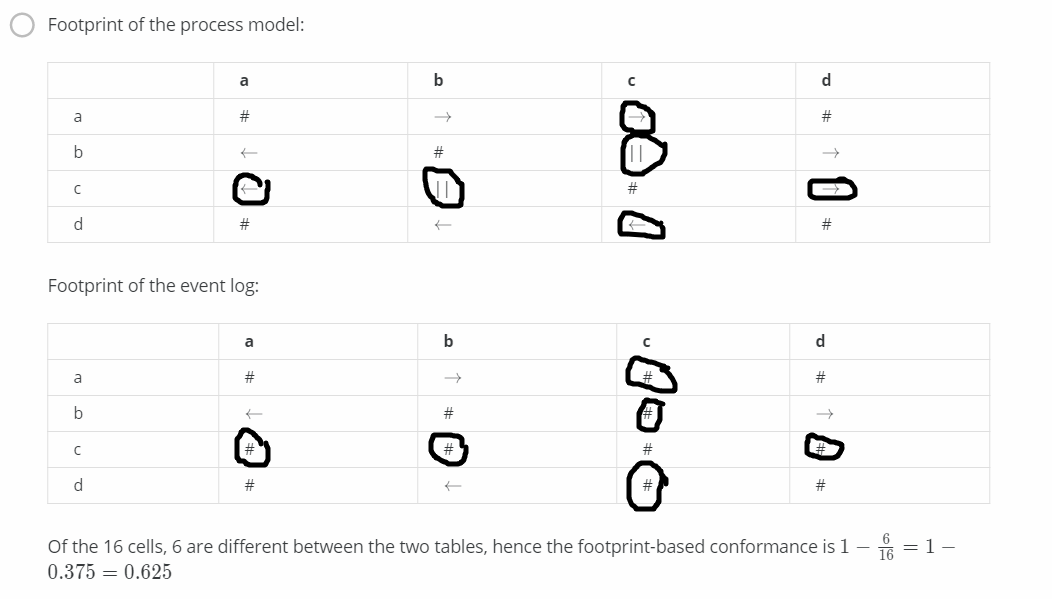




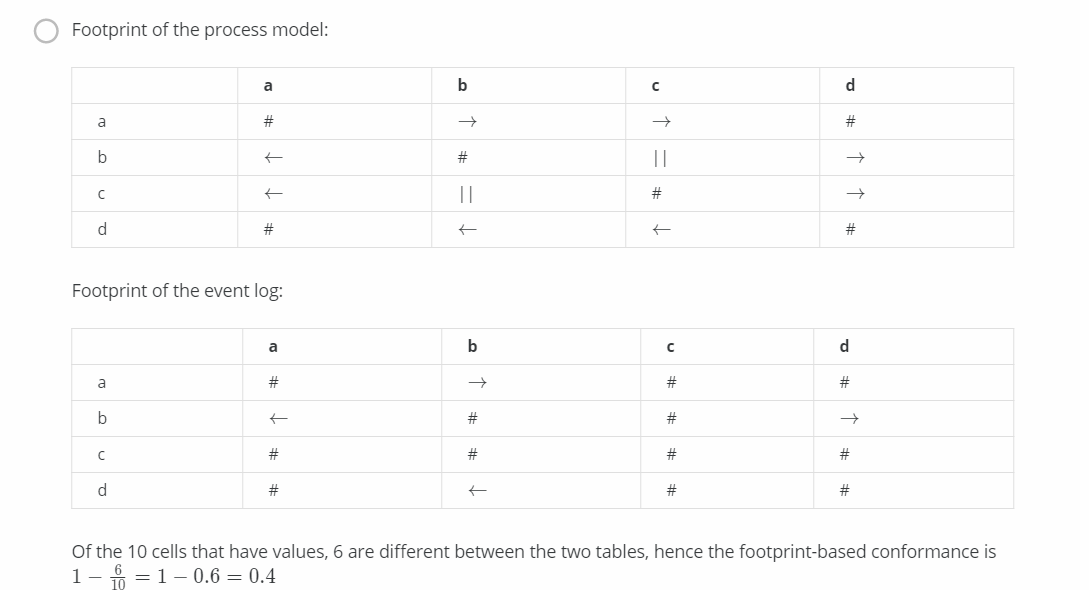
3rd option is the answer



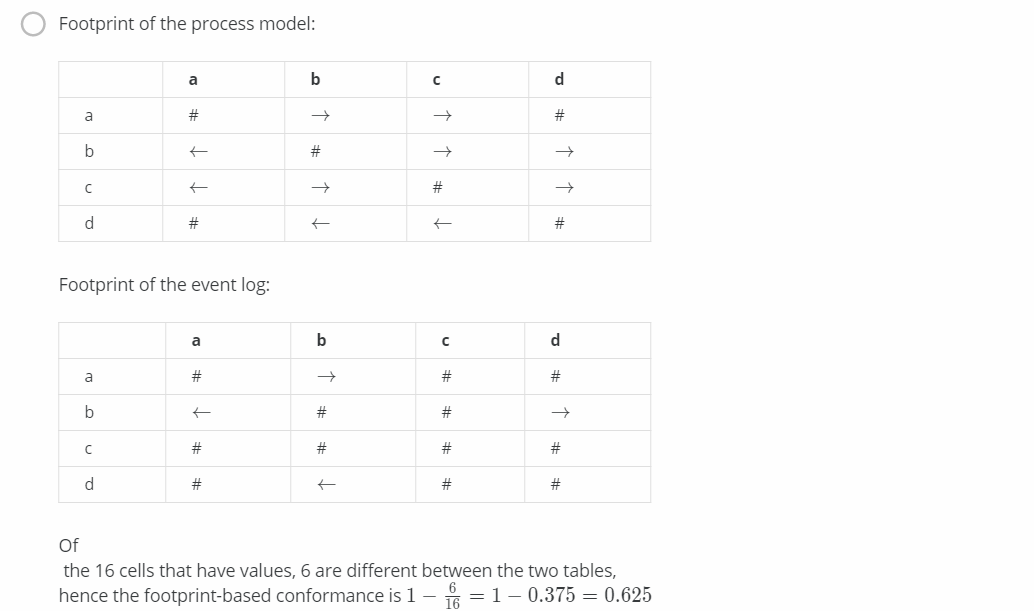




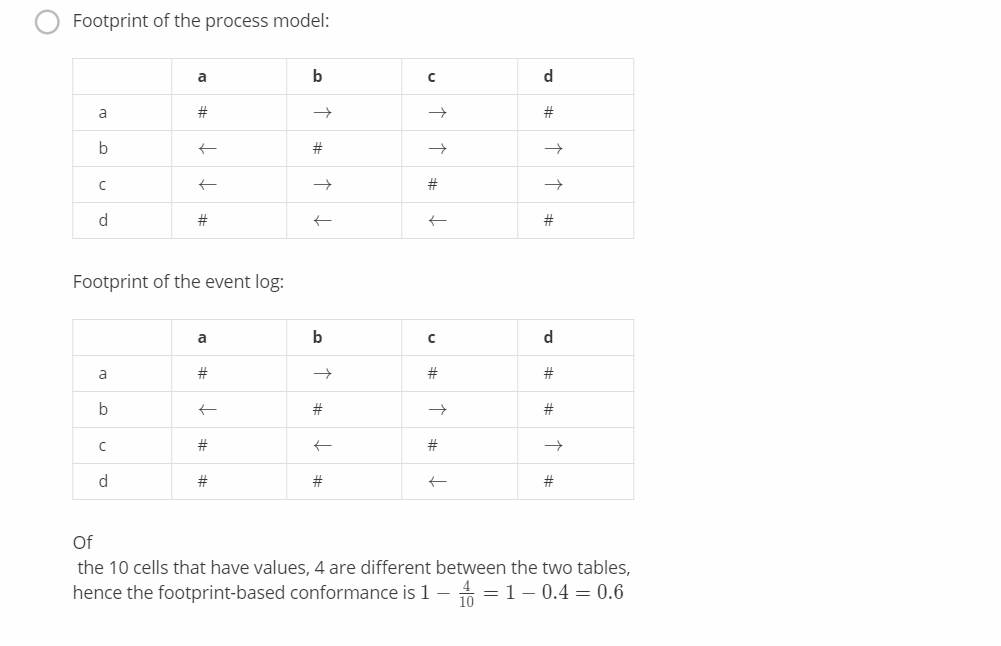
Correct



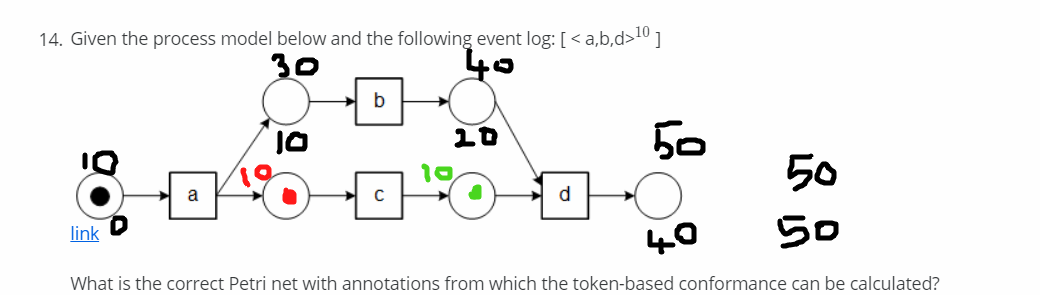
Wrong calculation

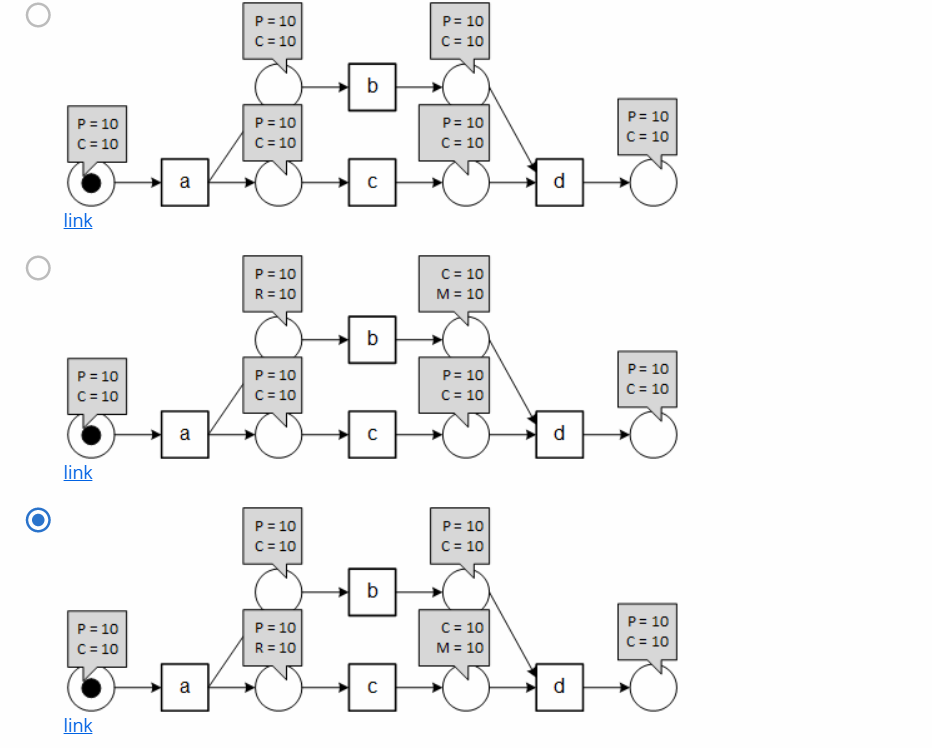


Wrong process model

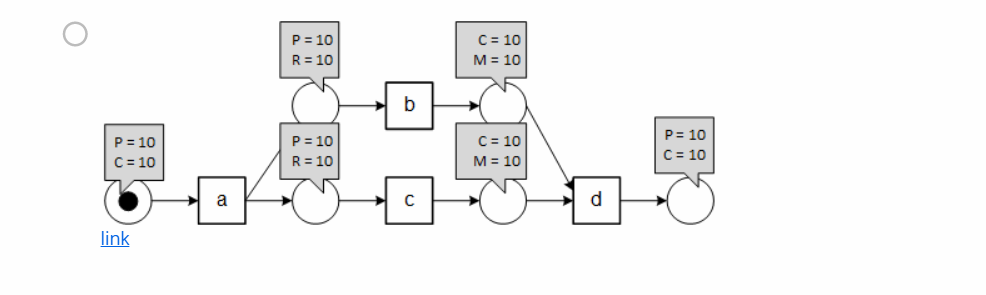


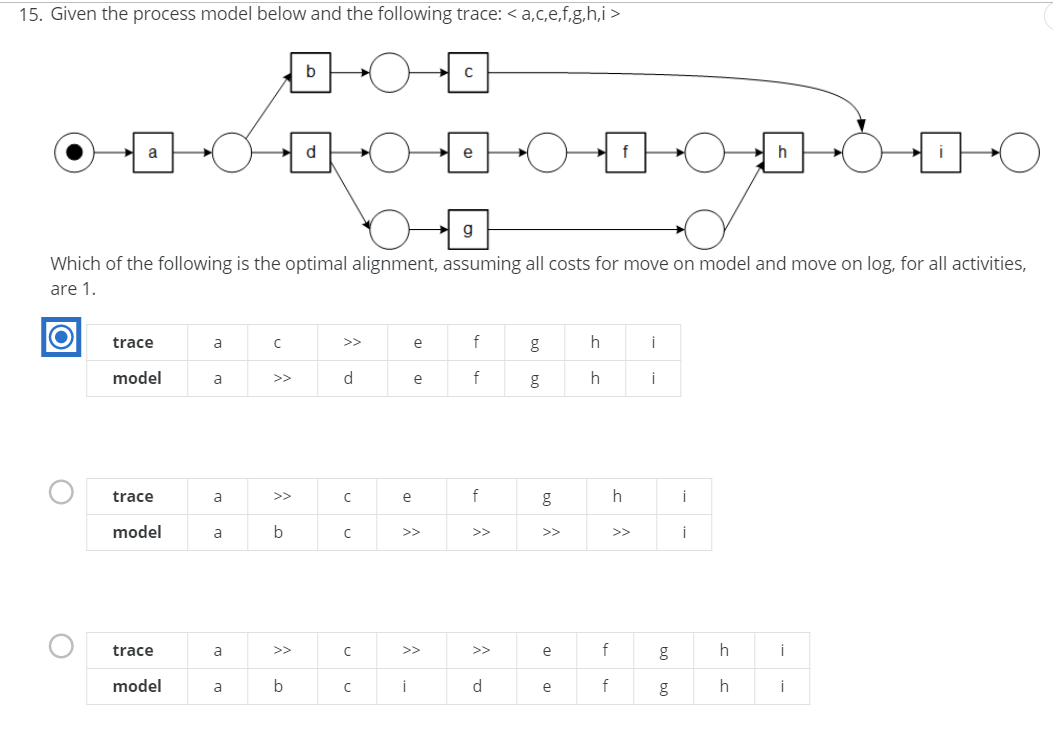
Wrong event log

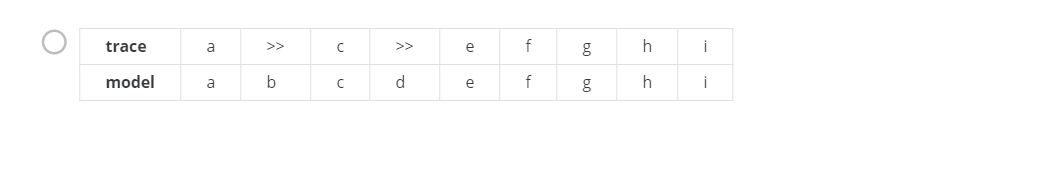




This is correct (up)



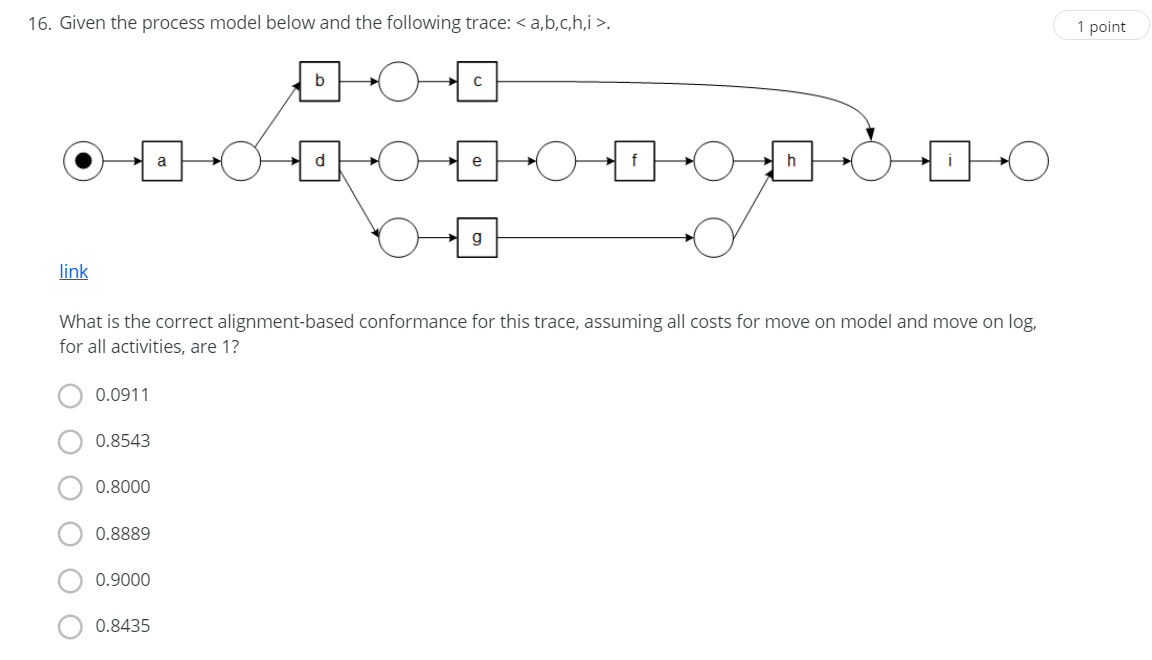




First option: Correct => Optimal alignment as it has least cost function 2

Second option: Wrong => Alignment is correct but has cost function 5

Third & Fourth option: Wrong => Provided model is not possible



Trace a b c h i

Model a b c >> i

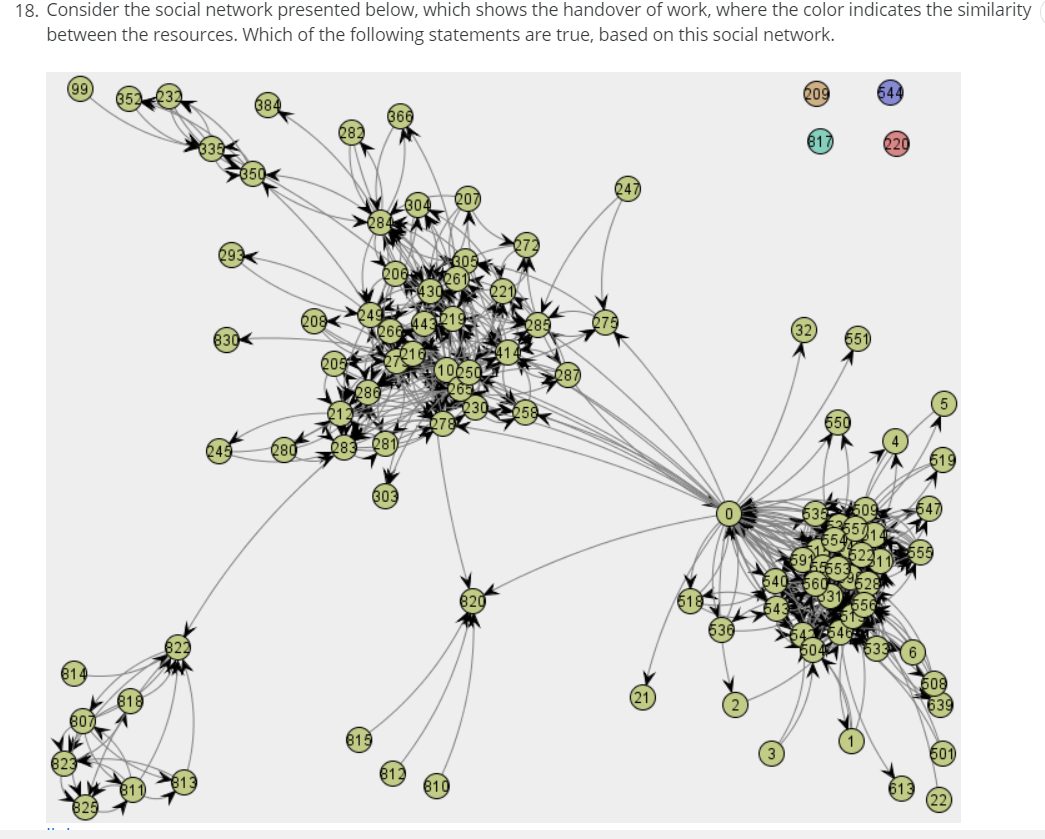
Shortest path: a b c i

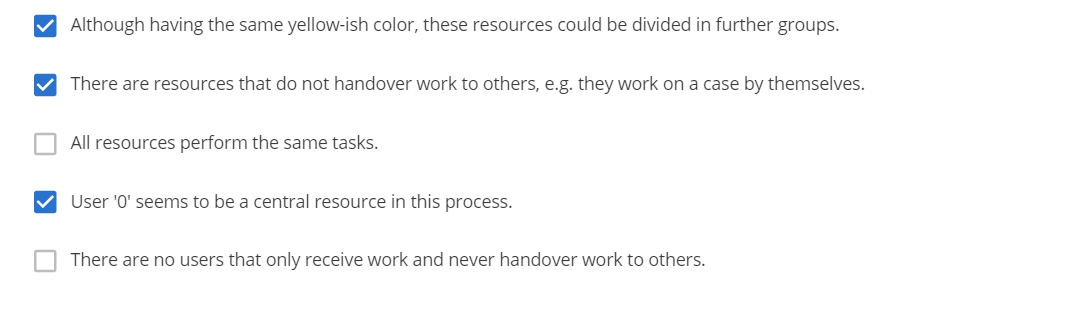
Worst case: a b c h i

Conformance = 1-(1/(5+4)) =1-(1/9) = 8/9 = 0.8889



* Most of the activities are happening at the arrival except some outliers
* Overall arrival rate of cases is constant(steep line)
* At a given time multiple cases are happening





Second option: 32, 551

