

Elective in Software and Services

(Complementi di software e servizi per la società dell'informazione)

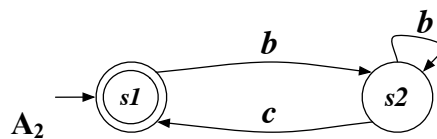
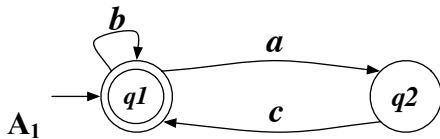
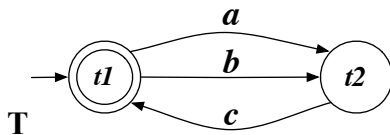
2010/11

22/09/2011

Time to complete the assignment: 2 hours

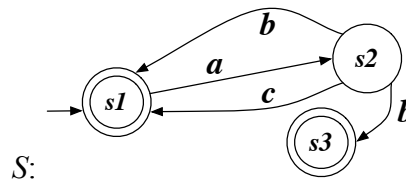
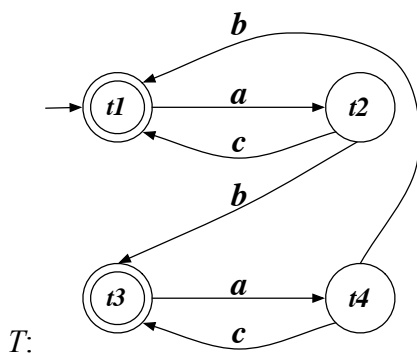
Part 1 (Composition Synthesis)

Given the following the available services A_1 and A_2 and the target service T , prove whether a composition realizing it exists, and, if it does, produce the output relation of orchestrator generator. If not, single out the target state that cannot be (ND-)simulated, and propose a small change to the available services so as to guarantee the composition and show that the composition now exists.



Part 2 (Theoretical Question)

Write the definition of simulation and bisimulation. Then consider the following transition systems.



- Does T simulate S ? If so, write a simulation relation. If not, show where simulation breaks.
- Does S simulate T ? If so, write a simulation relation. If not, show where simulation breaks.
- Are they bisimilar? If so, write a bisimulation relation. If not, show where bisimulation breaks.

Please comment each answer appropriately so as to show your line of reasoning.