Sapienza Università di Roma
Facoltà di Ingegneria – Corso di Laurea Magistrale in Ingegneria Informatica
Service integration
Elective in Software and Services
(Complementi di software e servizi per la società dell'informazione)
2008/09
23/01/2009
Time to complete the assignment: 2 hours

Part 1 (Composition Synthesis)

Given the following target **T** service and available services $\mathbf{A_1}$, $\mathbf{A_2}$, check whether a composition exists. If it does exist, produce the output relation of orchestrator generator. If not, single out the target state that cannot be simulated (ND-simulated), and propose a change to the available services so as to guarantee the composition.

(Notice: to check for composition existence, build asynchronous product of available services and check simulation/ND-simulation as appropriate.)
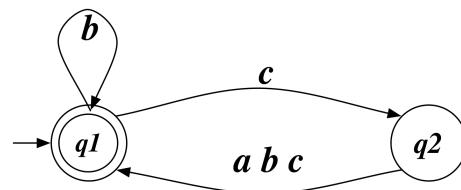
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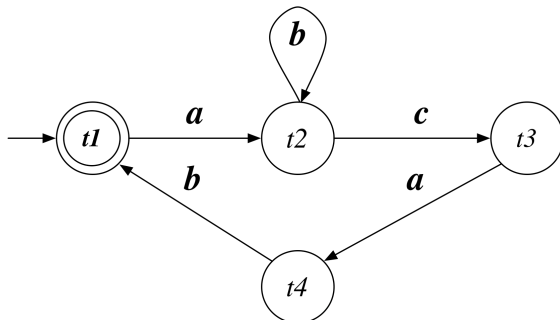
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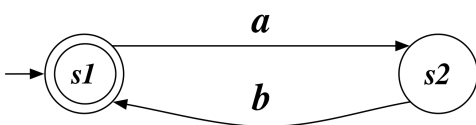
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Part 2 (Theoretical Question)

Prove that the following well-known theorem holds.

Theorem: If two states *s*, *t* of two finite transition systems satisfy (make true) the same formulas of HenessyMilner Logic, then there exists a bisimulation between *s* and *t*.