

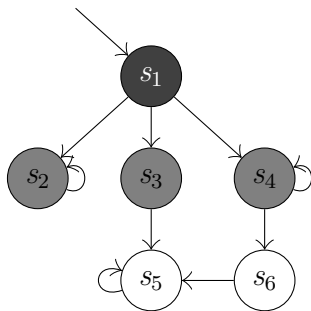


Tutorials for Model Checking
Exercise sheet 5

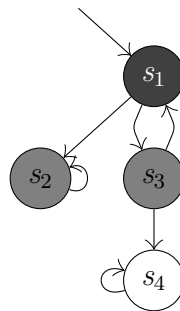
Exercise 1: Simulation and Bisimulation

Which of the following transition systems are bisimulation equivalent? Which systems simulate which other systems? Justify your answer by providing (bi-)simulations or CTL formulae that distinguish the transition systems.

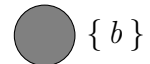
TS_1 :



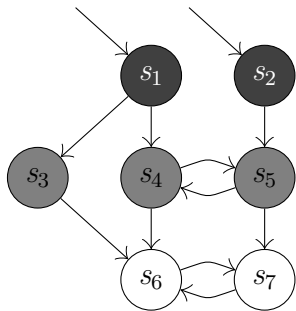
TS_2 :



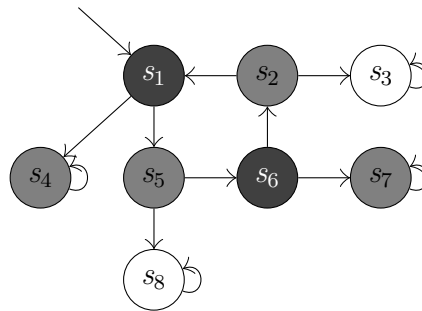
Legende:



TS_3 :

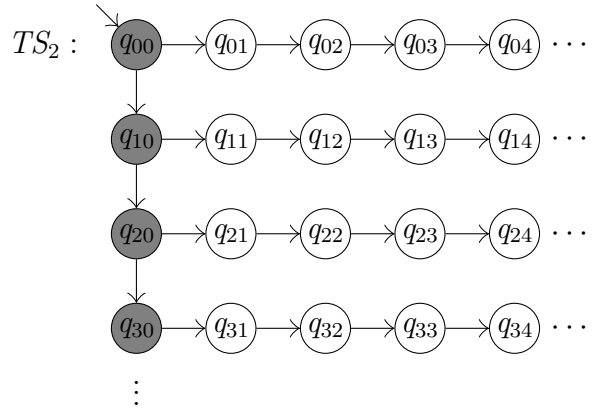


TS_4 :



Exercise 2: Bisimulations on infinite systems

Are the following transition systems bisimilar. Justify your answer by giving a bisimulation or a CTL formula that distinguishes them:



Exercise 3: Binary Decision Diagrams

Consider the boolean formula $x \leftrightarrow (y \wedge z)$. Draw a BDD (Binary Decision Diagram) for the formula with variable ordering $x < y < z$. Use the algorithms for disjunction and intersection from the lecture.