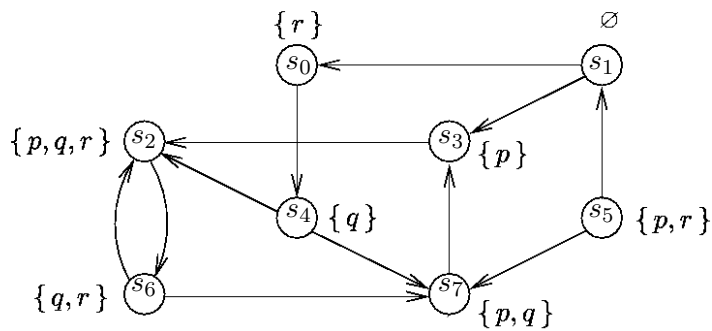


Exercises for “Formal Specification and Verification”
Exercise sheet 11

Exercise 11.1:

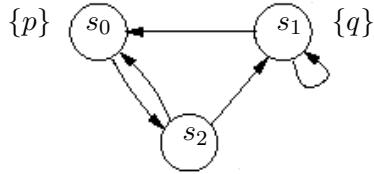
Consider the transition system from Exercise 10.1:



- In the exercise class we proved that $\text{sat}(E(p\mathcal{U}q)) = \{s_2, s_3, s_4, s_5, s_6, s_7\}$.
- Use the system NuSMV to compute $\text{sat}(E(p\mathcal{U}q))$.

Exercise 11.2:

Consider the following transition system:



In the exercise class on Tuesday, 15.01.19, we first computed $\text{sat}(E(q\mathcal{U}p))$ using the algorithm presented in the class. We proved that $\text{sat}(E(q\mathcal{U}p)) = \{s_0, s_1\}$.

We then started applying the algorithm presented in the lecture on Monday, 14.01.19 – using OBDDs in the ordering $[p, q]$ to represent sets of states and transitions – to compute the set of states of this transition system which satisfy $E(q\mathcal{U}p)$.

The steps which were already discussed can be found in file `exercise11-2-first-part.pdf` which can be accessed from the exercise website.

- Carefully read the part of the solution in file `exercise11-2-first-part.pdf`.
- Complete the last steps of the algorithm and compute the OBDD describing the set of states which satisfy $E(q\mathcal{U}p)$.

Please submit your solution until Sunday, 20.01.2019 at 20:00. Please do not forget to write your name on your solution.

Submission possibilities:

- By e-mail to `sofronie@uni-koblenz.de` with the keyword “Homework FSV” in the subject.
- Hand it in to me (Room B225) or drop it in the box in front of Room B224.