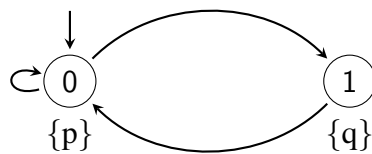


Formal Models SS 2017

Institute for Formal Models and Verification, JKU Linz

Due 22.06.2017

Exercise 41

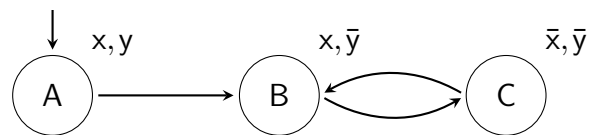


Given Kripke structure K as shown above. Justify your answers to the following questions.

- Does $K \models f$ hold for ACTL formula $f := \mathbf{AX} p \vee \mathbf{AX} q$?
- Let $g := f \setminus \mathbf{A}$. Does $K \models g$ hold?
- Based on the results of a) and b): are f and g equivalent?
- Based on the results of a), b) and c): is there an LTL formula which is equivalent to f ?

Exercise 42

Given Kripke structure K below. Formulate the transition function as propositional formula.



Exercise 43

Formulate (a) two steps, (b) three steps done in K with the previously identified propositional formula.

Exercise 44

- Formulate that state $\bar{x}\bar{y}$ is not reachable after one step in propositional logic (from the initial state). Use limboole to evaluate your encoding.
- Now show that $\bar{x}\bar{y}$ is reachable after two steps. Evaluate your encoding with limboole.