

Formal Models SS 2016

Institute for Formal Models and Verification, JKU Linz

Due 16.06.2016

Exercise 41

Determine the truth values of QBFs

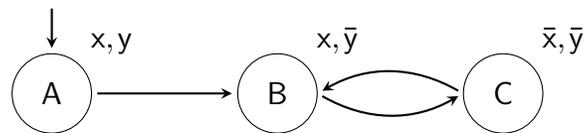
$$\forall x, y \exists z. ((x \rightarrow z) \vee (y \rightarrow \neg z))$$

and

$$\forall x, y \exists z. ((x \rightarrow z) \vee (y \rightarrow \neg z) \vee \neg z).$$

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.
- Encode a) and b) in QBF.