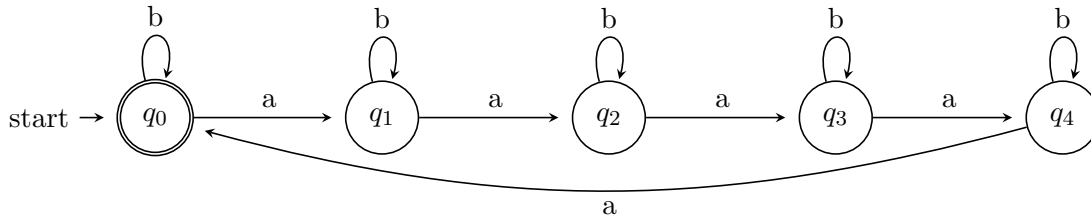
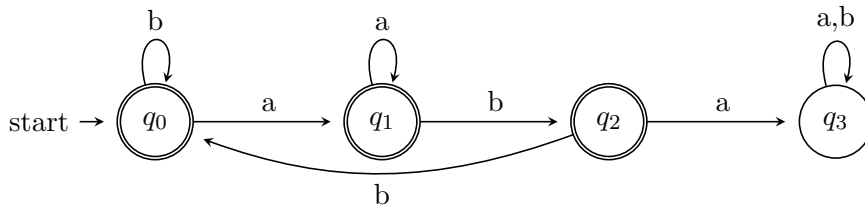
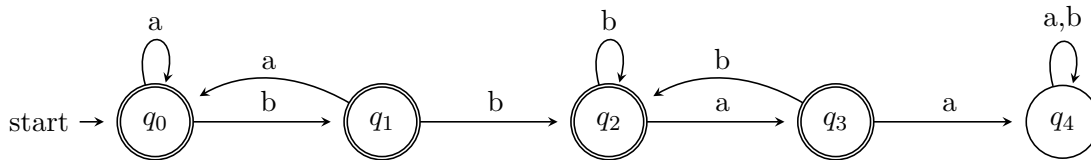


Automaten und Berechenbarkeit

4. Übungsserie

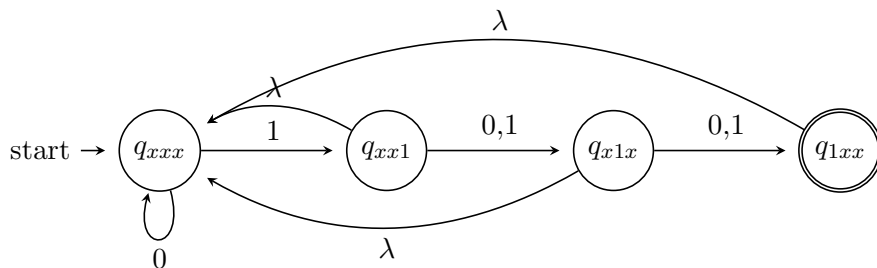
Aufgabe 1:(a) $(b^*ab^*ab^*ab^*a)^*$ (b) $(b^*aa^*bb)^* \mid ((b^*aa^*bb)^*aa^*) \mid ((b^*aa^*bb)^*aa^*b)$ (c) $a^* \mid (a^*ba)^* \mid ((a^*ba)^*b) \mid ((a^*ba)^*bb^*) \mid ((a^*ba)^*b(b^*ab)^*) \mid ((a^*ba)^*b(b^*ab)^*a)$ **Aufgabe 2:**

$$1. N_{Sp} = (Q \cup \{q'_0\}, \Sigma, \delta', q'_0, F'), F' = \{q_0\}, \delta'(q, x) := \begin{cases} F & \text{falls } q = q'_0, x = \lambda \\ p & \text{falls } \delta(p, x) = q, q \in Q, p \in Q, x \in \Sigma_\lambda \\ \emptyset & \text{sonst} \end{cases}$$

wobei $Q \cap \{q'_0\} = \emptyset$

2.

$$\begin{aligned} Sp(L(N)) &= \{Sp(w) \mid w \in L(N)\} \\ &= \{Sp(w) \mid \delta^*(q_0, w) \in F\} \\ &= \{Sp(w) \mid \delta'^*(F, Sp(w)) = q_0\} \\ &= \{w \mid \delta'^*(q'_0, w) \in F'\} \\ &= \underline{\underline{L(N_{Sp})}} \end{aligned}$$

Aufgabe 3:

Aufgabe 4: