

Formale Übersetzungsmodelle

Exercise 17 (BOT \circ FTA \subseteq BOT)

Let $\Sigma = \{\sigma^{(2)}, \gamma^{(1)}, \alpha^{(0)}\}$. Consider the fta $A = (\{p_0, p_1\}, \Sigma, \Sigma, \{p_0\}, R_A)$ and the bu-tt $M = (\{q\}, \Sigma, \Sigma, \{q\}, R_M)$, where R_A contains the rules

$$\alpha \rightarrow p_1(\alpha), \quad \gamma(p_i(x_1)) \rightarrow p_i(\gamma(x_1)), \quad \sigma(p_i(x_1), p_j(x_2)) \rightarrow p_k(\sigma(x_1, x_2))$$

for every i, j , and $k \in \{0, 1\}$ such that $k \equiv i + j \pmod{2}$, and R_M contains

$$\alpha \rightarrow q(\alpha), \quad \gamma(q(x_1)) \rightarrow q(\sigma(\alpha, x_1)), \quad \sigma(q(x_1), q(x_2)) \rightarrow q(\sigma(\sigma(x_1, x_2), x_2)).$$

(a) Describe $L(A)$ and $\tau(M)$!

(b) Apply the method from the lecture to construct a bu-tt M' such that $\tau(M') = \tau(M) \circ \tau(A)$.

Exercise 18 (Intersection of recognizable tree languages)

We already proved that recognizable tree languages are closed under intersection in Ex. 12. Contrast the respective construction to the one for BOT \circ FTA \subseteq BOT!

Exercise 19 (Question & Answer Session)

Ask me questions about the lecture and exercises. ☺