

5.1

GD13 17.11.18

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1)  $L = \{a^n \mid n \geq 0\}$

2)  $L = \{aw \mid w \in \{a,b\}^*\}$

$\cup \{b^m a w \mid w \in \{a,b\}^*, m \geq 1\}$

$= a(a|b)^* \mid b^+ a(a|b)^* = (a|b^+ a)(a|b)^*$

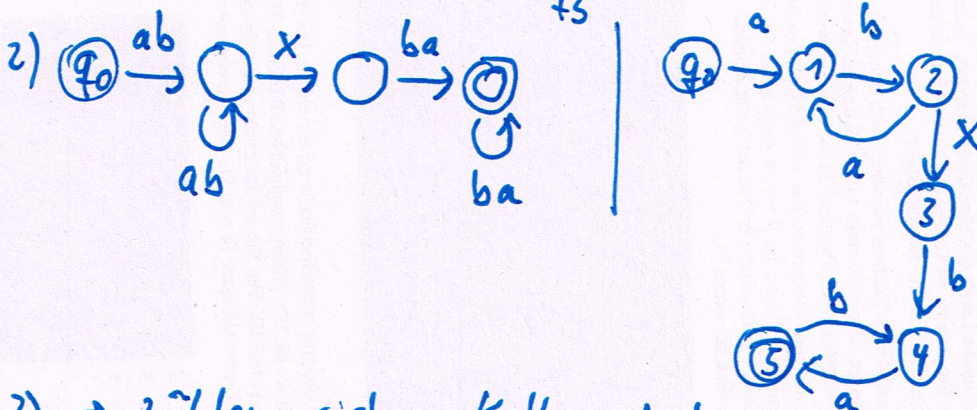
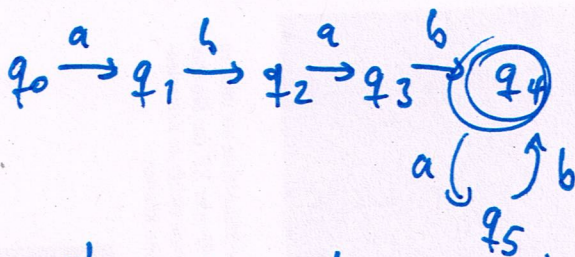
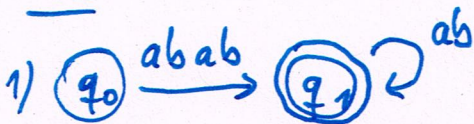
3)  $L = \emptyset$

$[\emptyset, \{\}] \neq \{\epsilon\}$

4)  $L = \{x(aa)^m c b^m \mid x \in \{a,b,c\}, m \geq 0\}$

$= (a|b|c)(aa)^* c b^*$

5.2



3) -> zählen, siehe Keller-Aut.

4)



$\delta:$	$q_0$	$q_1$	$q_2$	$q_3$	$q_4$	$q_5$	$m$
a	$q_1$	<del><math>q_1</math></del>	$q_1$	<del><math>q_3</math></del>	$q_5$	<del><math>q_5</math></del>	$m$
b	<del><math>q_1</math></del>	$q_2$	<del><math>q_2</math></del>	$q_4$	<del><math>q_4</math></del>	$q_4$	$m$
x	<del><math>q_1</math></del>	<del><math>q_1</math></del>	$q_3$	<del><math>q_3</math></del>	<del><math>q_4</math></del>	<del><math>q_5</math></del>	$m$

$m \notin \mathbb{R}$

5.3  $\delta^*$  (aus Buch):

$$\delta^*(s, \varepsilon) = s$$

$$\delta^*(s, aw) = \delta^*(\delta(s, a), w)$$

vs.

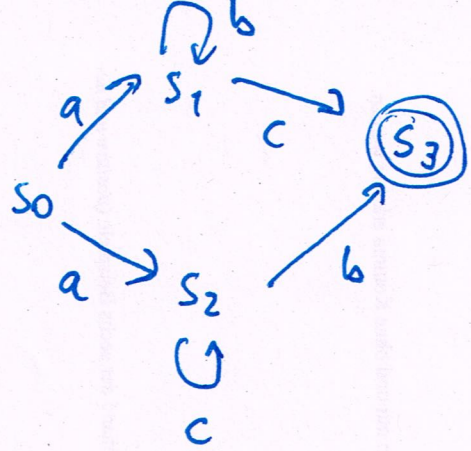
$$\delta'(s, w) = \underbrace{\delta(\dots \delta(\delta(s, a_1), a_2) \dots, a_n)}_{n \times \delta} \quad \begin{array}{l} (w \in \Sigma^*) \\ w = a_1 a_2 \dots a_n \end{array}$$

$$\text{vg. } \sum_{i=1}^n a_i = a_1 + a_2 + \dots + a_n$$

$$\sum_{i=1}^1 a_i = a_1$$

$$\sum_{i=1}^{n+1} a_i = \sum_{i=1}^n a_i + a_{n+1}$$





$S = \text{Pot}(\{s_0, s_1, s_2, s_3\}), |S| = 16 = 2^4$

- $= \{ \emptyset, \{s_0\}, \{s_1\}, \{s_2\}, \{s_3\}, \{s_0, s_1\}, \{s_0, s_2\}, \{s_0, s_3\}, \{s_1, s_2\}, \{s_1, s_3\}, \{s_2, s_3\}, \{s_0, s_1, s_2\}, \{s_0, s_1, s_3\}, \{s_0, s_2, s_3\}, \{s_1, s_2, s_3\}, \{s_0, s_1, s_2, s_3\} \}$

- $= \{ 0000, 1000, 0100, 0010, 0001, 1100, 1010, 1001, 0110, 0101, 0011, 1110, 1101, 1011, 0111, 1111 \}$

Startzustand:  $\{s_0\} = 1000$

