School for Computer Science and Information Technology

Machines and their languages (G51MAL)   Spring 2004

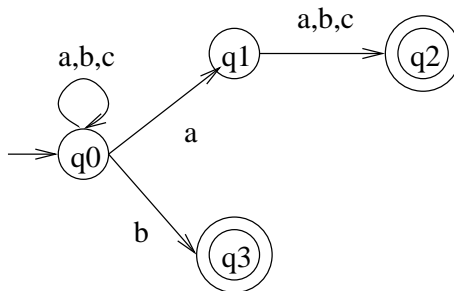Dr. Thorsten Altenkirch

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2nd Coursework

9/2/2004

Deadline: 14/2/2004 - 15:30 (A39)

Consider the following NFA E over $\Sigma_E = \{a, b, c\}$.

1. Give the tuple representation of E, i.e. $E = (Q_E, \Sigma_E, \delta_E, S_E, F_E)$. You may write δ_E as a set of pairs or use a table as suggested in the notes.

2. Which of the following words are accepted by E and which ones aren't?

   - acab
   - bcaa
   - ϵ
   - bab
   - acc

3. Calculate $\hat{\delta}_E(\{q_0, q_1\}, ab)$. The answer should show each step of the calculation.

4. Informally describe the language accepted by E.

5. Apply the subset construction to E to construct a DFA $D(E)$ and draw the transition diagram of $D(E)$ (ignoring unreachable states).