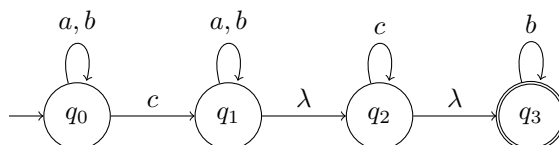


Talen en Automaten

Additional assignments for exercise class on Fri 1st Dec, 2017

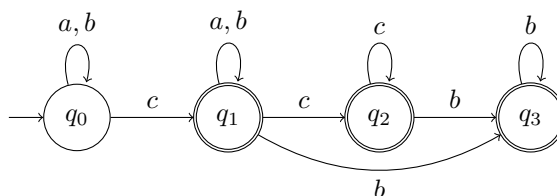
1 Determinisation

Consider the NFA- λ N over the alphabet $A = \{a, b, c\}$ given by



- a) Construct an NFA N' (without λ -transitions) that accepts the same language as N , using the construction from the lecture.

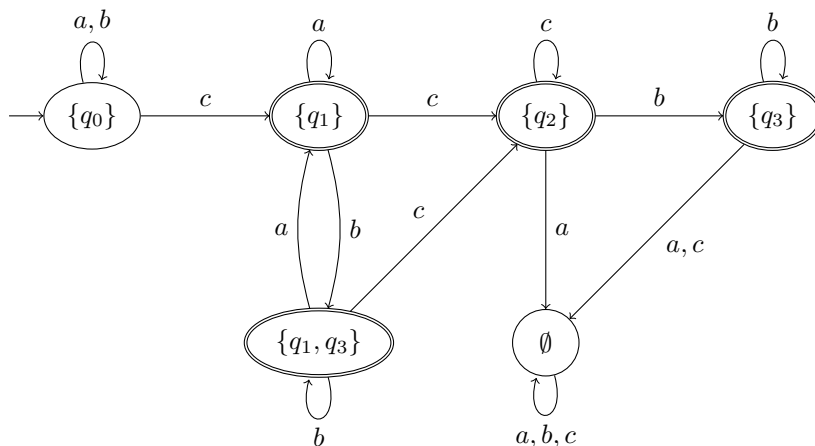
Solution:



□

- b) Construct a DFA D which accepts the same language as N' (from your answer to the previous question) using the determinisation procedure (subset construction) from the lecture. Annotate the states with the set of states of N' they are representing.

Solution:



□

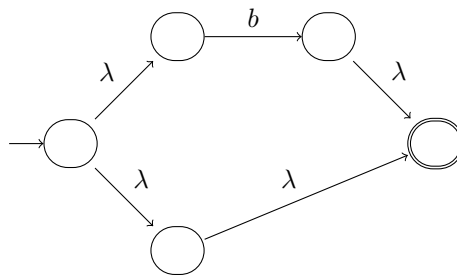
2 From Regular Expressions to NFAs- λ

Let e be the regular expression $(a(b+1))^*$.

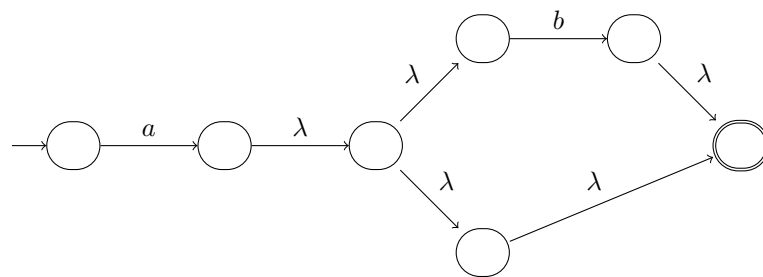
Use the “toolkit” from the lecture to construct an NFA- λ that accepts $\mathcal{L}(e)$. The (2pt) (non-trivial) intermediate steps must be given as part of the solution.

Solution:

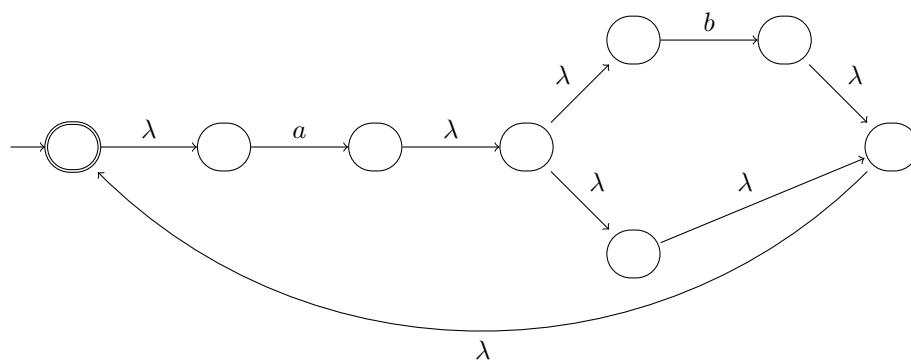
1. NFA for $b+1$



2. NFA for $a(b+1)$



3. NFA for e



□