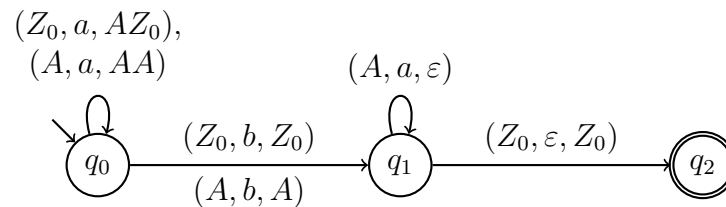




### 3. Presence Exercise Sheet for the Lecture Computer Science Theory

#### Exercise 1: Pushdown automata

Consider the following PDA  $\mathcal{A}$  over  $\Sigma = \{a, b\}$ .



(a) What is  $L(\mathcal{A})$ , i.e., the language accepted by  $\mathcal{A}$  with final states?

*Hint:* Decompose the problem:

- What happens in  $q_0$  ( $q_1$ ,  $q_2$ )?
- When can we go from  $q_0$  to  $q_1$  (from  $q_1$  to  $q_2$ )?

(b) Construct a PDA which accepts the same language, but with the empty stack.