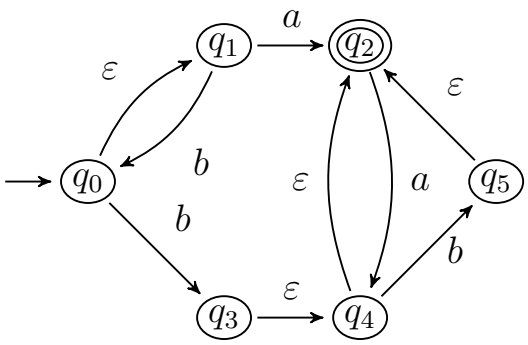
A6: Elimination of ε-Transitions

Task: Eliminate all ε-transitions of the following ε-NFA $\mathfrak{A}$ over $\Sigma := \{a, b\}$ to obtain an equivalent NFA.



A8: Construction of Regular Expressions

Task: Give regular expressions that describe the following languages.

(a) $L := \{w \in \{a, b\}^* \mid |w| \text{ divisible by } 3\}$

(b) $L := \{w \in \{a, b, c\}^* \mid w \text{ does not contain } a, b, \text{ or } c\}$

(c) $L := \{w \in \{a, b\}^* \mid \text{substring } ab \text{ occurs exactly twice in } w, \text{ but not at the end}\}$

A9: From Regular Expressions to Finite Automata

Task: Using Kleene's construction, give the ε-NFA for the regular expression $(aa \mid b)^*$.

A3: Operations on Languages and Automata

Task: Show that regular languages are closed under the reversal operation.

A10: Minimisation of Deterministic Finite Automata

Task: Minimise the following DFA.