Example: Fig 1.57 \((ab \cup a)^*\)
Such a construction usually does not give an NFA with the smallest number of states.

This example ⇒ can be by 2 states.
Example: Fig 1.57 \((ab \cup a)^*\) III

\[
q_1 \quad q_2
\]

\[
\begin{array}{|c|c|c|c|}
\hline
& a & b & \epsilon \\
\hline
q_1 & \{q_1, q_2\} & \emptyset & \emptyset \\
q_2 & \emptyset & \{q_1\} & \emptyset \\
\hline
\end{array}
\]
Regular ⇒ a regular expression: a simple example

- Given an NFA, how can we convert it to a regular expression?
- Example:

Quickly we see that this corresponds to

\[ a^* b(a \cup b)^* \]
Regular ⇒ a regular expression: a simple example

However, in other situations we may not easily see what the regular expression is.