1 Algorithms

Consider the following non-deterministic automata

\[ \begin{array}{c}
  x \\
  \overrightarrow{a} \rightarrow x_1 \overrightarrow{a,b} x_2 \overrightarrow{a,b} x_3 \\
\end{array} \]

**Question 1.1** Compute the minimal deterministic automata accepting the same language of \( x \): first determinise the automata and then use the partition refinement algorithm seen at lesson.

**Question 1.2** Use the algorithm HKC to check whether \( x \) and \( x + x_3 \) accept the same language.

Consider the following non-deterministic automata

\[ \begin{array}{c}
  x \\
  \overrightarrow{a} \rightarrow x_1 \overrightarrow{a,b} x_2 \overrightarrow{a,b} x_3 \overrightarrow{a,b} x_4 \\
\end{array} \]

**Question 1.3** How many states has the minimal deterministic automata accepting the same language of \( x \).