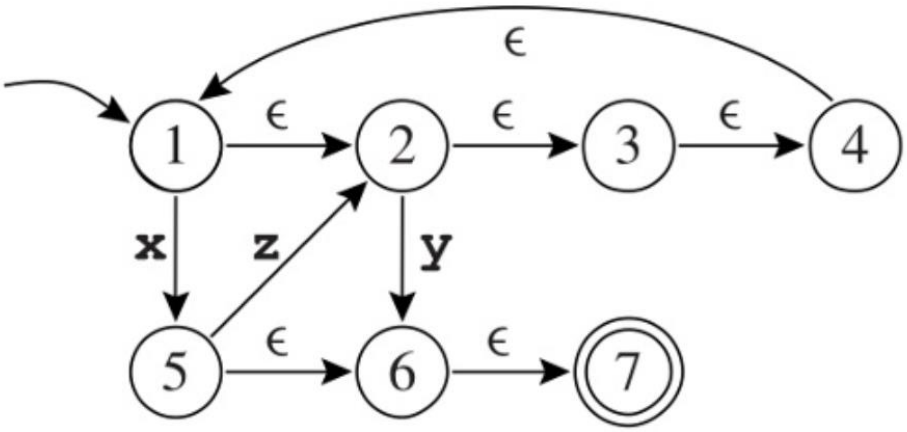
Automata Determinisation

▶ What is the language accepted by the automaton in the figure below?

▶ Show that it is not deterministic.

▶ Determinise it.



Answers:

1) The language accepted by the automaton is the set of strings {x, z, y}, which consist of any number of concatenated “xz” strings followed by “x” or “y”.

The regular expression that represents the language accepted by the automaton is: (xz)∗[xy]

2) By definition, a deterministic finite automaton (DFA) has the following characteristics:

- One transition per input per state.
- No ε (epsilon) moves.

The automaton in question is not deterministic because it contains ε-moves. This means that the machine can transition to a different state without even reading the input.

3)