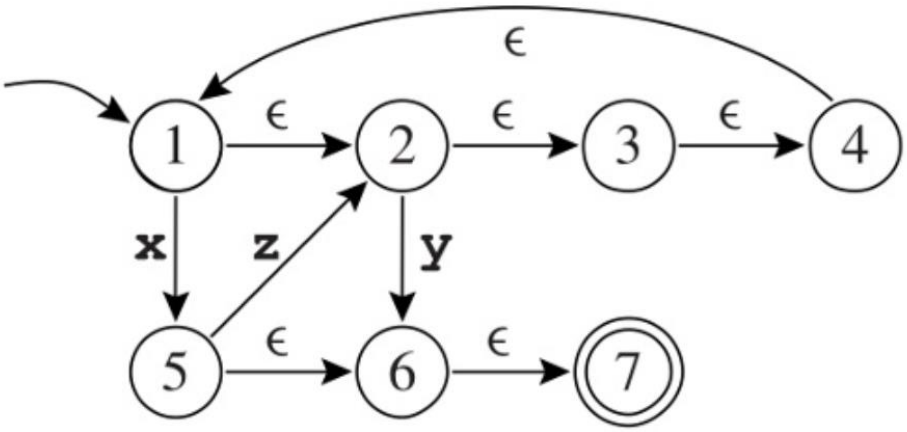
Automata Determinisation

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

▶ Show that it is not deterministic.

▶ Determinise it.



Answers:

1) The automaton accepts any number of concatenated "xz" strings followed by "x".

The automaton accepts any number of concatenated "xz" strings followed by "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)