

Games, graphs, and machines

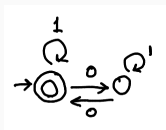


“Begin at the beginning,”
the King said, very gravely,
“and go on till you come to the end: then stop.”

September 29, 2025

Counting evens

This DFA accepts strings with even number of 0s. Convert it to a regex.

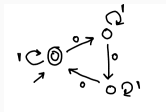


How to do this?

1. Sanitise: one start state and one end state.
2. Pick an internal state q .
For every pair of incoming and outgoing arrows at q : **short-circuit with a new label.**
3. Delete q .
4. Repeat.

Counting mod 3

This DFA accepts strings with number of 0s divisible by 3. Convert it to a regex.



Not containing 000

Not containing 000

Draw a DFA that accepts the strings containing 000, negate it, and convert to a regex.