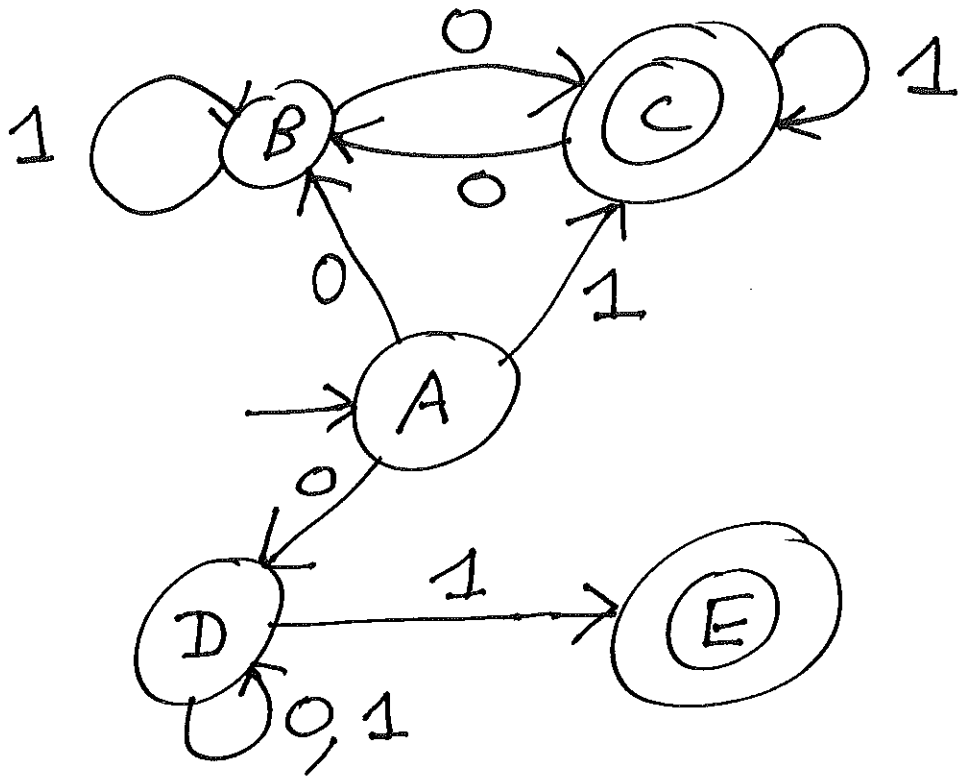


Nondeterministic FAs

Here is an example of an NFA



An NFA accepts an input string if and only if it is possible to be in an accept state at the end of the string.

In the above example,

0001 is accepted (can end in E)

0011 is accepted (can end in C or E)

110 is rejected.

0101 is accepted

What is the language of this NFA?

It is the union of two languages:

- all ^{nonempty} binary strings with even number of 0's
 - all binary strings that start with 0 and end with 1.
-

Note that when checking for acceptance, need to consider all paths. Some paths die, reaching a state that does not have a suitable transition. In other cases, there might be multiple ways to end in an accept state. But the only thing that matters is whether it is possible to end in an accept state.