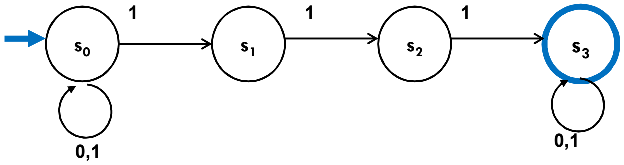
Nondeterministic Finite Automata

An NFA:

Still has exactly one start state and any number of final states.

The NFA accepts x if there is some path from a start state to a final state labeled with x.



Three ways to think about NFAs

"Outside Observer": is there a path labeled by x from the start state, to the final state (if we know the input in advance can we tell the NFA which decisions to make)

"Perfect Guesser": The NFA has input x, and whenever there is a choice of what to do, it magically guesses a transition that will eventually lead to acceptance (if one exists)

"Parallel exploration": The NFA computation runs all possible computations on x in parallel (updating each possible one at every step)

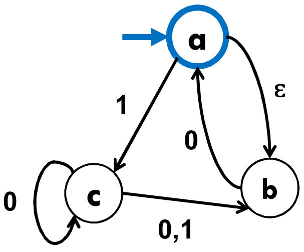
NFA that recognizes "binary strings with a 1 in the third position from the end"

"Perfect Guesser": The NFA has input x, and whenever there is a choice of what to do, it magically guesses a transition that will eventually lead to acceptance (if one exists)

Perfect guesser view makes this easier.

Design an NFA for the language in the title.

An example



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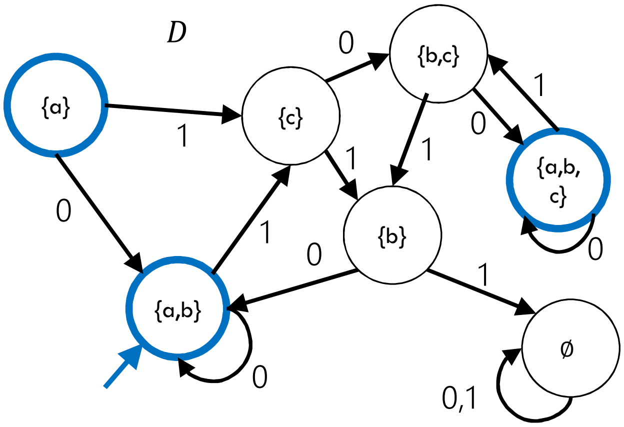
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