FOCS Day 7

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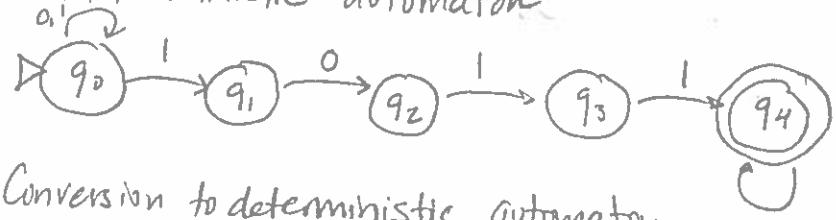
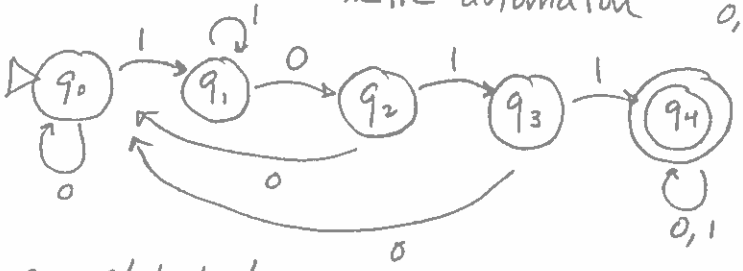
9/20/2016

Part 1: Finite Automata

1. Nondeterministic automaton



2. Conversion to deterministic automaton

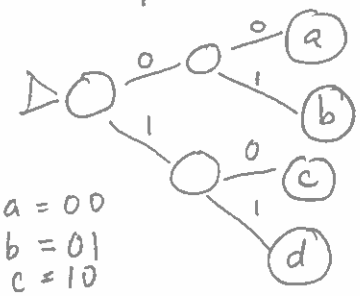


	0	1
q_0	q_0	q_1
q_1	q_2	q_1
q_2	q_0	q_3
q_3	q_0	q_4
q_4	q_4	q_4

3. Larger alphabet

Language: $\{a, b, c, d\}$

More powerful than $\{0, 1\}$? → Can represent more strings?



ex: a = 00
b = 01
c = 10
d = 11

There are more node jumps per character in a language with more chars, but the larger alphabet cannot represent more strings than a smaller alphabet.
→ equally powerful

4. Reverse

DFA "A" that recognizes language "L"
Translation program → L to L-reverse

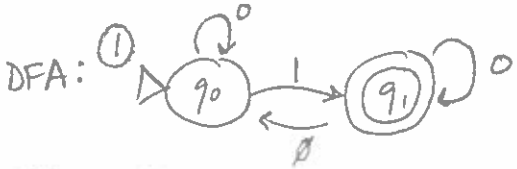
A: q - integer
qlist - list of integers
RuleList - list of FARules

convert qlist to stack, and construct automaton by popping each q off the stack — ?

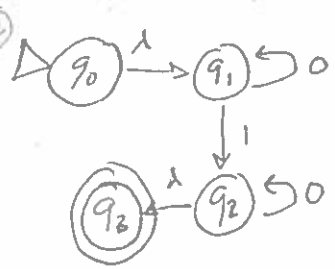
(NOT FINISHED)

6. Regex - matches all and only strings that contain exactly one 1 (and any # of 0s)

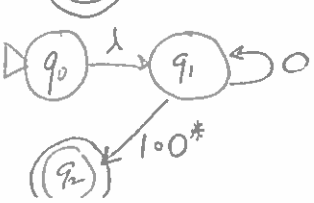
DFA: ①



②



③



④