Exercise 2.1 regular expressions

a) All strings of lowercase letters that begin and end in a

a([a-z]*a)?

b) All strings of lowercase letters that either begin or end in a (or both)

a[a-z]* | [a-z]*a

c) All strings of digits that contain no leading zeroes

nonzero = 1 | 2 | ... | 9
digit = 0 | nonzero
answer = 0 | nonzero digit*

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Exercise 2.1 regular expressions

d) All strings of digits that represent even numbers

even = 0 | 2 | 4 | 6 | 8
answer = even | [1-9] [0-9]* even

e) All strings of digits such that all the 2's occur before all the 9's

dignot9 = 0 | 1 | ... | 8
dignot2 = 0 | 1 | 3 | 4 | ... | 9
answer = dignot9+ dignot2+

f) All strings of a's and b's that contain no three consecutive b's

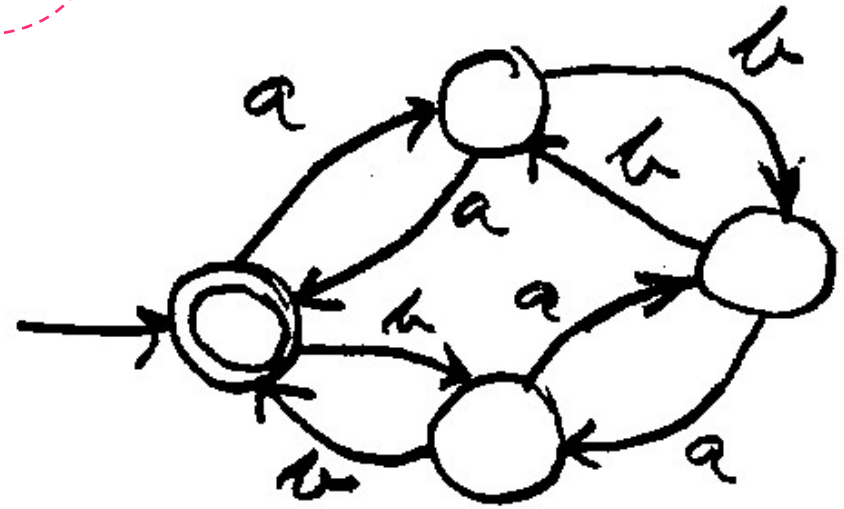
(a | ba | bba)* (e | b | bb)

g) All strings of a's and b's that contain an odd number of a's and an odd number of b's (or both)

b*ab*(ab*ab*)* | a*ba*(ba*ba*)*

h) All strings of a's and b's with an even number of a's and an even number of b's

(aa | bb)* ((ab | ba) (aa | bb)* (ab | ba) (aa | bb)*)*



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