Compiler
Assignment 3
Automatic Conversion from Regular Expressions to Finite Automata

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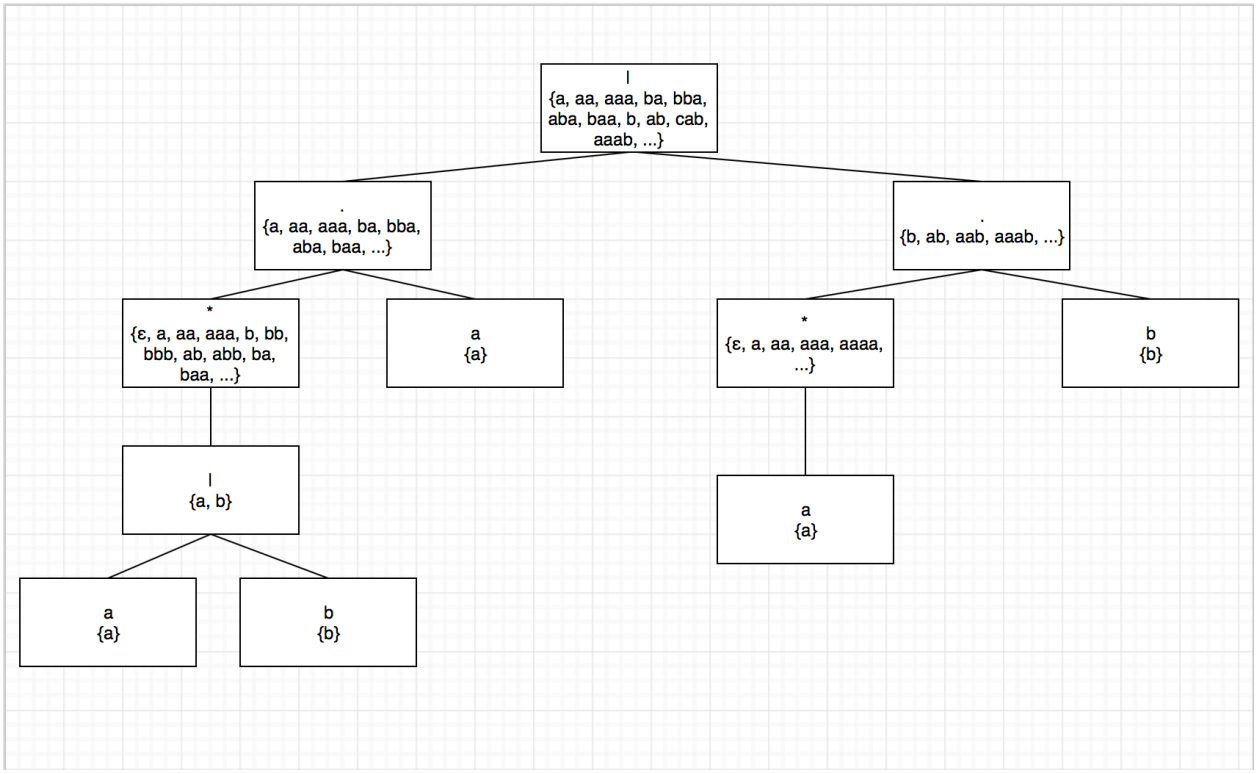
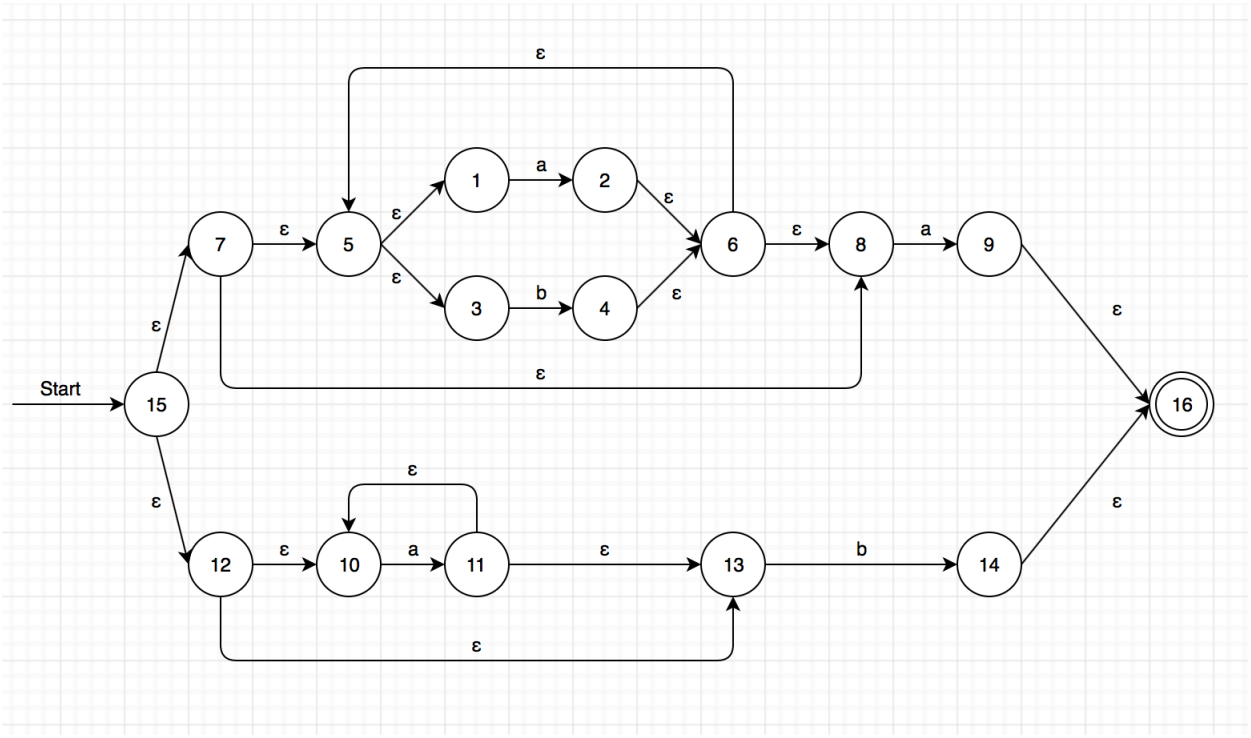
1 Question 1


|
{a, aa, aaa, ba, bba, aba, baa, b, ab, cab, aaab, ...}
.
{a, aa, aaa, ba, bba, aba, baa, ...}
.
{b, ab, aab, aaab, ...}
*
{ε, a, aa, aaa, b, bb, bbb, ab, abb, ba, baa, ...}
a
{a}
*
{ε, a, aa, aaa, aaaa, ...}
b
{b}
|
{a, b}
a
{a}
a
{a}
b
{b}

2 Question 2



3 Question3

$S_0 = \epsilon - closure(\{15\})$
$= \{1, 3, 5, 7, 8, 10, 12, 13, 15\} = A$

$S_1 = \epsilon - closure(move(A, a))$
$= \epsilon - closure(\{2, 9, 11\})$
$= \{1, 2, 3, 5, 6, 8, 9, 10, 11, 13, 16\} = B$

$S_2 = \epsilon - closure(move(A, b))$
$= \epsilon - closure(\{4, 14\})$
$= \{1, 3, 4, 5, 6, 8, 14, 16\} = C$

$S_3 = \epsilon - closure(move(B, a))$
$= \epsilon - closure(\{2, 9, 11\}) = D$

$S_4 = \epsilon - closure(move(B, b))$
$= \epsilon - closure(\{4, 14\}) = C$

$S_5 = \epsilon - closure(move(C, a))$
$= \epsilon - closure(\{2, 9\})$
$= \{1, 2, 3, 5, 6, 8, 9, 16\} = D$

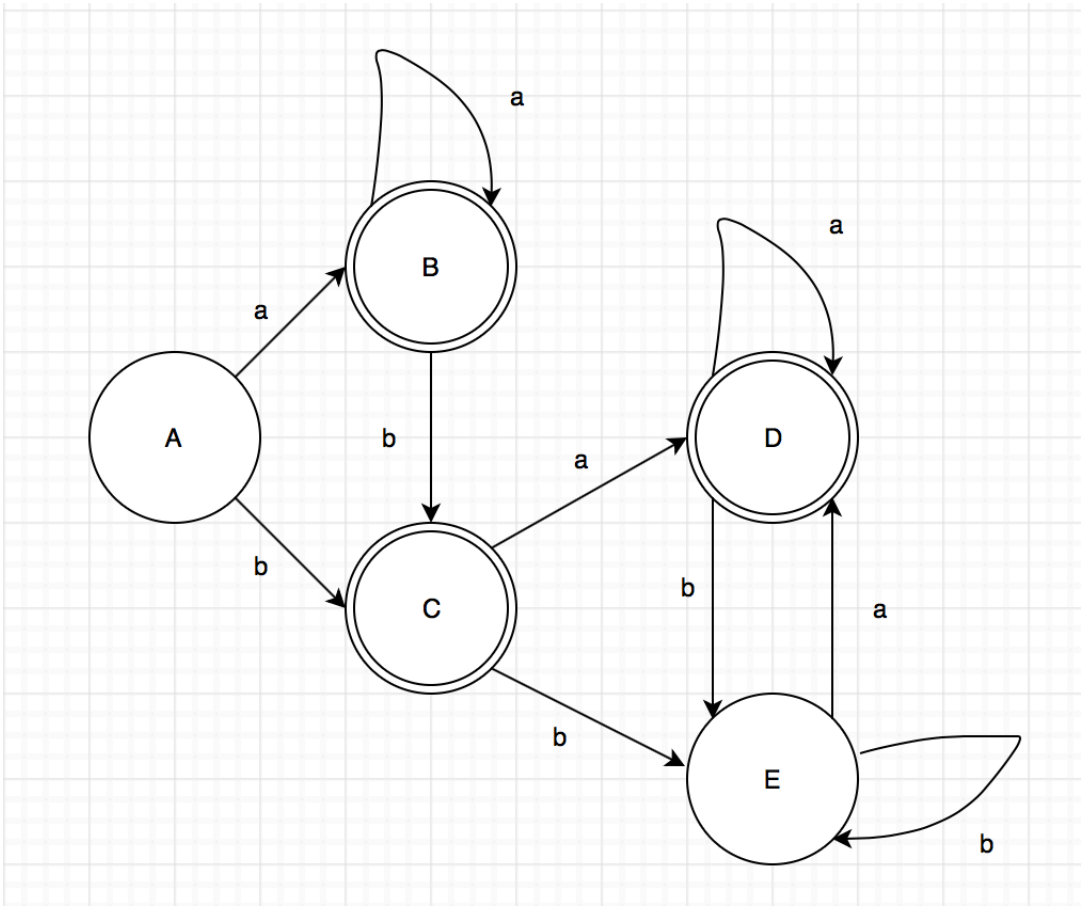
$S_6 = \epsilon - closure(move(C, b))$
$= \epsilon - closure(\{4\})$
$= \{1, 3, 4, 5, 6, 8\} = E$

$S_7 = \epsilon - closure(move(D, a))$
$= \epsilon - closure(\{2, 9\}) = D$

$S_8 = \epsilon - closure(move(D, b))$
$= \epsilon - closure(\{4\}) = E$

$S_9 = \epsilon - closure(move(E, a))$
$= \epsilon - closure(\{2, 9\}) = D$

$S_{10} = \epsilon - closure(move(E, b))$
$= \epsilon - closure(\{4\}) = E$


a
B
a
a
A
b
D
a
b
C
b
a
b
E
b