Regular Expression to E-NFA

By Thompson's Construction in C

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1. How to execute

In Windows,

1. Execute CMD

2. Go to 'Win' Directory

3. Usage : >Automata.exe [regexp] ex> Automata.exe ab(a+b)\*cde\*

In Linux(Unix),

1. Execute Terminal

2. Go to 'Unix' Directory

3. $make

4. $ls (Check 'Automata')

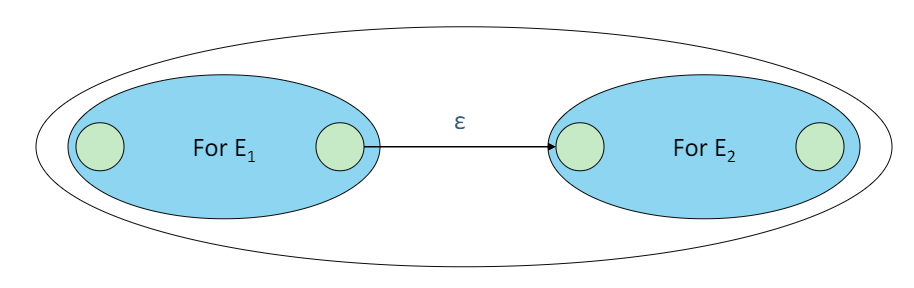
5. Usage : $./Automata [regexp] ex> ./Automata ab(a+b)\*ab

2. Flow of program

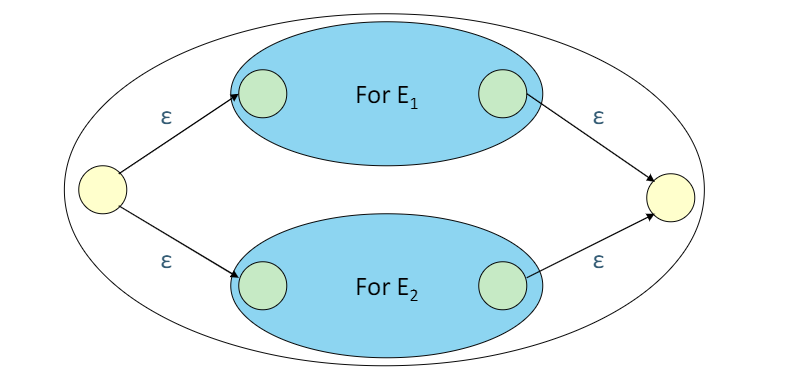
* Get input(regular expression) from user (argv[1])
* Extract alphabets from input && Check that the regular expression is correct or not (regex\_extract\_alphabet, regex\_input\_validation)
  + If not correct, return
* Insert additional symbol that represents 'concatenation operator (.)' to original regular expression. (regex\_insert\_concat)
* Convert concat-added regular expression to postfix.(regex\_to\_postfix)
* Create an NFA with postfix expression.(postfix\_to\_nfa)& Print E-NFA
  + Function 'nfa\_symbol' works as



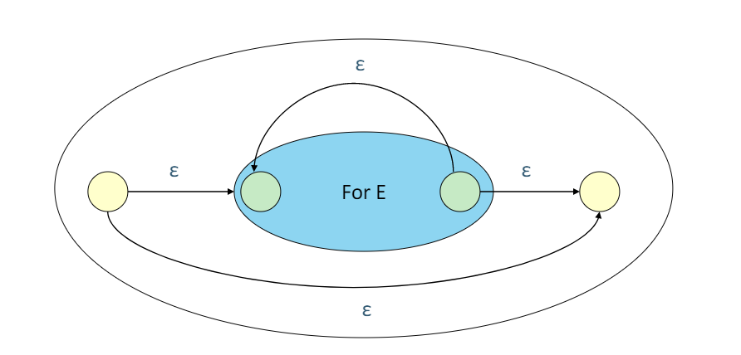
* + Function 'nfa\_concat' works as



* + Function 'nfa\_union' works as



* + Function 'nfa\_kleene' works as

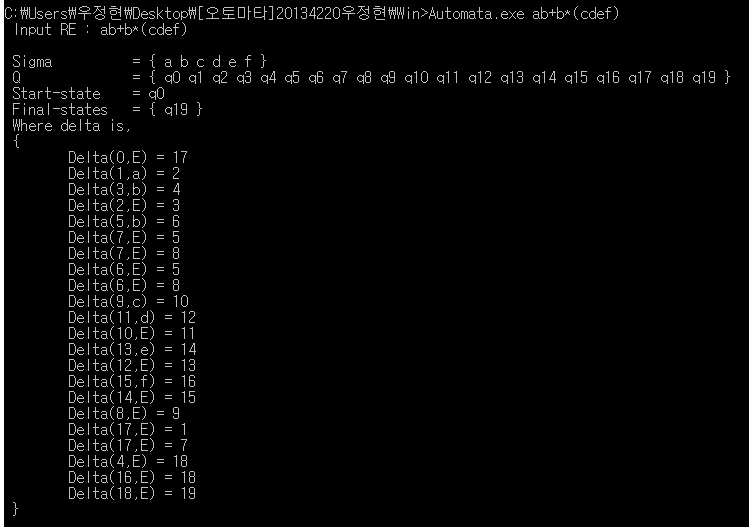


3. Result

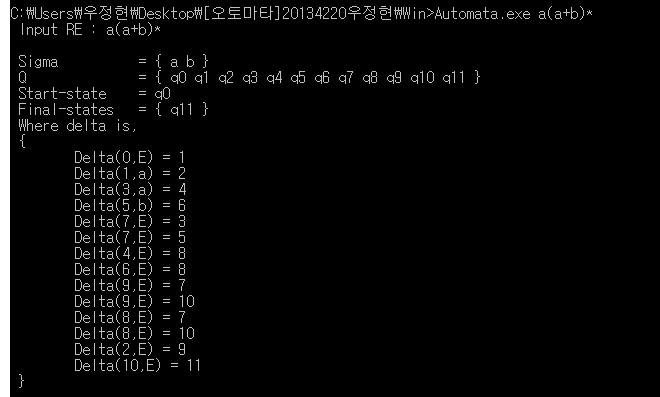
※ 'E' in Delta means Epsilon ( Not a symbol! )

In Windows,

~Win>Automata.exe ab+b\*(cdef)



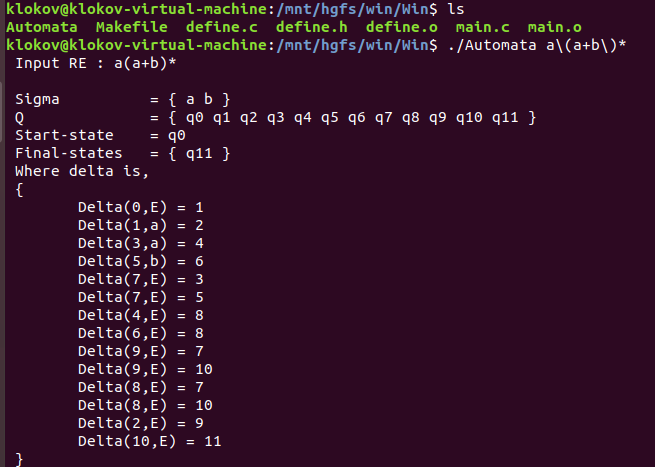
~Win>Automata.exe a(a+b)\*



In Linux,

~Unix$ make

~Unix$ ./Automata a\(a+b\)\* (== a(a+b)\*)



~Unix$ ./Automata (01)\*110(0+1)\*

