

Project Description

First, we get lines of right-linear-grammar, delete useless states and make map of left side variables to list of right-side expression from that variable.

Then, we build a simple NFA class with 1 attribute: List of Transitions with the format of “**Strt_State1->terminals->Dst_State**”

After that, we convert NFA to Adjacency Matrix with default value of **NULL** and with matrix main diagonal of **landa**. Then we add transitions to matrix.

Then we apply the Recursive Transitive Closure Method (explained in link below) to our Adjacency Matrix to extract Regex from it.

<https://cs.stackexchange.com/questions/2016/how-to-convert-finite-automata-to-regular-expressions>

Example1:

Input:

S#aA

A#bA

A#cB

B#dB

B#x

Output:

$a((\lambda+b))^*c((\lambda+d))^*x$

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Example2:

Input:

S#aS

S#bS

S#cA

A#bcA

A#eB

B#xA

B#z

Output:

$c((\lambda+bc))*e(((\lambda)+(x((\lambda+bc))*e)))*z$

Example3:

Input:

S#aA

S#bS

A#bT (will be deleted)

A#ddB

B#xA

B#y

A#z

Output:

$((az)+(add(((\lambda)+(xdd)))*((y)+(xz))))$