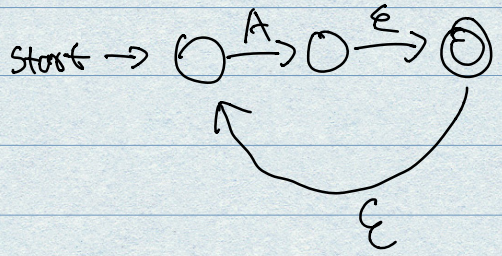
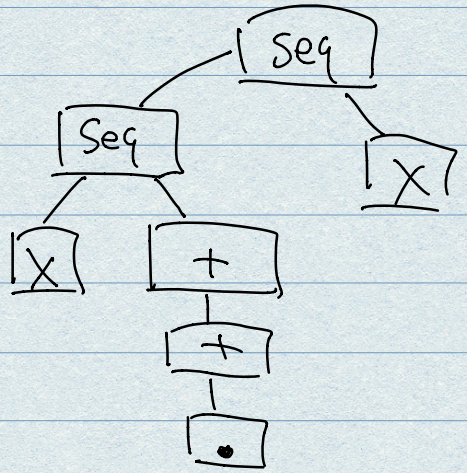
NFA of /A+/



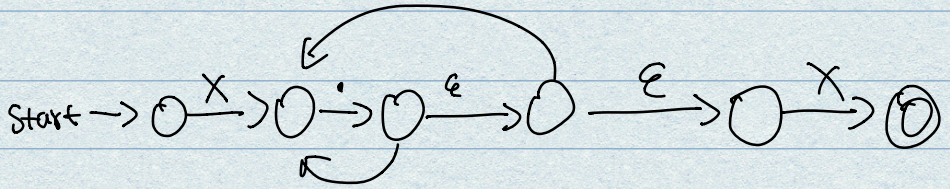
Ex] NFA of (A+)+

Exercise: X(.+)+X

1. Generate AST

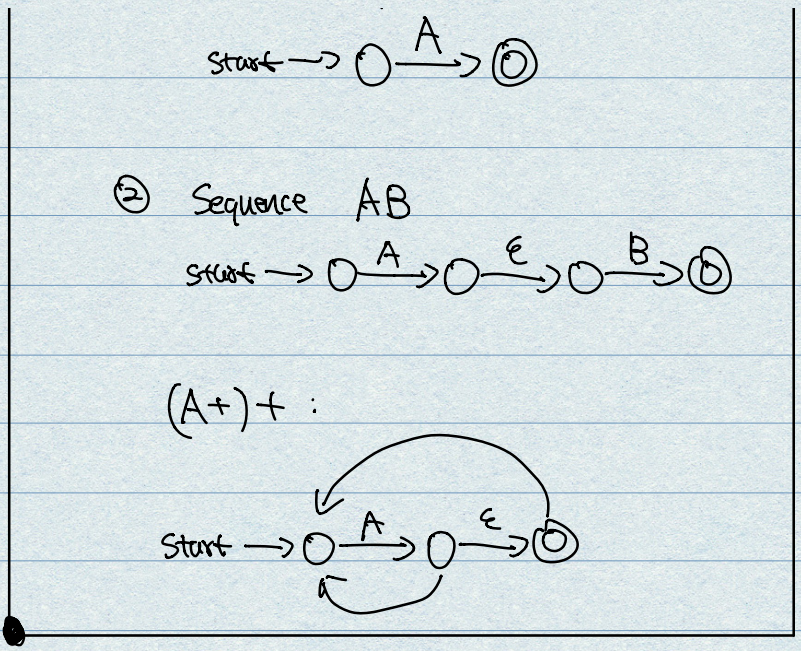


2. AST → NFA

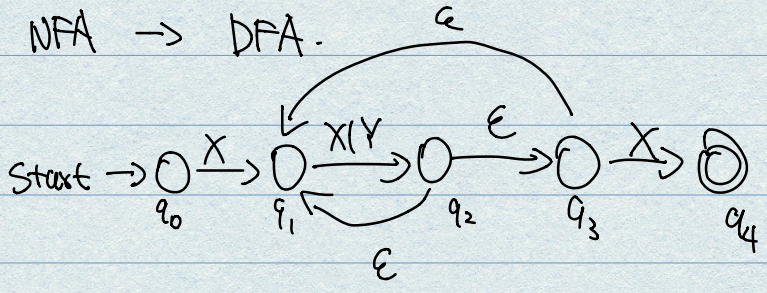


Reference Automata

① Terminal A

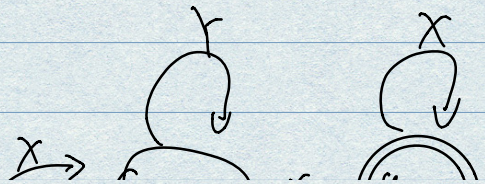


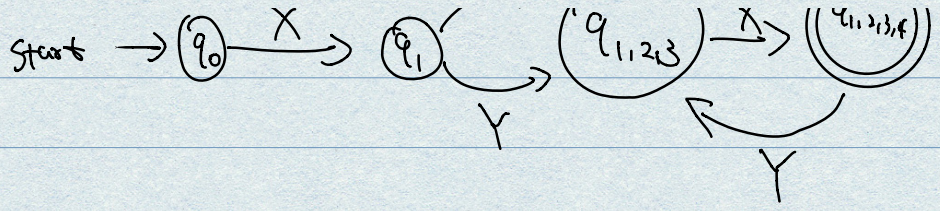
From NFA → DFA.



1. $T(q_0, X) = \{q_1\}$
2. $T(q_1, X) = \{q_1, q_2, q_3\}$,
3. $T(q_1, Y) = \{q_1, q_2, q_3\}$,
4. $T(q_2, X) = \{q_1, q_2, q_3, q_4\}$.
5. $T(q_2, Y) = \{q_1, q_2, q_3\}$.
6. $T(q_3, X) = \{q_1, q_2, q_3, q_4\}$.
7. $T(q_3, Y) = \{q_1, q_2, q_3\}$.

DFA:





How big is the DFA ?

Worst Case : $O(2^n)$

Shallow V.S Deep Embedding.

↳ optimizations.