

Recap



COMP 524: Programming Language Concepts
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Why can't we specify all programming language syntax with regular grammars?

Because regular grammars cannot express most recursive structures (such as balanced parenthesis).

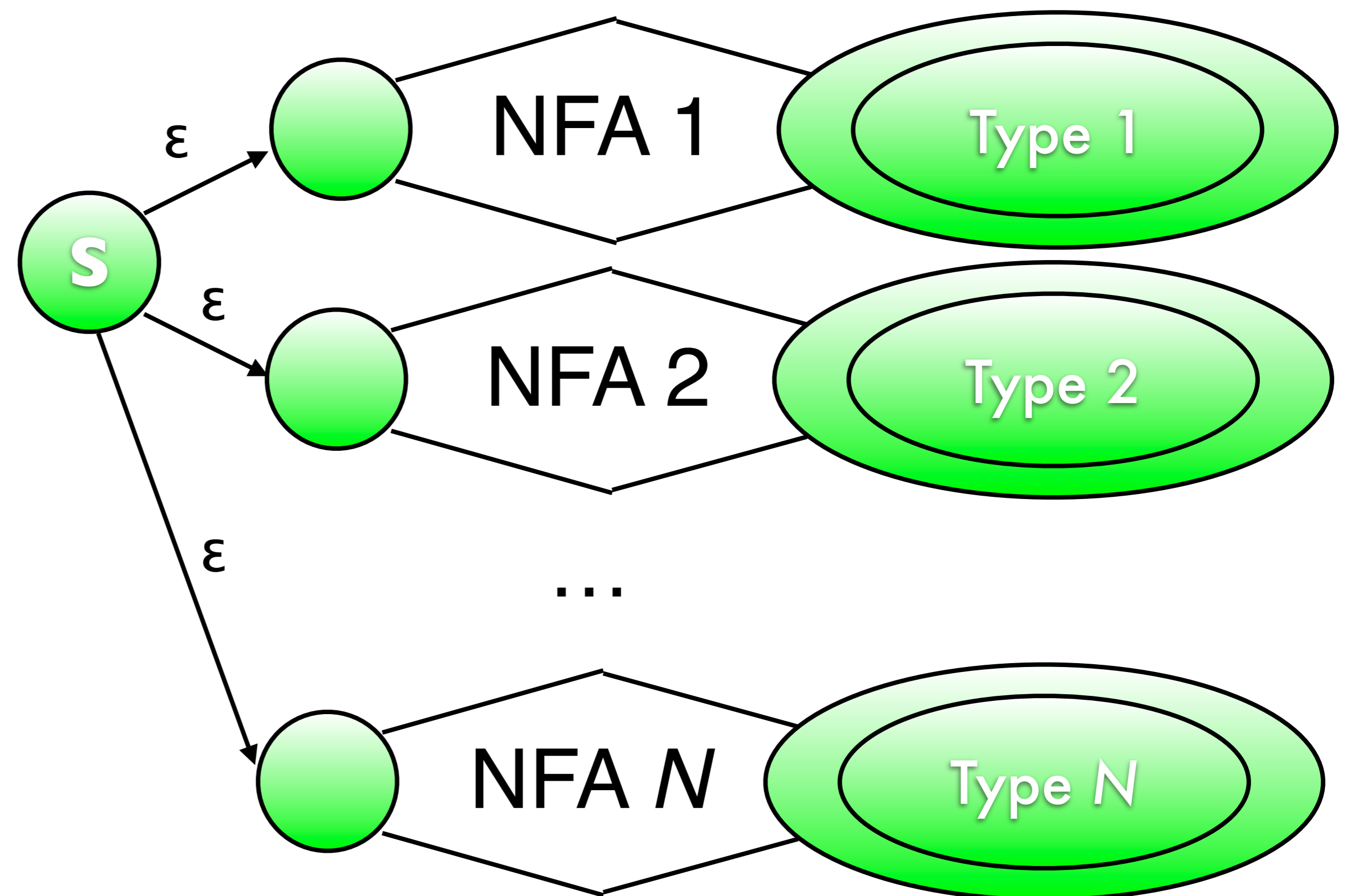
What's the BNF? When was it created?

Backus Naur Form
1958 (Backus) and 1960 (Naur).

Outline the steps that are required to create an DFA that can recognize and report multiple token types?

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1. create NFA for each token type
2. create combined NFA with multiple final states, each corresponding to one token type
3. create DFA from combined NFA
4. optimize DFA
Important: final states that recognize different tokens are not in the same equivalence class.



What is a derivation? (in the context of grammars)

A sequence of string-to-string mappings that is obtained by substituting a non-terminal symbol with the body of one of its productions in each step.

A derivation begins with a string consisting only of the start symbol.

A derivation ends when there are only terminal symbols left in the string.

Which are the two most-commonly used grammar classes to implement $O(n)$ parsers?

LL and LR.

What does LL and LR mean?

LL: left-to-right, left-most derivation

LR: left-to-right, right-most derivation