

Language L:

Arithmetic expressions with:

"integers", "+", "-", "x", "/", "(", ")"

$X = \{0-9, x, -, +, /, (,)\}$

our tokens are regular so we use finite automata (DFA)
tokens:

INT, PLUS, MUL, LPAREN, RPAREN
0-9 + x ()

Language Grammar:

$S \rightarrow S + T \mid T$
 $T \rightarrow T \times F \mid F$
 $F \rightarrow (E) \mid \text{INT.}$

Grammar ~~not for~~ Pour appliquer FNG
removing left recursion:

$S \rightarrow T S'$
 $S' \rightarrow + T S' \mid \epsilon$
 $T \rightarrow F T'$
 $T' \rightarrow \times F T' \mid \epsilon$
 $F \rightarrow (E) \mid \text{INT.}$

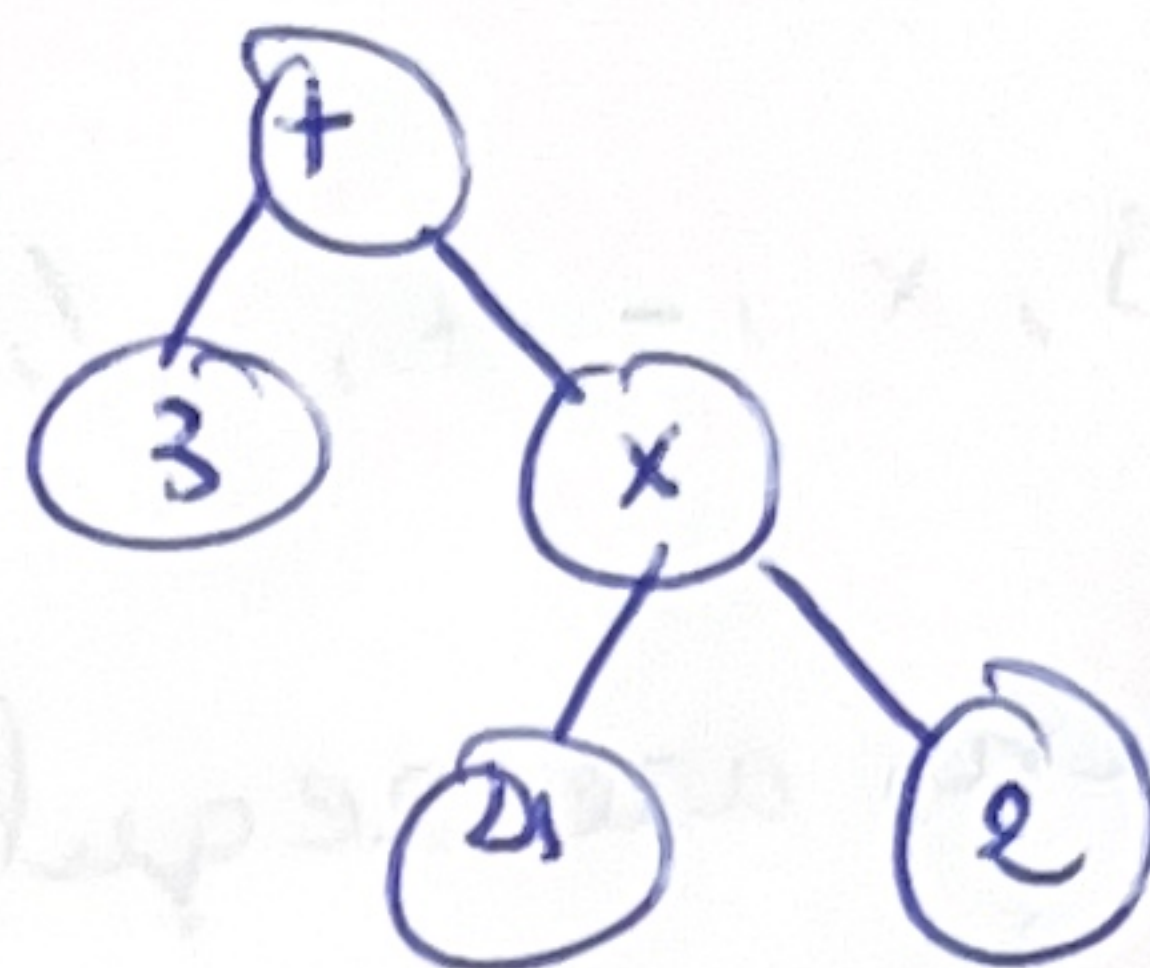
← our FNG
our autan ate in FNG
F.

Abstract Syntax Tree.

2 Types of Nodes :- binary Expression (+, x)
- Atomic Number

example

$$3 + 4 \times 2 \rightarrow$$



$$T \mid T + T \leftarrow T$$

$$T \mid T \times T \leftarrow T$$

$$T \mid (T) \mid \text{INT} \leftarrow T$$

$$T \leftarrow T$$

$$T \mid T + T \leftarrow T$$

$$T \mid T \times T \leftarrow T$$

$$T \mid T \mid (T) \leftarrow T$$

$$T \mid (T) \mid \text{INT} \leftarrow T$$