

Week 4

miércoles, 9 de febrero de 2022 11:04 a. m.

Start symbol: any NONTERMINAL/TERMINAL from which the tree elements are derived.
 ↳ productions/strings of the language

LEAF: always a terminal.

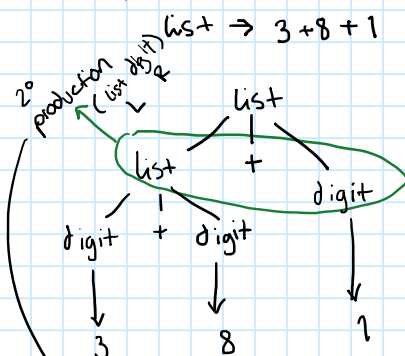
→ The amount of child nodes is determined by the productions.

↳ Example:
 bloque → begin ^{any instruction} props-optional end
 block node has 3 children

Syntax Analysis } search process

Write the examples of the language defined by the productions:

a) $3 + 8 + 1$



if there was a production allowing $list \rightarrow digit + list$, there would be a different tree: AMBIGUOUS (2+ trees to write the same)

$3 + 8 + 1$
 start since
 2nd production, since it finds the 1st terminal

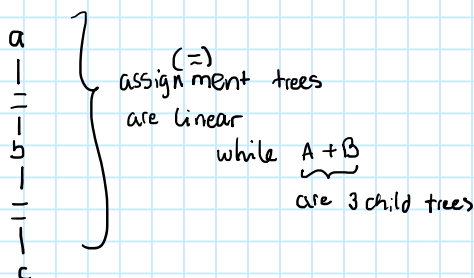
Ambiguous: if you have many syntax trees, which is basically having many ways of writing a line: many equivalent productions.
 different trees mean diff structure (not just numbers)

Association of operators

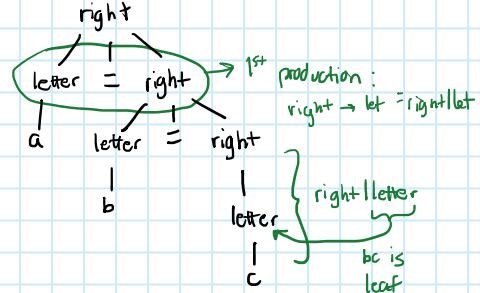
$=, +, -$

$right \rightarrow letter = right \mid letter$ } which means $letter \rightarrow right \rightarrow letter$

$a = b = c \rightarrow a$ is the root of the tree



trees { $+,- \rightarrow$ are solved from left to right
 $= \rightarrow$ are solved from right to left



$9 + 5 * 2$ } even w/o "()" we still have association

HW: do the productions
terminals: $+, -, *, /$ } a)

define prop like c } b)

→ $if | for | while | do while | if else | switch$ | expr
→ just one form of each terminal