



PARADIGMAS



sintaxe

DE PROGRAMAÇÃO



Derivação à Extrema Esquerda

```
<programa> → begin <lista_inst> end
<lista_inst> → <inst>
                | <inst> ; <lista_inst>
<inst> → <var> = <expressão>
<var> → A | B | C
<expressão> → <var> + <var>
                | <var> - <var>
                | <var>
```

```
<programa> = > begin <lista_inst> end
            = > begin <inst> ; <lista_inst> end
            = > begin <var> = <expressão> ; <lista_inst> end
            = > begin A = <expressão> ; <lista_inst> end
            = > begin A = <var> + <var> ; <lista_inst> end
            = > begin A = B + <var> ; <lista_inst> end
            = > begin A = B + C ; <lista_inst> end
            = > begin A = B + C ; <inst> end
            = > begin A = B + C ; <var> := <expressão> end
            = > begin A = B + C ; B = <expressão> end
            = > begin A = B + C ; B = <var> end
            = > begin A = B + C ; B = C end
```



$\langle \text{atribuição} \rangle \rightarrow \langle \text{id} \rangle = \langle \text{expr} \rangle$
 $\langle \text{id} \rangle \rightarrow A \mid B \mid C$
 $\langle \text{expr} \rangle \rightarrow \langle \text{id} \rangle + \langle \text{expr} \rangle$
 | $\langle \text{id} \rangle * \langle \text{expr} \rangle$
 | ($\langle \text{expr} \rangle$)
 | $\langle \text{id} \rangle$

Atribuição Simples



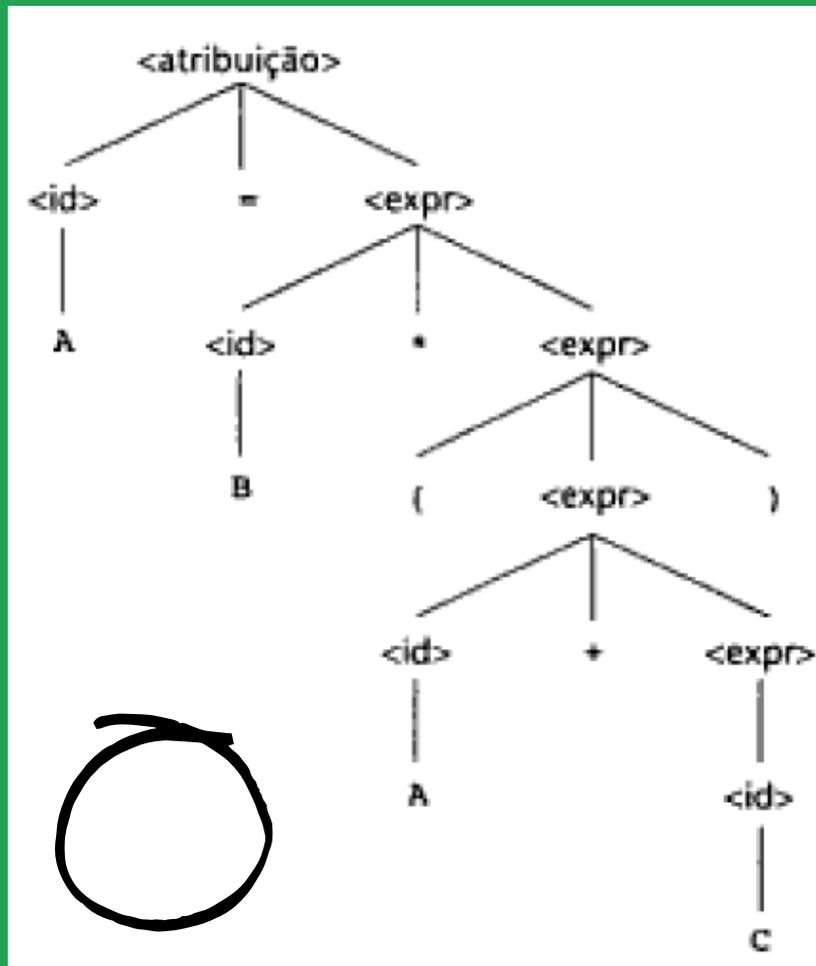
$\langle \text{atribuição} \rangle = \rangle \langle \text{id} \rangle = \langle \text{expr} \rangle$
 $= \rangle A = \langle \text{expr} \rangle$
 $= \rangle A = \langle \text{id} \rangle * \langle \text{expr} \rangle$
 $= \rangle A = B * \langle \text{expr} \rangle$
 $= \rangle A = B * (\langle \text{expr} \rangle)$
 $= \rangle A = B * (\langle \text{id} \rangle + \langle \text{expr} \rangle)$
 $= \rangle A = B * (A + \langle \text{expr} \rangle)$
 $= \rangle A = B * (A + \langle \text{id} \rangle)$
 $= \rangle A = B * (A + C)$



Árvores de Análise (Parse Trees)



$\langle \text{atribuição} \rangle \Rightarrow \langle \text{id} \rangle = \langle \text{expr} \rangle$
 $\Rightarrow A = \langle \text{expr} \rangle$
 $\Rightarrow A = \langle \text{id} \rangle * \langle \text{expr} \rangle$
 $\Rightarrow A = B * \langle \text{expr} \rangle$
 $\Rightarrow A = B * (\langle \text{expr} \rangle)$
 $\Rightarrow A = B * (\langle \text{id} \rangle + \langle \text{expr} \rangle)$
 $\Rightarrow A = B * (A + \langle \text{expr} \rangle)$
 $\Rightarrow A = B * (A + \langle \text{id} \rangle)$
 $\Rightarrow A = B * (A + C)$



$\langle \text{atribuição} \rangle \rightarrow \langle \text{id} \rangle = \langle \text{expr} \rangle$
 $\langle \text{id} \rangle \rightarrow A \mid B \mid C$
 $\langle \text{expr} \rangle \rightarrow \langle \text{expr} \rangle + \langle \text{expr} \rangle$
 $\mid \langle \text{expr} \rangle * \langle \text{expr} \rangle$
 $\mid (\langle \text{expr} \rangle)$
 $\mid \langle \text{id} \rangle$

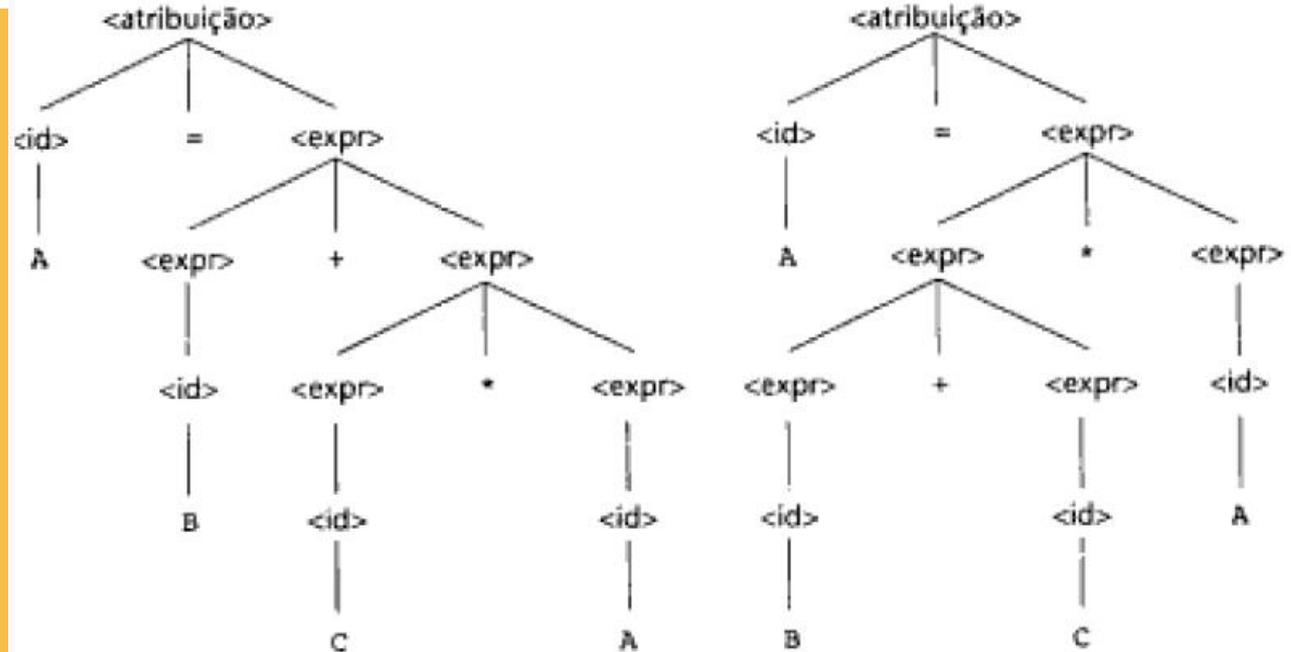
Gramática Ambígua

$$A = B + C * A$$



*

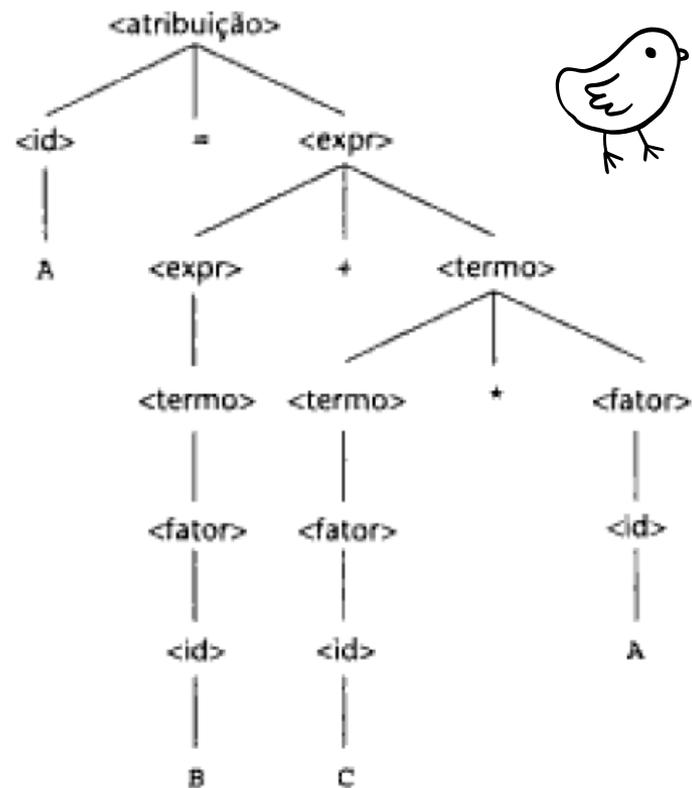
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Gramática para Expressões

$\langle \text{atribuição} \rangle \rightarrow \langle \text{id} \rangle = \langle \text{expr} \rangle$
 $\langle \text{id} \rangle \rightarrow A \mid B \mid C$
 $\langle \text{expr} \rangle \rightarrow \langle \text{expr} \rangle + \langle \text{expr} \rangle$
 $\mid \langle \text{termo} \rangle$
 $\langle \text{termo} \rangle \rightarrow \langle \text{termo} \rangle * \langle \text{fator} \rangle$
 $\mid \langle \text{fator} \rangle$
 $\langle \text{fator} \rangle \rightarrow (\langle \text{expr} \rangle)$
 $\mid \langle \text{id} \rangle$

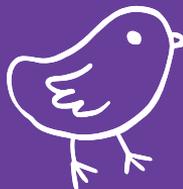
$\langle \text{atribuição} \rangle = \rangle \langle \text{id} \rangle = \langle \text{expr} \rangle$
 $= \rangle A = \langle \text{expr} \rangle$
 $= \rangle A = \langle \text{expr} \rangle + \langle \text{termo} \rangle$
 $= \rangle A = \langle \text{termo} \rangle + \langle \text{termo} \rangle$
 $= \rangle A = \langle \text{fator} \rangle + \langle \text{termo} \rangle$
 $= \rangle A = \langle \text{id} \rangle + \langle \text{termo} \rangle$
 $= \rangle A = B + \langle \text{termo} \rangle$
 $= \rangle A = B + \langle \text{termo} \rangle * \langle \text{fator} \rangle$
 $= \rangle A = B + \langle \text{fator} \rangle * \langle \text{fator} \rangle$
 $= \rangle A = B + \langle \text{id} \rangle * \langle \text{fator} \rangle$
 $= \rangle A = B + C * \langle \text{fator} \rangle$
 $= \rangle A = B + C * \langle \text{id} \rangle$
 $= \rangle A = B + C * A$

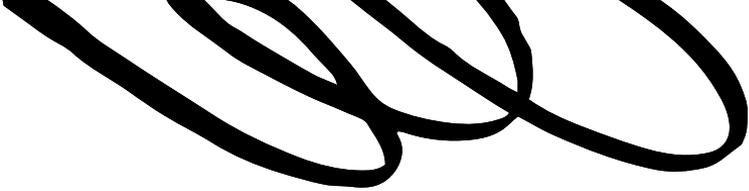


Derivação à Extrema Direita

$\langle \text{atribuição} \rangle \rightarrow \langle \text{id} \rangle = \langle \text{expr} \rangle$
 $\langle \text{id} \rangle \rightarrow A \mid B \mid C$
 $\langle \text{expr} \rangle \rightarrow \langle \text{expr} \rangle + \langle \text{expr} \rangle$
 $\mid \langle \text{termo} \rangle$
 $\langle \text{termo} \rangle \rightarrow \langle \text{termo} \rangle * \langle \text{fator} \rangle$
 $\mid \langle \text{fator} \rangle$
 $\langle \text{fator} \rangle \rightarrow (\langle \text{expr} \rangle)$
 $\mid \langle \text{id} \rangle$

$\langle \text{atribuição} \rangle = \rangle \langle \text{id} \rangle = \langle \text{expr} \rangle$
 $= \rangle \langle \text{id} \rangle = \langle \text{expr} \rangle + \langle \text{termo} \rangle$
 $= \rangle \langle \text{id} \rangle = \langle \text{termo} \rangle + \langle \text{termo} \rangle + \langle \text{fator} \rangle$
 $= \rangle \langle \text{id} \rangle = \langle \text{expr} \rangle + \langle \text{termo} \rangle * \langle \text{id} \rangle$
 $= \rangle \langle \text{id} \rangle = \langle \text{expr} \rangle + \langle \text{termo} \rangle * A$
 $= \rangle \langle \text{id} \rangle = \langle \text{expr} \rangle + \langle \text{fator} \rangle * A$
 $= \rangle \langle \text{id} \rangle = \langle \text{expr} \rangle + \langle \text{id} \rangle * A$
 $= \rangle \langle \text{id} \rangle = \langle \text{expr} \rangle + C * A$
 $= \rangle \langle \text{id} \rangle = \langle \text{termo} \rangle + C * A$
 $= \rangle \langle \text{id} \rangle = \langle \text{fator} \rangle + C * A$
 $= \rangle \langle \text{id} \rangle = \langle \text{id} \rangle + C * A$
 $= \rangle \langle \text{id} \rangle = B + C * A$
 $= \rangle A = B + C * A$





LOVE!

THANK YOU!

