

程序设计语言概论 第一次作业

周书予

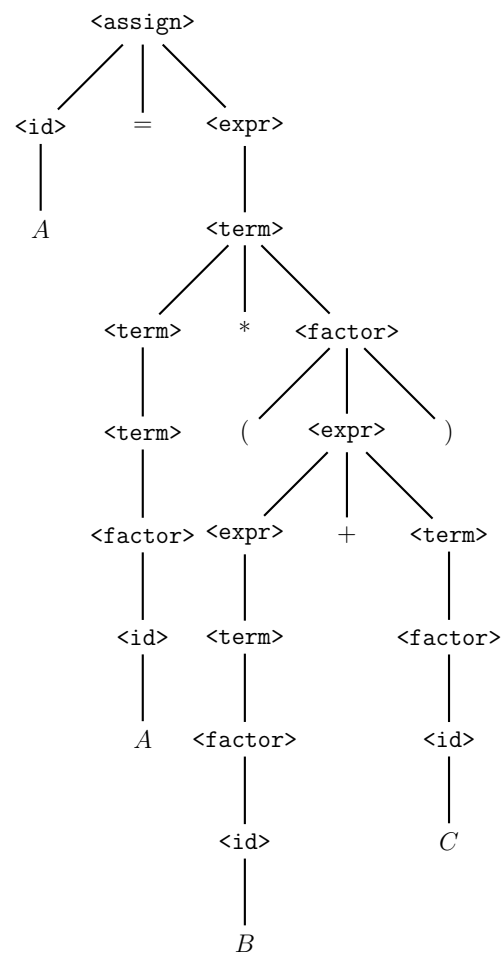
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March 3, 2023

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$\langle \text{assign} \rangle \rightarrow \langle \text{id} \rangle = \langle \text{expr} \rangle$
 $\langle \text{id} \rangle \rightarrow A | B | C$
 $\langle \text{expr} \rangle \rightarrow \langle \text{term} \rangle * \langle \text{expr} \rangle | \langle \text{term} \rangle$
 $\langle \text{term} \rangle \rightarrow \langle \text{term} \rangle + \langle \text{factor} \rangle | \langle \text{factor} \rangle$
 $\langle \text{factor} \rangle \rightarrow (\langle \text{expr} \rangle) | \langle \text{id} \rangle$

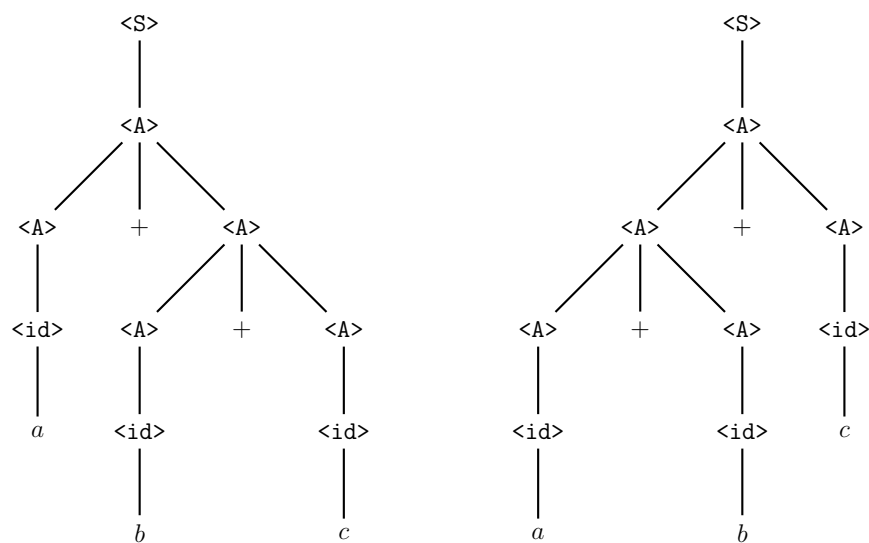
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$\langle \text{assign} \rangle \Rightarrow \langle \text{id} \rangle = \langle \text{expr} \rangle$
 $\Rightarrow A = \langle \text{expr} \rangle$
 $\Rightarrow A = \langle \text{term} \rangle$
 $\Rightarrow A = \langle \text{term} \rangle * \langle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

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$a + b + c$ 有两种不同的 parse tree.



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$$\langle \text{assign} \rangle \rightarrow \langle \text{id} \rangle = \langle \text{expr} \rangle$$
$$\langle \text{id} \rangle \rightarrow A|B|C$$
$$\langle \text{expr} \rangle \rightarrow \langle \text{expr} \rangle + \langle \text{term} \rangle | \langle \text{term} \rangle$$
$$\langle \text{term} \rangle \rightarrow \langle \text{term} \rangle * \langle \text{factor} \rangle | \langle \text{factor} \rangle$$
$$\langle \text{factor} \rangle \rightarrow (\langle \text{expr} \rangle) | \langle \text{id} \rangle | - (\langle \text{expr} \rangle) | - \langle \text{id} \rangle$$

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$$\langle S \rangle \rightarrow a \langle A \rangle b$$
$$\langle A \rangle \rightarrow a \langle A \rangle b | \varepsilon$$

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