

$D \rightarrow TL;$

$L.inh = T.type$

$T \rightarrow \underline{int}$

$T.type = integer$

$T \rightarrow \underline{float}$

$T.type = float$

$L \rightarrow L_1, \underline{id}$

$L_1.inh = L.inh$

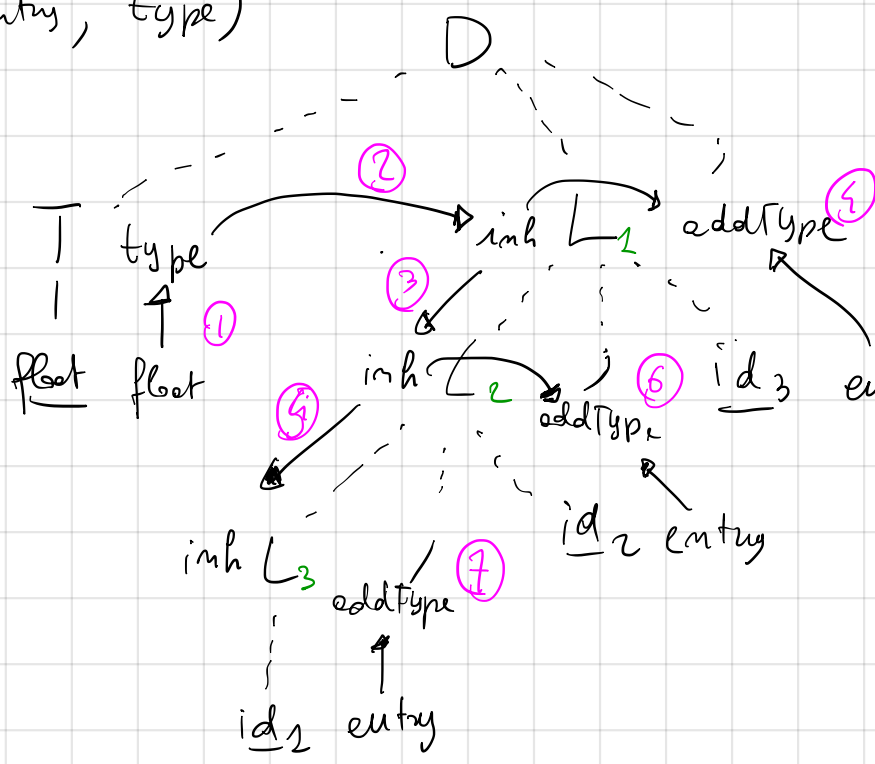
$addType(id.entry, L.inh)$

$L \rightarrow \underline{id}$

$addType(id.entry, L.inh)$

float id₁, id₂, id₃;

$addType(entry, type)$



1) $T.type = float$

2) $L_1.inh = float$

3) $L_2.inh = float$

4) $addType(id_3, float)$

5) $L_3.inh = float$

6) $addType(id_2, float)$

7) $addType(id_1, float)$

$$S \rightarrow L_1 \cdot L_2$$

$$S.val = L_1.val + L_2.val'$$

$$L_2.exp = 0$$

$$S \rightarrow L$$

$$S.val = L.val \quad L.exp = 0$$

$$L \rightarrow L_1 B$$

$$L_1.exp = L.exp + 1$$

$$L.sexp = L_1.sexp - 1$$

$$L.val' = L_1.val' + B.val \cdot \exp(2, L.sexp)$$

$$L.val = L_1.val + B.val \cdot \exp(2, L.exp)$$

$$L \rightarrow B$$

$$L.sexp = -1$$

$$L.val' = \exp(2, L.sexp) \cdot B.val$$

$$L.val = \exp(2, L.exp) \cdot B.val$$

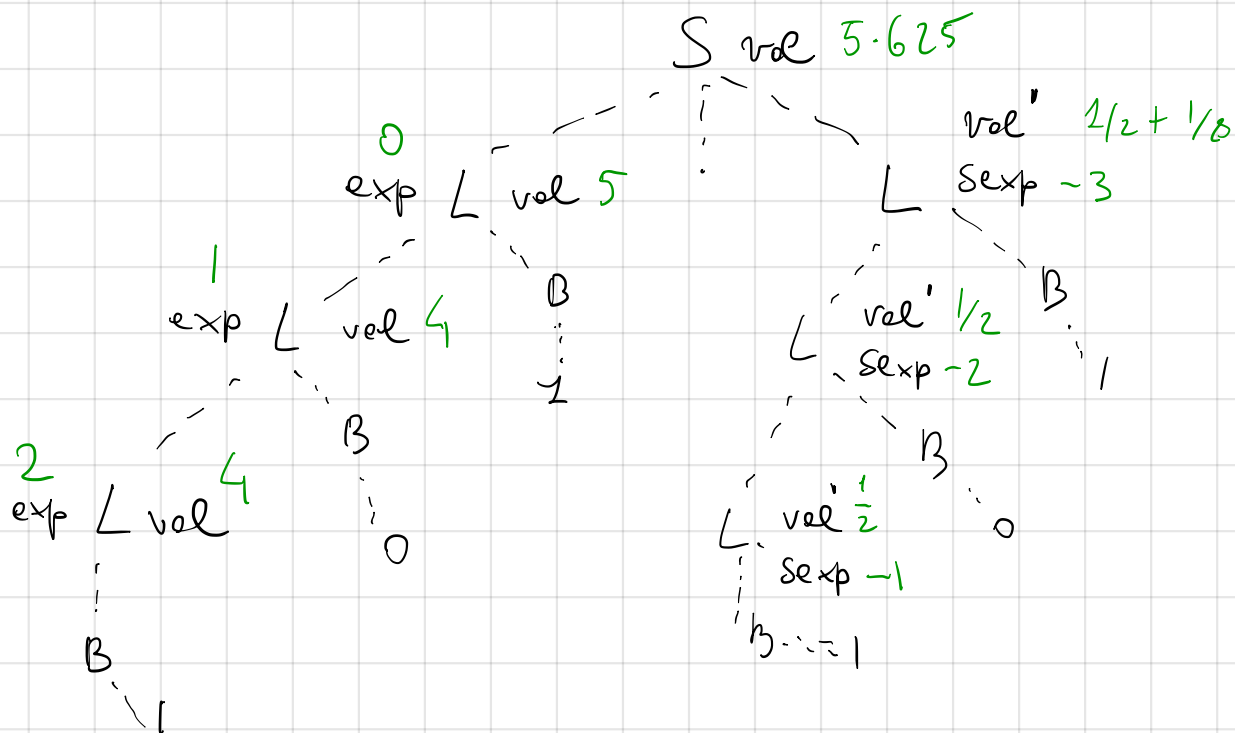
$$B \rightarrow 1$$

$$B.val = 1$$

$$B \rightarrow 0$$

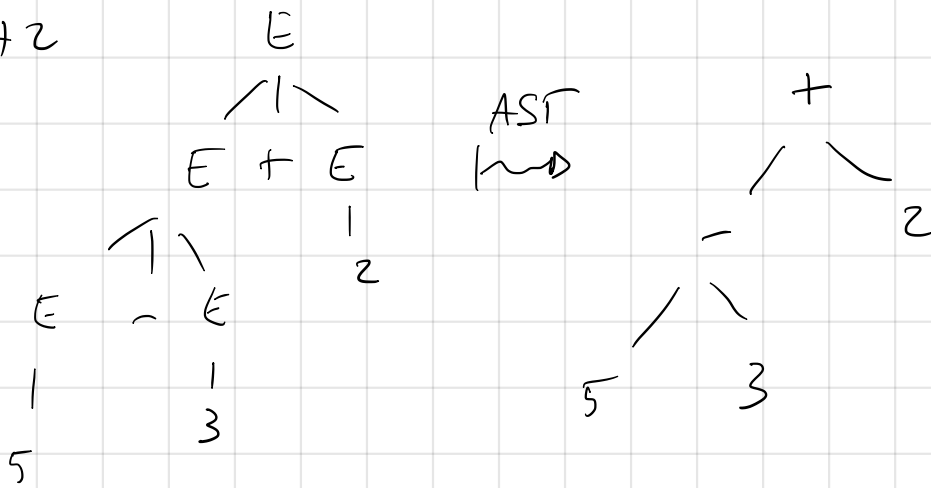
$$B.val = 0$$

$$(01.101)$$



ABSTRACT SYNTAX TREE

5 - 3 + 2



$E \rightarrow E_1 + T$

$E.\text{node} = \text{new Node}('+', E_1.\text{node}, T.\text{node})$

$E \rightarrow E_1 - T$

$E.\text{node} = \text{new Node}('-', E_1.\text{node}, T.\text{node})$

$E \rightarrow T$

$E.\text{node} = T.\text{node}$

$T \rightarrow (E)$

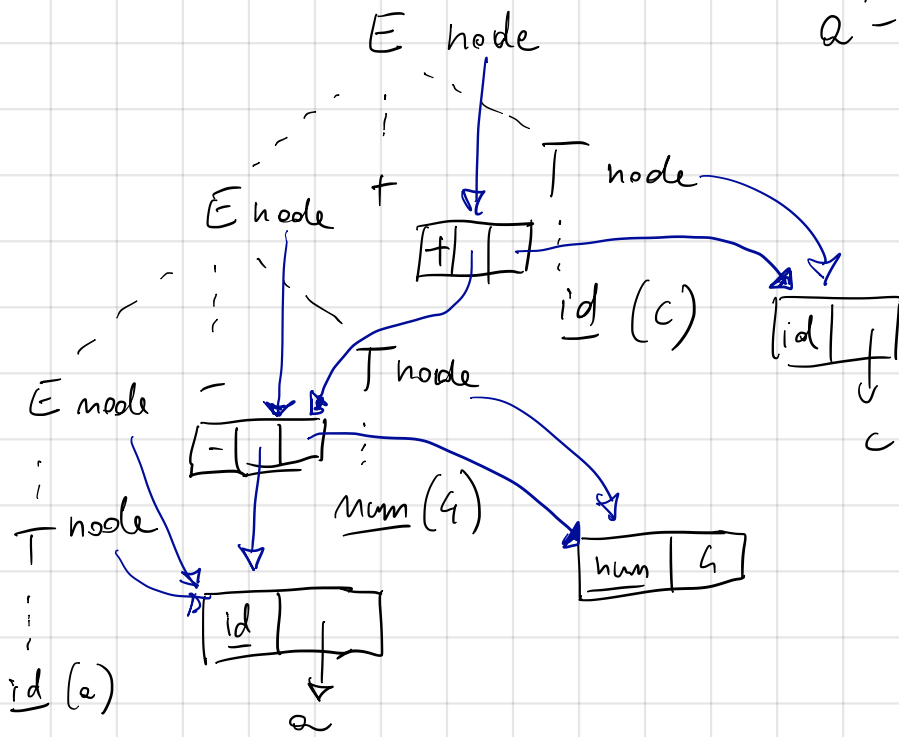
$T.\text{node} = E.\text{node}$

$T \rightarrow \underline{id}$

$T.\text{node} = \text{new Leaf}(\underline{id}, \underline{id}.\text{entry})$

$T \rightarrow \underline{num}$

$T.\text{node} = \text{new Leaf}(\underline{num}, \underline{num}.\text{value})$
 $a - 4 + c$



GRAMMAR FOR TYPE DEFINITION

int [2][3] $\xrightarrow{\text{type}}$ array(2, array(3, integer))

$T \rightarrow B C$ $C.inh = B.t$
 $T.t = C.t$

$B \rightarrow \underline{\text{int}}$ $B.t = \text{integer}$

$B \rightarrow \underline{\text{float}}$ $B.t = \text{float}$

$C \rightarrow [\underline{\text{num}}] C_1$ $C_1.inh = C.inh$
 $C.t = \text{array}(\underline{\text{num}}.value, C_1.t)$

$C \rightarrow \epsilon$ $C.t = C.inh$

