

Proposed Exercise

Left-associative Abstract Trees

Let G below, be defining a LL(1) grammar, for 2-precedence levels, expressions:

$$\begin{aligned} E &::= F E' & E' &::= \text{op-l } F E' \mid \varepsilon \\ F &::= T F' & E' &::= \text{op-h } T F' \mid \varepsilon \\ T &::= \text{num} \mid \text{ide} \mid (E) \end{aligned}$$

- (a) Extend G into an attribute grammar that computes an attribute *ltree*, for each nonterminal, grammatical, symbol containing:
- the abstract tree of the string derived from the symbol;
 - the abstract must exhibit left associativity for all the operators.
- (b) Show the attribute computation for: $3+x+y$