

# Programming Languages: Lecture 13

## I have no clue

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### 1 Some Doubt

$$E \rightarrow E - T \mid T$$

$$T \rightarrow D / T \mid D$$

The rules imply that  $-$  is left-associative and  $/$  is right-associative. (what do these terms mean? F)  $/$  has higher precedence.

### 2 Bottom-Up Parsing

$$X \rightarrow \beta\gamma$$

// What does an LR(0) term signify?

After a series of shifts and/or reductions eventually input sequence  $y$  is consumed and transformed into  $\gamma$ . // What's a reduction?

#### 2.1 Example

Consider the augmented grammar,

$$S \rightarrow E\$ \tag{1}$$

$$E \rightarrow E - T \tag{2}$$

$$\tag{3}$$

$$\tag{4}$$

$$T \rightarrow (E) \tag{5}$$

Look at the significance of all the ways to place the cursor on the rule.

### 3 Closure of Items

Theoretically, each item is a state of a NFA.

// An algorithm here