

# Operator Precedence Parsing Algorithm

DATE: / /

[Ex] :- Let Grammar:  $E \rightarrow E + E \mid E * E \mid id$

string:  $id + id * id \$$  ~~\*~~ #

Solution: - (i) Operator relation table: -

|    | id | + | * | \$ |
|----|----|---|---|----|
| id | -  | > | > | >  |
| +  | <  | > | < | >  |
| *  | <  | > | > | >  |
| \$ | <  | < | < | -  |

Grammar  
is already  
Operator  
Precedence  
Grammar

(ii) Original input:  $id + id * id \$$

\$  $id + id * id \$$   
↑

- \$ has less precedence than id, just push id.

\$ id  $id + id * id \$$   
↑

- + have less precedence than id (top of stack)

Reduce "id" in the input by using

$E \rightarrow id$  and pop it.

- then \$ (top of stack) have less precedence than "+".

(iii) Original input:  $id + id * id \$$

\$ +  $id + id * id \$$   
↑



Ans:-

|    |   |   |
|----|---|---|
| \$ | f | * |
|----|---|---|

Now, as \* has more precedence than \$,

$$| \begin{matrix} \$ \\ \hline \end{matrix} | \begin{matrix} + \\ \hline \end{matrix} | \begin{matrix} b_i \\ \hline \end{matrix} * \begin{matrix} b_i \\ \hline \end{matrix} |$$

Now, "f" will get reduced and we have:

|    |  |
|----|--|
| \$ |  |
|----|--|

⇒ The whole string has been passed and

input = \$ and top = \$  $\rightarrow$  passed

and hence string accepted by operator

# Note:- To reduce in the buffer of input,

We have to maintain leaflets pointed

with what has been pushed into the stack.