A→;

27/08/23 Analytical day-9 S:N=33

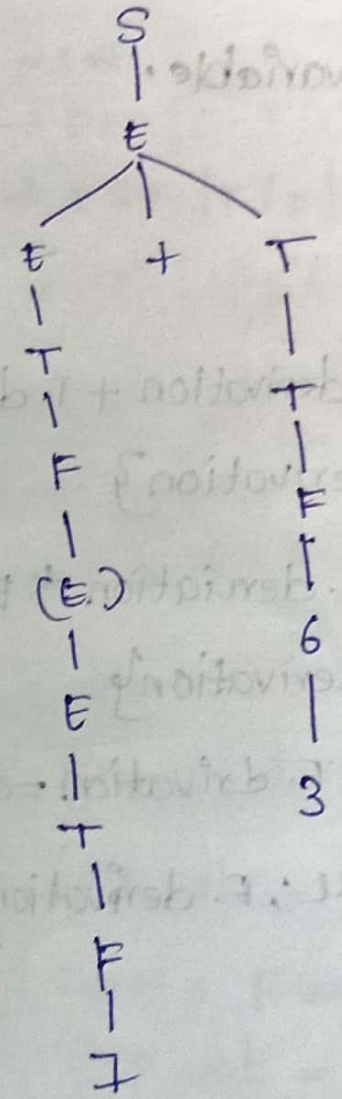
R. praveen ganesh.

1. SDD for simple desk parse tree (7+4)* (3+6)n.

S → En
E → E+T | E
T | →
T → T*F | T/F | F
F → (E) | digit.

(A) parse tree :-

(7+4)* (3+6)



R. praveen garsh.

$S \to E \{n.val = E.val\}$

$E \to E1 \{E.val = E1.val\} + T \{E.val = E.val + T.val\} \mid$

$T \{E.val = T.val\}$

$T \to T1 \{T.val = T.val\} * F \{T.val = T1.val * F.val\} \mid$

$F \{T.val = F.val\}$

$F \to (E \{F.val = E.val\}) \mid digit \{F.val = digit.value\}$

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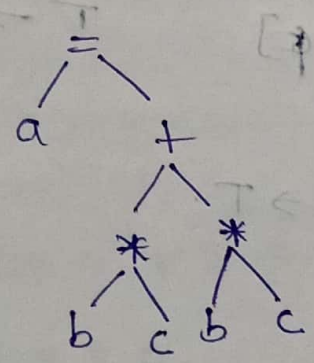
(2) Construct the syntax tree for expression

$a = b * c + b * c$

(A) $a = b * c + b * c$



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(3) Illustrate the bottom up evaluation for attribute.

$5 + 6 + 4$

$S \to EN$

$E \to E + T$

$E \to E - T$

$E \to T$

$T \to T * F$

$T \to T / F$

$T \to F$

$F \to E$

$E \to$ digits.

(A) Grammar :- R.praveen ganesh.

$S \to E\$$

Input : 5 * 6 + 4

step1 : shift the digit in stack.

stack : [5]

Input : * 6 + 4

step2 :- shift the * in stack.

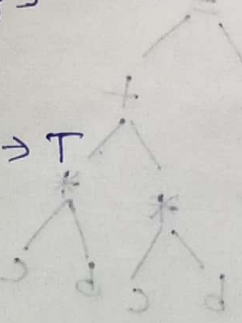
stack : [5, *]

Input : 6 + 4

step3 : shift the 6 number in stack

stack : [5, *, 6] $T \to F (F \to E \to dig)$

Input : + 4



step4 :- Redu $E \to T$

stack : [E]

Input : + 4

step5 :- [E, +]

4

step6 $F \to E \to$ digit

[E, +, F]

step7 :- Redu $T \to F$

[E +, T]

step8 : Redu $E \to E + T$

(E)

[S] Reduce $S \to E\$$.

4. SDD scheme that translates

R. praveen ganesh.

5 * 7

8 * 4.

(A). Grammar:-

1. Input 5 * 7

S. inh = E.val

E1. inh = T.val

T1. inh = F.val

T2. inh = F.val

F1. val = 5, F1. code = 5

F1. val = 7, F2. code = 7

T2. val = 7, T2. code = 7

T1. val = 5, T1. code = 5

E1. val = 5, E1. code = 5

E. val = 5, E. code = 5

output = 5 7 *

2. Input 8 * 4.

S. inh = E.val

E1. inh = T.val

T1. inh = F.val

T2. inh = F2. val

F1. val = 8, F1. code = 8

F2. val = 4, F2. code = 4

T2. val = 4, T2. code = 4

E1. val = 8, E1. code = 8

E. val = 8, E. code = 8

Out put : 8 4 *.