CD LAB - 8

1:-

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1:- Simple Calculator.

$G = \{V, \Sigma, R, S\}$

V (finite set of non-terminals) = $\{S, E, T\}$

Σ (Terminals) = $\{+, -, *, /, id\}$

S (Start Symbol) = S

R :- Production rules :-

$S \rightarrow E\$$

$E \rightarrow E + T$

$E \rightarrow E - T$

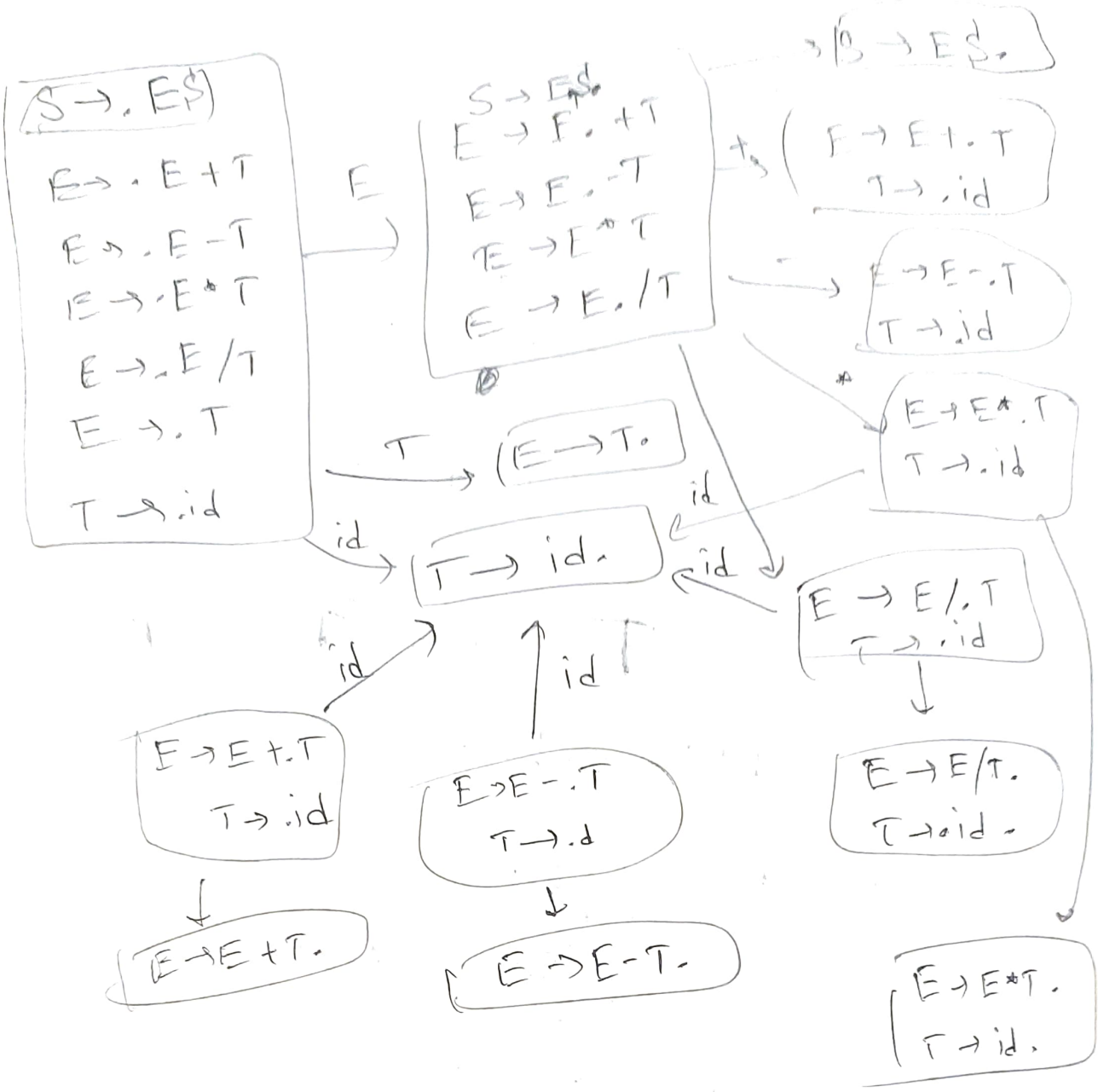
$E \rightarrow E * T$

$E \rightarrow E / T$

$E \rightarrow T$

$T \rightarrow id$

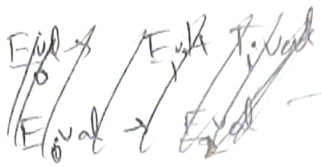
LR parsing :-



LR(0) is possible in above grammar.

So the grammar is ~~LR~~ suitable for LR parsing.

2:-



Example :- a+b-c

Dependency graph :-

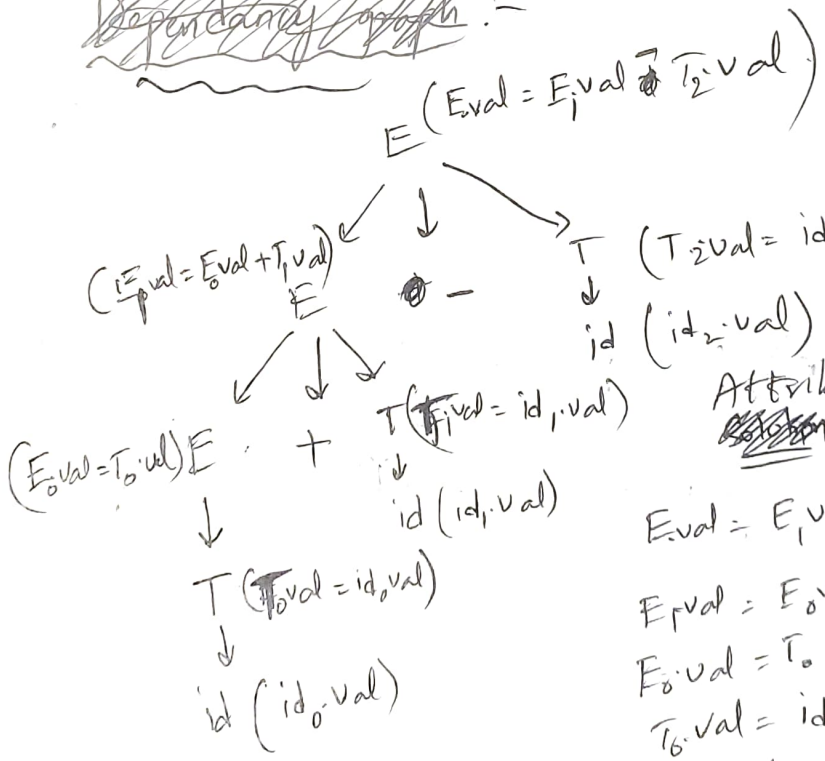
2 :-

$E \rightarrow E+T$	$(E_0.val = E_1.val + T_1.val)$
$E \rightarrow E-T$	$(E_0.val = E_1.val - T_1.val)$
$E \rightarrow E*T$	$(E_0.val = E_1.val * T_1.val)$
$E \rightarrow E/T$	$(E_0.val = E_1.val / T_1.val)$
$E \rightarrow T$	$(E_0.val = T_1.val)$
$T \rightarrow id$	$(T_0.val = id_1.val)$

Example :- a+b-c

Parse Tree

Dependency graph :-



Attributes :-

$E_0.val = E_1.val - T_2.val$

$E_1.val = E_0.val + T_1.val$

$E_0.val = T_0.val$

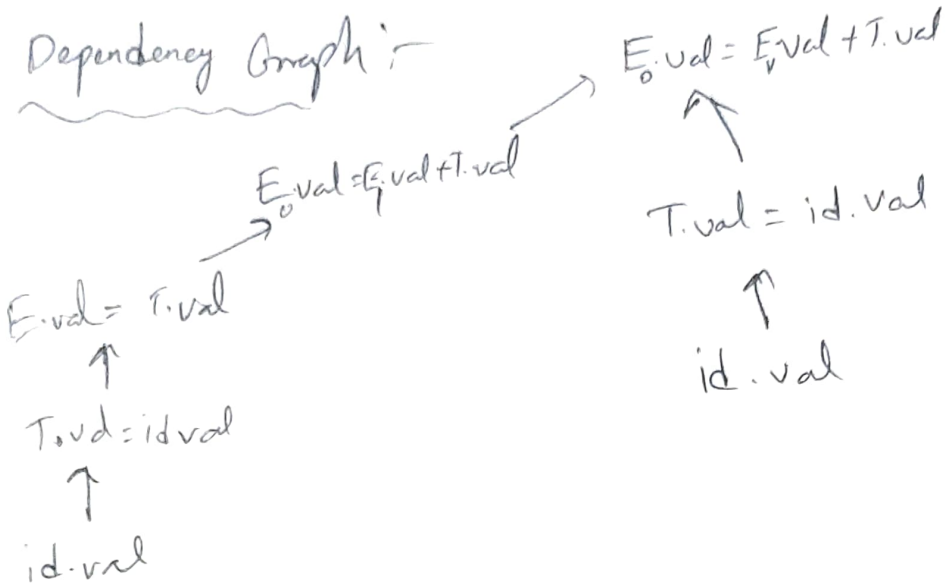
$T_0.val = id.val$

Attributes :-

$T_2.val = id_2.val$

$id_2.val$

Dependency Graph :-



By Using LR-Grammar, we can solve it by bottom-up manner.