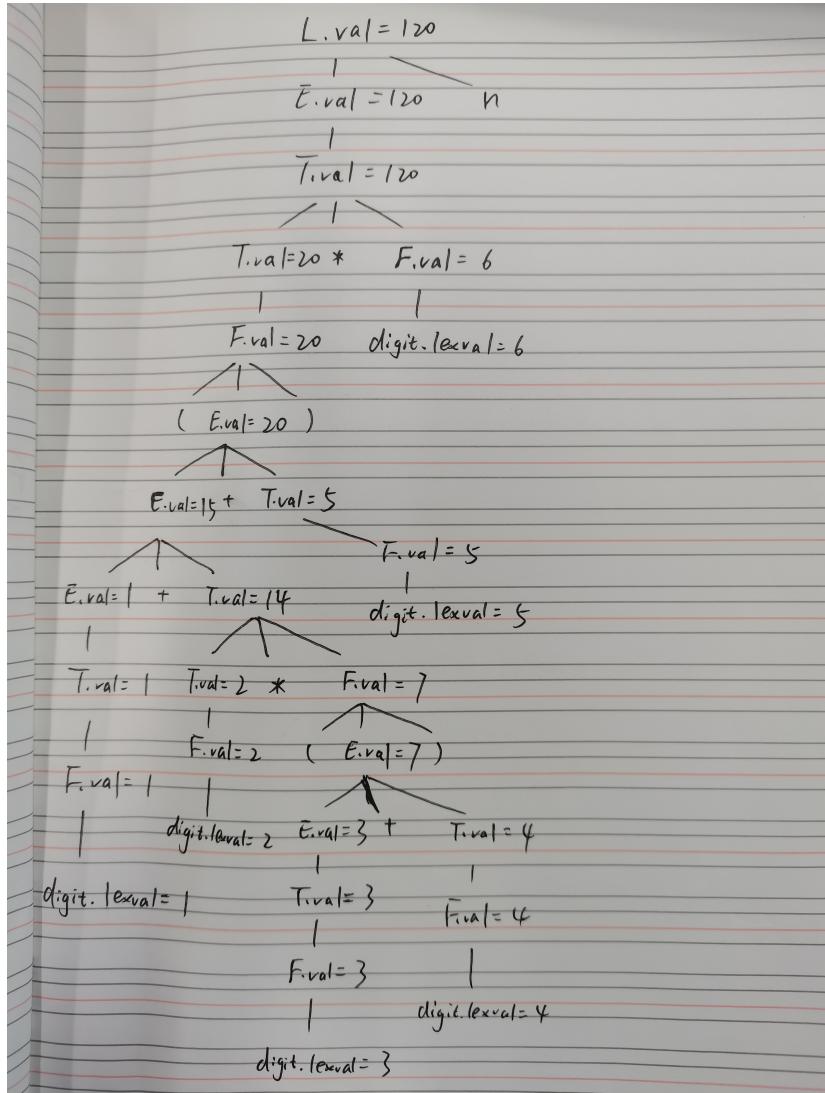


CS323 Assignment5

SID: 12011625

Exercise 1



Exercise 2

There are totally $\frac{A_5^5}{A_3^3 A_2^2} = 10$ topological sorts for the dependency graph:

1 2 3 4 5 6 7 8 9

1 2 3 5 4 6 7 8 9

1 2 4 3 5 6 7 8 9

1 3 5 2 4 6 7 8 9

1 3 2 4 5 6 7 8 9

1 3 2 5 4 6 7 8 9

2 1 3 4 5 6 7 8 9

2 1 3 5 4 6 7 8 9

2 1 4 3 5 6 7 8 9

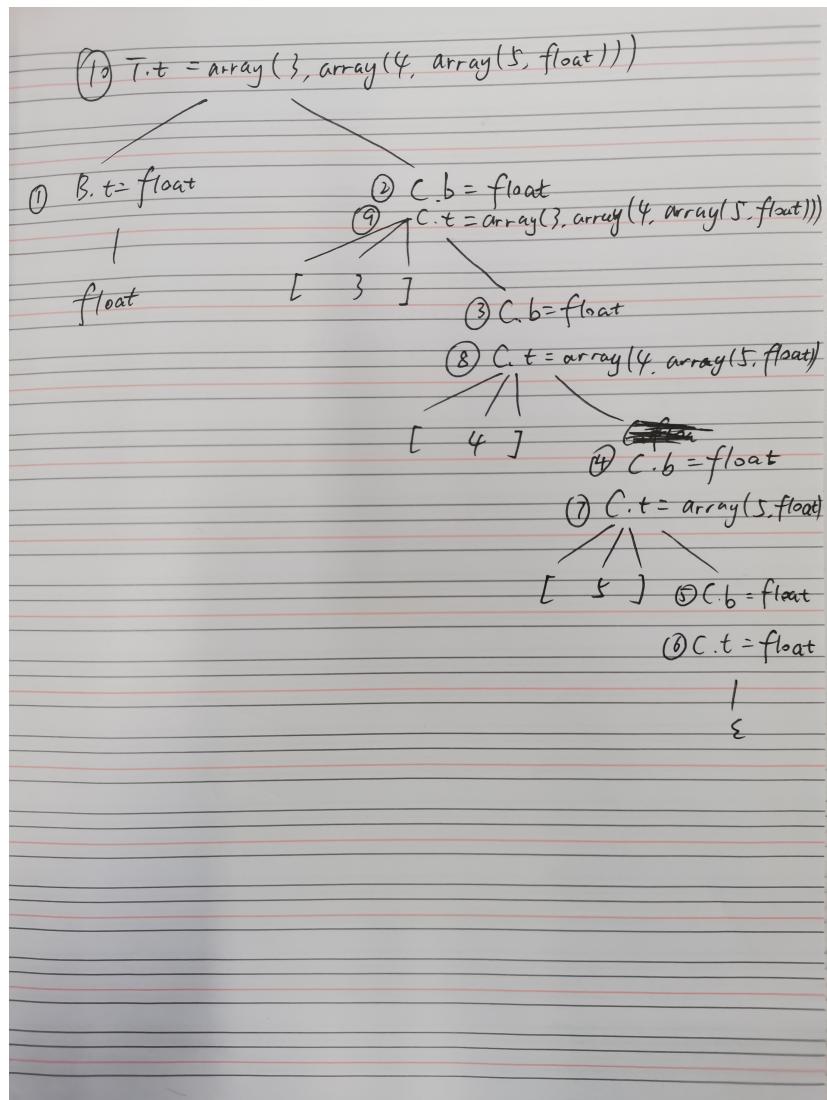
2 4 1 3 5 6 7 8 9

Exercise 3

(1) No. In production $T \rightarrow BC$, the rule $C.b = B.t$ is in corresponding semantic rules. The attribute b of C is come from its left sibling B 's attribute t . So it is an inherited attribute. By the definition of S-attributed SDDs, this SDD is not S-attributed.

(2) Yes. By the definition of L-attributed SDDs, since each attribute in this SDD is either synthesized, or inherited, which only depends on the inherited attributes of T or the attributes of its left siblings.

(3)



Exercise 4

1.

Production	Sematic rules
$E \rightarrow E_1 + T$	$E.\text{val} = E_1.\text{val} + T.\text{val}$
$E \rightarrow T$	$E.\text{val} = T.\text{val}$
$T \rightarrow D_1.D_2$	$T.\text{val} = D_1.\text{val} + 0.1 * D_2.\text{val}$
$T \rightarrow D$	$T.\text{val} = D.\text{val}$
$D \rightarrow \text{digit}$	$D.\text{val} = \text{digit}.\text{lexval}$

2. Yes. It is possible because all the attributes in this SDD is synthesized.