

Lab 9

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Dragon

4.5.3

For the following input symbol string and grammar, the corresponding bottom-up parsing process is illustrated.

Practice the string of the grammar of 4.5.1 000111. Practice the string grammar of 4.5.2 aaa^*a^{++} .

1. 000111

```
1  $ 000111$ Move in
2  $0 00111$ Move in
3  $00 0111$ Move in
4  $000 111$ Move in
5  $0001 11$ 01 Statute: S -> 01
6  $00S 11$ Move in
7  $00S1 1$ 0S1 Statute: S -> 0S1
8  $0S 1$ Move in
9  $0S1 $ 0S1 Statute: S -> 0S1
10 $S $ accepted
```

2. aaa^*a^{++}

```
1  $ aaa*a++$ Move in
2  $a aa*a++$ a Statute: S -> a
3  $S aa*a++$ Move in
4  $Sa a*a++$ a Statute: S -> a
5  $SS a*a++$ Move in
6  $SSa *a++$ a Statute: S -> a
7  $SSS *a++$ Move in
8  $SSS* a++$ SS* Statute: S -> SS*
9  $SS a++$ Move in
```

```
10  $SSa ++$ a Statute: S -> a
11  $SSS ++$ Move in
12  $SSS+ ++$ SS+ Statute: S -> SS+
13  $SS ++$ move in
14  $SS+ $ SS+ Statute: S -> SS+
15  $S $ accepted
```

4.6.5

Explain the following grammar

$S \rightarrow AaAb | BbBa$ $A \rightarrow \epsilon$ $B \rightarrow \epsilon$

It is LL(1), but not LR(1). answer

```
1  I_0
2  S' -> .S
3  S -> .AaAb
4  S -> .BbBa
5  A -> .
6  B -> .
```

Since $\text{FOLLOW}(A) = \text{FOLLOW}(B) = [a, b]$, a conflict occurs when the input is a or b