Lab Four

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1 Dragon Book Exercises

1.1 Exercise 4.4.3

For the grammar:

S –> SS+ | SS∗ | a

The following first and follow set can be made.

```
First(S) = [a]
Follow(S) = [a, +, *]
```

2 Crafting a Compiler Exercises

2.1 Exercise 4.9

For the grammar:

```
1 S -> a S e
2    | B
3 B -> b B e
4    | C
5 C -> c C e
6    | d
```

The following first and follow sets can be made.

2.1.1 First Sets

```
First(a) = [a]
First(e) = [e]
First(b) = [b]
First(c) = [c]
First(d) = [d]
First(S) = [a, b, c, d]
First(B) = [b, c, d]
First(C) = [c, d]
```

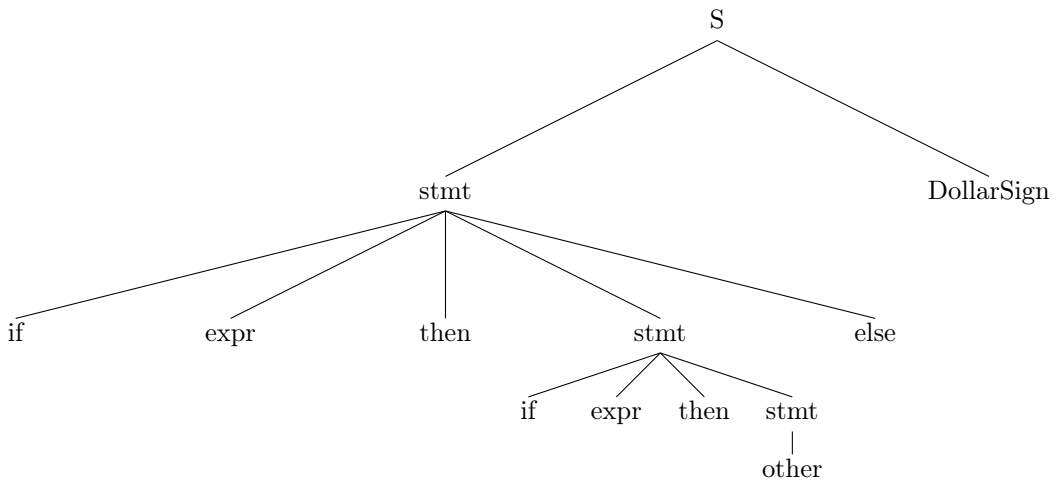
2.1.2 Follow Sets

```
Follow(S) = [$, e]
Follow(B) = [e, $]
Follow(C) = [e, $]
```

2.2 Exercise 5.10

For each of these parse trees, then and else represent identifiers to show what statement to be run depending on the value of the if boolean expression. If it is true, the statement in the then block will be run. If it is false, then the statement in the else block will be run.

2.2.1 Parse Tree 1



2.2.2 Parse Tree 2