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Chapter 4

1.)

a)

A -> aB | b | cBB

FIRST(aB) = a  
 FIRST(b) = b

FIRST(cBB) = c

They do not intersect, pass

b)

B -> aB | bA | aBb

FIRST(aB) = a

FIRST(bA) = b

FIRST(aBb) = a

They interect, does not pass

c)

C -> aaA | b | caB

FIRST(aaA) = a

FIRST(b) = b

FIRST(caB) = c

They do not intersect, pass

3.)

a + b \* c

Next IDENT is ‘a’

Enter <expr>

Enter <term>

Enter <factor>

Next ADD\_OP is ‘+’

Exit <factor>

Exit <term>

Next IDENT is ‘b’

Enter <term>

Enter <factor>

Next MULT\_OP is ‘\*’

Exit <factor>

Next IDENT is ‘c’

Enter <factor>

Next -1 is EOF

Exit <factor>

Exit <term>

Exit <expr>

5.) S -> aAb | bBA A->ab | aAB B-> aB | b

a) aaAbb

S

/ | \

a A b

/ | \

a A B

|

b

Phrase: aaAbb, aAb, b

Simple Phrases: b

Handle: b

b) bBab

S

/ | \

b B A

/\

a b

Phrases: bBab, ab

Simple Phrases: ab

Handles: ab

c) aaAbBb

S

/ | \

a A b

/|\

a A B

|

b

Does not complile