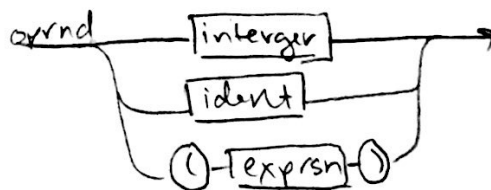
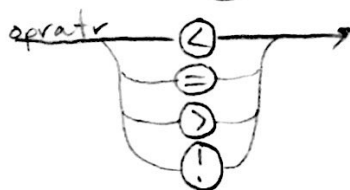
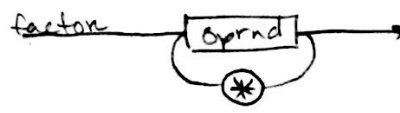
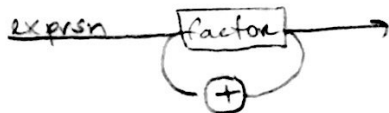
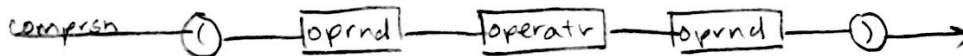
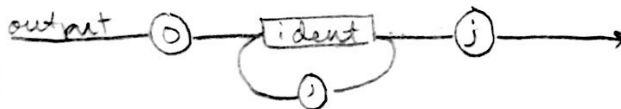
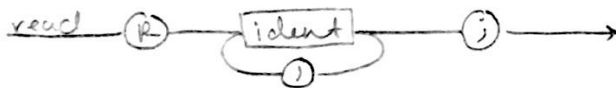
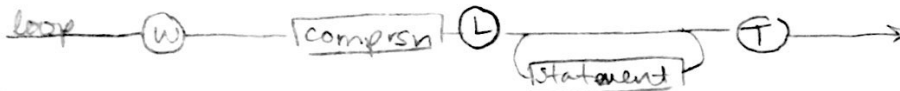
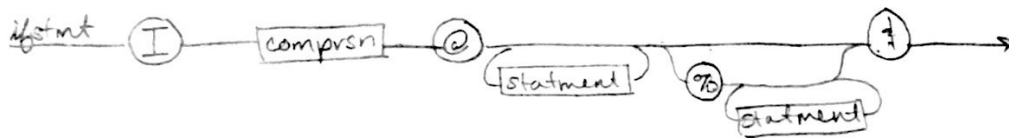
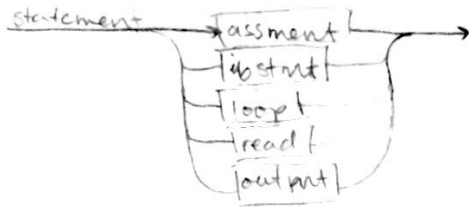
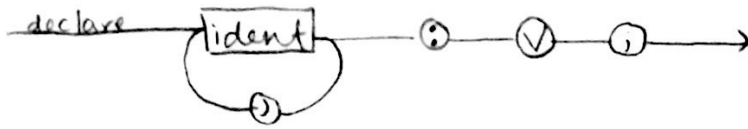
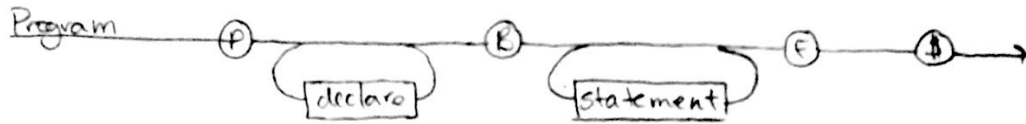
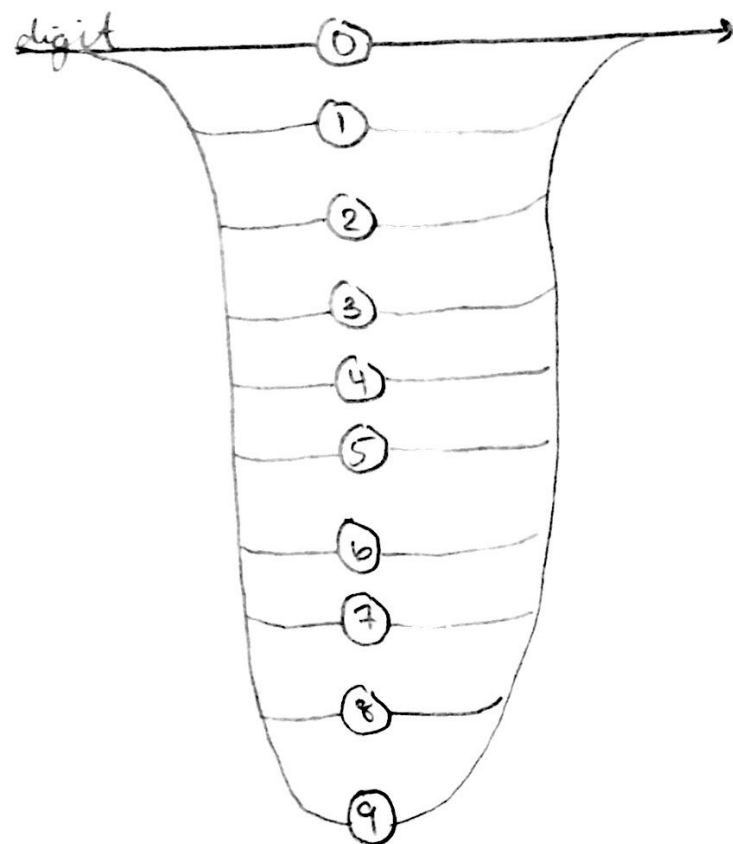
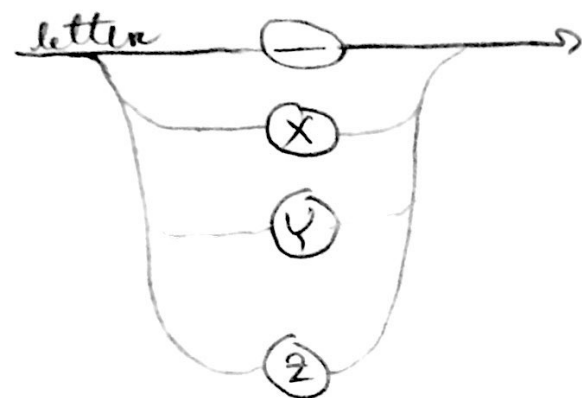
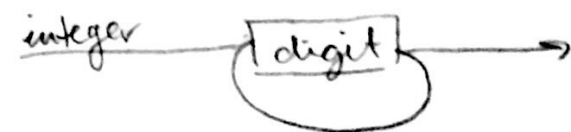
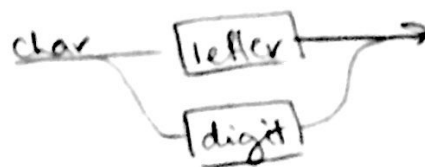
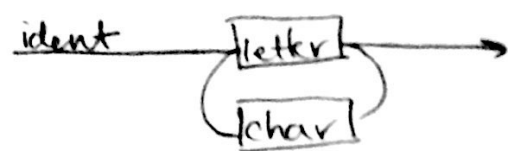


William Kinderman





factor $\{*\} \cap \text{follow}(\text{factor})$

$$\{*\} \cap \{+\} \cup \text{follow}(\text{exprsn}) \\ \{*\} \cap \{+, ;\} = \emptyset$$

exprsn $\{+\} \cap \text{follow}(\text{exprsn})$

$$\{+\} \cap \{), ;\} = \emptyset$$

output

$$\{), ;\} \cap \{ ;\} = \emptyset$$

read

$$\{ ;\} \cap \{ ;\} = \emptyset$$

loop

$$\{I\} \cap \text{first}(\text{statement})$$

$$\{I\} \cap \text{first}(\text{statement}) \cup \text{first}(\text{ifstmt}) \cup \text{first}(\text{loop}) \cup \text{first}(\text{read}) \cup \text{first}(\text{output}) \\ \text{first}(\text{idont}) \cup \{I\} \cup \{w\} \cup \{R\} \cup \{O\} \\ \text{first}(\text{letter})$$

$$\{-, x, y, z\}$$

$$\{I\} \cap \{-, x, y, z, I, w, R, O\} = \emptyset$$

ifstmt

1st loop

$$\{O\} \cap \{I\} \cap \text{first}(\text{stmt}) \text{ (proved above)}$$

$$\{O\} \cap \{I\} \cap \{-, x, y, z, I, w, R, O\} = \emptyset$$

2nd loop

$$\{I\} \cap \text{first}(\text{statement})$$

$$\{I\} \cap \{-, x, y, z, I, w, R, O\} = \emptyset$$

statement $\text{first}(\text{statement}) \cap \text{first}(\text{ifstmt}) \cap \text{first}(\text{loop}) \cap \text{first}(\text{read}) \cap \text{first}(\text{output})$

$$\text{first}(\text{idont}) \cap \{I\} \cap \{w\} \cap \{R\} \cap \{O\} \\ \text{first}(\text{letter})$$

$$\{-, x, y, z\} \cap \{I\} \cap \{w\} \cap \{R\} \cap \{O\} = \emptyset$$

declare $\{B\} \cap \{ \} = \emptyset$

program $\{B\} \cap \text{first}(\text{declare})$

$\text{first}(\text{ident})$
 $\text{first}(\text{letter})$

$\{B\} \cap \{ -, \text{Y}, \text{X}, \text{Z} \} = \emptyset$

$\{E\} \cap \text{first}(\text{statement})$

$\text{first}(\text{assignment}) \cap \text{first}(\text{if_stmt}) \cap \text{first}(\text{loop}) \cap \text{first}(\text{read}) \cap \text{first}(\text{output})$

$\text{first}(\text{ident}) \cap \{ \text{I}, \text{W}, \text{R}, \text{O} \}$

$\text{first}(\text{letter})$

$\{E\} \cap \{ -, \text{X}, \text{Y}, \text{Z}, \text{I}, \text{W}, \text{R}, \text{O} \} = \emptyset$

ident first(char) \cap follow(ident)

first(letter) \cup first(digit) \cap

$\{-, x, y, z, 0, 1, 2, 3, 4, 5, 6, 7, 8, 9\} \cap \text{follow(ident)}$

operand, output, read, assignment, declare,
follow(operand) \cup first(output) \cup first(read) \cup first(assignment) \cup
first(declare)

follow(factor) \cup first(comprsn)

follow(expr) \cup $\{*\}$
 $\{+\} \cup \{*\} \cup \text{first(assignment)}$

$\{-, x, y, z, 0, 1, 2, 3, 4, 5, 6, 7, 8, 9\} \cap \{+, *, ,, ~, :, \}$

integer

first(digit) \cap follow(integer)

$\{0, 1, 2, 3, 4, 5, 6, 7, 8, 9\} \cap \text{follow(operand)}$

$\{*\} \cup \text{follow(factor)}$

$\{+\} \cup \text{follow(expr)}$
 $\{,\}$

$\{0, 1, 2, 3, 4, 5, 6, 7, 8, 9\} \cap \{*, +, ,\} = \emptyset$

char

first(letter) \cap first(digit)

$\{-, x, y, z\} \cap \{0, 1, 2, 3, 4, 5, 6, 7, 8, 9\} = \emptyset$

operand

first(integer) \cap first(ident) \cap $\{'\}$

first(digit) \cap first(letter) \cap $\{'\}$

$\{0, 1, 2, 3, 4, 5, 6, 7, 8, 9\} \cap \{-, x, y, z\} \cap \{'\} = \emptyset$

oprtr

$\{<\} \cap \{=\} \cap \{>\} \cap \{!\} = \emptyset$

digit

$\{0\} \cap \{1\} \cap \{2\} \cap \{3\} \cap \{4\} \cap \{5\} \cap \{6\} \cap \{7\} \cap \{8\} \cap \{9\} = \emptyset$

letter

$\{-\} \cap \{x\} \cap \{y\} \cap \{z\} = \emptyset$