We now define the set of lookahead tokens that will cause the prediction of the production $A \to X_1 \ldots X_m$. Call the set Predict:

Predict($A \to X_1 \ldots X_m$) =

if $\lambda \in \mathrm{First}(X_1 \ldots X_m)$

$(\mathrm{First}(X_1 \ldots X_m) - \lambda) \cup \mathrm{Follow}(A)$

else

$(\mathrm{First}(X_1 \ldots X_m))$

1	<program>	→	**begin** <statement list> **end**
2	<statement list>	→	<statement> <statement tail>
3	<statement tail>	→	<statement> <statement tail>
4	<statement tail>	→	λ
5	<statement>	→	ID:= <expression>;
6	<statement>	→	**read** (<id list>)
7	<statement>	→	**write** (<expr list>);
8	<id list>	→	ID <id tail>
9	<id tail>	→	, ID <id tail>
10	<id tail>	→	λ
11	<expr list>	→	<expression> <expr tail>
12	<expr tail>	→	,<expression> <expr tail>
13	<expr tail>	→	λ
14	<expression>	→	<primary> <primary tail>
15	<primary tail>	→	<add op> <primary> <primary tail>
16	<primary tail>	→	λ
17	<primary>	→	(<expression>)
18	<primary>	→	ID
19	<primary>	→	INTLIT
20	<add op>	→	+
21	<add op>	→	−
22	<system goal>	→	<program>$

Figure 1: A Micro Grammar in Standard Form

Non Terminal: Step	First Set: [Rule #]
<program> 7	{**begin**} [1]
<statement list> (13)	{ID, **read**, **write**} [[2]]
<statement> 6	{ID, **read**, **write**} [567]
<statement tail> (12)	{ID, **read**, **write**, λ}[[34]]
<expression> (10)	{ID, INTLIT, (} [[14]]
<id list> 5	{ID} [8]
<expr list> (11)	{ID, INTLIT, (} [[11]]
<id tail> 4	{COMMA, λ} [9,10]
<expr tail> 3	{COMMA, λ} [12,13]
<primary> 2	{ID,INTLIT,(}[17.18,19]
<primary tail> (9)	{+, −, λ} [[15,16]]
<add op> 1	{+, −} [20,21]
<system goal> (8)	{**begin**} [[22]]

Figure 2: First Sets (LHS)

I:→ Terminal

(J):→ NT→…

[K,W]: derived from rules K and W directly.

[[X, Y]]: derived from rules X and Y indirectly.

NT: [Rule #]	Follow Set: (Step)
<program> [22]	{**$**} 6
<statement list> [1]	{**end**} 1
<statement> [[2,3]]	{ID, **read**, **write**, **end**} (7)=First(statement tail)-{ λ} ∪Follow(statement list); =First(statement tail)-{ λ} ∪Follow(statement tail)
<statement tail> [[2]]	{**end**} (8)=Follow(statement list)
<expression> [5.17] [[11,12]]	{COMMA,SEMICOLON,)}2,5, (10)=First(exp tail) -{ λ}∪Follow(exp list) (12)=First(exp tail) -{ λ}∪Follow(exp tail)
<id list> [6]	{)} 3
<expr list> [7]	{)} 4
<id tail> [[8]]	{)} (9)=Follow(id list)
<expr tail> [[11]]	{)} (11)=Follow(expression list)
<primary> [[14,15]]	{COMMA,SEMICOLON, + , −,)} (13)=First(primary tail) -{ λ}∪Follow(exp) (16)=First(primary tail) -{ λ}∪Follow(primary tail)
<primary tail> [[14]]	{COMMA, SEMICOLON,)} (14)=Follow(exp)
<add op> [[15]]	{ID, INTLIT, (} (15)=First(primary)
<system goal>	{λ} Initially

Figure 3: Follow Sets (RHS)