```
<Statement> -> <Declarative>
<Declarative> -> <Type> <id>
```

$G = \{T, N, S, R\}$
$T = \{\langle \text{Type} \rangle, \ \langle \mathbf{id} \rangle\}$
$N = \{\langle \text{Declarative} \rangle\}$
$S = \langle \text{Statement} \rangle$
$R = \begin{Bmatrix} \langle \text{Statement} \rangle \rightarrow \langle \text{Declarative} \rangle \\ \langle \text{Declarative} \rangle \rightarrow \langle \text{Type} \rangle \ \langle \mathbf{id} \rangle \end{Bmatrix}$

```
<Statement> -> <Assign>
<Assign> -> <id> = <Expression>;
```

$G = \{T, N, S, R\}$
$T = \{\langle \mathbf{id} \rangle, =, \langle \text{Expression} \rangle, ; \}$
$N = \{\langle \text{Assign} \rangle\}$
$S = \langle \text{Statement} \rangle$
$R = \begin{Bmatrix} \langle \text{Statement} \rangle \rightarrow \langle \text{Assign} \rangle \\ \langle \text{Assign} \rangle \rightarrow \langle \mathbf{id} \rangle = \langle \text{Expression} \rangle; \end{Bmatrix}$

```
<Expression> -> <Expression> + <Term> | <Expression> - <Term> | <Term>
```

$G = \{T, N, S, R\}$
$T = \{+, -\}$
$N = \{\langle \text{Term} \rangle\}$
$S = \langle \text{Expression} \rangle$
$R = \begin{Bmatrix} \langle \text{Expression} \rangle \rightarrow \langle \text{Expression} \rangle + \langle \text{Term} \rangle \\ \langle \text{Expression} \rangle \rightarrow \langle \text{Expression} \rangle - \langle \text{Term} \rangle \\ \langle \text{Expression} \rangle \ \rightarrow \ \langle \text{Term} \rangle \end{Bmatrix}$

<u>Left-Recursion Removed</u>

$R = \begin{Bmatrix} \langle \text{Expression} \rangle \rightarrow \ \langle \text{Term} \rangle \langle E' \rangle \\ \langle E' \rangle \rightarrow \ \epsilon \mid + \langle \text{Term} \rangle \langle E' \rangle \mid - \langle \text{Term} \rangle \langle E' \rangle \end{Bmatrix}$

```
<Term> -> <Term> * <Factor> | <Term> / <Factor> | <Factor>
```

$G = \{T, N, S, R\}$
$T = \{*, /\}$
$N = \{\langle Factor\rangle\}$
$S = \langle Term\rangle$
$$R = \begin{Bmatrix} \langle Term\rangle \rightarrow \langle Term\rangle * \langle Factor\rangle \\ \langle Term\rangle \rightarrow \langle Term\rangle / \langle Factor\rangle \\ \langle Term\rangle \rightarrow \langle Factor\rangle \end{Bmatrix}$$

Left-Recursion Removed

$$R = \begin{Bmatrix} \langle Term\rangle \rightarrow \langle Factor\rangle\langle T'\rangle \\ \langle T'\rangle \rightarrow \epsilon \mid * \langle Factor\rangle\langle T'\rangle \mid /\langle Factor\rangle\langle T'\rangle \end{Bmatrix}$$

```
<Factor> -> ( <Expression> ) | <id> | <num>
```

$G = \{T, N, S, R\}$
$T = \{(,), \langle \mathbf{id}\rangle, \langle num\rangle\}$
$N = \{\langle Expression\rangle\}$
$S = \langle Factor\rangle$
$$R = \begin{Bmatrix} \langle Factor\rangle \rightarrow (\langle Expression\rangle) \\ \langle Factor\rangle \rightarrow \langle \mathbf{id}\rangle \\ \langle Factor\rangle \rightarrow \langle num\rangle \end{Bmatrix}$$