\[ G_2 = \{ N, T, \ p, \ s \} \]

\[ P = \{ \]
\[ 1. s \rightarrow N \$
\[ 2. N \rightarrow (N)
\[ 3. N \rightarrow (N)
\[ 4. N \rightarrow e
\[ \}

(A) \quad \delta \rightarrow N \$ \xrightarrow{1} (N) \xrightarrow{2} (N) \xrightarrow{4} (e) $

(B) \quad \delta \rightarrow N \$ \xrightarrow{1} (N) \xrightarrow{3} (N) \xrightarrow{4} (e) $

is this

"if then (if then else)

or is it

"if then (if then else)
\[ G_1 = (N, \Gamma, P, S) \]

\[ P = \{ \begin{align*}
S & \rightarrow N \\
N & \rightarrow (N) \\
N & \rightarrow (N) \\
N & \rightarrow e
\end{align*} \]

\[ S \rightarrow N \rightarrow (N) \rightarrow ((N)) \rightarrow ((N)) \rightarrow e \]

**Parse and symbol stacks, and action**

<table>
<thead>
<tr>
<th>Stacks</th>
<th>Input/Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>[ P_1 ]</td>
<td>1 (e); j; $</td>
</tr>
<tr>
<td>[ S_1 ]</td>
<td>$</td>
</tr>
<tr>
<td>[ P_2 ]</td>
<td>14 (e); j; $</td>
</tr>
<tr>
<td>[ S_2 ]</td>
<td>1, shift</td>
</tr>
<tr>
<td>[ P_3 ]</td>
<td>14 4 (e); j; $</td>
</tr>
<tr>
<td>[ S_3 ]</td>
<td>11, shift</td>
</tr>
<tr>
<td>[ P_4 ]</td>
<td>14 4 4 (e); j; $</td>
</tr>
<tr>
<td>[ S_4 ]</td>
<td>11, shift</td>
</tr>
<tr>
<td>[ P_5 ]</td>
<td>14 4 4 5 (e); j; $</td>
</tr>
<tr>
<td>[ S_5 ]</td>
<td>11, reduce</td>
</tr>
<tr>
<td>[ P_6 ]</td>
<td>14 4 4 6 (e); j; $</td>
</tr>
<tr>
<td>[ S_6 ]</td>
<td>11, shift</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Stacks</th>
<th>Input/Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>[ P_7 ]</td>
<td>14 4 4 7 ) j; $</td>
</tr>
<tr>
<td>[ S_7 ]</td>
<td>(1 (N), reduce</td>
</tr>
<tr>
<td>[ P_8 ]</td>
<td>14 4 6 ) j; $</td>
</tr>
<tr>
<td>[ S_8 ]</td>
<td>11, shift</td>
</tr>
<tr>
<td>[ P_9 ]</td>
<td>14 4 6 8 (j); $</td>
</tr>
<tr>
<td>[ S_9 ]</td>
<td>11, shift</td>
</tr>
<tr>
<td>[ P_{10} ]</td>
<td>14 4 6 8 9 ) $</td>
</tr>
<tr>
<td>[ S_{10} ]</td>
<td>(1 (N), reduce</td>
</tr>
<tr>
<td>[ P_{11} ]</td>
<td>14 6 ) j; $</td>
</tr>
<tr>
<td>[ S_{11} ]</td>
<td>11, shift</td>
</tr>
<tr>
<td>[ P_{12} ]</td>
<td>14 6 7 ) $</td>
</tr>
<tr>
<td>[ S_{12} ]</td>
<td>(1 (N), reduce</td>
</tr>
</tbody>
</table>
What if \( G = \)

\[ G_2 = \{ N, T, P, S \} \]

\( P = \{ \)

\( S \rightarrow . N\$

\( N \rightarrow . (N) \)

\( N \rightarrow . e \)

\( \} \)

Shift/Reduce Error - not clear what action the parser should take

1. Can rewrite the grammar
2. Can use lookahead
3. Some of each