Plan for Today

Building the LR Parsing Table for LR(1)
- First and Follow sets
- building the table

Debugging shift/reduce and reduce/reduce errors

FIRST and FOLLOW sets

FIRST( gamma )
- gamma is a string of terminals and nonterminals
- FIRST(gamma) is any terminals that can start a string derived from gamma

nullable(X)
- X is a nonterminal
- nullable(X) is true if X can derive the empty string

FOLLOW( X )
- X is a nonterminal
- FOLLOW(X) is all terminals that can immediately follow X

Building the LR Parse Table for LR(1)

<table>
<thead>
<tr>
<th>State</th>
<th>Action</th>
<th>Goto</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>s3</td>
<td>g2</td>
</tr>
<tr>
<td>1</td>
<td>accept</td>
<td>g1</td>
</tr>
</tbody>
</table>

Symbol | FIRST |
-------|-------|
S      | x     |
E      | x     |
+      | +     |
T      | x     |
E      | x     |
S      | x     |

(0) S → E $ (1) E → T + E (2) E → T (3) T → x

FIRST | Symbol |
-------|--------|
S      | x      |
E      | x      |
+      | +      |
T      | x      |
E      | x      |
S      | x      |