LL(1) Parsing Example
Build the First, Follow and First+ Sets and the LL(1) Parse Table for the Following Grammar

1. $S \rightarrow B$
2. $B \rightarrow B_1 B_2$
3. $B_2 \rightarrow OR B_1 B_2$
4. $B_2 \rightarrow \varepsilon$
5. $B_1 \rightarrow B_3 B_4$
6. $B_4 \rightarrow AND B_3 B_4$
7. $B_4 \rightarrow \varepsilon$
8. $B_3 \rightarrow VAR$
Build the First, Follow and First+ Sets and the LL(1) Parse Table for the Following Grammar

1. S -> B
2. B -> B1 B2
4. B2 -> ε
5. B1 -> B3 B4
6. B4 -> AND B3 B4
7. B4 -> ε
8. B3 -> VAR

First(S) = First(B)
First(B) = First(B1)
First(B1) = First(B3)
First(B2) = OR, ε
First(B3) = VAR
First(B4) = AND, ε
Build the First, Follow and First+ Sets and the LL(1) Parse Table for the Following Grammar

1. $S \rightarrow B$
2. $B \rightarrow B_1 \ B_2$
3. $B_2 \rightarrow \text{OR} \ B_1 \ B_2$
4. $B_2 \rightarrow \epsilon$
5. $B_1 \rightarrow B_3 \ B_4$
6. $B_4 \rightarrow \text{AND} \ B_3 \ B_4$
7. $B_4 \rightarrow \epsilon$
8. $B_3 \rightarrow \text{VAR}$

First($S$) = First($B$) = $\text{VAR}$
First($B$) = First($B_1$) = $\text{VAR}$
First($B_1$) = First($B_3$) = $\text{VAR}$
First($B_2$) = OR, $\epsilon$
First($B_3$) = VAR
First($B_4$) = AND, $\epsilon$
Build the First, Follow and First+ Sets and the LL(1) Parse Table for the Following Grammar

1. $S \rightarrow B$
2. $B \rightarrow B_1 B_2$
3. $B_2 \rightarrow OR B_1 B_2$
4. $B_2 \rightarrow \epsilon$
5. $B_1 \rightarrow B_3 B_4$
6. $B_4 \rightarrow AND B_3 B_4$
7. $B_4 \rightarrow \epsilon$
8. $B_3 \rightarrow VAR$

Follow($S$) = $\text{eof}$
Follow($B$) = Follow($S$)
Follow($B_1$) = First($B_2$)
Follow($B_2$) = Follow($B$)
Follow($B_3$) = First($B_4$)
Follow($B_4$) = Follow($B_1$)
Build the First, Follow and First+ Sets and the LL(1) Parse Table for the Following Grammar

1. S → B
2. B → B1 B2
4. B2 → ε
5. B1 → B3 B4
6. B4 → AND B3 B4
7. B4 → ε
8. B3 → VAR

Follow(S) = eof
Follow(B) = Follow(S)
          = eof
Follow(B1) = First(B2)
          = OR, Follow(B), Follow(B2)
          = OR, eof
Follow(B2) = Follow(B)
          = eof
Follow(B3) = First(B4)
          = AND, Follow(B1), Follow(B4)
          = AND, OR, eof
Follow(B4) = Follow(B1)
          = OR, eof
Build the First, Follow and First+ Sets and the LL(1) Parse Table for the Following Grammar

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<tr>
<th>Rule</th>
<th>First+(Rule)</th>
<th>Follow(Rule)</th>
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<tbody>
<tr>
<td>1. S -&gt; B</td>
<td>First+(S -&gt; B) = First(B) = VAR</td>
<td>First(S) = VAR</td>
</tr>
<tr>
<td>2. B -&gt; B1 B2</td>
<td>First+(B -&gt; B1 B2) = First(B1) = VAR</td>
<td>First(B) = VAR</td>
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<tr>
<td>3. B2 -&gt; OR B1 B2</td>
<td>First+(B1 -&gt; B3 B4) = First(B3) = VAR</td>
<td>First(B1) = VAR</td>
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<tr>
<td>4. B2 -&gt; ε</td>
<td>First+(B2 -&gt; OR B1 B2) = OR</td>
<td>First(B2) = OR, ε</td>
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<td>5. B1 -&gt; B3 B4</td>
<td>First+(B2 -&gt; ε ) = Follow(B2) = eof</td>
<td>First(B3) = VAR</td>
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<tr>
<td>6. B4 -&gt; AND B3 B4</td>
<td>First+(B3 -&gt; VAR) = VAR</td>
<td>First(B4) = AND, ε</td>
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<td>7. B4 -&gt; ε</td>
<td>First+(B4 -&gt; AND B3 B4) = AND</td>
<td>Follow(S) = eof</td>
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<td>8. B3 -&gt; VAR</td>
<td>First+(B4 -&gt; ε ) = Follow(B4) = OR, eof</td>
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<td>Follow(B3) = AND, OR, eof</td>
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<td>Follow(B4) = OR, eof</td>
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Build the First, Follow and First+ Sets and the LL(1) Parse Table for the Following Grammar

1. S -> B
2. B -> B1 B2
4. B2 -> ε
5. B1 -> B3 B4
6. B4 -> AND B3 B4
7. B4 -> ε
8. B3 -> VAR

First+(S -> B) = First(B) = VAR
First+(B -> B1 B2) = First(B1) = VAR
First+(B1 -> B3 B4) = First(B3) = VAR
First+(B2 -> OR B1 B2) = OR
First+(B2 -> ε ) = Follow(B2) = eof
First+(B3 -> VAR) = VAR
First+(B4 -> AND B3 B4) = AND
First+(B4 -> ε ) = Follow(B4) = OR, eof

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Use the Following Grammar and LL(1) Parse Table to Parse

VAR OR VAR

1. S -> B     
2. B -> B1 B2 
4. B2 -> ε  
5. B1 -> B3 B4 
6. B4 -> AND B3 B4 
7. B4 -> ε 
8. B3 -> VAR
Use the Following Grammar and LL(1) Parse Table to Parse

VAR OR VAR

1. $S \rightarrow B$
2. $B \rightarrow B_1 B_2$
3. $B_2 \rightarrow OR B_1 B_2$
4. $B_2 \rightarrow \epsilon$
5. $B_1 \rightarrow B_3 B_4$
6. $B_4 \rightarrow AND B_3 B_4$
7. $B_4 \rightarrow \epsilon$
8. $B_3 \rightarrow VAR$

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Use the Following Grammar and LL(1) Parse Table to Parse
VAR OR VAR

1. \( S \rightarrow B \)
2. \( B \rightarrow B_1 B_2 \)
3. \( B_2 \rightarrow \text{OR} \ B_1 B_2 \)
4. \( B_2 \rightarrow \varepsilon \)
5. \( B_1 \rightarrow B_3 B_4 \)
6. \( B_4 \rightarrow \text{AND} \ B_3 B_4 \)
7. \( B_4 \rightarrow \varepsilon \)
8. \( B_3 \rightarrow \text{VAR} \)

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\[
S \quad \quad \quad B \quad \quad \quad B_1 \quad B_2
\]

\[
S \rightarrow B
B \rightarrow B_1 B_2
B_2 \rightarrow \text{OR} B_1 B_2
B_2 \rightarrow \varepsilon
B_1 \rightarrow B_3 B_4
B_4 \rightarrow \text{AND} B_3 B_4
B_4 \rightarrow \varepsilon
B_3 \rightarrow \text{VAR}
\]
Use the Following Grammar and LL(1) Parse Table to Parse \texttt{VAR OR VAR}

1. S -> B
2. B -> B1 B2
4. B2 -> ε
5. B1 -> B3 B4
6. B4 -> AND B3 B4
7. B4 -> ε
8. B3 -> VAR
Use the Following Grammar and LL(1) Parse Table to Parse
VAR OR VAR

1. S -> B
2. B -> B1 B2
4. B2 -> ε
5. B1 -> B3 B4
6. B4 -> AND B3 B4
7. B4 -> ε
8. B3 -> VAR

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```
S            
| B            |
| B1           |
| B2           |
| B3           |
| B4           |
| VAR ε       |
```

```
1. S -> B
2. B -> B1 B2
4. B2 -> ε
5. B1 -> B3 B4
6. B4 -> AND B3 B4
7. B4 -> ε
8. B3 -> VAR
```
Use the Following Grammar and LL(1) Parse Table to Parse

VAR OR VAR

1. $S \rightarrow B$
2. $B \rightarrow B_1 B_2$
3. $B_2 \rightarrow OR B_1 B_2$
4. $B_2 \rightarrow \varepsilon$
5. $B_1 \rightarrow B_3 B_4$
6. $B_4 \rightarrow AND B_3 B_4$
7. $B_4 \rightarrow \varepsilon$
8. $B_3 \rightarrow VAR$

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```
S
   /
  /|
B B1
  | |
B2 B3
  | |
B4 VAR
  | |
OR B1 B2
      ε
```
Use the Following Grammar and LL(1) Parse Table to Parse

VAR OR VAR

1. S -> B
2. B -> B1 B2
4. B2 -> ε
5. B1 -> B3 B4
6. B4 -> AND B3 B4
7. B4 -> ε
8. B3 -> VAR
Use the Following Grammar and LL(1) Parse Table to Parse
VAR OR VAR

1. S -> B
2. B -> B1 B2
4. B2 -> ε
5. B1 -> B3 B4
6. B4 -> AND B3 B4
7. B4 -> ε
8. B3 -> VAR

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```
  S
 /|
/  |
B  B
 /|
/  |
B1 B2
 /|
/  |
B3 B4
 /|
/  |
VAR ε
 |   |
|   |
| B3 B4
 |   |
| VAR |
```
Use the Following Grammar and LL(1) Parse Table to Parse
VAR OR VAR

1. $S \rightarrow B$
2. $B \rightarrow B_1 B_2$
3. $B_2 \rightarrow \text{OR} B_1 B_2$
4. $B_2 \rightarrow \epsilon$
5. $B_1 \rightarrow B_3 B_4$
6. $B_4 \rightarrow \text{AND} B_3 B_4$
7. $B_4 \rightarrow \epsilon$
8. $B_3 \rightarrow \text{VAR}$
Use the Following Grammar and LL(1) Parse Table to Parse
VAR OR VAR

1. S -> B
2. B -> B1 B2
4. B2 -> ε
5. B1 -> B3 B4
6. B4 -> AND B3 B4
7. B4 -> ε
8. B3 -> VAR

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S

B

B1

B2

B3

B4

VAR

ε

B1

B2

OR

B1

B2

ε

VAR

ε
Use the Following Grammar and LL(1) Parse Table to Parse
VAR AND VAR

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Use the Following Grammar and LL(1) Parse Table to Parse
VAR OR VAR AND VAR

1. S -> B
2. B -> B1 B2
4. B2 -> ε
5. B1 -> B3 B4
6. B4 -> AND B3 B4
7. B4 -> ε
8. B3 -> VAR