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Top/Top-down parsing/Conflicts

8.5. Parsing Conflicts

Let's build the top-down parsing table for a slightly different grammar.

1. $L \rightarrow \varepsilon$
2. $L \rightarrow N$
3. $N \rightarrow E$
4. $N \rightarrow E, N$
5. $E \rightarrow \mathbf{n}$

L -> ε, n.
N -> n
E -> n.

The FIRST and FOLLOW sets for that grammar are:

X	***L***	*N*	*E*
FIRST(*X*)	{**n**, ε}	{**n**}	{**n**}
FOLLOW(*X*)	{**$**}	{**$**}	{**,**, **$**}

The parsing table is as follows.

Table D			
	n	**,**	**$**
L	2		1
N	3,4		
E	6		

Same LHS +
Same RHS FIRST.

The algorithm adds two productions to one of the cells in the table. When that happens, it is called a *parsing conflict*

The problem is that the parser cannot know whether to use production $N \rightarrow E$ or $N \rightarrow E$ **,** N, based on a single-token lookahead. That decision depends on whether the E is followed by a comma, and that would require a longer lookahead.

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