

$\langle \text{exp} \rangle ::= \langle \text{exp} \rangle \langle \text{addop} \rangle \langle \text{term} \rangle \mid \langle \text{term} \rangle$   
 $\langle \text{addop} \rangle ::= + \mid -$   
 $\langle \text{term} \rangle ::= \langle \text{term} \rangle \langle \text{mulop} \rangle \langle \text{factor} \rangle \mid \langle \text{factor} \rangle$   
 $\langle \text{mulop} \rangle ::= *$   
 $\langle \text{factor} \rangle ::= ( \langle \text{exp} \rangle ) \mid \text{num}$

Step 0: remove left recursion

$\langle \text{exp} \rangle ::=$

$\langle \text{exp}_x \rangle ::=$

$\langle \text{addop} \rangle ::=$

$\langle \text{term} \rangle ::=$

$\langle \text{term}_x \rangle ::=$

$\langle \text{mulop} \rangle ::=$

$\langle \text{factor} \rangle ::=$

STEP 1: REMOVE ALTERNATIONS '|' (accept for some terminals) and list the terminals and nonterminals. This is done for clarity

<p>0) <math>\langle \text{start} \rangle ::= \langle \text{exp} \rangle \\$</math> 1) <math>\langle \text{exp} \rangle ::= \langle \text{term} \rangle \langle \text{expx} \rangle</math> 2) <math>\langle \text{expx} \rangle ::= \langle \text{addop} \rangle \langle \text{term} \rangle \langle \text{expx} \rangle</math> 3) <math>\langle \text{expx} \rangle ::= \epsilon</math> 4) <math>\langle \text{addop} \rangle ::= + \mid -</math> 5) <math>\langle \text{term} \rangle ::= \langle \text{factor} \rangle \langle \text{termx} \rangle</math> 6) <math>\langle \text{termx} \rangle ::= \langle \text{mulop} \rangle \langle \text{factor} \rangle \langle \text{termx} \rangle</math> 7) <math>\langle \text{termx} \rangle ::= \epsilon</math> 8) <math>\langle \text{mulop} \rangle ::= *</math> 9) <math>\langle \text{factor} \rangle ::= ( \langle \text{exp} \rangle )</math> a) <math>\langle \text{factor} \rangle ::= \text{num}</math></p>	<p>STEP 2: COMPUTE THE FIRST SET</p> <p><math>\langle \text{start} \rangle</math> <math>\langle \text{exp} \rangle</math> <math>\langle \text{expX} \rangle</math> <math>\langle \text{addop} \rangle</math> <math>\langle \text{term} \rangle</math> <math>\langle \text{termx} \rangle</math> <math>\langle \text{mulop} \rangle</math> <math>\langle \text{factor} \rangle</math></p>
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STEP 3: COMPUTE THE FOLLOW SET.

- 0)  $\langle \text{start} \rangle ::= \langle \text{exp} \rangle \$$
- 1)  $\langle \text{exp} \rangle ::= \langle \text{term} \rangle \langle \text{expx} \rangle$
- 2)  $\langle \text{expx} \rangle ::= \langle \text{addop} \rangle \langle \text{term} \rangle \langle \text{expx} \rangle$
- 3)  $\langle \text{expx} \rangle ::= \epsilon$
- 5)  $\langle \text{term} \rangle ::= \langle \text{factor} \rangle \langle \text{termx} \rangle$
- 6)  $\langle \text{termx} \rangle ::= \langle \text{mulop} \rangle \langle \text{factor} \rangle \langle \text{termx} \rangle$
- 7)  $\langle \text{termx} \rangle ::= \epsilon$
- 9)  $\langle \text{factor} \rangle ::= ( \langle \text{exp} \rangle )$

	First	prod 0&1	prod 2	prod 5	prod 6	prod 9
$\langle \text{start} \rangle$	(,num					
$\langle \text{exp} \rangle$	(,num					
$\langle \text{expx} \rangle$	+, -, $\epsilon$					
$\langle \text{addop} \rangle$	+, -					
$\langle \text{term} \rangle$	(,num					
$\langle \text{termx} \rangle$	*, $\epsilon$					
$\langle \text{mulop} \rangle$	*					
$\langle \text{factor} \rangle$	(,num					

	The First Set	The follow Set
<start>	(,num	
<exp>	(,num	\$,)
<expx>	+, -, $\epsilon$	\$,)
<addop>	+, -	(,num
<term>	(,num	+, -, \$,)
<termx>	*, $\epsilon$	+, -, \$,)
<mulop>	*	(,num
<factor>	(,num	*, +, -, \$,)

Step 4. Compute the predict sets.

1) <exp> ::= <term> <expx>
2) <expx> ::= <addop> <term> <expx>
3) <expx> ::= $\epsilon$
4) <addop> ::= +   -
5) <term> ::= <factor> <termx>
6) <termx> ::= <mulop> <factor> <termx>
7) <termx> ::= $\epsilon$
8) <mulop> ::= *
9) <factor> ::= ( <exp> )
a) <factor> ::= num

STEP 5. Create M(NONTERMS, TERMS)

	\$	+	-	*	(	)	num
<exp>							
<expx>							
<addop>							
<term>							
<termx>							
<mulop>							
<factor>							