0. <S> ::= <E>$
1. <E> ::= <T> <X>
2. <X> ::= + <T> <X>
3. <X> ::= ε
4. <T> ::= <F> <V>
5. <V> ::= * <F> <V>
6. <V> ::= ε
7. <F> ::= (<E>)
8. <F> ::= id

	First	Follow
<E>	First(T) --> (id	$)
<X>	+ empty	Follow(E) AND Follow(X) -->)
<T>	First(F) --> (id	First(X) AND Follow(E) AND Follow(X) --> +) empty
<V>	* empty	Follow(T) AND Follow(V) --> +)
<F>	(id	First(V) AND Follow(T) AND Follow(V) --> * +) empty

First

	+	*	(	)	id	Epsilon
<E>			x		x	
<X>	x					x
<T>			x		x	
<V>		x				x
<F>			x		x	

Follow

	+	*	(	)	id	
<E>				x		
<X>				x		
<T>	x			x		x
<V>	x			x		
<F>	x	x		x		x

M

		+	*	(	)	id	$
1	<E>						0
2 3	<X>	x 2					
4	<T>	x 4			x 4		
5 6	<V>		x 5				
7 8	<F>	x 7	x 7		x 7		

What is the M set used for?

Check last row of M

0. <S> ::= <Prog>$
1. <Prog> ::= { <Stmts> }
2. <Stmts> ::= <Stmt> <Stmts>
3. <Stmts> ::= ε
4. <Stmt> ::= id = <Expr> ;
5. <Stmt> ::= if (<Expr>) <Stmt>
6. <Expr> ::= id <Etail>
7. <Etail> ::= + <Expr>
8. <Etail> ::= - <Expr>
9. <Etail> ::= ε

	First	Follow
<Prog>	{	$
<Stmts>	First(Stmt) --> id if empty	} Follow(Stmts) --> }
<Stmt>	id if	First(Stmts) AND Follow(Stmts) --> id if } empty
<Expr>	id	;) Follow(Etail) --> ;)
<Etail>	+ - empty	Follow(Expr) --> ;)

First

	{	}	id	=	;	if	(	)	+	-	Epsilon
<Prog>	x										
<Stmts>			x			x					x
<Stmt>			x			x					
<Expr>			x								
<Etail>									x	x	x

Follow

	{	}	id	=	;	if	(	)	+	-
<Prog>										
<Stmts>		x								
<Stmt>		x	x			x				
<Expr>					x			x		
<Etail>					x			x		

x

M

	{	}	id	=	;	if	(	)	+	-	$
1 <Prog>											0
2 3 <Stmts>			x 2			x 2					
4 5 <Stmt>		x	x 4			x 5					
6 <Expr>											
7 8 9 <Etail>									x 7	x 8	

If Stmt was empty and rule 2 was different, would the First(Stmts) --> First(some nonterminal)

Is the grammar guaranteed to be LL1 parsable

Check to understanding of empty symbols - Follow set row of Stmt

0. <S> ::= <A>$
1. <A> ::= <R> <D>
2. <D> ::= + <R> <D>
3. <D> ::= - <R> <D>
4. <D> ::= ε
5. <R> ::= <C> <B>
6. <B> ::= * <C> <B>
7. <B> ::= / <C> <B>
8. <B> ::= ε
9. <C> ::= (A)
10. <C> ::= int

	First	Follow
<A>	First(R) --> (int	$)
<D>	+ - empty	Follow(A) -->)
<R>	First(C) --> (int	First(D) AND Follow(A) AND Follow(D) --> + -) empty
<B>	* / empty	Follow(R) --> + -) empty
<C>	(int	First(B) AND Follow(R) AND Follow(B) --> * / + -) empty

First

	+	-	*	/	(	)	int	Epsilon
<A>					x		x	
<D>	x	x						x
<R>					x		x	
<B>			x	x				x
<C>					x		x	

Follow

	+	-	*	/	(	)	int	
<A>						x		
<D>						x		
<R>	x	x				x		x
<B>	x	x				x		x
<C>	x	x	x	x		x		x

M

		+	-	*	/	(	)	int	$
1	<A>								0
2 3 4	<D>	x 2	x 3						
5	<R>	x	x				x 5		
6 7 8	<B>	x 8	x 8	x 6	x 7		x 8		
9 10	<C>	x	x	x	x		x		

Empties wrong? I think the Follow empties might be. Row R and B and C of M set

What happens if there are none checked in a row?

0. <S> ::= <A>$
1. <E> ::= <M> <O>
2. <E> ::= 👆 <I> ☺
3. <M> ::= ☺ ☹
4. <M> ::= 👀
5. <O> ::= 👁 <J>
6. <J> ::= 👆 <J>
7. <J> ::= ε
8. <I> ::= 👌 <I>
9. <I> ::= ε

	First	Follow
<E>		
<M>		
<O>		
<J>		
<I>		

First

	👆	☺	☹	👀	👁	👌	Epsilon
<E>							
<M>							
<O>							
<J>							
<I>							

Follow

	👆	☺	☹	👀	👁	👌
<E>						
<M>						
<O>						
<J>						
<I>						

M

	👆	☺	☹	👀	👁	👌	$
<E>							
<M>							
<O>							
<J>							
<I>							

0. <S> ::= <A>$
1. <A> ::= <R> <D>
2. <D> ::= + <R> <D>
3. <D> ::= <R> <D>
4. <D> ::= ε
5. <R> ::= <C> <B>
6. <B> ::= * <C> <B>
7. <B> ::= / <C> <B>
8. <B> ::= ε
9. <C> ::= num
10. <C> ::= (<A>)

	First	Follow
<A>		
<D>		
<R>		
<B>		
<C>		

First

	+	*	/	num	(	)	Epsilon
<A>							
<D>							
<R>							
<B>							
<C>							

Follow

	+	*	/	num	(	)
<A>						
<D>						
<R>						
<B>						
<C>						

M

	+	*	/	num	(	)	$
<A>							
<D>							
<R>							
<B>							
<C>							