SLR parser

Ex. $G = (\{S', E, T\},\ \{+, id, const, (,)\},\ P,\ S')$

P: $S' \rightarrow E$

(1) $E \rightarrow T$

(2) $E \rightarrow E + T$

(3) $T \rightarrow (E)$

(4) $T \rightarrow id$

(5) $T \rightarrow const$

$w = id + const$

1. Compute the canonical collection

// [redacted]

S0 = closure({[S' -> .E]}) = {[S' -> .E], [E->.T], [E-> .E + T], [T -> .(E)], [T -> .id], [T -> .const]}
S1 = goto(s0, E) = closure({[S' -> E.],[E -> E.+T]}) = {[S' -> E.],[E -> E.+T]}
S2 = goto(s0, T) = closure({[E -> T.]}) = {[E -> T.]}
S3 = goto(s0, () = closure({[T -> (.E)]}) = {[T -> (.E)], [E -> .T], [E->.E+T], [T->.(E)], [T->.id], [T->.const]}
S4 = goto(s0, id) = closure({[T -> id.]}) = {[T -> id.]}
S5 = goto(s0, const) = closure({[T -> const.]}) = {[T -> const.]}
S6 = goto(s1, +) = closure({[E -> E+.T]}) = {[E -> E+.T], [T -> .(E)], [T -> .id], [T -> .const]}
S7 = goto(s3, E) = closure({[T -> (E.)], [E -> E.+T]}) = {[T -> (E.)], [E -> E.+T]}
goto(s3, T) = closure({[E-> T.]}) = S2
goto(s3, id) = closure({[T -> id.]}) = S4
goto(s3, const) = closure({[T -> const.]}) = S5
goto(s3, () = closure({[T -> (.E)]}) = S3
S8 = goto(s6, T) = closure({[E -> E+T.]})
goto(s6, () = closure({[T->(.E)]}) = s3
goto(s6, id) = closure({[T -> id.]}) = s4
goto(s6, const) = closure({[T -> const.]}) = s5
S9 = goto(s7,)) = closure({[T -> (E).]}) = {[T -> (E).]}
goto(s7, +) = closure({[E -> E+.T]}) = s6

FOLLOW(E) = { ε, +,)}
FOLLOW(T) = { ε, +,)}

2. Fill the SLR table
//[redacted]

	ACTION						GOTO	
	+	**(**	**)**	**id**	**const**	**$**	**E**	**T**
0		Shift 3		Shift 4	Shift 5		1	2
1	Shift 6					acc		
2	Reduce1		Reduce1			Reduce1		
3		Shift 3		Shift 4	Shift 5		7	2
4	Reduce4		Reduce4			Reduce4		
5	Reduce 5		Reduce 5			Reduce 5		
6		Shift3		Shift4	Shift5			8
7	Shift6		Shift9					
8	Reduce 2		Reduce 2			Reduce 2		
9	Reduce 3		Reduce 3			Reduce 3		

3. Parse the sequence
// [redacted]

Work stack	**Input stack**	**Output band**
$0 $0id4 $0T2 $0E1 $0E1+6 $0E1+6const5 $0E1+6T8 $0E1 accept	id+const$ +const$ +const$ +const$ const$ $ $ $	ε ε 4 14 14 14 514 2514

E => E + T => E + const => T + const => id + const
2 5 1 4