

State	Transitions
0. <u>program</u> $\rightarrow \bullet$ <i>stmt_list</i> \$\$ <i>stmt_list</i> $\rightarrow \bullet$ <i>stmt_list</i> <i>stmt</i> <i>stmt_list</i> $\rightarrow \bullet$ <i>stmt</i> <i>stmt</i> $\rightarrow \bullet$ <i>id</i> := <i>expr</i> <i>stmt</i> $\rightarrow \bullet$ read <i>id</i> <i>stmt</i> $\rightarrow \bullet$ write <i>expr</i>	on <i>stmt_list</i> shift and goto 2 on <i>stmt</i> shift and reduce (pop 1 state, push <i>stmt_list</i> on input) on <i>id</i> shift and goto 3 on read shift and goto 1 on write shift and goto 4
1. <i>stmt</i> \rightarrow read \bullet <i>id</i>	on <i>id</i> shift and reduce (pop 2 states, push <i>stmt</i> on input)
2. <u>program</u> \rightarrow <i>stmt_list</i> \bullet \$\$ <u><i>stmt_list</i></u> \rightarrow <i>stmt_list</i> \bullet <i>stmt</i> <i>stmt</i> $\rightarrow \bullet$ <i>id</i> := <i>expr</i> <i>stmt</i> $\rightarrow \bullet$ read <i>id</i> <i>stmt</i> $\rightarrow \bullet$ write <i>expr</i>	on \$\$ shift and reduce (pop 2 states, push <i>program</i> on input) on <i>stmt</i> shift and reduce (pop 2 states, push <i>stmt_list</i> on input) on <i>id</i> shift and goto 3 on read shift and goto 1 on write shift and goto 4
3. <i>stmt</i> \rightarrow <i>id</i> \bullet := <i>expr</i>	on := shift and goto 5
4. <u><i>stmt</i></u> \rightarrow write \bullet <i>expr</i> <i>expr</i> $\rightarrow \bullet$ <i>term</i> <i>expr</i> $\rightarrow \bullet$ <i>expr</i> <i>add_op</i> <i>term</i> <i>term</i> $\rightarrow \bullet$ <i>factor</i> <i>term</i> $\rightarrow \bullet$ <i>term</i> <i>mult_op</i> <i>factor</i> <i>factor</i> $\rightarrow \bullet$ (<i>expr</i>) <i>factor</i> $\rightarrow \bullet$ <i>id</i> <i>factor</i> $\rightarrow \bullet$ <i>number</i>	on <i>expr</i> shift and goto 6 on <i>term</i> shift and goto 7 on <i>factor</i> shift and reduce (pop 1 state, push <i>term</i> on input) on (shift and goto 8 on <i>id</i> shift and reduce (pop 1 state, push <i>factor</i> on input) on <i>number</i> shift and reduce (pop 1 state, push <i>factor</i> on input)
5. <u><i>stmt</i></u> \rightarrow <i>id</i> := \bullet <i>expr</i> <i>expr</i> $\rightarrow \bullet$ <i>term</i> <i>expr</i> $\rightarrow \bullet$ <i>expr</i> <i>add_op</i> <i>term</i> <i>term</i> $\rightarrow \bullet$ <i>factor</i> <i>term</i> $\rightarrow \bullet$ <i>term</i> <i>mult_op</i> <i>factor</i> <i>factor</i> $\rightarrow \bullet$ (<i>expr</i>) <i>factor</i> $\rightarrow \bullet$ <i>id</i> <i>factor</i> $\rightarrow \bullet$ <i>number</i>	on <i>expr</i> shift and goto 9 on <i>term</i> shift and goto 7 on <i>factor</i> shift and reduce (pop 1 state, push <i>term</i> on input) on (shift and goto 8 on <i>id</i> shift and reduce (pop 1 state, push <i>factor</i> on input) on <i>number</i> shift and reduce (pop 1 state, push <i>factor</i> on input)
6. <i>stmt</i> \rightarrow write <i>expr</i> \bullet <u><i>expr</i></u> \rightarrow <i>expr</i> \bullet <i>add_op</i> <i>term</i> <u><i>add_op</i></u> $\rightarrow \bullet$ + <u><i>add_op</i></u> $\rightarrow \bullet$ -	on FOLLOW(<i>stmt</i>) = { <i>id</i> , read, write, \$\$} reduce (pop 2 states, push <i>stmt</i> on input) on <i>add_op</i> shift and goto 10 on + shift and reduce (pop 1 state, push <i>add_op</i> on input) on - shift and reduce (pop 1 state, push <i>add_op</i> on input)

State	Transitions
7. $expr \rightarrow term \bullet$ $term \rightarrow term \bullet mult_op \ factor$ <hr/> $mult_op \rightarrow \bullet \ *$ $mult_op \rightarrow \bullet \ /$	on FOLLOW($expr$) = {id, read, write, \$\$, }, +, -} reduce (pop 1 state, push $expr$ on input) on $mult_op$ shift and goto 11 on * shift and reduce (pop 1 state, push $mult_op$ on input) on / shift and reduce (pop 1 state, push $mult_op$ on input)
8. $factor \rightarrow (\bullet \ expr \)$ <hr/> $expr \rightarrow \bullet \ term$ $expr \rightarrow \bullet \ expr \ add_op \ term$ $term \rightarrow \bullet \ factor$ $term \rightarrow \bullet \ term \ mult_op \ factor$ $factor \rightarrow \bullet \ (\ expr \)$ $factor \rightarrow \bullet \ id$ $factor \rightarrow \bullet \ number$	on $expr$ shift and goto 12 on $term$ shift and goto 7 on $factor$ shift and reduce (pop 1 state, push $term$ on input) on (shift and goto 8 on id shift and reduce (pop 1 state, push $factor$ on input) on number shift and reduce (pop 1 state, push $factor$ on input)
9. $stmt \rightarrow id \ := \ expr \bullet$ $expr \rightarrow expr \bullet \ add_op \ term$ <hr/> $add_op \rightarrow \bullet \ +$ $add_op \rightarrow \bullet \ -$	on FOLLOW($stmt$) = {id, read, write, \$\$} reduce (pop 3 states, push $stmt$ on input) on add_op shift and goto 10 on + shift and reduce (pop 1 state, push add_op on input) on - shift and reduce (pop 1 state, push add_op on input)
10. $expr \rightarrow expr \ add_op \bullet \ term$ <hr/> $term \rightarrow \bullet \ factor$ $term \rightarrow \bullet \ term \ mult_op \ factor$ $factor \rightarrow \bullet \ (\ expr \)$ $factor \rightarrow \bullet \ id$ $factor \rightarrow \bullet \ number$	on $term$ shift and goto 13 on $factor$ shift and reduce (pop 1 state, push $term$ on input) on (shift and goto 8 on id shift and reduce (pop 1 state, push $factor$ on input) on number shift and reduce (pop 1 state, push $factor$ on input)
11. $term \rightarrow term \ mult_op \bullet \ factor$ <hr/> $factor \rightarrow \bullet \ (\ expr \)$ $factor \rightarrow \bullet \ id$ $factor \rightarrow \bullet \ number$	on $factor$ shift and reduce (pop 3 states, push $term$ on input) on (shift and goto 8 on id shift and reduce (pop 1 state, push $factor$ on input) on number shift and reduce (pop 1 state, push $factor$ on input)
12. $factor \rightarrow (\ expr \ \bullet \)$ $expr \rightarrow expr \bullet \ add_op \ term$ <hr/> $add_op \rightarrow \bullet \ +$ $add_op \rightarrow \bullet \ -$	on) shift and reduce (pop 3 states, push $factor$ on input) on add_op shift and goto 10 on + shift and reduce (pop 1 state, push add_op on input) on - shift and reduce (pop 1 state, push add_op on input)
13. $expr \rightarrow expr \ add_op \ term \bullet$ $term \rightarrow term \bullet \ mult_op \ factor$ <hr/> $mult_op \rightarrow \bullet \ *$ $mult_op \rightarrow \bullet \ /$	on FOLLOW($expr$) = {id, read, write, \$\$, }, +, -} reduce (pop 3 states, push $expr$ on input) on $mult_op$ shift and goto 11 on * shift and reduce (pop 1 state, push $mult_op$ on input) on / shift and reduce (pop 1 state, push $mult_op$ on input)