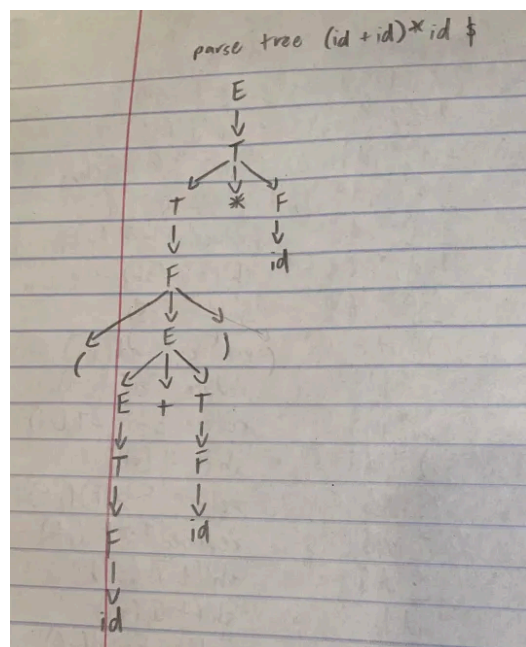


| Step | Stack        | Input        | Action                            |
|------|--------------|--------------|-----------------------------------|
| 1    | \$0          | (id+id)*id\$ | shift 4 (s4)                      |
| 2    | \$0(4        | id+id)*id\$  | shift 5 (s5)                      |
| 3    | \$0(4id5     | +id)*id\$    | reduce $F \rightarrow id$ (r6)    |
| 4    | \$0(4F3      | +id)*id\$    | reduce $T \rightarrow F$ (r4)     |
| 5    | \$0(4T2      | +id)*id\$    | reduce $E \rightarrow T$ (r2)     |
| 6    | \$0(4E8      | +id)*id\$    | shift 6 (s6)                      |
| 7    | \$0(4E8+6    | id)*id\$     | shift 5 (s5)                      |
| 8    | \$0(4E8+6id5 | ) * id\$     | reduce $F \rightarrow id$ (r6)    |
| 9    | \$0(4E8+6F3  | ) * id\$     | reduce $T \rightarrow F$ (r4)     |
| 10   | \$0(4E8+6T9  | ) * id\$     | reduce $E \rightarrow E + T$ (r1) |
| 11   | \$0(4E8      | ) * id\$     | shift 11 (s11)                    |
| 12   | \$0(4E8)11   | * id\$       | reduce $F \rightarrow (E)$ (r5)   |
| 13   | \$0F3        | * id\$       | reduce $T \rightarrow F$ (r4)     |
| 14   | \$0T2        | * id\$       | shift 7 (s7)                      |
| 15   | \$0T2*7      | id\$         | shift 5 (s5)                      |
| 16   | \$0T2*7id5   | \$           | reduce $F \rightarrow id$ (r6)    |
| 17   | \$0T2*7F10   | \$           | reduce $T \rightarrow T * F$ (r3) |
| 18   | \$0T2        | \$           | reduce $E \rightarrow T$ (r2)     |
| 19   | \$0E1        | \$           | accept                            |



INPUT 1: "(id+id)\*id\$"

INPUT 2: "id\*id\$"

|   |                          |                 |                   |
|---|--------------------------|-----------------|-------------------|
| 1 | \$0                      | <u>id</u> *id\$ | shift 5 (s5)      |
| 2 | \$0 id <u>\$</u>         | * <u>id</u> \$  | reduce F→id (r6)  |
| 3 | \$0 F <u>3</u>           | * <u>id</u> \$  | reduce T→F (r4)   |
| 4 | \$0 T <u>2</u>           | * <u>id</u> \$  | shift 7 (s7)      |
| 5 | \$0 T 2 * <u>7</u>       | <u>id</u> \$    | shift 5 (s5)      |
| 6 | \$0 T 2 * 7 id <u>\$</u> | \$              | reduce F→id (r6)  |
| 7 | \$0 T 2 * 7 F <u>10</u>  | \$              | reduce T→T*F (r3) |
| 8 | \$0 T <u>2</u>           | \$              | reduce E→T (r2)   |
| 9 | \$0 E <u>1</u>           | \$              | accept            |

parse tree

```

graph TD
    E --> T
    T --> T1[T]
    T --> M[*]
    T --> F1[F]
    T1 --> F2[F]
    F2 --> id1[id]
    F1 --> id2[id]
    
```

INPUT 3: "(id\*)\$"

|   | stack                  | Input            | Action           |
|---|------------------------|------------------|------------------|
| 1 | \$0                    | ( <u>id</u> *)\$ | shift 4 (s4)     |
| 2 | \$0 ( <u>4</u>         | <u>id</u> *)\$   | shift 5 (s5)     |
| 3 | \$0 ( 4 id <u>\$</u>   | * ) \$           | reduce F→id (r6) |
| 4 | \$0 ( 4 F <u>3</u>     | * ) \$           | reduce T→F (r4)  |
| 5 | \$0 ( 4 T <u>2</u>     | * ) \$           | shift 7 (s7)     |
| 6 | \$0 ( 4 T 2 * <u>7</u> | ) \$             | error            |

parse tree error

```

graph TD
    T --> F
    F --> id
    
```