## Obs:

Es una gramática ambigua!

$$E \rightarrow E + E \mid E * E \mid (E) \mid \mathbf{id}$$

Podemos usar una gramática no ambigua que genera el mismo lenguaje:

$$E \rightarrow E+T \mid T$$
 $T \rightarrow T^*F \mid F$ 
 $F \rightarrow (E) \mid id$ 

Preferimos usar la gramática ambigua porque es más simple y fácil de entender

## Paso 3: tabla

$$I_0: \quad E' \to \cdot E$$

$$E \to \cdot E + E$$

$$E \to \cdot E * E$$

$$E \to \cdot (E)$$

$$E \to \mathbf{id}$$

$$I_1: \quad E' \to E \cdot E' \to E \cdot E \to E \cdot E \to E \cdot E$$

$$I_{2}: \quad E \to (\cdot E)$$

$$E \to \cdot E + E$$

$$E \to \cdot E * E$$

$$E \to \cdot (E)$$

$$E \to \mathbf{id}$$

$$I_3: E \to id$$

$$I_{4}: \quad E \to E + \cdot E$$

$$E \to \cdot E + E$$

$$E \to \cdot E * E$$

$$E \to \cdot (E)$$

$$E \to \mathbf{id}$$

$$I_5: \quad E \to E * \cdot E$$

$$E \to \cdot E + E$$

$$E \to \cdot E * E$$

$$E \to \cdot (E)$$

$$E \to \cdot \mathbf{id}$$

| $I_6$ : | $E 	o (E \cdot)$    |
|---------|---------------------|
|         | $E \to E \cdot + E$ |
|         | $E \to E \cdot *E$  |

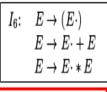
| I <sub>7</sub> : | $E \to E + E \cdot E \to E \cdot + E \to E \cdot * E$                         |  |
|------------------|---|--|
| $I_8$ :          | $E \rightarrow E * E$ $E \rightarrow E \cdot + E$ $E \rightarrow E \cdot * E$ |  |

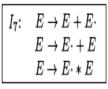
$$I_9: E \to (E)$$

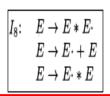
| estado |    | t    | tabla $ir_{-}$ |             |    |     |   |
|--------|----|------|----------------|-------------|----|-----|---|
| estado | id | +    | *              | (           | )  | \$  | E |
| 0      | s3 |      |                | s2          |    |     | 1 |
| 1      |    | s4   | s5             |             |    | acc |   |
| 2      | s3 |      |                | s2          |    |     | 6 |
| 3      | r4 | r4   | r4             | r4          | r4 | r4  |   |
| 4      | s3 |      |                | s2          |    |     | 7 |
| 5      | s3 |      |                | s2          |    |     | 8 |
| 6      |    | s4   | s5             |             | s9 |     |   |
| 7      | r1 | r1s4 | rls5           | $^{\rm r1}$ | r1 | r1  |   |
| 8      | r2 | r2s4 | r2s5           | r2          | r2 | r2  |   |
| 9      | r3 | r3   | r3             | r3          | r3 | r3  |   |

**Conflictos!** 

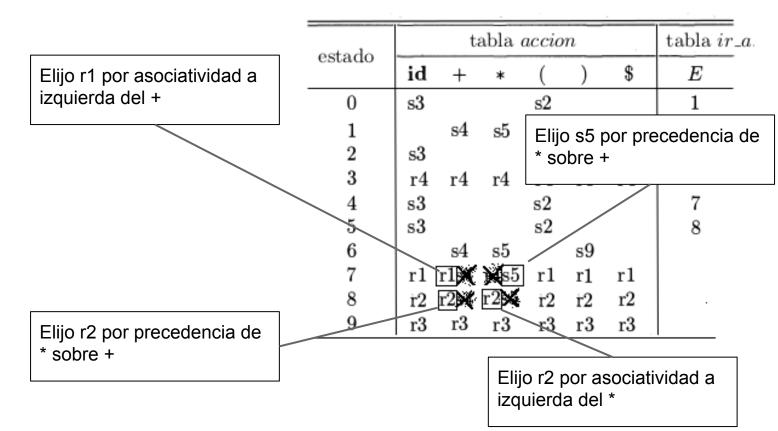
## Paso 4: precedencia y asociatividad







 $I_9$ :  $E \rightarrow (E)$ .



## **Ejemplo:**

En este punto tendríamos un conflicto shift/reduce

|                   |                |                    | _             |
|-------------------|----------------|--------------------|---------------|
| <u>Pila</u>       | <u>Entrada</u> | Accion             |               |
| 0                 | id+id*id\$     | shift 3            |               |
| 0 id3             | +id*id\$       | r4 por E→ id       |               |
| 0 E1              | +id*id\$       | shift 4            |               |
| 0 E1 +4           | id*id\$        | shift 3            |               |
| 0 E1 +4 id3       | *id\$          | r4 por E→ id       | 1             |
| 0 E1 +4 E7        | *id\$          | shift 5 ← Car mayo | or .          |
| 0 E1 +4 E7 *5     | id\$           | shift 3 preceder   | ncia a *<br>│ |
| 0 E1 +4 E7 *5 id3 | \$             | r4 por E→ id       |               |
| 0 E1 +4 E7 *5 E8  | \$             | r2 por E→ E*E      |               |
| 0 E1 +4 E7        | \$             | r1 por E→ E+E      |               |
| 0 E1              | \$             | aceptar            |               |