$S \to iEtSS' \mid e$ $S' \to eS \mid \varepsilon$ $E \to b$

$FIRST(S) = \{i, e\}$

$FIRST(S') = \{e, \varepsilon\}$

$FIRST(E) = \{b\}$

$FOLLOW(S) = \{\$, e\}$

$FOLLOW(S') = \{\$, e\}$

$FOLLOW(E) = \{t\}$

	i	t	e	b	\$	e
S	$S \to iEtSS'$					$S \to e$
S'			$S' \to eS$ $S' \to \varepsilon$		$S' \to \varepsilon$	
E				$E \to b$		
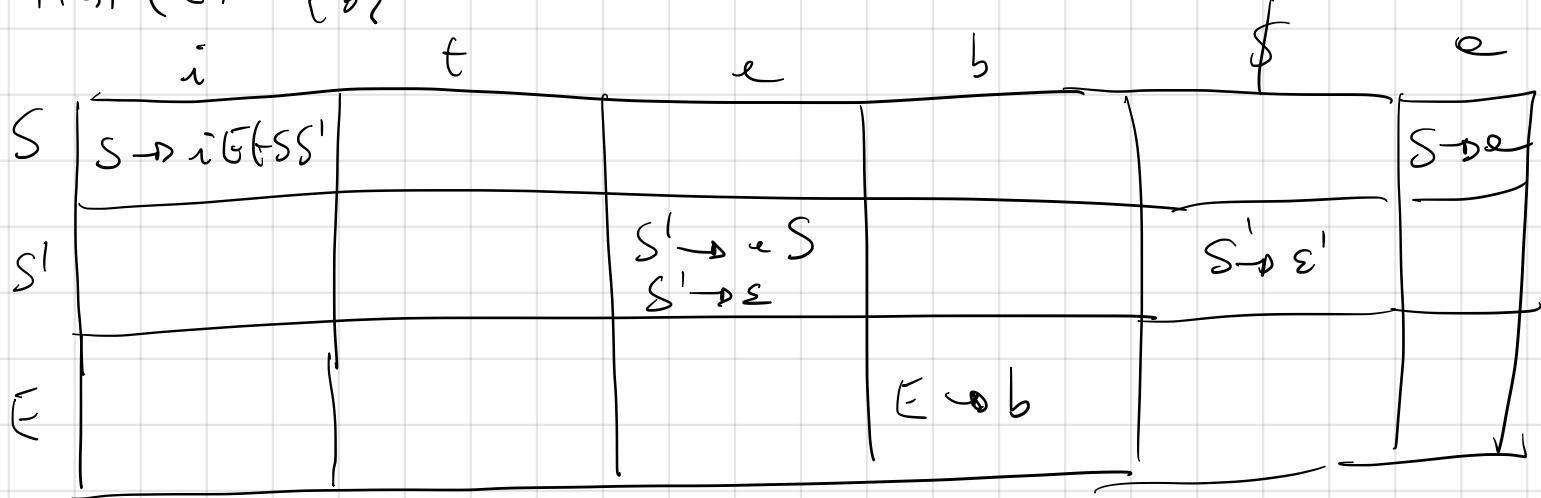
STACK	INPUT	MATCHED	ACTION
E $	id + id * id $		E → TE'
T E' $	id + id * id $		T → FT'
F T' E' $	id + id * id $		F → id
id T' E' $	id + id * id $	id	match
T' E' $	+ id * id $		T' → ε
E' $	+ id * id $		E' → + TE'
+ T E' $	+ id * id $	+	match
T E' $	id * id $		T → FT'
F T' E' $	id * id $		F → id
id T' E' $	id * id $	id	match
T' E' $	* id $		T' → * FT'
* F T' E' $	* id $	*	match
F T' E' $	id $		F → id
id T' E' $	id $	id	match
T' E' $	$		T' → ε
E' $	$		E' → ε
$	$		ACCEPT

leftmost derivation $E \underset{en}{\Rightarrow} TE' \underset{lm}{\Rightarrow} FT'E' \underset{lm}{\Rightarrow} \cdots$

$E \to E + T \mid T$

$T \to T * F \mid F$

$F \to id \mid (E)$

$id * id$

$\boxed{id * id} \to$

F
$\mid$
id

$* id$ $F \to id$ T
$\qquad\qquad\quad \mid$
$\qquad\qquad\quad F$
$\qquad\qquad\quad id$

$* id$ $T \to F$
$\Rightarrow$

$F \to id$ T $*$ $T \to T * F$ T $E \to T$ E
$\Rightarrow$ $\mid$ $\Rightarrow$ $\wedge$ $\Rightarrow$ $\mid$
$\qquad\quad F$ F $T * F$ T
$\qquad\quad \mid$ $\mid$ $\mid$ $\mid$ $\wedge$
$\qquad\quad id$ id F id $T * F$
$\qquad\qquad\qquad\qquad\qquad\quad \mid$ $\mid$ $\mid$
$\qquad\qquad\qquad\qquad\qquad\quad id$ F id
$\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\quad \mid$
$\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\quad id$
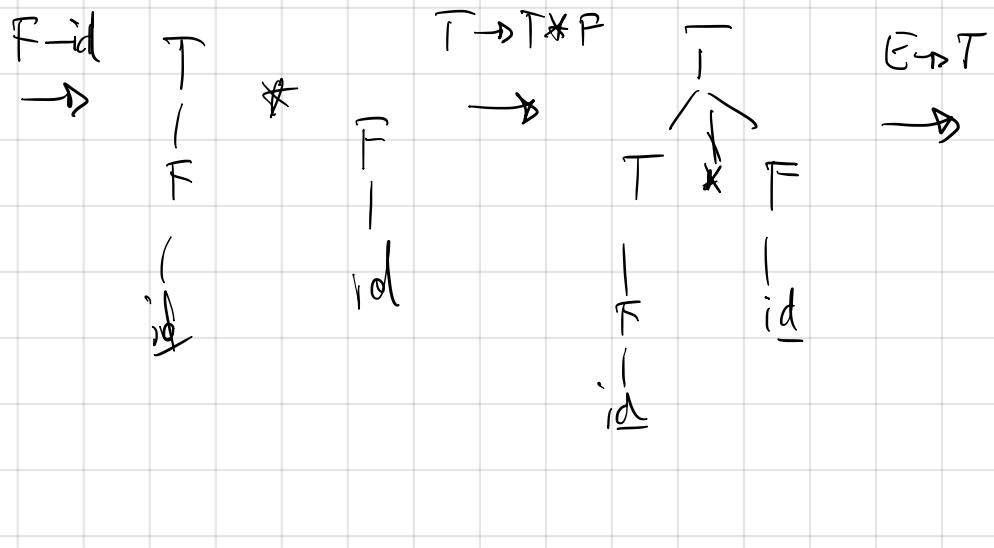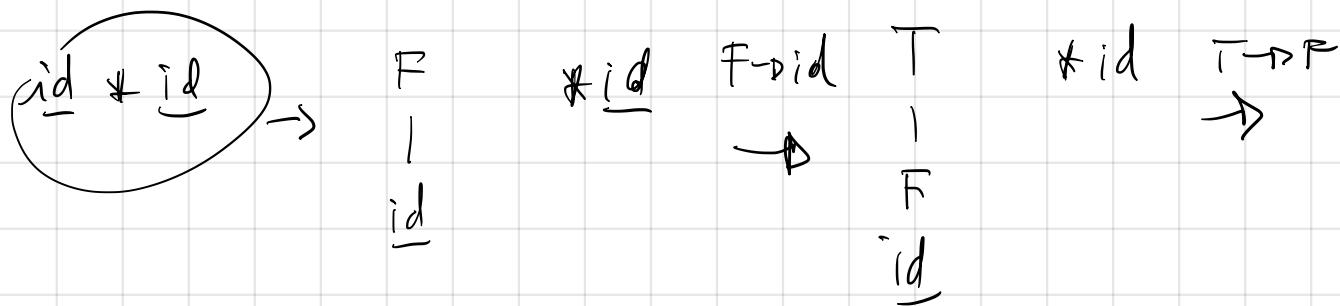
rightmost derivation in REVERSE

$E \underset{rm}{\Rightarrow} T \underset{rm}{\Rightarrow} T * F \underset{rm}{\Rightarrow} T * id \underset{rm}{\Rightarrow} F * id \underset{rm}{\Rightarrow} id * id$

S ⟶ 0S1 | 01   000111   00S11

000111   Yes, it is a handle

S ⟹_{2m} 0S1 ⟹_{2m} 00S11 ⟹_{2m} 000111

00S11   Yes, it is a handle

S ⟹_{2m} 0S1 ⟹_{2m} 00S11

$$S \rightarrow SSt \mid SS* \mid e$$

SSSta** , SS+e*e+ , eee*e++

STACK	Input	
$	eee *e ++ $	shift
$\underline{a}$ $	ee *e ++ $	reduce S → e
S $	ee * e ++ $	shift
eS $	e * e ++ $	reduce S → e
SS $	e * e ++ $	shift
eSS $	* e ++ $	reduce S → e
SSS $	* e ++ $	shift
*SSS $	e ++ $	Reduce S → SS*
SS $	e ++ $	shift
eSS $	++ $	Reduce S → e
SSS $	++ $	shift
+SSS $	+ $	Reduce S → SS+
SS $	+ $	

$$S \xrightarrow{lm} SSt \Rightarrow S \; SStt \Rightarrow SS \, e \, tt \Rightarrow$$

handle

$$\underline{SSS*e}tt \Rightarrow SSe*ett \Rightarrow S\,e\,e*eett \Rightarrow$$

eee *e ++

$$E' \to E \qquad E \to E+T \mid T \qquad T \to T*F \mid F \qquad F \to id \mid$$

$$\text{Closure}(\{E' \to \cdot E\}) = \{ E' \to \cdot E, \ E \to \cdot E+T, \ (E)$$

$$E \to \cdot T, \ T \to \cdot T*F,$$

$$T \to \cdot F, \ F \to \cdot id,$$

$$F \to \cdot (E) \} = I_0$$

$$\text{GOTO}(I_0, T) = \text{Closure}(\{E \to T\cdot, \ T \to T\cdot *F\})$$

$$= \{E \to T\cdot, \ T \to T\cdot *F\} = I_1$$

$$\text{GOTO}(I_0, ( ) = \text{Closure}(\{F \to (\cdot E)\}) =$$

$$= \{ F \to (\cdot E), \ E \to \cdot E+T,$$

$$E \to \cdot T, \ T \to \cdot T*F,$$

$$T \to \cdot F, \ F \to \cdot id, \ F \to \cdot (E)\}$$

$$= I_2$$