

Esercizi parsing bottom-up

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goto-graph (diagramma transizioni): altro esempio

Riconsideriamo la grammatica

$S \rightarrow E$

$E \rightarrow T;$

$E \rightarrow T + E$

$T \rightarrow \text{id}$

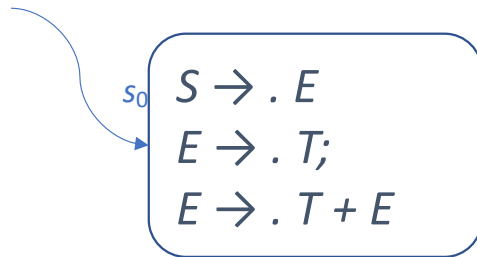
$T \rightarrow (E)$



Inizio: metti
produzione da
simbolo iniziale

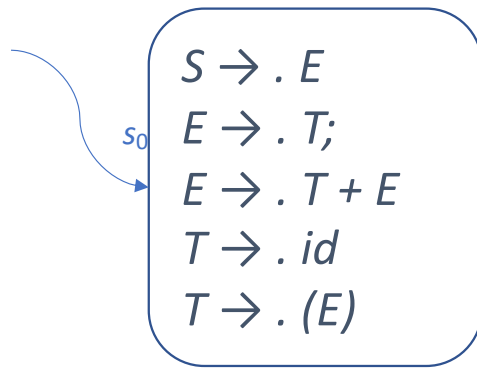
goto-graph (diagramma transizioni)

$S \rightarrow E$
 $E \rightarrow T;$
 $E \rightarrow T + E$
 $T \rightarrow id$
 $T \rightarrow (E)$



Chiudi su E

goto-graph (diagramma transizioni)

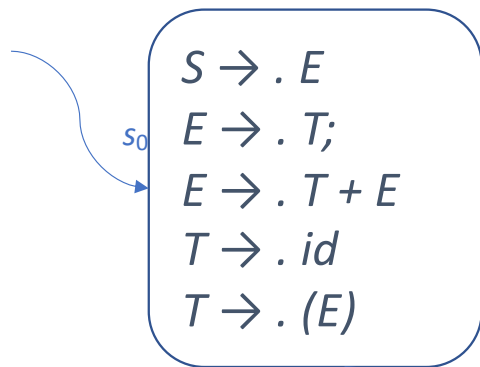


Completa la chiusura
includendo T

$S \rightarrow E$
 $E \rightarrow T;$
 $E \rightarrow T + E$
 $T \rightarrow id$
 $T \rightarrow (E)$

goto-graph (diagramma transizioni)

$S \rightarrow E$
 $E \rightarrow T;$
 $E \rightarrow T + E$
 $T \rightarrow id$
 $T \rightarrow (E)$

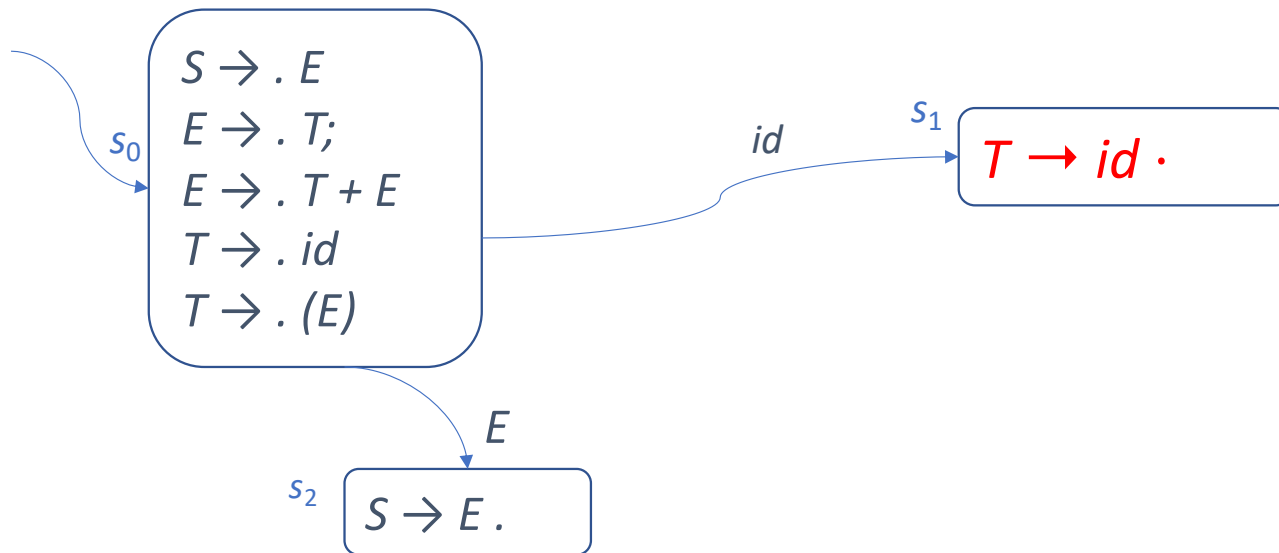


Scelgo la prima produzione
(reduce)
Sposto il punto

La produzione è completata
(abbiamo il . alla fine)

goto-graph (diagramma transizioni)

$S \rightarrow E$
 $E \rightarrow T;$
 $E \rightarrow T + E$
 $T \rightarrow id$
 $T \rightarrow (E)$



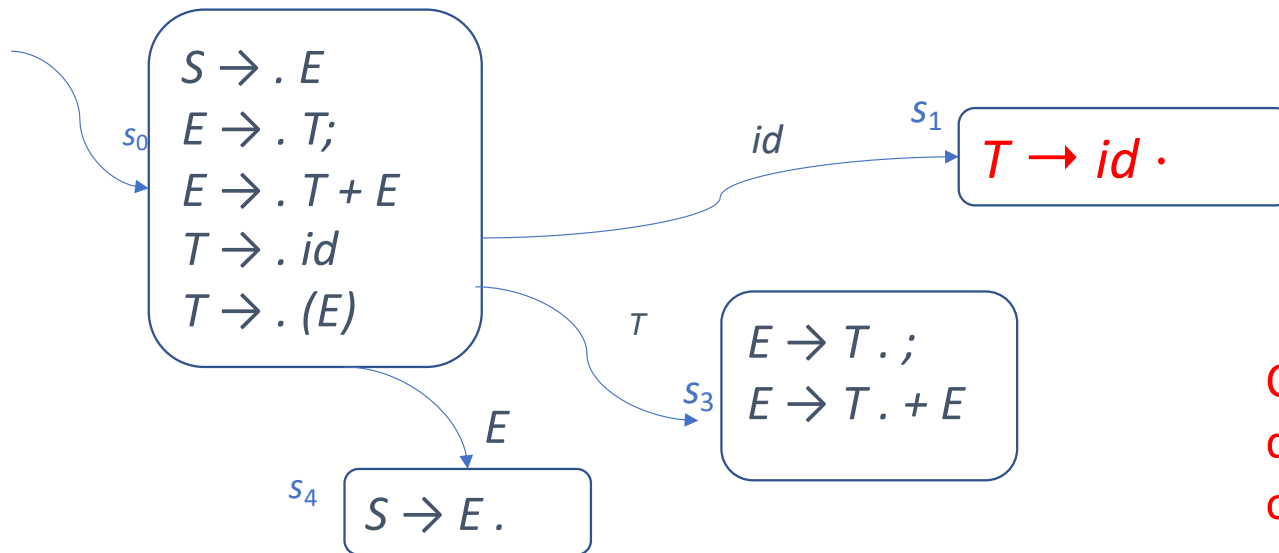
Avanzo in input (shift)

Sposto il punto

Il punto è alla fine non devo fare chiusura

goto-graph (diagramma transizioni)

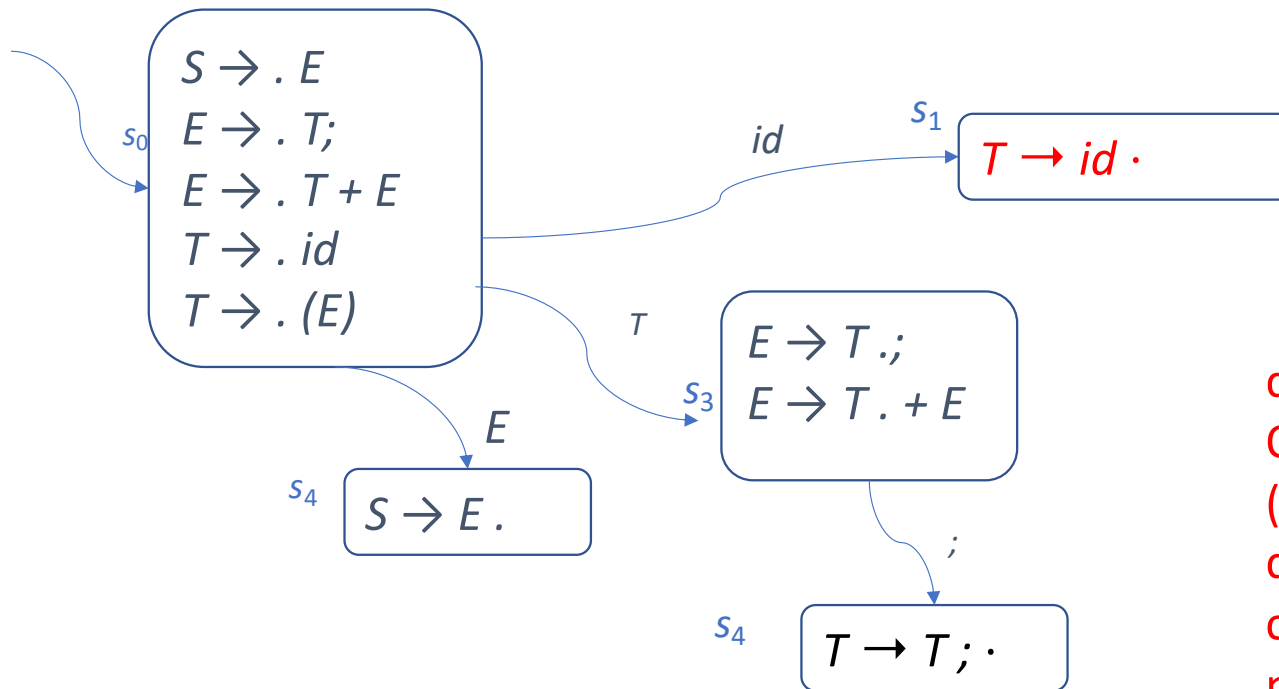
$S \rightarrow E$
 $E \rightarrow T;$
 $E \rightarrow T + E$
 $T \rightarrow id$
 $T \rightarrow (E)$



Continuo in modo analogo
da s_0 con $E \rightarrow T$ e $E \rightarrow T + E$
ottengo (non devo chiudere
perché dopo il punto simboli
terminali)

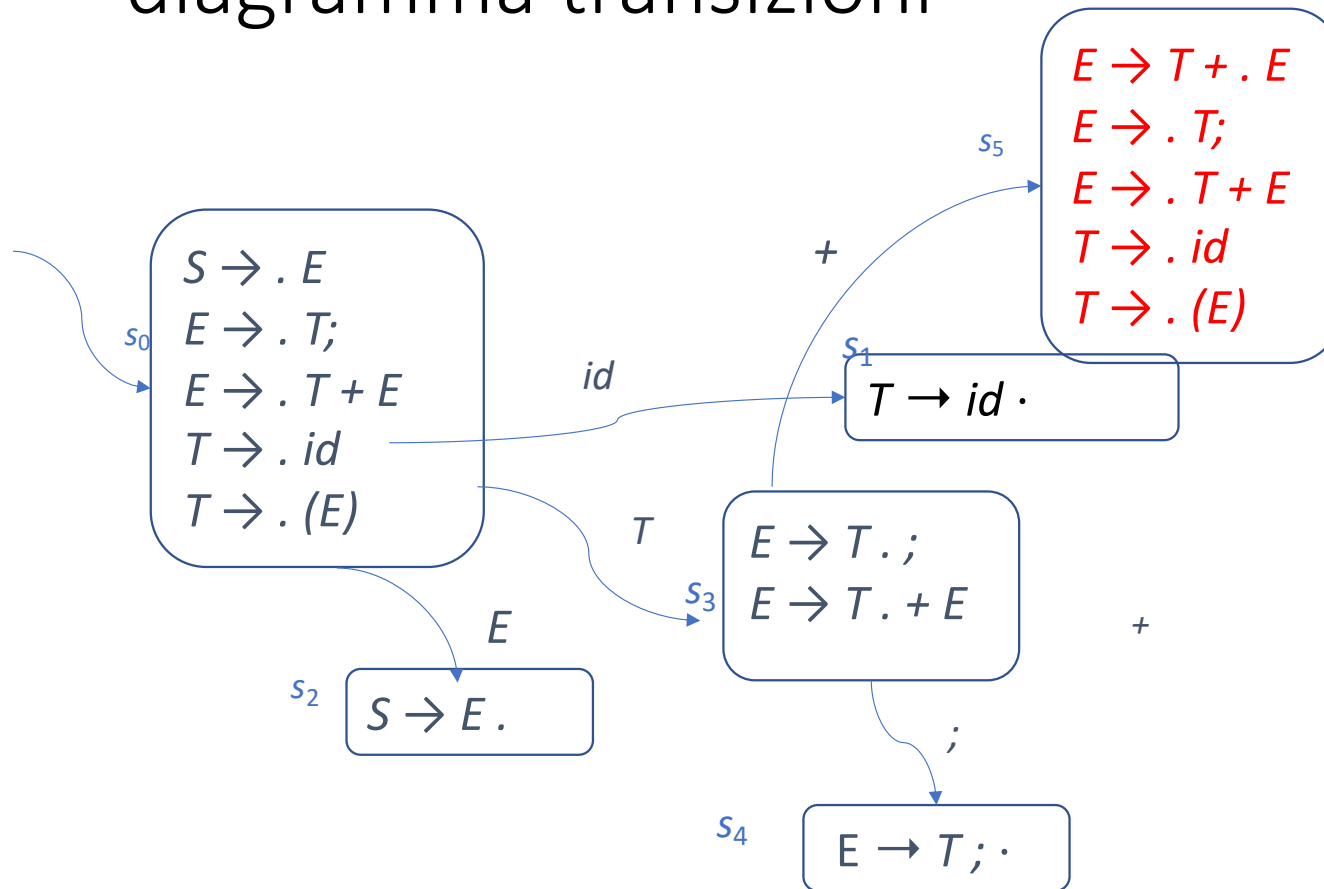
goto-graph (diagramma transizioni)

$S \rightarrow E$
 $E \rightarrow T;$
 $E \rightarrow T + E$
 $T \rightarrow id$
 $T \rightarrow (E)$



da s_0 con $E \rightarrow T .;$
Ottengo $T \rightarrow T ; .$
(nota il punto alla fine:
questo è uno stato che indica
che siamo alla fine dell'analisi
produzione)

diagramma transizioni

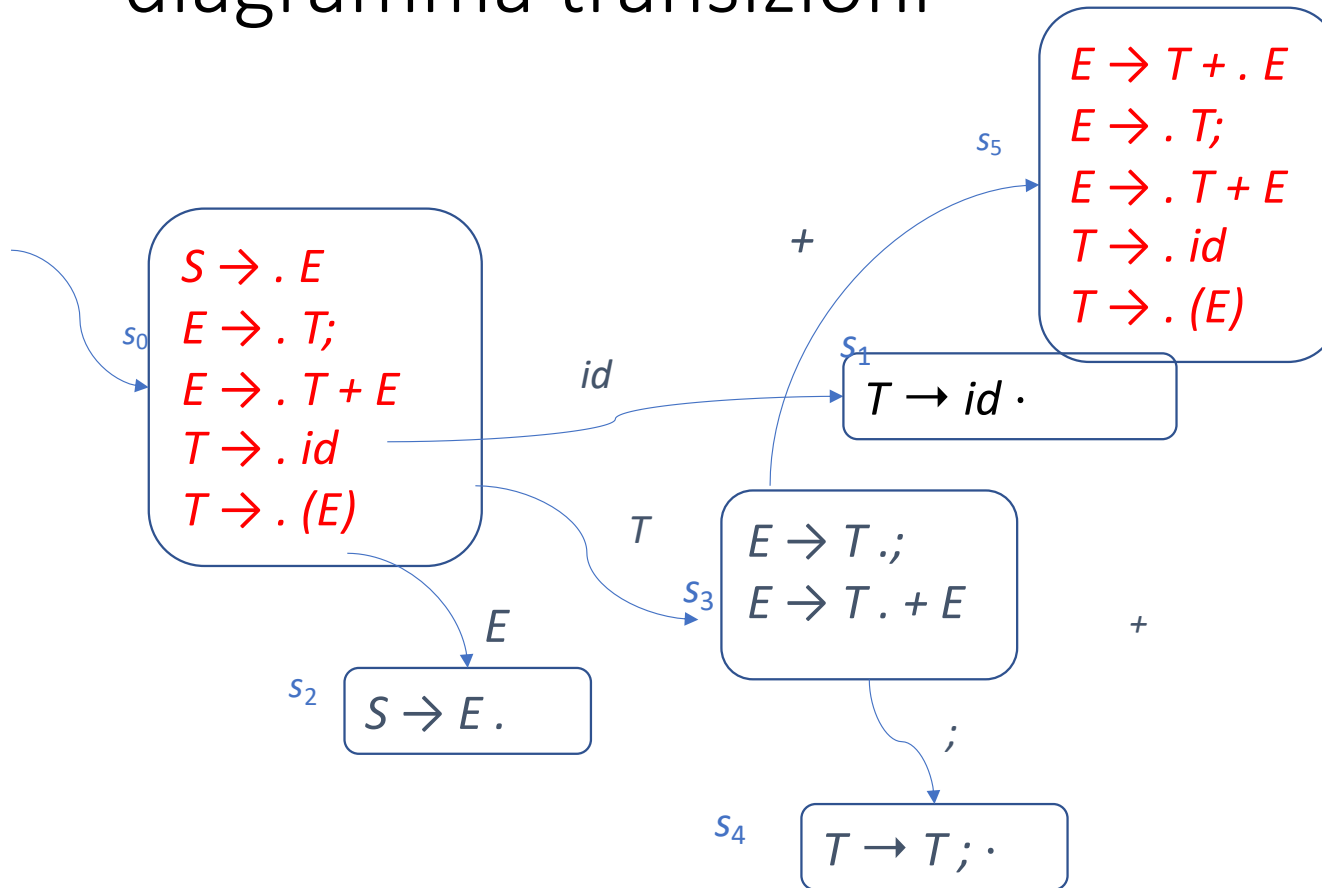


$S \rightarrow E$
 $E \rightarrow T;$
 $E \rightarrow T + E$
 $T \rightarrow id$
 $T \rightarrow (E)$

Continuo in modo analogo
da $E \rightarrow T \cdot + E$ ottengo
(ricorda faccio chiusura)

Nota stato s5 molto simile a
s0 ma non identico

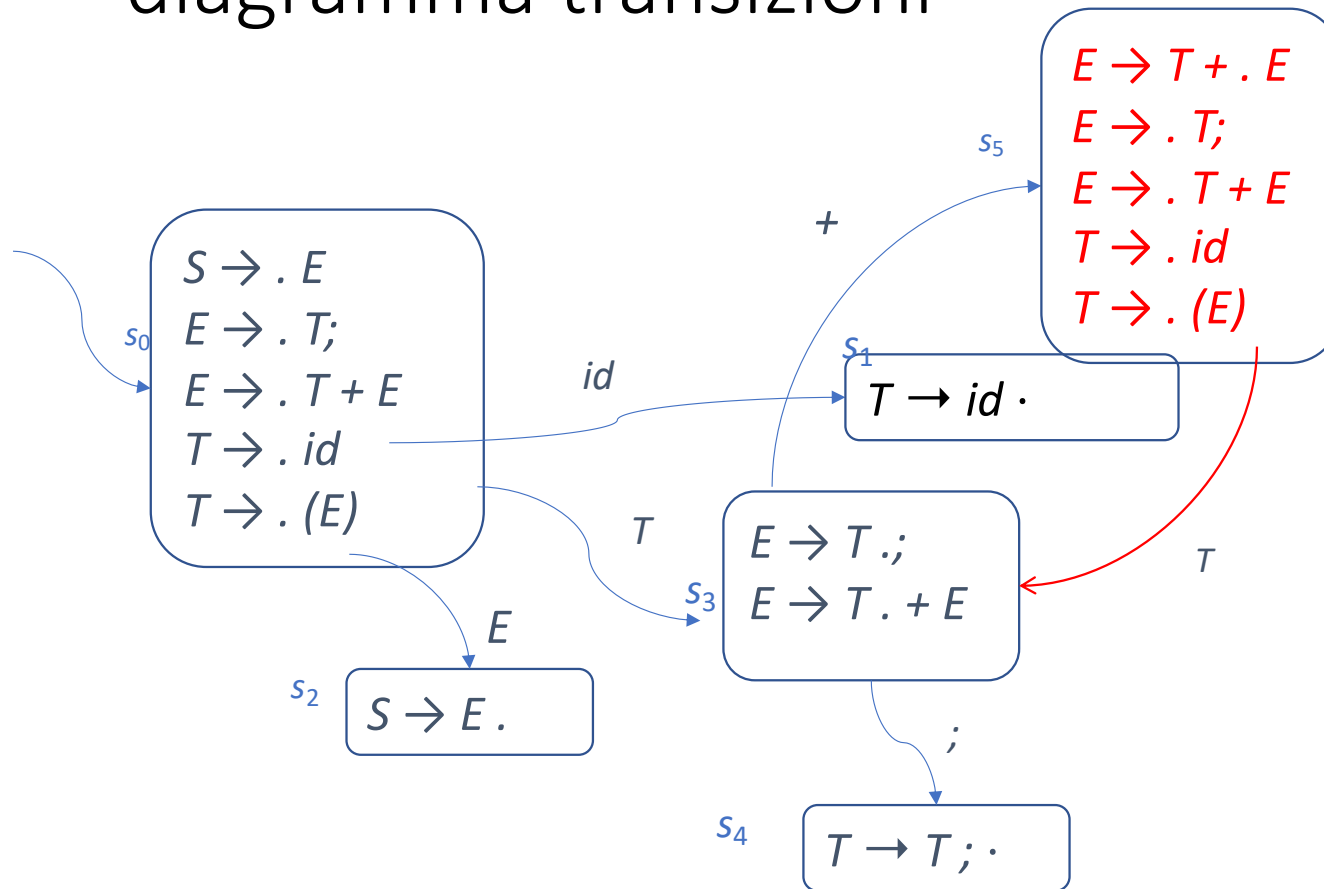
diagramma transizioni



$S \rightarrow E$
 $E \rightarrow T;$
 $E \rightarrow T + E$
 $T \rightarrow id$
 $T \rightarrow (E)$

NOTA: gli stati s0 e s5 sono quasi identici
 s5 non ha $S \rightarrow . E$
 s0 non ha $E \rightarrow T + . E$
 Usiamo la notazione punto per cui $E \rightarrow T + . E$ è diversa da $E \rightarrow T + E$ (che a sua volta è uno degli stati di s0)

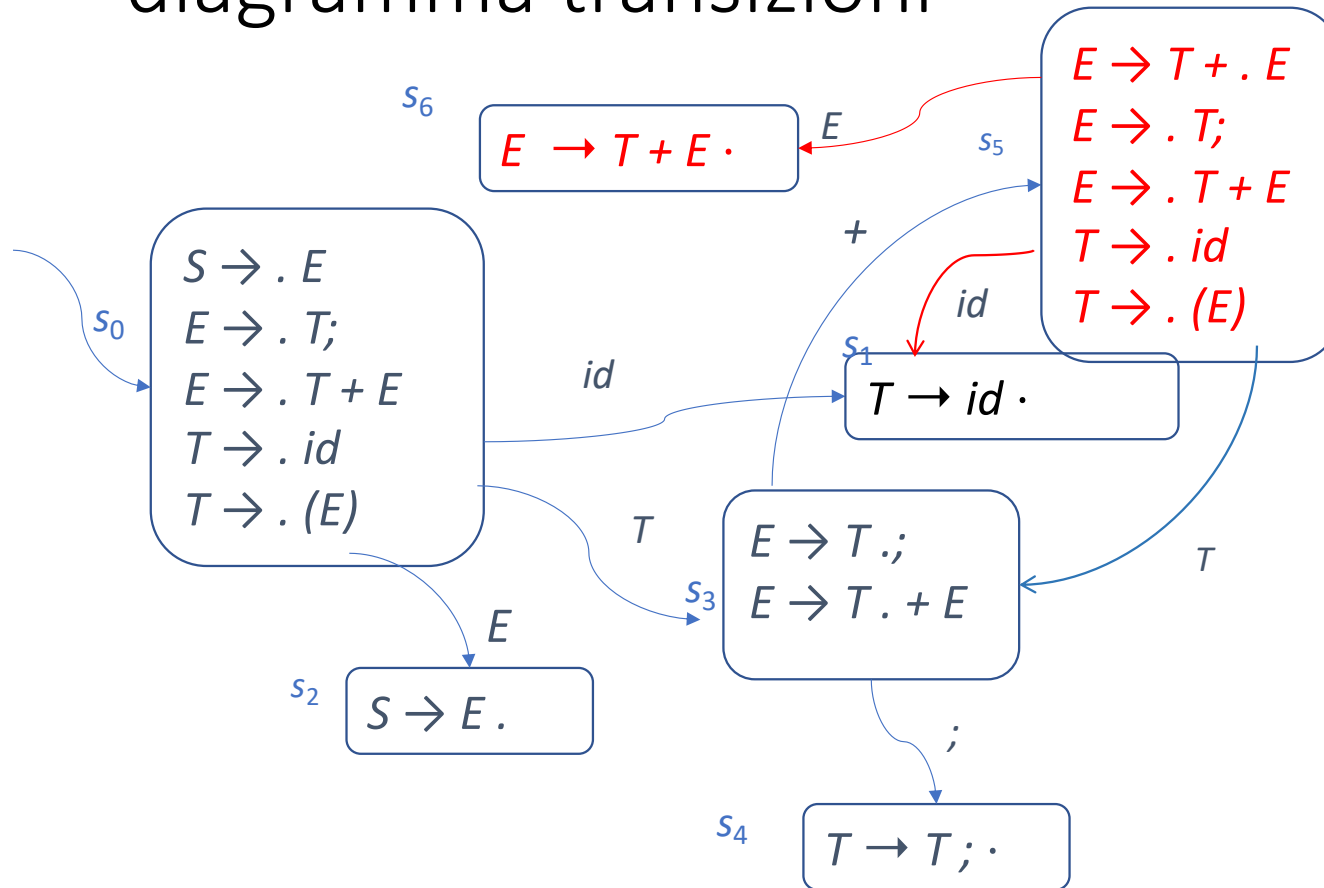
diagramma transizioni



$S \rightarrow E$
 $E \rightarrow T;$
 $E \rightarrow T + E$
 $T \rightarrow id$
 $T \rightarrow (E)$

da s_5 e T con
 $E \rightarrow \cdot T;$ e $E \rightarrow \cdot T + E$
ottengo
 $E \rightarrow T \cdot ;$ e $E \rightarrow T \cdot + E$
Stato già trovato!

diagramma transizioni

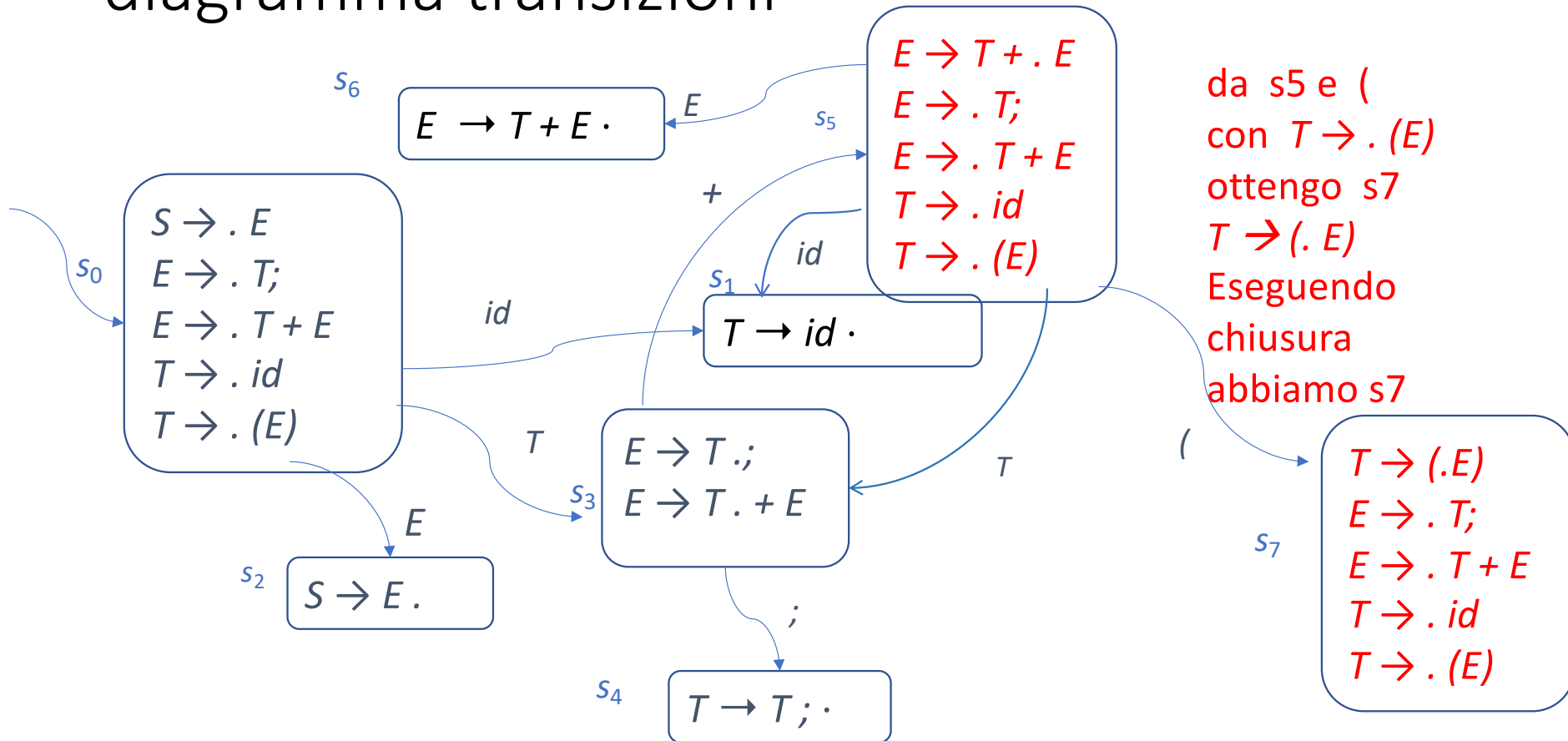


$S \rightarrow E$
 $E \rightarrow T;$
 $E \rightarrow T + E$
 $T \rightarrow id$
 $T \rightarrow (E)$

da s_5 e E
 con $E \rightarrow T + \cdot E$
 ottengo s_6
 $E \rightarrow T + E \cdot$

da s_5 e id
 Con $T \rightarrow \cdot id$
 ottengo $s_1 T \rightarrow id \cdot$
 stato già trovato

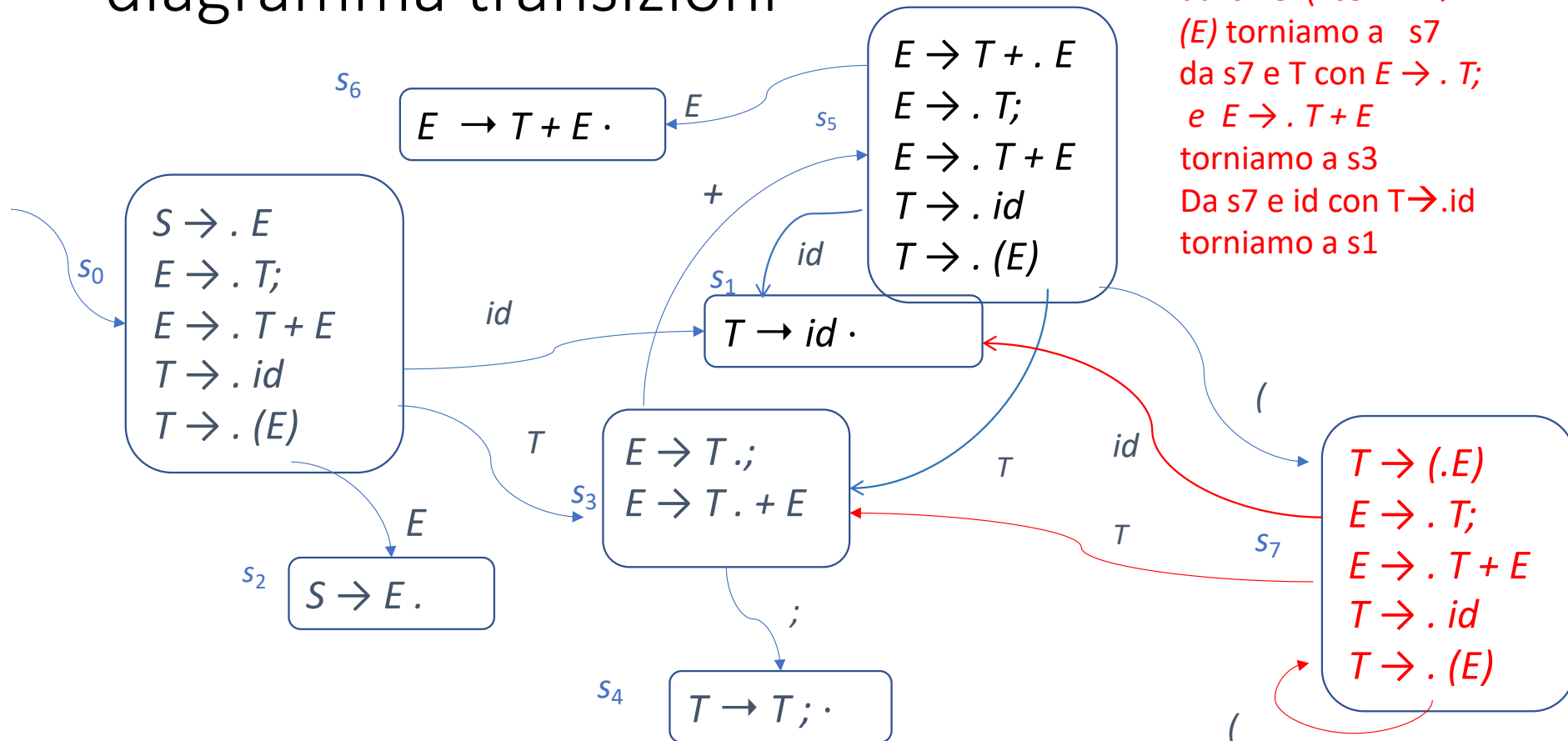
diagramma transizioni



da s₅ e (
con $T \rightarrow \cdot (E)$
ottengo s₇
Eseguendo
chiusura
abbiamo s₇

$S \rightarrow E$
 $E \rightarrow T;$
 $E \rightarrow T + E$
 $T \rightarrow id$
 $T \rightarrow (E)$

diagramma transizioni



da s_7 e $($ con $T \rightarrow \cdot$
 (E) torniamo a s_7
 da s_7 e T con $E \rightarrow \cdot T;$
 e $E \rightarrow \cdot T + E$
 torniamo a s_3
 Da s_7 e id con $T \rightarrow \cdot id$
 torniamo a s_1

$S \rightarrow E$
 $E \rightarrow T;$
 $E \rightarrow T + E$
 $T \rightarrow id$
 $T \rightarrow (E)$

diagramma transizioni

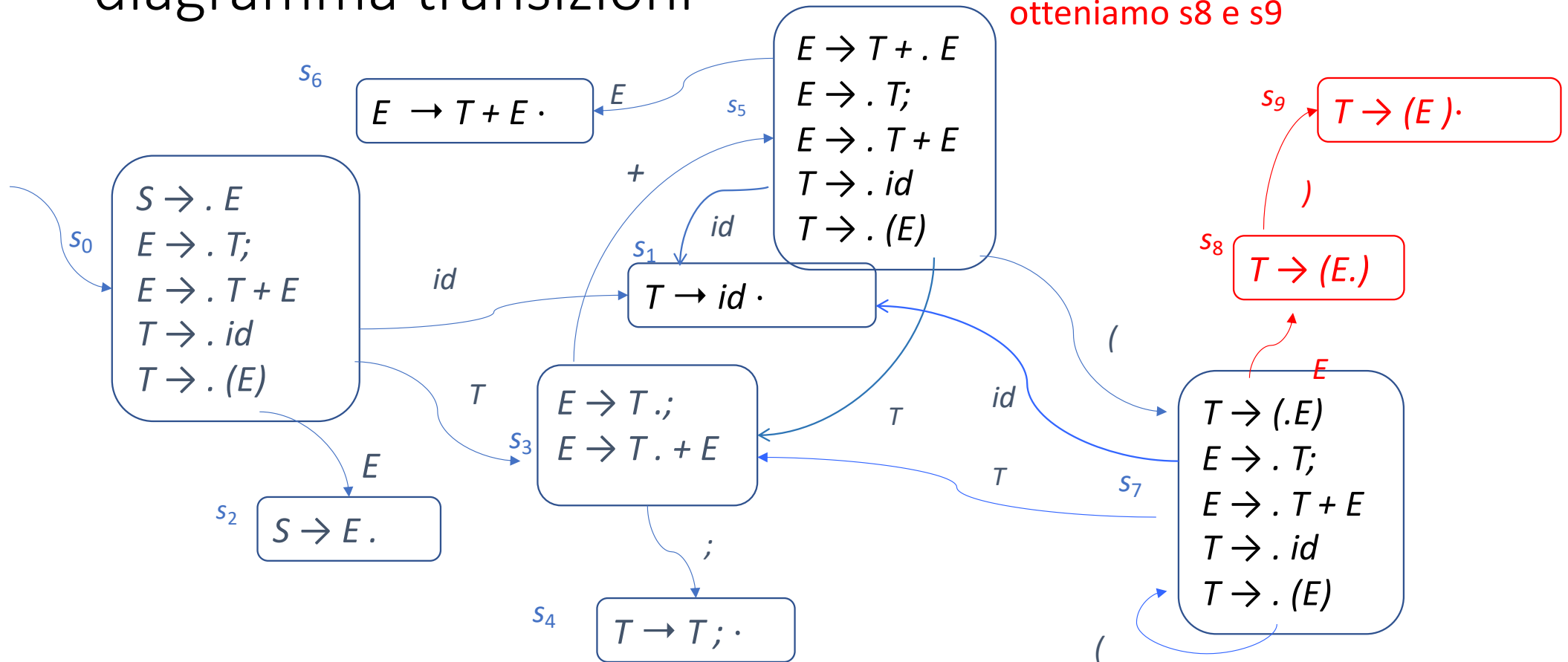


diagramma transizioni: **abbiamo finito?**

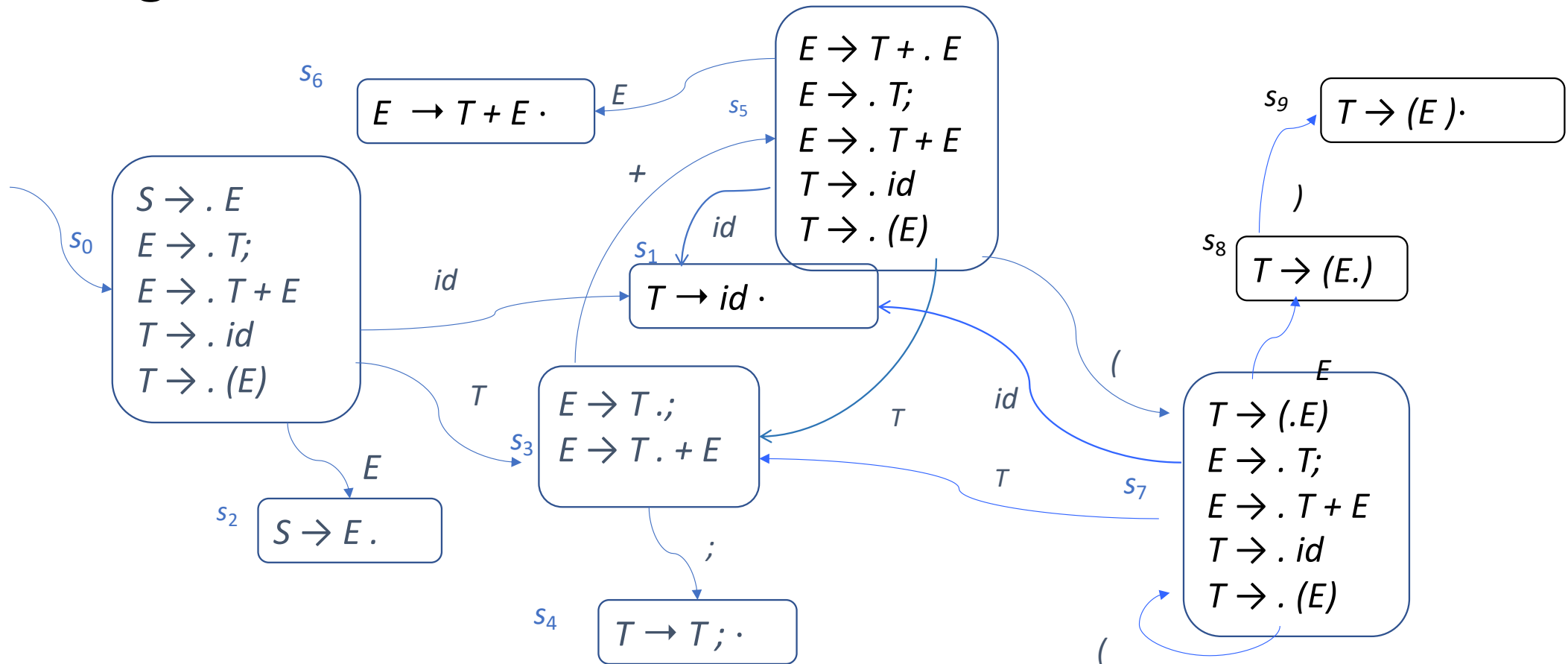


diagramma a transizioni finito?

Abbiamo finito la costruzione quando abbiamo considerato per ogni stato tutte le possibili transizioni in corrispondenza a ciascuna produzione associata allo stato tenendo conto della notazione punto ed escludendo quelle che nella parte destra finiscono con il punto)

Questo è vero per s_0 ? NO MANCA (!!

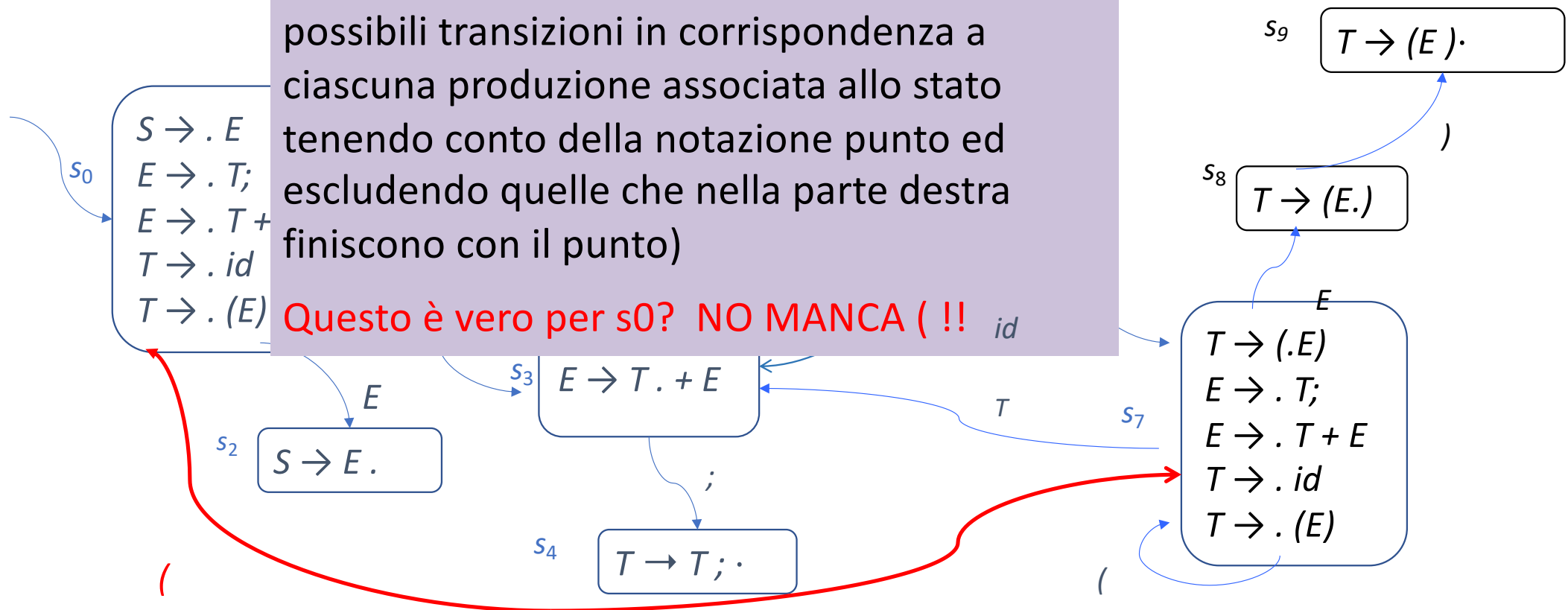
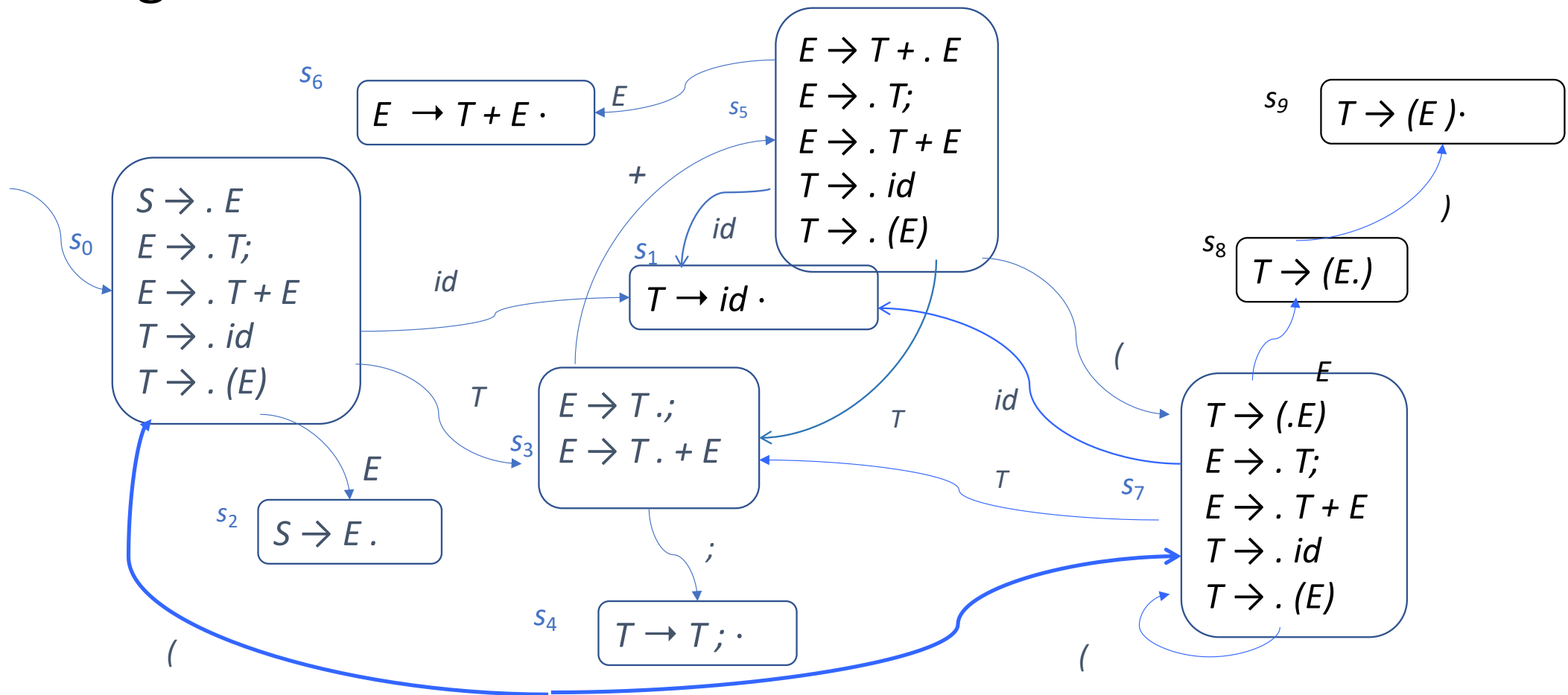
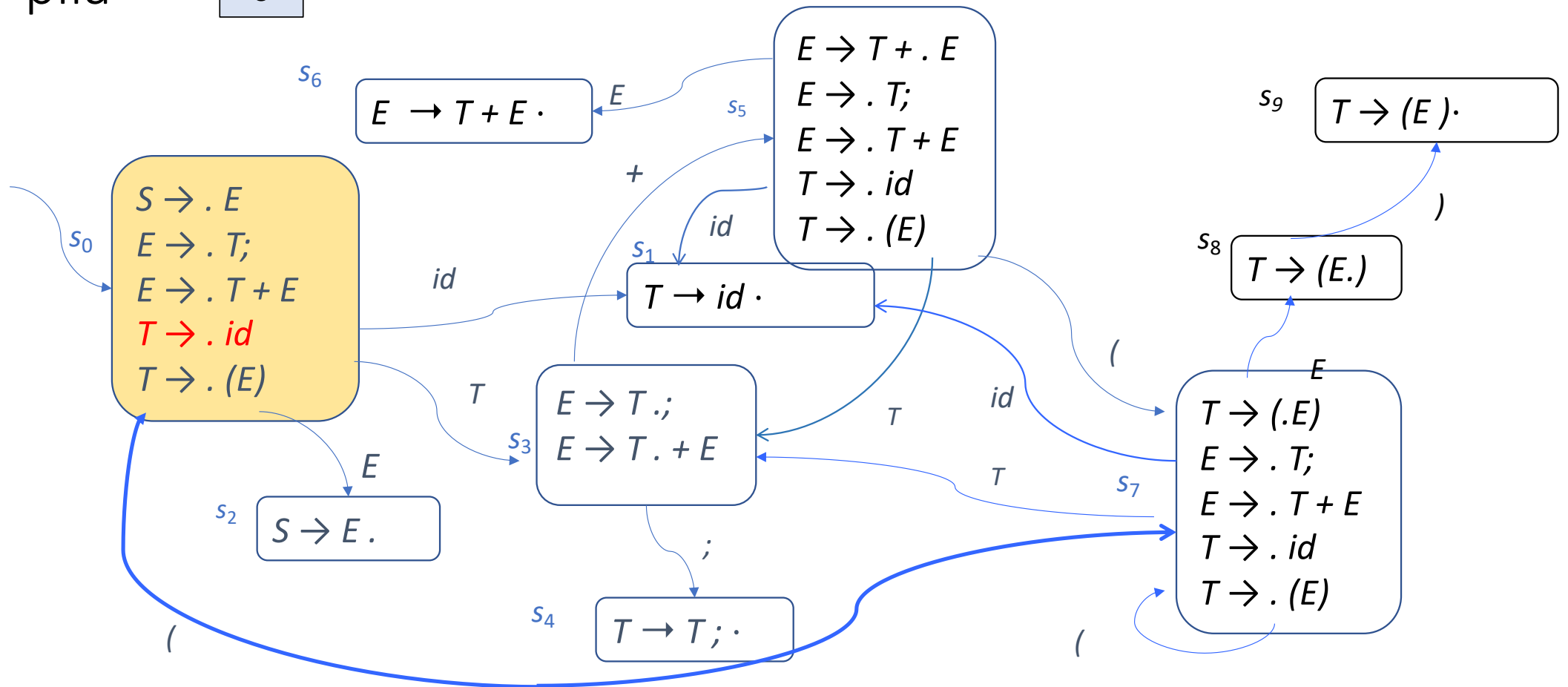
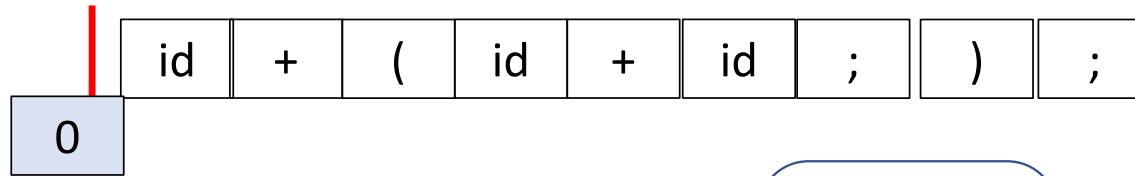


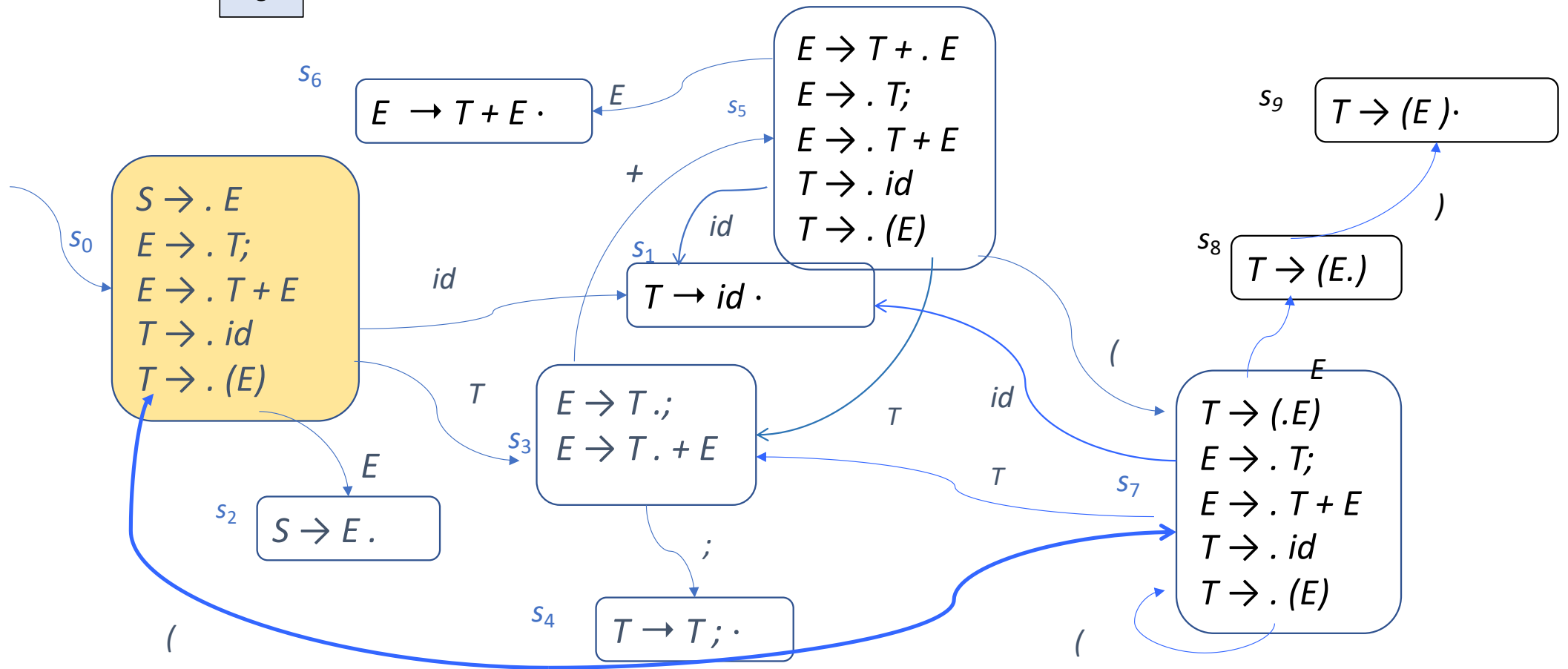
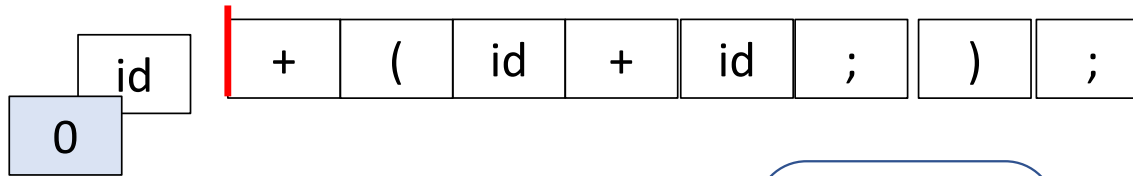
diagramma transizioni finale



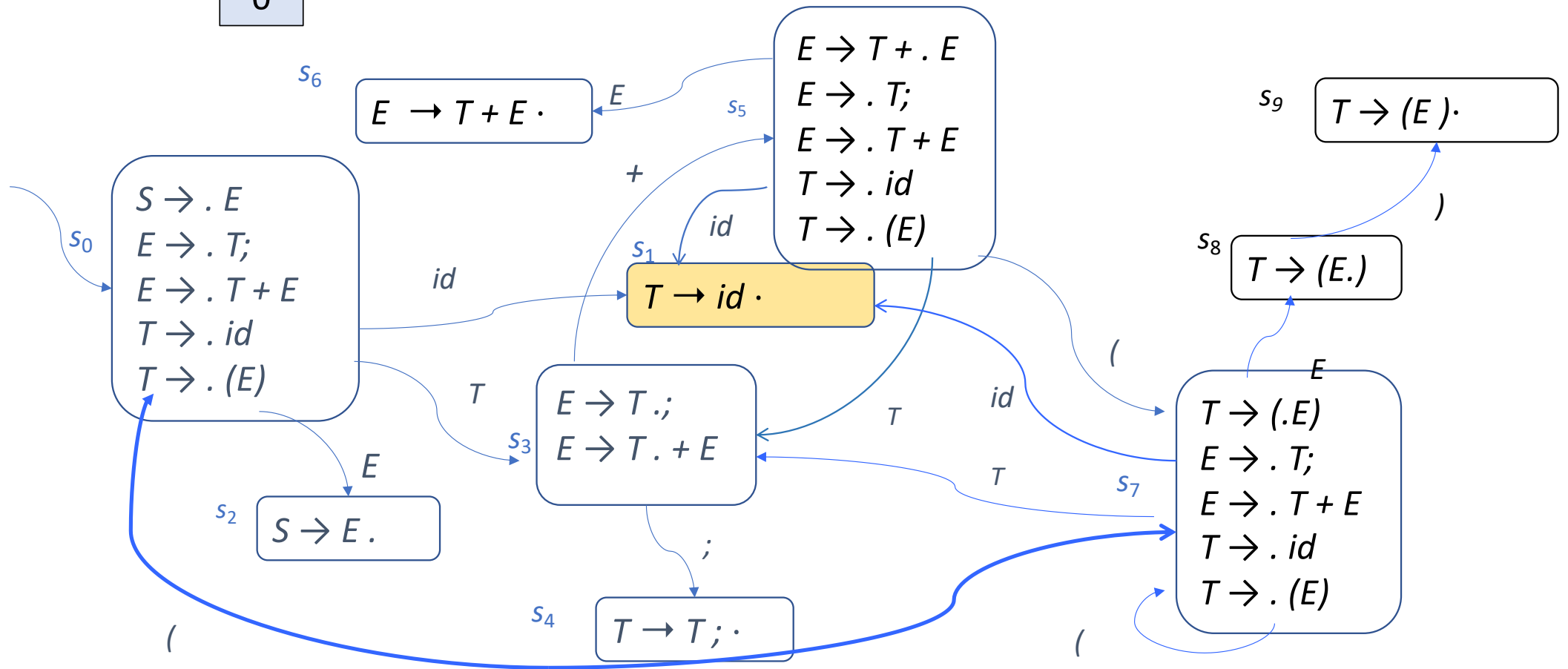
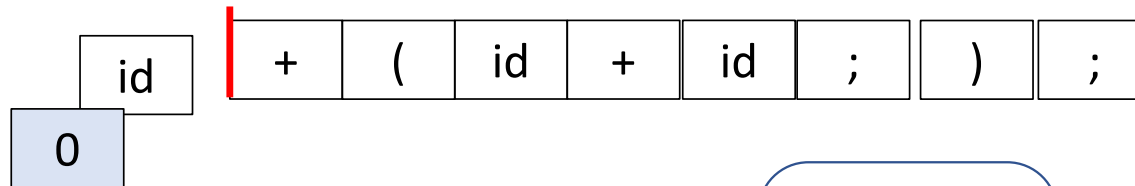
INPUT:
pila



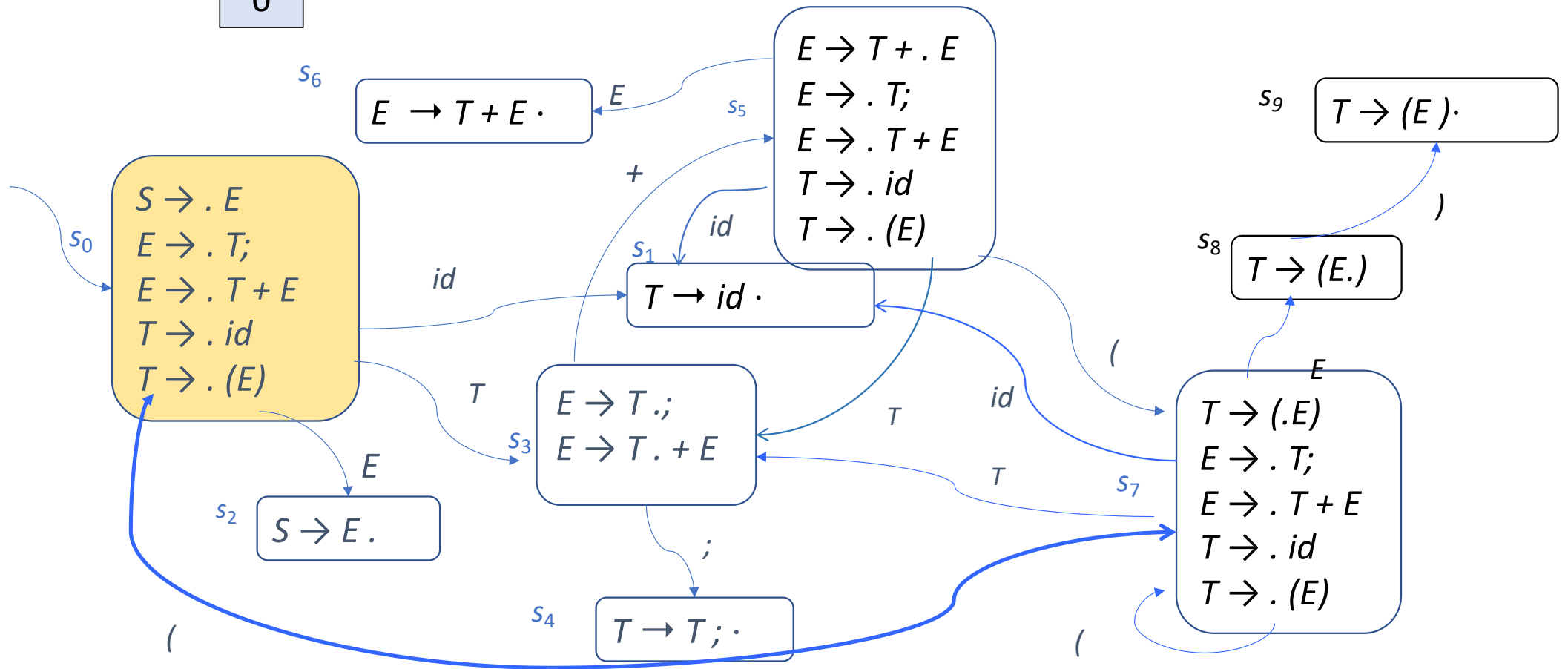
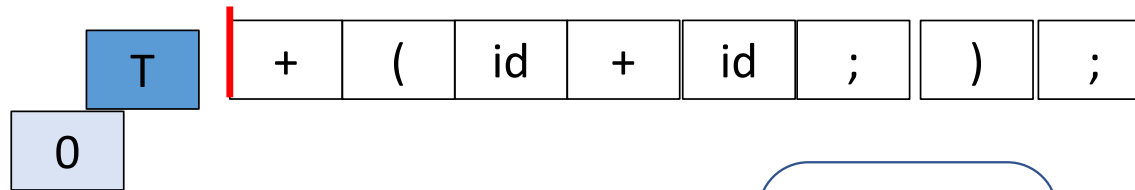
Analisi:



Analisi:

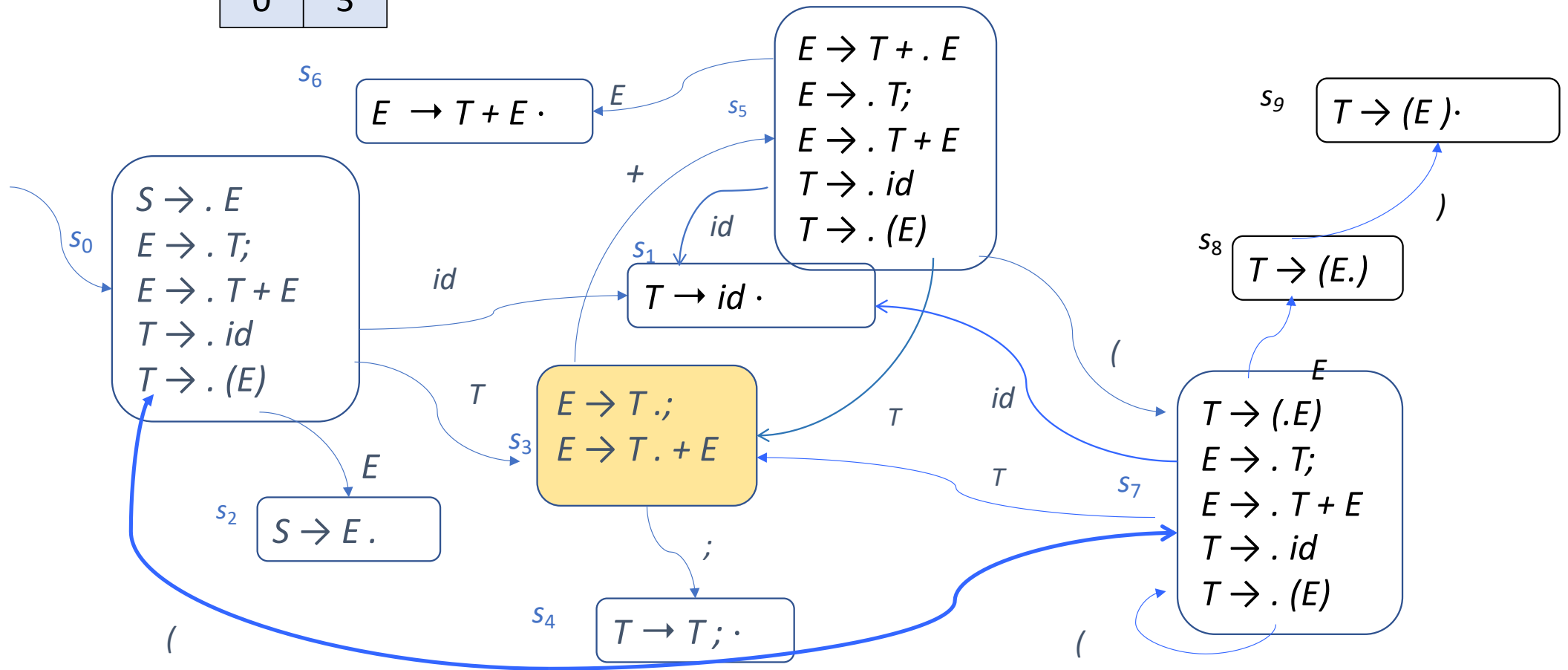


Analisi:

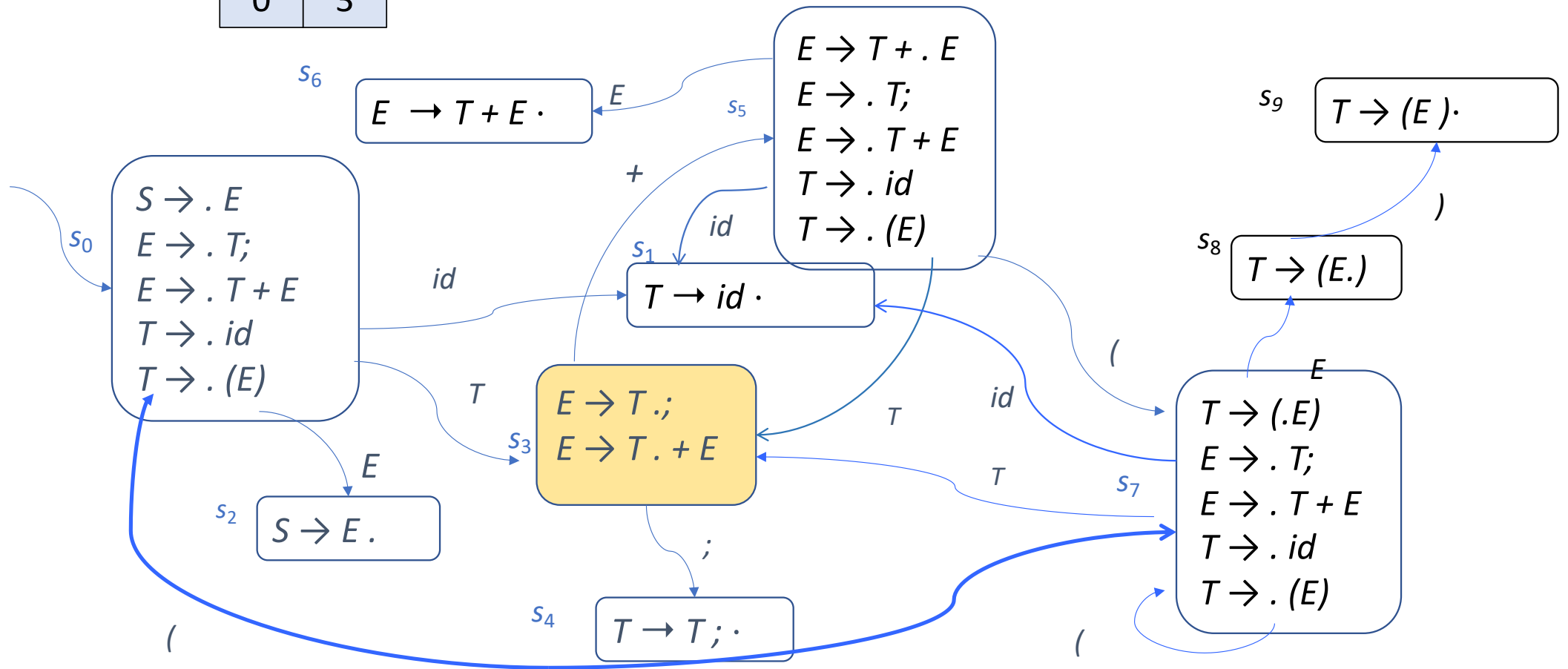
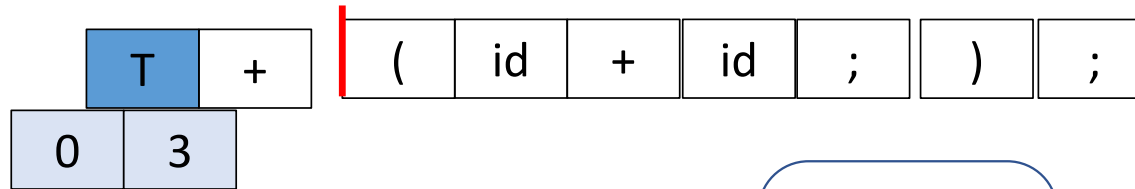


Analisi:

	T		+	(id	+	id	;)	;
0	3									

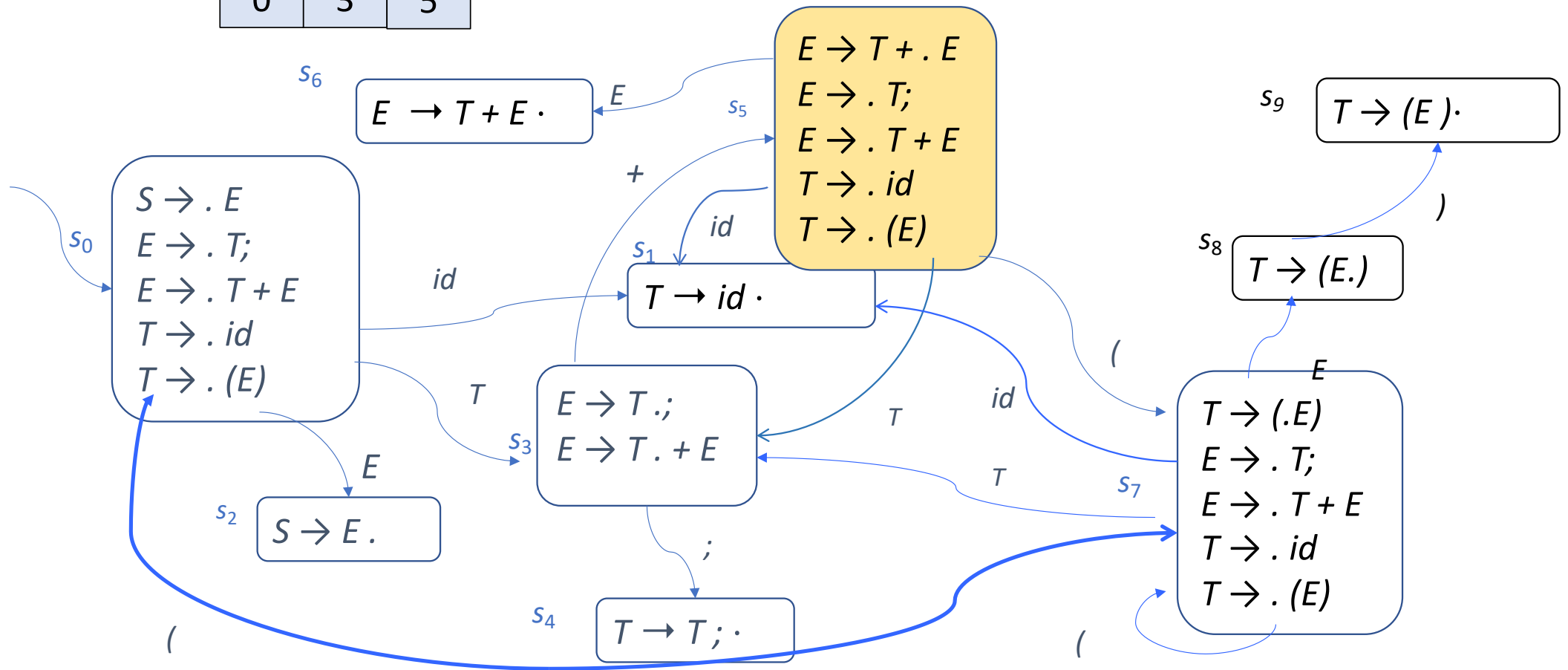


Analisi:



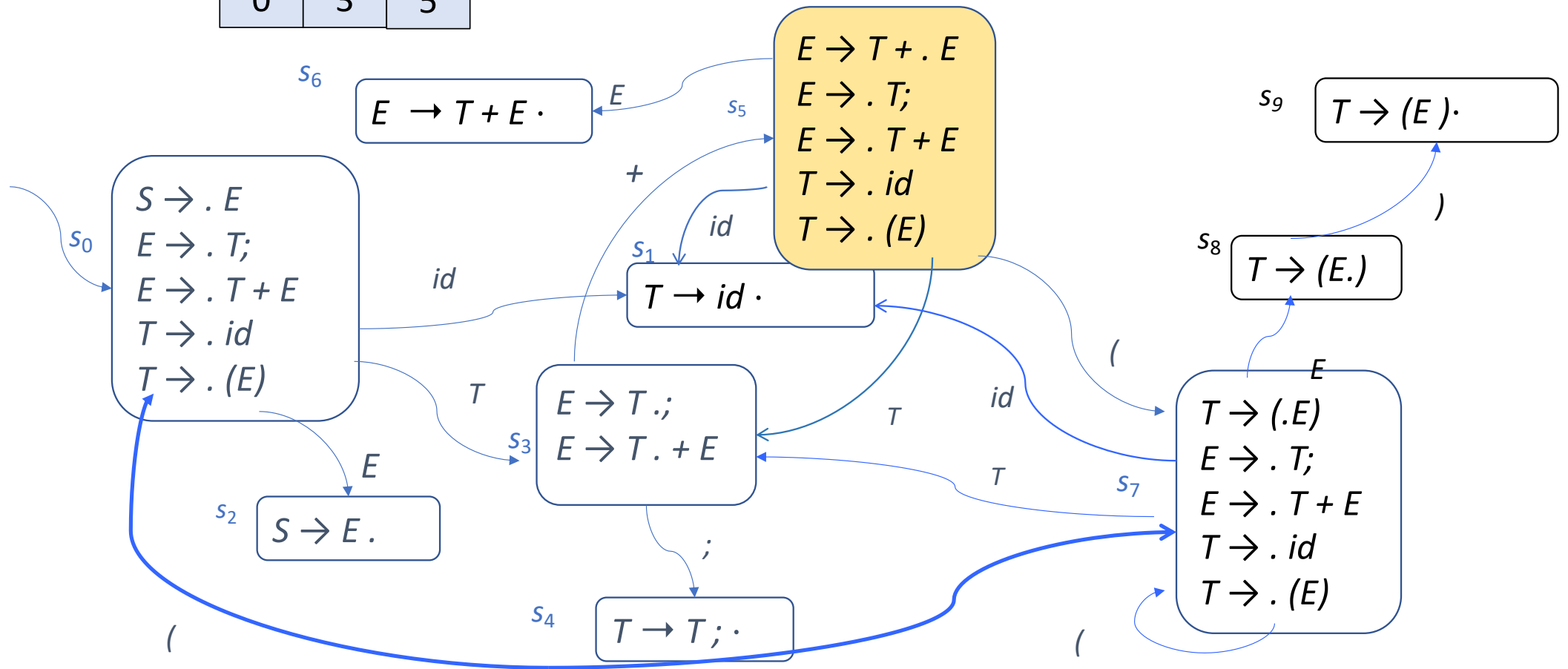
Analisi:

	T	+	(id	+	id	;)	;
0	3	5							



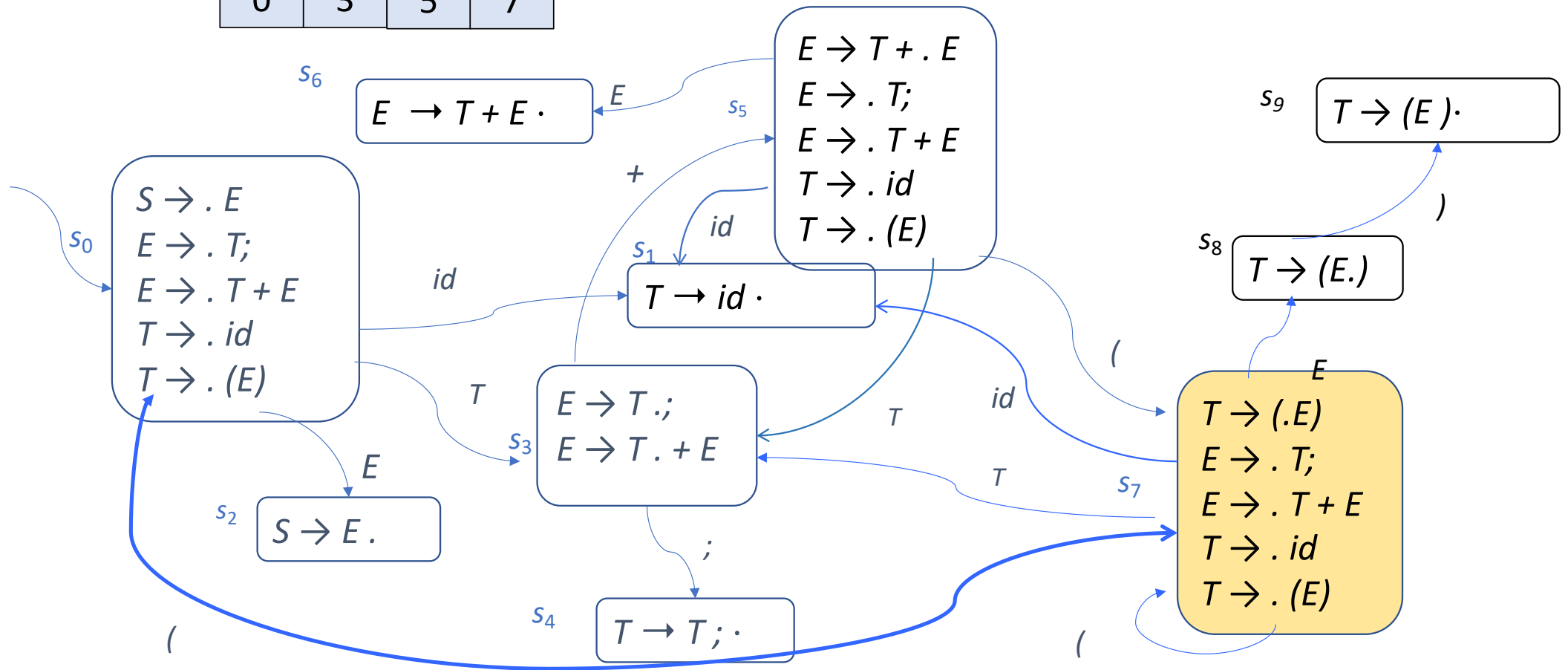
Analisi:

	T	+	(id	+	id	;)	;
0	3	5							



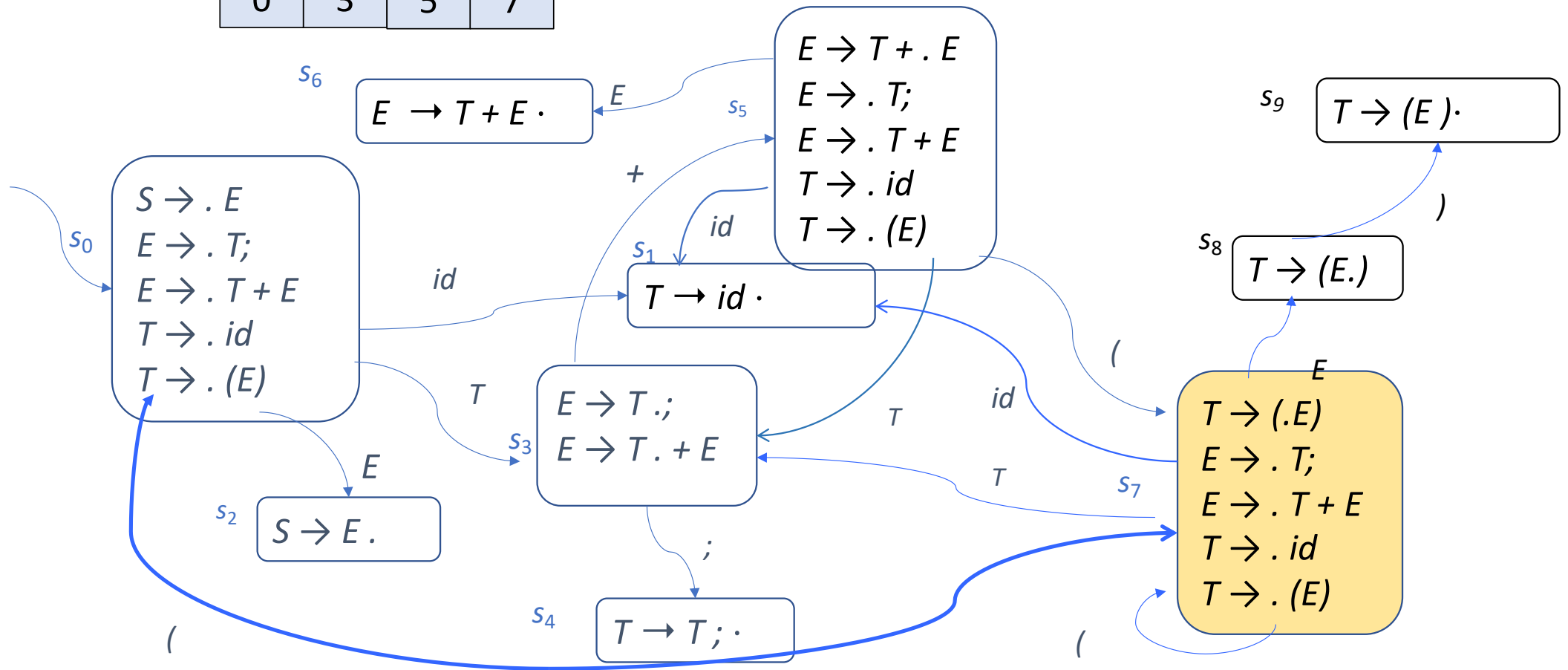
Analisi:

	T	+	(id	+	id	;)	;
0	3	5	7						



Analisi:

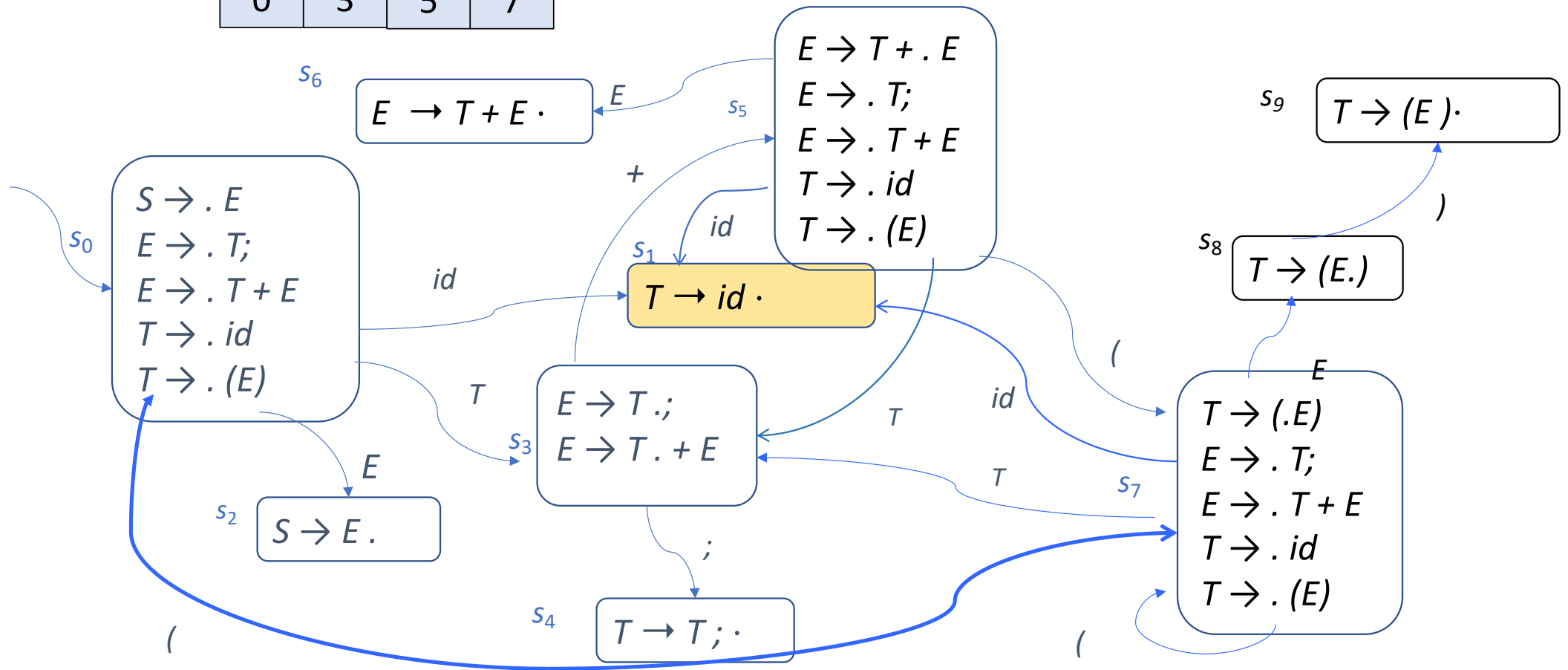
	T	+	(id	+	id	;)	;
0	3	5	7						



Analisi:

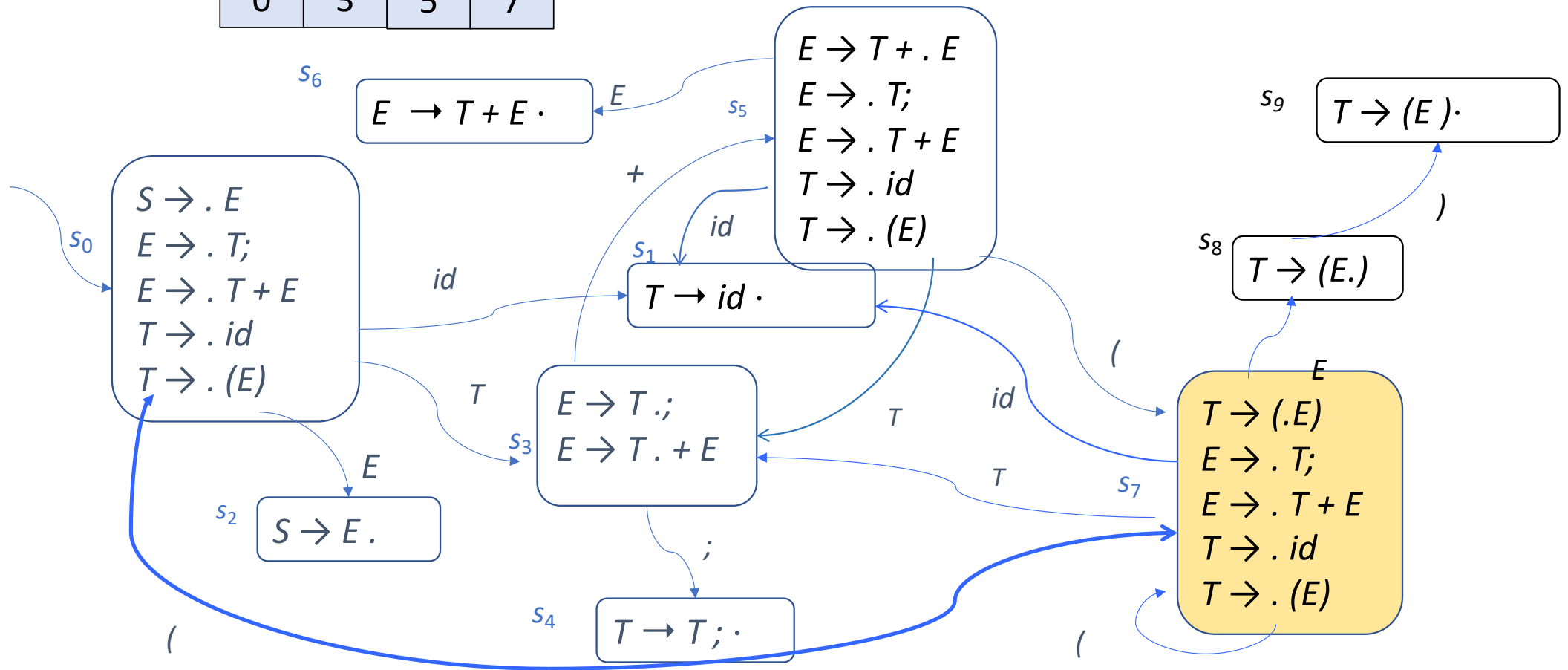
	T	+	(
0	3	5	7

+	id	;)	;
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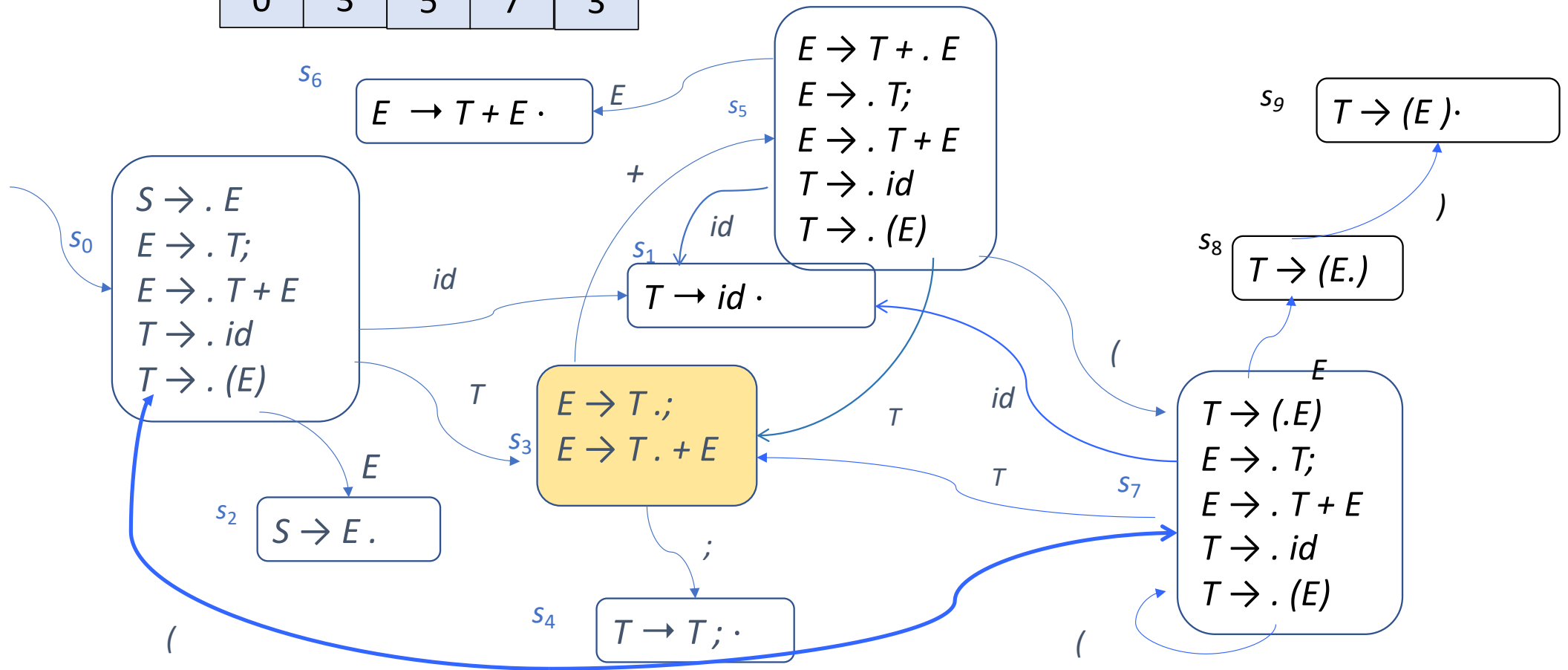
Analisi:

	T	+	(T		+	id	;)	;
0	3	5	7							



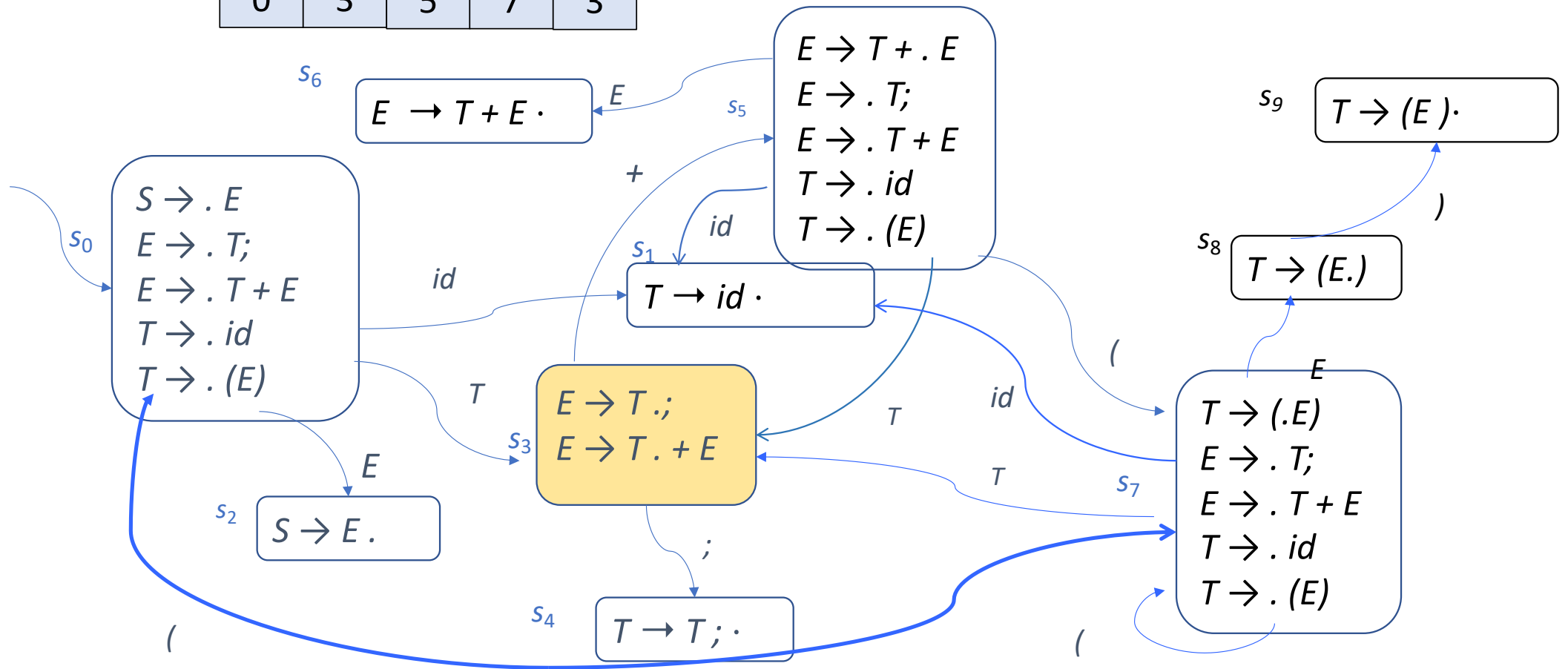
Analisi:

	T	+	(T		+	id	;)	;
0	3	5	7	3						



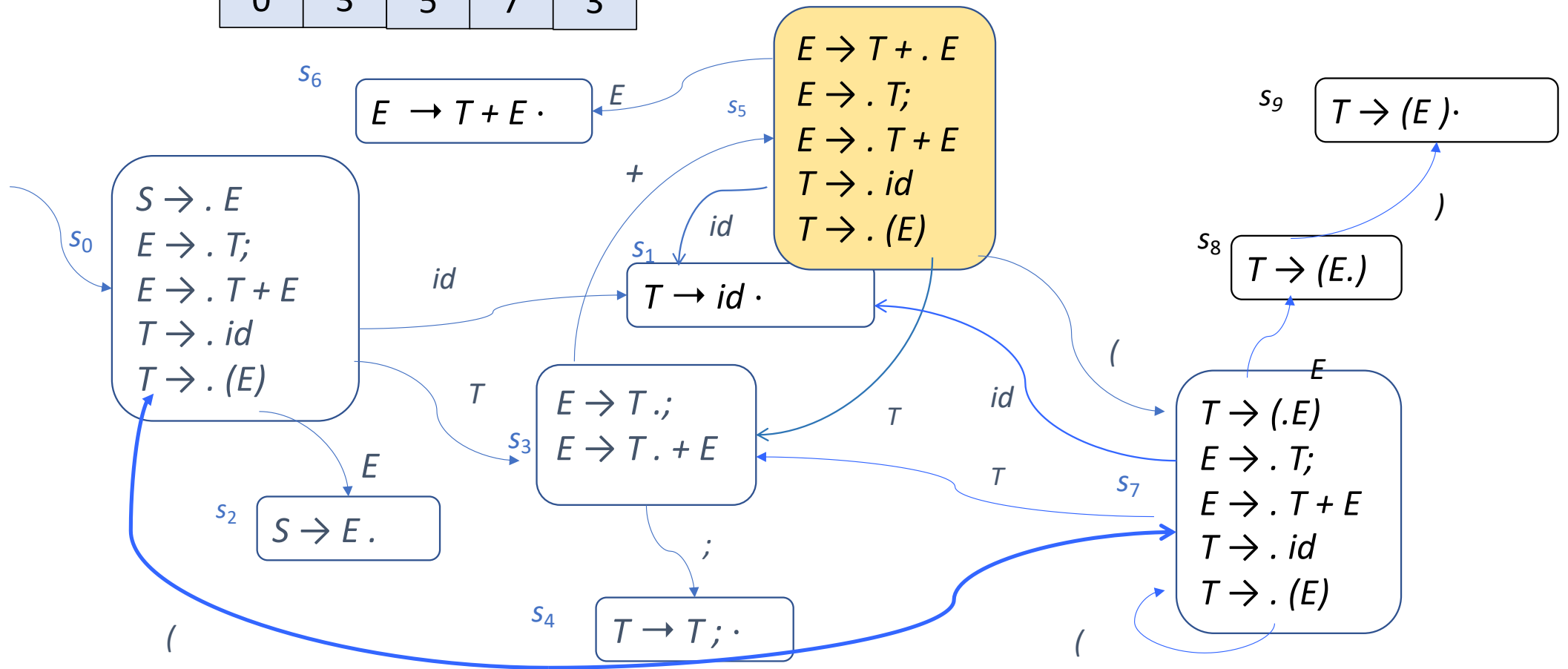
Analisi:

	T	+	(T	+	id	;)	;
0	3	5	7	3					



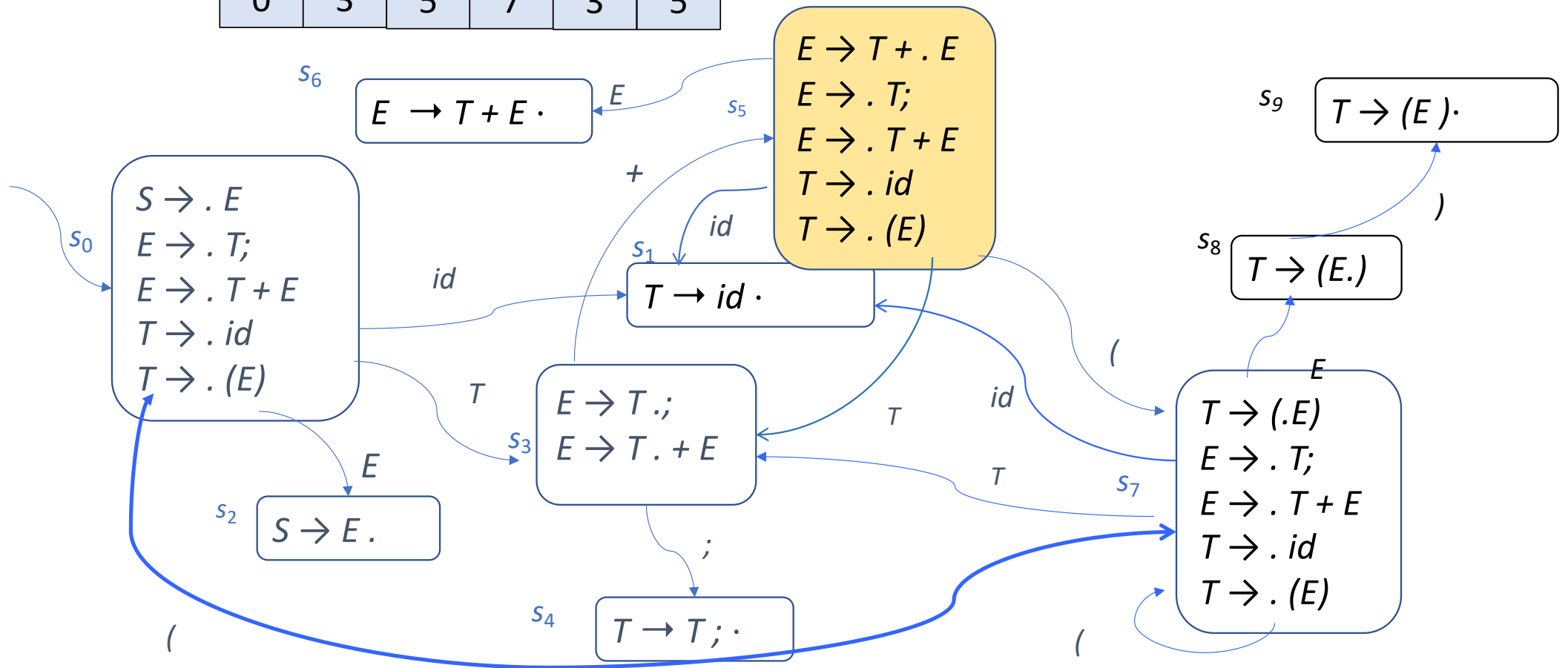
Analisi:

	T	+	(T	+	id	;)	;
0	3	5	7	3					



Analisi:

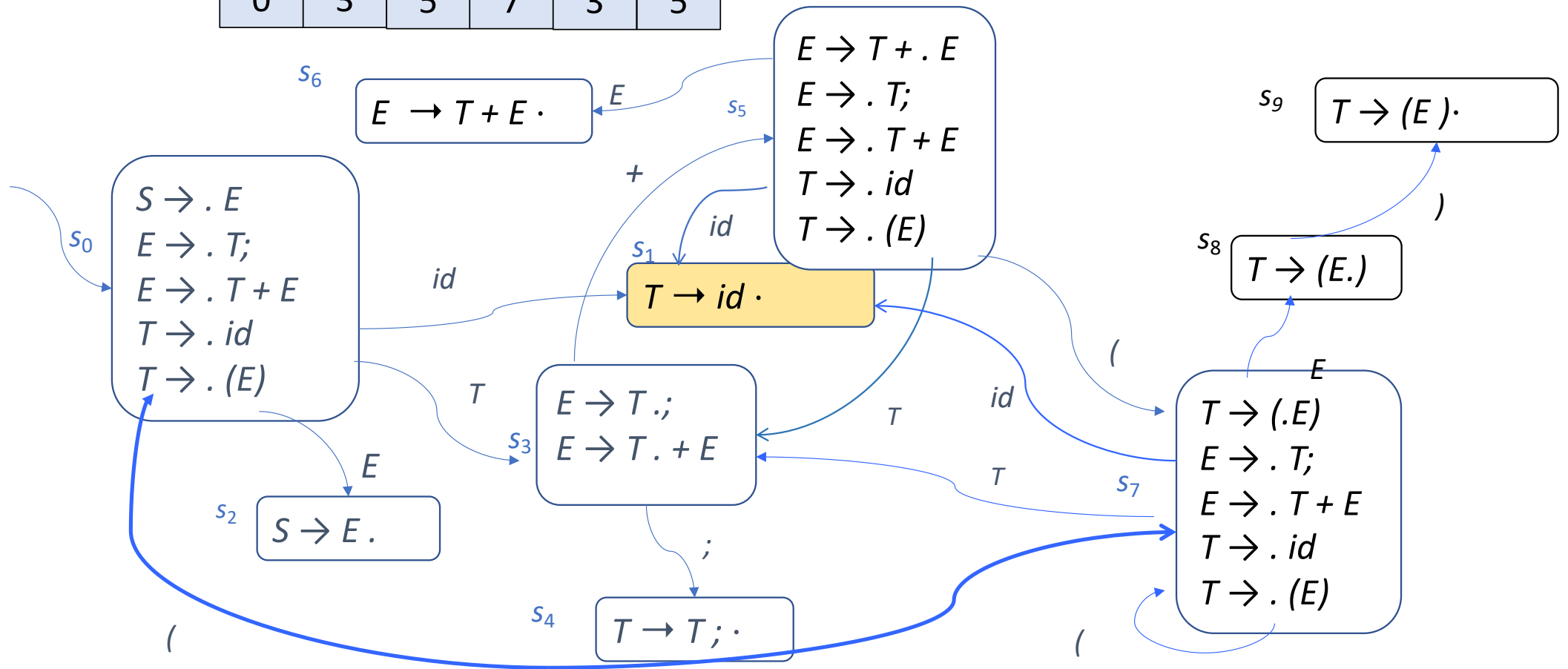
	T	+	(T	+	id			
0	3	5	7	3	5				



Analisi:

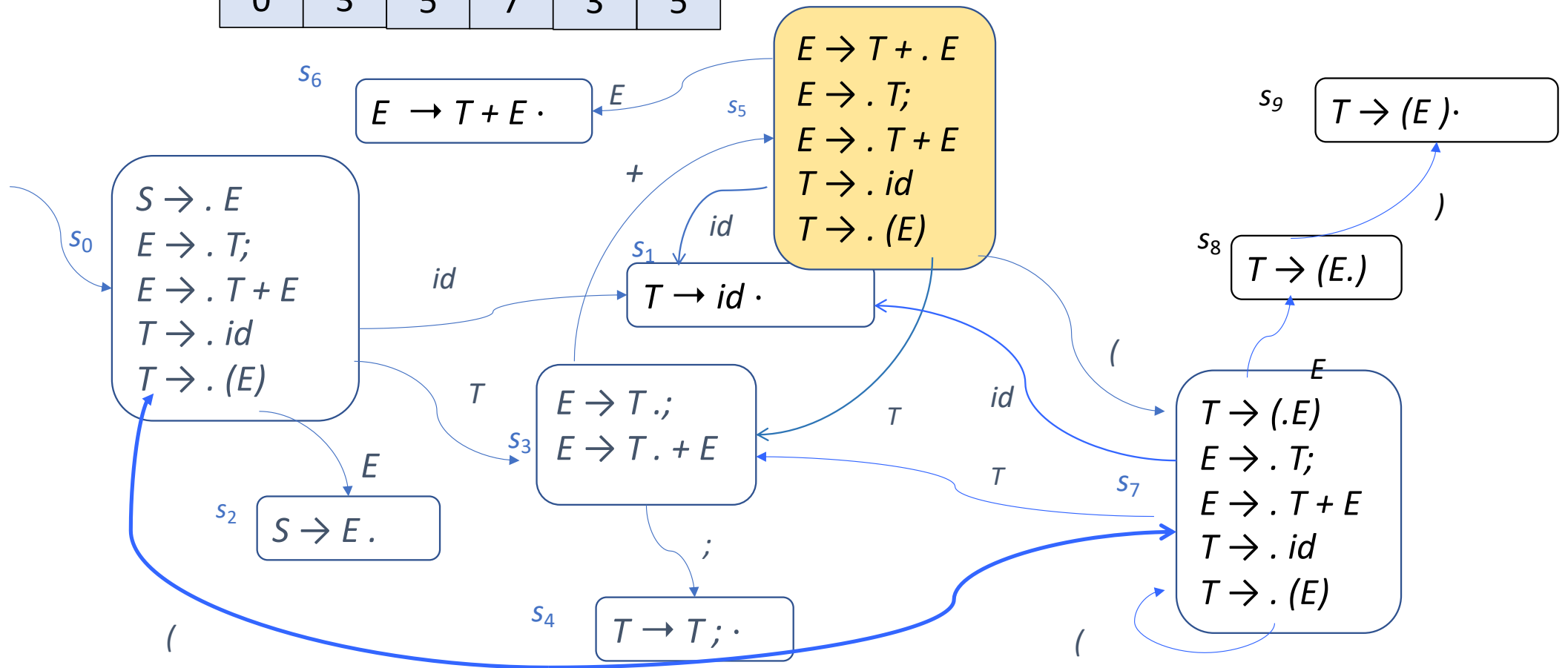
	T	+	(T	+
0	3	5	7	3	5

;)	;
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Analisi:

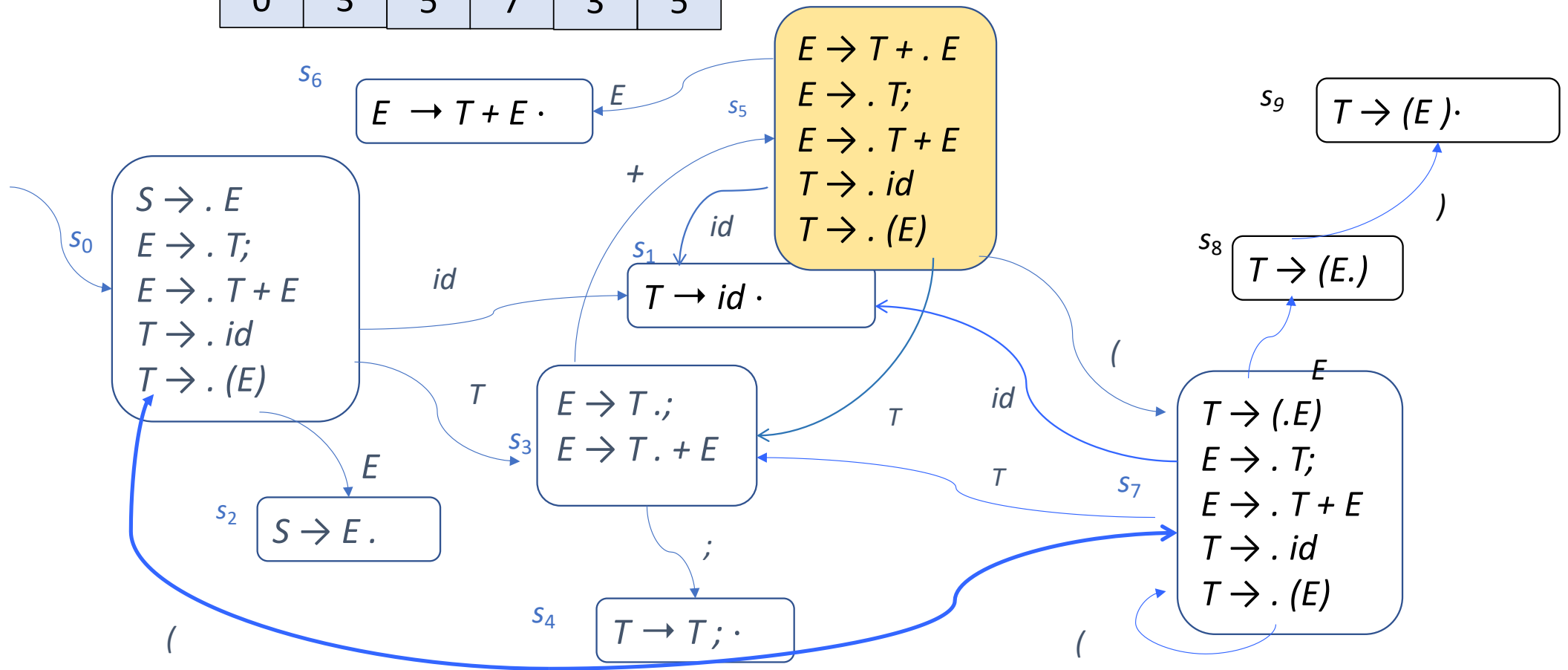
	T	+	(T	+	id			
0	3	5	7	3	5				



Analisi:

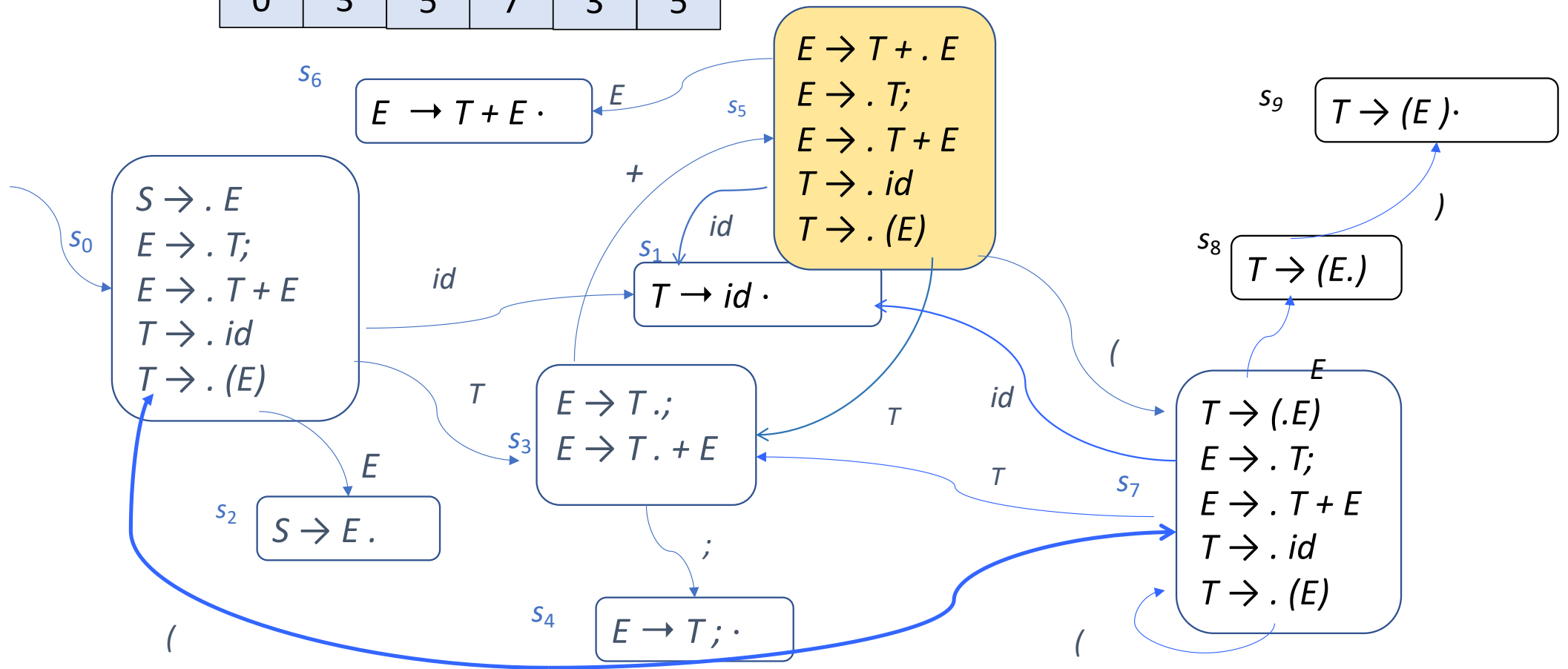
	T	+	(T	+
0	3	5	7	3	5

;)	;
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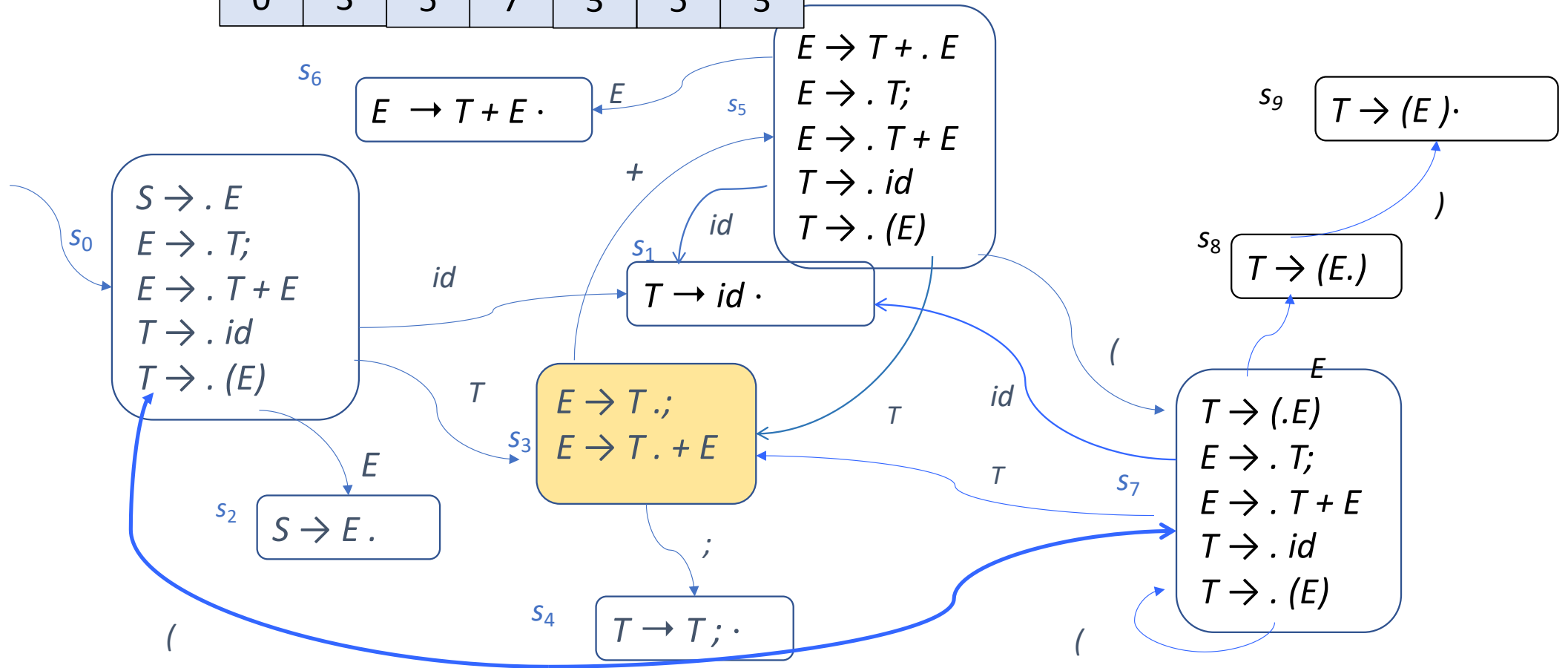
Analisi:

	T	+	(T	+	T		;)	;
0	3	5	7	3	5					



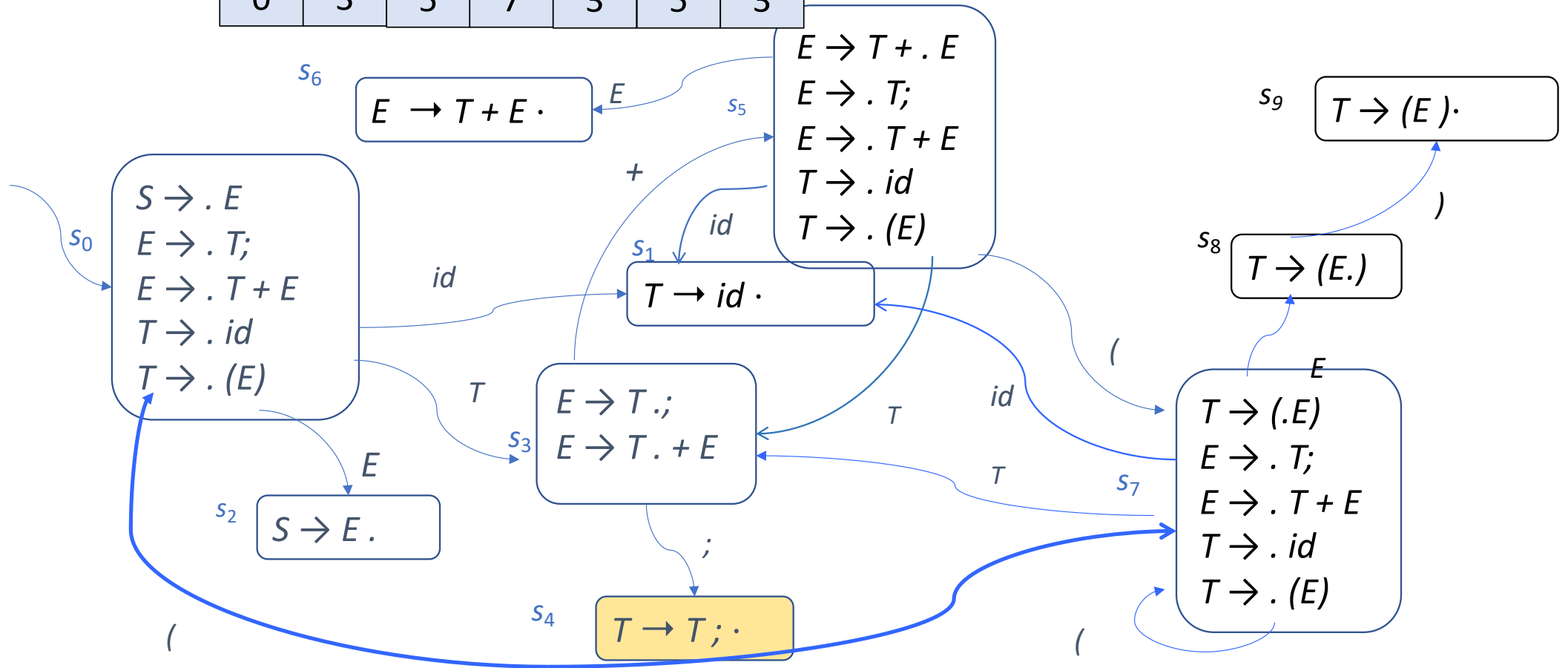
Analisi:

	T	+	(T	+	T	;)	;
0	3	5	7	3	5	3				



Analisi:

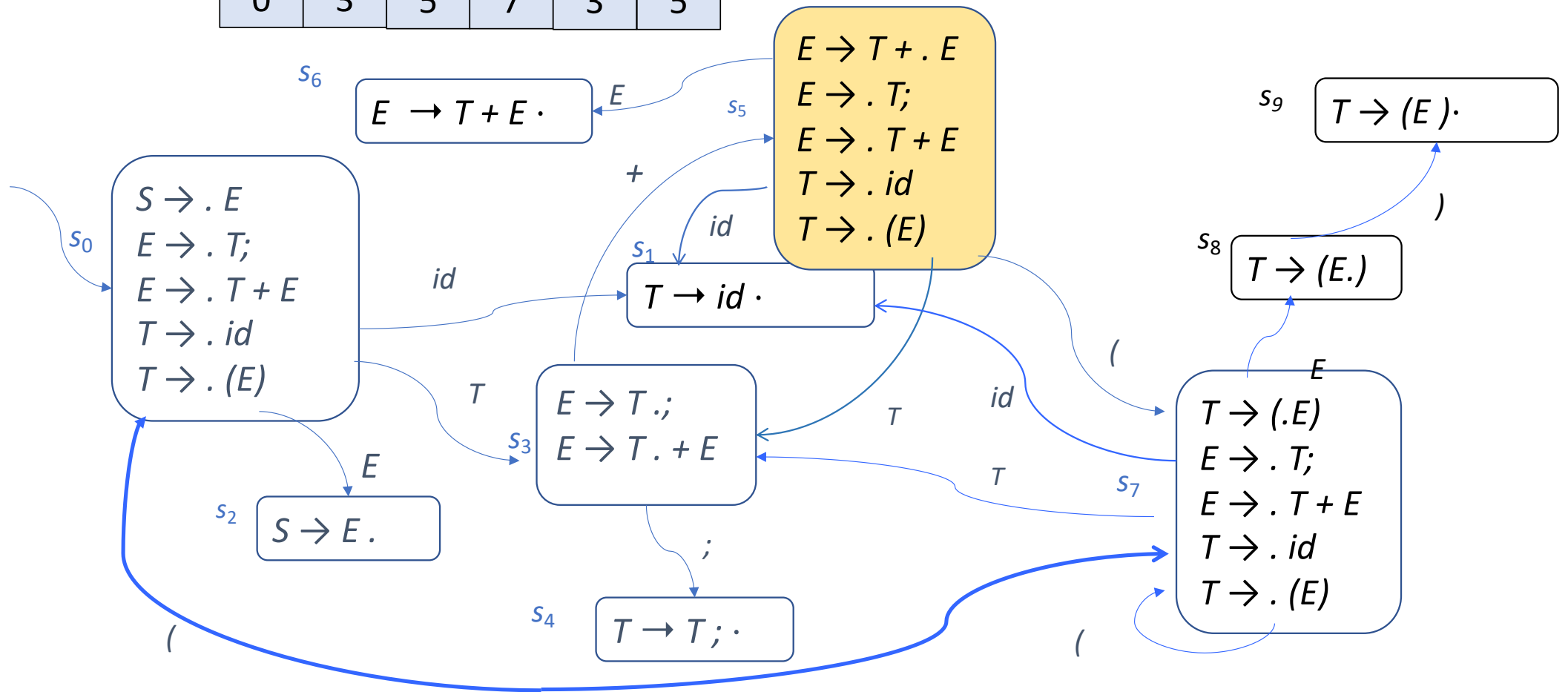
	T	+	(T	+	T	;)	;
0	3	5	7	3	5	3				



Analisi:

	T	+	(T	+
0	3	5	7	3	5

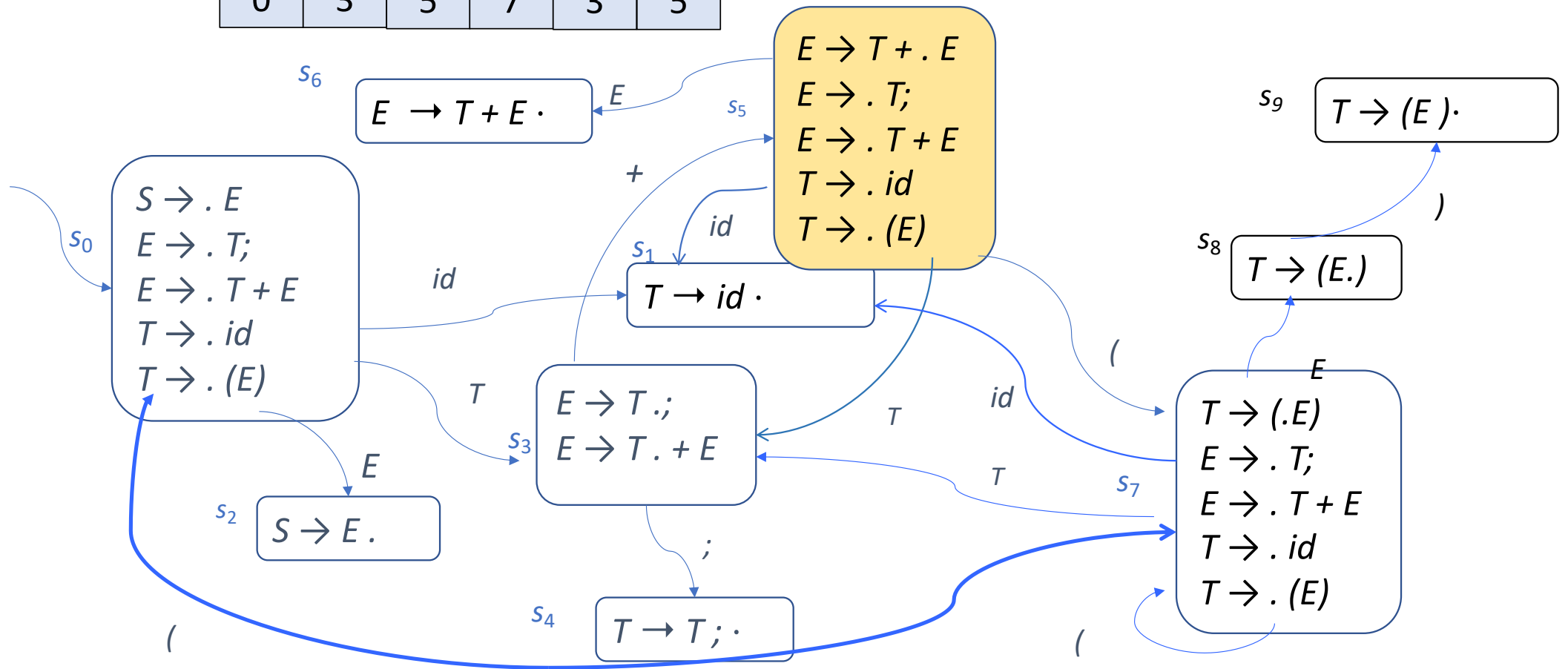
)	;
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Analisi:

	T	+	(T	+	E
0	3	5	7	3	5	

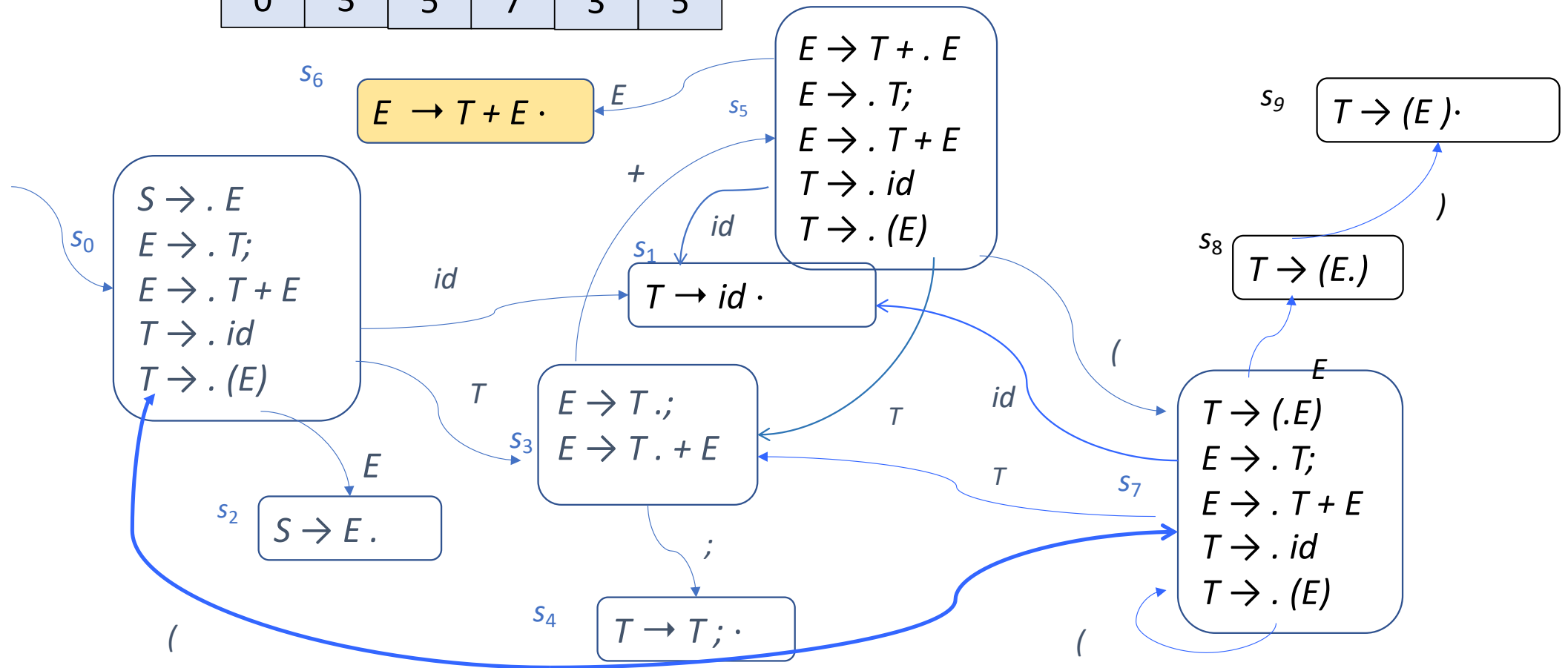
)	;
---	---



Analisi:

	T	+	(T	+	E
0	3	5	7	3	5	

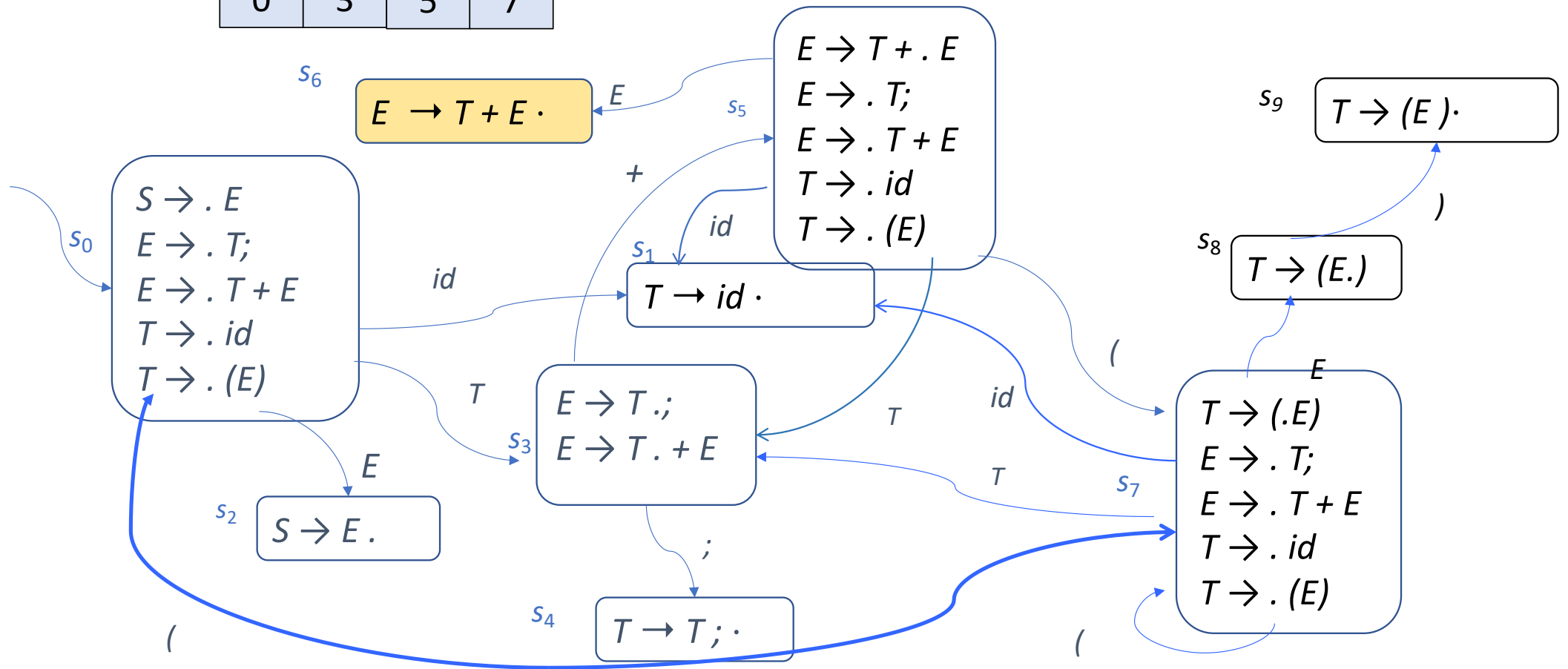
)	;
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Analisi:

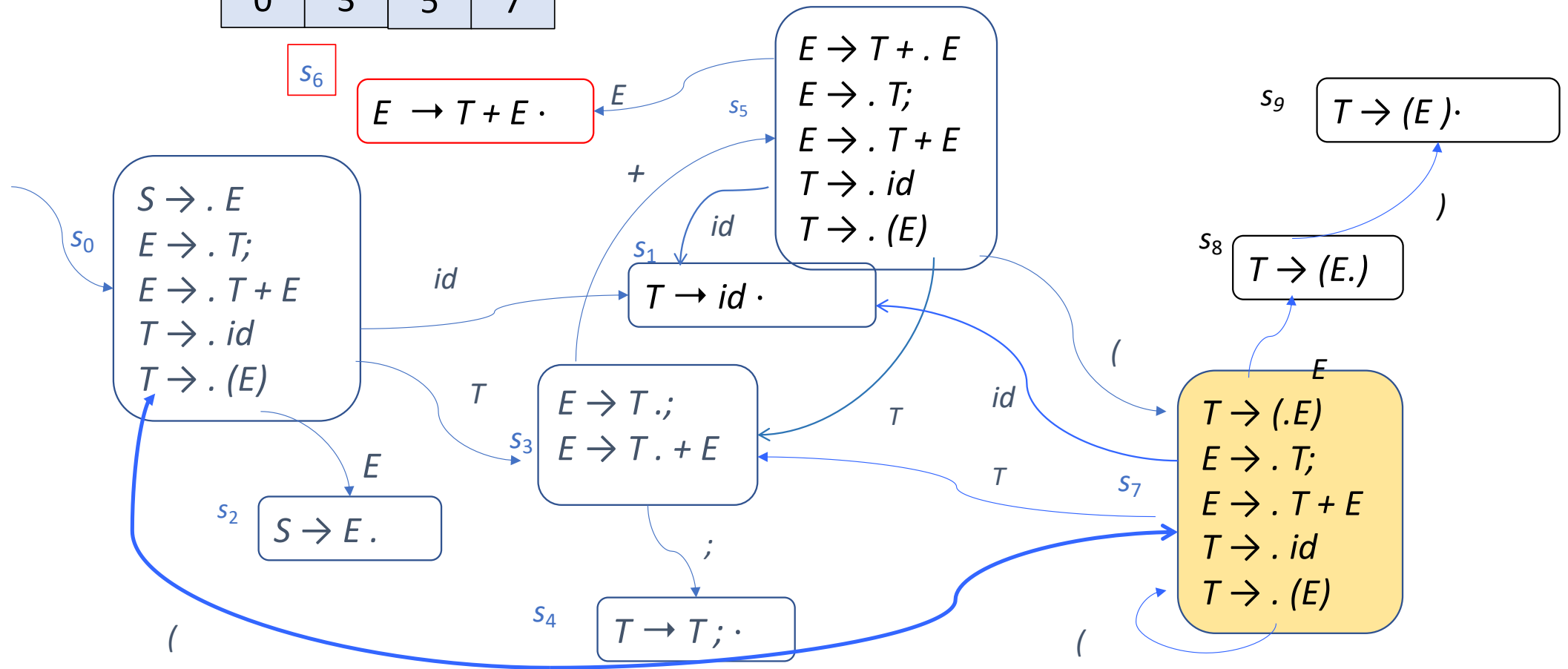
	T	+	(
0	3	5	7

)	;
---	---



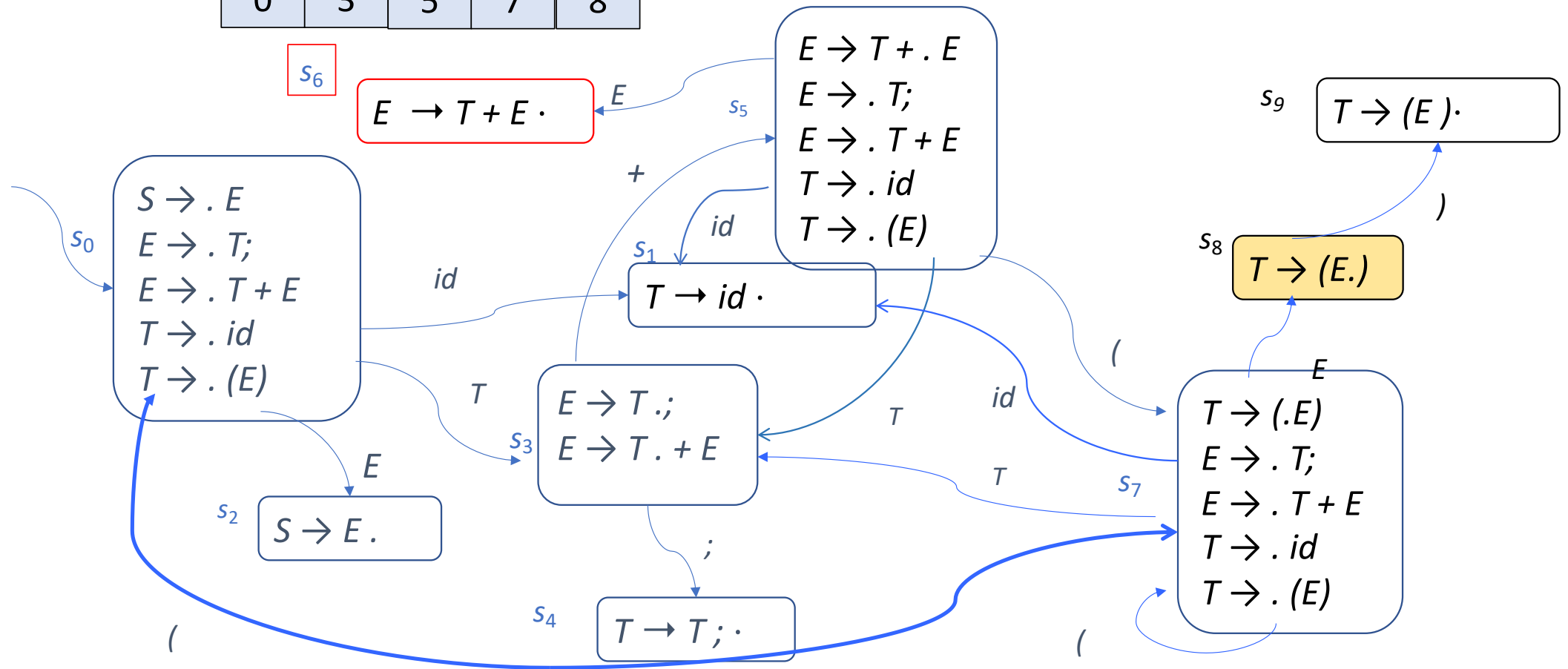
Analisi:

	T	+	(E)	;
0	3	5	7			

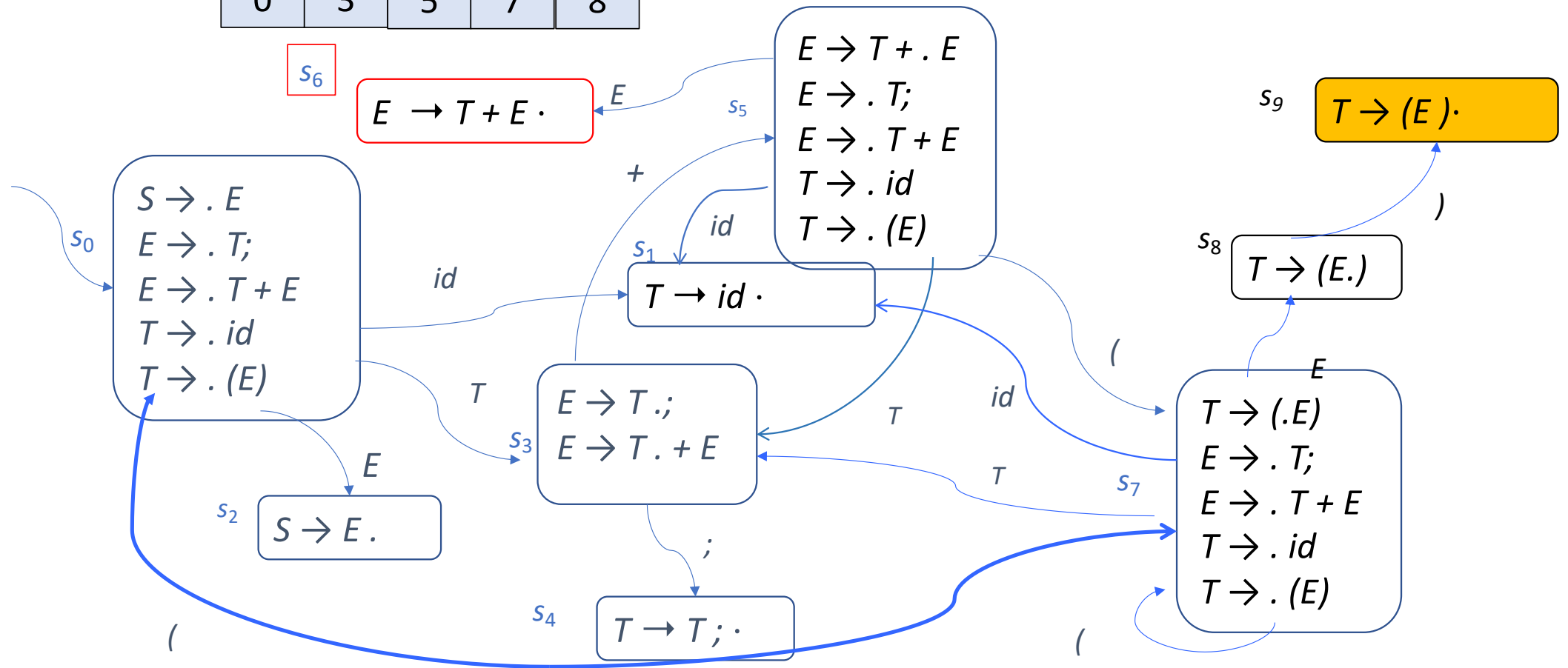
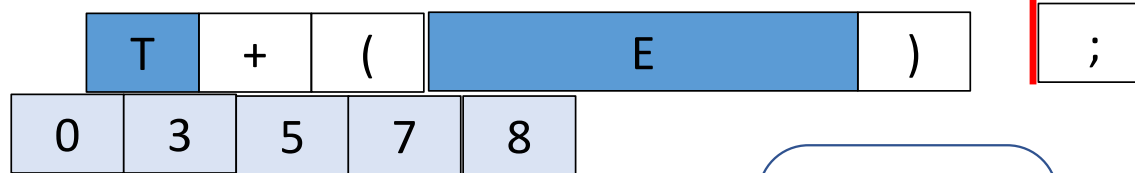


Analisi:

	T	+	(E)	;
0	3	5	7	8		



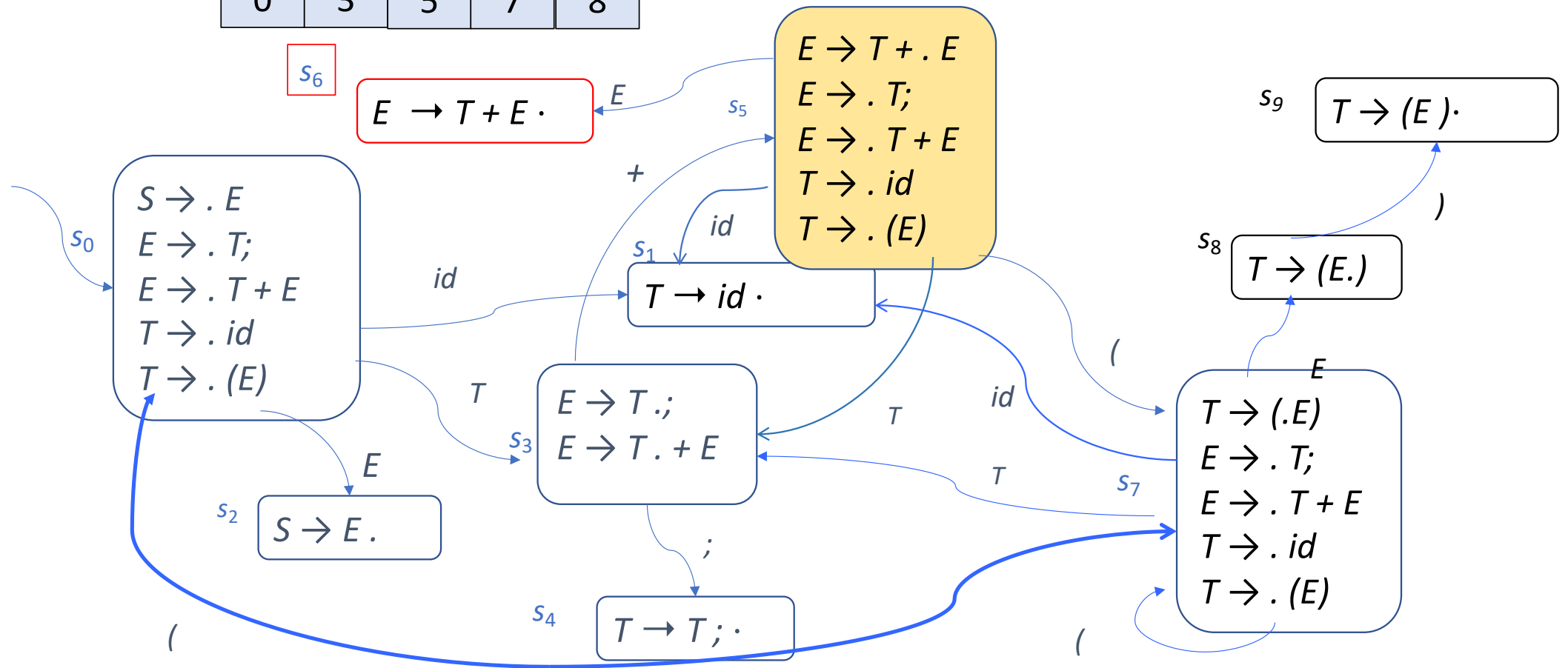
Analisi:



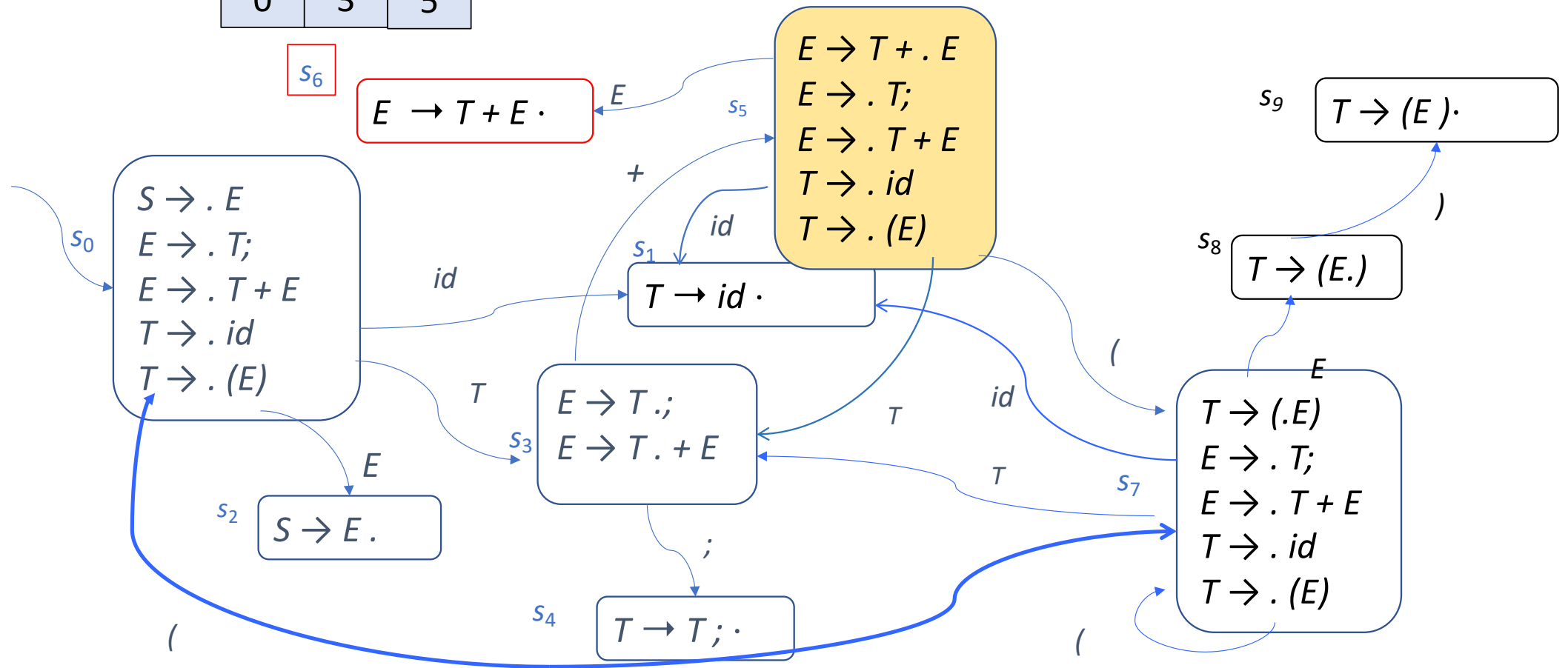
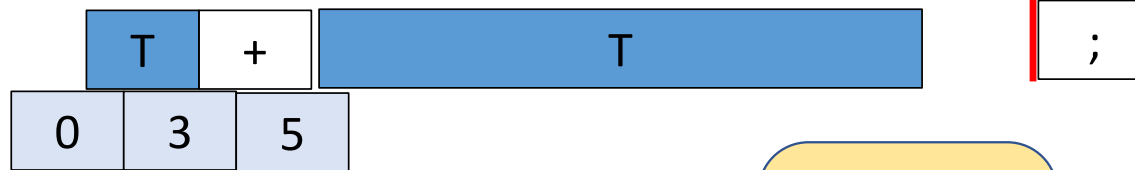
Analisi:

	T	+		
0	3	5	7	8

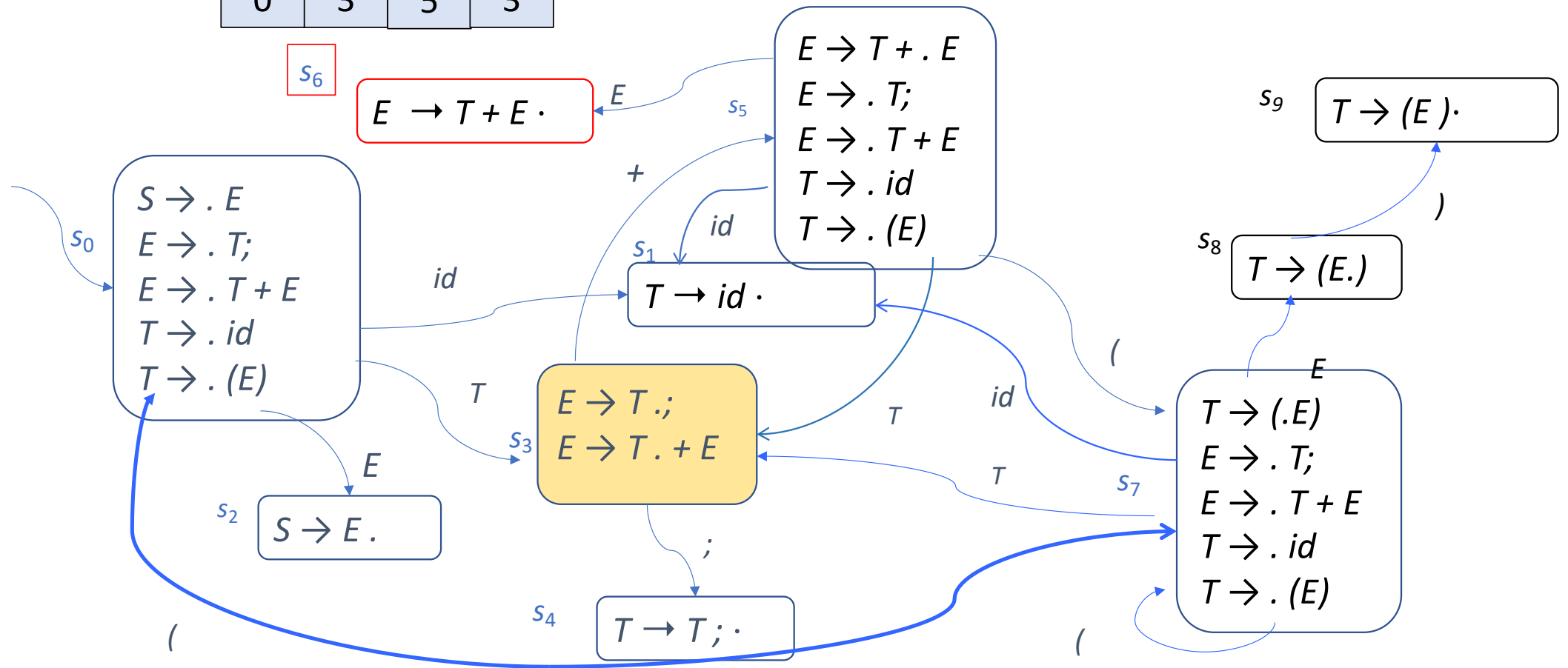
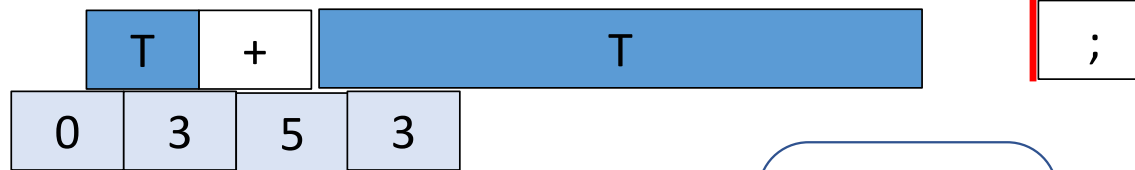
;



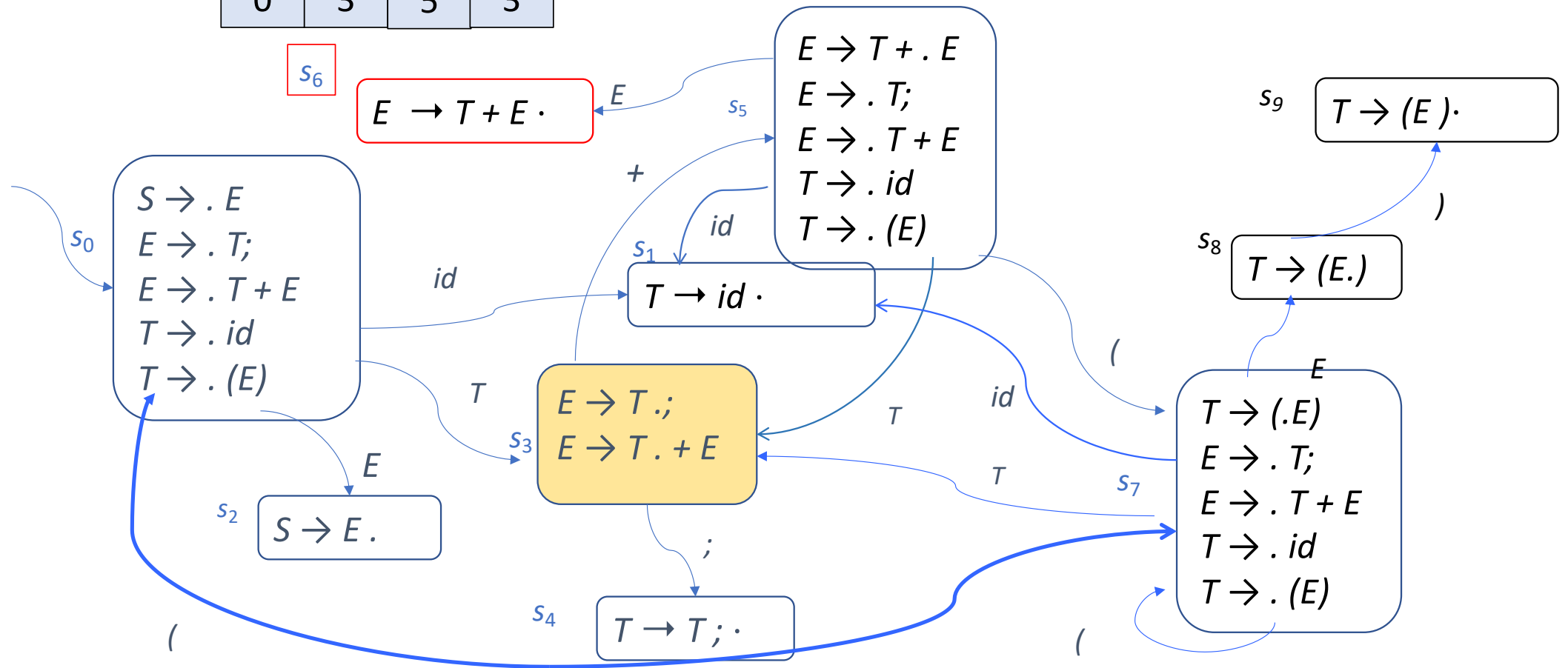
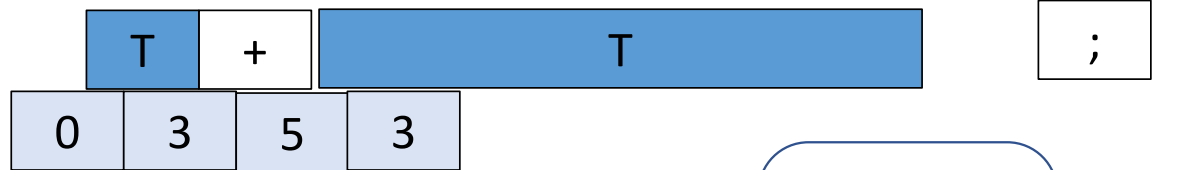
Analisi:



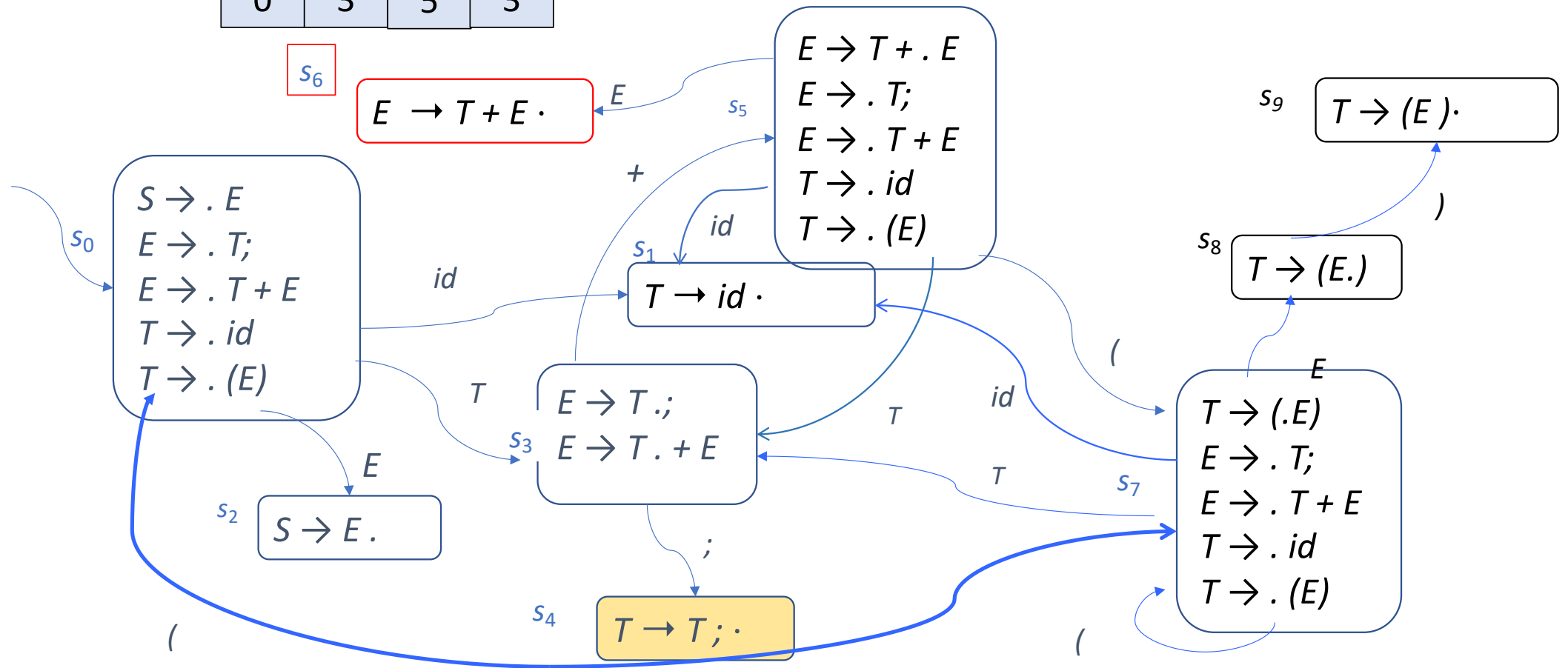
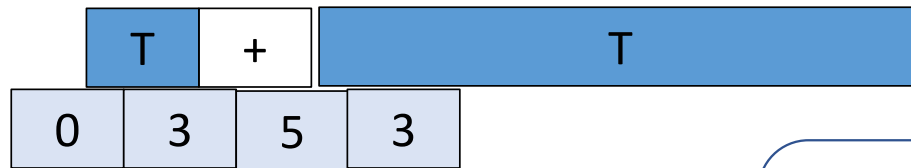
Analisi:



Analisi:



Analisi:



Analisi:

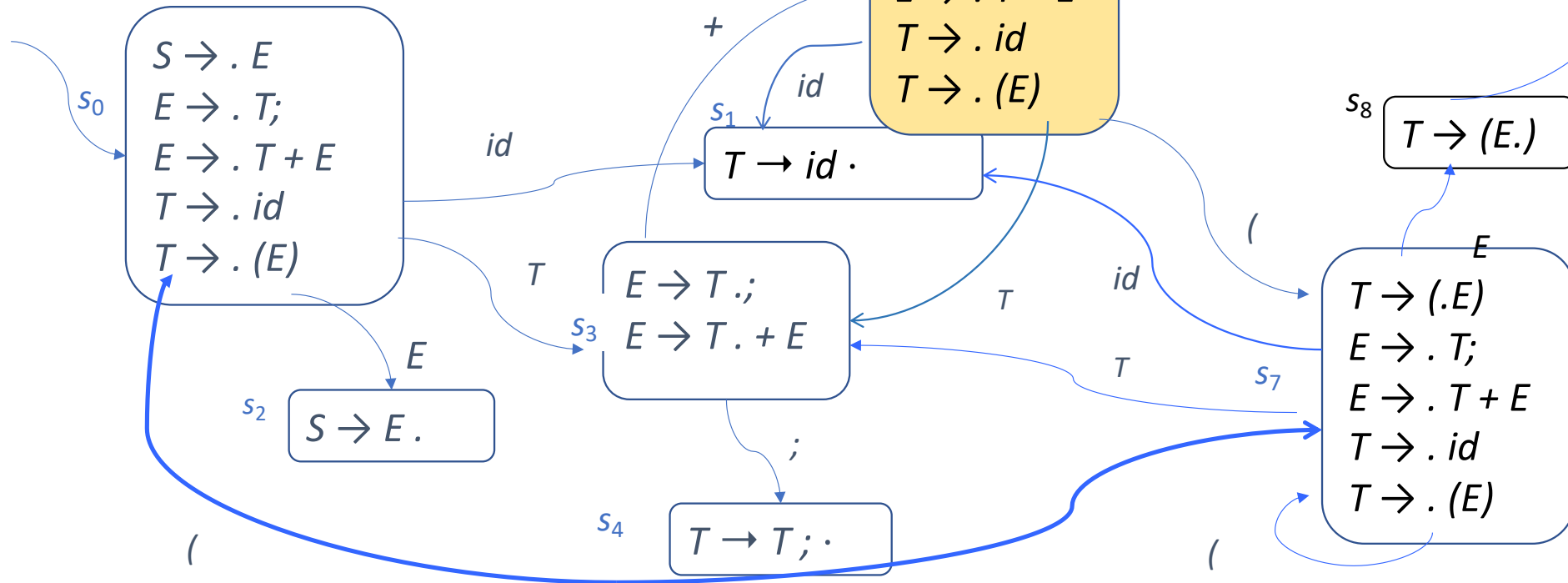
	T	+	
0	3	5	3

s_6

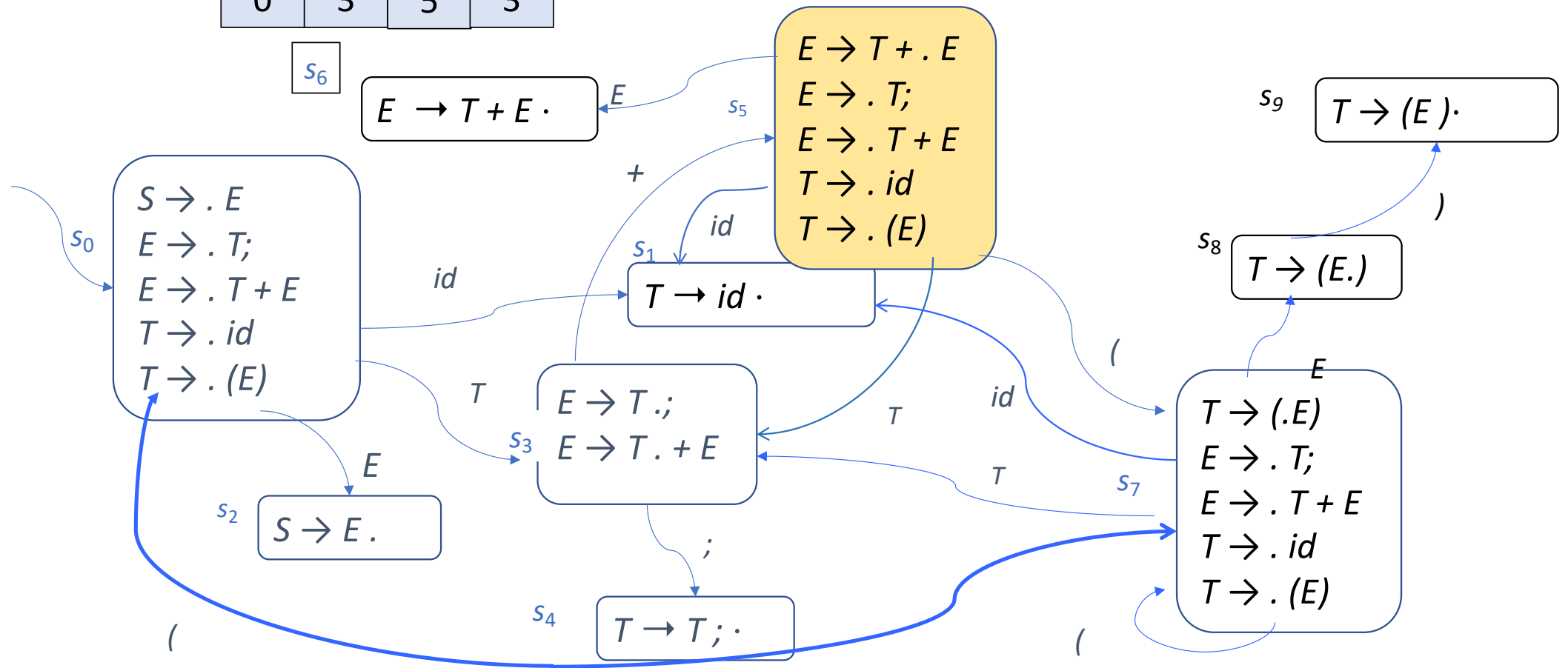
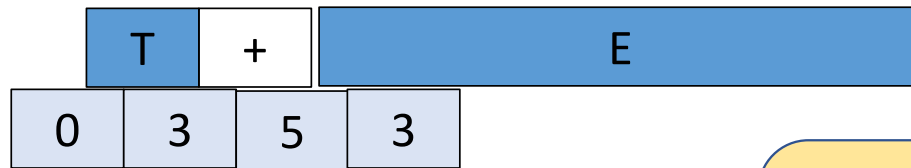
$E \rightarrow T + E \cdot$

$E \rightarrow T + \cdot E$
 $E \rightarrow \cdot T;$
 $E \rightarrow \cdot T + E$
 $T \rightarrow \cdot id$
 $T \rightarrow \cdot (E)$

s_9 $T \rightarrow (E) \cdot$



Analisi:

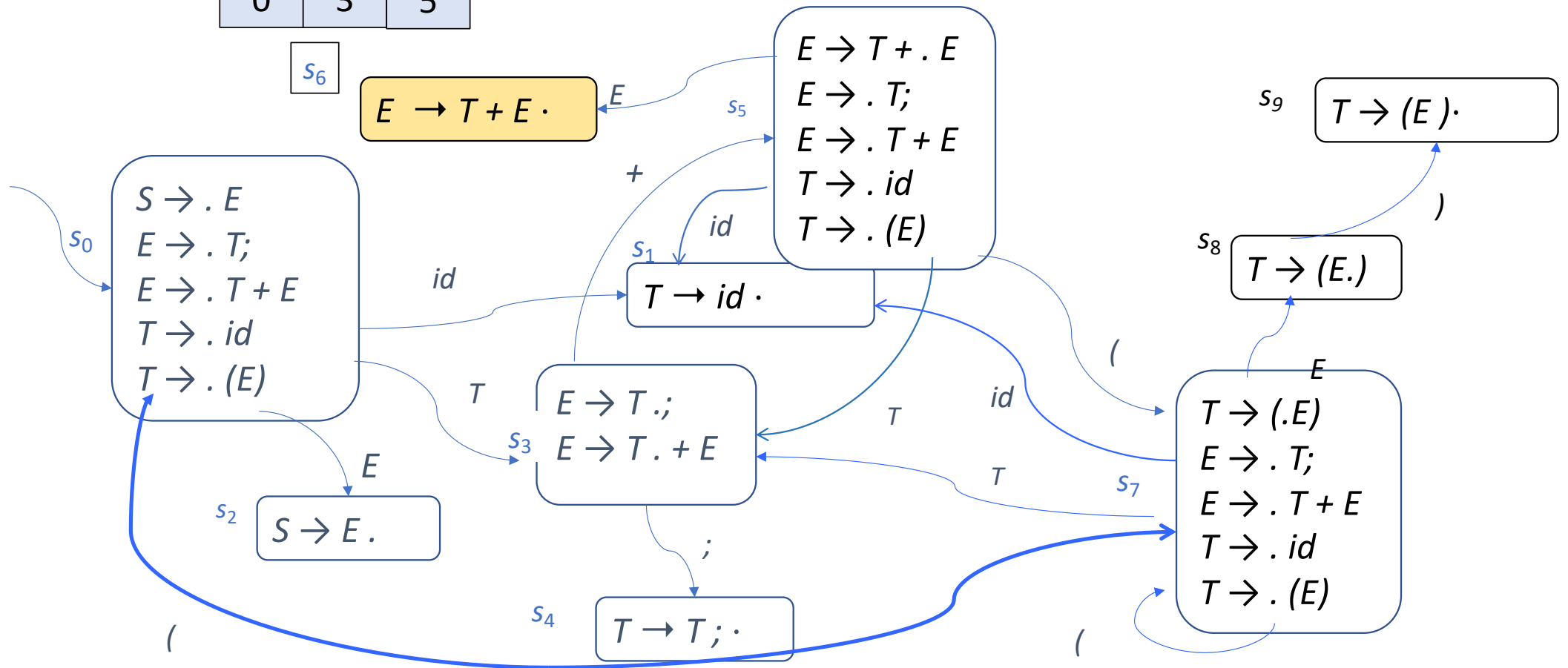


Analisi:

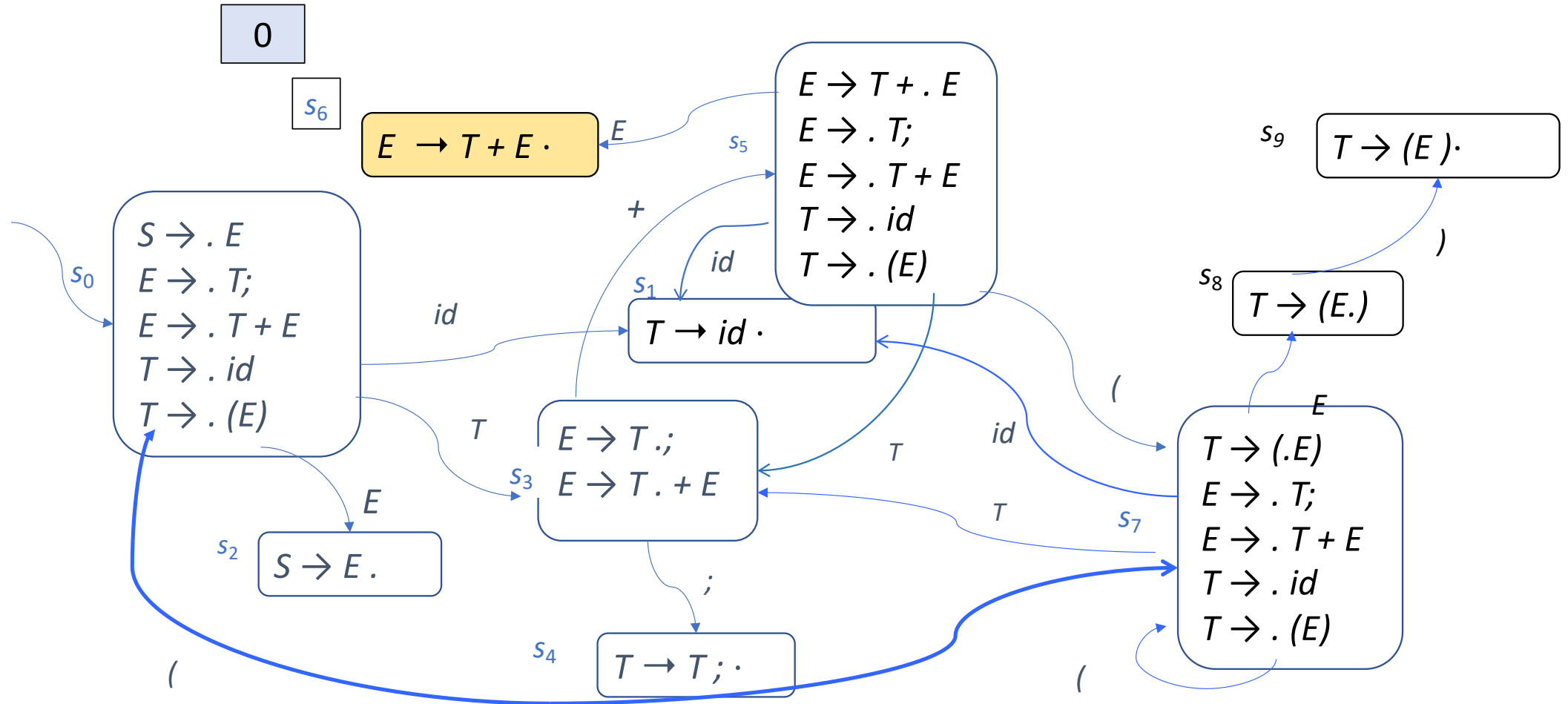


s_6

$E \rightarrow T + E \cdot$



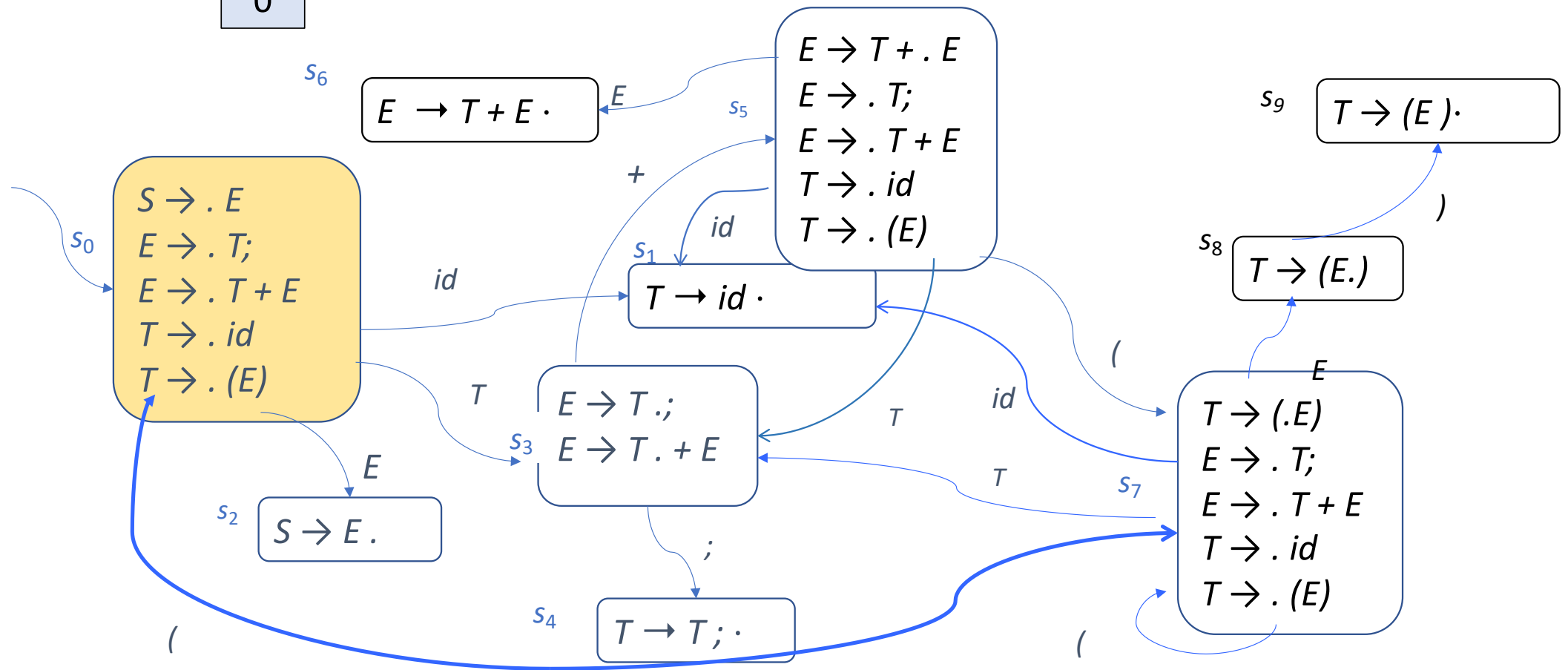
Analisi:



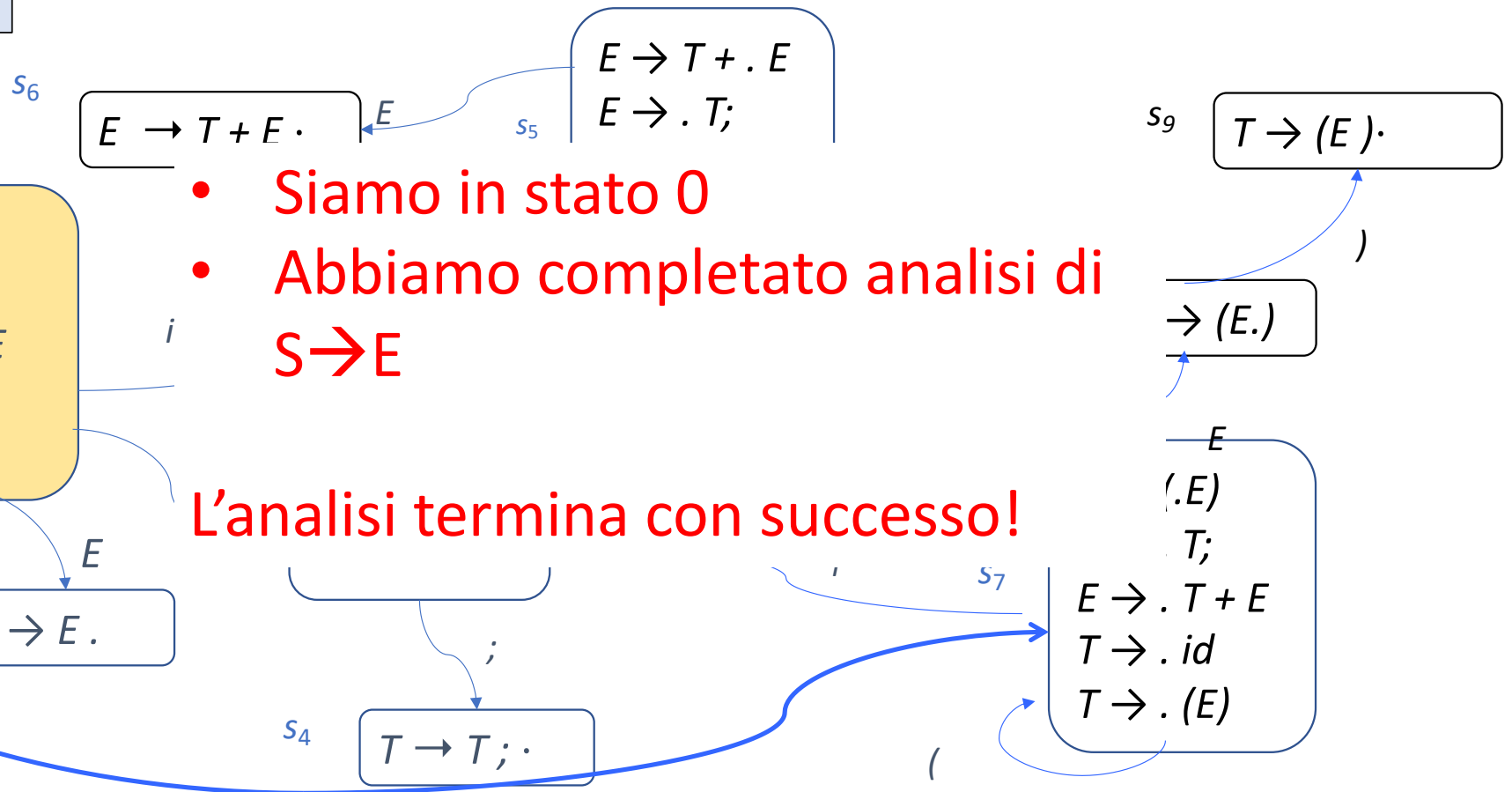
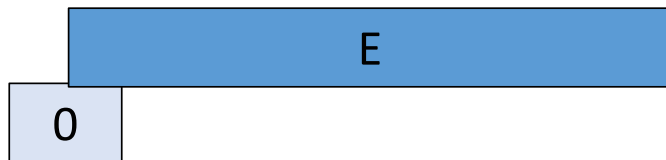
Analisi:

E

0



Analisi:



- Siamo in stato 0
- Abbiamo completato analisi di $S \rightarrow E$

L'analisi termina con successo!