

aaa bbb \$ \rightarrow terminal

aaaaa \$

$a^* \cup (a^n b^n)$

$F \rightarrow id$ left
 $F \rightarrow id(E)$ factory
 $F \rightarrow id A$
 $A \rightarrow e$
 $A \rightarrow (E)$

Click to add text

$E \rightarrow E+T$
 $E \rightarrow T$
 Can be replaced by
 $E \rightarrow TE'$
 $E' \rightarrow +TE'$
 $E' \rightarrow e$

$T \rightarrow T * F$
 $T \rightarrow F$
 Can be replaced by
 $T \rightarrow FT'$
 $T' \rightarrow *FT'$
 $T' \rightarrow e$

left recursion

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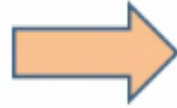
$S \rightarrow aA$
 $A \rightarrow a | b | e$

b e e	q, S
q e S	q a A
q e A	q a
q e A	q b
q e A	q c
q a	q e
q b b	q e

(b, e, e) (q, S)
 (q, e, S) (q, a, A)
 (q, a, e) (q, a, e)
 (q, b, e) (q, b, b)
 (q, \$, e) (q, \$, e)
 (q, e, A) (q, a, a) no transitions
 (q, b, e, A) (q, b, b)
 (q, \$, e, A) (q, \$, e)
 (q, a, e, a) (q, e)
 (q, b, e, b) (q, e)

aAb
 ab

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



$E \rightarrow TE'$
 $E' \rightarrow +TE'$
 $E' \rightarrow e$
 $T \rightarrow FT'$
 $T' \rightarrow *FT'$
 $T' \rightarrow e$
 $F \rightarrow (E)$
 $F \rightarrow idA$
 $A \rightarrow e$
 $A \rightarrow (E)$

- $\Delta = \{$
- $((p, e, e), (q, E)),$ (1)
 - $((q, a, e), (q_a, e)),$ (2) for each $a \in \Sigma \cup \{ \$ \}$
 - $((q_a, e, a), (q, e)),$ (3) for each $a \in \Sigma$
 - $((q_a, e, E), (q_a, TE')),$ (4) for each $a \in \Sigma \cup \{ \$ \}$
 - $((q_+, e, E'), (q_+, +TE')),$ (5)
 - $((q_a, e, E'), (q_a, e)),$ (6) for each $a \in \{), \$ \}$
 - $((q_a, e, T), (q_a, FT')),$ (7) for each $a \in \Sigma \cup \{ \$ \}$
 - $((q_*, e, T'), (q_*, FT')),$ (8)
 - $((q_a, e, T'), (q_a, e)),$ (9) for each $a \in \{ +,), \$ \}$
 - $((q_(), e, F), (q_(), (E))),$ (10)
 - $((q_{id}, e, F), (q_{id}, idA)),$ (11)
 - $((q_(), e, A), (q_(), (E)))$ (12)
 - $((q_a, e, A), (q_a, e)),$ (13) for each $a \in \{ +, *,), \$ \}$
- $\}$

$id(id)$

$id(id)$ [Check
 TB
 PLS!

a, b, c etc.