

Grammar after Left Recursion and Left Factoring

$$\begin{aligned}
 G &\rightarrow E \\
 E &\rightarrow T E' \\
 E' &\rightarrow + T E' \\
 &\quad | - T E' \\
 &\quad | \epsilon \\
 T &\rightarrow F T' \\
 T' &\rightarrow * F T' \\
 &\quad | / F T' \\
 &\quad | \epsilon \\
 F &\rightarrow \text{num} \\
 &\quad | \text{id } F' \\
 F' &\rightarrow [E] \\
 &\quad | \epsilon
 \end{aligned}$$

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First and Follow Sets

	First	Follow
G	{num, id}	{\$}
E	{num, id}	{\$,]}
E'	{+, -, ϵ }	{\$,]}
T	{num, id}	{\$, +, -,]}
T'	{*, /, ϵ }	{\$, +, -,]}
F	{num, id}	{\$, +, -, *, /,]}
F'	{[, ϵ }	{\$, +, -, *, /,]}

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Predict Sets

	Predict Set
$G \rightarrow E$	{num, id}
$E \rightarrow T E'$	{num, id}
$E' \rightarrow + T E'$	{+}
$E' \rightarrow - T E'$	{-}
$E' \rightarrow \epsilon$	{\$,]}
$T \rightarrow F T'$	{num, id}
$T' \rightarrow * F T'$	{*}
$T' \rightarrow / F T'$	{/}
$T' \rightarrow \epsilon$	{\$, +, -,]}
$F \rightarrow \text{num}$	{num}
$F \rightarrow \text{id } F'$	{id}
$F' \rightarrow [E]$	{[}
$F' \rightarrow \epsilon$	{\$, +, -, *, /,]}

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