

Parser 3.1

$G_{\text{expr}} = (\{\langle \text{start} \rangle, \langle \text{expr} \rangle, \langle \text{exprp} \rangle, \langle \text{term} \rangle, \langle \text{termp} \rangle, \langle \text{fact} \rangle\}, \{+, -, *, /, (,), \text{NUM}, \text{EOF}\}, P, \langle \text{start} \rangle)$

Produzioni:

$\langle \text{start} \rangle ::= \langle \text{expr} \rangle \text{ EOF}$

$\langle \text{expr} \rangle ::= \langle \text{term} \rangle \langle \text{exprp} \rangle$

$\langle \text{exprp} \rangle ::= + \langle \text{term} \rangle \langle \text{exprp} \rangle \mid - \langle \text{term} \rangle \langle \text{exprp} \rangle \mid \varepsilon$

$\langle \text{term} \rangle ::= \langle \text{fact} \rangle \langle \text{termp} \rangle$

$\langle \text{termp} \rangle ::= * \langle \text{fact} \rangle \langle \text{termp} \rangle \mid / \langle \text{fact} \rangle \langle \text{termp} \rangle \mid \varepsilon$

$\langle \text{fact} \rangle ::= (\langle \text{expr} \rangle) \mid \text{NUM}$

NULL:

$\text{NULL}(\langle \text{exprp} \rangle)$

$\text{NULL}(\langle \text{termp} \rangle)$

FIRST:

$\text{FIRST}(\langle \text{start} \rangle) = \text{FIRST}(\langle \text{expr} \rangle \text{ EOF}) = \text{FIRST}(\langle \text{expr} \rangle) = \{ '(', \text{NUM} \}$

$\text{FIRST}(\langle \text{expr} \rangle) = \text{FIRST}(\langle \text{term} \rangle \langle \text{exprp} \rangle) = \text{FIRST}(\langle \text{term} \rangle) = \{ '(', \text{NUM} \}$

$\text{FIRST}(\langle \text{exprp} \rangle) = \text{FIRST}(+) \cup \text{FIRST}(-) = \{ +, - \}$

$\text{FIRST}(\langle \text{term} \rangle) = \text{FIRST}(\langle \text{fact} \rangle) = \{ '(', \text{NUM} \}$

$\text{FIRST}(\langle \text{termp} \rangle) = \text{FIRST}(*) \cup \text{FIRST}(/) = \{ *, / \}$

$\text{FIRST}(\langle \text{fact} \rangle) = \text{FIRST}('(') \cup \text{FIRST}(\text{NUM}) = \{ '(', \text{NUM} \}$

FOLLOW:

$\{ \text{EOF} \} = \text{FIRST}(\text{EOF}) \subseteq \text{FOLLOW}(\langle \text{expr} \rangle)$

$\{ +, - \} = \text{FIRST}(\langle \text{exprp} \rangle) \subseteq \text{FOLLOW}(\langle \text{term} \rangle)$

$\text{FOLLOW}(\langle \text{expr} \rangle) \subseteq \text{FOLLOW}(\langle \text{exprp} \rangle)$

$$\text{FOLLOW}(\langle \text{expr} \rangle) \subseteq \text{FOLLOW}(\langle \text{term} \rangle)$$

$$\text{FOLLOW}(\langle \text{exprp} \rangle) \subseteq \text{FOLLOW}(\langle \text{term} \rangle)$$

$$\{*, /\} = \text{FIRST}(\langle \text{termp} \rangle) \subseteq \text{FOLLOW}(\langle \text{fact} \rangle)$$

$$\text{FOLLOW}(\langle \text{term} \rangle) \subseteq \text{FOLLOW}(\langle \text{termp} \rangle)$$

$$\text{FOLLOW}(\langle \text{term} \rangle) \subseteq \text{FOLLOW}(\langle \text{fact} \rangle)$$

$$\text{FOLLOW}(\langle \text{termp} \rangle) \subseteq \text{FOLLOW}(\langle \text{fact} \rangle)$$

$$\{ ' ' \} = \text{FIRST}(' ') \subseteq \text{FOLLOW}(\langle \text{expr} \rangle)$$

INSIEMI GUIDA:

$$\text{GUIDA}(\langle \text{start} \rangle \rightarrow \langle \text{expr} \rangle \text{ EOF}) = \text{FIRST}(\langle \text{expr} \rangle) = \{ ' ', \text{NUM} \}$$

$$\text{GUIDA}(\langle \text{expr} \rangle \rightarrow \langle \text{term} \rangle \langle \text{exprp} \rangle) = \text{FIRST}(\langle \text{term} \rangle) = \{ ' ', \text{NUM} \}$$

$$\text{GUIDA}(\langle \text{exprp} \rangle \rightarrow + \langle \text{term} \rangle \langle \text{exprp} \rangle) = \{ + \}$$

$$(\langle \text{exprp} \rangle \rightarrow - \langle \text{term} \rangle \langle \text{exprp} \rangle) = \{ - \}$$

$$(\langle \text{exprp} \rangle \rightarrow \epsilon) = \text{FOLLOW}(\langle \text{exprp} \rangle) = \{ ' ', \text{EOF} \}$$

$$\text{GUIDA}(\langle \text{term} \rangle \rightarrow \langle \text{fact} \rangle \langle \text{termp} \rangle) = \text{FIRST}(\langle \text{fact} \rangle) = \{ ' ', \text{NUM} \}$$

$$\text{GUIDA}(\langle \text{termp} \rangle \rightarrow * \langle \text{fact} \rangle \langle \text{termp} \rangle) = \text{FIRST}(*) = \{ * \}$$

$$(\langle \text{termp} \rangle \rightarrow / \langle \text{fact} \rangle \langle \text{termp} \rangle) = \text{FIRST}(/) = \{ / \}$$

$$(\langle \text{termp} \rangle \rightarrow \epsilon) = \text{FOLLOW}(\text{termp}) = \{ ' ', +, -, \text{EOF} \}$$

$$\text{GUIDA}(\langle \text{fact} \rangle \rightarrow \langle \text{expr} \rangle) = \text{FIRST}(' ') = \{ ' ' \}$$

$$(\langle \text{fact} \rangle \rightarrow \text{NUM}) = \text{FIRST}(\text{NUM}) = \{ \text{NUM} \}$$