



Universidade do Estado da Bahia

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Trabalho 2 - Compiladores

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Salvador- BA

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Expressões regulares

a) Tipo: <tipo>

$E = (\text{INTEIRO} + \text{QUEBRADO} + \text{LOGICO})$

b) Identificador : <id>

$E = (a-z + A-Z)(a-z + A-Z + 0-9)^*$

c) Valor : <valor>

$E = (0-9)(0-9)^*((0-9)(0-9)^* + \epsilon)$

d) Operador binario : <binop>

$E = ('*' + '/' + \&\& + ||)$

e) Operadores: <sinal>

$E = ('+' + '-')$

f) Comentários (começam com # e vão até o final da linha)

$E = (\# \Sigma^* \backslash n)$

Palavras reservadas

a) SE

b) SENAO

c) FACA

d) ENQUANTO

e) ACABOU

f) INTEIRO

g) QUEBRADO

h) LOGICO

Gramática

$G = (V, T, \langle \text{programa} \rangle, P, \epsilon)$

$V = \{ \langle \text{programa} \rangle, \langle \text{programax} \rangle, \langle \text{bloco} \rangle, \langle \text{comando} \rangle, \langle \text{stat} \rangle, \langle \text{sebloco} \rangle, \langle \text{se} \rangle, \langle \text{senao} \rangle, \langle \text{enquanto} \rangle, \langle \text{atrib} \rangle, \langle \text{decl} \rangle, \langle \text{cond} \rangle, \langle \text{exp} \rangle, \langle \text{fator} \rangle, \langle \text{termo} \rangle, \langle \text{op} \rangle, \langle \text{unop} \rangle \}$

$T = \{ \text{SE, FACA, ACABOU, SENAO, ENQUANTO, '=', ';;', \langle \text{sinal} \rangle, \langle \text{binop} \rangle, !, \langle \text{id} \rangle, \langle \text{valor} \rangle, \langle \text{tipo} \rangle, '(', ') \}$

$\langle \text{programa} \rangle \rightarrow \langle \text{comando} \rangle \langle \text{programa} \rangle$
 $\langle \text{programa} \rangle \rightarrow \langle \text{comando} \rangle \langle \text{programa} \rangle \mid \epsilon$
 $\langle \text{bloco} \rangle \rightarrow \langle \text{programa} \rangle$
 $\langle \text{comando} \rangle \rightarrow \langle \text{sebloco} \rangle \mid \langle \text{enquanto} \rangle \mid \langle \text{stat} \rangle;$
 $\langle \text{stat} \rangle \rightarrow \langle \text{atrib} \rangle \mid \langle \text{decl} \rangle$
 $\langle \text{sebloco} \rangle \rightarrow \langle \text{se} \rangle \langle \text{senao} \rangle$
 $\langle \text{se} \rangle \rightarrow \text{SE} \langle \text{cond} \rangle \text{ FACA} \langle \text{bloco} \rangle$
 $\langle \text{senao} \rangle \rightarrow \text{ACABOU} \mid \text{SENAO} \langle \text{bloco} \rangle \text{ ACABOU}$
 $\langle \text{enquanto} \rangle \rightarrow \text{ENQUANTO} \langle \text{cond} \rangle \text{ FACA} \langle \text{bloco} \rangle \text{ ACABOU}$
 $\langle \text{atrib} \rangle \rightarrow \langle \text{id} \rangle = \langle \text{exp} \rangle$
 $\langle \text{decl} \rangle \rightarrow \langle \text{tipo} \rangle \langle \text{id} \rangle$
 $\langle \text{cond} \rangle \rightarrow \langle \text{exp} \rangle$
 $\langle \text{exp} \rangle \rightarrow \langle \text{fator} \rangle \langle \text{termo} \rangle \mid \langle \text{unop} \rangle \langle \text{exp} \rangle$
 $\langle \text{termo} \rangle \rightarrow \langle \text{op} \rangle \langle \text{exp} \rangle \mid \epsilon$
 $\langle \text{fator} \rangle \rightarrow \langle \text{id} \rangle \mid \langle \text{valor} \rangle \mid (\langle \text{exp} \rangle)$
 $\langle \text{op} \rangle \rightarrow \langle \text{sinal} \rangle \mid \langle \text{binop} \rangle$
 $\langle \text{unop} \rangle \rightarrow \langle \text{sinal} \rangle \mid !$

FIRST

$\text{FIRST}(\langle \text{programa} \rangle) = \{ \text{"SE"}, \text{"ENQUANTO"}, \langle \text{id} \rangle, \langle \text{tipo} \rangle \}$
 $\text{FIRST}(\langle \text{programa} \rangle) = \{ \text{"SE"}, \text{"ENQUANTO"}, \langle \text{id} \rangle, \langle \text{tipo} \rangle, \epsilon \}$
 $\text{FIRST}(\langle \text{bloco} \rangle) = \{ \text{"SE"}, \text{"ENQUANTO"}, \langle \text{id} \rangle, \langle \text{tipo} \rangle \}$
 $\text{FIRST}(\langle \text{comando} \rangle) = \{ \text{"SE"}, \text{"ENQUANTO"}, \langle \text{id} \rangle, \langle \text{tipo} \rangle \}$
 $\text{FIRST}(\langle \text{stat} \rangle) = \{ \langle \text{id} \rangle, \langle \text{tipo} \rangle \}$
 $\text{FIRST}(\langle \text{sebloco} \rangle) = \{ \text{"SE"} \}$
 $\text{FIRST}(\langle \text{se} \rangle) = \{ \text{"SE"} \}$
 $\text{FIRST}(\langle \text{senao} \rangle) = \{ \text{"ACABOU"}, \text{"SENAO"} \}$
 $\text{FIRST}(\langle \text{enquanto} \rangle) = \{ \text{"ENQUANTO"} \}$
 $\text{FIRST}(\langle \text{atrib} \rangle) = \{ \langle \text{id} \rangle \}$
 $\text{FIRST}(\langle \text{decl} \rangle) = \{ \langle \text{tipo} \rangle \}$

$\text{FIRST}(\langle \text{cond} \rangle) = \{ \langle \text{id} \rangle, \langle \text{valor} \rangle, '(', \langle \text{sinal} \rangle, ! \}$

$\text{FIRST}(\langle \text{exp} \rangle) = \{ \langle \text{id} \rangle, \langle \text{valor} \rangle, '(', \langle \text{sinal} \rangle, ! \}$

$\text{FIRST}(\langle \text{termo} \rangle) = \{ \langle \text{sinal} \rangle, \langle \text{binop} \rangle, \epsilon \}$

$\text{FIRST}(\langle \text{fator} \rangle) = \{ \langle \text{id} \rangle, \langle \text{valor} \rangle, '(', \langle \text{sinal} \rangle, ! \}$

$\text{FIRST}(\langle \text{op} \rangle) = \{ \langle \text{sinal} \rangle, \langle \text{binop} \rangle \}$

$\text{FIRST}(\langle \text{unop} \rangle) = \{ \langle \text{sinal} \rangle, ! \}$

FOLLOW

$\text{FOLLOW}(\langle \text{programa} \rangle) = \{ \$, \text{"ACABOU"}, \text{"SENAO"} \}$

$\text{FOLLOW}(\langle \text{programax} \rangle) = \{ \$, \text{"ACABOU"}, \text{"SENAO"} \}$

$\text{FOLLOW}(\langle \text{bloco} \rangle) = \{ \text{"ACABOU"}, \text{"SENAO"} \}$

$\text{FOLLOW}(\langle \text{comando} \rangle) = \{ \$, \text{"ACABOU"}, \text{"SENAO"}, \text{"SE"}, \text{"ENQUANTO"}, \langle \text{id} \rangle, \langle \text{tipo} \rangle \}$

$\text{FOLLOW}(\langle \text{stat} \rangle) = \{ ';', ! \}$

$\text{FOLLOW}(\langle \text{sebloco} \rangle) = \{ \$, \text{"ACABOU"}, \text{"SENAO"}, \text{"SE"}, \text{"ENQUANTO"}, \langle \text{id} \rangle, \langle \text{tipo} \rangle \}$

$\text{FOLLOW}(\langle \text{se} \rangle) = \{ \text{"ACABOU"}, \text{"SENAO"} \}$

$\text{FOLLOW}(\langle \text{senao} \rangle) = \{ \$, \text{"ACABOU"}, \text{"SENAO"}, \text{"SE"}, \text{"ENQUANTO"}, \langle \text{id} \rangle, \langle \text{tipo} \rangle \}$

$\text{FOLLOW}(\langle \text{enquanto} \rangle) = \{ \$, \text{"ACABOU"}, \text{"SENAO"}, \text{"SE"}, \text{"ENQUANTO"}, \langle \text{id} \rangle, \langle \text{tipo} \rangle \}$

$\text{FOLLOW}(\langle \text{atrib} \rangle) = \{ ';', ! \}$

$\text{FOLLOW}(\langle \text{decl} \rangle) = \{ ';', ! \}$

$\text{FOLLOW}(\langle \text{cond} \rangle) = \{ \text{"FACA"} \}$

$\text{FOLLOW}(\langle \text{exp} \rangle) = \{ \text{"FACA"}, ';', '(', ! \}$

$\text{FOLLOW}(\langle \text{termo} \rangle) = \{ \text{"FACA"}, ';', '(', ! \}$

$\text{FOLLOW}(\langle \text{fator} \rangle) = \{ \text{"FACA"}, ';', '(', \langle \text{sinal} \rangle, \langle \text{binop} \rangle \}$

$\text{FOLLOW}(\langle \text{op} \rangle) = \{ \langle \text{id} \rangle, \langle \text{valor} \rangle, '(', ! \}$

$\text{FOLLOW}(\langle \text{unop} \rangle) = \{ \langle \text{id} \rangle, \langle \text{valor} \rangle, '(', ! \}$

PARSER TABLE

Segue em anexo