1. *palabrasReservadas* = (noTerminales, terminales, inicial, producciones)

noTerminales = {0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11}

terminales = {i, f, e, l, s, w, h, n, t, o, a}

inicial = 0

producciones:

0 -> i1 | e3 | w6 | f9

1 -> n2 | f

2 -> t

3 -> l4

4 -> s5

5 -> e

6 -> h7

7 -> i8

8 -> l5

9 -> l10

10 -> o11

11 -> a2

*operadores* = ({0, 1, 2, 3, 4}, {+ - = > ! ( ) & |}, 0, producciones)

producciones:

0 -> + | - | > | ! | (1 | =2 | &3 | |4

1 -> )

2 -> = | ε

3 -> &

4 -> |

*caracteresPuntuacion*  = ({0}, {;}, 0, 0 -> ;)

*identificador* = (noTerminales, terminales, inicial, producciones)

noTerminales = {0, 1}

terminales = letrasMayusculas ∪ letrasMinúsculas ∪ digito

inicial = 0

producciones :

0 -> letrasMayusculas1

1 -> letrasMinusculas1 | letrasMayusculas1 | digito1 | ε

*constante* = (noTerminales, terminales, inicial, producciones)

noTerminales = {A, B, C}

terminales = dígitos ∪ { ., +, - }

inicial = A

producciones :

A -> +B | -B | digitoB | digitoD | .C | digito

B -> digitoD | digitoB | digito | .C

C -> digitoC | digito

D -> . | digitoD | digito

*digito* = {0, 1, 2, 3, 4, 5, 6, 7, 8, 9}

*letrasMayusculas* = {A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z}

*letrasMinusculas* = {a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, q, r, s, t, u, v, w, x, y, z}

1. palabrasReservadas = i(f + nt) | else | while | float

operadores = + | - | = | == | > | && | ||

caracteresPuntuacion = ;

identificador = mayúscula *caracter*+

contaste = (+ | - | ε)(*digito*+ + *digito*\*.*digito*+ + *digito*+.)

caracter = digito | minúscula | mayuscula

digito = 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9

minuscula= a | b | c | d | e | f | g | h | i | j | k | l | m | n | o | p | q | r | s | t | u |v | w | x | y | z

mayúscula = A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U |V | W | X | Y | Z

1. palabrasReservadas

({0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, Ꜫ}, {i, f, e, l, s, w, h, n, t, o, a}, T, 0, {12})

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| T | i | f | e | l | s | w | h | n | t | o | a |
| 0+ | **1** | **9** | **3** | Ꜫ | Ꜫ | **6** | Ꜫ | Ꜫ | Ꜫ | Ꜫ | Ꜫ |
| 1 | Ꜫ | **12** | Ꜫ | Ꜫ | Ꜫ | Ꜫ | Ꜫ | **2** | Ꜫ | Ꜫ | Ꜫ |
| 2 | Ꜫ | Ꜫ | Ꜫ | Ꜫ | Ꜫ | Ꜫ | Ꜫ | Ꜫ | **12** | Ꜫ | Ꜫ |
| 3 | Ꜫ | Ꜫ | Ꜫ | **4** | Ꜫ | Ꜫ | Ꜫ | Ꜫ | Ꜫ | Ꜫ | Ꜫ |
| 4 | Ꜫ | Ꜫ | Ꜫ | Ꜫ | **5** | Ꜫ | Ꜫ | Ꜫ | Ꜫ | Ꜫ | Ꜫ |
| 5 | Ꜫ | Ꜫ | **12** | Ꜫ | Ꜫ | Ꜫ | Ꜫ | Ꜫ | Ꜫ | Ꜫ | Ꜫ |
| 6 | Ꜫ | Ꜫ | Ꜫ | Ꜫ | Ꜫ | Ꜫ | **7** | Ꜫ | Ꜫ | Ꜫ | Ꜫ |
| 7 | **8** | Ꜫ | Ꜫ | Ꜫ | Ꜫ | Ꜫ | Ꜫ | Ꜫ | Ꜫ | Ꜫ | Ꜫ |
| 8 | Ꜫ | Ꜫ | Ꜫ | **5** | Ꜫ | Ꜫ | Ꜫ | Ꜫ | Ꜫ | Ꜫ | Ꜫ |
| 9 | Ꜫ | Ꜫ | Ꜫ | **10** | Ꜫ | Ꜫ | Ꜫ | Ꜫ | Ꜫ | Ꜫ | Ꜫ |
| 10 | Ꜫ | Ꜫ | Ꜫ | Ꜫ | Ꜫ | Ꜫ | Ꜫ | Ꜫ | Ꜫ | **11** | Ꜫ |
| 11 | Ꜫ | Ꜫ | Ꜫ | Ꜫ | Ꜫ | Ꜫ | Ꜫ | Ꜫ | Ꜫ | Ꜫ | **2** |
| 12- | Ꜫ | Ꜫ | Ꜫ | Ꜫ | Ꜫ | Ꜫ | Ꜫ | Ꜫ | Ꜫ | Ꜫ | Ꜫ |
| Ꜫ | Ꜫ | Ꜫ | Ꜫ | Ꜫ | Ꜫ | Ꜫ | Ꜫ | Ꜫ | Ꜫ | Ꜫ | Ꜫ |

Operadores

({0, 1, 2, 3, 4, 5, Ꜫ}, {+, -, =, >, !, (, ), &, |}, T, 0, {5})

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| T | + | - | = | > | ! | ( | ) | & | | |
| 0+ | **5** | **5** | **2** | **5** | **5** | **1** | Ꜫ | **3** | **4** |
| 1 | Ꜫ | Ꜫ | Ꜫ | Ꜫ | Ꜫ | Ꜫ | **5** | Ꜫ | Ꜫ |
| 2- | Ꜫ | Ꜫ | **5** | Ꜫ | Ꜫ | Ꜫ | Ꜫ | Ꜫ | Ꜫ |
| 3 | Ꜫ | Ꜫ | Ꜫ | Ꜫ | Ꜫ | Ꜫ | Ꜫ | **5** | Ꜫ |
| 4 | Ꜫ | Ꜫ | Ꜫ | Ꜫ | Ꜫ | Ꜫ | Ꜫ | Ꜫ | **5** |
| 5- | Ꜫ | Ꜫ | Ꜫ | Ꜫ | Ꜫ | Ꜫ | Ꜫ | Ꜫ | Ꜫ |
| Ꜫ | Ꜫ | Ꜫ | Ꜫ | Ꜫ | Ꜫ | Ꜫ | Ꜫ | Ꜫ | Ꜫ |

CaracteresPuntuacion

({0, 1, Ꜫ}, {;}, T, 0, {1})

|  |  |
| --- | --- |
| T | ; |
| 0+ | **1** |
| 1- | Ꜫ |
| Ꜫ | Ꜫ |

Identificadores

({0, 1, Ꜫ}, {letrasMayusculas, letrasMinusculas, dígitos}, T, 0, {1})

|  |  |  |  |
| --- | --- | --- | --- |
| T | Dígitos | Letras Mayusculas | Letras Minusculas |
| 0+ | Ꜫ | **1** | Ꜫ |
| 1- | **1** | **1** | **1** |
| Ꜫ | Ꜫ | Ꜫ | Ꜫ |

Constantes

({0, 1, 2, 3, 4, Ꜫ}, {dígitos, ., +, -}, T, 0, {3, 4})

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| T | Dígitos | . | + | - |
| 0+ | **4** | **2** | **1** | **1** |
| 1 | **4** | **2** | Ꜫ | Ꜫ |
| 2 | **3** | Ꜫ | Ꜫ | Ꜫ |
| 3- | **3** | Ꜫ | Ꜫ | Ꜫ |
| 4- | **4** | **3** | Ꜫ | Ꜫ |
| Ꜫ | Ꜫ | Ꜫ | Ꜫ | Ꜫ |