

# GRAMÁTICA PARA AUTÓMATAS CON PILA

## 1. Terminales

- $L \rightarrow a...z \mid A...Z$
- $NU \rightarrow 0...9$
- $IG \rightarrow =$
- $DLR \rightarrow \$$
- $CD \rightarrow "$
- $PM \rightarrow ;$
- $DP \rightarrow :$
- $MS \rightarrow +$
- $MSD \rightarrow ++$
- $CM \rightarrow ,$
- $PT \rightarrow .$
- $BA \rightarrow \{$
- $BC \rightarrow \}$
- $PA \rightarrow ($
- $PC \rightarrow )$
- $VT \rightarrow \text{int} \mid \text{string} \mid \text{bool}$
- $BOL \rightarrow \text{true} \mid \text{false}$
- $OC \rightarrow == \mid != \mid <= \mid >= \mid > \mid <$
- $OPC \rightarrow \&\& \mid \parallel$
- $PF \rightarrow \text{func}$
- $PR \rightarrow \text{retornar}$
- $PRP \rightarrow \text{repeat}$
- $PE \rightarrow \text{echo}$
- $PI \rightarrow \text{if}$
- $PMN \rightarrow \text{main}$

## 2. No terminales

- $UML \rightarrow L \mid UML \mid L$
- $UMN \rightarrow NU \mid UMN \mid NU$
- $VLN \rightarrow L \mid VLN \mid NU \mid VLN \mid L \mid NU$
- $VV \rightarrow UMN \mid UMN \mid VV1 \mid B \mid CD \mid CD \mid CD \mid VV2$
- $VV1 \rightarrow PT \mid UMN$
- $VV2 \rightarrow VLN \mid CD$
- $NDVD \rightarrow UML \mid VLN \mid UML$
- $NDV \rightarrow DLR \mid NDV1$
- $NDV1 \rightarrow L \mid VLN \mid L$
- $PDV \rightarrow VT \mid PDV1$
- $PDV1 \rightarrow NDV \mid PDV2 \mid NDV$
- $PDV2 \rightarrow CM \mid PDV$
- $PDC \rightarrow VV \mid PDC1 \mid NDV \mid PDC1$
- $PDC1 \rightarrow OC \mid PDC2$

- PDC2 → VV PDC3 | NDV PDC3 | VV | PDC
- PDC3 → OPC PDC
- RTV → PR RTV1
- RTV1 → NDV PM
- CPB → VT CPB1
- CPB1 → NDV CPB2
- CPB2 → IG CPB3
- CPB3 → UMN CPB4
- CPB4 → PM CPB5
- CPB5 → NDV CPB6
- CPB6 → OC CPB7
- CPB7 → UMN CPB8
- CPB8 → PM CPB9
- CPB9 → NDV MSD

### 3. Declaración de variables

- DVS → VT DVS1
- DVS1 → NDV DVS2
- DVS2 → IG DVS3
- DVS3 → VV PM

```
int $numero = 10;
string $texto = "HolaMundo";
bool $verdadero = true;
```

### 4. Declaración de funciones

- DFS → PF DFS1
- DFS1 → NDVD DFS2
- DFS2 → PA DFS3
- DFS3 → PDV DFS4
- DFS4 → PC DFS5
- DFS5 → DP DFS6
- DFS6 → VT DFS7
- DFS7 → BA DFS8
- DFS8 → RTV BC

```
func suma(int $a, int $b): int {
    retornar $a;
}
```

### 5. Imprimir

- ECH → PE ECH1
- ECH1 → PA ECH2
- ECH2 → NDV ECH3 | VV ECH3
- ECH3 → PC PM

```
echo($i);
```

### 6. Ciclos

- CLS → PRP CLS1
- CLS1 → PA CLS2
- CLS2 → CPB CLS3
- CLS3 → PC CLS4
- CLS4 → BA CLS5

```
repeat (int $i = 0; $i < 10; $i++) {
    echo($i);
}
```

- CLS5 → ECH BC

#### 7. Condicional

- CDL → PI CDL1
- CDL1 → PA CDL2
- CDL2 → PDC CDL3
- CDL3 → PC CDL4
- CDL4 → BA CDL5
- CDL5 → ECH BC

```
if ($numero > 5) {  
    echo($i);  
}
```

#### 8. Declaración función main

- DFM → PF DFM1
- DFM1 → PMN DFM2
- DFM2 → PA DFM3
- DFM3 → PC DFM4
- DFM4 → BA DFM5
- DFM5 → ECH BC

```
func main() {  
    echo("programa");  
}
```