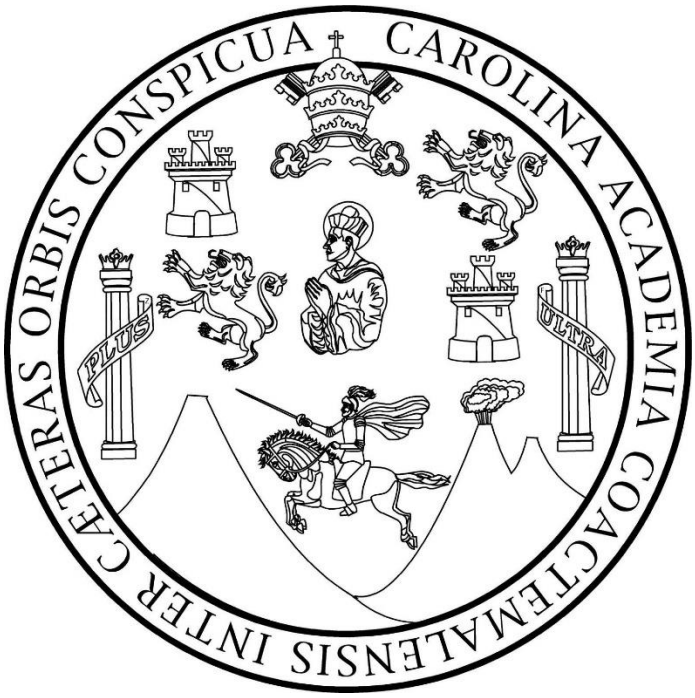
Universidad De San Carlos de Guatemala

Facultad de Ingeniería

Escuela de Ciencias y Sistemas

Organización de Lenguajes y Compiladores 1



"MANUAL TECNICO"

Nombre: Cristian Daniel Raguay Vicente

Carne: 201603103

Sección: "B"

Detalles Técnicos

Lenguaje de Programación: Python

IDE: Visual Studio

Versión de Python: 3.8

Java Script

Letra = {a-z, A-Z} Digito = {0-9} símbolo = {/, *, <, > , {, }, [, }, ……}

Comentario_U = //(letra | Digito | símbolo | ‘ ‘ | ‘\t’)*

Cometario_M = /*(letra | Digito | símbolo | ‘ ‘ | ‘\t’ | ‘\n’)*/

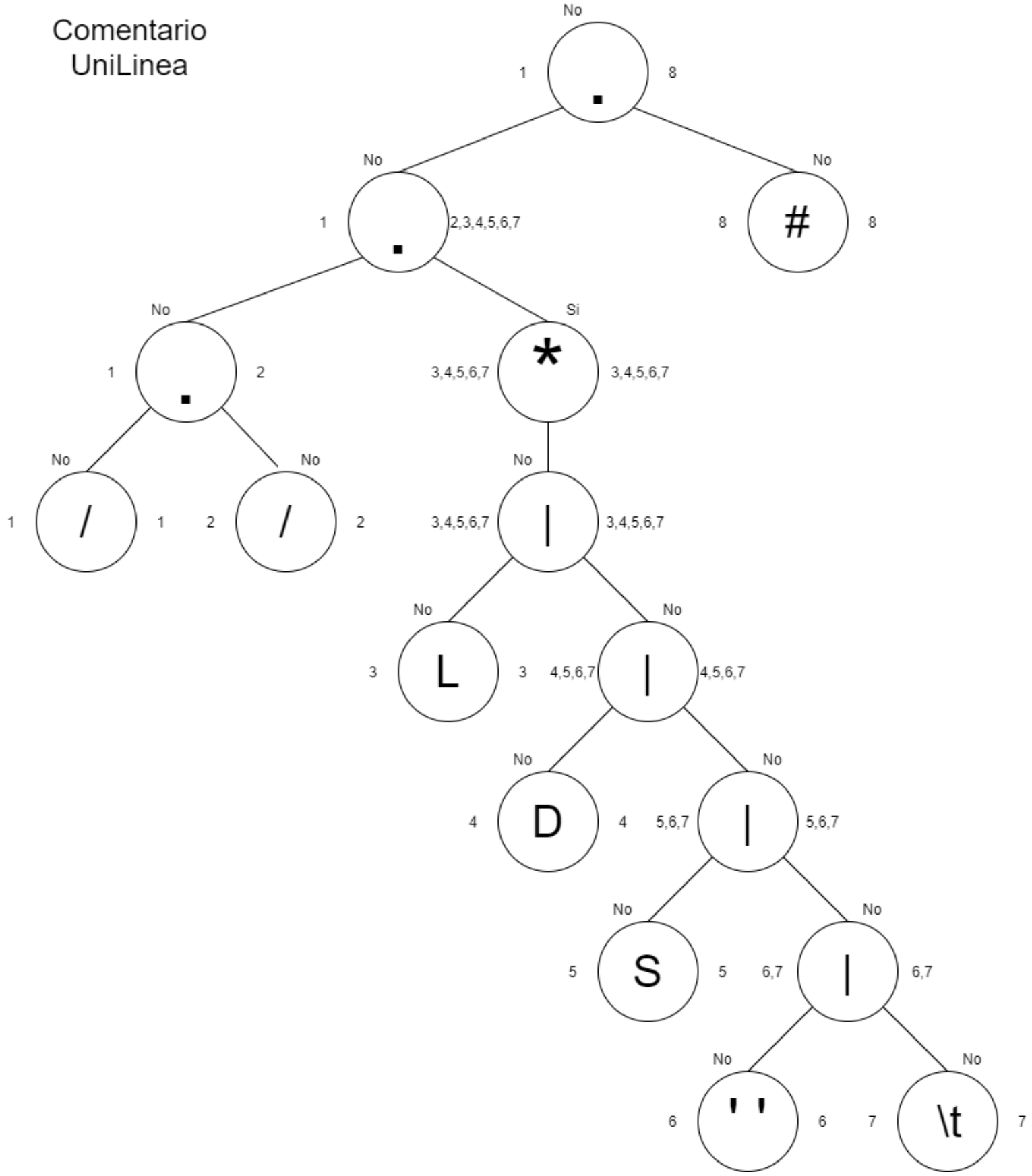
ID = Letra+ (Letra | Digito | ‘_‘)*

Numero = digito+(‘.’digito+)?

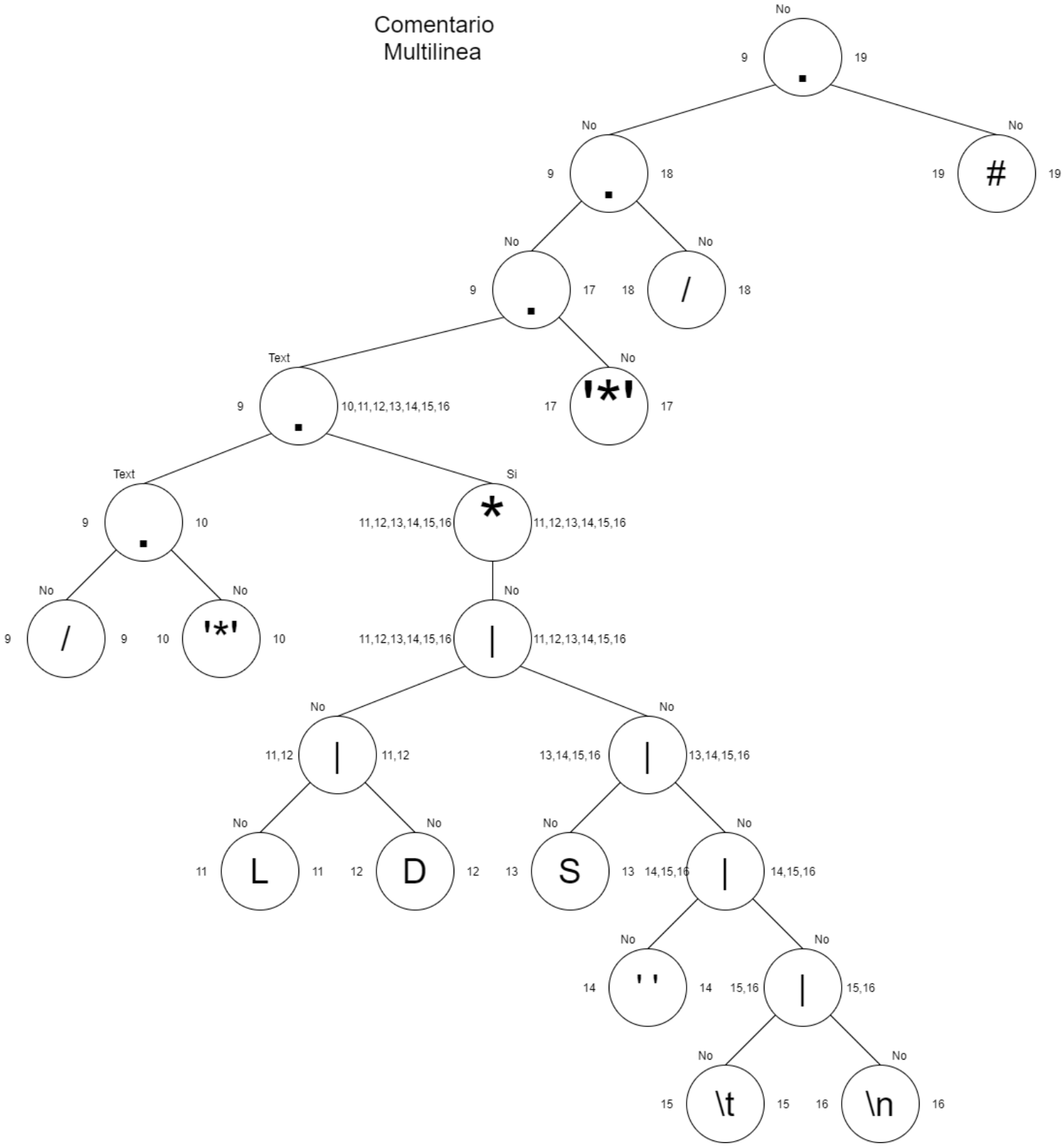
Símbolos = símbolo (símbolo)?

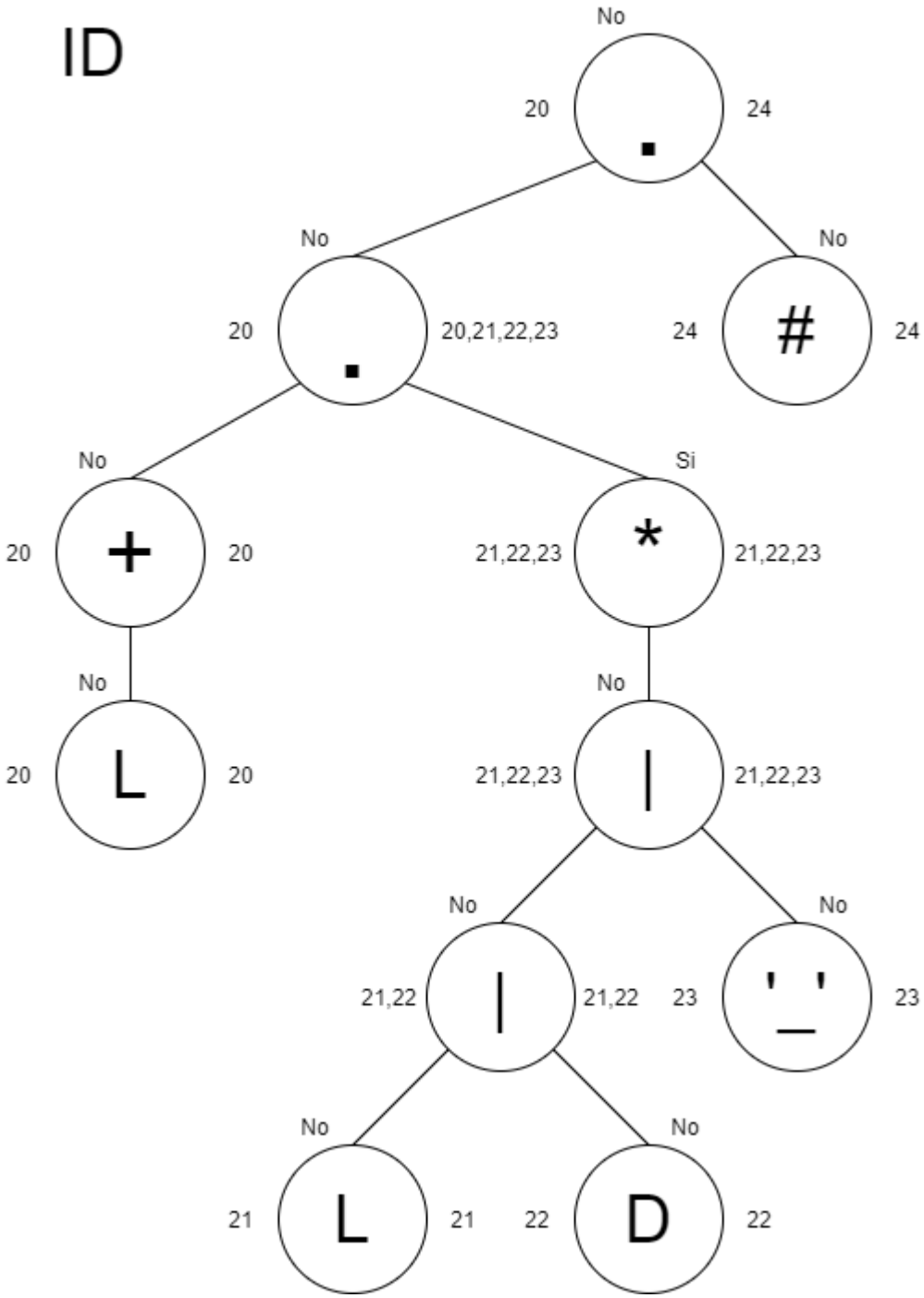
Cadena = “ (letra | Digito | símbolo | ‘ ‘ | ‘\t’)* “

Comentario
UniLinea

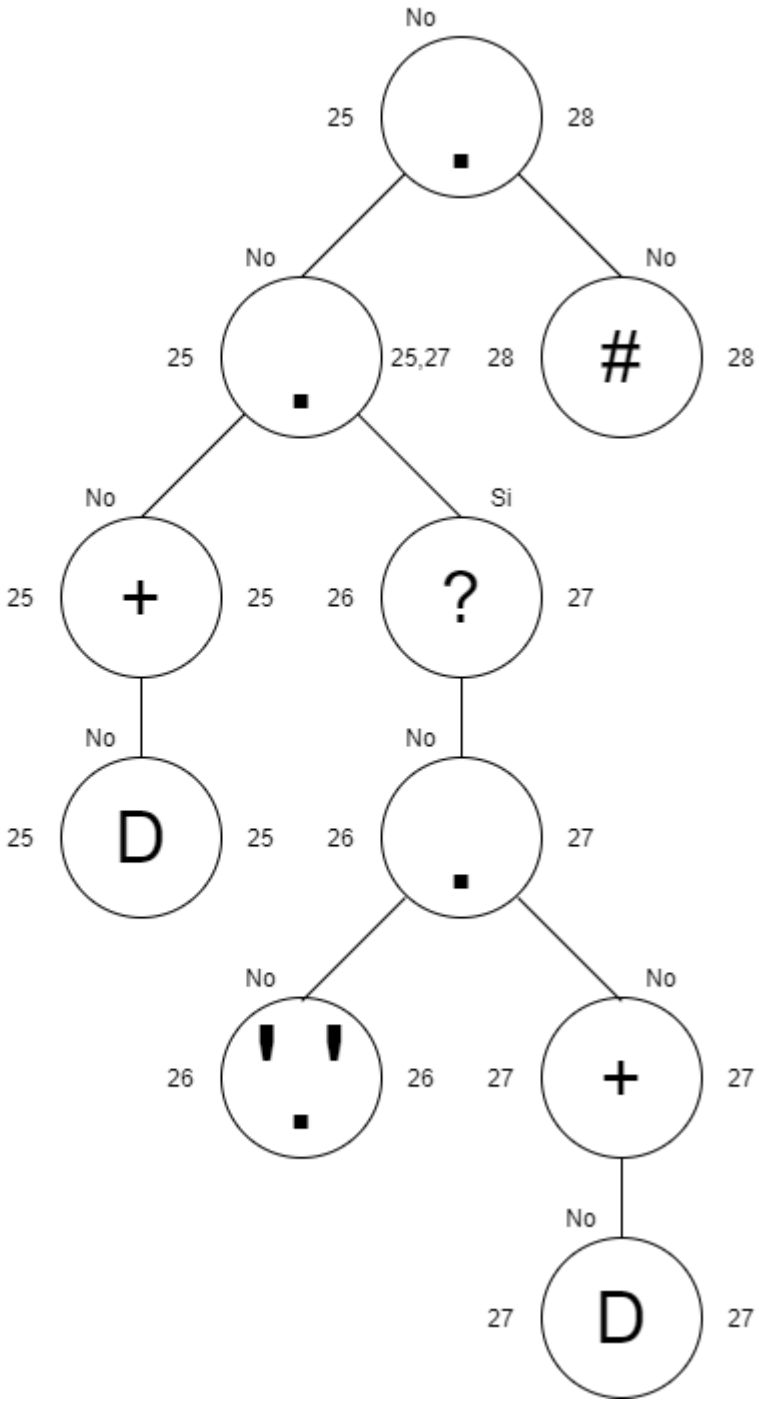


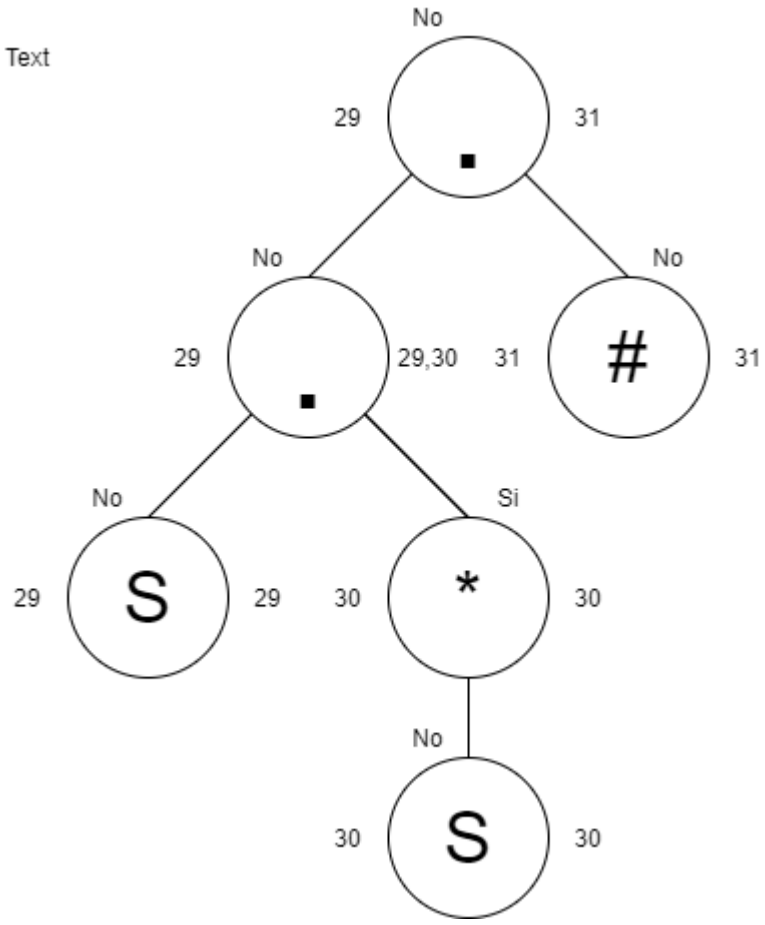
Comentario
Multilinea




ID
No
20
.
24
No
No
20
.
20,21,22,23
24
#
24
No
Si
20
+
20
21,22,23
*
21,22,23
No
No
20
L
20
21,22,23
|
21,22,23
No
No
21,22
|
21,22
23
' '
23
No
No
21
L
21
22
D
22

Text


No
25
.
28
No
No
25
.
25,27
28
#
28
No
Si
25
+
25
26
?
27
No
No
25
D
25
26
.
27
No
No
26
' '
.
26
27
+
27
No
27
D
27


Text
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29
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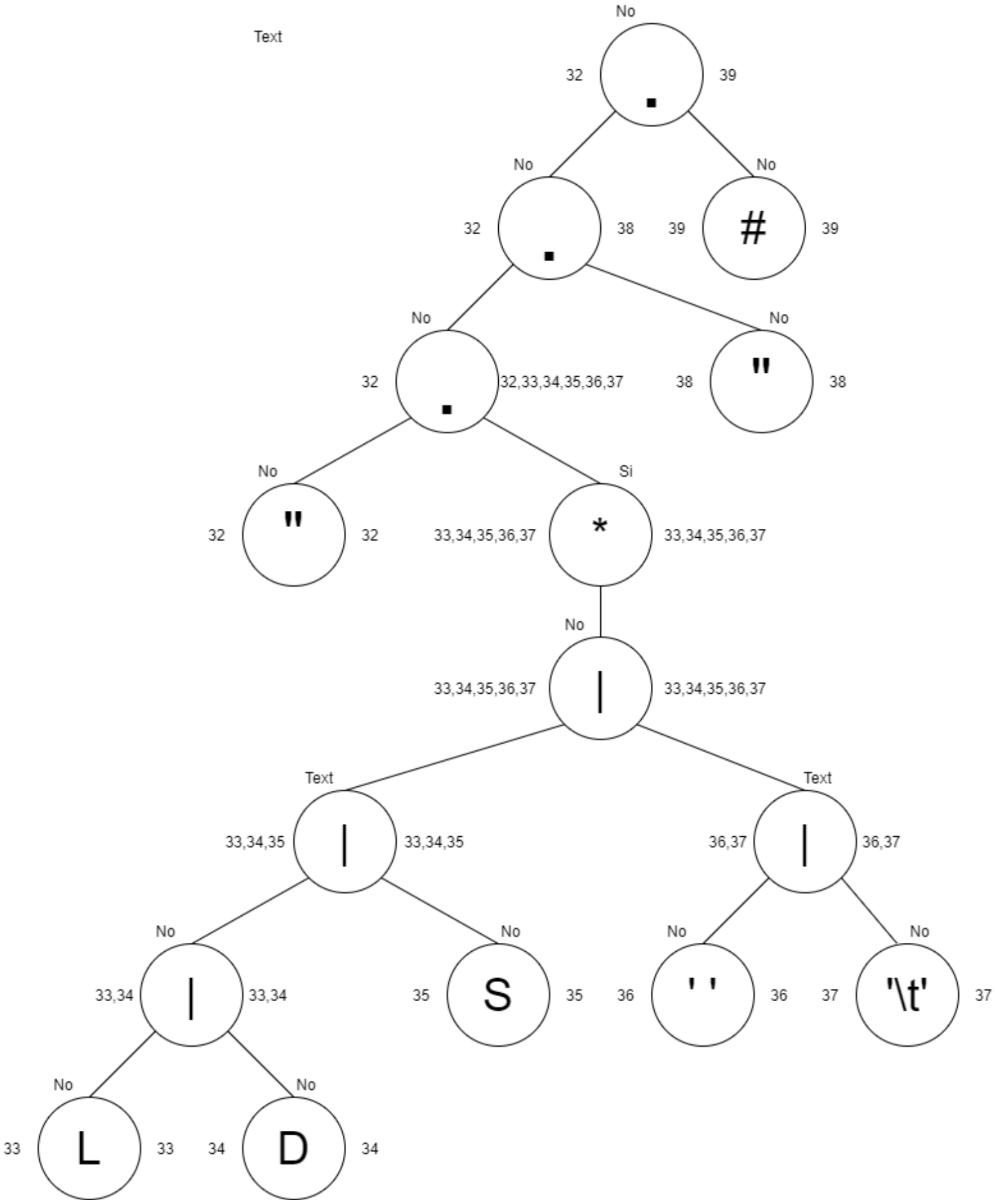
No
No
29
29,30
31
#
31
No
Si
29
S
29
30
*
30
No
30
S
30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32
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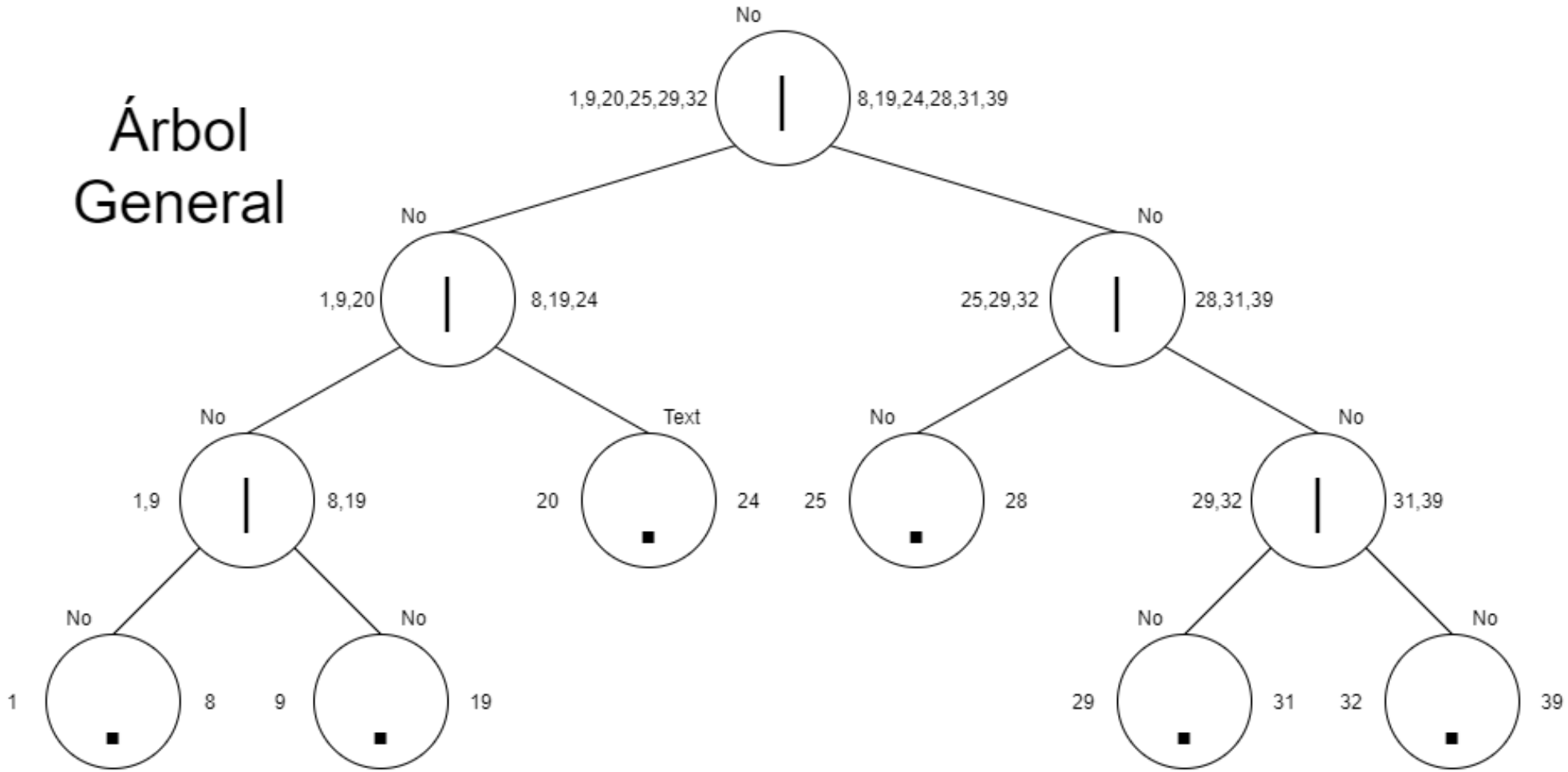
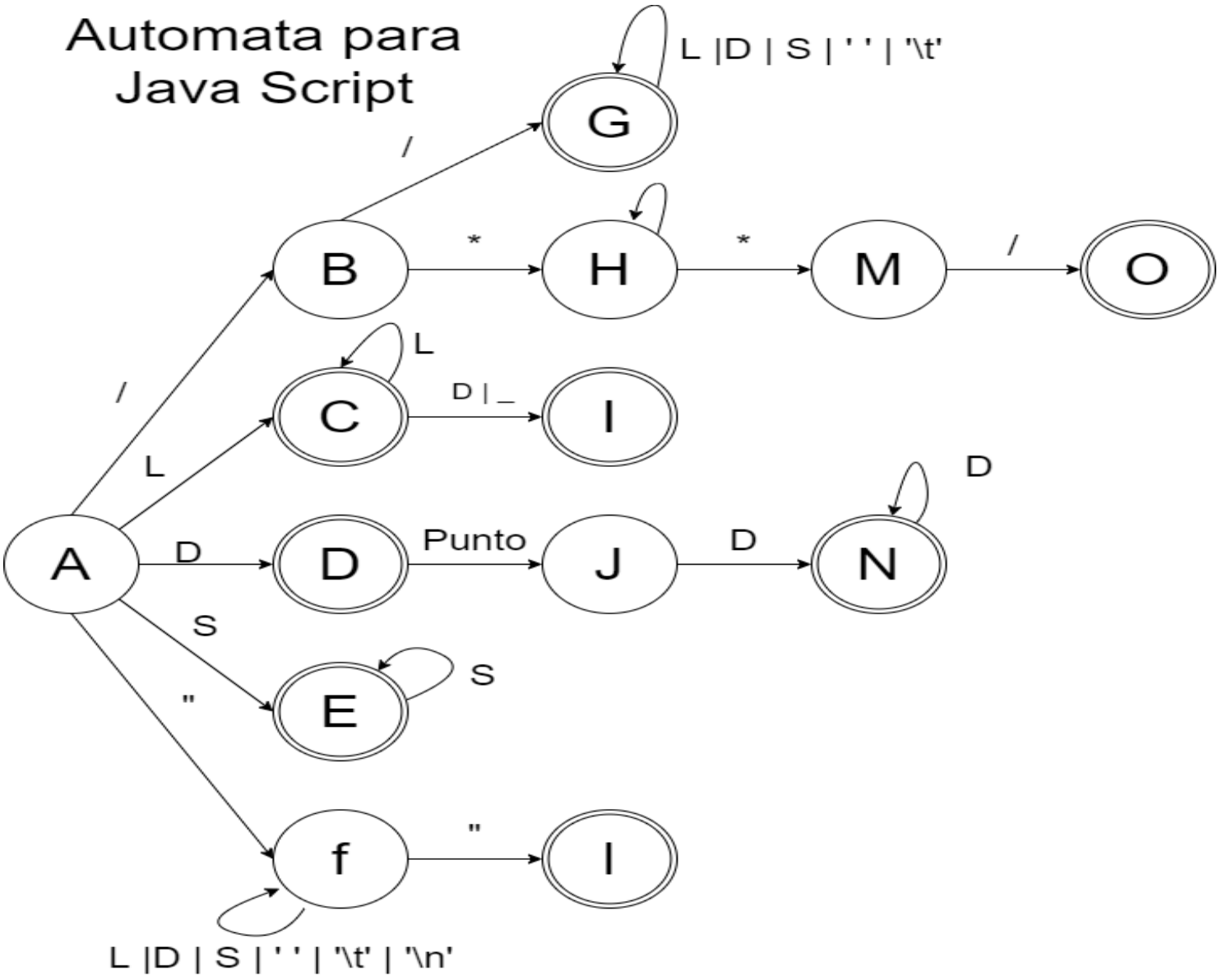
39
No
No
32
.
38
39
#
39
No
No
32
.
32,33,34,35,36,37
38
"
38
No
Si
32
"
32
33,34,35,36,37
*
33,34,35,36,37
No
33,34,35,36,37
|
33,34,35,36,37
Text
Text
33,34,35
|
33,34,35
36,37
|
36,37
No
No
No
No
33,34
|
33,34
35
S
35
36
' '
36
37
'\t'
37
No
No
33
L
33
34
D
34

Árbol General



	Follow		Follow
1-/	2	**21-L**	21,22,23,24
2-/	3,4,5,6,7,8	**22-D**	21,22,23,24
3-L	3,4,5,6,7,8	**23-'_'**	21,22,23,24
4-D	3,4,5,6,7,8	**24-#**	
5-S	3,4,5,6,7,8	**25-D**	25,26,28
6-' '	3,4,5,6,7,8	**26-PUNTO**	27
7-'\t'	3,4,5,6,7,8	**27-D**	27,28
8-#		**28-#**	
9-/	10	**29-S**	30,31
10-*	11,12,13,14,15,16,17	**30-S**	30,31
11-L	11,12,13,14,15,16,17	**31-#**	
12-D	11,12,13,14,15,16,17	**32- "**	33,34,35,36,37,38
13-S	11,12,13,14,15,16,17	**33-L**	33,34,35,36,37,38
14-' '	11,12,13,14,15,16,17	**34-D**	33,34,35,36,37,38
15-'\t'	11,12,13,14,15,16,17	**35-S**	33,34,35,36,37,38
16'\n'	11,12,13,14,15,16,17	**36-' '**	33,34,35,36,37,38
17-*	18	**37-'\t'**	33,34,35,36,37,38
18-/	19	**38-"**	39
19-#		**39-#**	
20-L	20,21,22,23,24		

Conjuntos	/	L	D	S	‘ ‘	‘\t’	*	‘\n’	‘_’	‘.’	‘ “ ‘
A = {1,9,20,25,29,32}	B	C	D	E	-	-	-	-	-	-	F
B = {2, 10}	G	-	-	-	-	-	H	-	-	-	-
C = {20, 21, 22, 23, 24}	-----	C	I	-----	-	----	----	---	I	---	----
D = {25, 26, 28}	---	----	D	---	---	---	---	---	----	J	---
E = {30, 31}	---	--	---	K	--	-----	----	-----	----	---	----
F = {33, 34, 35, 36, 37, 38}	-----	F	F	F	F	F	---	----	----	---	L
G = {3, 4, 5,6, 7, 8}	---	G	G	G	G	G	-----	------	-----	---	----
H = {11, 12, 13, 14, 15, 16, 17}	----	H	H	H	H	H	M	H	---	---	---
I = {21, 22, 23, 24}	---	I	I	----	---	----	---	---	I	---	--
J = {27}	-----	-----	N	----	-----	---	----	------	----	---	----
K = {31}	----	-----	-----	------	-----	------	------	-----	------	----	---
L = {39}	-----	-----	----	----	----	----	---	----	---	---	---
M = {18}	O	--	----	---	---	---	---	---	--	---	--
N = {27, 28}	-----	---	N	---	---	---	---	---	---	---	--
O = {19}	----	-----	----	---	---	---	---	---	---	---	-----


Automata para
Java Script
A
B
C
D
E
f
G
H
M
O
I
J
N
I
/
L
D
S
"
/
*
*
/
L
D | _
D
Punto
D
S
"
L |D | S | ' ' | '\t'
L |D | S | ' ' | '\t' | '\n'

CSS

Letra = {a-z, A-Z} Digito = {0-9} símbolo = {/, *, <, > , {, }, [, }, ……}

Comentario = /*(letra | Digito | símbolo)* */

símbolo = símbolo

Numero = digito+(‘.’digito+)? (LL | %)?

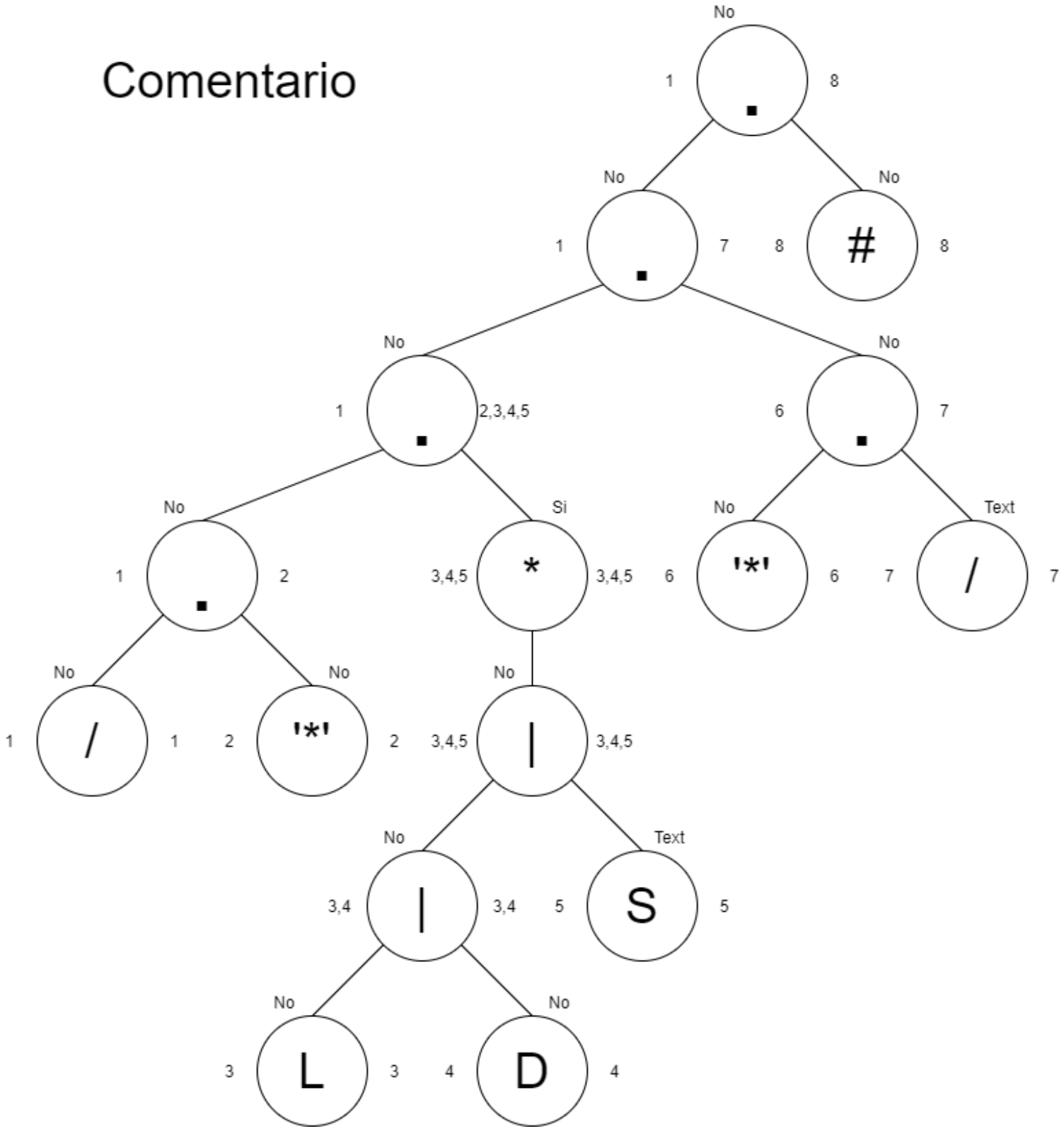
Reservada = L+(-L+)

Color = #(L | D)+

Cadena = “ (letra | Digito | símbolo | ‘ ‘ | ‘\t’)* “

ID = L(L | D | ‘_’)*

Comentario


No
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.
8
No
No
1
.
7
8
#
8
No
No
1
.
2,3,4,5
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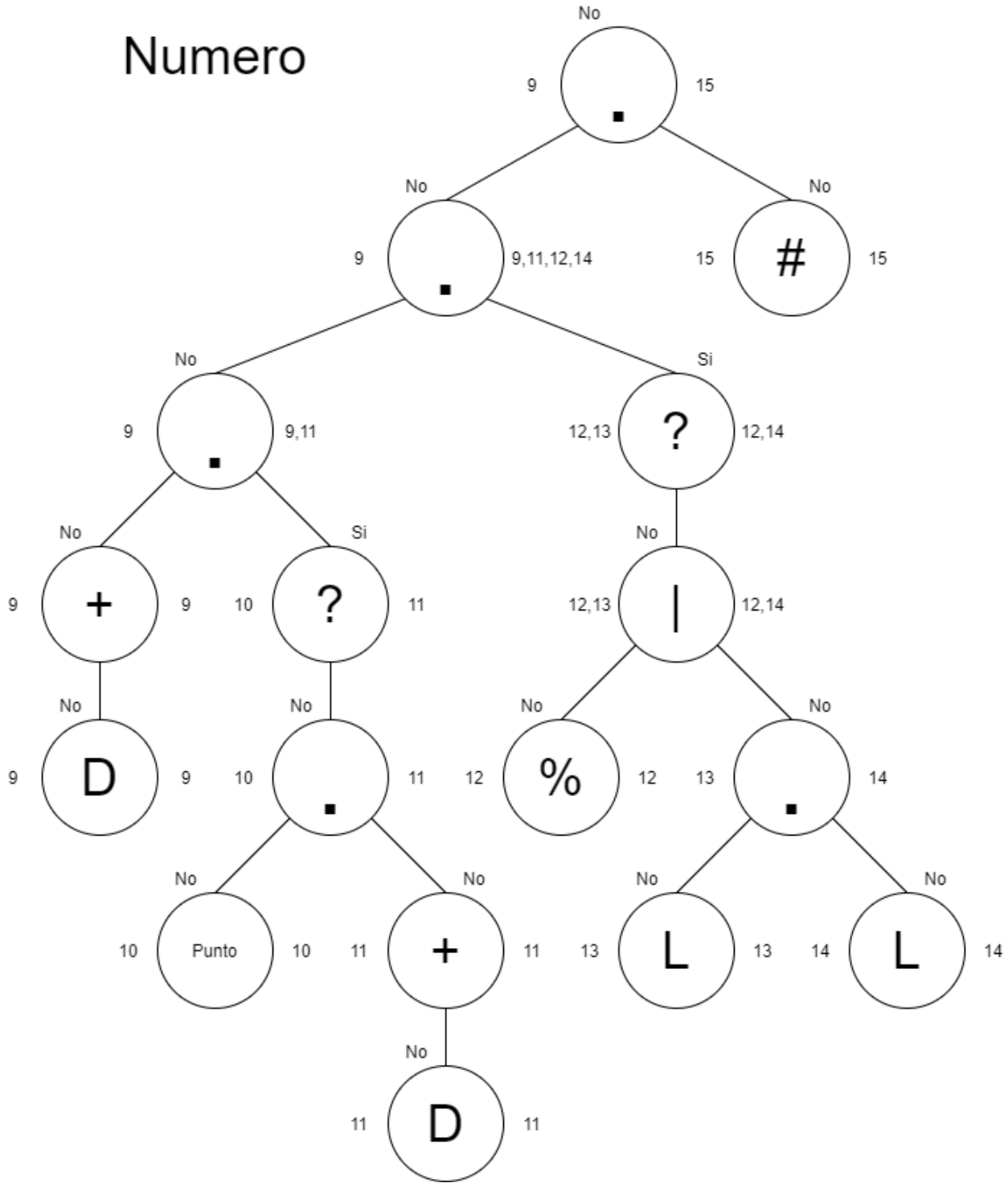
7
No
Si
No
Text
1
.
2
3,4,5
*
3,4,5
6
'*'
6
7
/
7
No
No
No
1
/
1
2
'*'
2
3,4,5
|
3,4,5
No
Text
3,4
|
3,4
5
S
5
No
No
3
L
3
4
D
4

Numero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9
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15
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No
9
.
9,11,12,14
15
#
15
No
Si
9
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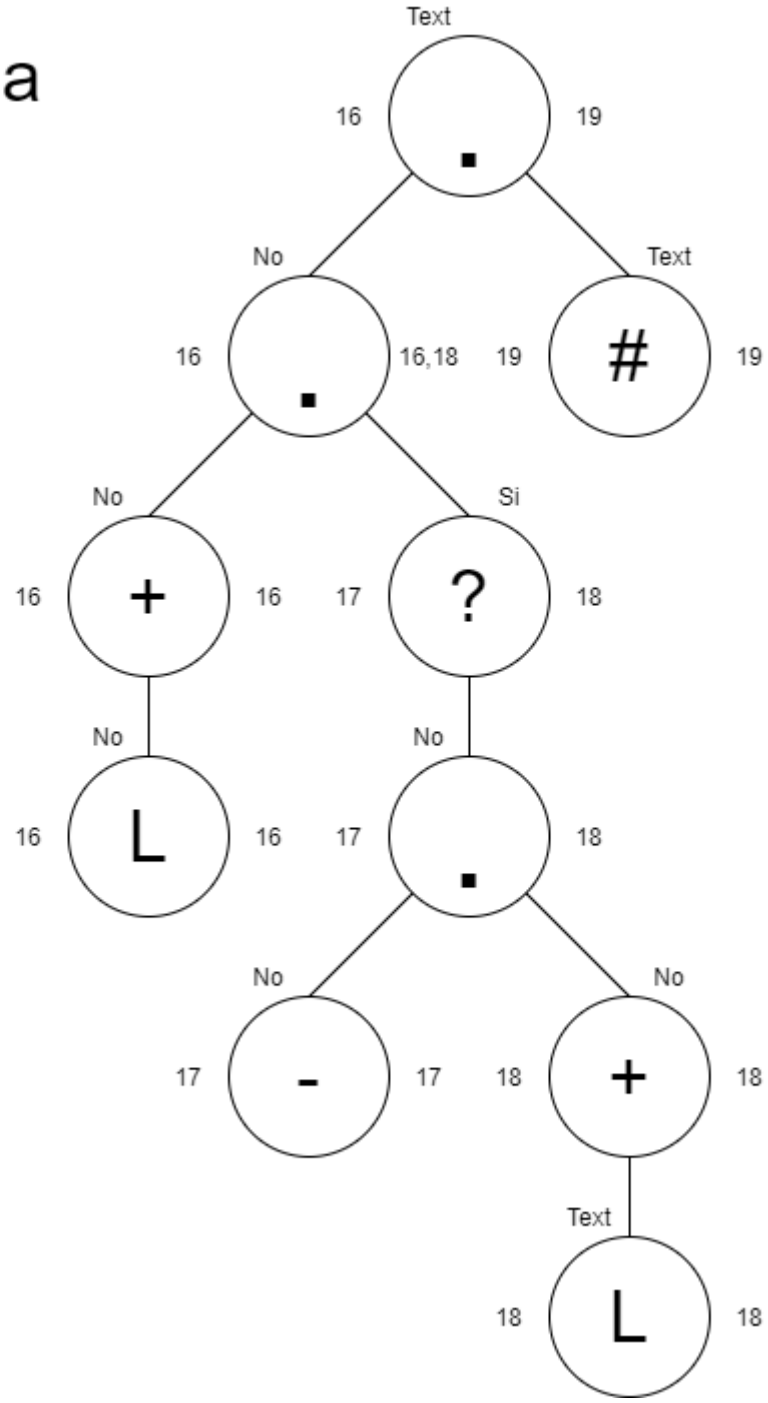
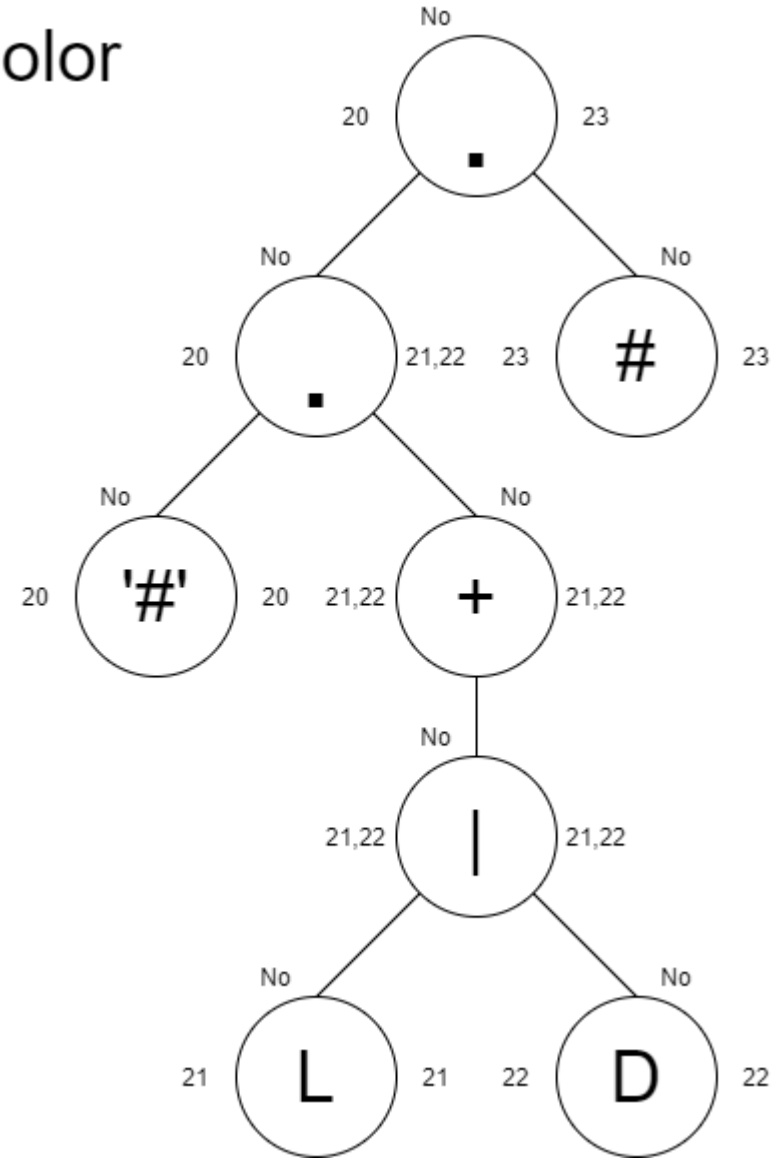
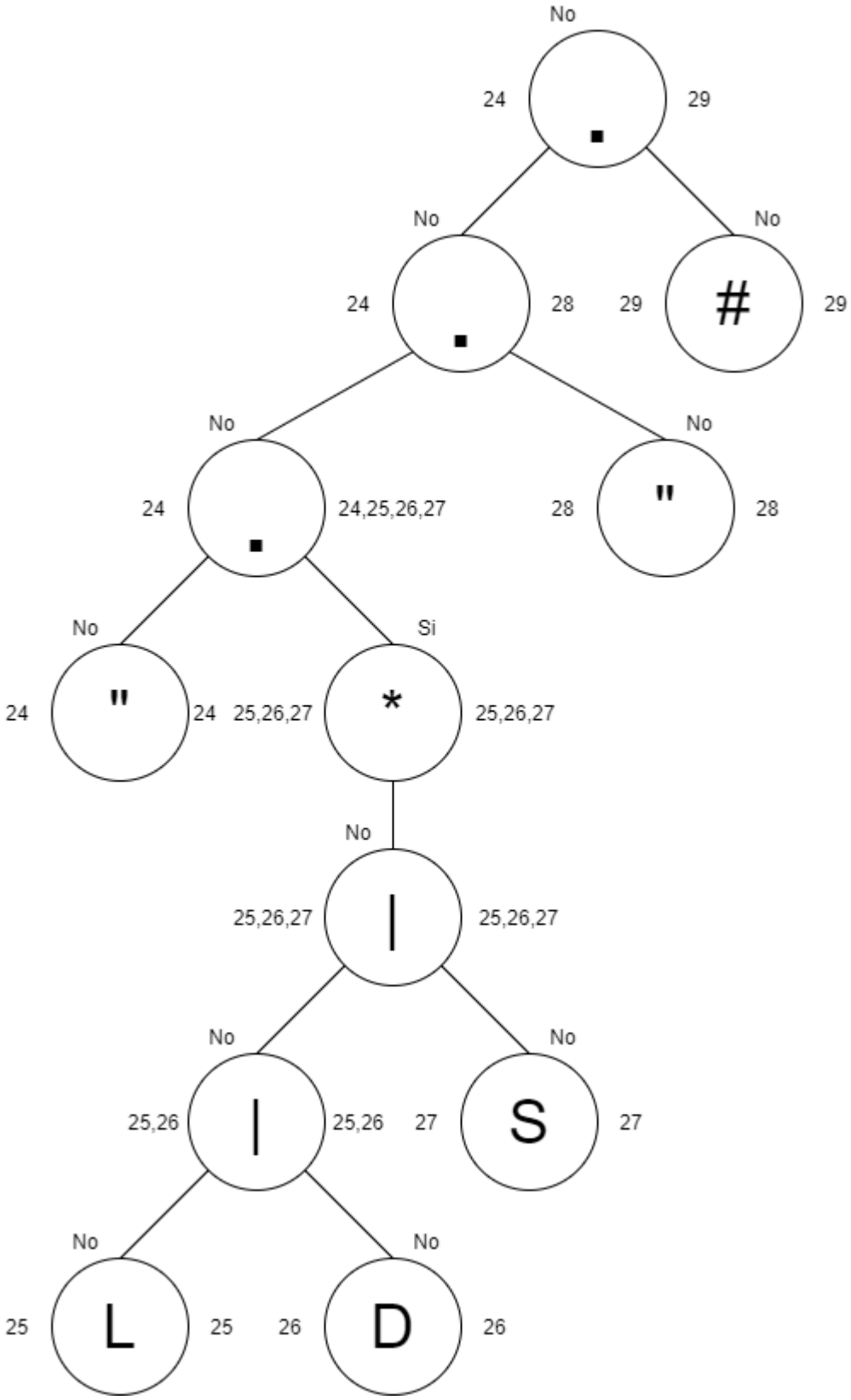
9,11
12,13
?
12,14
No
Si
No
9
+
9
10
?
11
12,13
|
12,14
No
No
No
No
9
D
9
10
.
11
12
%
12
13
.
14
No
No
No
No
10
Punto
10
11
+
11
13
L
13
14
L
14
No
11
D
11

Reservada

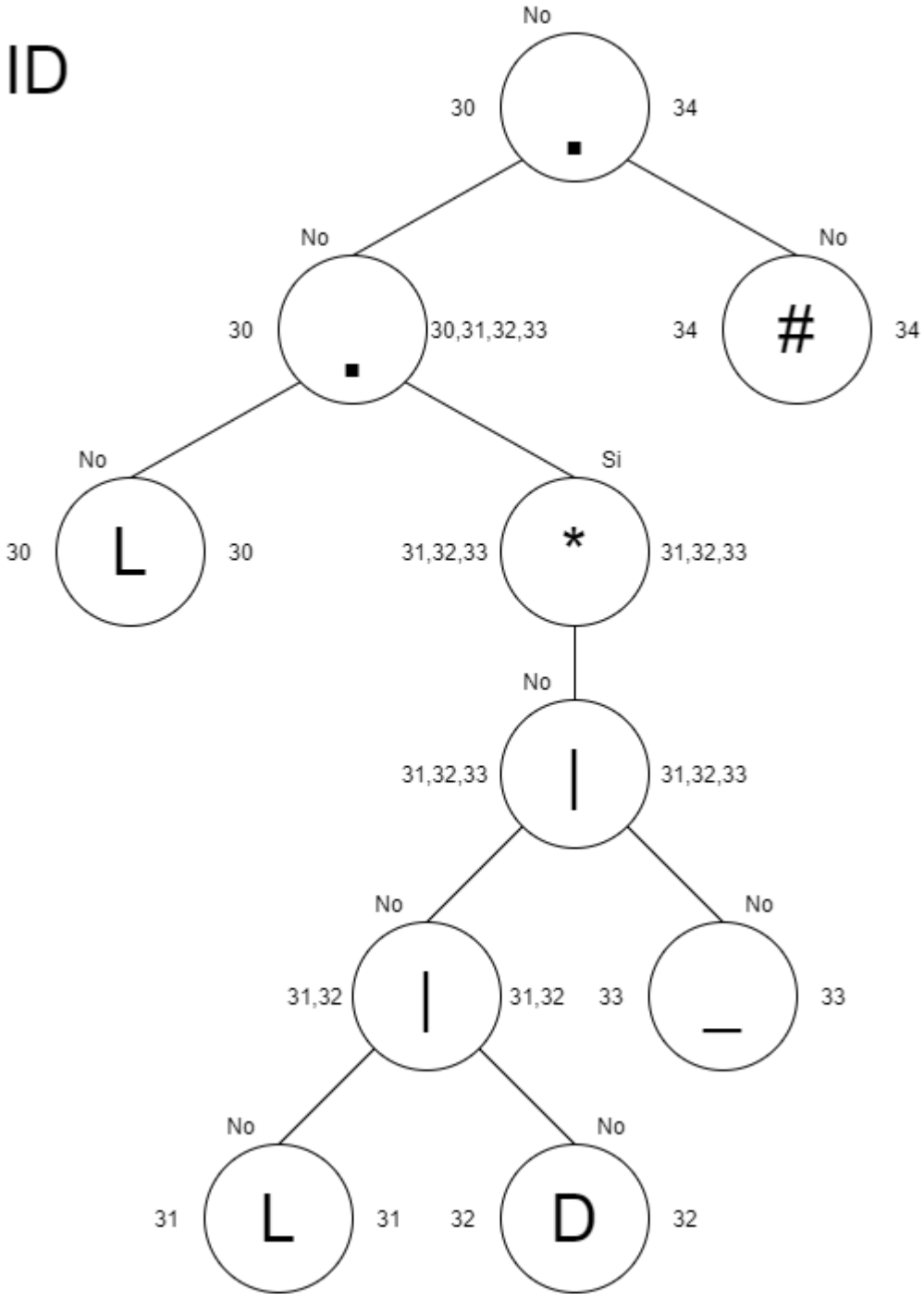

Text
16
.
19
No
Text
16
.
16,18
19
#
19
No
Si
16
+
16
17
?
18
No
No
16
L
16
17
.
18
No
No
17
-
17
18
+
18
Text
18
L
18

Color


No
20
.
23
No
No
20
.
21,22
23
#
23
No
No
20
'#'
20
21,22
+
21,22
No
21,22
|
21,22
No
No
21
L
21
22
D
22


No
24
.
29
No
No
24
.
28
29
#
29
No
No
24
.
24,25,26,27
28
"
28
No
Si
24
"
24
25,26,27
*
25,26,27
No
25,26,27
|
25,26,27
No
No
25,26
|
25,26
27
S
27
No
No
25
L
25
26
D
26

ID


No
30
.
34
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30
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30,31,32,33
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#
34
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Si
30
L
30
31,32,33
*
31,32,33
No
31,32,33
|
31,32,33
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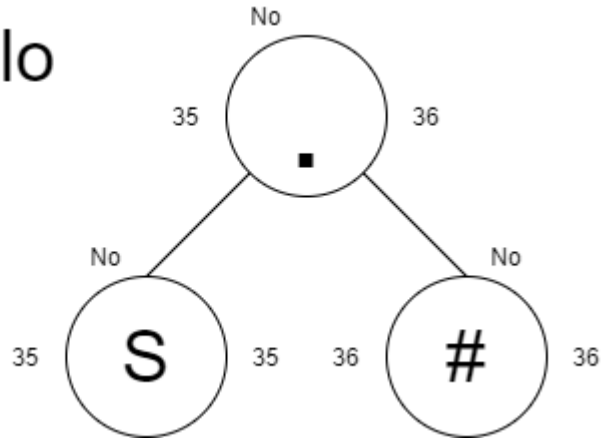
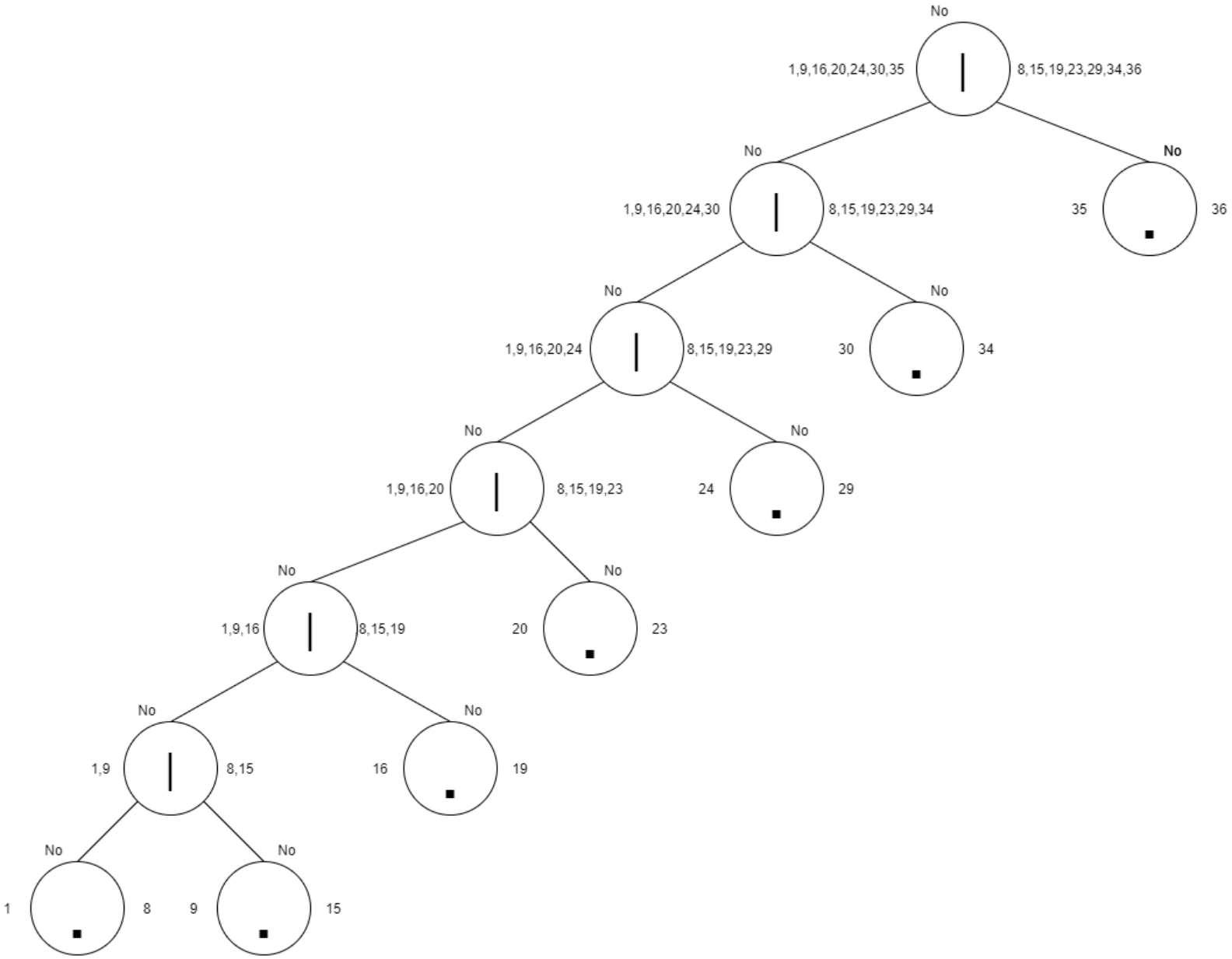
31,32
33
_
33
No
No
31
L
31
32
D
32

Simbolo




No
1,9,16,20,24,30,35
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36
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1,9,16,20,24
8,15,19,23,29
30
34
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1,9,16,20
8,15,19,23
24
29
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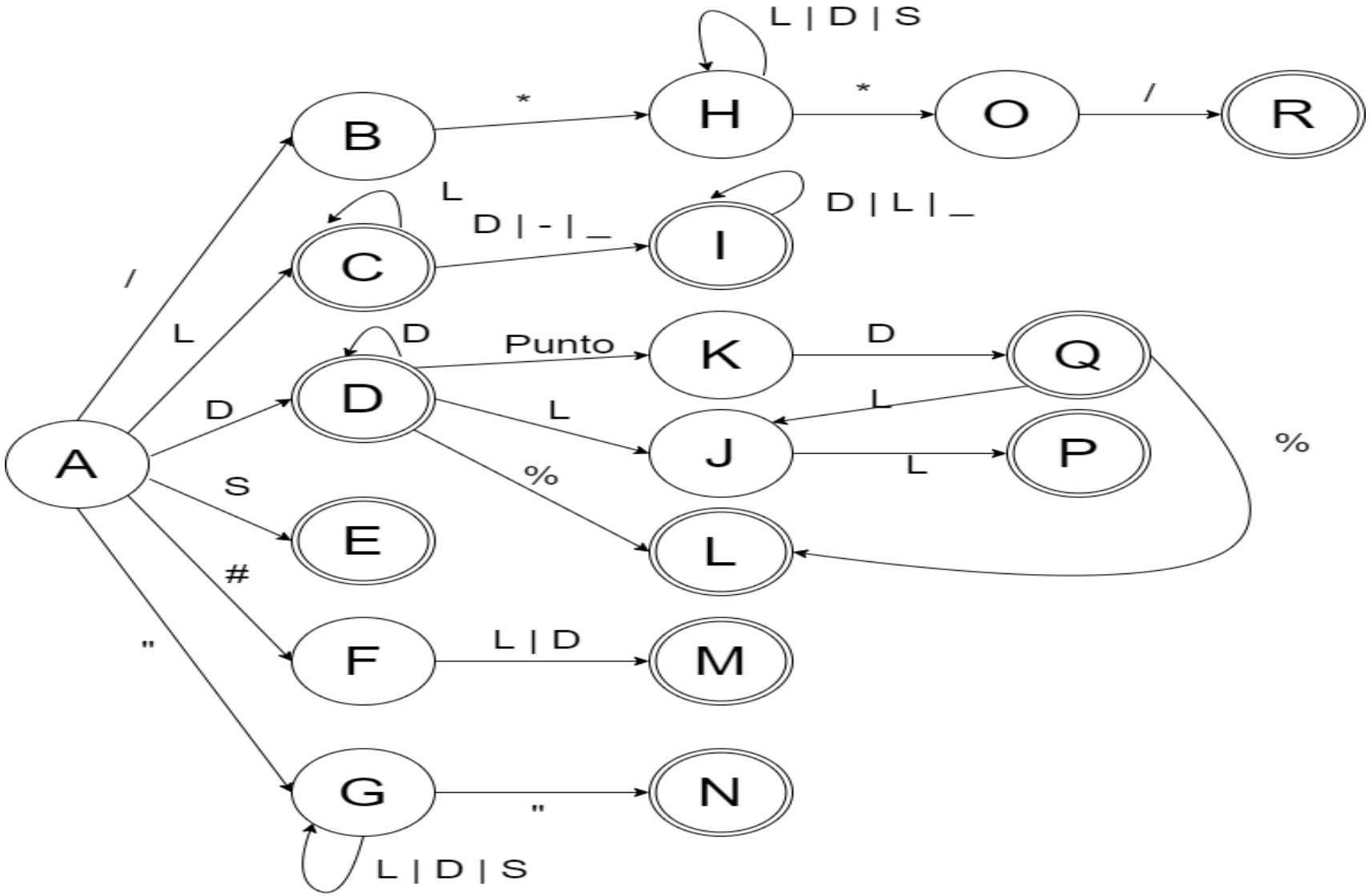
No
1,9,16
8,15,19
20
23
No
No
1,9
8,15
16
19
No
No
1
8
9
15

	Follow		Follow
1-/	2	**20-´#´'**	21,22
2-*	3,4,5,6	**21-L**	21,22,23
3-L	3,4,5,6	**22-D**	21,22,23
4-D	3,4,5,6	**23-#**	
5-S	3,4,5,6	**24- "**	25,26,27,28
6-*	7	**25-L**	25,26,27,28
7-/	8	**26-D**	25,26,27,28
8-#		**27-S**	25,26,27,28
9-D	9,10,12,13,15	**28- "**	29
10-Punto	11	**29-#**	
11-D	11,12,13,15	**30-L**	31,32,33,34
12-%	15	**31-L**	31,32,33,34
13-L	14	**32-D**	31,32,33,34
14-L	15	**33-'_'**	31,32,33,34
15-#		**34-#**	
16-L	16,17,19	**35-S**	36
17- '-'	18	**36-#**	
18-L	18,19		
19-#			

	/	*	L	D	S	'.'	%	'-'	#	"	' _ '
A = {1,9,16,20,24,30,35}	B	----	C	D	E	----	----	---	F	G	---
B = {2}	----	H	---	---	--	---	----	---	---	---	-
C = {16, 17,19,31,32,33,34} ----	----	----	C	I	----	-----	----	I	---	---	I
D = {9,10,12,13,15} ---	---	----	J	D	---	K	L	---	---	---	--
E = {36}---	---	---	---	---	---	---	---	---	---	--	---
F = {21,22}	--	---	M	M	---	---	---	---	---	---	---
G = {25, 26,27,28}	----	---	G	G	G	---	---	---	---	N	--
H = {3,4,5,6}	---	O	H	H	H	---	---	---	---	--	--
I = {31,32,33,34} ----	---	---	I	I	---	---	---	---	---	---	I
J = {14}	---	--	P	---	---	---	---	---	---	--	--
K = {11}	---	---	---	Q	---	---	---	--	--	--	--
L = {15}	----	---	---	----	---	---	---	---	---	---	---
M = {21, 22, 23} ---	--	---	M	M	---	---	---	---	---	--	--
N = {29} ---	----	----	-----	---	---	---	---	---	---	---	---
O = {7}	R	---	---	---	---	---	---	---	--	---	--
P = {15}	----	----	---	---	---	---	---	--	---	--	---
Q = {11, 12, 13, 15} -----	----	----	J	Q	----	---	L	----	---	---	--
R = {8}	---	---	---	---	---	---	--	---	---	--	--

Automata CSS



HTML

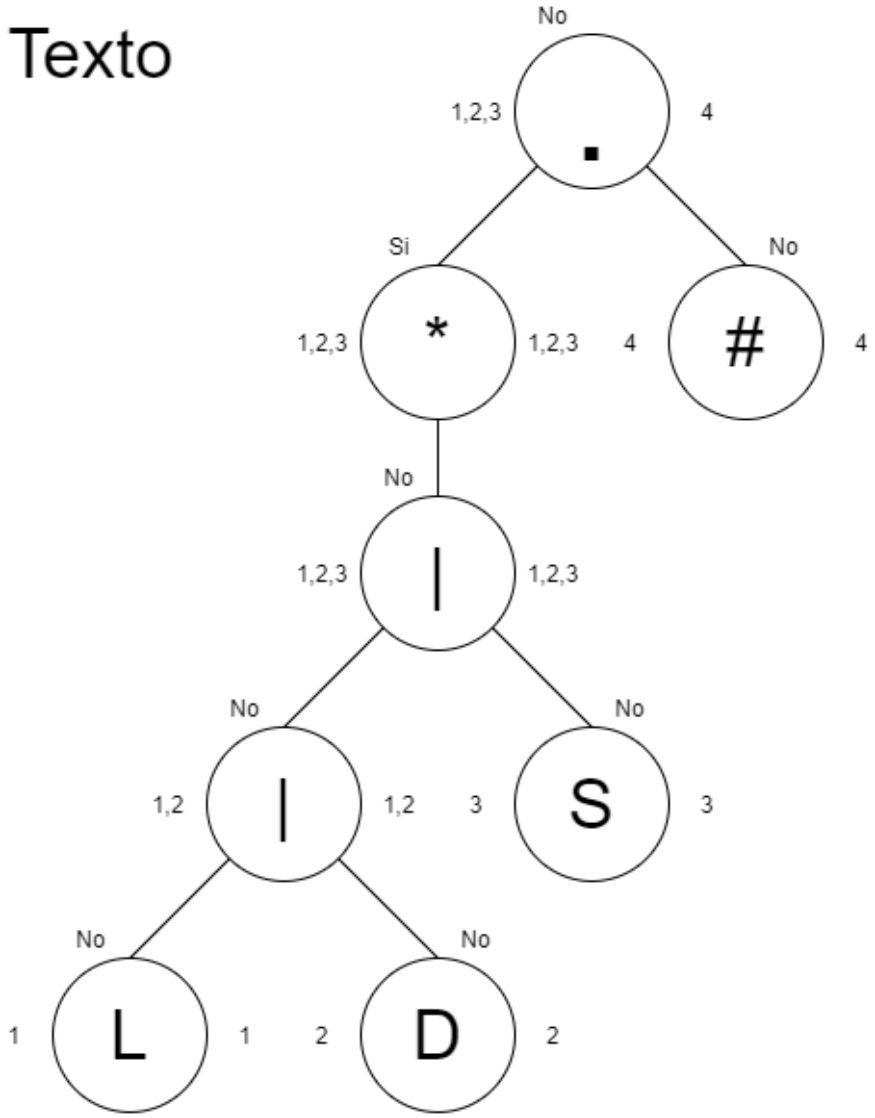
ID = (L | D)*

Cadena = “ (L | D | S)* ”

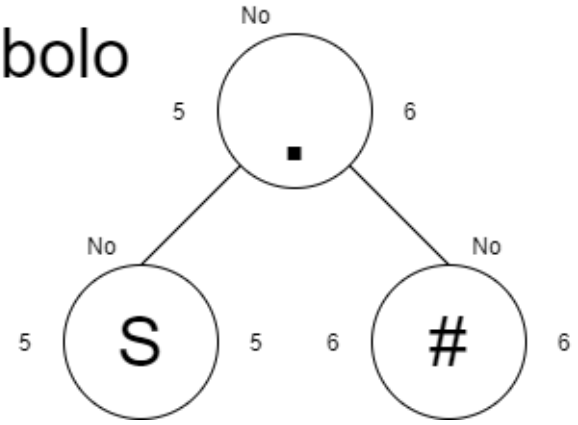
Símbolo = S

Texto = (L | D | S)*

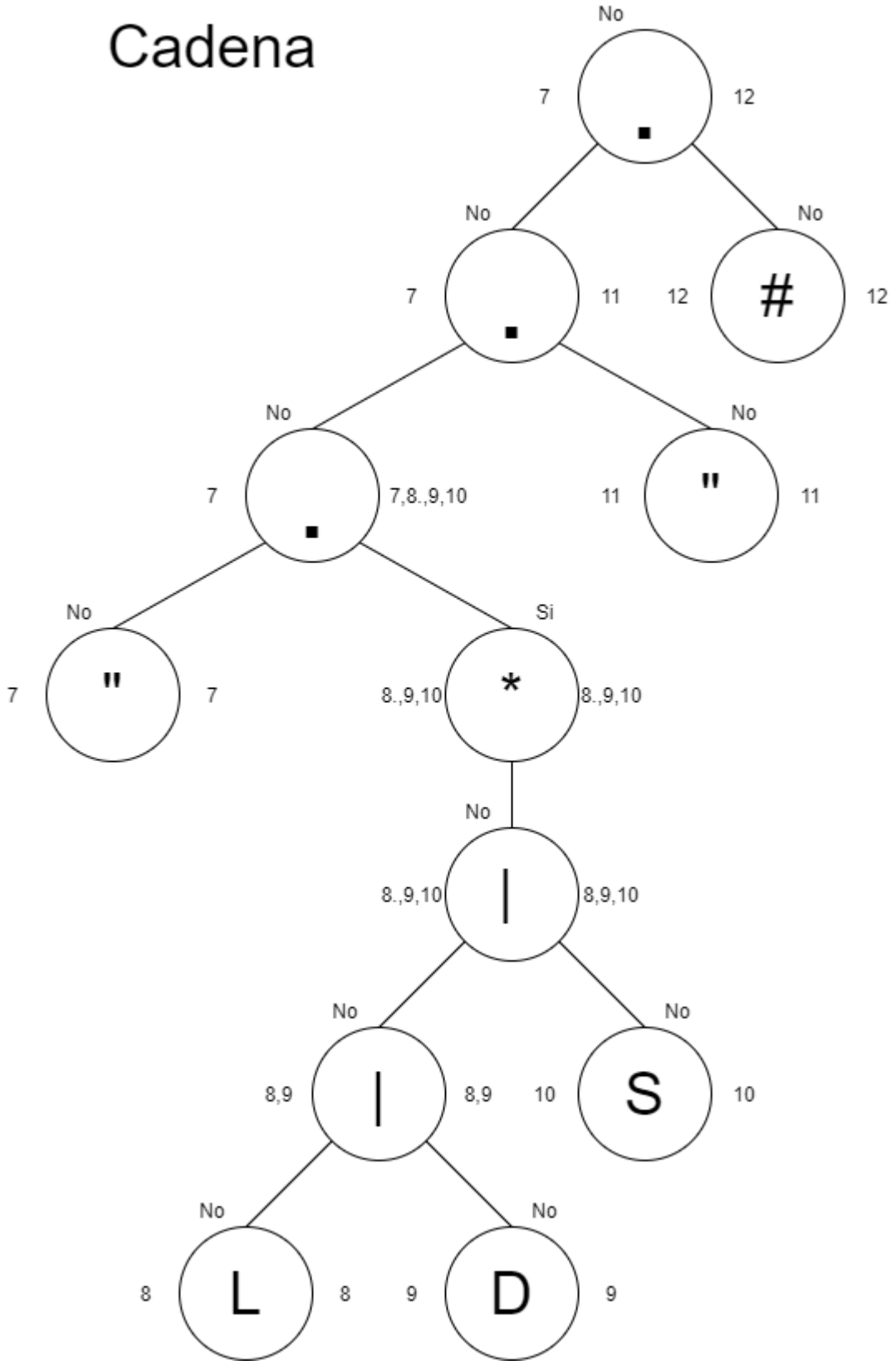
Texto



Simbolo



Cadena


No
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.
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.
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No
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.
7,8.,9,10
11
"
11
No
Si
7
"
7
8.,9,10
*
8.,9,10
No
8.,9,10
|
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8,9
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8,9
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S
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No
No
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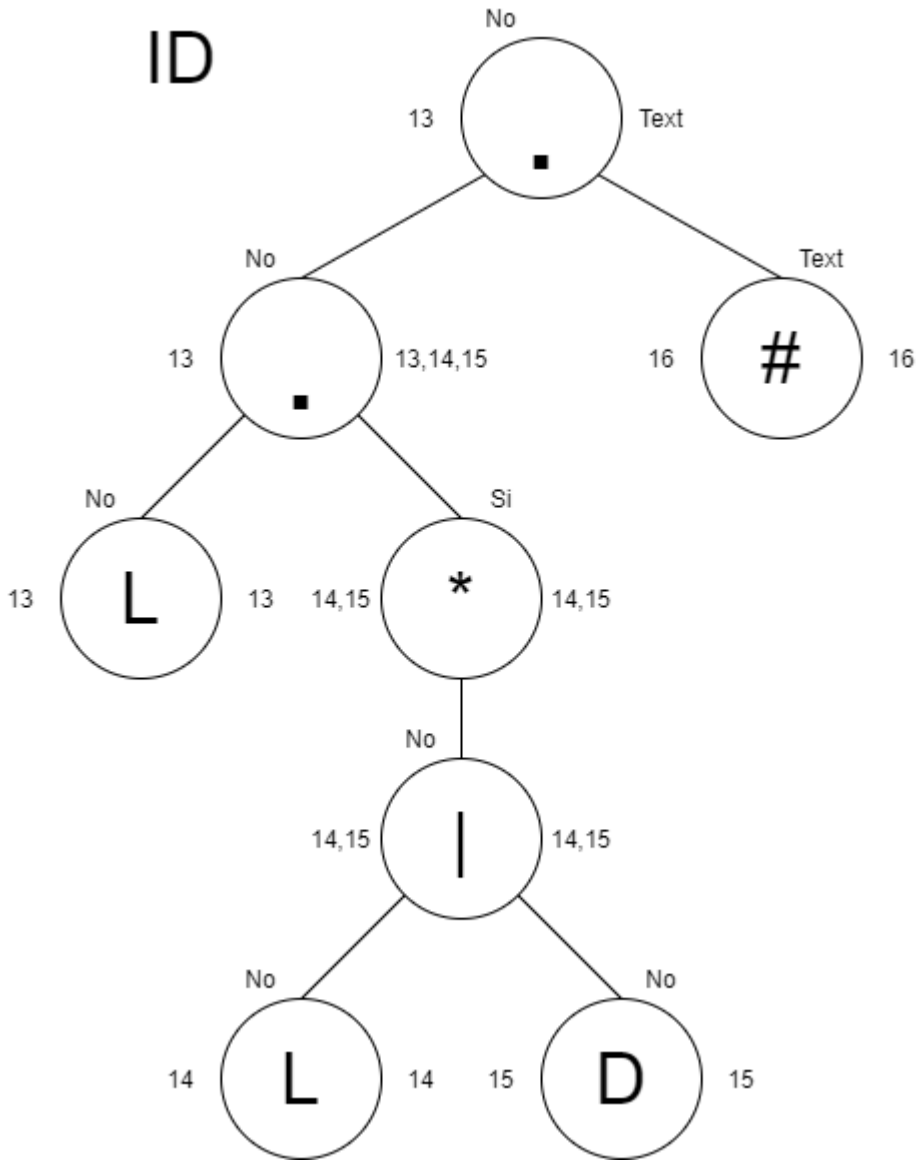
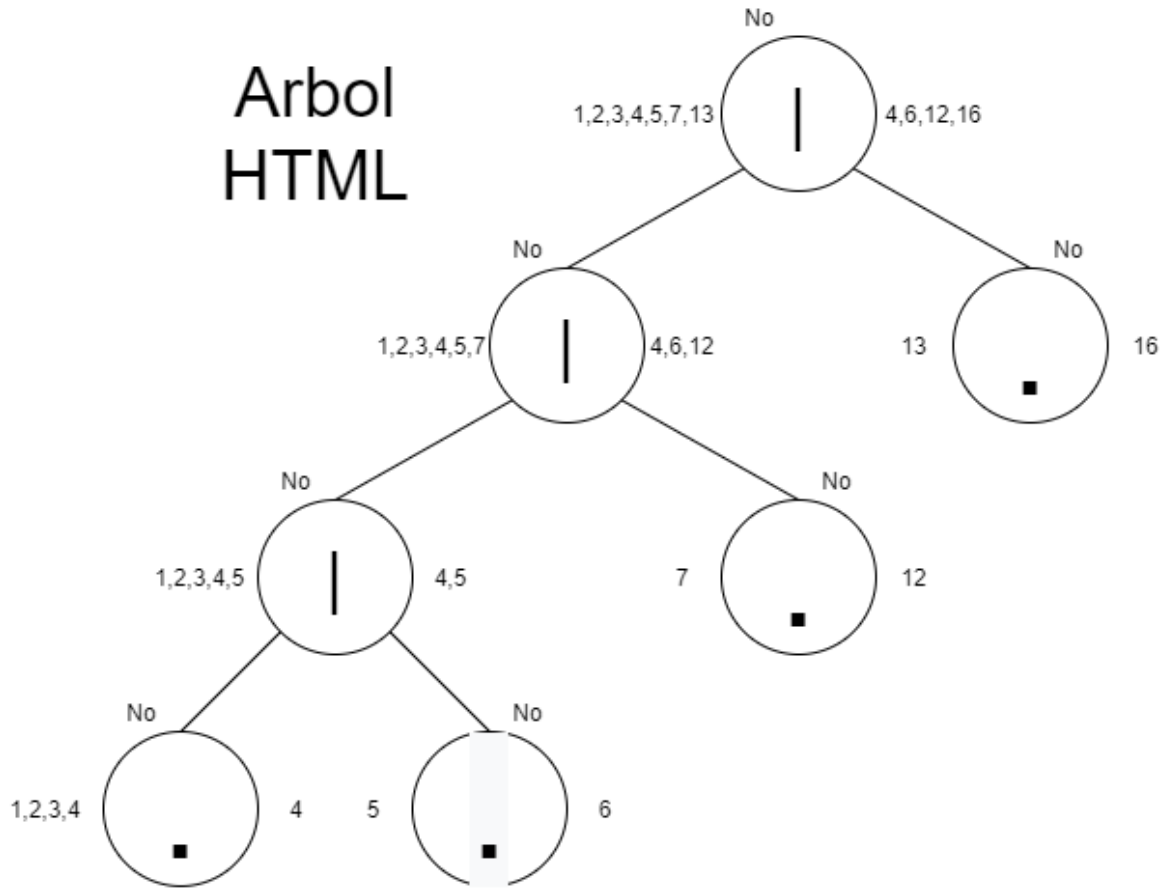
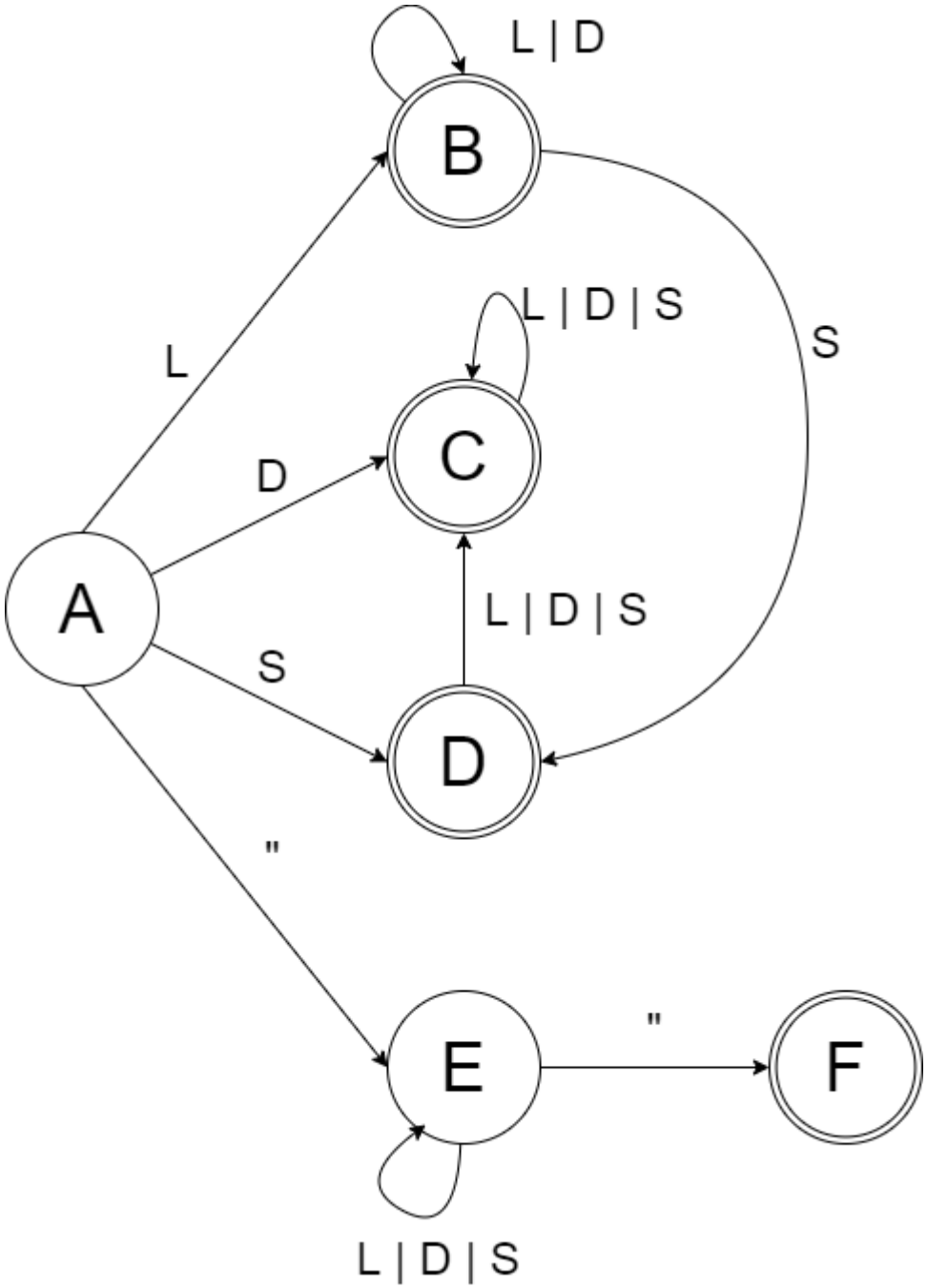
L
8
9
D
9


ID
No
13
.
Text
No
13
.
13,14,15
Text
16
#
16
No
13
L
13
Si
14,15
*
14,15
No
14,15
|
14,15
No
14
L
14
No
15
D
15



	Follow		Follow
1-L	1,2,3,4	**9-D**	8,9,10,11
2-D	1,2,3,4	**10-S**	8,9,10,11
3-S	1,2,3,4	**11-“**	12
4-#		**12-#**	
5-S	6	**13-L**	14,15,16
6-#		**14-L**	14,15,16
7-“	8,9,10,11	**15-D**	14,15,16
8-L	8,9,10,11	**16-#**	

	L	D	S	“
A = {1,2,3,4,5,7,13}	B	C	D	E
B = {1,2,3,4,14,15,16}	B	B	C	---
C = {1,2,3,4}	C	C	C	---
D = {1,2,3,4,6}	C	C	C	---
E = {8,9,10,11}	E	E	E	F
F = {12}	---	---	---	---



Análisis Sintáctico

A continuación, se presenta la gramática libre de Contexto utilizada para analizar las expresiones para Java Script.

A -> (A) OP

| ID OP

| número OP

| Sig A

OP -> + A

| - A

| * A

| / A

| ε

Sig -> -

| ε

Autómata utilizado para las expresiones algebraicas