1. Transforme la siguiente CFG en LL(1) y construya la TAS correspondiente

A → BC | DC | BEF | EF
B → AaB | eps | BbG
D → DLa | eps
F → Fb | ccF | g | GG
E → E%E | E&E | h | {E} | H | h&h
G → aL | Ga | Gb
H → GL | h

Eliminamos símbolos inútiles

L y C no estan definidas, G no genera cadenas de 0 o más terminales

A → BEF | EF
B → AaB | eps
D → eps
F → Fb | ccF | g
E → E%E | E&E | h | {E} | H | h&h
H → h

Reemplazo D y H

A → BEF | EF
B → AaB | eps
F → Fb | ccF | g // (cc)*gb*
E → E%E | E&E | h | {E} | h | h&h

Saco un E → h

A → BEF | EF
B → AaB | eps
F → Fb | ccF | g
E → E%E | E&E | h | {E} | h&h

Elimino ambiguedad de A

A → BEF

Elimino ambiguedad de F

F → ccF | C
C → Cb | g

Elimino ambiguedad de E

E → EDh | {E} | h
D → % | &

Sin ambiguedades

A → BEF
B → AaB | eps
F → ccF | C
C → Cb | g
E → EDh | {E} | h
D → % | &

Reemplazo A en B

A → BEF
B → BEFaB | eps
F → ccF | C
C → Cb | g
E → EDh | {E} | h
D → % | &

Elimino ambiguedad de B

B → EFaB | eps

Elimino RI de C

C → gG
G → bG | eps

Elimino RI de E

E → {E}H | hH
H → DhH | eps

Sin RI

A → BEF
B → EFaB | eps
F → ccF | C
C → gG
G → bG | eps
E → {E}H | hH
H → DhH | eps
D → % | &

Armado de la TAS, calculo el primero y el siguiente de las producciones
Abrevio primero(X) y siguiente(X) como prim(X) y sig(X) respectivamente.

Para A → BEF
prim(BEF)={{,h}

prim(EFaB)={{,h}
prim(E)={{,h}
prim({E}H)={{}
prim(hH)={h}
prim(eps)={eps}
prim(E)={{,h}

Para B → EFaB
prim(EFaB)={{,h}
prim(E)={{,h}

Para B → eps
prim(eps)={eps}
sig(B)={$}

No lo termine porque me queda ambiguo en siguiente de B

2. Transforme la CFG anterior en CNF, GNF, PDA

Tomo la gramática limpia y le saco las e-producciones

A → BEF | EF
B → AaB | eps
F → Fb | ccF | g
E → E%E | E&E | h | {E} | h&h

A → BEF | EF // acá queda otra EF pero es redundante
B → AaB | Aa
F → Fb | ccF | g
E → E%E | E&E | h | {E} | h&h

CNF (2 variables o 1 terminal)

A → CF | EF
C → BE
B → DB | AX
D → AX
X→ a
F → FY | ZF | g
Y → b
Z → WW
W → c
E → RE | QE | h | MI | LH
R → EP
P → %
Q → ES
S → &
H → h
L → HS
M → UE
U → {
I → }

GNF (1 terminal seguido de 0 o más variables)

A → BEF | EF
B → AaB | Aa
F → Fb | ccF | g
E → E%E | E&E | h | {E} | h&h

Elimino RI de F

F → ccFC | gC | ccF | g
C → bC | b

Elimino RI de E

E → hD | {E}D | h&hD | h | {E} | h&h
D → %ED | &ED | %E | &E

Sin RI

A → BEF | EF
B → AaB | Aa
F → ccFC | gC | ccF | g
C → bC | b
E → hD | {E}D | h&hD | h | {E} | h&h
D → %ED | &ED | %E | &E

Reemplazo B en A

A → AaBEF | AaEF | EF
B → AaB | Aa
F → ccFC | gC | ccF | g
C → bC | b
E → hD | {E}D | h&hD | h | {E} | h&h
D → %ED | &ED | %E | &E

Elimino RI de A y paso E y F a Greibach

A → EFX
X → aBEFX | aEFX | aBEF | aEF
B → AaB | Aa
F → ccFC | gC | ccF | g
C → bC | b
E → hD | {EYD | hZHD | h | {EY | hZH
D → %ED | &ED | %E | &E
Y → }
Z → &
H → h

Reemplazo E en A

A → hDFX | {EYDFX | hZHDFX | hFX | {EYFX | hZHFX
X → aBEFX | aEFX | aBEF | aEF
B → ARB | AR
F → ccFC | gC | ccF | g
C → bC | b
E → hD | {EYD | hZHD | h | {EY | hZH
D → %ED | &ED | %E | &E
Y → }
Z → &
H → h
R → a

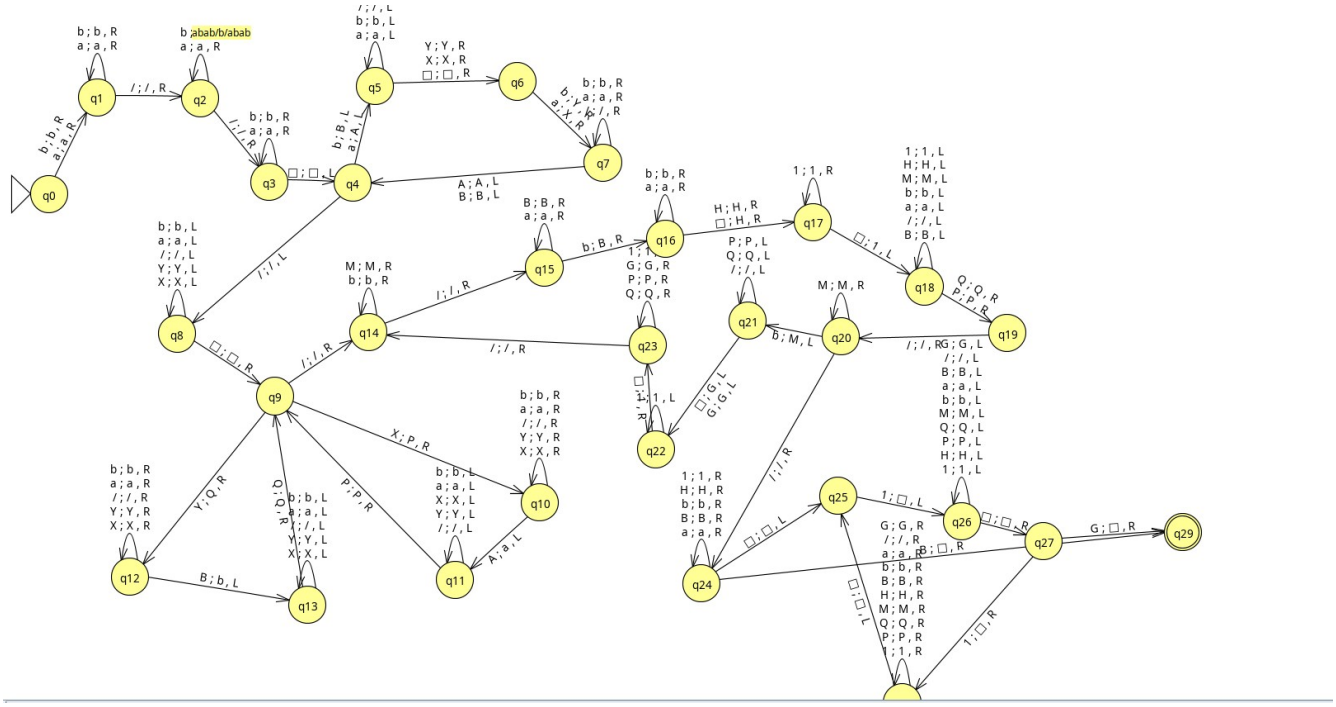
Por último reemplazo A en B

A → hDFX | {EYDFX | hZHDFX | hFX | {EYFX | hZHFX
X → aBEFX | aEFX | aBEF | aEF
B → hDFXRB | {EYDFXRB | hZHDFXRB | hFXRB | {EYFXRB | hZHFXRB | hDFXR | {EYDFXR | hZHDFXR | hFXR | {EYFXR | hZHFXR
F → cQFC | gC | cQF | g
C → bC | b
E → hD | {EYD | hZHD | h | {EY | hZH
D → %ED | &ED | %E | &E
Y → }
Z → &
H → h
R → a
Q → c

PDA

Q	Sigma U eps	Gamma	2**Q x Gamma*
0	h	A	{(0,DFX),(0,ZHDFX),(0,FX),(0,ZHFX)}
0	{	A	{(0,EYDFX),(0,EYFX)}
0	a	X	{(0,BEFX),(0,EFX),(0,BEF),(0,EF)}
0	h	B	{(0,DFXRB),(0,ZHDFXRB),(0,FXRB),(0,ZHFXRB), (0,DFXR),(0,ZHDFXR),(0,FXR),(0,ZHFXR)}
0	{	B	{(0,EYDFXRB),(0,EYFXRB),(0,EYDFXR),(0,EYFXR)}
0	c	F	{(0,QFC),(0,QF)}
0	g	F	{(0,C),(0,eps)}
0	b	C	{(0,C),(0,eps)}
0	h	E	{(0,D),(0,ZHD),(0,ZH),(0,eps)}
0	{	E	{(0,EYD),(0,EY)}
0	%	D	{(0,ED),(0,E)}
0	&	D	{(0,ED),(0,E)}
0	}	Y	{(0,eps)}
0	&	Z	{(0,eps)}
0	h	H	{(0,eps)}
0	a	R	{(0,eps)}
0	c	Q	{(0,eps)}

3.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