Diego Méndez

19673 Lab 03

A	B	C	Y	MinTerm		MaxTerm	
0	0	0	1	$\bar{A}\bar{B}\bar{C}$	m_0		M_0
0	0	1	0		m_1	$A+B+\bar{C}$	M_1
0	1	0	1	$\bar{A}B\bar{C}$	m_2		M_2
0	1	1	0		m_3	$A+\bar{B}+\bar{C}$	M_3
1	0	0	1	$A\bar{B}\bar{C}$	m_4		M_4
1	0	1	1	$A\bar{B}C$	m_5		M_5
1	1	0	0		m_6	$\bar{A}+\bar{B}+C$	M_6
1	1	1	1	ABC	m_7		M_7

$y = m_0 + m_2 + m_4 + m_5 + m_7$

SOP $y = (\bar{A}\bar{B}\cdot\bar{C}) + (\bar{A}\cdot B\cdot\bar{C}) + (A\cdot\bar{B}\bar{C}) + (A\cdot\bar{B}\cdot C) + (ABC)$

$y = M_1 \cdot M_3 \cdot M_6$

POS $y = (A+B+\bar{C})(A+\bar{B}+\bar{C})(\bar{A}+\bar{B}+C)$

A	B	C	X	MinTerm		Max Term	
0	0	0	0	$\bar{A}\bar{B}\bar{C}$	m_0	$A+B+C$	M_0
0	0	1	1	$\bar{A}\bar{B}C$	m_1		M_1
0	1	0	0		m_2	$A+\bar{B}+C$	M_2
0	1	1	0		m_3	$A+\bar{B}+\bar{C}$	M_3
1	0	0	0		m_4	$\bar{A}+B+C$	M_4
1	0	1	0		m_5	$\bar{A}+B+\bar{C}$	M_5
1	1	0	1	$AB\bar{C}$	m_6		M_6
1	1	1	1	ABC	m_7		M_7

SOP $y = m_1 + m_6 + m_7$

$y = (\bar{A}\bar{B}C) + (AB\bar{C}) + (ABC)$

POS $y = (M_0)\cdot(M_2)(M_3)(M_4)(M_5)$

$y = (A+B+C)(A+\bar{B}+C)(A+\bar{B}+\bar{C})(\bar{A}+B+C)(\bar{A}+B+\bar{C})$

A	B	C	D	Y	Min Term		Max Term	
0	0	0	0	1	$\bar{A}\bar{B}\bar{C}\bar{D}$	m_0		M_0
0	0	0	1	1	$\bar{A}\bar{B}\bar{C}D$	m_1		M_1
0	0	1	0	1	$\bar{A}\bar{B}C\bar{D}$	m_2		M_2
0	0	1	1	1	$\bar{A}\bar{B}CD$	m_3		M_3
0	1	0	0	0		m_4	$A+\bar{B}+C+D$	M_4
0	1	0	1	0		m_5	$A+\bar{B}+C+\bar{D}$	M_5
0	1	1	0	0		m_6	$A+\bar{B}+\bar{C}+D$	M_6
0	1	1	1	0		m_7	$A+\bar{B}+\bar{C}+\bar{D}$	M_7
1	0	0	0	1	$A\bar{B}\bar{C}\bar{D}$	m_8		M_8
1	0	0	1	0		m_9	$\bar{A}+B+C+\bar{D}$	M_9
1	0	1	0	1	$A\bar{B}C\bar{D}$	m_{10}		M_{10}
1	0	1	1	0		m_{11}	$\bar{A}+B+\bar{C}+\bar{D}$	M_{11}
1	1	0	0	0		m_{12}	$\bar{A}+\bar{B}+C+D$	M_{12}
1	1	0	1	0		m_{13}	$\bar{A}+\bar{B}+C+\bar{D}$	M_{13}
1	1	1	0	1	$AB\bar{C}\bar{D}$	m_{14}		M_{14}
1	1	1	1	0		m_{15}	$\bar{A}+\bar{B}+\bar{C}+\bar{D}$	M_{15}

$$Y = m_0 + m_1 + m_2 + m_3 + m_8 + m_{10} + m_{14}$$

SOP $$Y = \bar{A}\cdot\bar{B}\cdot\bar{C}\cdot\bar{D} + \bar{A}\bar{B}\bar{C}D + \bar{A}\bar{B}C\bar{D} + \bar{A}\bar{B}CD + A\bar{B}\bar{C}\bar{D} + A\bar{B}C\bar{D} + ABC\bar{D}$$

$$Y = M_4 \cdot M_5 \cdot M_6 \cdot M_7 \cdot M_9 \cdot M_{11} \cdot M_{12} \cdot M_{13} \cdot M_{15}$$

POS $$Y = (A+\bar{B}+C+D)(A+\bar{B}+C+\bar{D})(A+\bar{B}+\bar{C}+D)(A+\bar{B}+\bar{C}+\bar{D})(\bar{A}+B+C+\bar{D}) \rightarrow$$
$$\rightarrow (\bar{A}+B+\bar{C}+\bar{D})(\bar{A}+\bar{B}+C+D)(\bar{A}+\bar{B}+C+\bar{D})(\bar{A}+\bar{B}+\bar{C}+\bar{D})$$

A	B	C	D	Y	Min Term		Max term	
0	0	0	0	1	$\bar{A}\bar{B}\bar{C}\bar{D}$	m_0		M_0
0	0	0	1	0		m_1	$A+B+C+\bar{D}$	M_1
0	0	1	0	1	$\bar{A}\bar{B}C\bar{D}$	m_2		M_2
0	0	1	1	1	$\bar{A}\bar{B}CD$	m_3		M_3
0	1	0	0	0		m_4	$A+\bar{B}+C+D$	M_4
0	1	0	1	0		m_5	$A+\bar{B}+C+\bar{D}$	M_5
0	1	1	0	1	$\bar{A}BC\bar{D}$	m_6		M_6
0	1	1	1	1	$\bar{A}BCD$	m_7		M_7
1	0	0	0	1	$A\bar{B}\bar{C}\bar{D}$	m_8		M_8
1	0	0	1	0		m_9	$\bar{A}+B+C+\bar{D}$	M_9
1	0	1	0	1	$A\bar{B}C\bar{D}$	m_{10}		M_{10}
1	0	1	1	0		m_{11}	$\bar{A}+B+\bar{C}+\bar{D}$	M_{11}
1	1	0	0	0		m_{12}	$\bar{A}+\bar{B}+C+D$	M_{12}
1	1	0	1	0		m_{13}	$\bar{A}+\bar{B}+C+\bar{D}$	M_{13}
1	1	1	0	0		m_{14}	$\bar{A}+\bar{B}+\bar{C}+D$	M_{14}
1	1	1	1	0		m_{15}	$\bar{A}+\bar{B}+\bar{C}+\bar{D}$	M_{15}

SOP

$$Y = m_0 + m_2 + m_3 + m_6 + m_7 + m_8 + m_9 + m_{10}$$

$$Y = (\bar{A}\bar{B}\bar{C}\bar{D}) + (\bar{A}\bar{B}C\bar{D}) + (\bar{A}\bar{B}CD) + (\bar{A}BC\bar{D}) + (\bar{A}BCD) + (A\bar{B}\bar{C}\bar{D}) + (A\bar{B}C\bar{D}) + (A\bar{B}CD)$$

POS

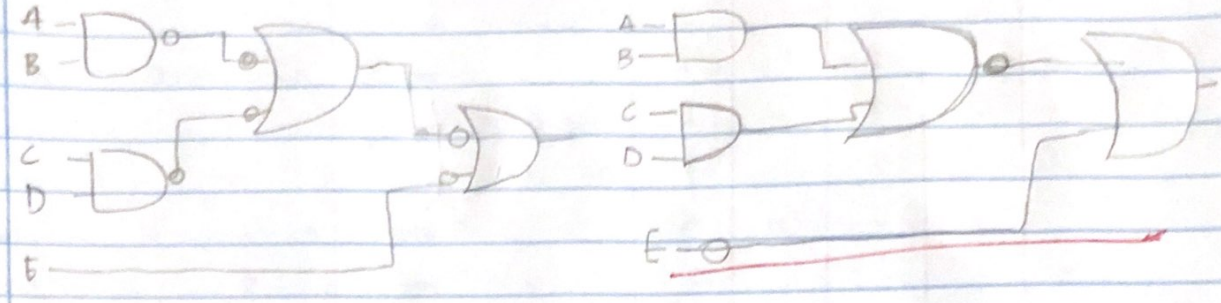
$$Y = M_1 \cdot M_4 \cdot M_5 \cdot M_{11} \cdot M_{12} \cdot M_{13} \cdot M_{14} \cdot M_{15}$$

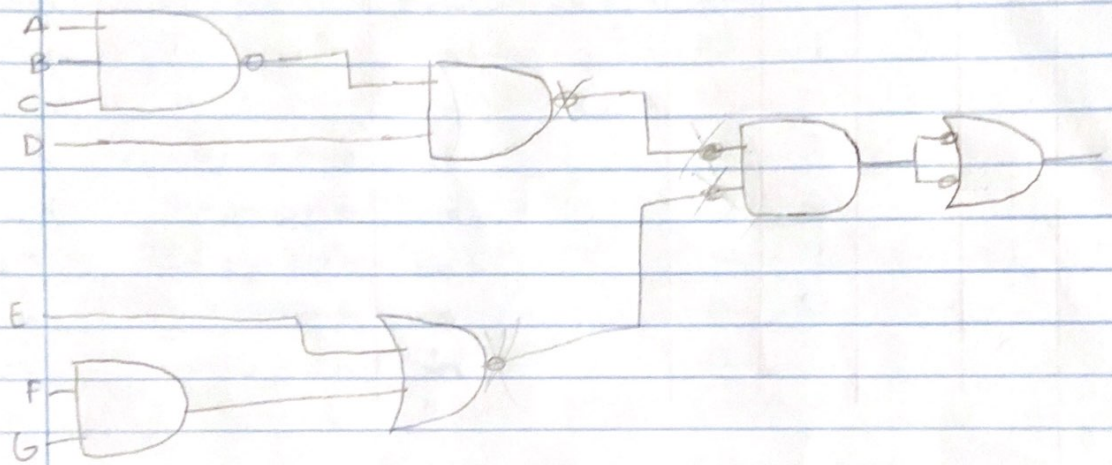
$$Y = (A+B+C+\bar{D})(A+\bar{B}+C+D)(A+\bar{B}+C+\bar{D})(\bar{A}+B+\bar{C}+\bar{D})(\bar{A}+\bar{B}+C+D)(\bar{A}+\bar{B}+C+\bar{D})(\bar{A}+\bar{B}+\bar{C}+D)(\bar{A}+\bar{B}+\bar{C}+\bar{D})$$

$$\rightarrow (\bar{A}+\bar{B}+\bar{C}+D)(\bar{A}+\bar{B}+\bar{C}+\bar{D})$$

Ejercicio 04

00





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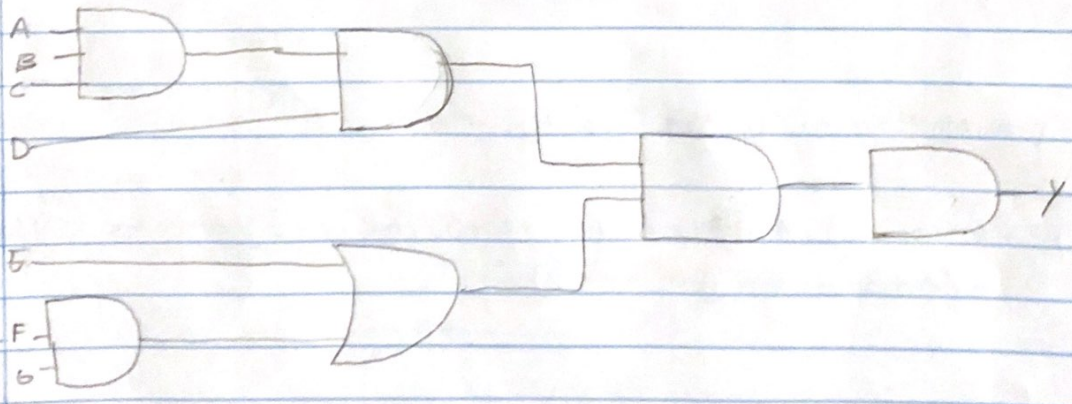

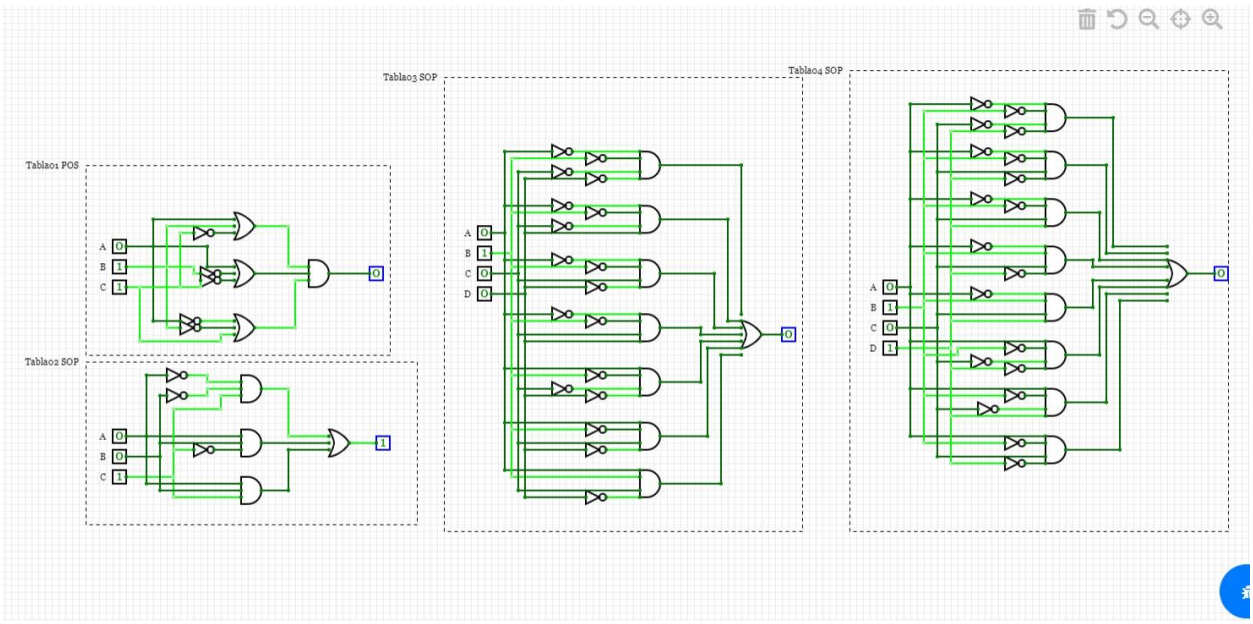
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B 1
C 1
O
Tablao2 SOP
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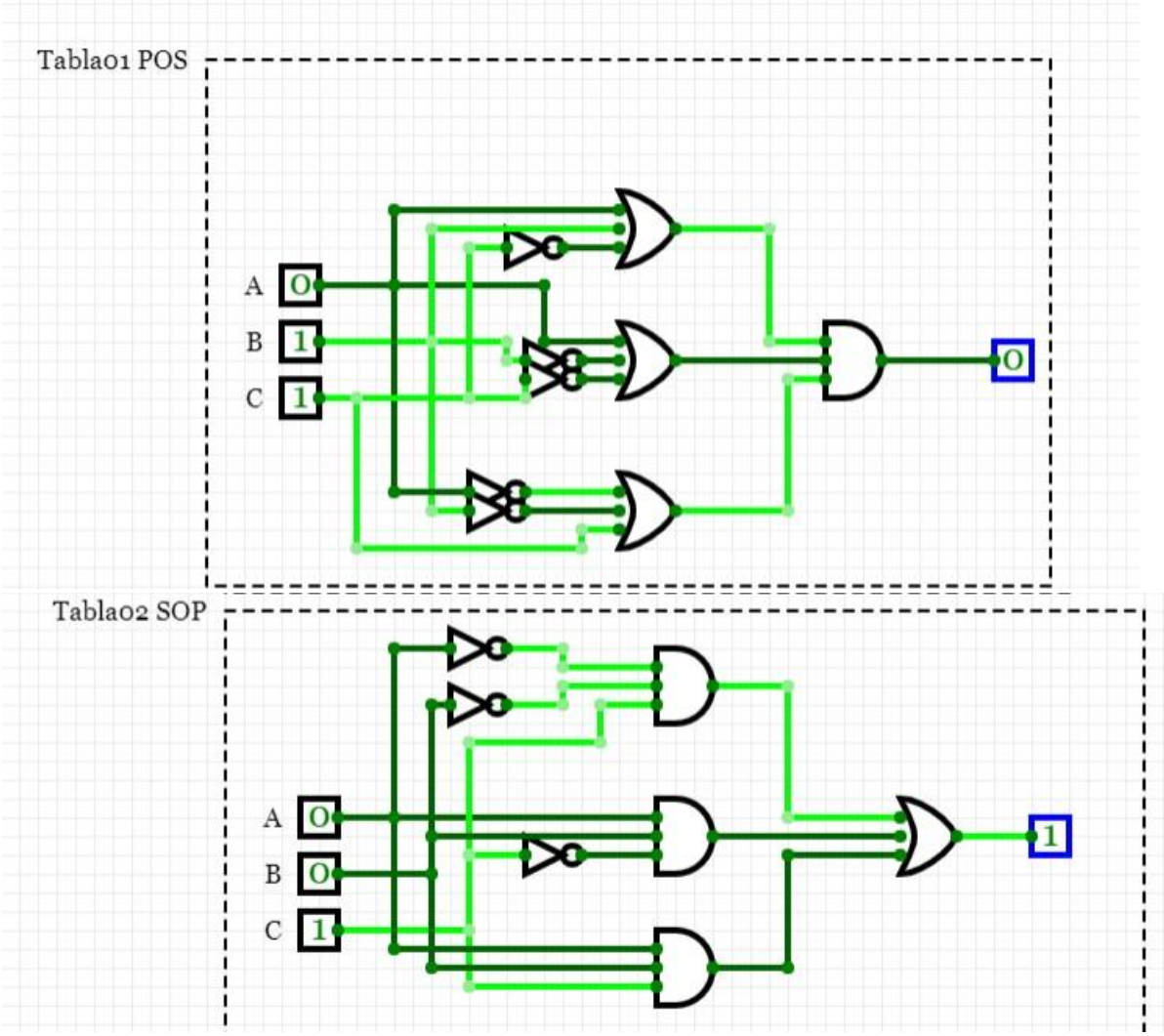
B 0
C 1
1
Tablao3 SOP
A 0
B 1
C 0
D 0
O
Tablao4 SOP
A 0
B 1
C 0
D 1
O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A 0
B 1
C 1
O
Tablao2 SOP
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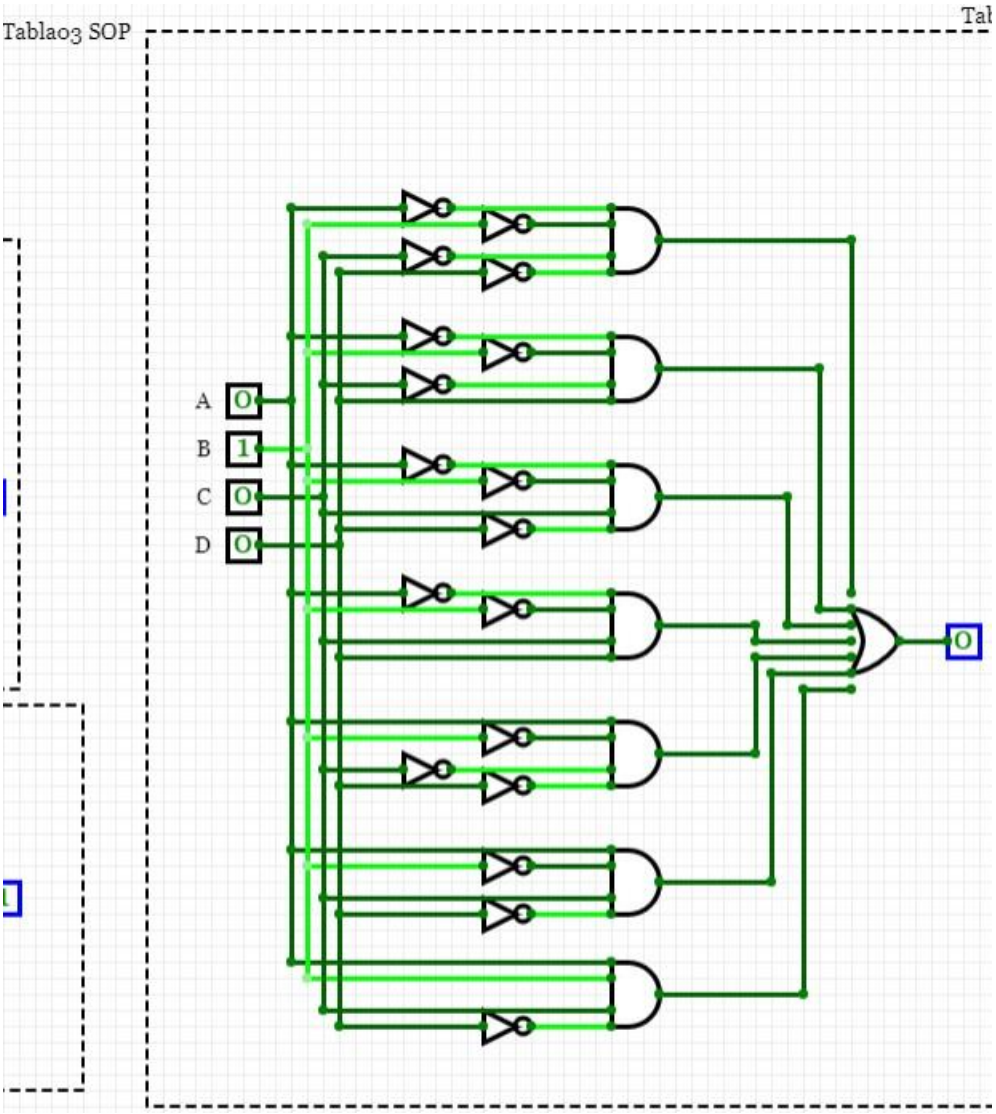
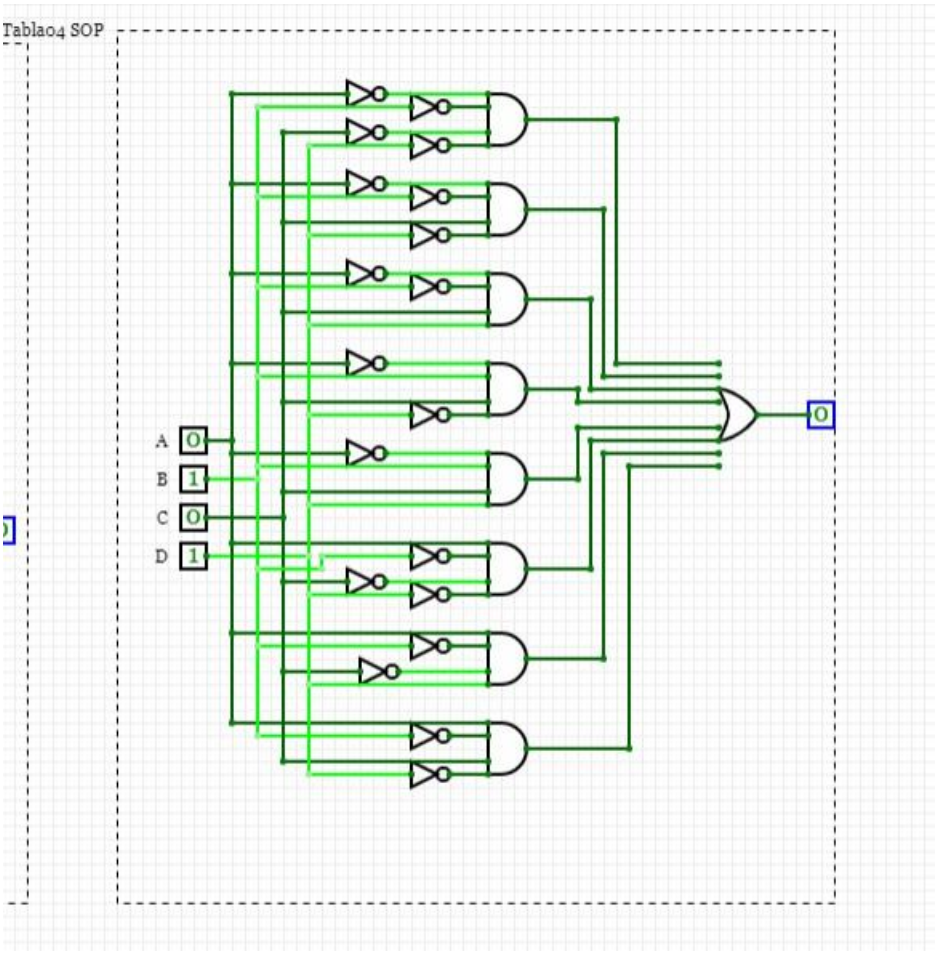
B 0
C 1
1


Tablao3 SOP
A
B
C
D
0
1
0
0
O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B
C
D
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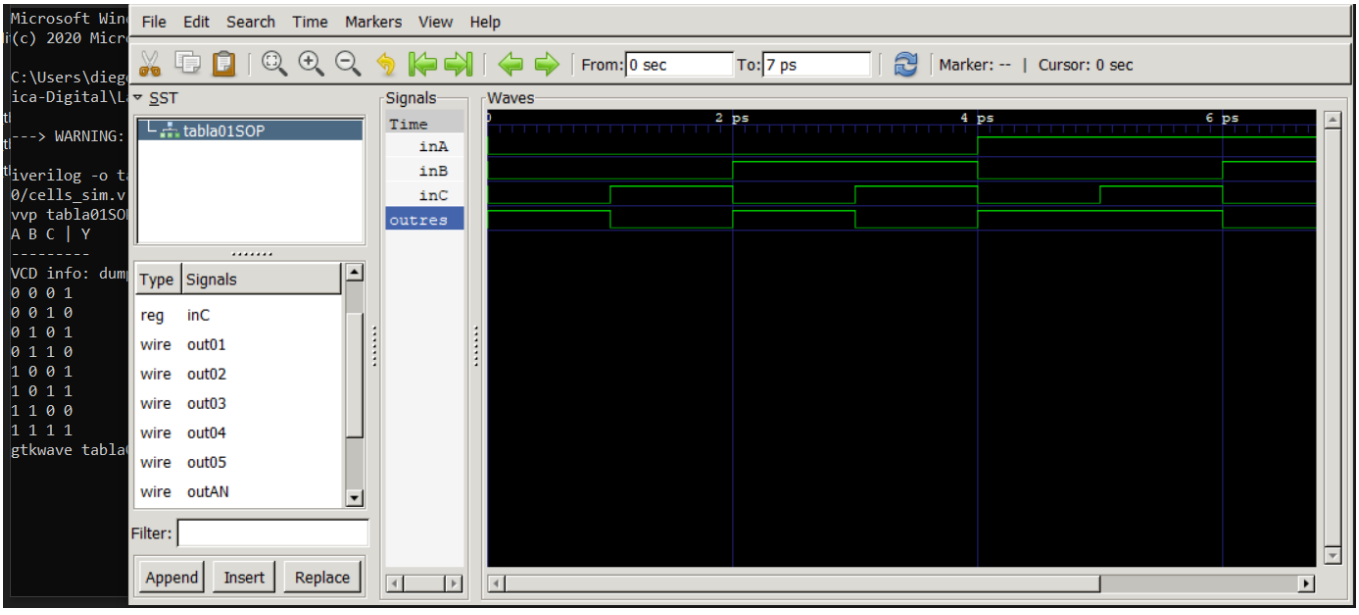
1
0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From: 0 sec
To: 7 ps
Marker: -- | Cursor: 0 sec
SST
tabla01SOP
Type Signals
reg inC
wire out01
wire out02
wire out03
wire out04
wire out05
wire outAN
Filter:
Append Insert Replace
Signals
Time
inA
inB
inC
outres
Waves
2 ps
4 ps
6 ps
--> WARNING:
A B C | Y
VCD info: dum
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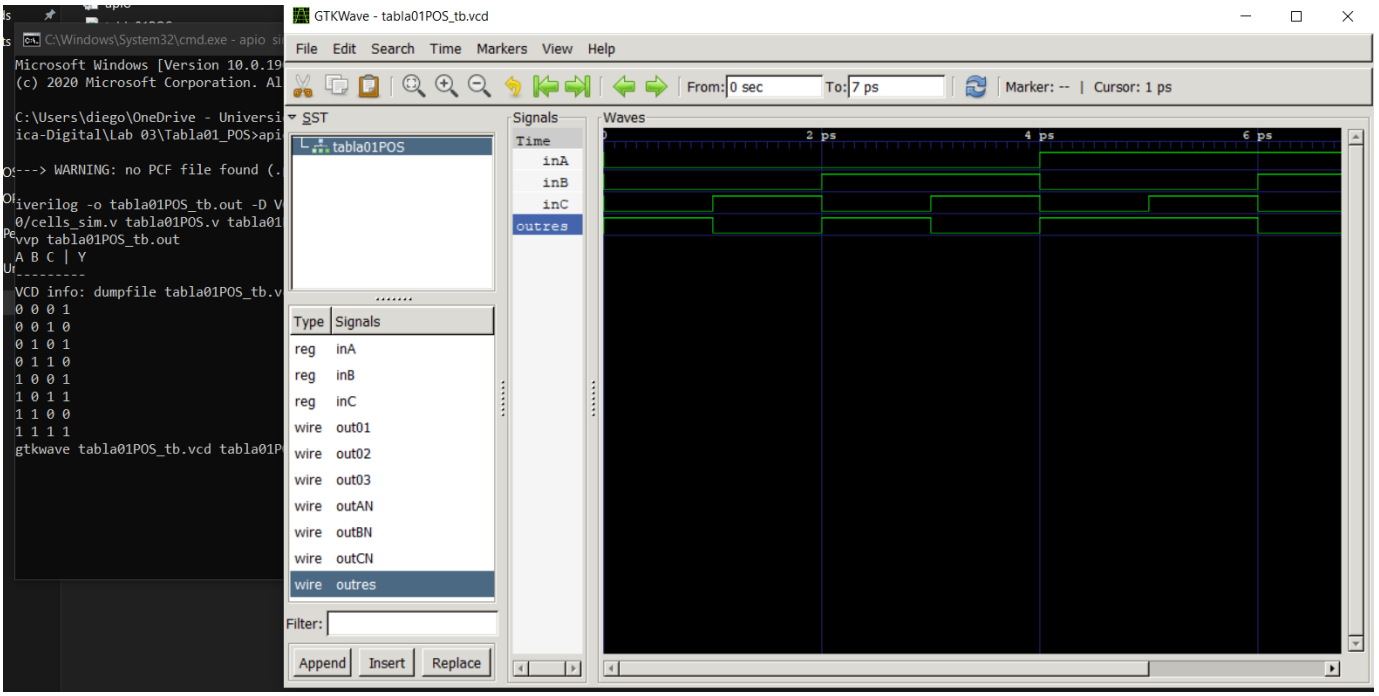
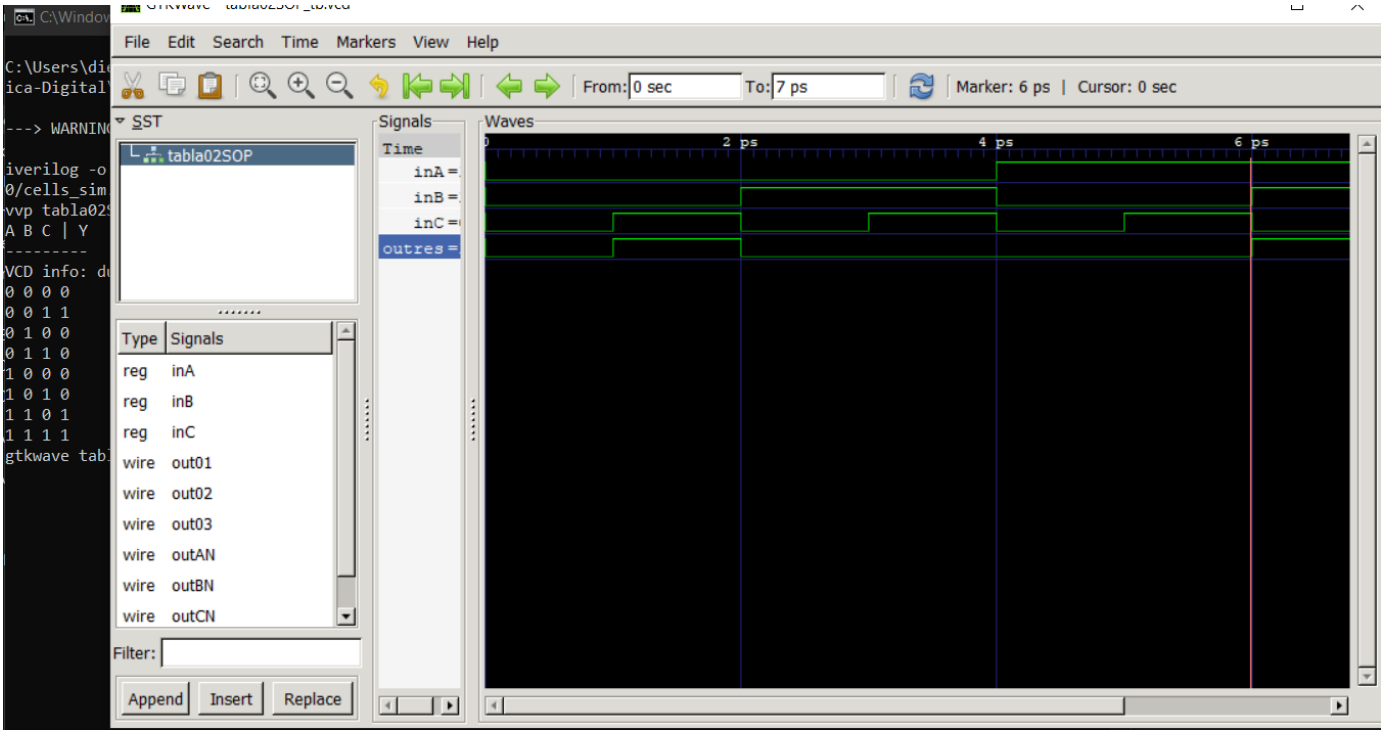
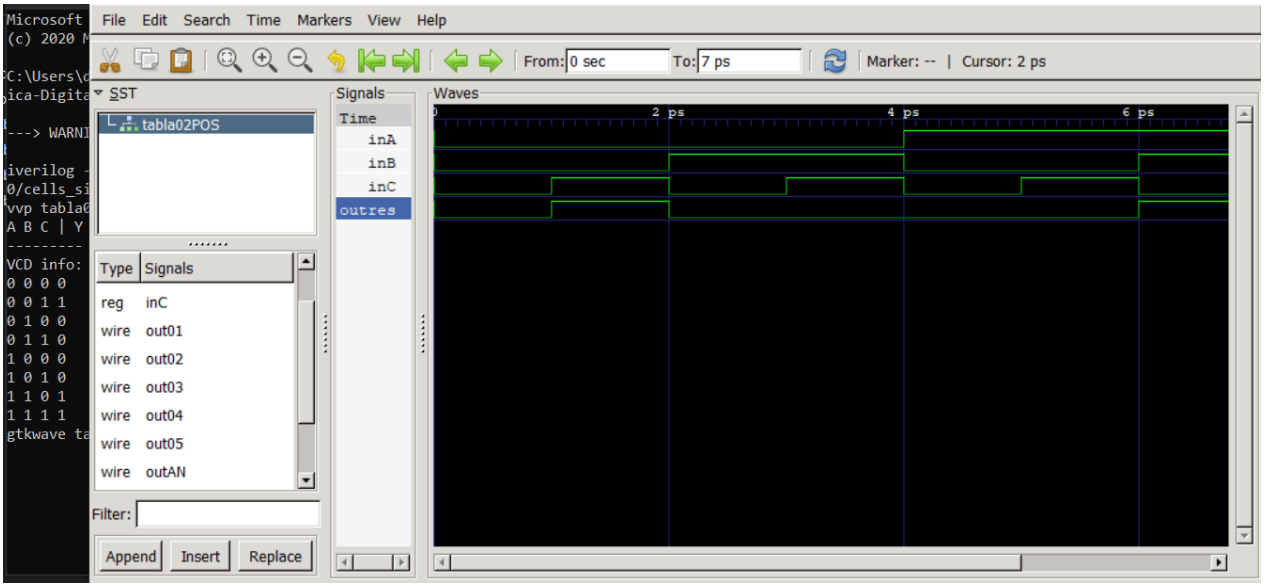
0 0 1 0
0 1 0 1
0 1 1 0
1 0 0 1
1 0 1 1
1 1 0 0
1 1 1 1
gtkwave tabla


C:\Windows\System32\cmd.exe - apio si
Microsoft Windows [Version 10.0.19
(c) 2020 Microsoft Corporation. Al
C:\Users\diego\OneDrive - Universi
ica-Digital\Lab 03\Tabla01_POS>api
---> WARNING: no PCF file found (.
iverilog -o tabla01POS_tb.out -D V
0/cells_sim.v tabla01POS.v tabla01
vvp tabla01POS_tb.out
A B C | Y

VCD info: dumpfile tabla01POS_tb.v
0 0 0 1
0 0 1 0
0 1 0 1
0 1 1 0
1 0 0 1
1 0 1 1
1 1 0 0
1 1 1 1
gtkwave tabla01POS_tb.vcd tabla01P
GTKWave - tabla01POS_tb.vcd
File Edit Search Time Markers View Help
From: 0 sec
To: 7 ps
Marker: -- | Cursor: 1 ps
SST
tabla01POS
Signals
Time
inA
inB
inC
outres
Waves
2 ps
4 ps
6 ps
Type Signals
reg inA
reg inB
reg inC
wire out01
wire out02
wire out03
wire outAN
wire outBN
wire outCN
wire outres
Filter:
Append
Insert
Replace


File Edit Search Time Markers View Help
From: 0 sec
To: 7 ps
Marker: 6 ps | Cursor: 0 sec
SST
tabla02SOP
Signals
Time
inA
inB
inC
outres
Waves
2 ps
4 ps
6 ps
Type Signals
reg inA
reg inB
reg inC
wire out01
wire out02
wire out03
wire outAN
wire outBN
wire outCN
Filter:
Append
Insert
Replace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From: 0 sec
To: 7 ps
Marker: -- | Cursor: 2 ps
SST
tabla02POS
Signals
Time
inA
inB
inC
outres
Waves
2 ps
4 ps
6 ps
Type Signals
reg inC
wire out01
wire out02
wire out03
wire out04
wire out05
wire outAN
Filter:
Append
Insert
Replace
VCD info:
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0 0 1 1
0 1 0 0
0 1 1 0
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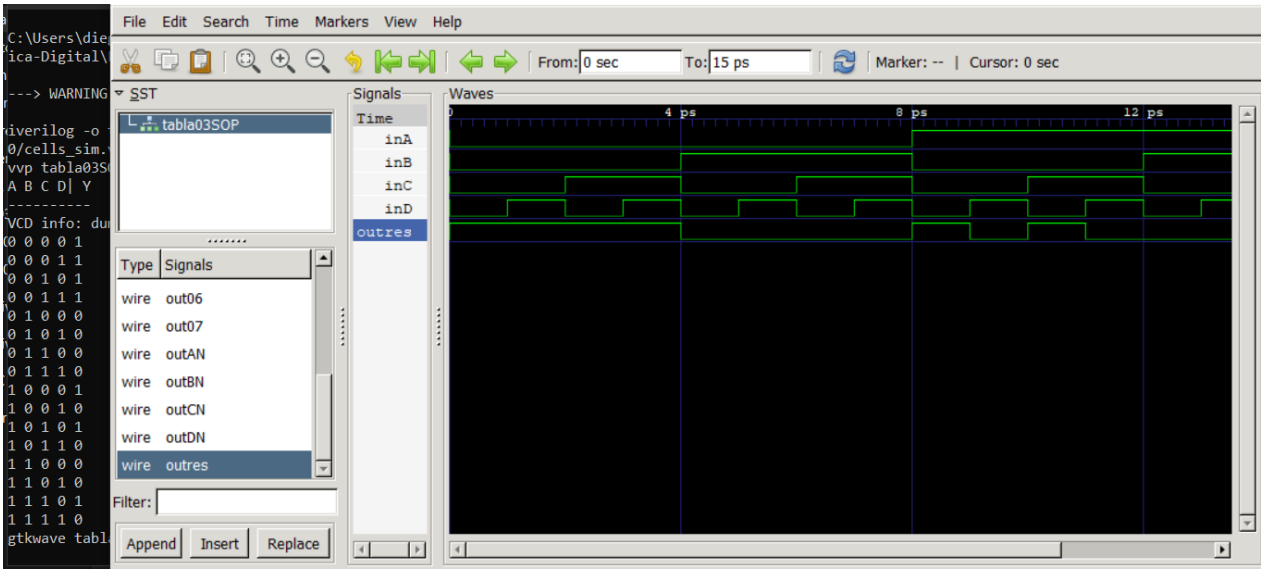
1 1 0 1
1 1 1 1
A B C | Y


File Edit Search Time Markers View Help
From: 0 sec
To: 15 ps
Marker: -- | Cursor: 0 sec
SST
tabla03SOP
Signals
Time
inA
inB
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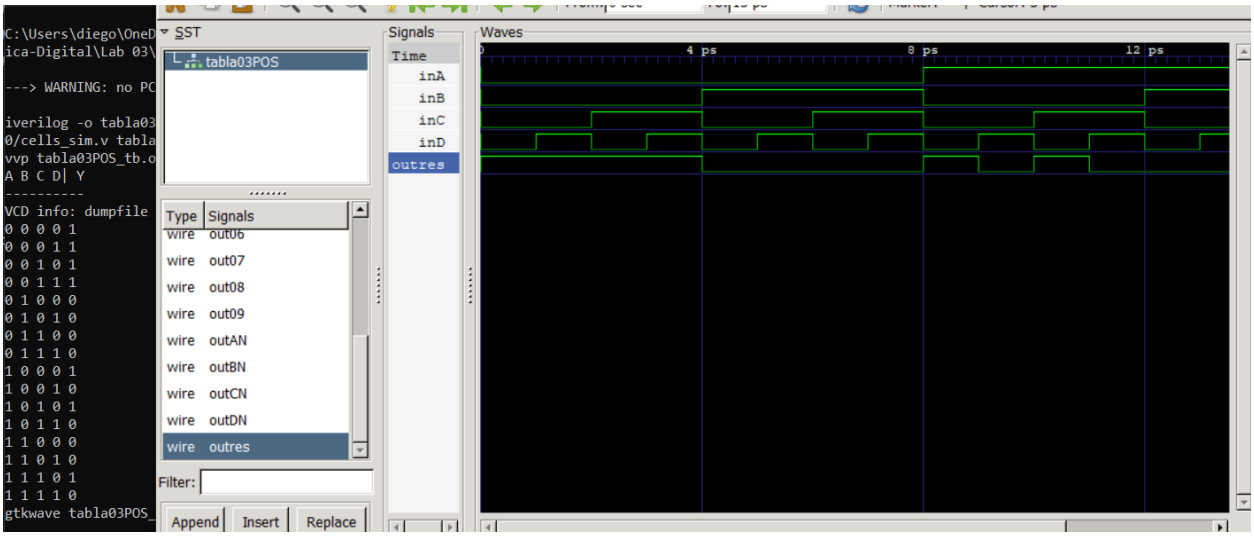
inD
outres
Waves
4 ps
8 ps
12 ps
Type Signals
wire out06
wire out07
wire outAN
wire outBN
wire outCN
wire outDN
wire outres
Filter:
Append
Insert
Replace
A B C D| Y


SST
tabla03POS
Signals
Time
inA
inB
inC
inD
outres
Waves
4 ps
8 ps
12 ps
Type Signals
wire out07
wire out08
wire out09
wire outAN
wire outBN
wire outCN
wire outDN
wire outres
Filter:
Append
Insert
Replace
---> WARNING: no PC
iverilog -o tabla03
0/cells_sim.v tabla
vvp tabla03POS_tb.o
A B C D| Y
VCD info: dumpfile
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0 0 0 1 1
0 0 1 0 1
0 0 1 1 1
0 1 0 0 0
0 1 0 1 0
0 1 1 0 0
0 1 1 1 0
1 0 0 0 1
1 0 0 1 0
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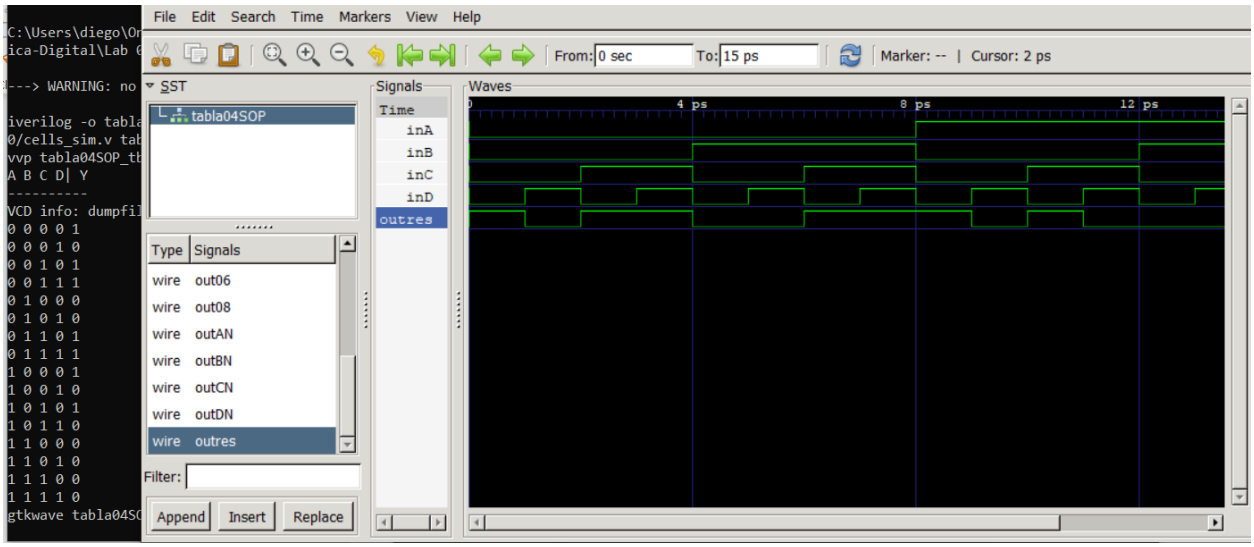
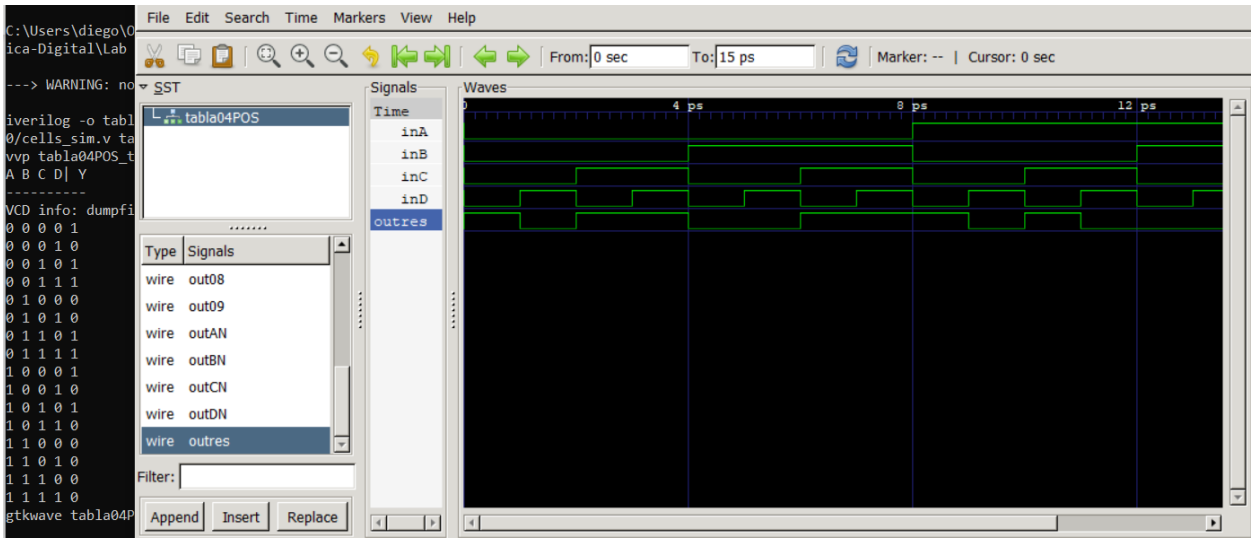
1 1 0 0 0
1 1 0 1 0
1 1 1 0 1
1 1 1 1 0
gtkwave tabla03POS_


C:\Users\diego\Or
ica-Digital\Lab
---> WARNING: no
iverilog -o tabla
0/cells_sim.v tab
vvp tabla04SOP_tb
A B C D| Y

VCD info: dumpfil
0 0 0 0 1
0 0 0 1 0
0 0 1 0 1
0 0 1 1 1
0 1 0 0 0
0 1 0 1 0
0 1 1 0 1
0 1 1 1 1
1 0 0 0 1
1 0 0 1 0
1 0 1 0 1
1 0 1 1 0
1 1 0 0 0
1 1 0 1 0
1 1 1 0 0
1 1 1 1 0
gtkwave tabla04SO
File Edit Search Time Markers View Help
From: 0 sec
To: 15 ps
Marker: -- | Cursor: 2 ps
SST
tabla04SOP
Signals
Time
inA
inB
inC
inD
outres
Waves
4 ps
8 ps
12 ps
Type Signals
wire out06
wire out08
wire outAN
wire outBN
wire outCN
wire outDN
wire outres
Filter:
Append
Insert
Replace


C:\Users\diego\O
ica-Digital\Lab
---> WARNING: no
iverilog -o tabl
0/cells_sim.v ta
vvp tabla04POS_t
A B C D| Y

VCD info: dumpfi
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0 0 0 1 0
0 0 1 0 1
0 0 1 1 1
0 1 0 0 0
0 1 0 1 0
0 1 1 0 1
0 1 1 1 1
1 0 0 0 1
1 0 0 1 0
1 0 1 0 1
1 0 1 1 0
1 1 0 0 0
1 1 0 1 0
1 1 1 0 0
1 1 1 1 0
gtkwave tabla04P
File Edit Search Time Markers View Help
From: 0 sec
To: 15 ps
Marker: -- | Cursor: 0 sec
SST
tabla04POS
Signals
Time
inA
inB
inC
inD
outres
Waves
4 ps
8 ps
12 ps
Type Signals
wire out08
wire out09
wire outAN
wire outBN
wire outCN
wire outDN
wire outres
Filter:
Append
Insert
Replace