Mark Lucernas
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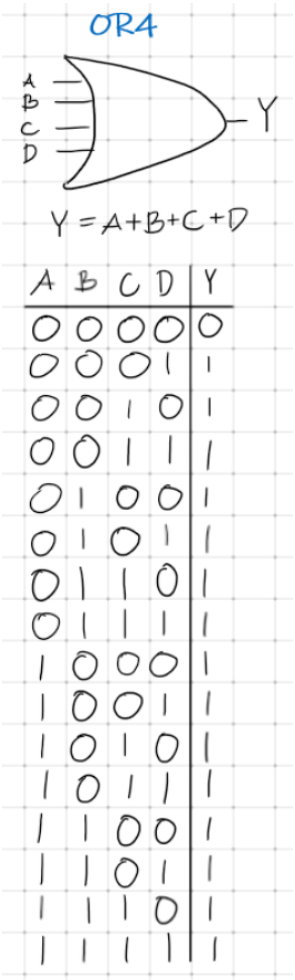
CISC 211
Oct 17, 2020

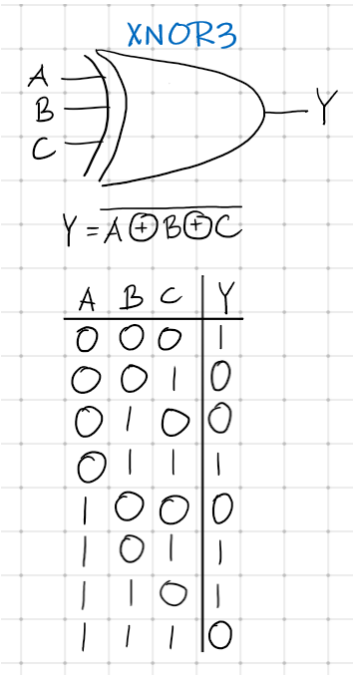
From Chapter 1 Exercises

1.72 a:



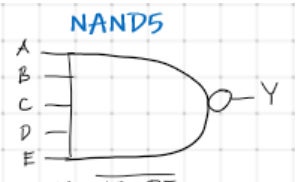
A	B	C	D	Y
0	0	0	0	0
0	0	0	1	1
0	0	1	0	1
0	0	1	1	1
0	1	0	0	1
0	1	0	1	1
0	1	1	0	1
0	1	1	1	1
1	0	0	0	1
1	0	0	1	1
1	0	1	0	1
1	0	1	1	1
1	1	0	0	1
1	1	0	1	1
1	1	1	0	1
1	1	1	1	1

1.72 b:



A	B	C	Y
0	0	0	1
0	0	1	0
0	1	0	0
0	1	1	1
1	0	0	0
1	0	1	1
1	1	0	1
1	1	1	0

1.72 c:



A	B	C	D	E	Y
0	0	0	0	0	1
0	0	0	0	1	1
0	0	0	1	0	1
0	0	0	1	1	1
0	0	1	0	0	1
0	0	1	0	1	1
0	0	1	1	0	1
0	0	1	1	1	1
0	1	0	0	0	1
0	1	0	0	1	1
0	1	0	1	0	1
0	1	0	1	1	1
0	1	1	0	0	1
0	1	1	0	1	1
0	1	1	1	0	1
0	1	1	1	1	1
1	0	0	0	0	1
1	0	0	0	1	1
1	0	0	1	0	1
1	0	0	1	1	1
1	0	1	0	0	1
1	0	1	0	1	1
1	0	1	1	0	1
1	0	1	1	1	1
1	1	0	0	0	1
1	1	0	0	1	1
1	1	0	1	0	1
1	1	0	1	1	1
1	1	1	0	0	1
1	1	1	0	1	1
1	1	1	1	0	1
1	1	1	1	1	0

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1.74:

A	B	C	Y
0	0	0	0
0	0	1	1
0	1	0	0
0	1	1	1
1	0	0	0
1	0	1	1
1	1	0	1
1	1	1	1

1.76:

AND

AB

A	B	Y
0	0	0
0	1	0
1	0	0
1	1	1

NAND

$\overline{AB}$

A	B	Y
0	0	1
0	1	1
1	0	1
1	1	0

OR

$A+B$

A	B	Y
0	0	0
0	1	1
1	0	1
1	1	1

NOR

$\overline{A+B}$

A	B	Y
0	0	1
0	1	0
1	0	0
1	1	0

XOR

$A \oplus B$

A	B	Y
0	0	0
0	1	1
1	0	1
1	1	0

XNOR

$\overline{A \odot B}$

A	B	Y
0	0	1
0	1	0
1	0	0
1	1	1

NOT A

$\overline{A}$

A	B	Y
0	0	1
0	1	1
1	0	0
1	1	0

NOT B

$\overline{B}$

A	B	Y
0	0	1
0	1	0
1	0	1
1	1	0

INHIBITION

$A\overline{B}$

A	B	Y
0	0	0
0	1	0
1	0	1
1	1	0

$\overline{A}B$

A	B	Y
0	0	0
0	1	1
1	0	0
1	1	0

IMPLICATION

$A+\overline{B}$

A	B	Y
0	0	1
0	1	0
1	0	1
1	1	1

$\overline{A}+B$

A	B	Y
0	0	1
0	1	1
1	0	0
1	1	1

Transfer

A

A	B	Y
0	0	0
0	1	0
1	0	1
1	1	1

B

A	B	Y
0	0	0
0	1	1
1	0	0
1	1	1

Identity

1

A	B	Y
0	0	1
0	1	1
1	0	1
1	1	1

Null

0

A	B	Y
0	0	0
0	1	0
1	0	0
1	1	0

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From Chapter 2 Exercises

2.2 a: $Y = \overline{A}\mathrm{B} + A\overline{B} + AB$

2.2 b: $Y = \overline{AB}C + \overline{A}B\overline{C} + \overline{A}BC + A\overline{BC} + AB\overline{C}$

2.2 c: $Y = \overline{AB}C + AB\overline{C} + ABC$

2.2 d: $Y = \overline{ABCD} + \overline{AB}C\overline{D} + \overline{AB}CD + \overline{A}BC\overline{D} + \overline{A}BCD + A\overline{BCD} + A\overline{B}C\overline{D}$

2.2 e: $Y = \overline{AB}CD + \overline{A}BC\overline{D} + \overline{A}BCD + A\overline{BCD} + A\overline{BC}D + A\overline{B}C\overline{D} + A\overline{B}CD$

2.4 a: $Y = A + B$

2.4 b: $Y = (A + B + C)(\overline{A} + B + \overline{C})(\overline{A} + \overline{B} + \overline{C})$

2.4 c: $Y = (A + B + C)(A + \overline{B} + C)(A + \overline{B} + \overline{C})(\overline{A} + B + C)(\overline{A} + B + \overline{C})$

2.4 d:

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

2.4 e:

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