陈昕琪 PB22111711

P215 4.5.1

$L_0 = (A\bar{B} + AC + \bar{A}\bar{B}\bar{C}) \oplus 0$

$L_1 = (A\bar{B} + AC + \bar{A}\bar{B}\bar{C}) \oplus 0 = A\bar{B} + AC + \bar{A}\bar{B}\bar{C}$

$L_2 = (AC + BC) \oplus 1 = \overline{AC + BC}$

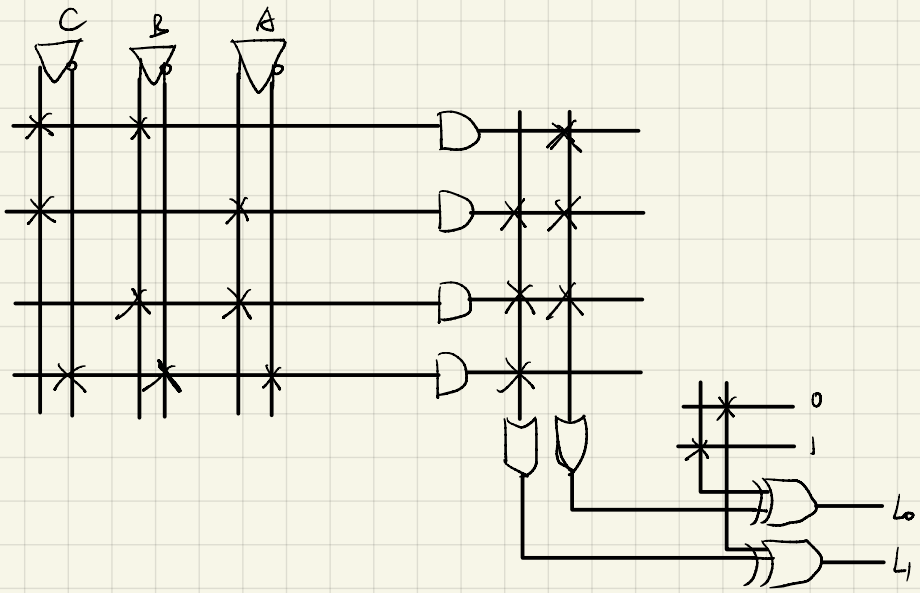
4.5.2

A\BC	00	01	11	10
0	1	1	0	1
1	1	0	0	0

$L_0(A, B, C) = \overline{BC + AC + AB} = (BC + AC + AB) \oplus 1$

A\BC	00	01	11	10
0	1	0	0	0
1	0	1	1	1

$L_1(A, B, C) = \bar{A}B\bar{C} + AC + AB = (\bar{A}\bar{B}\bar{C} + AC + AB) \oplus 0$



4. 5. 4

A	B	C	D	W	X	Y	Z	
0	0	0	0	0	0	1	1	0
0	0	0	1	0	1	0	0	1
0	0	1	0	0	1	0	1	2
0	0	1	1	0	1	1	0	3
0	1	0	0	0	1	1	1	4
0	1	0	1	1	0	0	0	5
0	1	1	0	1	0	0	1	6
0	1	1	1	1	0	1	0	7
1	0	0	0	1	0	1	1	8
1	0	0	1	1	1	0	0	9

W:

AB \ CD	00	01	11	10
00	0	0	0	0
01	0	1	1	1
11	X	X	X	X
10	1	1	X	X

$W = A + BC + B\bar{D}$

X:

AB \ CD	00	01	11	10
00	0	1	1	1
01	1	0	0	0
11	X	X	X	X
10	0	1	X	X

$X = B\bar{C}\bar{D} + \bar{B}D + \bar{B}C$

Y: 0, 3, 4, 7, 8

AB \ CD	00	01	11	10
00	1	0	1	0
01	1	0	1	0
11	X	X	X	X
10	1	0	X	X

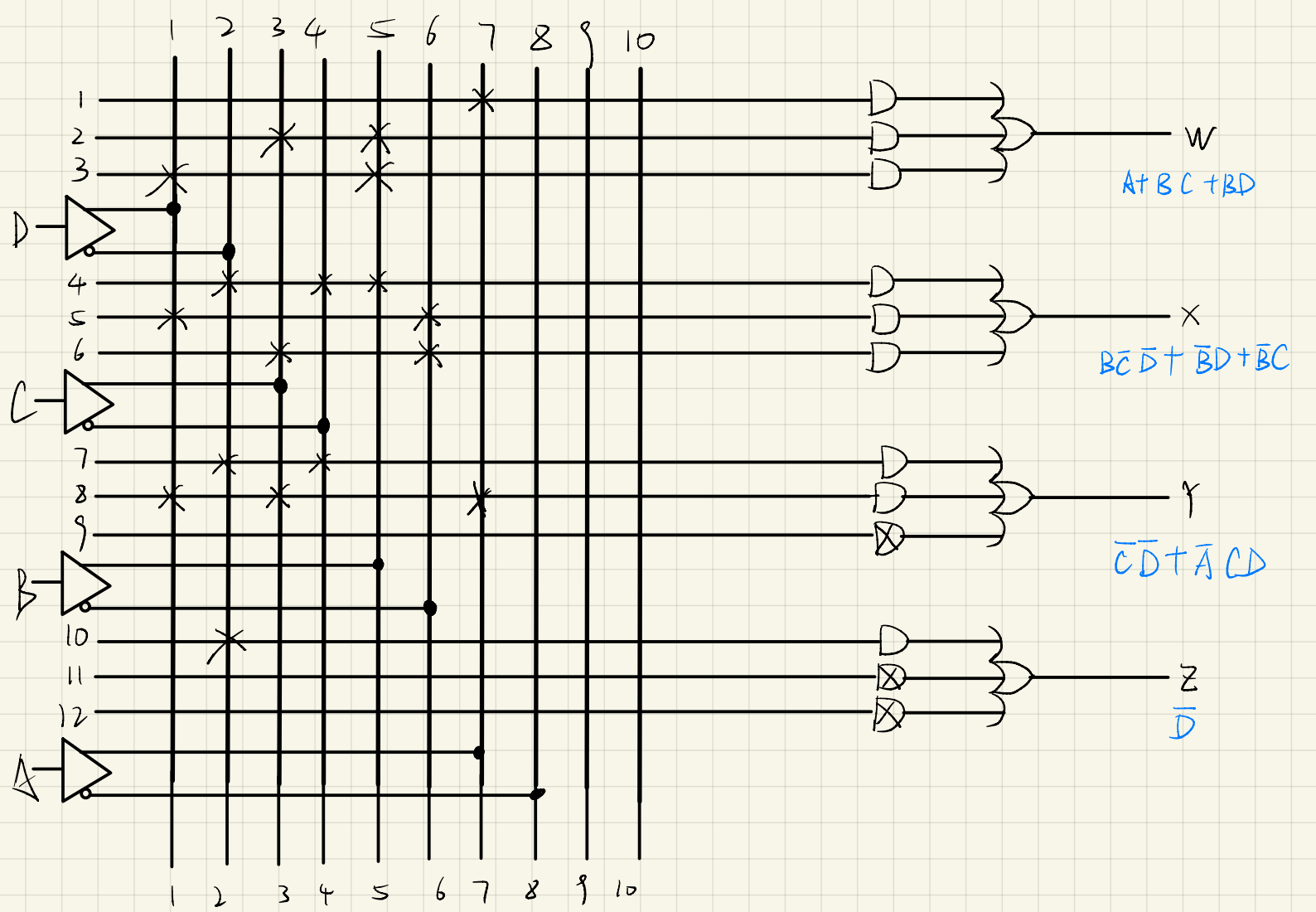
$Y = \bar{C}\bar{D} + \bar{A}CD$

Z: 0, 2, 4, 6, 8

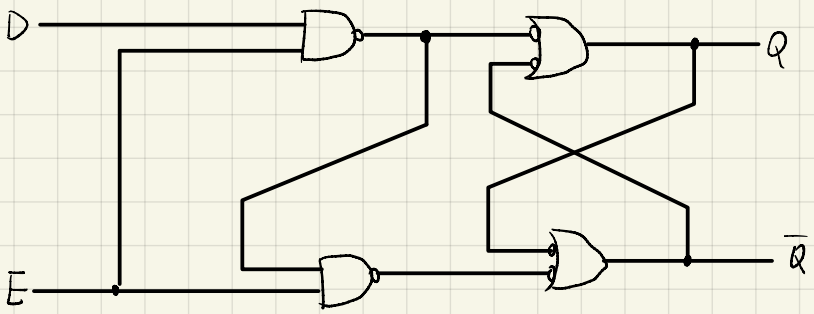
AB \ CD	00	01	11	10
00	1	0	0	1
01	1	0	0	1
11	X	X	X	X
10	1	0	X	X

$Z = \bar{C}\bar{D} + C\bar{D}$

$= \bar{D}$


1 2 3 4 5 6 7 8 9 10
1
2
3
D
4
5
6
C
7
8
9
B
10
11
12
A
W
A + B C + BD
X
BC̄ D̄ + B̄D + B̄C
Y
C̄D̄ + Ā CD
Z
D̄
1 2 3 4 5 6 7 8 9 10

5.3.1



E	D	Q	$\overline{Q}$	功能
0	×	不变	不变	保持
1	0	0	1	置0
1	1	1	0	置1

⇒ 相同

优点：①节省一个非门

②只用与非门实现电路

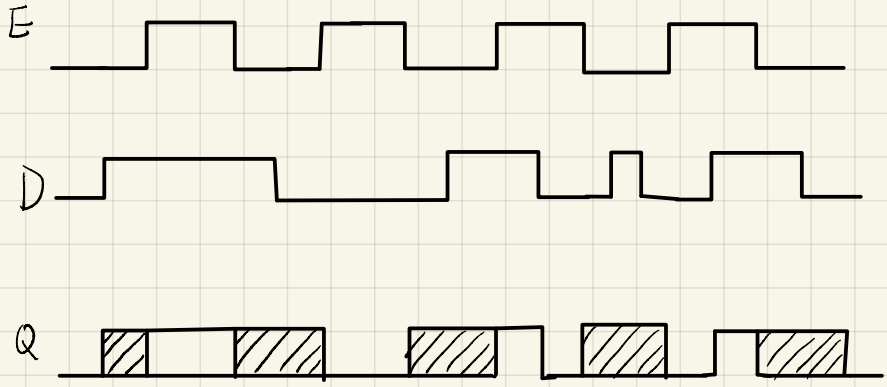
某些集成电路中与非门的传输延迟时间略低于与门和或非门

③D输入端只连接一个门，减轻电路负载

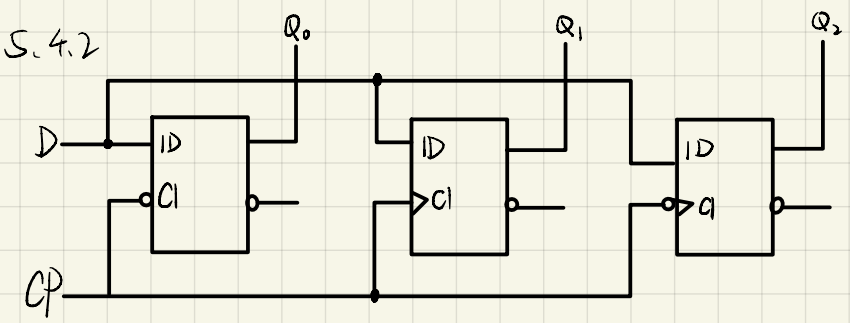
5.3.2

由表知

E	D	Q	$\overline{Q}$	功能
0	×	不变	不变	保持
1	0	0	1	置0
1	1	1	0	置1



5.4.2



CP	D	Q_0
1	X	Q_0
0	X	D

CP	D	Q_1
↑	X	D
X	X	Q_1

CP	D	Q_2
↓	X	D
X	X	Q_2