

AB, CD

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

A red rectangle highlights the cells (01, 01), (11, 01), (01, 11), and (11, 11). A pink rectangle highlights the cells (01, 01), (11, 01), (01, 11), and (01, 10).

	00	01	11	10
01			1	
11		1	1	
10				

A pink oval highlights the cells (01, 11) and (11, 11). Another pink oval highlights the cells (01, 11) and (11, 01). A pink arrow points to the cell (01, 11).

$AB \backslash CD$	00	01	11	10
00		1	1	
01		1	1	1
11		1		1
10	1		1	

$$= \bar{A}D + B\bar{C}D + BCD$$

$AB \backslash CD$	00	01	11	10
00		1	1	
01	1			
11				
10				

$$+ \bar{B}CD$$

$$+ AB\bar{C}\bar{D}$$

$$\bar{A}D$$

AB/CDE
~~ABC/DE~~

$\begin{matrix} 0 & 1 & 3 & 2 \\ 00 & 01 & 11 & 10 \end{matrix}$

$\Sigma \{ \emptyset, 0, 3, 4, 5 \}$

A/B		0	1
C	0	1	
	1	1	1

$\Sigma \{ 0, 2, 3 \}$

$\Sigma \{1, 4, 6, 8, \textcircled{11}\}$

	00	01	11	10
00		1		
01	1			1
11				
10	1		1	

$$\sum \{0, 2, 3, 8, 9, 11, 13, 15\}$$

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

8 4 2 1

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

11 01 00

$$= AD + \bar{B}\bar{C}\bar{D} + \bar{A}BC$$

	0	0	0
0	1	1	
0	1	1	

$$= \overline{A} \overline{C}$$

Decoder/Encoder/Mux

n - input

2^n - output

$$D_0 = \bar{A}\bar{B} \quad | \quad D_3 = AB$$

$$D_1 = \bar{A}B$$

$$D_2 = A\bar{B}$$

A	B	D_0	D_1	D_2	D_3
0	0	1	0	0	0
0	1	0	1	0	0
1	0	0	0	1	0
1	1	0	0	0	1

E	A	B	D ₀	D ₁	D ₂	D ₃
0	X	X	0	0	0	0
1	0	0	1	0	0	0
2	0	1	0	1	0	0
3	1	0	0	0	1	0
4	1	1	0	0	0	1

$$E(\bar{A}\bar{B} + A\bar{B} + \bar{A}D + AB)$$

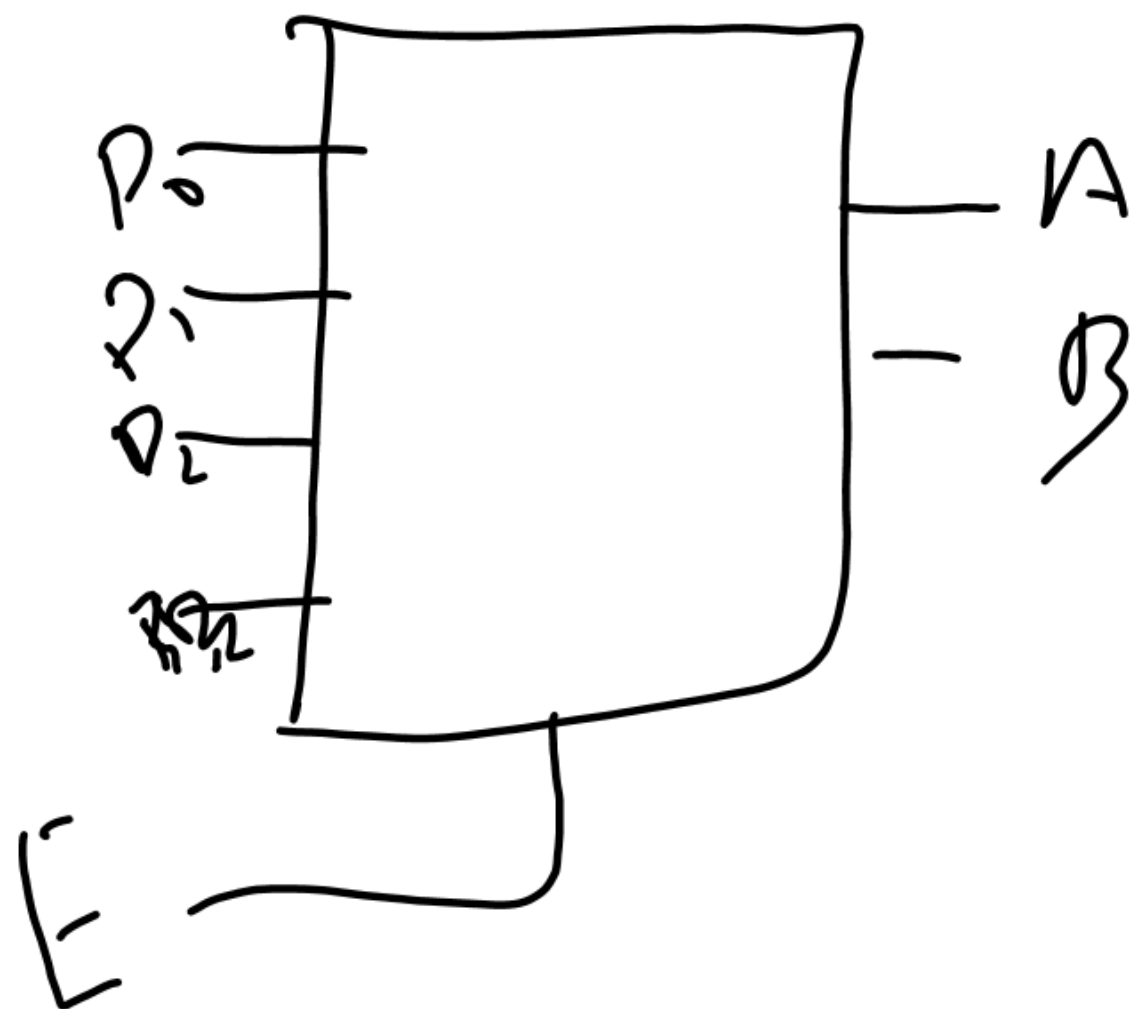
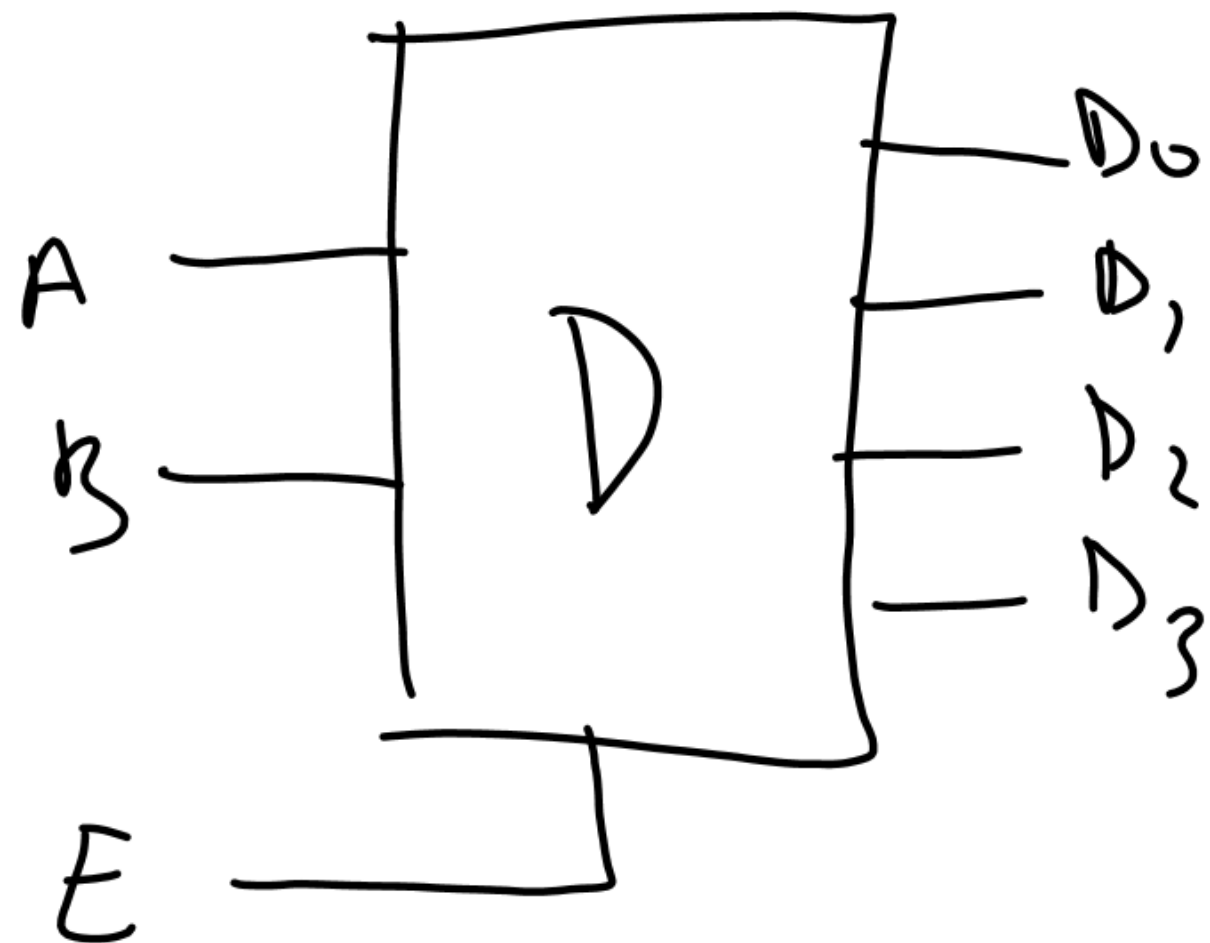
Ergebnis

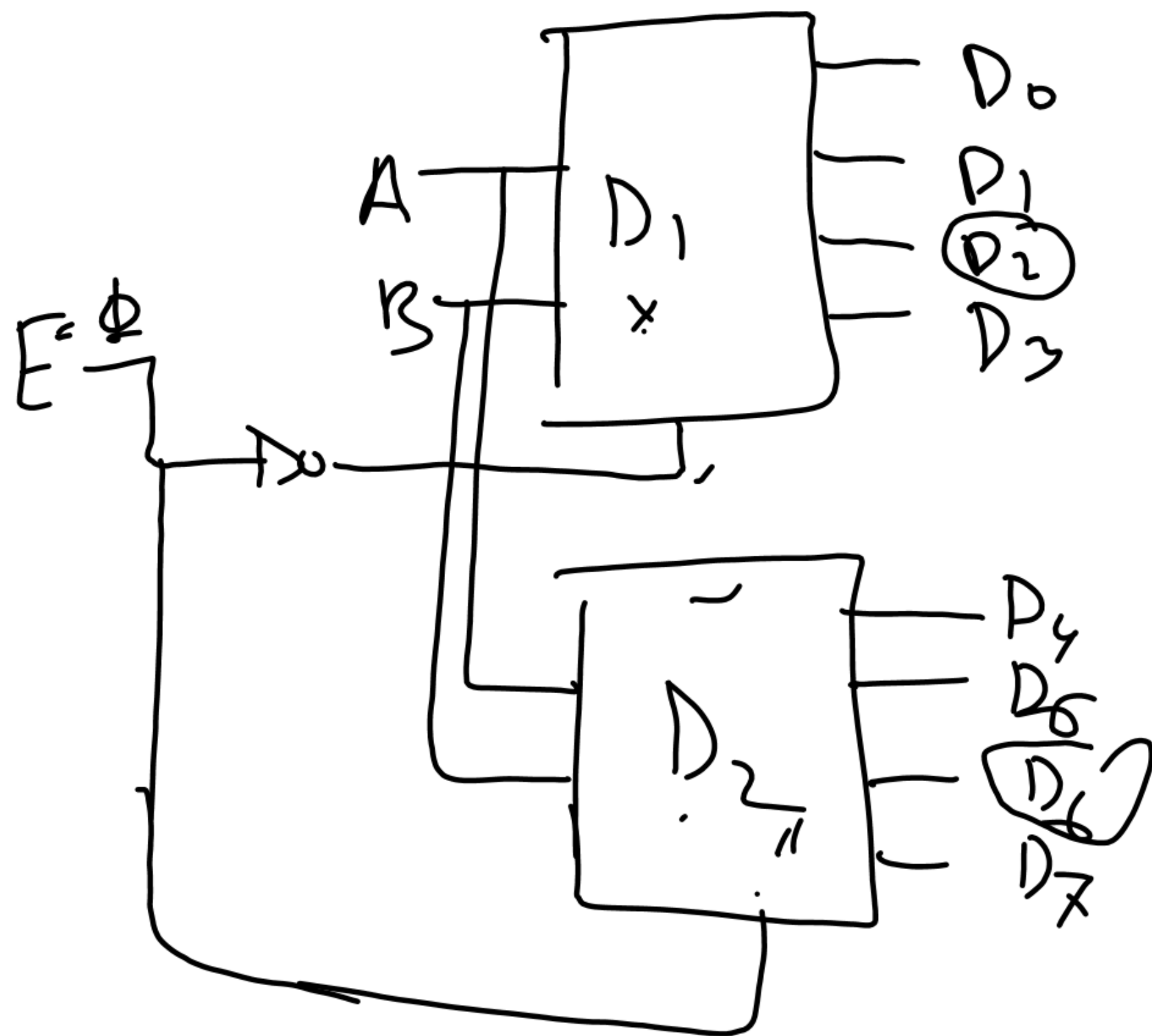
$$D_0 = \bar{A}\bar{B}\bar{C}\bar{D} + \bar{A}\bar{B}\bar{C}D$$

$$D_1 = \bar{A}B\bar{C}\bar{D} + \bar{A}B\bar{C}D$$

	E	A	B	C	D	D ₀	D ₁
→ 0	x	x	x	x		0	0
1	1	0	0	0		0	0
1	0	1	0	0		0	1
1	0	0	1	0		1	0
1	0	0	0	1		1	1

Decoden

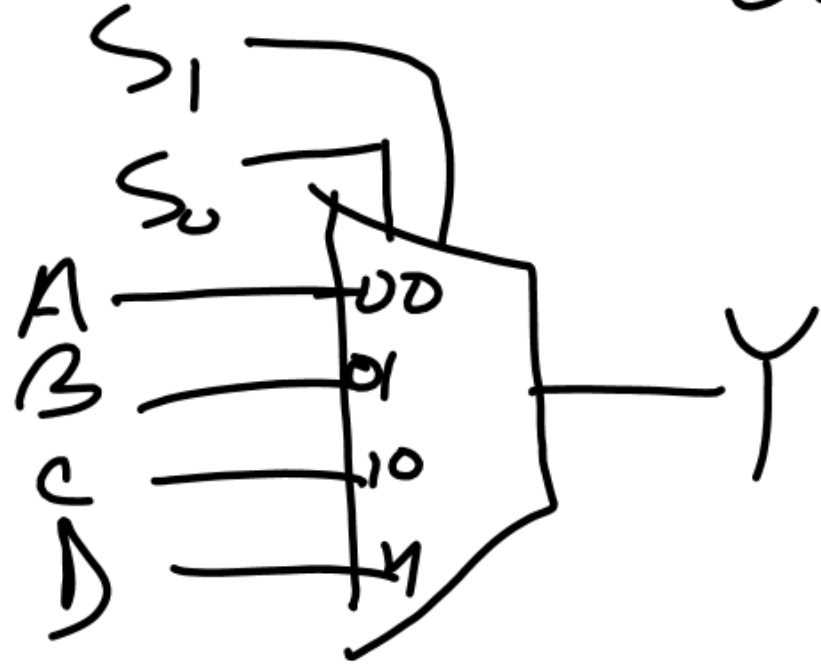
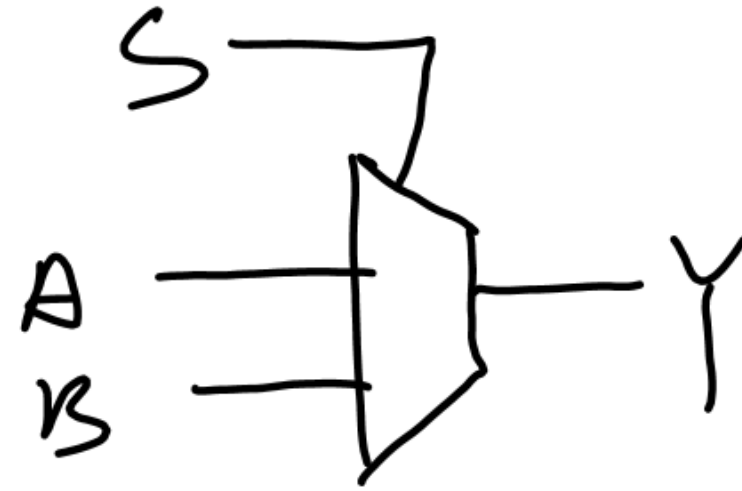




E	A	B	
0	0	0	D_0
0	0	1	D_1
0	1	0	D_2 (circled)
0	1	1	D_3
1	0	0	D_4
1	0	1	D_5
1	1	0	D_6 (circled)
1	1	1	D_7

MUX

$S \rightarrow n$
 Input = 2^n
 Output = 1



S_1	S_2	Y
0	0	A
0	1	B
1	0	C
1	1	D

S	Y
0	A
1	B