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5.0 using words with comm 1's comp

5.9 truth table

5.10 $C_k = x_k \oplus y_k \oplus S_k$

$S_k = ?$

Addn (half-addn, full-addn)

↑ Cin

1-bit Addn ⇝ 4-bit addn

carry look-addn

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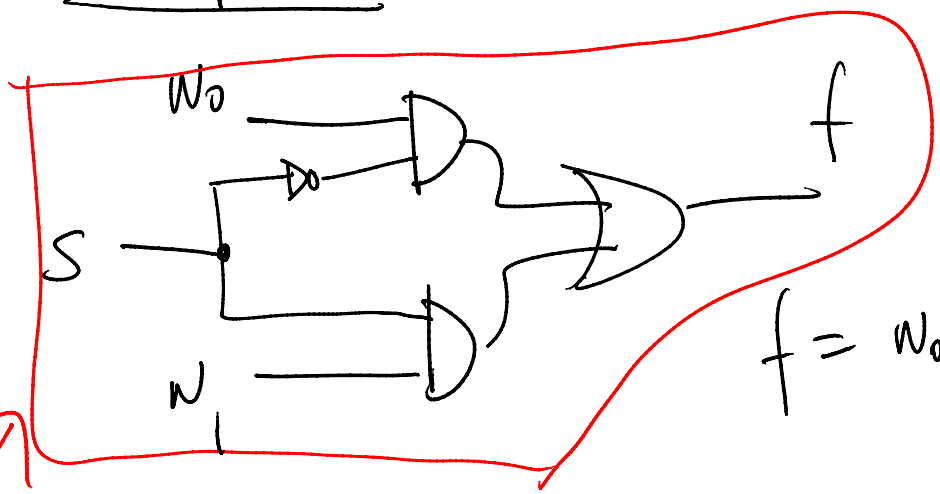
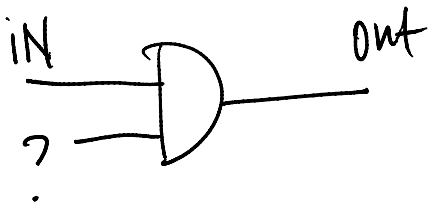
Multiplexer

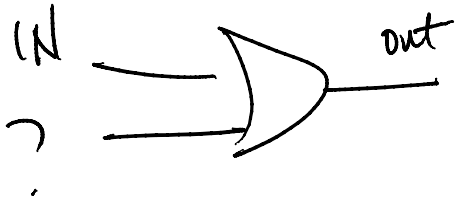


$f = w_0\bar{s} + w_1 s$



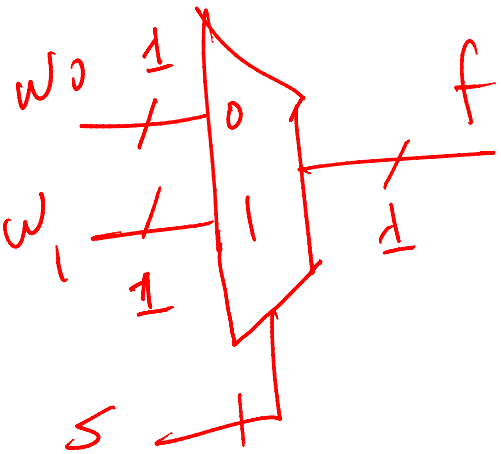
IN = 0 ⇒ out = 0

IN = 1 ⇒ out = ?



IN = 0 ⇒ out = ?

IN = 1 ⇒ out = 1



2-to-1 MUX

s	f
0	w_0
1	w_1

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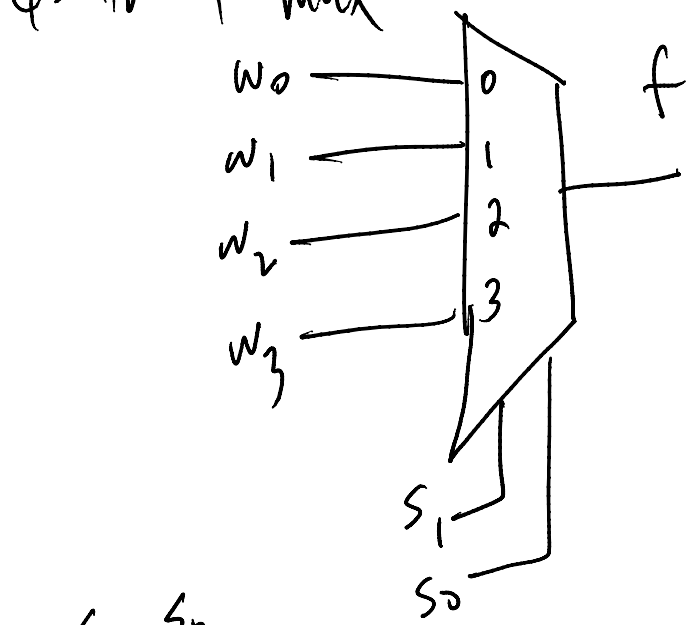
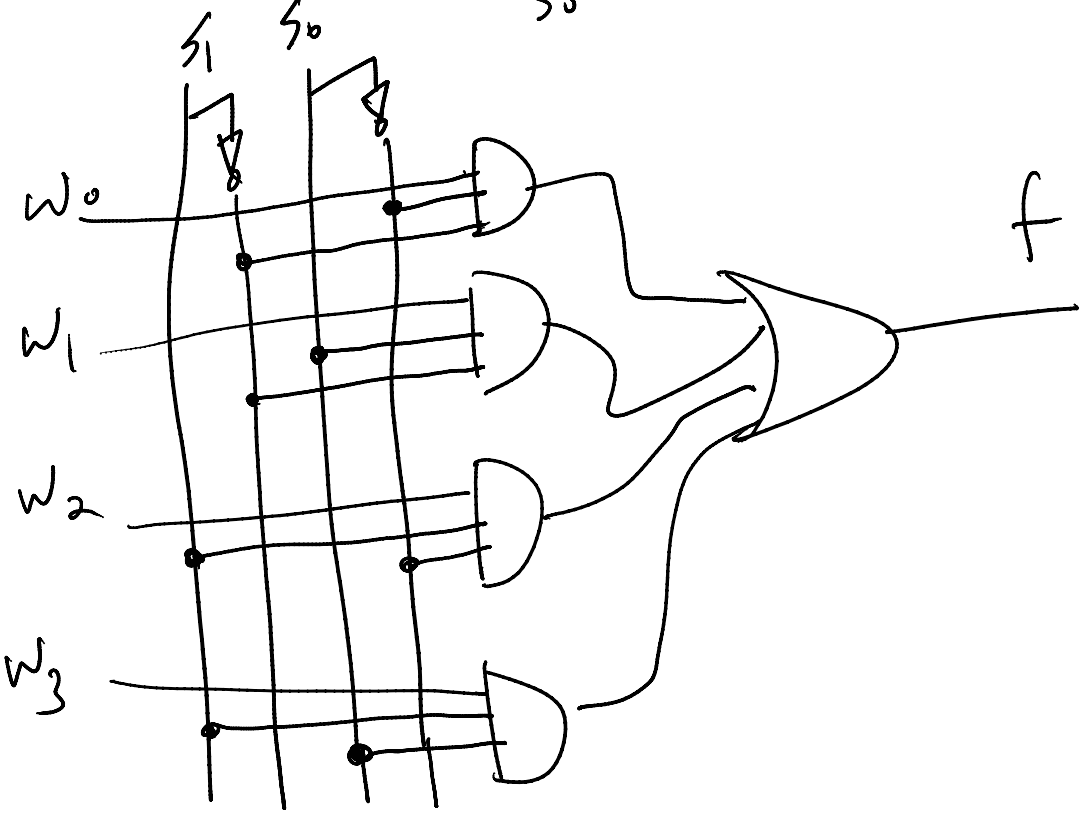
2-to-1 mux

s	f
0	w_0
1	w_1

4-to-1 mux

s_1	s_0	f
0	0	w_0
0	1	w_1
1	0	w_2
1	1	w_3





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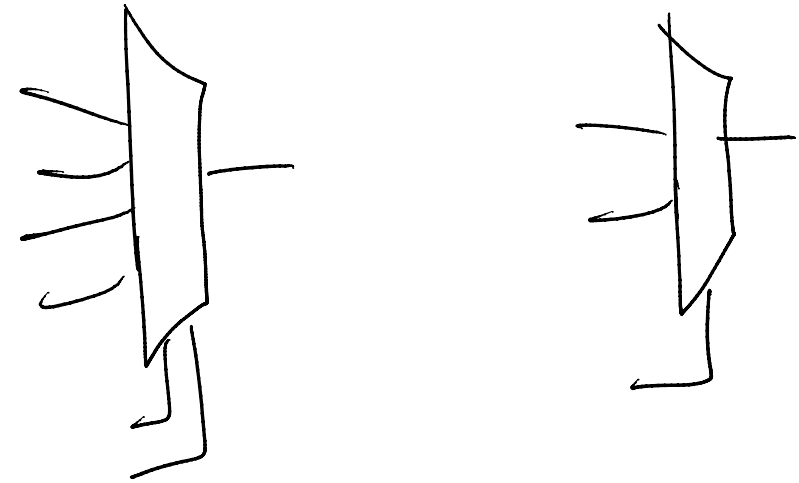
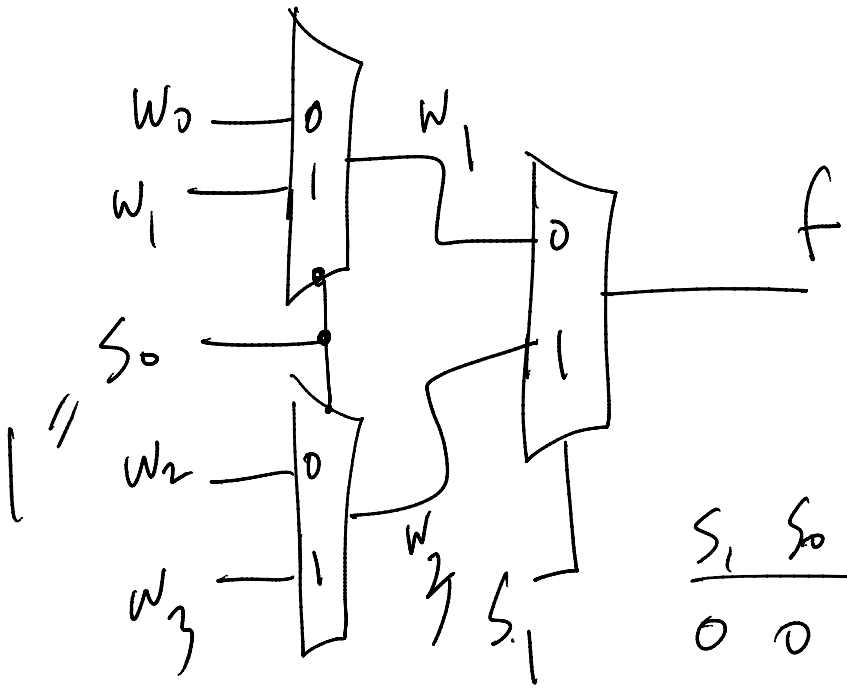
2-to-1 mux(s) to build a 4-to-1 mux





S_1	S_0	f
0	0	W_0
0	1	W_1
1	0	W_2
1	1	W_3

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$$f = \bar{x}\bar{y}z + \bar{x}y\bar{z} + x\bar{y}\bar{z} + xyz$$