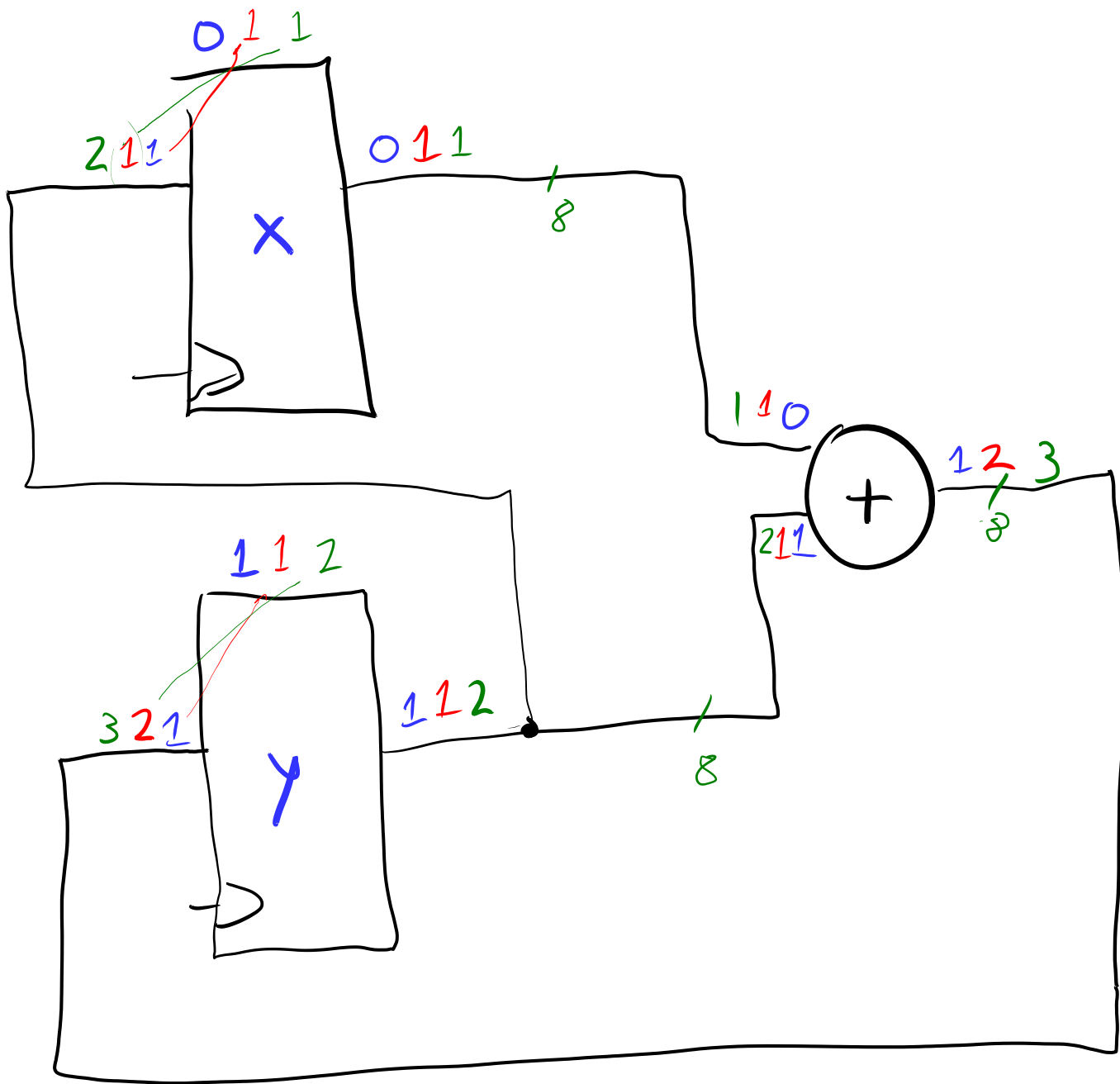




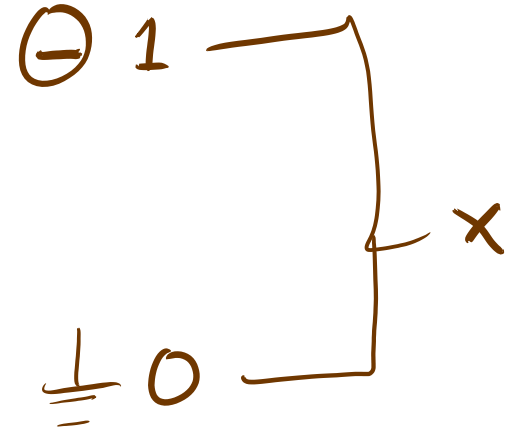
x	y	time
0	1	0
1	1	1
1	2	2
2	3	3
3	5	4
5	8	5
8	13	6
13	21	7
		8



Variable

wire

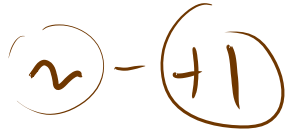
• single-session only



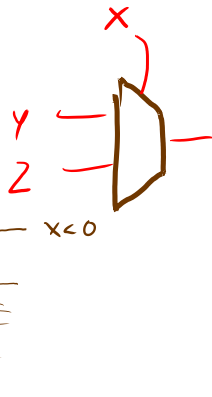
+



-

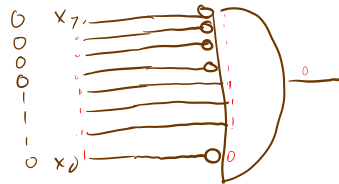


$x ? y : z$



$x < 0$

$x < y \equiv x \ominus y < 0$



$x == 14$

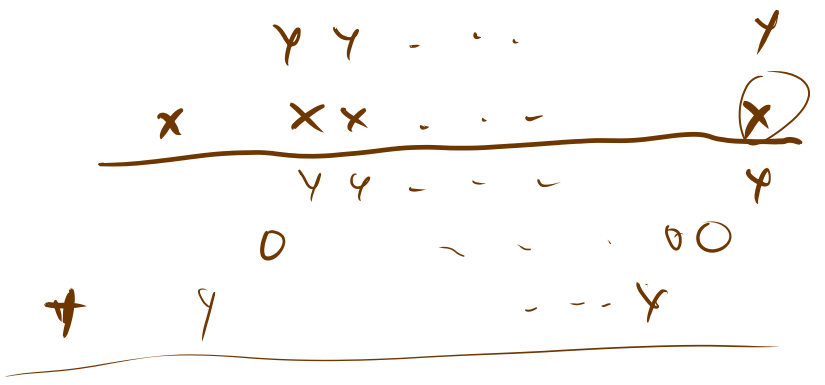
$x == y \quad x - y == 0$

$a = x ? y : z$

\vdots
 if (x) {
 a = y
 } else {
 a = z
 }

$\bar{0} \rightarrow 0 \dots 0$
 $\bar{1} \rightarrow 1 \dots 1$

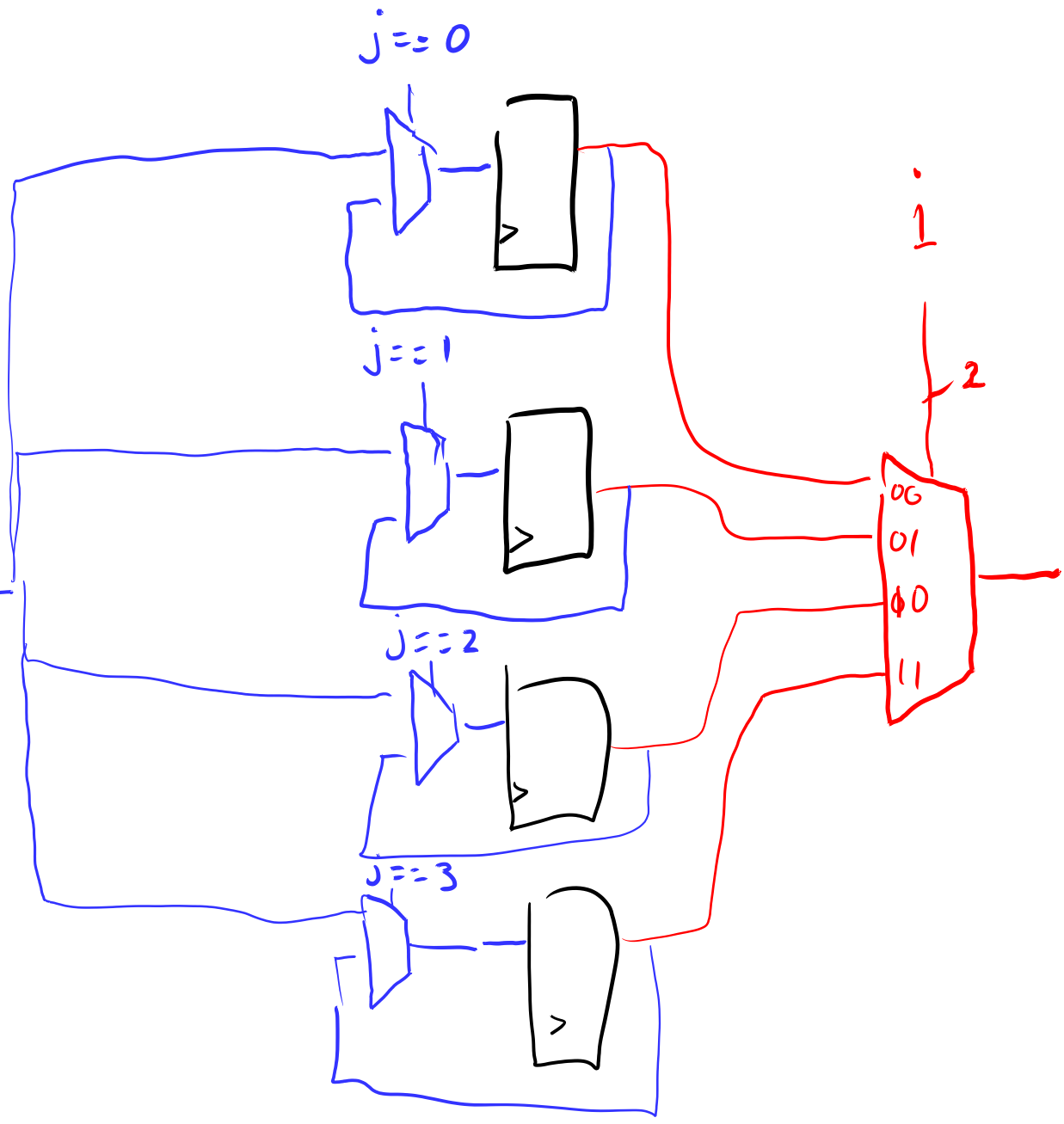
$X * Y$



$$\begin{aligned}
 & \overbrace{(x \& 1) \ll y}^{y \text{ or } 0} + \\
 & \overbrace{(x \gg 1) \& 1} \ll y \ll 1 + \\
 & ((x \gg 2) \& 1) \ll y \ll 2 + \\
 & \vdots
 \end{aligned}$$

Register bank
array

$$x[j] = x[i] + 3$$



Memory / Storage

RAM

disk

\$\$\$



SRAM



like register

6 transistors / bit

Volatile

fast

constant voltage

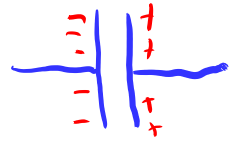
DRAM



like slow SRAM

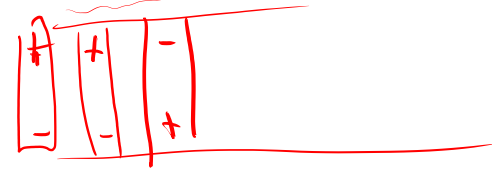
1 capacitor, 1 transistor

RAM



Flash

array



Magnetic

\$

erase - bit vol
w/ suml



Flash