Day 6
Programming Boolean expression

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What to do…

I. From gates to functions

II. Let’s build a processor

III. Let’s build a memory

I. From gates to functions

- Question: How will you write these expressions in C++?

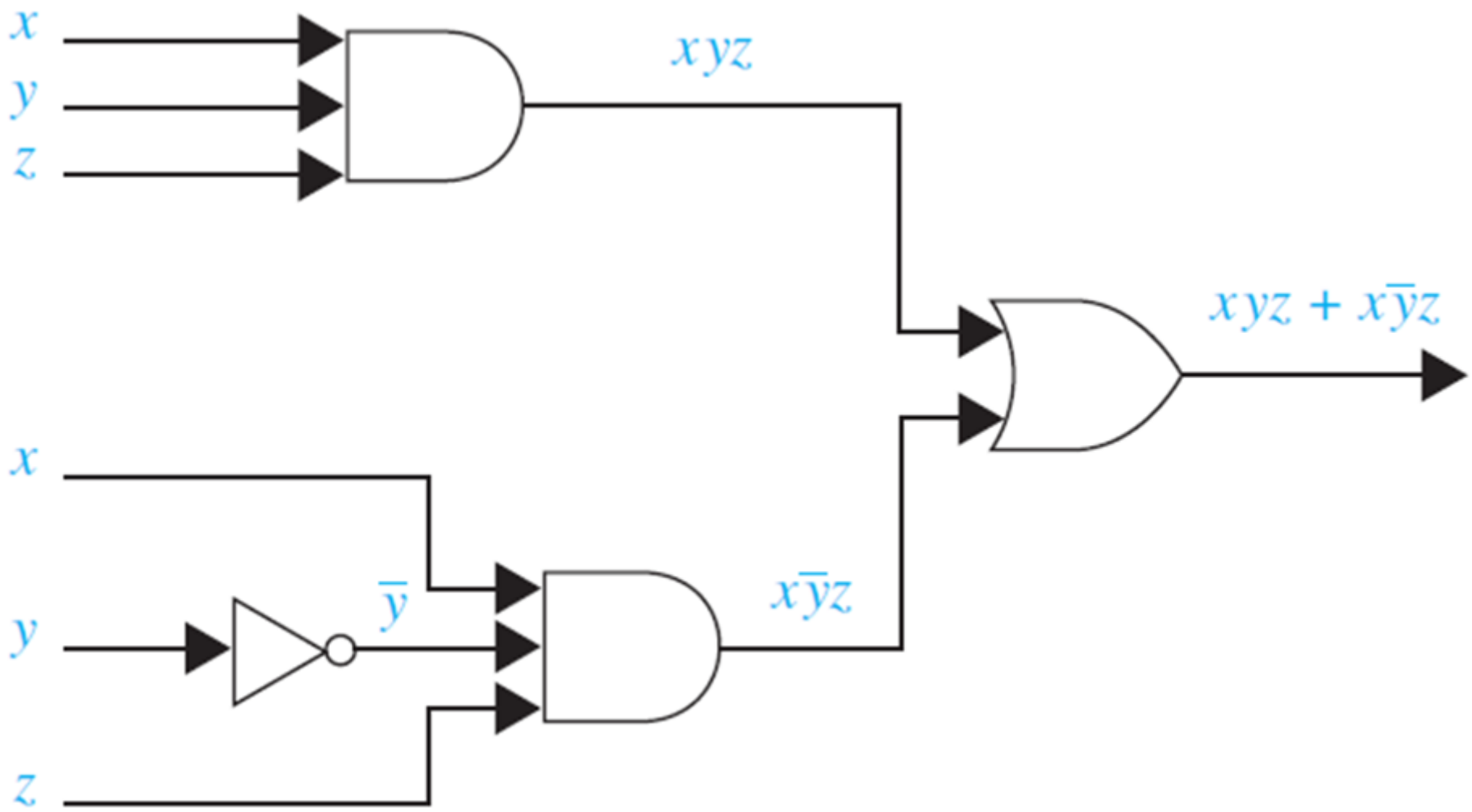
No.	Expression	C++ (a and b are Booleans)
1	NOT a	…
2	a AND b	…
3	a OR b	…
4	a XOR b	…
5	a NAND b	…

Now, the gates

- Gate can be a function.
  - Have input.
  - Have output.

$$f(x, z) = xz = x \;\&\&\; z$$

No.	Expression	Algebra	C++ function
1	NOT a	$\bar{a}$	
2	a AND b	ab	And(a, b)
3	a OR b	$a + b$	Or(a, b)
4	a XOR b		Xor(a, b)
5	a NAND b	$\overline{ab}$	Nand(a, b)



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

$$= OR(AND(AND(x, y), z), AND(AND(x, NOT(y)), z))$$

DEMO

The better idea is converting function into operator. 😆

We call it **operator overload**.

But first, we must learn about **structure** to present the variable.