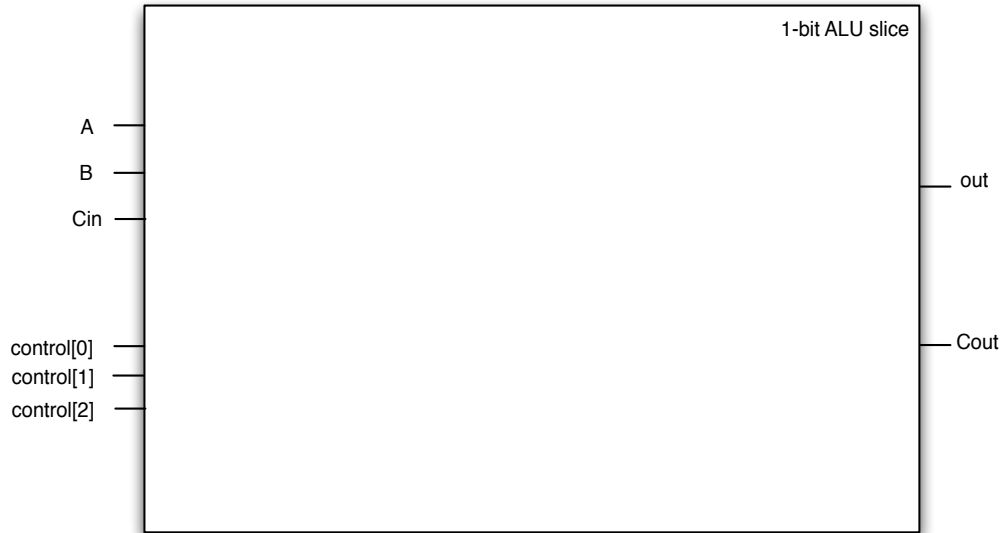


```
module alu1(out, carryout, A, B, carryin, control);
    output out, carryout;
    input A, B, carryin;
    input [2:0] control;
```

R <sub>0</sub>	Output
0	undefined
1	undefined
2	$X_i + Y_i$
3	$X_i - Y_i$
4	$X_i \text{ AND } Y_i$
5	$X_i \text{ OR } Y_i$
6	$X_i \text{ NOR } Y_i$
7	$X_i \text{ XOR } Y_i$



Logic Unit control

R <sub>1</sub>	R <sub>0</sub>	Output
0	0	$G_i = X_i Y_i$
0	1	$G_i = X_i + Y_i$
1	0	$G_i = (X_i + Y_i)'$
1	1	$G_i = X_i \oplus Y_i$

Which parts of the 1-bit adder/subtractor belong inside the 1-bit ALU?

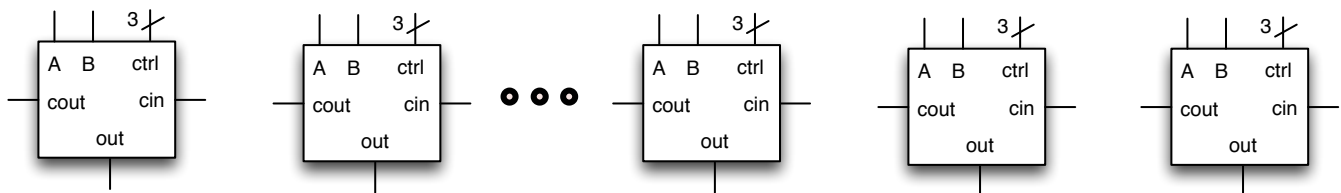
What should we do with the full adder's Cin input?

Where will "Sub" signal come from?

To what should the logic unit's control signals (R0, R1) be connected?

How do we select between the adder and the logic unit?

How do we control the selection?



Negative:

Zero:

Overflow: