We meant to ask you a question like this:

We're going to build a big circuit that, on inputs a, b, c produces:

$$M(0, b, c) \coloneqq \neg b$$
$$M(1, b, c) \coloneqq c$$

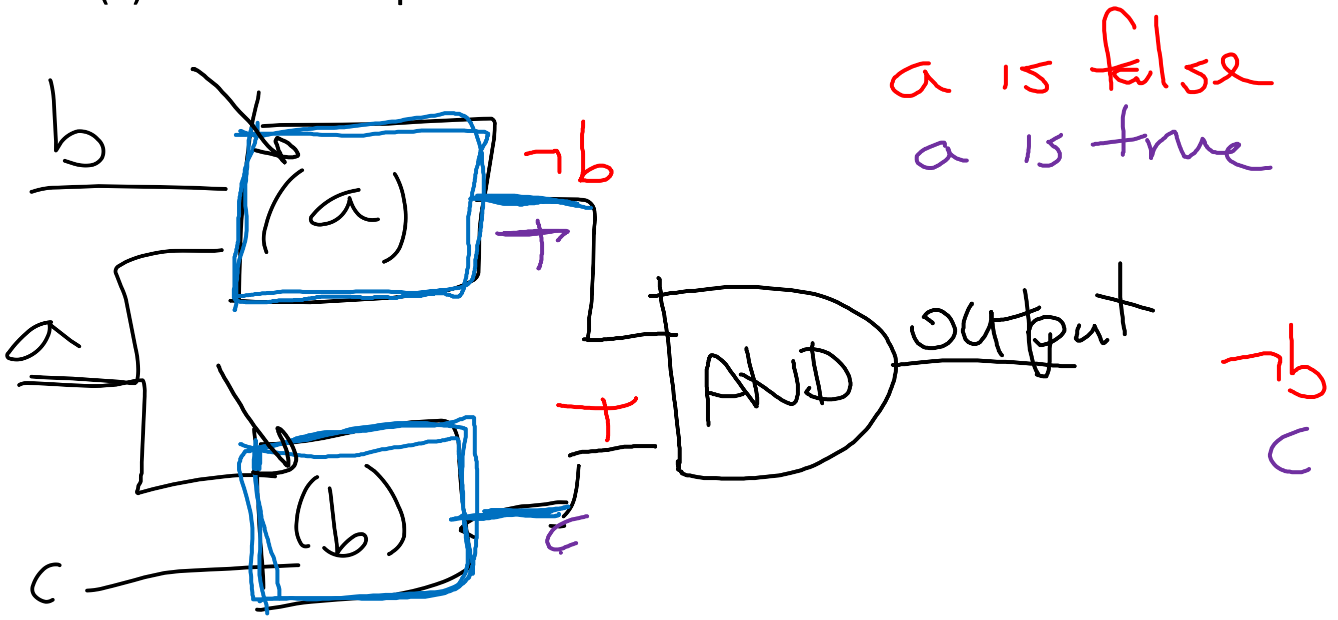
(a) Design a small circuit (a) which,

- When a is false, outputs $\neg b$
- When a is true, outputs $\mathbb{T}$

(b) Design a small circuit (b) which,

- When a is false, output $\mathbb{T}$
- When a is true, output c

(c) Combine to produce a circuit that calculates M.



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(a) Design a small circuit (a) which,

- When a is false, outputs $\neg b$
- When a is true, outputs T

(b) Design a small circuit (b) which,

- When a is false, output F
- When a is true, output c

(c) Combine to produce a circuit that calculates M.

(¬b) When a is false T
When a is true, ¬c

That’s not the only way to finish the problem!

There are some other clever ways to combine the circuits from (a) and (b).
But you may find this one easier.

Because of how the parts fit together, we aren’t strictly enforcing the “you must use your answers from (a) and (b) in part (c).