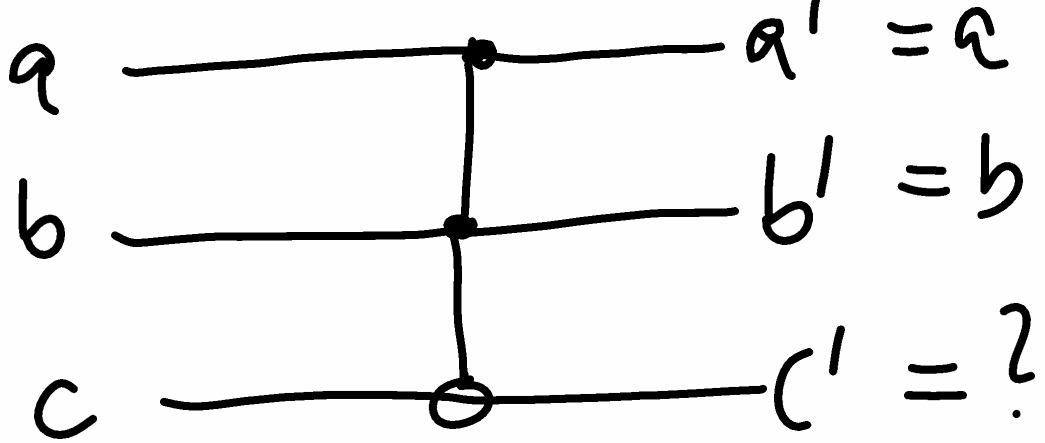
Course Comment(s):

Thu 25 Oct 2018

- Make your own Ideas/projects count towards course
  - Mandatory PresentAtion
    - clearly state Problem addressed
    - " " your solution
  - Clarity/Readability of code
  - Code Structure/Maintenance (make & git/hub)
  - Submission: gzipped tarball of git

(red ⇒ Mandatory)

# CNOT & CCNOT




**Question:** Write the logical expression of $c'$ in terms of $a, b, c$ (see truth table)

| a | b | c | g1 | g2 |
|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 1 | 0 | 0 |
| 0 | 1 | 0 | 0 | 0 |
| 0 | 1 | 1 | 0 | 0 |
| 1 | 0 | 0 | 0 | 0 |
| 1 | 0 | 1 | 1 | 1 |
| 1 | 1 | 0 | 1 | 1 |
| 1 | 1 | 1 | 1 | 1 |

guess 1

$$c' = [\neg(a \wedge b) \wedge c] \oplus [(a \wedge b) \wedge \neg c]$$

guess 2

$$c' = (a \wedge b) \oplus c$$

**Question** Is it true $g1 \leftrightarrow g2$ ?

Yes, because both have = TT.

**Exercise!** Show algebraically That $g1 \leftrightarrow g2$ is tautology