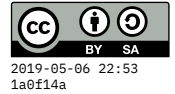


Assignment 3: logic



5 March 2019

Truth table

Write a complete truth table for all values of the Boolean expression assigned to you in the table below. (If you are not in this list, contact me to obtain your expression.)

Remember the correct order of operations: parentheses (), followed by negation (NOT '), then AND \cdot , then OR $+$, and finally XOR \oplus . Every expression here uses exactly three variables, so your table should have **eight** rows. You may create your truth table on paper and then take a very clear picture of it, or do it directly in a document or spreadsheet file.

ID	Initials	Expression
100535952	AG	$(B' \oplus B) \cdot (A+C)'$
100551455	AM	$A' + C \oplus C' \cdot B$
100588155	BM	$(C \cdot A)' + (B' \oplus C)$
100585354	CF	$B \cdot A \oplus (C+A)'$
100620003	CT	$A' \cdot C + (A \oplus B)'$
100580521	DD	$(B \oplus C)' + B' \cdot A$
100504153	EC	$A + B \oplus (C \cdot B)'$
100538993	JM	$C' \cdot A + (B \oplus A)'$
100567397	JM	$B \cdot A' \oplus C' + B$
100610792	KB	$(C \oplus B) \cdot (C' + A)'$
100589498	KK	$(B \oplus C)' \cdot (B' + A)$
100367370	KS	$B' + C \oplus C' \cdot A$
100515931	ML	$B \cdot C' \oplus A' + A$
100629088	SA	$(B+A)' \cdot (B \oplus C)'$
100632069	SB	$C' \cdot B \oplus A + A'$
100625271	SF	$B \cdot A' \oplus A + C'$
100579463	SK	$(A' + C)' \cdot (B \oplus C)$
100551483	SL	$B + B' \oplus C \cdot A'$
100619272	SM	$(B' + C)' \cdot (B \oplus A)$
100580414	SQ	$(B \oplus A') + (C \cdot A)'$
100586641	ST	$A' + A \oplus C' \cdot B$
100594503	SW	$(C' \cdot A)' \oplus B + A$
100555030	XL	$B + C \oplus (C' \cdot A)'$

Circuit

Using Logisim, implement a circuit for your assigned Boolean expression. It should have exactly three two-state input pins, labeled as A, B, and C. It should have one output pin or LED. Test the circuit against your truth table to verify the results. If you find a way to implement exactly the same calculation with fewer gates, that's fine (but not necessary). Save your work as `truth1.circ` and attach that file to the Wiki to submit.

How to submit

As before, go to your **cs101** project page on `gitlab.liu.edu` and select **Wiki** in the sidebar. Push the green **New page** button. Set the “Page slug” (title) to exactly A3 (capital A, the number 3, no spaces). Attach the truth table (an image or office document) and the Logisim circuit file using the **Attach a file** button, then save the page.