In-class 9: Logic-based testing (Active Clause Coverage)
Due 1-November-2018 by 11:59pm

Names:

**Purpose**: Understand and practice Active Clause Coverage (ACC)

**Instruction**: Work with your neighbors in groups and work on at least one of the following predicates

1. \( p = a \text{ XOR } b \)
2. \( p = a \text{!} b + ac \)
3. \( p = a \text{ } \rightarrow (b \rightarrow c) \)

Identify the circumstances under which each clause determines the value of the predicate. For practice, we will work through all the following methods. At quiz/exam time, you should use the method that you are most comfortable with.

- Direct observation (works great on easy predicate)
- Analysis of the truth table (the "tabular-pairs" approach)
- Direct computation (boolean calculus, XOR)

Next, compute all pairs of inputs that satisfy the three ACC interpretations (GACC: General Active Clause Coverage, CACC: Correlated Active Clause Coverage, and RACC: Restricted Active Clause Coverage) for each clause in the predicate.

The recommended method of computation is as follows (assuming clause of interest is "a").

**GACC**: \( Pa = T \); \( a = T \)
\( Pa = T \); \( a = F \)

**CACC**: Same as GACC, with additional constraint that predicate differs between the two inputs

**RACC**: same as GACC, with additional constraint that predicate differs between the two inputs and minor clauses are the same on the two inputs

Write out the truth table, and identify rows (and then pairs of rows) that satisfy the various constraints. Use the same numbering on the truth table as the online tool uses.
### Row# | a | b | P | Pa | Pb
---|---|---|---|---|---
|    |   |   |   |   |   

### Row# | a | b | c | P | Pa | Pb | Pc
---|---|---|---|---|---|---|---
|    |   |   |   |   |   |   |   

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**Grading rubric**

[Total: 10 points]: Done (or provide evidence of your attempt)

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**Submission**

Submit the paper in class before you leave or take screen shots of your in-class exercise and submit them to Collab/inclass9. *Everyone submits this in-class exercise*, even if you work with partners.