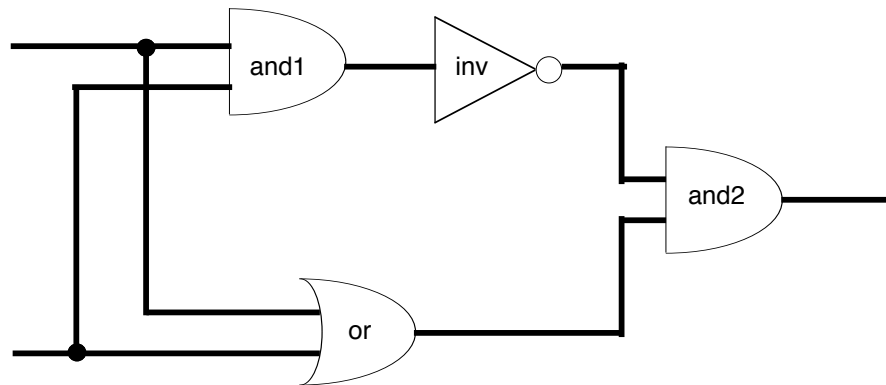


CS 2502/486 2007 Assignment 3

Due: November 30

1. [50 pts] Chapter 11, Exercise 1.
2. [20 pts] Chapter 11, Exercise 2.
3. [10 pts] Chapter 12, Exercise 1a) and 1b).
4. [30 pts] Chapter 12, Exercise 2.
5. [10 pts] Redefine the generalized closed world assumption (GCWA) in terms of prime implicants, and explain informally why your definition works.
6. [30 pts] Consider the binary XOR circuit below, where `and1` and `and2` are AND gates, `inv` is an inverter, and `or` is an OR gate.



- (a) Write sentences describing this circuit: its components, connectivity, and normal behaviour.
- (b) Write a sentence for a fault model saying that a faulty AND has its output stuck on 1.
- (c) Assuming the above fault model and that the output is 1 given inputs of 0 and 0, generate the abductive explanation for this behaviour.
- (d) Generate the consistency-based diagnoses for this circuit under the same conditions.
- (e) Compare the two accounts and explain intuitively why they are different.