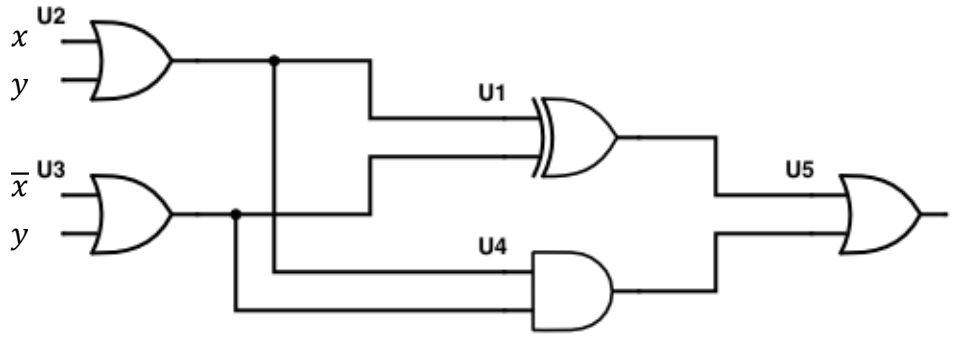
Don’t Cares and Universal Gates

Homework 3 supplement

Don’t Cares



1. Observability Don’t Cares:
Due to observability don’t cares, Gate U1 can be replaced with which type of gate (e.g. AND, OR, NAND, NOR, XNOR)? Justify your answer.

2. Satisfiability Don’t Cares:
Due to satisfiability don’t cares, Gate U1 can be replaced with which type of gate (e.g. AND, OR, NAND, NOR, XNOR)? Justify your answer.

Universal Gates

1. Prove that the 3-input gate $f(x, y, z) = (x + y)(\overline{x} + z)(\overline{x} + \overline{y} + \overline{z})$ is universal.