ECE510: Homework 3
Manipulating BDDs

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Due before class, May 15 (Thursday)

1. Find a good BDD variable ordering for the following function:

   $$f \quad = \quad (a + be)(d' + c)$$

   Discuss your reasoning. Draw the BDD for your ordering (don't use complement edges).

2. Give commented detailed pseudo-code for a procedure which takes an ROBDD F and a variable x and returns the ROBDD for F_x.

   By detailed, I mean do not simply write `return ite(F,x,0)` (which in any case is not correct).

3. Draw the BDDs for the functions $f = x_1 + x_2 \cdot x_3{}'$, and $g = x_2 + x_3 \cdot x_4$ under the variable ordering $x_1 \prec x_2 \prec x_3 \prec x_4$. Compute the BDD for the function $f \cdot g$ using the ITE operator. Show all steps, assuming the ITE cache starts off empty, and that there are no BDD nodes, save for those from f and g.