**Assignment #3; Due February 17 at start of class**

1. **Show that prfs are closed under halfway induction. Halfway induction means that each induction step, say at y+1, after calculating the base is computed using the value of the function at ⎣(y+1)/2⎦. The formal hypothesis is:   
   Assume g and h are already known to be prf, then so is f, where  
   f(x,0) = g(x)  
   f(x,y+1) = h(f(x, ⎣(y+1)/2⎦))**
2. **Show that prfs are closed under halfway mutual induction. Halfway mutual induction means that each induction step, say at y+1, after calculating the base is computed using the value of the other function at ⎣(y+1)/2⎦. The formal hypothesis is:   
   Assume g1, g2, h1 and h2 are already known to be prf, then so are f1 and f2, where  
   f1(x,0) = g1(x); f2(x,0) = g2(x)  
   f1(x,y+1) = h1(f2(x, ⎣(y+1)/2⎦)); f2(x,y+1) = h2(f1(x, ⎣(y+1)/2⎦))**