Due Date: November 30


2. (a) Use Theorem 6.18 to show that there is no LTL formula that is equivalent to the CTL formula $\exists \Box \forall \Diamond a$.

(b) Use the reduct method to show the same result as in Part (a).
[Note: We probably didn’t mention this in class, but when you use the reduct method, your reduct has to have no terminal states. This is because we have not defined what it means for a formula to be true in a transition system that has terminal states.]

3. Give an example of two transition systems $T_1$ and $T_2$, and a CTL formula $\Phi$ such that
   
   (a) $Traces(T_1) = Traces(T_2)$;
   
   (b) $T_1$ and $T_2$ each have only one initial state;
   
   (c) $T_1 \models \Phi$;
   
   (d) $T_2 \not\models \Phi$.

[We gave a similar example in class, but $T_1$ had two initial states. You can modify the example from class to get the example you need here.]