

## Logic pset 10

Resources: HLW [Ch 6](#) and Lectures [13](#) and [14](#)

1. Represent the form of the following sentences in predicate logic. We've suggested appropriate symbols. (For the sentences about people, you don't need to add an extra predicate for "x is a person.")
  - (a) No logicians are celebrities. ( $Lx, Cx$ )
  - (b) Only students who do the homework will learn logic. ( $Sx, Hx, Lx$ )
  - (c) All students and professors get a discount. ( $Sx, Px, Dx$ )
  - (d) Not all logicians are computer scientists. ( $Lx, Cx$ )
  - (e) If there are rich logicians, then some logicians are computer scientists. ( $Rx, Lx, Cx$ )
2. Prove the following sequents using the propositional logic rules (including cut & replacement, if you want) and UE.
  - (a)  $\forall x \neg Fx \vdash Fa \rightarrow P$
  - (b)  $\forall x(Fx \rightarrow Gx), \neg Ga \vdash \neg \forall x Fx$
  - (c)  $\vdash \neg \forall x(Fx \wedge \neg Fx)$