

Logic for Philosophers

Problem Set 2

Due April 18th

Name: _____

Student ID# _____

All of the following sequents are derivable. Provide derivations for them.

1. $\forall xFx, \forall x(Fx \rightarrow Gx) \vdash \forall xGx$
2. $Fa, \forall x(Gx \rightarrow \sim Fx) \vdash \sim Ga$
3. $\forall x(Fx \rightarrow Gx), \exists xFx \vdash \exists xGx$
4. $\forall x(Fx \rightarrow Gx) \vdash (Fa \rightarrow Ga)$
5. $\forall x(Fx \vee Gx), \forall x\sim Fx \vdash \forall xGx$
6. $\forall x(Fx \rightarrow Gx), \exists x(Fx \& Hx) \vdash \exists x(Fx \& Gx)$
7. $\forall x(Fx \rightarrow Gx) \vdash (\sim\exists xGx \rightarrow \sim\exists xFx)$
8. $(\forall xFx \& \forall xGx) \vdash \forall x(Fx \& Gx)$
9. $(\exists xFx \vee \exists xGx) \vdash \exists x(Fx \vee Gx)$
10. $\forall xFx \vdash \sim\exists x\sim Fx$