Lecture 14
First Steps in Predicate Logic

Goal: Proofs with UE

- Universal Elimination (UE) is fairly simple: if $\forall x \phi(x)$ is true, then $\phi(a)$ is true, for any name "a"
- Caution: The sentence on the line must be a universally quantified sentence.

$$\forall x Fx \rightarrow Ga$$

- Caution: The same name must replace all instances of the variable.

$$\forall x (Fx \rightarrow Gx)$$

All Frisians are gregarious.
Alvin is Frisian.
Therefore, Alvin is gregarious.

To show: $\forall x \forall y(Fx \land Gy) \vdash Fa \land Gb$

To show: $\forall x \forall y(Fx \wedge Gy) \vdash Fa \wedge Ga$

To show: $P \to \forall x Fx \vdash P \to Fa$

To show: $\neg Fa \vdash \neg\forall x Fx$