Introduction to Computational Logic, SS 2006:
Hints for Assignment 1

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Exercise 1.1 (Boolean Connectives)

b) $\Rightarrow = \lambda x \in \mathbb{B}.\ \lambda y \in \mathbb{B}.\ \neg x \vee y$
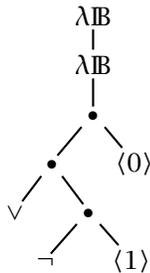
Exercise 1.2 (Sets as functions)

d) $\subseteq = \lambda f \in P(X).\ \lambda g \in P(X).\ \forall x \in X \colon \neg(f\ x) \vee (g\ x)$

Exercise 1.3 (Identities and Quantifiers)

c) $\forall_X = \lambda f \in X \to \mathbb{B}.\ \neg \exists x \in X\ .\ \neg(fx)$

Exercise 1.4 (Tree Representatations)

  a) $\lambda x : \mathbb{B}.\ \lambda y : \mathbb{B}.\ \neg x \vee y$:

Exercise 1.5 (Substitution)

  a) $(f x (\lambda x : X.\ y))[x := y] = f y (\lambda x : X.\ y)$