Zackery Field
ID: 23031734
CS 70, Summer 2013
Homework 1
Problem 4 (7 Points)

4a. [3 points]

(I) $\neg\exists x(P(x) \Rightarrow \neg B(x))$

(II) $\neg\exists x(U(x) \Rightarrow F(x))$

(III) $\forall x(O(x) \Rightarrow N(x))$

(IV) $\forall x(B(x) \Rightarrow F(x))$

(V) $\forall x(K(x) \Rightarrow P(x))$

(VI) $\forall x(N(x) \Rightarrow U(x))$

4b. [2 points]

(I) $\neg\exists x(B(x) \Rightarrow \neg\neg P(x))$

(II) $\neg\exists x(\neg F(x) \Rightarrow \neg U(x))$

(III) $\forall x(\neg N(x) \Rightarrow \neg O(x))$

(IV) $\forall x(\neg F(x) \Rightarrow \neg B(x))$

(V) $\forall x(\neg P(x) \Rightarrow \neg K(x))$

(VI) $\forall x(\neg U(x) \Rightarrow \neg N(x))$

4c. [2 points] The person who wears kid gloves goes to a party, by (V). By (I), this person has brushed their hair, and by (IV), they look fascinating. By (II), this person is also not untidy, or, tidy. This tidy kid glove wearing personby (VI) has self command. Therefore, by (III), this person is not an opium-eater.