

Assignment #6. Due Thurs March 10.

1. Use the following translation key to translate the sentences in English into **QL**.

F means ____ is a logic instructor

G means ____ is boring

h means Hank

(a) Hank is a boring logic instructor.

(b) All logic instructors are boring.

(c) If Hank is a logic instructor then some logic instructors are not boring.

2. Translate the following from English into **QL**. Use the following translation key.

P means ____ is a person W means ____ will go to heaven

R means ____ ate rice D means ____ is rich

S means ____ got sick A means ____ is appreciated

G means ____ is good F means ____ is famous.

B means ____ is beautiful

(a) Not everyone who ate rice got sick.

(b) Some beautiful people are not good and will not get to heaven.

(c) No one will be appreciated unless they are either beautiful or rich.

3. Translate the following from **QL** into English using the translation key from #2.

(a) $\neg\forall x((Px \wedge (Bx \wedge Gx)) \supset (Dx \vee Ax))$

(b) $\forall x((Px \wedge ((Dx \wedge Fx) \vee Ax)) \supset (Gx \vee Bx))$

4. Use the given translation key to translate the following into English or **QL**, as the case may be. For the English translations, write an ordinary English sentence, not a literal logical reading.

F means ____ is a professor H means ____ has ____

S means ____ is a student L means ____ listens to ____

B means ____ is a book W means ____ writes ____

P means ____ is poetry R means ____ reads ____

D means ____ is well-rounded A means ____ assigns ____ to ____

G means ____ gets good grades

(a) $(\exists x)(\exists y)(Fx \wedge Sy \wedge Hyx \wedge Lxy)$

(b) $(\exists x)(Fx \wedge (\forall y)((Py \wedge \neg Wxy) \supset \neg Rxy))$

(c) Some students read some books assigned by some of their professors.

(d) Some well-rounded students who don't get good grades both read and write poetry.