7.2.x. Exercise questions

1. Restate, with unrestricted quantifiers, the generalizations below that employ restricted quantifiers—and vice versa. Write out English readings for the results.
   a. (∀x: Fx) Gx
   b. ∀x (Fx → ¬ Gx)
   c. (∀x: Fx ∧ ¬ Gx) Hx
   d. ∀x ((Px ∧ ¬ Rxx) → Rxa)
   e. (∀x: Rxa ∧ ¬ Rbx) ¬ (Fx ∨ Gx)
   f. ∀x ((Fx ∨ Gx) → (Hx ∧ ¬ Kx))

2. Analyze the following in as much detail as possible, stating the resulting form using both restricted and unrestricted quantifiers:
   a. *Everyone had heard about the accident*.
   b. *Every relative of Sam agreed with him about the issue*.
   c. *Edna took pleasure in none of her possessions*.
   d. *Tom found only empty boxes*
   e. *The survey was sent to all members of the organization except its officers*.
   f. *Only countries bordering the Pacific will prosper*.

3. State in idiomatic English the generalizations that could be represented symbolically by the following:
   a. (∀x: x *is a dog*) x *chases cats*.
   b. (∀x: x *is a hole*) *Holly patched* x.
   c. (∀x: x *is a person*) ¬ x *volunteered*.
   d. (∀x: ¬ x *is a cockroach*) ¬ x *will survive*.
   e. ∀x ¬ x *seemed right*.
   f. (∀x: x *was a reviewer* ∧ ¬ x *was a friend of the director*) x *panned the movie*.
   g. (∀x: x *is a bird* ∧ ¬ x *is an early bird*) ¬ x *gets a worm*.
   h. (∀x: ¬ x *is a small child*) *the movie bored* x.