Problem Set 2

Due February 6 before class. Submit on IVLE > Files > Student Submission > PS2.

1. **Set notation exercise** from Heim & Kratzer pages 9–10:

   The same set can be described in many different ways, often quite different superficially. Here you are supposed to figure out which of the following equalities hold and which ones don't. Sometimes the right answer is not just plain "yes" or "no", but something like "yes, but only if...". For example, the two sets in (i) are equal only in the special case where $a = b$. In case of doubt, the best way to check whether two sets are equal is to consider an arbitrary individual, say John, and to ask if John could be in one of the sets without being in the other as well.

   (a) $\{a\} = \{b\}$

   (b) $\{x : x = a\} = \{a\}$

   (c) $\{x : x \text{ is green}\} = \{y : y \text{ is green}\}$

   (d) $\{x : x \text{ likes } a\} = \{y : y \text{ likes } b\}$

   (e) $\{x : x \in A\} = A$

2. **Reflexivity:** A quantifier Q is called *reflexive* if for any set A, $Q(A)(A)$ is true. Similarly, a quantifier Q is called *irreflexive* if for any set A, $Q(A)(A)$ is false.

   (a) Using the definitions for these quantifiers from class, classify each of the following quantifiers as reflexive, irreflexive, or neither: *every*, *a*, *no*, *two*, *not all*.
   Hint: Remember to consider the possibility that A is the empty set.

   (b) The existential *there* construction is grammatical with some quantifiers but not others. Here is some data in (1) below. What is the generalization?

   (1) a. * There is *every* cat in the yard.
   b. There is *a* cat in the yard.
   c. There is *no* cat in the yard.
   d. There are *two* cats in the yard.
   e. * There are *not all* cats in the yard.