Semantics 1 (Ling-53)
Final Take-Home Exam
(due Wednesday March 17 by NOON)

Note 1: No late exams accepted. This is an *exceptionless* rule: any exam submitted after noon (Pacific time) March 17 will not be accepted.

Note 2: Please type your answers.

1. **Predicate Logic.** A. Consider the following sentence:

(1) Every little dog fears a big dog.

This sentence is ambiguous between two interpretations. Give the predicate logic formula for each interpretation. For each formula,

- make up a model $M_1$ and prove that $M_1$ makes the formula true (by using assignment functions for variables);
- make up a model $M_2$ and prove that $M_2$ makes the formula false (by using assignment functions for variables).

When creating a model, specify both the domain and the denotations of each predicate obtained by means of the denotation function $F$. Do the same for the following sentence:

(2) Every cat is not asleep.

B. Now, consider the sentence (3) and the model $M_3$ below. Is (3) true or false in $M_3$? Give a proof of your answer by using assignment functions $g_n$ for variables. (Note: when calculating the truth value of (3), do not forget that the sentence in (3) is complex, i.e. it has two parts (clauses) connected by the connective if...then.)

(3) If every man visited a city, then every man is happy.

**Model** $M_3$:

- **Domain:** {John, Bill, Mary, Sue, Felix, New York, Boston}
- **Denotations obtained by means of $F_3$:**
  (a) $F_3(\text{man}) = \{\text{John, Bill}\}$
  (b) $F_3(\text{woman}) = \{\text{Mary, Sue}\}$
  (c) $F_3(\text{cat}) = \{\text{Felix}\}$
  (d) $F_3(\text{city}) = \{\text{New York, Boston}\}$
  (e) $F_3(\text{visited}) = \{(\text{John, New York}), (\text{Mary, Boston}), (\text{Sue, Boston})\}$
\[ f_3(\text{happy}) = \{\text{John, Mary, Sue, Felix}\} \]

2. **Presuppositions.** A. Consider the sentence in (4): discuss whether the sentence carries any presuppositions by using at least two of the presupposition tests we studied in this class.

(4) John went to the movies again last night.

B. Now consider the complex sentences below. Say whether these sentences have presuppositions and discuss your answers. Note: since some of these sentences are complex sentences, you should pay attention to which part of the sentence the presupposition trigger (or triggers) occurs in and to whether the presuppositions project from an embedded clause to the whole sentence.

(5) The students passed the exam and the principal was glad that they did.
(6) Mary used to smoke and John just quit smoking.
(7) If John bought an ice-cream, his wife bought one too.

3. **Implicatures.** A. Consider the following sentence:

(8) Sometimes John goes to work by bus.

An utterance of this sentence carries the scalar implicature that John does not always go to work by bus. Show how this implicature arises by using the notion of a **scale**, the relevant **maxim of conversation** and the **Gricean reasoning** we discussed in class.

B. What is the scalar implicature triggered by an utterance of (9)? Justify your answer as explained above.

(9) Mary didn’t invite some of her classmates.

C. What is the scalar implicature triggered by an utterance of (the underlined part of) (10)? Justify your answer as explained above.

(10) (Suppose Mary is writing a letter of recommendation for John who is applying to writing programs. She writes:) John is an ok writer.

4. **Meaning relations.** Illustrate with an example each of the following meaning relations. Specify the logical relation between the words.

(a) **Hyponym/Hyperonym**

(b) **Antonyms**

(c) **Complementaries**
5. **Thematic roles.** Consider the pair of sentences in (11). A ditransitive verb like *send* can either be expressed as a prepositional phrase (*to Mary* in (a)) or as a bare noun phrase (*Mary* in (b)), without changing the meaning of the sentence.

(11)  
a. John sent a letter to Mary.  
b. John sent Mary a letter.

Now consider the pair in (12). The argument of the verb *to send* that is expressed as a prepositional phrase in (a) (i.e. *to New York*) cannot be expressed as a noun phrase (i.e. *New York* in (a)) without affecting the meaning of the sentence.

(12)  
b. #John sent New York a letter.

A similar constrast is duplicated in (13) and (14) for the verb *to bring*.

(13)  
a. John brought a book to his sister.  
b. John brought his sister a book.

(14)  
a. John brought a book to Santa Cruz.  
b. #John brought Santa Cruz a book.

Describe (possibly in terms of thematic roles) why the (b) sentences in (12) and (14) are odd. It may help to include in your discussion other examples in addition to the ones provided here (hint: try to replace the noun phrase *Santa Cruz* in (14) with other types of noun phrases to investigate what restrictions apply to this argument).