

## Assignment 6 (due Tuesday, March 27 in class)

### I. Models and the semantics of PredL

A. Construct a model  $M$  such that each of the following PredL formulas is true relative to  $M$ :

- (1)  $\text{LOVE}(a, b) \ \& \ \sim \text{LOVE}(b, a)$
- (2)  $\text{LOVE}(b, a) \rightarrow \text{GREEK}(a)$
- (3)  $(\text{BETWEEN}(b, a, c) \vee \sim \text{BETWEEN}(b, a, c)) \rightarrow \text{MAN}(b)$
- (4)  $(\text{GREEK}(a) \ \& \ \text{MAN}(a)) \rightarrow \text{MAN}(a)$

To do this, you will have to provide:

- (i) a set  $D$  of individuals (the “inhabitants” of your model  $M$ ), and
- (ii) an “assignment function”  $Val$ , which assigns a denotation (= semantic value) to each individual/predicate constant that appears in (1)-(4).

(Note: there are in fact many models that make (1)-(4) true. You just have to provide one of them.)

B. Is it possible to construct a model that makes (4) false? If it is, then provide such a model. If it is not possible, then provide a thorough description of what goes wrong when constructing the model. Finally, state an English sentence that would be translated with (4).

C. Is it possible to construct a model that makes both (5) and (6) true? If it is, then provide such a model. If it is not possible, then provide a thorough description of what goes wrong when constructing the model.

- (5)  $\sim(\text{GREEK}(c) \vee \text{MAN}(c))$
- (6)  $\text{MAN}(c)$

Next, determine whether any logical (= truth-conditional) relationship holds between (5) and (6).

## II. Unexpressed arguments

As we've already seen, a basic difference amongst predicates concerns the number of arguments that they must combine with in order to yield a complete, sentence-level meaning:

- (1) a. Jimmy is **Greek**. (*Greek* is a one-place predicate)
- b. Mabel already **ate** the ice cream sundae. (*eat* is a two-place predicate)
- c. Mabel **sold** her car to Dexter. (*sell* is a three-place predicate)

A complication that arises when distinguishing one-/two-/three-place predicates is that sometimes, the same predicate may appear with a different number of arguments. For instance, the following sentences appear to be constructed around the same predicates that appear in (1b,c), but in each sentence, one of the predicate's expected arguments is "missing":

- (2) a. Mabel already **ate**.
- b. Mabel **sold** her car.

When faced with such varied uses of a single predicate, we can consider two possible explanations. First, the predicate may simply be semantically ambiguous, i.e., associated with more than one meaning. For instance, we might claim that *eat* is semantically ambiguous between a two-place predicate meaning and a one-place predicate meaning. Though these two meanings would clearly be related, they would nonetheless differ in the number of arguments that they must combine with in order to yield a complete, sentence-level meaning.

The other possibility is that the predicate in question is not semantically ambiguous. For instance, we might claim that *eat* only possesses a two-place predicate meaning. The fact that (2a) is grammatical, even though it only contains one argument, would then show that not all of a predicate's arguments must be explicitly mentioned in a sentence. Rather, under certain conditions some of the predicate's arguments may go syntactically unexpressed. Crucially, we would still expect the sentence's overall meaning to somehow reflect the presence of these unexpressed arguments.

A. Consider the following sentences involving the predicate (*was*) *sunk*:

- (3) a. The boat was **sunk** by its owner.
- b. #The boat was sunk by its owner, but no one was responsible for its sinking.
- c. The boat was sunk deliberately by its owner.
- d. The boat was sunk by its owner in order to collect the insurance.
- (4) a. The boat was **sunk**.
- b. #The boat was sunk, but no one was responsible for its sinking.
- c. The boat was sunk deliberately.
- d. The boat was sunk in order to collect the insurance.

Based on these sentences, do you think that (*was*) *sunk* is ambiguous between a two-place predicate meaning and a one-place predicate meaning? Or do you think that (*was*) *sunk* only possesses a two-place predicate meaning?

**B.** Now, compare the sentences in (4) to those in (5):

- Does *sunk* in (5) possess a two-place predicate meaning or a one-place predicate meaning? Again, be sure to state explicitly how the contrasts between (4b-d) and (5b-d) support your answer.

**A.** Provide Predicate Logic translations for the following sentences. Use your translations to explain why (1) entails both (2a) and (2b).

- B.** In our class discussions, we have observed that although (3) entails (4a), (3) does not entail (4b):

- What do these different entailment patterns say about the semantic representation of adjectives like *Argentinian* vs. adjectives like *tall*? Can these two adjectives be translated using the same sorts of expressions in Predicate Logic (1-place predicate constants, 2 place-predicate constants, or whatever you chose for *Argentinian* in Part A)? If so, then how do we explain their different entailment patterns? If not, then say clearly and precisely how these two adjectives should be semantically distinguished, and say how your proposal accounts for the different entailment patterns that they give rise to.

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### III. *Argentinian* vs. *tall* (continued)

seen above. You should also consider these adjectives in other contexts to see if you can find other important differences between them. For example, *Argentinian* (with the meaning 'of Argentinian nationality', as in (1)-(2)) does not enter into comparison, while *tall* does:

- (5) a. ??Jorge is a more Argentinian jockey than Gino.  
b. Jorge is a taller jockey than Gino.

Likewise, the following contrast will be of interest:

- (6) a. \*Jorge is Argentinian for a jockey.  
b. Jorge is tall for a jockey (though he's not tall for a basketball player).

(Note: In answering Part B, you do not need to formulate your response using Predicate Logic—clear prose will be enough. However, you may find that trying to figure out exactly how to represent the differences between *Argentinian* and *tall* in Predicate Logic may help you in coming up with a precise and explicit statement of how these adjectives differ from each other semantically.)