

ANSWERS TO LING 310: Test 1

1. (10 points) State the Principle of Compositionality.

Answer:

The meaning of a whole (or: The meaning of an expression) is a function of the meanings of its parts and of the way they are syntactically combined.

2. (20 points) Explain briefly in your own words the following statement: “Restrictive relative clauses are semantically just like intersective adjectives.” (That requires saying something about how intersective adjectives work semantically – what kinds of meanings they have, and what they combine with and how.)

Answer should include most of the following:

RRCs and intersective adjectives are semantically one-place predicates

RRCs and int. adjectives denote sets.

A RRC/adj combines with a common noun phrase (noun, common noun, CNP) by set intersection

3. (20 points) Which of the following formulas, if any, gives a correct translation for the English sentence *Every cat washes itself*? (In all of these logic questions, there may be no correct translation, just one, or more than one.)

- $\forall x (\text{Cat}(x) \ \& \ \text{Wash}(x,x))$
- $\forall x (\text{Cat}(x) \rightarrow \text{Wash}(x,x))$
- $\forall x \forall y ((\text{Cat}(x) \ \& \ \text{Cat}(y)) \rightarrow \text{Wash}(x,y))$
- $\forall x \text{Cat}(x) \rightarrow \forall x \text{Wash}(x,x)$

Answer: b

(10 points for giving the correct answer b and only the correct answer. 5 points off for not including b, 5 points off for adding an incorrect one.)

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For the one(s) you consider *incorrect*, say why. One good way is to describe a state of affairs, or model, in which the wrong formula would be true where the English sentence would be false, or vice versa. And/or you could tell what sentence of English, if any, would be a good translation of the incorrect one(s).

Answer: (use space on next page)

10 points max.

If there are two wrong answers analyzed, then each one is worth 5 points.

a. $\forall x (\text{Cat}(x) \ \& \ \text{Wash}(x,x))$: **wrong**. This one says that everything in the universe is a cat and washes itself. In a universe that contains both cats and dogs, this one is false, even if all the cats in this universe wash themselves, because in this universe not everything is a cat, as formula a asserts.

c. $\forall x \forall y ((\text{Cat}(x) \ \& \ \text{Cat}(y)) \rightarrow \text{Wash}(x,y))$ **wrong**. This one says that all cats wash each other and themselves.

Note: x and y are different variables but nothing prevents them from taking the same values. Note what happens when we change the formula by adding either a requirement that $x \neq y$ or a requirement that $x = y$.

c' : $\forall x \forall y ((\text{Cat}(x) \ \& \ \text{Cat}(y) \ \& \ x \neq y) \rightarrow \text{Wash}(x,y))$ **This** one, also a wrong translation, says that every cat washes every other cat, but doesn't say whether any cats wash themselves.

c'' : $\forall x \forall y ((\text{Cat}(x) \ \& \ \text{Cat}(y) \ \& \ x = y) \rightarrow \text{Wash}(x,y))$ **This** one is actually equivalent to the correct answer b ! It says that for all x and y , if x and y are the same cat, then x washes y . But if x and y must be the same cat, it's just like saying if x is cat, then x washes x .

d. $\forall x \text{Cat}(x) \rightarrow \forall x \text{Wash}(x,x)$ **wrong**. This one has two different and independent universal quantifiers, neither inside the scope of the other. It says: if everything (in the universe) is a cat, then everything (in the universe) washes itself. It is ("vacuously") true in any universe which contains at least one thing that isn't a cat. The only kind of world in which b and d agree are worlds that consist entirely of cats; then both b and d require that all cats wash themselves. But in worlds that don't consist entirely of cats, d will always be true, whether or not any cats wash themselves, because in those worlds the antecedent of the conditional comes out false, and therefore the whole formula comes out true no matter what the truth-value of the consequent is.

4. (10 points) For each of the two interpretations of the ambiguous sentence *Every dog was watching a cat*, one of the two given formulas gives the correct translation.

The two formulas: (i) $\exists y(\text{cat}(y) \ \& \ \forall x(\text{dog}(x) \rightarrow \text{watching}(x, y)))$

(ii) $\forall x(\text{dog}(x) \rightarrow \exists y(\text{cat}(y) \ \& \ \text{watching}(x, y)))$

What is the interpretation of formula (i)? Give an unambiguous paraphrase.

Answer: There is some cat which every dog was watching. (Existential quantifier has wide scope.)

What is the interpretation of formula (ii)? Give an unambiguous paraphrase.

Answer: For every dog, there was at least one cat that it was watching (possibly different cats for different dogs).

5. (15 points) How would you argue that *skillful* is subsective but not intersective?

Answer:

One part, which most of you forgot to include, is to argue that *skillful* is subsective: this means that $\| \textit{skillful} N \| \subseteq \| N \|$. And that's true because *a skillful surgeon* must be a *surgeon*.

To show that it's not intersective, we argue from examples like the invalid inference pattern:

Premise: Francis is a skillful surgeon.

Premise: Francis is a violinist.

Conclusion: Francis is a skillful violinist. INVALID

If *skillful* were intersective, this would be a valid argument, because the first premise would say that Francis is skillful and a surgeon, the second would add that Francis is a

violinist, and the conclusion would be that Francis is skillful and a violinist, which would follow from those premises. But that conclusion doesn't in fact follow from those premises, so intersection can't be right for giving the meaning of the first premise and the conclusion. Therefore *skillful* isn't intersective.

6. (15 points) Jensen and Vikner's analysis of possessives provides a way to explain the ambiguity of *Mary's former mansion*, because it requires that *former mansion* be interpreted as a "transitive common noun phrase" expressing a 2-place relation, and there are two different ways that one could carry out meaning-shifting operations to get a 2-place relation interpretation for *former mansion*. Complete the following:

(i) On one derivation, we combine *former* and *mansion* in the usual way and then shift the CNP *former mansion* to a relational reading. In that case, the reading we get for *Mary's former mansion* is:

Answer: an entity which is a former mansion (perhaps broken down, or converted to a youth hostel) and is Mary's.

(ii) On the other derivation, we first shift *mansion* to a 2-place relation. In that case, we use the relation-modifying version of *former*, and with the resulting relational reading for the combination *former mansion*, the reading we get for *Mary's former mansion* is:

Answer: an entity which used to be Mary's mansion and no longer is. (It may or may not still be a mansion.)

(iii) This is an advantage of Jensen and Vikner's analysis, because the only reading we could get for *Mary's former mansion* on the earlier Partee analysis was:

Answer: same as (i)

7. (5 points) Fill in the correct choices. Partee (1995) discusses the ambiguity of *the French teacher*, and argues that on one reading, *French* is being used as an adjective, and serves as a (restrictive) modifier, while on the other reading, *French* is being used as a noun, and serves as an argument.

8. (5 points) Larson (1995) argues that we can give a direct account of a number of semantic abilities, such as the ability recognize that certain sentences are semantically incompatible, or that one sentence "implies" another, if we make the assumption that knowledge of meaning amounts to:

- knowledge of a Conceptual Representation;
- knowledge of Logical Form;
- knowledge of truth-conditions.

Answer: c