

Final Exam

You have until December 20th to complete the questions below. You may talk with me in person or over e-mail about any questions you might have on any of these problems (within reason).

I have designed this final to be rather challenging. **Therefore, be sure to leave yourself ample time to work on this assignment.** Given the difficulty of these questions, you should definitely feel free to discuss these problems with one another. You are, however, expected to write up your own answers to the problems individually, using your own words.

1) Type Shifting and the Scope of DPs

Recall that sentence (1a) is ambiguous, and has either of the T-conditions in (1b) or (1c).

- a. A girl likes every boy.
- b. 'Surface Scope' Reading
There is some x such that x is a girl and **for all y**, if y is a boy, then x likes y.
(True only if some particular girl (Mary) loves every boy)
- c. 'Inverse Scope' Reading
For all y, if y is a boy, then **there is some x** such that x is a girl and x likes y.
(True as long as every boy is loved by some girl (not necessarily the same))

Recall the special type-shifting rule introduced under (29) in the handout "The Movement Account vs. The Type-Shifting Account":

- d. New Type-Shifting Rule for Quantifiers
If X is of type $\langle et, \langle et, t \rangle \rangle$, then there exists another, phonologically identical lexical item, X_2 , which is of type $\langle et, \langle eet, \langle \langle et, t \rangle t \rangle \rangle \rangle$, and is such that:
$$[[X_2]] = [\lambda g_{\langle et \rangle} [\lambda f_{\langle eet \rangle} [\lambda h_{\langle et, t \rangle} : [[X]](g) ([\lambda x_e : h ([\lambda y_e : f(x)(y) = T]) = T]) = T]]$$
- e. Question 1:
Show how rule (1d) permits us to derive reading (1c) of sentence (1a).

Recall that sentence (1f) is ambiguous in a manner similar to sentence (1a), and can have either the T-conditions in (1g) or (1h).

- f. Dave didn't see a dog.
- g. 'Wide Scope' Reading of A Dog
There is an x such that x is a dog and Dave didn't see x.
- h. 'Narrow Scope' Reading of A Dog
It is not the case that there is an x such that x is a dog and Dave didn't see x.

- i. Question 2:
Explain why the rule in (1d) is not sufficient to derive the ‘wide scope’ reading of sentence (1f).
- j. Question 3:
Introduce a new type-shifting rule that would allow the ‘wide scope’ reading in (1g) to be derived.
- k. Question 4:
Recall the movement-based account of the possibility of the ‘narrow scope’ reading in (1h). Would the added assumptions that this account introduces (*i.e.*, the VP-internal subject hypothesis) be sufficient to predict the possibility of the ‘surface scope’ reading of (1a)?
- l. Question 5:
In light of your answer to Question 4, evaluate the following statement:
Neither the ‘movement account’ nor the ‘type-shifting account’ clearly offers a superior theory of the scope of quantificational DPs. While it’s true that the ‘type-shifting account’ must introduce additional rules like (1d), the ‘movement account’ must introduce additional stipulations concerning the behavior of so-called ‘covert movement’. In the end, both accounts end up adding an equivalent amount of complexity to the grammar.

2) **The Scope of DPs and Movement Constraints**

First, review our discussion of the parallels between the constraints on (overt) movement and the constraints on possible quantifier scope (Section 2.5 of the handout “The Movement Account vs. The Type-Shifting Account”).

In this assignment you will be lead through the creation of a theory of quantifier interpretation which (i) does not appeal to covert movement, but (ii) does capture certain parallels between the limits on quantifier scope and the constraints on ‘long-distance dependencies’.

Syntactic Background:

Thus far in your linguistic training, you’re no doubt used to the idea that sentence (2a) has the structure in (2b), a structure where the verb *likes* and the direct object *Joe* form a phrase, which then combines syntactically with the subject *Obama*.

- a. Obama likes Joe.
b. [Obama [likes Joe]].

However, there are theories of grammar which hold that sentence (2a) is actually structurally ambiguous, and that it can also have the structure in (2c) below, a structure where the verb *likes* first combines syntactically with the subject *Obama*.

- c. [[Obama likes] Joe]

For the moment, please suspend any disbelief you might have about this syntactic assumption, and simply accept for the purposes of this assignment that (2a) can have either the structure in (2b) or (2c).

What's crucial here, though, is that the structure in (2c) is not assumed to be *derived* from (2b) in any sense. That is, (2c) isn't created *from* (2b) via a rule like 'movement', but is rather just a possible structure that our grammar base-generates.

Semantic Background

If we accept (2c) as a possible structure for (2a), this immediately raises the question of how the structure is interpreted. After all, given that (2a) is not *semantically* ambiguous, we must have a semantics that delivers for (2c) the T-conditions below.

d. $[[(2c)]] = T$ iff Obama likes Joe.

How do we do this? Well, we could make "likes" ambiguous, so that it has the following as a possible meaning: $[\lambda x : [\lambda y : x \text{ likes } y]]$.

However, we are going to take a different, rather more complicated approach. First, let us assume the type-shifting rule in (2e) below, which we used earlier in our homework exercise on conjunctions like "Mary and some guy."

e. Type Shifting Rule For Expressions of Type e

If X_1 is of type e , then there exists a phonologically identical lexical item X_2 which is of type $\langle et, t \rangle$, and has the following meaning:

$$[[X_2]] = [\lambda g_{\langle et \rangle} : g ([[X_1]]) = T]$$

Now, let us introduce the following new rule of semantic composition.

f. The Rule of Function Composition (FC)

If X is a node whose daughters are Y and Z , and if $[[Y]]$ is of type $\langle \alpha, \beta \rangle$, while $[[Z]]$ is of type $\langle \beta, \gamma \rangle$ then $[[X]]$ is the following function of type $\langle \alpha, \gamma \rangle$:

$$[[X]] = [\lambda f_{\alpha} : [[Z]] ([[Y]](f))]$$

The function that takes a type α argument f , and then does the following:

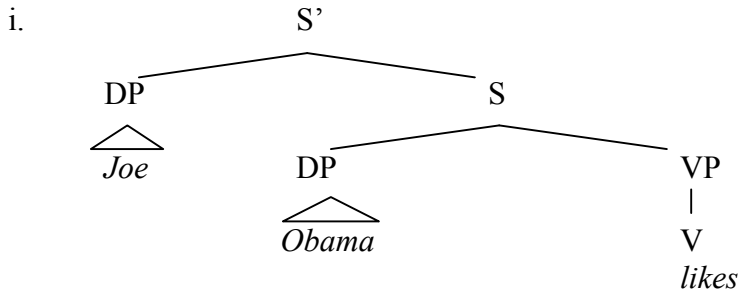
It inputs f as the argument of $[[Y]]$, and then takes the result of that and feeds it as the input argument of $[[Z]]$.

g. Question 1:

Show how the addition of (2e) and (2f) allow us to derive the T-conditional statement in (2d).

Caveat: For the purposes of this assignment, do not worry about any additional, *incorrect* readings that this system predicts. Our only focus is getting the system to *at least* derive the correct T-conditions.

- h. Question 2:
Show how the system developed above is able to assign the correct T-conditions to the sentence structure in (2i). That is, show how our system is able to derive the T-conditional statement in (2j). **Note that (2i) does not contain any ‘traces’; thus, it is not created by a ‘movement’ rule, but is simply base-generated by our grammar.**



- j. $[[(2i)]] = T$ iff Obama likes Joe.

- k. Question 3:
Show how the system developed above is able to assign the correct T-conditions to the sentence in (2l). (Do not appeal to covert movement.)

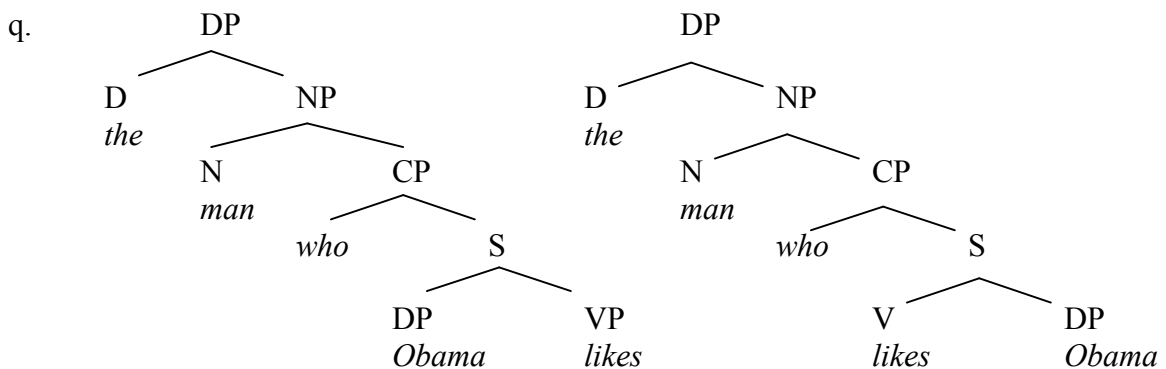
- l. Obama likes every politician.

- m. Question 4:
Show how the system developed above is able to derive the ‘inverse scope’ reading of sentence (2n), represented in (2o). (Don’t appeal to covert movement.)

- n. A lobbyist likes every politician.

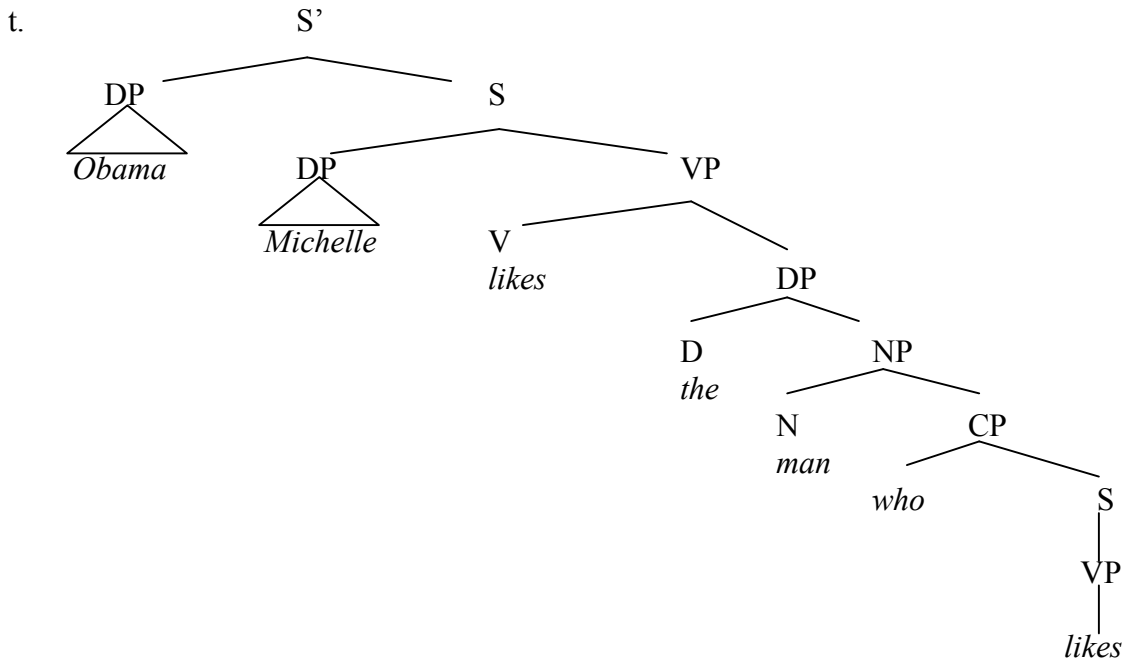
- o. For all x, if x is a politician then there is a y such that y is a lobbyist and y likes x.

- p. Question 5:
Show how the system developed above is able to correctly interpret the DP structures in (2q). **Note that these relative clauses contain no traces; thus, they aren’t created by movement, but are simply base-generated by our grammar.**



- r. Question 6:
Show that the system developed above is *not* able to interpret the sentence in (2s), which we will assume has the structure in (2t). **Note that (2t) does not contain any traces; thus, it is not assumed to be created by a ‘movement’ rule, but is simply assumed to be base-generated by our grammar.**

s. Obama, Michelle likes the man who likes



- u. Question 7:
Given your answer to Question 6, show that the system developed above correctly predicts that sentence (2v) couldn't have a reading with the T-conditions in (2w).

v. Obama likes the man who likes every boy.

w. For all x, if x is a boy, then Obama likes the man who likes x.

- x. Question 8:
In light of your answers to Question 6 and 7, critically evaluate the following claim:

The inability for (2v) to receive the reading in (2w) is a strong argument in favor of the notion that quantificational DPs undergo a covert movement operation, and that the sentential structures which our semantic system interprets can differ from the pronounced form of the sentences interpreted.

3) **A Basic Problem in Intensional Semantics**

Review our analysis of the English verb “believes” (in the handout “Sentential Complementation and the Formalization of Intensions”).

- a. Question 1:
Provide a lexical entry for the English verb “said” which will derive the correct T-conditions for a sentence like (3b).
- b. Julius Caesar said that Gaul is a big country.

That is, in this assignment you are asked to do two things:

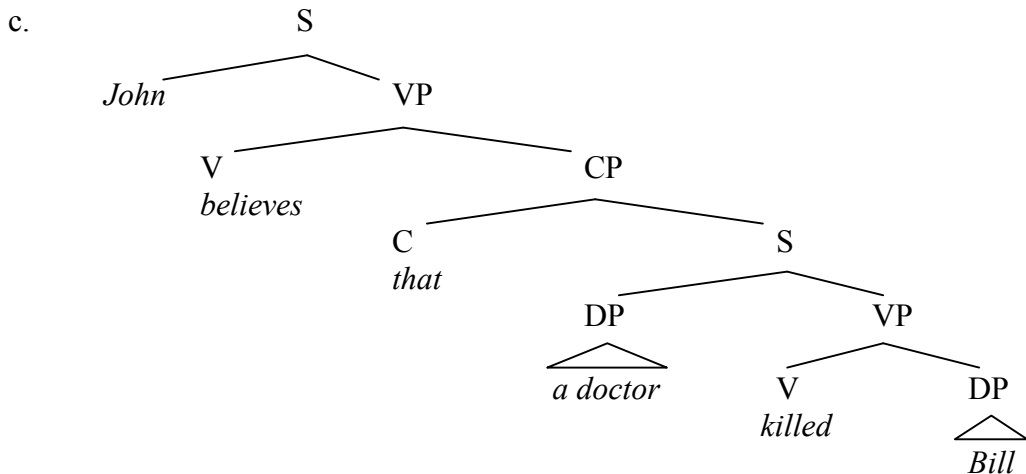
- Develop a theory of the T-conditions of sentences like (3b).
- Develop a lexical entry for “said” which will derive those T-conditions

You are encouraged to model the analysis upon our intensional treatment of “believes”.

4) **A Well-Known Ambiguity in ‘Intensional Contexts’**

- a. Question 1:
Derive the T-conditions that our semantics derives for sentences like (4b), under the assumption that they have the LF structure in (4c).

- b. John believes that a doctor killed Bill.



- d. Question 2:
Do the T-conditions you compute for (4c) hold in the following situation? Does our theory then correctly predict whether (4a) can be read as true in this situation?

Situation 1:

John is a detective investigating Bill’s murder. At the murder site, there was left a scalpel, a stethoscope and a membership card for the American Medical Association. John concludes that the murderer is a member of the medical profession.

- e. Question 3:
Do the T-conditions you compute for (4c) hold in the following situation? Does our theory then correctly predict whether (4a) can be read as true in this situation?

Situation 2:

John is a detective investigating Bill's murder. At the murder site, there was left a piece of luggage bearing a tag indicating that the luggage belonged to Mr. Robert Halpburn of Lansing, MI. Therefore, John concludes that the murderer is this Mr. Robert Halpburn. As it happens, Mr. Robert Halpburn is a doctor, but John doesn't yet know that.

- f. Question 4:
If our present syntax and semantics for (4b) makes an incorrect prediction for either Situation 1 or Situation 2, what might be a way of amending it? Feel free to be as creative as you like.