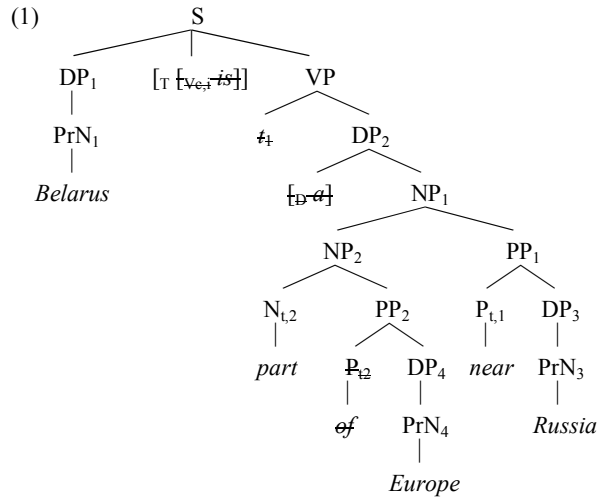


**Ling 320: Semantics.** Exam 2. November 6<sup>th</sup>, 2007.

**Directions:** Do Parts 1-3. The Bonus is optional.  
Do not apply more than two rules at a time in doing your derivations.

**Part 1.** Derive the truth conditions for (1).



**Part 2.** In the following example, the phrase within brackets is called a *relative clause* (RC):

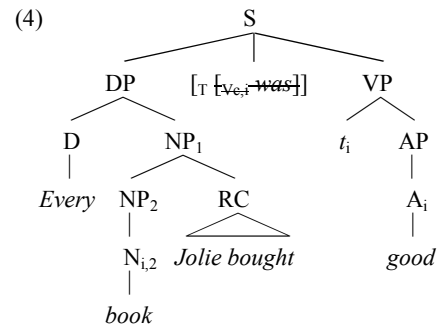
(2) Every book [<sub>RC</sub> *Jolie bought*] was good.

A RC is similar to a sentence, but in a RC, some syntactic phrase is missing. For example, in (2), the object of the transitive verb *bought* is not overt. Compare this with a sentence, as in (3), where it is generally ungrammatical to drop the object argument of *bought*.

(3) a. \*?Jolie bought.                      b. Jolie bought *What is Meaning?*

Your goal in doing this problem is to figure out what the contribution of a RC is to the truth conditions of the whole sentence.

To do this, assume that RCs are sister to NP, so that (2) has the structure in (4):



- (i) Propose a denotation for  $\llbracket [\text{RC } \textit{Jolie bought}] \rrbracket^s$ .
- (ii) Given your answer to (i), propose a rule for interpreting  $[\text{NP}_1 \text{ NP}_2 \text{ RC}]$ .
- (iii) Given your answers to (i) and (ii), derive the truth-conditions for (4).

**Part 3.** Quantifiers in Object Position.

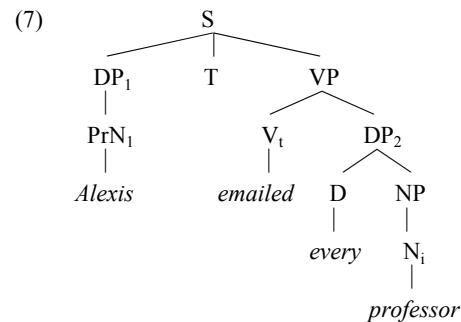
So far, our grammar only accounts for quantificational DPs in subject position:

(5) Every professor emailed Alexis.

As we've seen already, (5) is true just in case the set of professors (the NP) is a subset of the set of individuals that emailed Alexis (the VP):

(6)  $\{x \mid x \text{ is a professor in } s\} \subseteq \{x \mid x \text{ emailed Alexis in } s\}$

Our grammar does not yet account for quantificational DPs in object position, e.g.:



In this case, we again find that the sentence is true just in case two sets are in the subset relation:

$$(8) \quad \{x \mid x \text{ is a professor in } s\} \subseteq \{x \mid \text{Alexis emailed } x \text{ in } s\}$$

However, to derive these truth-conditions, we need a new rule (f) to calculate VP. In class, we considered the following revised rule:

$$(f) \quad \llbracket [_{VP} Y_1 ZP] \rrbracket^s = \{x \mid \{y \mid \langle x, y \rangle \in \llbracket [Y_1] \rrbracket^s\} \in \llbracket [ZP] \rrbracket^s\}$$

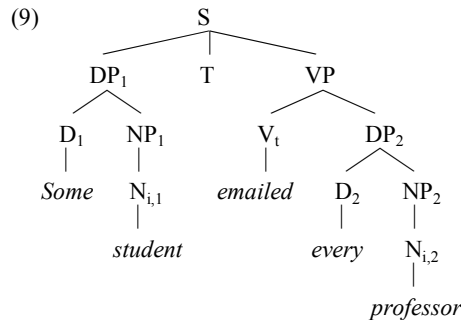
Derive the truth-conditions for (7) using this revised rule (f) to calculate VP.

Use rule (g) to calculate DP<sub>2</sub>.

If you've done the derivation correctly, you'll end up with the truth-conditions in (8).

**Bonus.** Scope ambiguity.

The following sentence, which has a quantificational DP in both subject and object position, is ambiguous:



The two readings can be paraphrased as follows:

- (10) a. There is at least one student who emailed every professor.  
 b. Every professor was emailed by at least one student, not necessarily the same student for each professor.

These two readings characterize distinct situations. For example, consider a situation in which there are three students, *A*, *B*, and *C*, and three professors, *X*, *Y*, and *Z*. If *A*

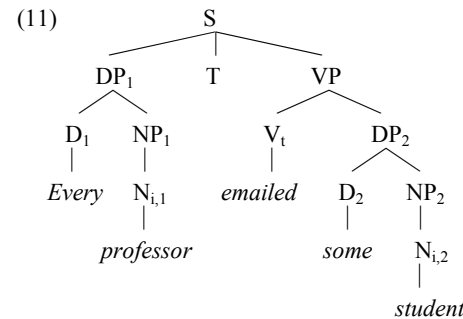
emailed *X*, *B* emailed *Y*, and *C* emailed *Z*, (9) would be false on reading (a), but true on reading (b).

(i) Derive the truth conditions for (9), using rule the revised rule (f).

*Optional Extra Credit for Assignment 9:* Do (ii) - (v) below.

(ii) The truth conditions derived by the revised rule (f) only characterize one of the readings in (10). Which one?

(iii) Consider (11), which is like (9), only *every professor* and *some student* have switched positions.



(11) also seems to be ambiguous, having the following two readings:

- (12) a. Every professor emailed at least one student, not necessarily the same student for each professor.  
 b. There is at least one student such that every professor emailed him/her.

These two readings again characterize different situations. If there are three students, *A*, *B*, and *C*, and three professors, *X*, *Y*, and *Z*, if *X* emailed *A*, *Y* emailed *B*, and *Z* emailed *C*, (12) would be true on reading (a) and false on reading (b).

Derive the truth conditions for (11), using the revised rule (f).

(iv) The truth conditions derived by the revised rule (f) only characterize one of the readings in (12). Which one?

(v) Can you make a general claim for both (9) and (11) about the kind of reading the revised (f) derives, and the kind of reading it does not?