1 Type shifting

Do the exercise that begins at the bottom of p. 67 and extends onto p. 68 of the textbook, for both prepositions and adjectives.

**Extra credit:** Assume that the \(\langle t, \langle t, t \rangle \rangle\) denotation of *and* in (1) is basic, and provide type-shifting rules that derive meanings for *and* that handle it’s uses in (2a-c) (assuming (2b) involves coordination of VPs and (2c) involves coordination of transitive verbs).

\[(1) \quad [\text{and}] = [\lambda q \in D_t. [\lambda p \in D_t. p = 1 \text{ and } q = 1]]\]

(2) a. Kim and Lee smoke.
   b. Kim smokes and drinks.
   c. Kim hugged and kissed Lee.

Does your analysis of (2a) extend to (3)?

(3) Kim kissed Lee and Pat.

2 Some (in)valid arguments

(4) is a valid argument (a very famous one): whenever the premises are true, the conclusion must also be true.

(4) Every man is mortal.
   Socrates is a man.
   /Therefore Socrates is mortal.

(5) is also a valid argument.

(5) Socrates is smarter than every modern philosopher.
   Frege is a modern philosopher.
   /Therefore Socrates is smarter than Frege.

It seems like we should be able to find a uniform characterization for the validity of both arguments, even though they differ in the syntactic position of the quantificational expression *every NP*. We might, for example, assume that arguments that have the form in (6) are generally valid. (Here stands for the sister of *every* — the noun plus any modifiers/complements.)

\[(6) \quad [s \ldots \text{every NP} \ldots] \quad (S = \text{the minimal sentence dominating ‘every NP’})
\quad \Delta \text{ is a NP.} \quad (\Delta = \text{a constituent whose denotation is of type } e)
\quad /\text{Therefore, } S'. \quad (S' = \text{the result of replacing ‘every NP’ in } S \text{ with } \Delta)\]
1. Show that this assumption is incorrect by coming up with an invalid argument that has the form in (6).

2. Is there a way of refining (6) that still allows us to state the relevant generalization in terms of syntactic representations? What does this suggest about the mapping from syntactic representations to truth conditions?

3 Antecedent-contained deletion (Part 1)

The last part of this week's assignment looks at some more examples of VP ellipsis. We have stated the licensing conditions on ellipsis roughly as in (7), leaving open for now the question of whether identity should ultimately be defined in terms of (possibly abstract) syntactic representations or in terms of meanings.

(7) **VP Ellipsis**
Delete a VP \(_x\) only if it is identical to some antecedent VP \(_y\).

According to (6) (on either the syntactic or semantic view of identity), VP \(_2\) in (8) may be deleted because it is identical to VP \(_1\), its antecedent.

(8) Jones PAST \([\text{VP}_1 \text{ go to Paris}], \text{but Smith didn’t} \)[\(\text{VP}_2 \text{ go to Paris}\)]

An interesting prediction of (6) is that ‘antecedent-contained deletion’ (ACD) — configurations in which elided VP is contained in its antecedent — should be impossible. This prediction appears to be supported by examples such as (8), which is ungrammatical on the reading in which the antecedent of the elided VP is the VP headed by *proved*.

(9) *Jones proved that Smith did.*

This sentence is ruled out because in order to satisfy the identity condition on ellipsis, the elided VP would have to have a structure (or meaning) corresponding to (10), where VP \(_1\) is the antecedent and VP \(_2\) is the elided VP.

(10) Jones \([\text{VP}_1 \text{ proved } [\text{CP that Smith did } \text{[VP}_2 \text{ proved that Smith did]}]]\)

Now VP \(_2\) contains a elided VP, which must also be licensed through identity with a containing VP. This means that (9) must actually look like (11):

(11) Jones \([\text{VP}_1 \text{ proved } [\text{CP that Smith did } \text{[VP}_2 \text{ proved that Smith did } \text{[VP}_3 \text{ proved that Smith did]}]]]]\)

But now VP \(_3\) contains a elided VP, which needs to be licensed through identity with one of the containing VPs...and so on. The result is an infinite regress. Assuming that infinitely large structures or meanings result in ungrammatical or uninterpretable sentences, we can explain our judgments about (8).
Unfortunately, the picture is not so simple. Sentences like the ones in (11) appear to present a problem for the story I just outlined.

(12)  
   a. Jones read every book that Smith did.  
   b. Beck interrogated most of the suspects that Kollberg did.

We will explore different aspects of these sorts of sentences over the next few weeks. To get us going, your task this week is to:

1. Say as clearly and precisely as you can why the sentences in (11) are problematic for the assumptions about ellipsis outlined so far.

2. Try to say in informal but precise terms what sorts of assumptions we might make in order to start building an analysis of ACD.

For question 2, you do not need to provide the details of an actual analysis (and the accompanying argumentation) at this point. Instead, you should just try to figure out some of the minimal assumptions that such an analysis is going to have to make. In particular, you should identify the different ways that the examples in (11) differ from ungrammatical examples like (8), and see if you can identify some crucial differences that we might be able to make use of in building an analysis of ACD.

Be sure to write up your observations clearly and explicitly, justify any new claims, and give illustrative derivations and trees as appropriate. If you find that your discussion of ACD bears on any other issues we have discussed in class, be sure to say which ones and how.