Problem Set 6

Due March 7 before class. Submit on IVLE > Files > Student Submission > PS6.

1. **Scope ambiguity exercise:** The following sentence has a scope ambiguity. Two different truth conditions are given below:

   (1) Sarah did not read every book.

   a. 1 iff it's not that [$\forall x \in D_e$ [x is a book $\rightarrow$ Sarah read x]] ($not > \forall$)

   b. 1 iff $\forall x \in D_e$ [x is a book $\rightarrow$ it's not that [Sarah read x]] ($\forall > not$)

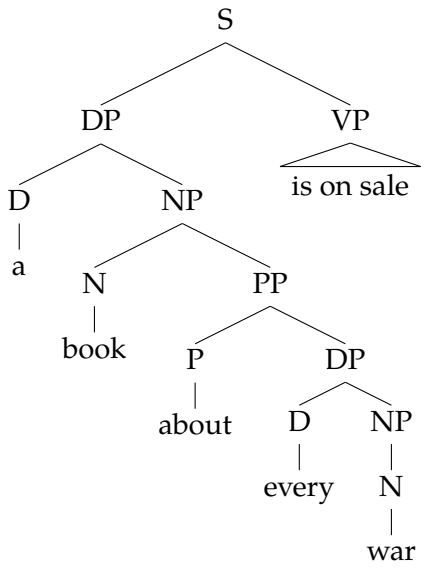
   For each of these readings, draw the LF tree and compute the truth conditions, step by step. For every node, give types, denotations, and the rule used.

   For reading (a): Do not try to change the scope of negation by moving it. Hint: Where does the object *every book* need to QR to in order to take scope below negation?

2. **Quantifiers in other positions:** Consider the following sentence and its inverse scope interpretation, paraphrased below:

   (2) A book about every war is on sale.
   'Many different books are on sale, one for each war.'

   Assume that its surface form (PF) is as follows:



   Draw the LF tree that gives this interpretation and compute its truth conditions. For every node, give types, denotations, and the rule used. Use the following denotations:

   - $[\![\text{is on sale}]\!] = \lambda x_e$. x is on sale — type $\langle e, t \rangle$

- $[\![\text{about}]\!] = \lambda x_e \,.\, \lambda y_e \,.\, y$ is about x — type $\langle e, \langle e, t\rangle\rangle$
- $[\![\text{every}]\!] = \lambda P_{\langle e,t\rangle} \,.\, \lambda Q_{\langle e,t\rangle} \,.\, \forall x[P(x) \rightarrow Q(x)]$ — type $\langle\langle e, t\rangle, \langle\langle e, t\rangle, t\rangle\rangle$
- $[\![\text{a}]\!] = \lambda P_{\langle e,t\rangle} \,.\, \lambda Q_{\langle e,t\rangle} \,.\, \exists x[P(x) \text{ and } Q(x)]$ — type $\langle\langle e, t\rangle, \langle\langle e, t\rangle, t\rangle\rangle$

3. **Semantic reconstruction:** In class we discussed the "inverse scope" reading of *Everyone does not sleep* and derived it through *syntactic reconstruction*, pretending that the movement didn't take place for the purposes of interpretation. Another option is called *semantic reconstruction*—we don't ignore the movement but instead interpret the trace differently.

   - Interpret the tree in Step 2 on handout page 3, using the following interpretation for the trace, instead of using the Traces & Pronouns Rule:

     (3) $[\![t_i]\!]^g = \lambda Q_{\langle e,t\rangle} \,.\, (g(i))\,(Q)$

     Does this give us the desired inverse scope reading (page 3 ex 7b)?

   - What happens if we use semantic reconstruction to interpret a quantifier moved from object position? Consider the interpretation of the tree for *Everyone, John likes* on (12) of the handout, using (3) for the trace.