

LING 130: Semantics: Meaning in Language

Problem Set #3:

Type Deduction and Quantification

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This problem set focuses on doing type derivations when generalized quantifiers are involved. You have four sentences that need to be derived, using the Quantifier Substitution Technique I presented in class. It is also a separate handout you received earlier. The derivations must show the tree, each node annotated with the triple:

<word/phrase, type, semantic expression>

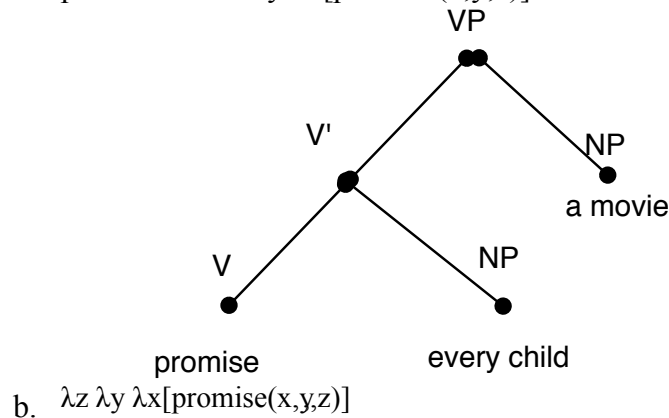
Be sure to indicate the use of the following rules:

- Function Application (FA)
- Quantifier Substitution (QS)
- Quantifier Application (QA)

If the sentence contains more than one interpretation (i.e., the quantifiers can be scoped in several ways), then give a derivation for each interpretation.

Exercises

- Bill gave Mary a hamburger.
 - give $\rightarrow \lambda z \lambda y \lambda x[\text{give}(x,y,z)]$. Use bitransitive syntax in (3) for *give*.
- Every hamburger has a cheese slice.
 - have $\rightarrow \lambda y \lambda x[\text{have}(x,y)]$
 - cheese slice $\rightarrow \lambda x[\text{cheeseslice}(x)]$, where $[\text{cheese slice}]_N$ is a single noun.
- Mary promised every child a movie.
 - promise $\rightarrow \lambda z \lambda y \lambda x[\text{promise}(x,y,z)]$



Extra Credit

4. IBM took a photo of every employee. (wide-scope on “every”)
 - a. take $\rightarrow \lambda y \lambda x[\text{take}(x,y)]$
 - b. photo $\rightarrow \lambda y \lambda x[\text{photo}(x) \wedge \text{of}(x,y)]$
 - c. See handout called “Guide to Quantifier Embedding” for clues.