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Compositional Semantics
Heinrich Heine University
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Problem Set 4: Functional Application & Predicate Modification

Read:

- Heim and Kratzer (1998), chapter 3, pp. 43–49.
- Heim and Kratzer (1998), chapter 4, pp. 61–66.

Exercises:

1. Compute the truth conditions for the sentence "Ann loves Jan" using the composition rules (S1)-(S5) on p. 15, (S6) on p. 27, and the lexical entries given on p. 44, and show the derivation. (See the model solutions to question 12 on Problem Set 2 for examples of how to show the derivation. Start with the interpretation of the entire tree, and then step by step, apply the composition rules until you reach the lexical items.)

2. List the three composition rules used in "type-driven interpretation" (pp. 48–49).

3. Complete the following sentence. "According to the Functional Application rule given by Heim and Kratzer on p. 49, if α is a branching node and β and γ are α's daughters, then $[\![\alpha]\!]$ is defined if _____." (Hint: if f is a function, then for all x, $f(x)$ is defined if and only if x is in the domain of f.)

4. If α is a branching node and β and γ are α's daughters, what is $[\![\alpha]\!]$ equal to, assuming that it is defined (according to the Functional Application rule on p. 49)? NOTE: it depends on what kinds of values the daughters have.

5. Derive the truth conditions for "Ann loves Jan" using the type-driven interpretation rules, and show your work.

6. What is the difference (or what are the differences) between "type-driven interpretation" and the style of interpretation that we were using with rules (S1-S6)?

7. For the following words, write the lexical entry that Heim and Kratzer give, or if they give no lexical entry, then make one up.

   (a) of

(b) is

(c) a

(d) cat

(e) proud

(f) in

(g) Texas

(h) Joe

(i) Mary

8. Calculuate the truth conditions for the following sentences using only TN, NN, and FA, and show your work:

   (a) Joe is a cat

   (b) Joe is proud of Mary

   (c) Joe is in Texas

9. Using TN, NN, FA, and the new composition rule that Heim and Kratzer introduce on p. 65, Predicate Modification, compute the truth conditions of the sentence "Kaline is a gray cat in Texas" and show how you derived them. Assume that it has the following syntax.