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Compositional Semantics
Heinrich Heine University
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Problem Set 8: Relative clauses

Reading: Heim and Kratzer (1998), ch. 5, pp. 86–108

Exercises

1. Which of the following sentences involve restrictive relative clauses? Which involve non-restrictive relative clauses?

   (a) John, who is my best friend, is coming to the party.

   (b) The guy who is my best friend is coming to the party.

   (c) That guy, who is my best friend, is coming to the party.

   (d) The guy over there, who is coming to the party, is my best friend.

   (e) The guy over there who is coming to the party is my best friend.

2. Heim and Kratzer say that "restrictive relatives are just another kind of intersective modifier". What does it mean to be an "intersective modifier"? (In other words: What is the semantic type of an intersective modifier, and by what composition rule does it combine with the constituent that it modifies?) What is the first kind of intersective modifier that is discussed in the book?

3. Based on the composition rule given in (8) on p. 92 (which we can call the "Traces Rule"), compute the following values:

   - $[\![\mathbf{t}]\!]^{\text{Mary}}$
   - $[\![\mathbf{t}]\!]^{\text{Fred}}$

4. Heim and Kratzer say that α is in the domain of $[\![]\!]$ iff for all assignments a and b, $[\![\alpha]\!]^a = [\![\alpha]\!]^b$. We can assume that whenever α is a lexical item (i.e., not a trace), $[\![\alpha]\!]$ is specified in the lexicon. So, assume that the lexicon specifies:

$[\![\textbf{smokes}]\!] = \lambda x \in D_e.x$ smokes

So, what is $[\![\textbf{smokes}]\!]^{\text{Fred}}$? What is $[\![\textbf{smokes}]\!]^{\text{Mary}}$?

5. Based on the composition rule given in (8) along with Lexical Terminals, Non-Branching Nodes, and Functional Application (p. 95), give the truth conditions for the following trees under the indicated variable assignments, and show the derivation. See pp. 93–94 for examples of how to do this.

   - $[\![$ [S [DP **t**] [VP [V **smokes**]]] $]\!]^{\text{Fred}}$
   - $[\![$ [S [DP **John**] [VP [V **abandoned**] [DP **t**]]] $]\!]^{\text{Mary}}$

6. Exercises (a), (b), and (c), p. 95. **Note: This question will be worth a lot of points.**

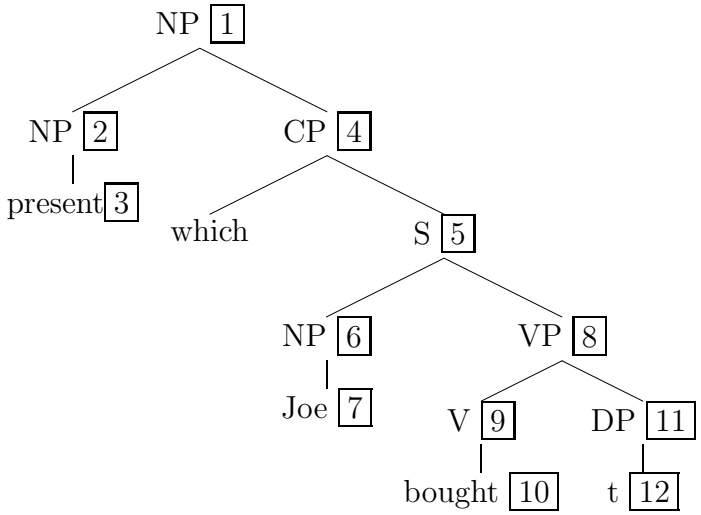
7. Heim and Kratzer say that "the relative pronoun within CP... is not simply vacuous; its presence will be required to meet the structural description of the composition principle applying to the CP above it." What does this mean? (What is the relative pronoun within CP? What is the composition rule that applies to the CP? What is that rule's structural description? What does it mean to meet a structural description?)

8. Extra credit: On p. 97, Heim and Krazter give a derivation of the truth conditions of the CP in (2) (*which John abandoned*), and they say that the transition from the second step to the third step is licensed "by vacuity of C". But that is not a composition rule! Give a lexical entry for *that* according to which it is semantically vacuous, which allows this step to be accomplished via Functional Application. Make sure that it has the appropriate semantic type.

9. On p. 107, Heim and Kratzer say, "It is now easy to calculate a semantic value for a tree like (3) (*such that Joe bought it*), and to prove that this 'such that' phrase has exactly the same denotation as its *wh*-counterpart in (4) (*which Joe bought*)." Calculate a semantic value for (3) and (4) using the Pronoun Rule (p. 107), the revised Predicate Abstraction rule (p. 107), the Traces Rule (p. 92), and as many of the

composition rules given on p. 95 as you need, and show that the denotations are indeed the same. **Note: This question will be worth a lot of points.**

10. Decorate the following tree with the appropriate composition rules and semantic types (assume that *present* is type $\langle e, t \rangle$):



	semantic type	composition rule
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		

11. Extra credit: I didn't ask you to fill in the semantic type and composition rule for *which.* Why not? (Hint: Your answer should use the word *syncategorematic* and make use of the discussion on p. 98.)