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Compositional Semantics
Heinrich Heine University
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Problem Set 2: Models and Interpretation

Note: Please print out your answers and bring them to class on October 19th so we can discuss them all together!

Read: Dowty, Wall and Peters (1981), pp. 14–35, 44–47

1. Verify that $[K(d, j) \wedge M(d)]$ is a well-formed sentence of L_0 given the formation rules in (2-1) and (2-2).
2. What sorts of semantic values do one-place predicates have in L_0?
3. If M is a one-place predicate and j denotes an individual, then how do we determine the truth value of $M(j)$ in L_0?
4. Give an example of a two-place relation K such that $\langle a, c\rangle \in K$.
5. Give interpretations like the ones in (2-7) for the predicates K and M and the constants d and j that would make sentence 1 of example (2-4) true, keeping the semantic rules in (2-8).
6. Construct a phrase structure tree for one of the sentences in (2-10).
7. Let the set of individuals A be $\{a, b, c, d, e, f, g\}$. What is the characteristic function of the set $\{a, b, c\}$?
8. (i) Are the semantic values of intransitive verbs in L_{0E} sets of individuals or characteristic functions of sets of individuals? (ii) What about L_0? (iii) Is there any reason to choose one over the other (p. 28)?
9. Do problem (2-6), p. 29.
10. What is the truth value of *Henry Kissinger sleeps* in L_{0E}? (p. 30)
11. How do Dowty, Wall and Peters reconcile the following two facts: 1) VPs have as their semantic values functions from individuals to truth values; 2) Transitive verbs seem to express binary relations between individuals? (pp. 30–31)
12. Do problem (2-8).
13. It is important to recognize that a sentence can be true with respect to one model but false with respect to another. Dowty, Wall and Peters illustrate this by giving three models that yield different truth values for the sentence $M(d)$. Give another sentence ϕ of L_0 such that $[\![\phi]\!]^{M_1} = 1$ and $[\![\phi]\!]^{M_2} = 0$ (where M_1 and M_2 are defined as on pp. 46–7), and explain why.