Semantic Theory 2016 – Practice Exam

Universität des Saarlandes

You have 120 minutes to do this exam. The exam consists of five exercises, which are worth 20 points each. In order to pass, you must get at least 50 points.

Please number every sheet of paper that you submit, and note the total number of sheets on the first page. You may not use any additional materials beyond those distributed together with this exam. Please do not use pencils.

Exercise 1. Warming up

a. The following logical equivalence is invalid:

$$\forall y \exists x(R(x,y)) \nLeftrightarrow \exists x \forall y(R(x,y))$$

Show that this equivalence is invalid by providing a graphical representation of a model in which it does not hold. Explain why your model disproves the equivalence.

b. The following sentence is used to motivate the introduction of lambda calculus:

(1) *Not smoking*$_{\langle e,t\rangle}$ *is healthy*$_{\langle\langle e,t\rangle,t\rangle}$

Explain why traditional predicate logic fails to account for this example, and give the appropriate type-theoretic translation of the sentence.

c. What is the difference between distributive and collective predicates? Explain and give an example of both.

Exercise 2. Type Theory

(2) *Only Mary managed to_finish*$_{\langle e,t\rangle}$ *on_time.*

[$_S$[$_{NP}$ *Only Mary*] [$_{VP}$ [$_V$ *managed*] [$_{VP}$ *to_finish on_time*]]]

a. Give the appropriate type-theoretic translation for each of the five lexical items in this sentence, and determine their types. You can treat "*to_finish*" and "*on_time*" each as constituting a single lexical item.

b. Sentence (2) entails that Mary *tried to* finish on time. Provide a type-theoretic translation of "*managed*" that captures this information.

c. Derive the semantic representation for the entire sentence based on the lexical semantic representations from question (a.), using basic composition rules and beta reduction.

Exercise 3. Generalized Quantifiers

(3) *Exactly one boy is going on holiday.*

a. Give the generalized quantifier definition of the noun phrase "*exactly one boy*".

b. Determine the truth conditions of sentence (3) based on your definition from question (a.), and illustrate these truth-conditions with a graphical representation of a model.

c. What are the monotonicity properties (left and right) of the determiner "*exactly one*"?

Exercise 4. Discourse Representation Theory

(4) *Exactly one boy is going on holiday. He is visiting an island or a city.*

a. Give the DRS representation of this sentence. You may represent "going on holiday" as the one-place predicate `go-on-holiday`. Try to come up with a DRT representation of "*exactly one*" that captures its uniqueness implication as well as the correct accessibility properties.

b. Given this representation, which referents are available for anaphoric reference? That is, if we add a new sentence to this discourse, which referents can be referred to using a pronoun?

Exercise 5. Presuppositions (Cooling down)

(5) *Either John is going to an island and enjoy its beaches, or he goes to the inland capital_of_Spain and does not visit its beaches.*

a. Give all the presuppositions triggered in this sentence. Explicitly state whether the presupposition projects to the entire sentence.

b. Give the proto-DRS of this sentence. You can represent "*going to*" as a single two-place predicate, and "*capital_of_Spain*" as a single one-place predicate.

c. Resolve the proto-DRS. Explicitly describe the reasoning steps that you use for resolving the presuppositions; which constraints/preferences do you obey? (Hint: "*inland*" means that something does not border the sea.)

Good luck!