Semantic Theory 2021 – 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. Give two examples of constructions that cannot be captured using traditional first-order logic. Explain why these require a more expressive logical system, and provide the desired logical translations for your examples.

b. Which types must constants A, B, and C have in the following type-theoretic expressions? Assume that x is a variable of type e. Note that constant A should have the same type in (1) and (2).

(1) $\lambda x.A(x)(x) \wedge B(A)(x)$

(2) $\exists x.C(A(x))$

c. What is a characteristic function in type theory? How do these functions relate traditional FOL representations to type-theoretic representations?

Exercise 2. Event Semantics

(3) *After Manuel missed, Andrea scored.*

[[[After [Manuel$_e$ missed]$_{\langle e,t\rangle}$] [Andrea$_e$ scored]$_{\langle e,t\rangle}$]$_{\langle e,t\rangle}$ PAST]$_t$

a. Give the event-semantic (Davidsonian) representation of sentence (3), using the event-theoretical notion of time.

b. Give the appropriate lambda expressions for each of the five words in the sentence, as well as for the *PAST* operator. The translations of "after" and *PAST* should capture their temporal contributions.

c. Derive the semantic representation for the entire sentence based on the lambda expressions from question (b.), using basic composition rules and beta reduction.

Exercise 3. Generalized Quantifiers

(4) *Only Gianluigi is allowed to touch the ball with his hands.*

a. Give the generalized quantifier definition of the noun phrase "only Gianluigi".

b. Determine the truth conditions of sentence (4) based on your definition from question (a.), and illustrate these truth-conditions with a graphical representation of a model. You can interpret the VP as a property (i.e., a set of entities).

c. What are the monotonicity properties (left and right) of "only"? Explain how you derived these properties.

Exercise 4. Discourse Representation Theory

(5) *A player scores.*

(6) *Not every player does not score.*

a. Give the DRS translations for the sentences in (5) and (6), respecting their logical structure.

b. Interpret both DRSs using the verifying embedding function and show that these sentences have the same truth-conditional meaning.

c. Does the fact that the two DRSs have the same truth-conditions imply that they are fully equivalent? Motivate your answer.

Exercise 5. Presuppositions

The following construction is considered to be problematic for the DRT analysis of presuppositions:

(7) *Either this field does not have a goal, or the players cannot find it.*

a. Give the proto-DRS of this sentence. You can interpret "this field" as "the field".

b. Resolve the proto-DRS, and explain the problem for the DRT analysis of presuppositions.

c. Try to resolve the problem by adapting the proto-DRS that you provided in question (a.). What are the downsides of your solution?

Good luck!