Practice Exam

You have 120 minutes to do this exam. 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 we distribute together with this exam. **Please do not use pencils!**

You can achieve a total of XXX points in this exam. The grade is determined based on a total number of 100 points, so there are XX bonus points. In order to pass, you must get at least 50 points.

We accept answers in English and German; feel free to use whichever langguage you feel more comfortable with.

Good luck!

Please note: it is possible that the final exam will contain one or two more questions.

1 Type theory

Consider sentence (1) and its syntactic structure (2):

(1) *An unknown person robbed a bank*.

(2) $[_S\ [_{NP}\ [_{Det}$ An$][_{N'}\ [_{Adj}$ unknown$]\ [_N$ person$]]]\ [_{VP}\ [_V$ robbed$]\ [_{NP}\ [_{Det}$ a$]\ [_N$ bank$]]]]$

(a) Give the appropriate types for the five words occuring in this sentence.

(b) Translate “person,” “robbed,” “bank” to *person'*, *rob'*, *bank'*, respectively, and the indefinite article and “unknown” to appropriate lambda expressions, where the tranlation of the latter should use the constant *know** of type ⟨e, ⟨e, t⟩⟩.

(c) Derive the semantic representation for the sentence, using basic composition rules and beta reduction. If you are not able to find a reasonable lambda term for “unknown,” you may use *unknown'* as translation for this part of the problem.

(d) Specify the type and try to give a type-theoretic representation that expresses the semantic function of the adjectival prefix “un-”, as in “unknown,” “unclear” (for the attributive use of the adjective).
Note: Do not use event semantics, but just standard type-theortic semantics, as we introduced it in the first part of the course.

2 Cooper storage

Consider the following sentence and its syntactic structure.

(3) *Every student believes that a professor works*.

(4) $[_S\ [_{NP}$ Every student$]\ [_{VP}\ [_V$ believes$]\ [_{S'}$ that $[_S\ [_{NP}$ a professor$]\ [_{VP}$ works$]]]]]$

The sentence is scopally ambiguous: In total, it has three readings.

(a) Compute one semantic representation for this sentence using the Nested Cooper Storage technique in which “a professor” takes scope over “believe.” Assume that believe translates into believe' of type ⟨t, ⟨e, t⟩⟩; the other expressions should be represented as usual.

(b) Question (a) asks for one reading of the sentence. Please indicate how the other two readings can be derived by sketching at which level you apply which rule (storage, retrieval, or application).

3 Underspecification

(a) Extend the semantics construction rules for dominance graphs from the lecture by rules for S → V S' and S' → that S.

(b) Compute a dominance graph for sentence (3). You don't have to do this step by step – it is sufficient to give the final graph and indicate which interface node in the graph corresponds to which node in the syntax tree (e.g., by using indices).

4 DRS

Consider the following sentence:

(5) *If Pedro does'nt like a donkey, he doesn't beat it.*

(a) Give a DRS K5 that represents the semantics of (5). It is not necessary to construct K5 explicitly.

(b) Compute the conditions under which an embedding verifies K5, simplify the result as far as possible, and give the truth-conditions for K5.
Note: You don't have to spell out every single step in the computation, but you should give a sufficient number of intermediate interpretation steps to make the structure of the interpretation process visible.

5 Presuppositions

Natural language expressions come with (at least) two layers of meaning information, the assertion and the presupposition component. Summarize briefly the major differences between assertions and presuppositions.

6 Presuppositions in DRT

Consider the following text:

(6) Peter knows a professor. He grades his PhD-thesis.

(a) Give a proto-DRS K4 for (4) that contains α-DRSs. It is not necessary to construct the proto-DRS explicitly.

(b) Show how a DRS that is a correct and plausible semantic representation of (4) can be derived from K4 by application of van der Sandt's binding and accommodation rules.

7 Lexical semantics

(see exercise sheet 8).