„Semantic Theory“ SS 06 — Practice Exam

http://www.coli.uni-saarland.de/courses/semantics-06/

You have **90 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 language you feel more comfortable with.

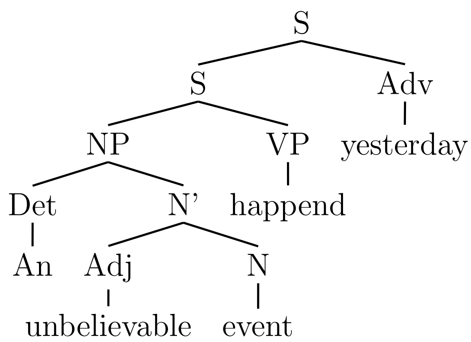
Good luck!

1 Type theory

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

(1) An unbelievable event happened yesterday.

(2)



- Give the appropriate types for the five words occuring in this sentence.
- Translate *event, happened, yesterday* to *event*$'$, *happen*$'$, *yesterday*$'$, and the indefinite article and *unbelievable* to appropriate lambda expressions, where the tranlation of the latter should use *believe** (type $\langle e, \langle e, t\rangle\rangle$).
- 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 *unbelievable,* you may use *unbelievable*$'$ as translation for this part of the problem.)
- Specify the type and try to give a type-theoretic representation that expresses the semantic function of the adjectival prefix "un-", as in *unbelievable, 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 Nested Cooper Storage

Consider the following sentence:

(3) Peter saw a man with a telescope.

(a) Compute a semantic representation for this sentence using the Nested Cooper Storage algorithm. The sentence has the following syntactic structure:

(1a) $[_{\mathrm{S}}\ [_{\mathrm{NP}}\ \textit{Peter}]\ [_{\mathrm{VP}}\ \textit{saw}\ [_{\mathrm{NP}}\ \textit{a}\ [_{\mathrm{N'}}\ \textit{man}\ [_{\mathrm{PP}}\ \textit{with}\ [_{\mathrm{NP}}\ \textit{a telescope}]]]]]]$

Represent the semantics of *see* as $\lambda P \lambda u.P(\lambda v.\mathsf{see}'(v)(u))$, the semantics of the preposition *with* as the term $\lambda P \lambda Q \lambda y(Q(y) \wedge P(\lambda x.\mathsf{with}'(x)(y)))$ of type $\langle\langle\langle e,t\rangle,t\rangle,\langle\langle e,t\rangle,\langle e,t\rangle\rangle\rangle$, and the semantics of all other expressions as usual.

(b) Question (a) asks for *one* reading of the sentence. Technically it is possible to derive more readings, but they do not differ in any relevant way. Why not?

3 Underspecification

Cooper Storage can be seen as an early form of underspecification. Describe *briefly* the advantages that a mature underspecification formalism like dominance graphs has over (Nested) Cooper Storage, in particular with respect to the compact, declarative representation of readings and the design of the syntax-semantics interface.

4 DRT

Consider the following sentence (2):

(4) Either Mary doesn't own a car, or she visits a friend.

(a) Give a DRS K_2 that represents the semantics of (2). It is not necessary to construct K_2 explicitly.

(b) Compute the truth conditions of K_2. Give a sufficient number of intermediate interpretation steps to make the structure of the interpretation process visible.

5 Presuppositions

Consider the following text (3):

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

(a) Give a proto-DRS K_3 for (3) 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 (3) can be derived from K_3 by application of van der Sandt's binding and accommodation rules.

6 DPL

Consider the following three sentences and their DPL representations.

(4)	*Nobody is perfect.*	$\neg\exists x.\mathsf{perf}(x)$
(5)	*Somebody isn't perfect.*	$\exists x.\neg\mathsf{perf}(x)$
(6)	*He/she isn't perfect.*	$\neg\mathsf{perf}(x)$

(a) Compute the DPL denotations of the three formulas and simplify the results into more understandable forms.

(b) None of the three formulas can be fully equivalent with any of the others. Why not?

(c) Which of the following entailments hold, either as static or as dynamic entailment?

(i) (4) entails (5)

(ii) (5) entails (6)

(iii) (4) entails (6)

Justify each of your claims.

7 Lexical semantics

What is the main difference between Fillmore's original "deep case" or "thematic role" theory, and his later Frame Semantics? Illustrate the different analyses of both frameworks at an example.