

Semantiek – end exam (2nd chance) – 18.11.08 Student number: _____

Yoad Winter, Gianluca Giorgolo, Jasper Hoogland

Instructions:

1. Please fill in your answers on the exam sheets (4 pages).
2. Exam duration: 2.5 hours
3. You can use any pre-prepared material.
4. Please do not forget to write down your student number on the top of the exam sheet.

Good luck!

Question 1 (10+10+5+10+10=45 points)

Consider the following lexicon.

| word | category | denotation |
|---------|---|---|
| all | $(s/(np \setminus s))/n$ | $\lambda A_{et}. \lambda B_{et}. \forall x_e [A(x) \rightarrow B(x)]$ |
| three | $(s/(np \setminus s))/n$ | $\lambda A_{et}. \lambda B_{et}. A \cap B = 3$ |
| birds | n | \mathbf{bird}'_{et} |
| mammals | n | \mathbf{mammal}'_{et} |
| blue | n/n | $\lambda A_{et}. \lambda x_e. A(x) \wedge \mathbf{blue}'_{et}(x)$ |
| high | $(np \setminus s) \setminus (np \setminus s)$ | $\lambda A_{et}. \lambda x_e. A(x) \wedge \mathbf{high}'_{et}(x)$ |
| fly | np \setminus s | \mathbf{fly}'_{et} |

Consider the following sentences:

- (1.1) More birds than mammals fly.
- (1.2) Less birds than mammals fly.

(i) Add lexicon entries (categories and lambda expressions of the appropriate types) for the words *more*, *less* and *than* in order to treat sentences like (1.1) and (1.2).

Complete the following:

more:

Category: _____ Type: _____

Lambda expression: _____

less:

Category: _____ Type: _____

Lambda expression: _____

than:

Category: _____ Type: _____

Lambda expression: _____

(ii) Write down a full derivation (category + lambda terms for all constituents) of sentence (1.1) according to your proposal in (i).

(iii) Simplify the lambda expression you got for sentence (1.1) as much as possible:

(iv) For each of the arguments of the word *less* in your proposal, write down the monotonicity of the function you suggested for *less* in the relevant argument. Illustrate monotonicity using a valid entailment, and lack of monotonicity by describing a situation that shows it. Complete the following.

On its 1st argument, *less* is: upward monotone/downward monotone/non-monotone

Illustration: _____

On its 2nd argument, *less* is: upward monotone/downward monotone/non-monotone

Illustration: _____

On its 3rd argument, *less* is: upward monotone/downward monotone/non-monotone

Illustration: _____

(v) Consider the following version of the Ladusaw-Fauconnier Generalization from lecture 4:

Negative polarity items (NPIs) occur within arguments of downward monotone functions but not within arguments of functions that are not downward monotone.

Based on your answers to (iv) and this version of the Ladusaw-Fauconnier generalization, write down for each argument of *less* a sentence with an NPI that you expect to be acceptable/unacceptable. Complete the following.

Sentence for 1st argument of *less*:

Expectation: acceptable/unacceptable (mark the right answer)

Sentence for 2nd argument of *less*:

Expectation: acceptable/unacceptable (mark the right answer)

Sentence for 3rd argument of *less*:

Expectation: acceptable/unacceptable (mark the right answer)

Question 2 (10+15+5+10=40 points)

Consider the following lexicon.

| word | category | denotation |
|---------|-------------------|--|
| John | np | \mathbf{john}'_e |
| every | $(s/(np\s))/n$ | $\lambda A_{et}.\lambda B_{et}.\forall x_e[A(x) \rightarrow B(x)]$ |
| no | $(s/(np\s))/n$ | $\lambda A_{et}.\lambda B_{et}.\neg\exists x_e[A(x) \wedge B(x)]$ |
| student | n | $\mathbf{student}'_{et}$ |
| smiled | np\s | \mathbf{smile}'_{et} |
| didn't | $(np\s)/vp_{inf}$ | $\lambda P_{et}.\lambda x_e.\neg P(x)$ |
| smile | vp _{inf} | \mathbf{smile}'_{et} |

Consider the following sentences:

(2.1) Every student except John smiled.

(2.2) No student except John smiled.

(i) Add to the lexicon a category and a lambda term for the word *except* that will allow to derive sentences (2.1)-(2.2).

Category _____ Lambda term _____

(ii) Show the derivation for sentence (2.1) using the entry you added in (i).

(iii) Simplify the lambda expression you derived in (ii) for (2.1) as much as possible.

(iv) Find a sentence in the fragment derived by the lexicon that each of the sentences (2.1) and (2.2) entails.

(2.1) => _____

(2.2) => _____

Make sure that your analysis in (iii) explains these entailments.

Question 3 (5+5+10=20 points)

(i) For the underlined determiner in the following sentence, write down a suitable denotation.

(3.1) Some but not every student smiled.

some_but_not_every(A)(B) = 1 iff _____

(ii) Write down the monotonicity property of the determiner you defined in (i) in each of its arguments (mark the correct possibility):

left: downward monotone/ upward monotone/ non-monotone

right: downward monotone/ upward monotone/ non-monotone

(iii) For each of the arguments of the determiner, support your answer to (ii) by showing an entailment (for upward/downward monotonicity) or describing a situation contradicting monotonicity:

left:

right:
