



Semantics & Pragmatics SoSe 2020

Lecture 22: Overview and Discussion

21/07/2020, Christian Bentz



Overview

Section 1: Important Information for the Exam

Date and Time

Chat

Section 2: Test Exam

Type Theory

Brackets

DRT

Section 3: Relevant Topics



Section 1: Important Information for the Exam



Important Information

- ▶ The Exam will take place on **Thursday 23/07/2020** from **10am-1pm (3 hours)** on moodle.
- ▶ Once you lock into the exam (in between 10am-1pm), you will have 3 hours. You can see a counter running down.
- ▶ If you finish early, you can submit your exam attempt before the counter runs down.
- ▶ The exam will be automatically submitted when the counter runs down.
- ▶ We will ask you to provide your name and student ID as a first “Question”.

Section 1:
Important
Information for
the Exam

Section 2: Test
Exam

Section 3:
Relevant Topics



Important Information

- ▶ I will be available between 10am and 1pm to answer questions via the chat.

Section 1:
Important
Information for
the Exam

Section 2: Test
Exam

Section 3:
Relevant Topics

The screenshot displays a Moodle course page for 'Semantics and Pragmatics' and an overlaid chat window. The Moodle page shows a test question titled 'Propositional Logic (15 points)' with the following text: 'Determine whether the following expressions are valid formulas of propositional logic based on the "vocabulary" and the "syntactic" clauses of the propositional logic. If they are not, briefly explain what is wrong.'

The test question lists nine options (a-i) with propositional logic formulas:

- a) $((p \wedge \neg q) \rightarrow (r \leftrightarrow s))$
- b) $(p \leftrightarrow \neg(q))$
- c) $((\neg(r \rightarrow s) \rightarrow (\neg p \wedge p))$
- d) $((((p \vee q) \wedge (p \vee q)) \rightarrow (r \rightarrow t)) \vee \neg p)$
- e) $\neg \neg ((\neg(p \rightarrow r) \vee q) \rightarrow q) \rightarrow \neg \neg r$
- f) $((p \wedge q) \rightarrow \neg(p \leftrightarrow q \rightarrow r))$
- g) $(\neg p \rightarrow ((r \vee s) \rightarrow \neg(q \wedge t)))$
- h) $((p \rightarrow \neg q) \rightarrow (s \rightarrow \neg r))$
- i) $((p \vee q) \vee \neg r) \rightarrow (p \vee (q \vee \neg r))$

The chat window shows a message from Christian Bentz: '11:47 Christian Bentz Christian Bentz hat den Chat betreten'.



Section 2: Test Exam



Q&A

Q&As Test Exam

- ▶ Background: for Question 5 on Type Theory the answers given in the solutions are:
 - ▶ ‘showed’ is of type $\langle e, \langle e, \langle e, t \rangle \rangle \rangle$
 - ▶ ‘showed Maya to Bambi’ has to be of type $\langle e, t \rangle$
 - ▶ ‘to’ has to be of the type $\langle e, e \rangle$
 - ▶ ‘showed Maya’ is of type $\langle e, \langle e, t \rangle \rangle$ and hence the kind of expression it represents is a two-place first-order predicate.
 - ▶ the kind of expression of ‘to’ is a function from entity to entity.

What would the type-theoretic tree look like then?

Section 1:
Important
Information for
the Exam

Section 2: Test
Exam

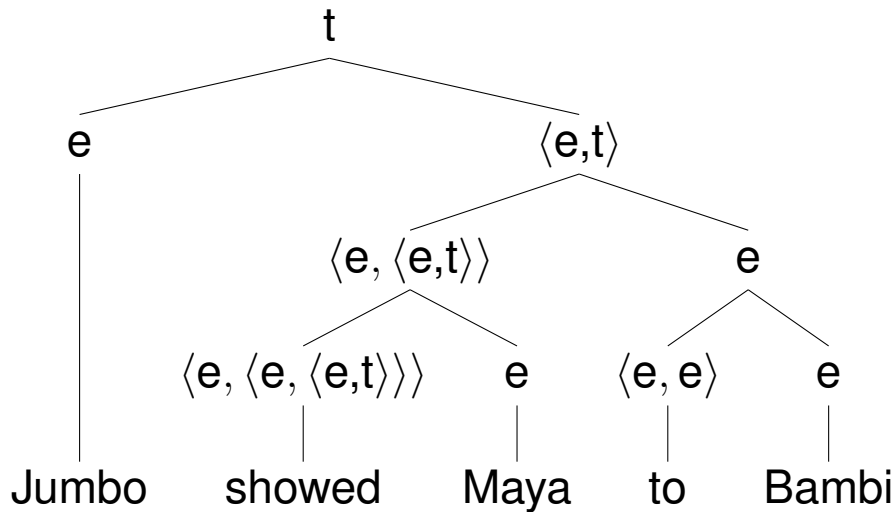
Section 3:
Relevant Topics



Q&A

Q&As Test Exam

– The underlying type-theoretic tree would then be:



Section 1:
Important
Information for
the Exam

Section 2: Test
Exam

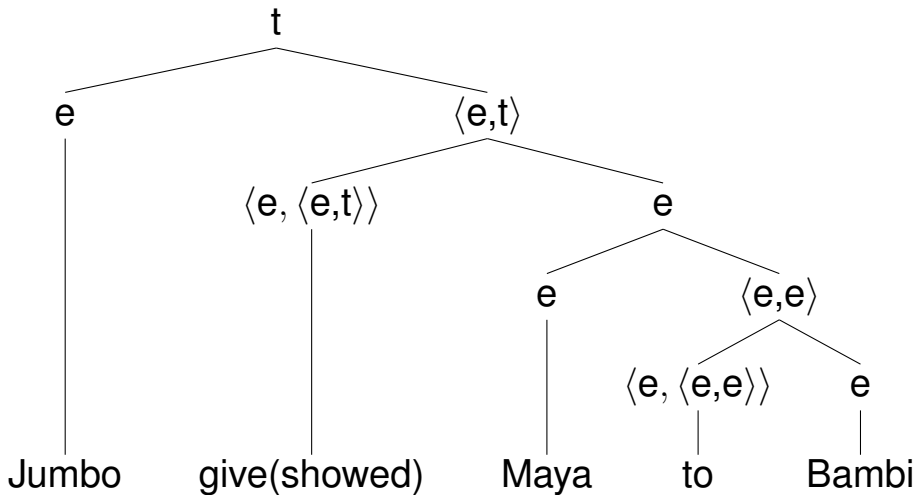
Section 3:
Relevant Topics



Q&A

Q&As Test Exam

Is the following tree a possible alternative tree?



– I would say this tree is to be dispreferred as a solution. Note that the assumption here is that give/showed is a two-place, rather than three-place predicate, which is a fairly uncommon proposal.

Section 1:
Important
Information for
the Exam

Section 2: Test
Exam

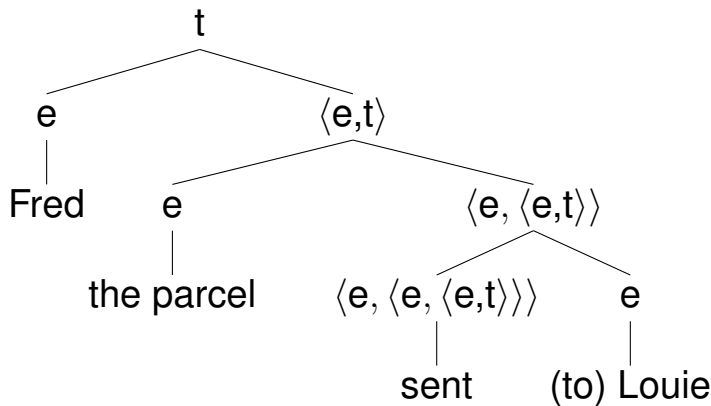
Section 3:
Relevant Topics



Q&A

Q&As Test Exam

Side note: Kearns (2011), p. 61 gives the following tree for a structurally equivalent dative construction:



– Again, I would say that purely from a type-theoretic perspective this solution is to be dispreferred: a) It breaks with the surface structure (word order) of the original sentence (i.e. *sent the parcel* is inverted), b) the preposition *to* is not taken into account at all.

Section 1:
Important
Information for
the Exam

Section 2: Test
Exam

Section 3:
Relevant Topics



Q&A

Q&As Test Exam

Same Question: *I don't know, I couldn't find anything about prepositions on the slides, maybe $\langle e, e \rangle$?*

– You cannot expect that you can just “look up” the solutions on the slides. You have to understand the basic principles of how type-theoretic trees work, you might be asked to derive a type which has not been used before in the slides and the exercises.

Section 1:
Important
Information for
the Exam

Section 2: Test
Exam

Section 3:
Relevant Topics



Q&A

Q&As Test Exam

Indeces: *Is it possible to write indeces as normal numbers rather than subscript numbers?*

– I currently don't see that this would create harmful ambiguity, hence, it should be fine.

Examples:

$$B_1 ab \wedge C_2 c = B1 ab \wedge C2c$$

$$[{}_1 x: \text{John}(x), \neg[{}_2 y: \text{donkey}(y), \text{owns}(x,y)]] = \\ [1 x: \text{John}(x), \neg[2 y: \text{donkey}(y), \text{owns}(x,y)]]$$

Section 1:
Important
Information for
the Exam

Section 2: Test
Exam

Section 3:
Relevant Topics



Q&A

Q&As Test Exam

Brackets: *It is more of a concentration exercise than a “real” question if we have to look for missing brackets.*

– I won’t leave out brackets on purpose to trick you in the exam. I.e. when it comes to the validity/invalidity of logical expressions, brackets are not going to be the relevant issue.

Section 1:
Important
Information for
the Exam

Section 2: Test
Exam

Section 3:
Relevant Topics



Q&A

Q&As Test Exam

Merge and Anaphora Resolution in DRT: Be aware that while we have often treated merge operations and anaphora resolutions in “one go” (though as consecutive steps) in the exercises, they can be seen as separate steps that do not necessarily need to be performed together.

Example:

A farmer chased a donkey. He caught it.

Merge Operation

$$[x, y: \text{farmer}(x), \text{donkey}(y), \text{chased}(x,y)] \oplus [\underline{v}, \underline{w}: \text{caught}(v, w)] = [x, y, \underline{v}, \underline{w}: \text{farmer}(x), \text{donkey}(y), \text{chased}(x,y), \text{caught}(v,w)]$$

Anaphora Resolution

$$[x, y, v, w: v=x, w=y, \text{farmer}(x), \text{donkey}(y), \text{chased}(x,y), \text{caught}(v,w)] = [x, y: \text{farmer}(x), \text{donkey}(y), \text{chased}(x,y), \text{caught}(x,y)]$$

Section 1:
Important
Information for
the Exam

Section 2: Test
Exam

Section 3:
Relevant Topics



Section 3: Relevant Topics



Relevant Topics

The topics represented in the tutorials will also be relevant for the exam:

Tutorial 1: Information Theory (Information content/Shannon entropy)

Tutorial 2: Propositional Logic

Tutorial 3: Predicate Logic

Tutorial 4: Second Order Logic, Type Theory

Tutorial 5: Lambda Calculus, Type Theory

Tutorial 6: Modality, Modal Propositional Logic

Tutorial 7: Epistemic Modality, Evidentiality

Tutorial 8: Scope of Pragmatics, Basic DRT, Merge Operation

Tutorial 9: Complex DRT, Anaphora Resolution

Tutorial 10: Implicature, Presupposition, Identification Test, Speech Acts

Section 1:
Important
Information for
the Exam

Section 2: Test
Exam

Section 3:
Relevant Topics



General Remarks

- ▶ Exercises with clearly defined concepts (requiring less subjective discussion) are better suited as exam questions.
- ▶ Do not assume, however, that you will be able to “look up” the correct solutions in the lecture slides/tutorial solutions.
- ▶ Do not panic when you see expressions/variables/formulas that you have not seen before. Every task is straightforwardly derivable from the concepts and definitions we discussed. *Transfer of knowledge* is an important part of the exam.
- ▶ **Read the instructions carefully!** Details will matter.

Section 1:
Important
Information for
the Exam

Section 2: Test
Exam

Section 3:
Relevant Topics



Thank You.

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