Introduction to Formal Semantics
Probeklausur, 13. Juli 2022

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NOTE/ Anmerkungen: number

- Please write your name on each page; matriculation number on the 1st page is sufficient/Bitte schreiben Sie Ihren Namen auf jedes Blatt. Die Immatrikulationsnummer reicht auf Seite 1.
- You can answer and provide examples either in English or German/Sie können Ihre Antworten sowohl auf Deutsch als auch auf Englisch geben und auch Ihre Beispiele auf Deutsch oder Englisch wählen.
- Please write clear and legibly. If the examiners will be not capable to read your answers, they will be not graded/If will Schreiben Sie bitte leserlich. Wenn wir etwas nicht lesen können, wird es nicht in die Bewertung mit einbezogen.
- Please do not use pencil; answers written in pencil will not be graded/Schreiben Sie Ihre Antworten bitte nicht mit Bleistift. Wir korrigieren nur Antworten, die nicht mit Bleistift geschrieben sind.
- Pay attention that all question parts are answered/Achten Sie darauf, alle Teile der Fragen zu beantworten.
- You have 90 minutes for 8 exam questions/ Sie haben 90 Minuten, um 8 Fragen zu beantworten.

Name:

Matriculation number/Matrikelnummer:

Bewertung:

Frage	Max. Punktzahl	Bewertung
1	10	
2	10	
3	10	
4	10	
5	10	
6	10	
7	10	
8	10	
Total	80	
Note		

Question 1

(a) Do the following entailments hold? Conversely, dash the entailment and show the correct answer.

1. Sabrina and Tom are married.
$\models$ Sabrina and Tom are married to each other.
2. Some student will go to the party.
$\models$ All students will go to the party.
3. John thinks that pigs do not have wings.
$\models$ Pigs do not have wings.

(b) Are the following syllogisms correct?

P1. This is yellow.
P2. This is a fountain pen.
C. This is a yellow fountain pen.

[yes] [no]

P1. ...
P2. ...
C. ...

(c) Translate the following sentences into FOL formulas.

1. Bryan is the king of Ireland.
2. Tom bought Carol a ring.
3. Every sailor loves a mermaid.
4. ...
5. ...

(d) Represent a formal model for the following set of sentences.
Note: All sentences have to belong to the same model. e.g. "Mirco runs", "Susan runs" $[[Mirco]]^M = \{a\}$; $[[runs]]^M = \{a,b\}$;

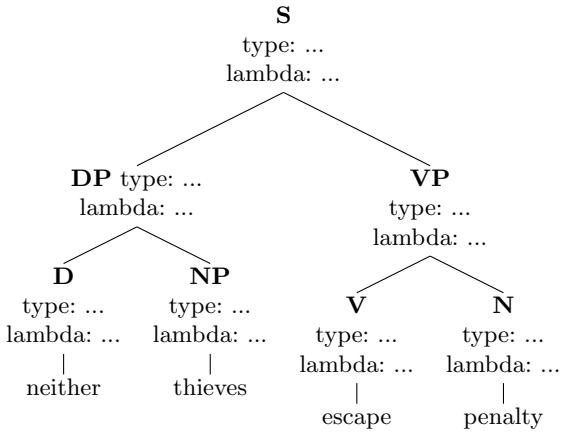
(1) Tom plays soccer.
(2) Ann plays volleyball.
(3) Susan and Mark play soccer.
(4) Susan is healthy.

Question 2

(a) Identify all presupposition **triggers** in the sentences below and generate a corresponding **presupposition**.

(b) Show how the generated in (b) presuppositions can be **cancelled (defeated)**.

(c) Represent the correct types and lambdas abstractions (as well as beta reductions) of the sentence in (iv), make use of the following tree. Please respect the defineteness condition.



(i) *Mary's husband cheated on her.*

(ii) *Muriel spoke to her brother.*

(iii) *John is happy there will be ice cream again.*

(iv) *Neither thieves escaped penalty.*

Question 3

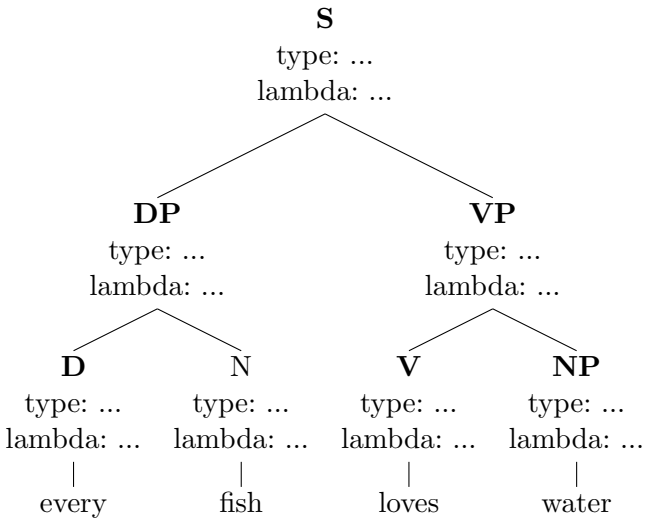
(a) Represent a matrix as a right-to-left curried function for the following set:

$f_{Likes} = \{\langle bonnie, clyde\rangle, \langle clyde, bonnie\rangle, \langle susan, megan\rangle\}$

(b) Complete the following table accordingly: sentence - type - lambda abstraction

Yoda floats	$\langle e, t\rangle$	$\lambda x.Floats(x)$
Susan hates herself	...	...
...	$\langle\langle e, t\rangle, \langle e, t\rangle\rangle$	...
Cloe gave Mark the keys	...	...
...	...	$\lambda x.x$
Susann is scared of the dark	...	...
...	$\langle t, t\rangle$	...
Anakin is Luke's father	...	...
...	...	$\lambda P.\lambda Q.\forall x.[P(x) \rightarrow Q(x)]$

(c) Compute the following tree:



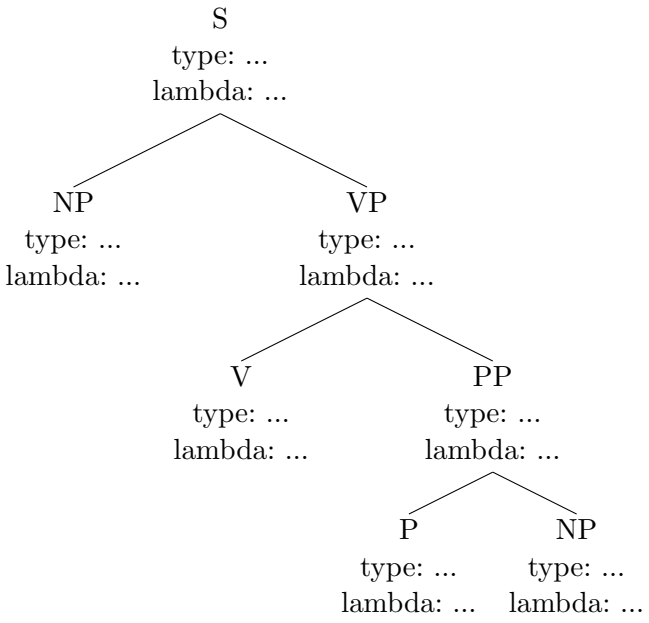
Question 4

(a) Represent the following sentences as generalised quantifiers:

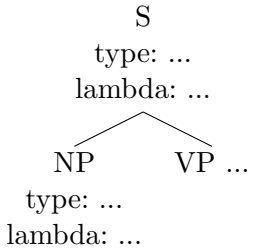
1. 10 tables have been reserved.
2. Some of the cats play the piano.
3. I pay you not more than 5 dollars.
4. Sadly, none of the students tipped the waitress.

(b) Compute the following trees:

1. Sentence...



2. Sentence...



Question 5

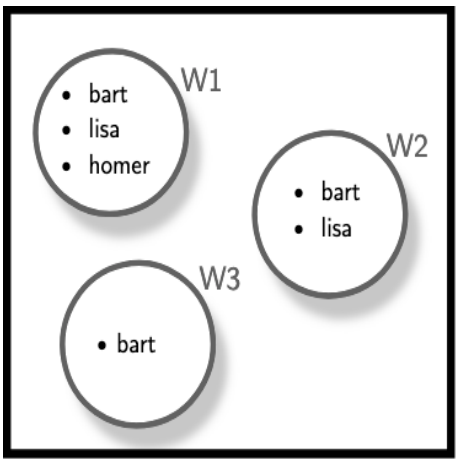
- Apply predicate modification to the **definite description** in (i).
- Transform the description in (i) into the sentence with relative clause and draw full tree including types and applying lambda conversion. HINT: do not forget to apply iota operators and traces
- Apply both **quantifier raising** and **type shifting** to the sentence in (ii), exemplify both readings due to the scope ambiguity.

(i) *The broken cup.*

(ii) *Every student reads something.*

Question 6

(a) The only predicate that holds in the respective worlds is the one where "there is an $e \in D_e$ and e skates".



Task 1. Give a matrix representation of:

1. the intension of *homer*.
2. the intension of *to skate*.
3. the intension of *Bart skates*.

Task 2. Show if there is a necessary condition that holds within the model.

(b) Represent a tree and the intensional reading of the following sentence:

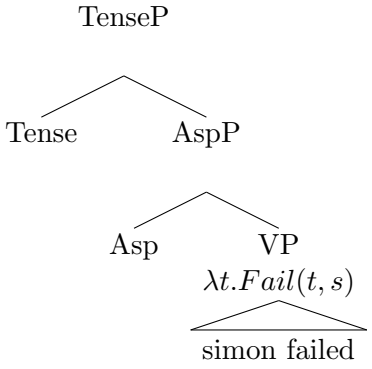
1. Prue is Piper's sister.

(c) Give a formal representation of the *de re* and *de dicto* reading of the following sentences, and motivate your choice with a brief explanation:

1. sentence ...
2. sentence ...

Question 7

- Specify the **Aktionsart** of the sentences below and apply a **coercion** mechanisms to change the eventuality type.
- Compute **'inner' aspect/ terminativity value** of the sentence in (iii), use Verkuyl's approach.
- Provide a derivation for the sentence in (iv). Use the following tree:



(i) *John lived in Paris.*

(ii) *Diane played the minute waltz.*

(iii) *Jacqueline drinks wine.*

(iv) *Simon failed.*

Question 8

- Represent the (i)-(iv) sentences below in event semantics, use **Neo-Davidsonian style**.
- Explain why **diamond entailments** for sentences below cannot be captured in terms of predicate logics but they can be captured in event semantics.
- **Negate** the event in (iv) and give a tree representation of it indicating types and applying lambda conversion. Respect two possible readings.

(i) *I flew my spaceship to the Morning Star at night.*

(ii) *I flew my spaceship to the Morning Star.*

(iii) *I flew my spaceship at night.*

(iv) *I flew my spaceship.*