SoSe 2022

Introduction to Formal Semantics

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Exercise sheet n.1

Total points -/25

Note: Are there questions you would like to discuss during the tutorial? If yes, please send them to me (nddascalu@lsv.uni-saarland.de) so that we can go through them together.

Exercise 1 (-/3)

Provide a brief answer to each of the following questions:

(1) What are the goals of semantics?
(2) What do we mean by *entailment*?
(3) What are examples of *syntactic ambiguity* and *vagueness*? Explain the main differences.

Exercise 2 (-/7)

Translate the following sentences into first-order predicate logic. Please provide the key to the translation when needed.

for constants, e.g. David = d
for predicates, e.g. Reading = R

(1) Brian runs.
(2) Brian runs home.
(3) Peter and Louis bought donuts.
(4) Mark gave Sandy the tickets.
(5) Saarbrücken welcomes every student.
(6) Someone stabbed Caeser.
(7) Prince Harry and Meghan love each other.
(8) London is the capital of England.
(9) There's no King without a crown.
(10) Every sailor loves a mermaid.

Exercise 3 **(-/3)**

Are the following entailments[1] correct? If not correct them.

(1) Susan's watch is navy blue ⊭ Susan's watch is blue.
(2) Tom Hardy is an actor and a father ⊨ Tom hardy is a good actor.
(3) Sue wears lipstick and kissed John. ⊨ The lipstick on John was Sue's.

Exercise 4 **(-/2)**

Represent the following arguments and show if they're *valid* or not. If not why?

(1) [1] Some linguists are well educated.
[2] Bart is a linguist.
[3] Bart is well educated.

(2) [1] All donkeys eat carrots.
[2] Some donkeys are white.
[3] All white donkeys eat carrots.

Exercise 5 **(-/5)**

Represent a formal model for the following set of sentences.

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

All sentences have to belong to the same model.
e.g. "Mirco runs", "Susan runs" $[[Mirco]]^{M_1} = a$; $[[runs]]^{M_1} = \{a,b\}$;

Exercise 6 **(-/5)**

Please give a structural representation (enriched tree representation) of the following sentences and fill **Table 1**.

(1) Tom is hungry and angry.
(2) Susan is not tired.

[1] "⊨" is a common notation for "entails"

(1) M_1:

(2) M_2:

Table 1: Semantic annotation

Expression	Cat.	Type	Abstract denotation	Denotation for all Model $E = \{$ $\}$	
				M_1	M_2