

## Entrance Test

### Manfred Sailer

In order to participate in the class *Semantics 2: Semantic phenomena in creole languages* you need to submit your solutions to the questions in the following exercise sheet.

Please send your solutions to [sailer@em.uni-frankfurt.de](mailto:sailer@em.uni-frankfurt.de) no later than **March 19, 2021**.

You will be notified about acceptance to the course at the end of March/beginning of April.

## 1 Predicate Logic

**Task 1:** Ambiguous sentences (8 points)

Consider the following ambiguous sentences:

- (1)
- a. Tyrion told Bronn that he was a Lannister.
  - b. Bronn was fighting with Tyrion.
  - c. Everyone was afraid of fighting dragons.
  - d. Every hero won't survive.

1. For **each** of these, determine the type of ambiguity.
2. Pick **two** of the sentences provide unambiguous paraphrases for the possible readings.

**Task 2:** Model and interpretation (7 points)

1. Define a universe that consists of Tyrion and Sansa.
2. Define the interpretation of the names **tyrion** and **sansa** in an intuitively plausible way.
3. Define the interpretation of the properties **stark**<sub>1</sub>, **noble**<sub>1</sub>, and **serves-the-Night'sWatch**<sub>1</sub> in such a way that only Sansa is a Stark, both are noble, and none of them serves in the Night's Watch.
4. Define the interpretation of the 2-place relations **spouse-of**<sub>2</sub> and **leave**<sub>2</sub> in such a way that they are each other's spouses and that Sansa left Tyrion, but not the other way around.

**Task 3:** Formulæ (7 points)

Write down logical formulæ that express the meaning of the following sentences.

1. Tyrion is a Stark.
2. Sansa is Tyrion's spouse or Tyrion serves in the Night's Watch.
3. If Sansa is noble, Tyrion does not leave Sansa.

**Task 4:** Interpreting formulæ (8 points)

Compute the interpretation of the following formulæ step by step.

1.  $\text{leave}_2(\text{sansa}, \text{tyrion})$
2.  $\text{spouse-of}_2(\text{sansa}, \text{tyrion}) \supset \text{stark}_1(\text{tyrion})$
3.  $\neg \text{serves-the-Night'sWatch}_1(\text{sansa})$

**Task 5:** Variables (3 points)

Provide a g-function that maps the variables  $x$ ,  $y$ , and  $z$  to individuals from the universe and compute the interpretation of the following formula with respect to the model and your  $g$ .

- (i)  $\text{leaves}_2(x, y)$

**Task 6:** Quantifiers (6 points)

Provide logical formulæ that express the meaning of the following sentences. Are the formulæ true in **your** model (not in the entire series!)? Give a short reason (you don't need to compute the truth value).

1. Tyrion is the spouse of every Stark.
2. Someone who servers at the Night's Watch left Tyrion.

## 2 Lexical Resource Semantics

**Task 7:** Analysis: Lexicon (12 points)

Provide the lexical entries for the words in the sentence *Sansa left Tyrion*. Use the features as given in figure 1.

PHON	???
HEAD	???
SUBJ	???
SPR	???
COMPS	???
DR	???
PARTS	???

Figure 1: Features used in AVMs

**Task 8:** Analysis: Syntactic structure and semantic combinatorics (6 points)

Using the lexical entries from Task 7, provide the syntactic structure of the sentence *Sansa left Tyrion*. Indicate all values for all features at each node in the tree.

**Task 9:** Linking (4 points)

Provide the overall logical form of the sentence in Task 8. Provide a short argument on how the correct linking is achieved.

**Task 10:** Local semantic phenomena (6 points)

What kind of semantic restriction is violated in the deviating forms of the following sentences? Give a reason for your decision.

1. [Robert's assassination]/ #[Robert's assassin] had been planned by Cersei.
2. [The ship]/ #[The water] was burning during the battle.
3. [The wildlings]/ #[The King-beyond-the-Wall] ganged up against the Night's Watch.