

# Foundations of Linguistics

## WiSe 20/21

### Take-home exam 1

Hand-out of exam: Friday the 12th of February 2021; 23.59

Hand-in of exam: Friday the 19th of February 2021; 23.59

Hand-in form: PDF. Attached to the exam is a .docx answer file which lists the questions numbers. Please use it to answer the questions, convert it to PDF, and upload it to MS Teams. You are not required to use Word, those of you that use Open Office, LaTeX, whatever, you will know how to convert the .docx file. The final product, your exam, should have just your answers, appropriately numbered, in PDF form.

In case there are any technical problems you can reach Annemarie Verkerk at:  
annemarie.verkerk@uni-saarland.de

You will receive a confirmation message from Annemarie Verkerk when the exam has been successfully received.

Note: this exam is intended to reflect your individual knowledge and skills. Working together and copying each other's work in any way is NOT ALLOWED. Using published work without citing it fully is plagiarism and is NOT ALLOWED. Reframing in your own words published or unpublished work without citing it fully is plagiarism and is NOT ALLOWED. Along with this document (the exam) you will find the "Erklärung über Eigenständigkeit" that relates these issues in more detail. **Please hand in a signed version of this document along with your exam.**

The exam is divided up into four parts with several questions, which will be graded separately (Morphology & Syntax, Semantics, Pragmatics & Phonetics). For each of the four parts, there is a bonus question. A correct answer on a bonus question gets you +10% on your score for that part. Your overall grade will be calculated as the mean of your scores on all four parts.

## Part I: Morphology and Syntax

### 1. Morphological analysis

For each of the following words (a-j), answer the following questions:

1. Add morpheme boundaries for the following morphologically complex words.
2. Identify the root(s) of each word and give one other derivation of these root(s) and an inflected form of the root(s). If this is not possible, state why this is not possible.
3. List the morphological patterns (compounding, concatenation, base modification, reduplication, conversion, back-formation, alphabet-based abbreviation, clipping, blending) that were applied to form each of these words.
4. List the words that are inflected (rather than only derived).
  - a. *mice catcher*
  - b. *stick-on labelling*
  - c. *overslept*
  - d. *unabbreviable*
  - e. *backtransformation*
  - f. *ping-pong tables*
  - g. *self-destruct*
  - h. *UNESCO phone*
  - i. *North American Sci-Fi Mini-Convention*
  - j. *single-mindedness*

### 2. Morphological and syntactic typology

Please find below a set of sentences in Mystery Language X. Answer the following questions, in your answers be sure to indicate how you reached your conclusions:

1. Provide a morphological analysis of the sentences by putting hyphens between morphemes and preparing a list of roots and affixes with their meaning.
2. How would you classify the language in terms of its morphology, i.e. classify it in terms of synthesis, fusion, flexivity, and exponence. If you can't analyze the example in terms of one of these parameters, indicate why and what kind of data you would need to provide an answer.
3. What is the basic word order of subject, object, and verb in this language?
4. How are grammatical relations marked in this language? Through case marking (dependent marking), person/number/gender agreement on the verb (head marking), constituent order, or some combination of those three?
5. If you find there is head or dependent marking of grammatical relations in 4, what is the alignment?

### 3. Syntax

1. Provide a tree structure of the sentences a. through h. below in the way we have done in class, so marking nodes in the tree both with labels for function and category.
  2. In addition, answer the specific questions on drawing the trees in i. through v. These are both a hint and a means to show that you have understood the material. Be specific, i.e. relate your answers to the sentences in a. through h. as stated.
    - i. Regarding sentence a. and h., what is/are the (constituency) test(s) you can use to identify the subject?
    - ii. Regarding sentence b., c. and d., what is/are the (constituency) test(s) you can use to distinguish between prepositional verbs and phrasal verbs?
    - iii. Regarding sentence d., what type of relative clause is [that got their interest at once]?
    - iv. Regarding sentence e., f., g. and h., which subordinate clauses finite and which are non-finite? What is the test you can use for determining finiteness?
    - v. Regarding all sentences, what is/are the (constituency) test(s) you can use to identify adjuncts?
- a. *This bracelet was given to me by my mother.*
- b. *I asked you to put out the garbage like one hundred times already.*
- c. *My uncle lives down the street from my grandad.*
- d. *Hagrid spoke in a shifty voice that got their interest at once.*
- e. *Hermione made sure that she finished her homework on time.*
- f. *Hagrid looked around quickly to see if anyone was listening.*
- g. *Some people enjoy endlessly asking others for favors.*
- h. *Furthering your education provides an opportunity to broaden the mind.*

### 4. Bonus question: Word classes

Have a look at the text excerpt on the next page (from Harry Potter and the Philosopher's Stone by J. K. Rowling).

- a. Assign each word to one of the following classes: **nouns**, **pronouns**, **verbs**, **adjectives**, **adverbs**, **determinatives**, **prepositions**, **coordinators**, **subordinators**, **interjections**. Use the colours given to each word class. For nouns, verbs, adjectives, adverbs, and prepositions, use the definitions/discussion provided by Tallerman (2014) and discussed in class. For pronouns, determinatives, coordinators, subordinators, and interjections, use the definitions provided in the Syntax assignment (Assignment III).
- b. Make a list of the words that are tricky to classify into these 10 word classes and write down why you find certain words difficult to classify.

*Hagrid shuffled into view, hiding something behind his back. He looked very out of place in his moleskin overcoat.*

*‘Jus’ lookin’,’ he said, in a shifty voice that got their interest at once. ‘An’ what’re you lot up ter?’ He looked suddenly suspicious. ‘Yer not still lookin’ fer Nicolas Flamel, are yeh?’*

*‘Oh, we found out who he is ages ago,’ said Ron impressively. ‘And we know what that dog’s guarding, it’s a Philosopher’s St–’*

*‘Shhhh!’ Hagrid looked around quickly to see if anyone was listening. ‘Don’ go shoutin’ about it, what’s the matter with yeh?’*

*‘There are a few things we wanted to ask you, as a matter of fact,’ said Harry, ‘about what’s guarding the Stone apart from Fluffy –’*

*‘SHHHH!’ said Hagrid again. ‘Listen – come an’ see me later, I’m not promisin’ I’ll tell yeh anythin’, mind, but don’ go rabbitin’ about it in here, students aren’ s’posed ter know. They’ll think I’ve told yeh –’*

*‘See you later, then,’ said Harry.*

*Hagrid shuffled off.*

### **Mystery Language X**

1	Watiŋku kuḷpirpa ḡalakatiŋu.	The man brought the kangaroo.
2	Ṭiṭi ḡuraŋka ḡinaŋu.	The child sat in camp.
3	Papa paŋaŋka ḡinaŋu.	The dog sat on the ground.
4	Papaŋku ṭiṭi paṭaŋu.	The dog bit the child.
5	Ṭiṭi yulaŋu.	The child cried.
6	ḡayulu ṭiṭi kulinu.	I heard the child.
7	Watiŋku ḡura wantiŋu.	The man left the camp.
8	Watiŋku kuḷpirpa kuḷṭuŋu.	The man speared the kangaroo.
9	Kuḷpirtu wati pirinu.	The kangaroo scratched the man.
10	Yunṭaltu ṭiṭi maŋtinu.	The daughter picked up the child.
11	Miŋma ḡalakulpaŋu.	The woman returned.
12	Miŋmaŋku ḡayuŋa ḡaŋu.	The woman saw me.
13	ḡayulu miŋma waṭaŋu.	I told the woman.
14	ḡayulu mirpaŋariŋu.	I became angry.
15	ḡura ḡayuŋa ḡaŋu.	You saw me.
16	Miŋma-ŋku ḡuraŋa ḡaŋu.	The woman saw you.
17	Yunṭalpa ḡalaṗiṭaŋu.	The daughter came.
18	Kuḷpirpa iluriŋu.	The kangaroo died.
19	Miŋma maṗiṭaŋu.	The woman went away.
20	ḡayulu ṭiṭi makatiŋu.	I carried the child away.
21	ḡuŋulu ḡayuŋa ḡaŋu.	Nunu saw me.
22	Paluúu wati waṭaŋu.	He told the man.
23	Watiŋku paluŋa kulinu.	The man heard him.
24	Watiŋku ampinŋa yaḷṭiŋu.	The man called Ampin.
25	Ampinŋa pakaŋu.	Ampin got up.
26	Paluúu maṗiṭaŋu.	He went away.

27	Dura ḡalapitḡu.	You came.
28	Ampintu ḡuraḡa ḡaḡu.	Ampin saw you.
29	Danaḡa ḡinakatiḡu.	We (pl) sat down.
30	Danaḡa yuḡtalpa yaḡtiḡu.	We called the daughter.
31	Dali yuḡtalpa ḡapinu.	We (2) asked the daughter.
32	Watiḡku ḡanaḡaḡa wanaḡu.	The man followed us (pl).
33	Ampintu ḡaliḡa yaḡtiḡu.	Ampin called us (2).
34	ḡuramuka ḡiti kulinu.	You (pl) heard the child.
35	Pililu ḡuramukaḡa ḡaḡu.	Pili saw you (pl).
36	ḡana ḡiti makatiḡu.	They (pl) took the child away.
37	ḡitiḡku ḡanaḡa pirinu.	The child scratched them (pl).
38	ḡana ḡitiḡka ḡinaḡu.	They (pl) sat on the child.
39	ḡana pakaḡu.	They (pl) got up (arose).
40	Piliḡa mirpaḡariḡu.	Pili was angry.
41	Watiḡku piliḡa puḡu.	The man hit Pili.

## Part II: Semantics

### 5. Truth-conditional Semantics

According to the slides, the ‘most certain principle in formal semantics’ is the following: “For two sentences A and B, if in some possible situation A is true and B is false, A and B must have different meanings.”

1. Illustrate the validity of this statement using an example (that is, give two sentences A and B for which this holds)
2. Does the reverse of this statement also hold? That is, does the statement “if A and B have different meanings, there is a situation in which A is true and B is false” hold in general? Illustrate with an example.

### 6. Syllogisms and Entailment

Consider the following syllogism:

P1: All snakes are reptiles.

P2: No reptile has fur.

C: No snake has fur.

1. Use the notion of entailment to formally show that the conclusion (C) follows from the set of premises (P1, P2).
2. Use this entailment schema in combination with the definitions of quantifier monotonicity to show that the quantifier “No man” is *monotone decreasing*.
3. Explain in your own words what it means for a quantifier to be monotonic (i.e. *monotone increasing* or *monotone decreasing*). Illustrate with an example.

### 7. First-order Logic

1. Translate the following sentence into formulas from First-order Logic. You can freely choose which predicates you use, but try to retain as much of the sentence structure as possible. For each predicate and constant, explicitly describe its natural language translation.
  - a. Harry is a wizard because he can do magic.
  - b. Every wizard learns magic at Hogwarts.
  - c. No Muggle can do magic or knows anyone who can.
2. Define a single model structure that satisfies each of the formulas from exercise 2.
  - a. Give the formal and graphical representation of the model.
  - b. Show for each of the formulas from exercise 2 that they are satisfied in your model structure, by formally deriving the truth conditions and showing that these are satisfied within your model.

### 8. Bonus question: Soundness and completeness

Explain in your own words the difference between soundness and completeness of a formal deduction system.

## Part III: Pragmatics

### 9. Centering Theory

In your own words: explain centering theory, make sure to cover the following points:

1. What are the different components of centering theory, what phenomena / observations in language is it trying to capture?
2. How can centering theory be used to do pronoun disambiguation?
3. What improvements over centering theory does the entity grid propose and what shortcomings of centering theory does this address?
4. Finally, explain the neural entity grid -- how does it work and what advantages does it have over the original entity grid?

### 10. Gricean maxims

Please give examples for 5 conversational implicatures of different types out of the set of 8 listed below, based on a sentence which you find in a book or newspaper article. Please give the source of the sentence(s). You can re-use the same sentence for several implicatures if you want to.

Make sure to explain how each of the implicatures is derived.

1. Implicature\_O for quality maxim
2. Implicature\_O for quantity maxim
3. Implicature\_O for relevance maxim
4. Implicature\_O for manner maxim
5. Implicature\_F for quality maxim
6. Implicature\_F for quantity maxim
7. Implicature\_F for relevance maxim
8. Implicature\_F for manner maxim

### 11. Rational Speech Act Model

Please consider the following objects:



Utterances (only one-word-utterances are possible): smiling, fearful, glasses, halo

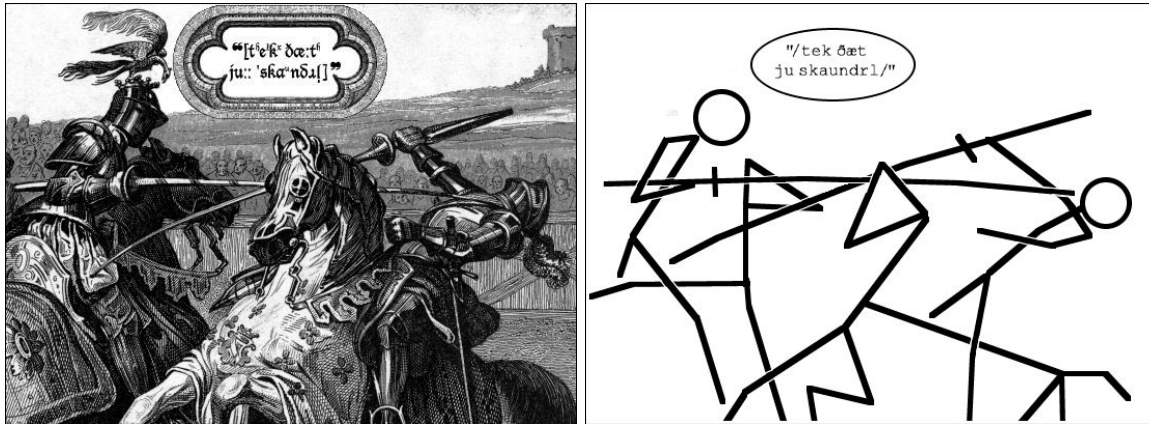
1. Explain what the “literal listener” is in RSA theory, and what he how he would interpret the utterance “smiling”
2. Explain what the “pragmatic speaker (level 1)” is in RSA theory, and how he would refer to the third face. Please explain the reasoning of the pragmatic speaker.
3. Explain the reasoning of the pragmatic listener for interpreting the utterance “smiling”.

### 12. Bonus question: Coherence relation classification

Name three challenges in discourse relation classification and explain each of these challenges.

## Part IV: Phonetics

### 13. Phonetics vs. Phonology



This cartoon is intended to illustrate the differences between the phonetic and the phonological perspective of language and speech. In your own words, characterize both linguistic subdisciplines: what are their objects of study, what are their primary aims, which methods do they use to achieve these aims? What are the key differences between phonetics and phonology regarding the description and conceptualization of linguistic units?

### 14. Connected speech

In continuous speech, the boundaries between phones, syllables, and words are not obvious, neither in articulation nor in the acoustic signal nor in perception. Explain the differences between a sequence of words in continuous speech as opposed to the same sequence consisting of words spoken separately. Please identify some of these differences based on this word sequence:

*We invite you to have a great time in Paris.*

### 15. Phonological analysis

Looking at the following Japanese names in the standard Romanized spelling, please describe the distribution of the sounds represented by *ch*, *f*, *h*, *sh*, *t*, *ts*, and *t*. What would you conclude about their phonemic status?

Fuse	Futatsume	Hachinohe
Hashimoto	Hitachi	Hofu
Matsushima	Misumi	Shinichi
Soto	Susa	Tate



**16. Acoustic phonetics**

Describe the source–filter model of speech production and its components. What are formants, and how do they emerge in the process of speech production? Explain why the resonances of the vocal tract are (by and large) independent of the properties of the excitation signal, and provide an example – from speaking or singing – to illustrate your explanation.

**17. Bonus question**

Explain the correlation between articulatory and acoustic dimensions of the vowel space, e.g. as underlying the IPA vowel chart.