

Introduction to Formal Semantics

7,5 hp

Department of Philosophy
Stockholm University

First part of the autumn semester, 2019

(classes start September 9)

Description: The course gives an introduction to the art of doing formal semantics, also called model-theoretic semantics, for natural language. That is, how one, starting from a syntactic analysis of the structure of sentences can arrive in a systematic (compositional) way to their truth conditions. The analysis begins with the simplest kinds of sentences and gradually proceeds to more complex constructions, such as sentences with quantified subjects and objects, relative clauses, pronouns, etc. At the very end we briefly discuss — time permitting — how intensional phenomena such as attitude verbs can be dealt with in possible world semantics.

The course presents a way to formulate the syntacs-semantics interface which is common in linguistics, in terms of so-called logical form (LF), but will also discuss alternative methods. The logical tools employed, besides elementary logic and set theory, are mainly lambda abstraction and lambda conversion, but familiarity with this technique is not presupposed.

Prerequisites: (1) Elementary predicate logic, e.g. according to the course Introduction to Logic (part of the course Theoretical Philosophy I), or *similar* courses or standard logic textbooks. (2) (Very) elementary syntactic theory; essentially students need to be somewhat familiar with tree structures (phrase structure trees) for analyzing natural language sentences. Prerequisites (1) are the most important ones: being comfortable with the language of predicate logic, with basic notions of logic, and with sets, relations, and functions.

The course can be studied as a non-obligatory part of the bachelor program Philosophy and Linguistics, or the bachelor program Logic, Philosophy, and Mathematics, or the course Theoretical Philosophy II, or as an independent course.

Level: Basic. The course can also be studied at the advanced level, with corresponding additional exam requirements.

Language: The course is given in English if required; otherwise in Swedish.

Plan: The lectures follow roughly (a selection of) the chapters in the textbook *Semantics in Generative Grammar*. Parallel to the presentation in the book, an alternative format for semantic analysis is introduced. The book uses a level of Logical Form (LF) which (sometimes) differs from the phrase structure, and which the semantics *interprets* in the model-theoretic sense, where the model is taken to be ‘Reality’. The alternative differs by (a) avoiding LF, and (b) letting the semantics *translate* phrase structure trees into a logical language (so-called lambda calculus or simple type theory), which in turn has a standard model-theoretic semantics. But note that the textbook also makes heavy use of the lambda calculus, although in an informal version. This framework is the main tool in current formal semantics, and the course gives a thorough introduction to its use. At the same time, we discuss pros and cons of the two alternatives: direct interpretation as in the textbook vs. translation into a formal language.

Lectures are 2 hours (with a break); sometimes there is an extra hour (after a break) for exercises. A detailed schedule will appear later.

OBS: During the first week of the course, before teaching starts, students are strongly recommended to *read the first four chapters* of *Semantics in Generative Grammar*. (If possible, it’s even better to start the last week of August!) Depending on background, this may be more or less easy to read, but even if not all details are clear, it is invaluable to get a feel, as soon as possible, for how linguists (in the generative tradition) think of syntax and semantics. The classes will not presuppose these chapters — on the contrary we will go through them thoroughly — but everything will be much easier if students come somewhat prepared.

Examination: Obligatory homework.

When: Mondays and Wednesdays 13–15 (sometimes 13–16; see schedule), starting September 9.

Where: Mondays in D700, Wednesdays in D734.

Teacher: Dag Westerståhl
(dag.westerstahl@philosophy.su.se)

Course page: All information about the course, extra reading material, homework, etc. will appear on the course’s Mondo page.

Questions: Feel free to email Dag in advance if you plan to take the course, or if you have questions about it.

Literature:

- Irene Heim & Angelika Kratzer, *Semantics in Generative Grammar*, Blackwell Publishing, 1998. [selections]
- Slides from the lectures, exercises, and other material.