Formal Semantics (LING620): Syllabus

1. General Overview

This course is a continuation of Linguistics 610. Students will receive continued, advanced introduction to various foundational issues and results in formal semantics.

This course will provide a thorough introduction to the phenomenon of ‘intensionality’ in natural language, as well as the core techniques and results of intensional (‘possible world’) semantics. In particular, we will examine various foundational proposals and debates concerning the following intensional phenomena:

- Propositional attitude statements
- Tense (and aspect)
- The distinction between de dicto, de re, and de se
- Modal auxiliaries
- Conditionals
- Interrogatives and embedded questions

Students will gain exposure to primary literature in the field of semantics through (i) key course readings, (ii) a series of in-class presentations, and (iii) a final individualized research project.
2. Course Requirements

2.1 Problem Sets

There will be approximately six problem sets assigned throughout the course (except for the final unit). These problems sets will be assigned on a Thursday and due the following Thursday. In addition, each problem set will be discussed on the Thursday on which it is due.

Students are permitted (indeed, encouraged) to work together on the problem sets. However, each person must write up their own work themselves, using their own words. In addition, students who work together should make a note on each of their submitted solutions of who they worked with.

2.2 In-Class Presentations

Each student will be required to present one paper in class, selected from among those listed as potential presentation papers in Section 4 (see below). These papers can be found on the Moodle for the course.

Please let me know by the end of Week 3 (February 11th) which paper you intend to present. We will then schedule individual meetings to discuss the paper and your plans for the presentation. I will help all students to obtain in advance the background that they will need for their chosen paper.

2.3 Final Project

The third requirement for this course is a final project. The final project must be a squib-length piece of original research, incorporating novel empirical argumentation. Ideally, it will develop and defend a novel theoretical analysis. However, it would also be acceptable for the project to be a critical discussion of some other works/analyses, as long as that discussion is based upon novel data and/or arguments. In general, the final project must have some original content as its focus; it cannot simply be a presentation/summary of a paper.

The final paper must be turned in to me by May 17th, so that I have enough time to evaluate it before May 19th (the date that grades are due).

I strongly encourage students to begin meeting with me ASAP to discuss ideas for their final project.
3. Course Readings

The course does not require the purchase of a textbook. However, the following work – which can be downloaded for free – nicely complements many of the lectures and handouts:


The work above can be downloaded from the course Moodle, along with all the other readings associated with this class. This also includes the aforementioned presentation papers, listed below in Section 4.

4. Schedule of Topics

4.1 Review of Extensional Semantics

We’ll begin in the first week by briskly reviewing the essentials of extensional semantics. These lectures will mainly be focused upon various foundational concepts, especially (i) the distinction between ‘extension’ and ‘intension’, and (ii) how a system that computes ‘extensions’ can (in principle) deliver a theory of natural language meaning. The purpose of these review lectures is two-fold:

(i) To introduce (or review) the specific formalism that we will employ throughout the semester (based upon Heim & Kratzer 1998)

(ii) To review foundational assumptions in a way that facilitates our introduction to intensional semantics in the second week

4.2 The Basics of Intensional Semantics and Propositional Attitude Verbs

With the essentials of extensional semantics fresh in our minds, we will spend the remainder of the course focused on areas where extensions are *not* enough for a semantic theory of natural language.

Our tour of intentionality in natural language will begin with one of the canonical (and historical) starting points for the study of intensional phenomena: propositional attitude verbs (*e.g.* ‘think’, ‘believe’, ‘know’, ‘say’) and their clausal complements. We will also take our very first look at the semantics of infinitival Control complements and their ‘de se’ interpretations.

4.3 The Semantics of Tense and Aspect

In languages with tense systems, verbal morphology serves to indicate whether a given event occurs within the past, present, or future of the time of speaking. We will explore some basic ways in which an intensional semantics can analyze these structures. Furthermore, alongside tense, many languages also exhibit a system of (grammatical / viewpoint) aspect, which indicates (roughly) whether an event is on-going, completed, initiated, *etc.*, with respect to a particular
topical time. We will examine how our intensional semantics for tense can be combined with a Davidsonian event-semantics for verbs, to provide one popular semantic analysis of aspect.

**Possible Presentation Papers Associated with This Unit:**

  - Some languages either don’t possess tense morphology, or use it only optionally. How does temporal interpretation proceed in such languages? Bochnak (2016) explores in detail one such language, the highly endangered Washo language of California.

  - As we’ll see, some classic semantic analyses of tense in English differ over whether it should be treated as a quantifier or as a referential expression. Chen et al. (2020) argue that in certain Austronesian languages, both analyses are correct, but for different tense expressions.

  - Again, one long-standing debate in the literature on tense semantics is whether tense should be analyzed as a quantifier or a referential expression. Sharvit (2014) argues that the interactions between a language’s past-tense and the adverb meaning ‘before’ provide a crucial diagnostic for whether its tense is quantificational or referential.

  - Certain verbs, such as ‘want’ and ‘promise’, allow for so-called ‘partial Control’ readings, where an embedded infinitival subject is understood as a group containing the matrix subject (e.g., ‘Dave wants to meet at 4PM’). Pearson (2015) provides a formal semantic analysis of these structures, tying together both their *de se* interpretation and the temporal interpretation of the infinitival.

### 4.4 The De Dicto / De Re / De Se Ambiguity

It has long been known that nominal expressions lying in the scope of intensional operators – especially propositional attitude verbs – exhibit a peculiar ambiguity, classically referred to as the *de re / de dicto* ambiguity. We will examine this ambiguity, as well as the leading approaches
to it, all of which posit a much more complex semantics for propositional attitude sentences than their simple surface structure would suggest.

We will also explore the possible connections between the ‘de re’ reading of a sentence and the aforementioned ‘de se’ reading, as well as the extent to which they might ultimately be unified.

**Possible Presentation Papers Associated with This Unit:**

  - As we will see, the device of ‘concept generators’ provides a relatively simple compositional semantics for *de re* readings. However, is there any independent empirical evidence for these operators? Charlow & Sharvit (2014) argue that there is, and it comes from the possible interpretations of bound pronouns in complement clauses.

  - Again, we will see that ‘concept generators’ provide a much more elegant analysis of *de re* readings than the earlier device of ‘Res-Movement’. However, Deal (2018) argues that the Nez Perce language may provide some evidence that movement is actually indeed at work in the generation of (certain) *de re* readings.

  - As we’ll see, infinitival ‘PRO’ is famous for allowing only *de se* (and never *de re*) interpretations. Another expression claimed to only allow *de se* readings are the so-called ‘logophors’ found in many languages of West Africa. However, Pearson (2015) closely examines the logophoric pronouns of Ewe, and finds that they do allow for *de re* readings after all. In light of this, she provides a formal semantic analysis of these expressions, which ties together the *de se* semantics of a Control infinitive with the ‘concept generators’ employed for *de re* readings.

  - As alluded to above, in different languages, different kinds of pronouns seem to allow for – or resist – either *de se* or *de re* readings. Patel-Grosz (2019) discusses a number of such patterns, and defends a formal semantic-syntactic analysis, whereby the structural complexity of a pronominal form determines its ability to receive a *de se* interpretation.
4.5 Modal Auxiliaries and Conditionals

The analysis of modal auxiliaries in languages like English (e.g. *may, might, can, must*) has been a major force in the development of semantic theory. We will develop three major aspects of what remains a widely-adopted approach to their meaning:

a. Modal auxiliaries as quantifiers over possible worlds.
b. The ‘modal base’ as a contextually-defined parameter of the meaning of modals
c. The ‘ordering source’ as a second contextually-defined parameter of meaning.

We will also see how this treatment of modal auxiliaries lays the groundwork for a highly influential theory of the syntax/semantics of conditional constructions.

Possible Presentation Papers Associated with This Unit:

  - In many European languages, modal expressions come in weak-strong pairs (e.g. ‘*may*’ / ‘*must*’; ‘*possible*’ / ‘*necessary*’). However, Deal (2011) demonstrates that certain languages, such as Nez Perce, systematically lack strong modals, and possess only weak ones. Deal argues that this lack of strong modals allows weak modals in these languages to be used in contexts where they are pragmatically illicit in languages possessing strong modals (e.g. English).

  - As we’ll see, so-called ‘epistemic modals’ involve quantification over worlds/situations consistent with some body of ‘knowledge’. But *whose* knowledge? This is a long-standing question in the literature on epistemic modality. Stephenson (2007) puts forth an answer that ties the meaning of epistemic modals to that of so-called ‘predicates of personal taste’ (e.g. ‘*tasty*’, ‘*fun*’), whose meaning also seems tied to a particular experiencer / knower / judge

  - In the literature on modals, a number of generalizations have been made concerning their effect on the temporal interpretation of a sentence. For example, it’s famously been said that epistemic modals cannot scope below (past) tense, while circumstantial modals force a futurate interpretation. Rullmann & Matthewson (2018) critically evaluate several of these generalizations, and find that some are not cross-linguistically valid. For those that are, they develop and defend a cross-linguistic formal semantic analysis that unites modality with tense and aspect.
  
  o In many languages, so-called ‘counterfactual conditionals’ obligatorily exhibit past-tense morphology, even if they don’t seem to be describing past events (e.g., ‘if John really loved Bill, he would marry him’). This puzzle of seemingly ‘fake past tense’ in counterfactual conditionals has attracted a huge amount of attention from semanticists. One leading analysis, developed by Arregui (2009), proposes that the past tense in such conditionals really is interpreted, but is displaced to a higher position, where it affects the worlds quantified over by the conditional.

  
  o Deontic modal statements like ‘You have to brush your teeth’ bear a strong intuitive similarity to imperatives like ‘Brush your teeth!’ This has led some to propose that imperatives are a kind of (deontic) modal expression. von Fintel & Iatridou (2017) critically evaluate such analyses, and conclude against a modal analysis of imperatives. Instead, they argue that imperatives ultimately have a rather ‘minimal’ semantics, one that can be put to a variety of pragmatic uses.

### 4.6 The Semantics of Interrogatives

Our semantic theory has thus far been developed mainly to handle declarative sentences like “Mary smokes.” However, such sentences are by no means the only meaningful kind of sentence in natural language. For example, interrogatives like “Does Mary smoke?” or “Who smokes?” also have a meaning that we should want our semantic theory to accurately model and predict. However, given that interrogatives do not have truth-values, they therefore also do not have truth-conditions, and so it is not trivial to incorporate them into our semantic theory.

In this final unit of the course, we will explore the ways in which interrogatives have been approached by formal semantic theory. As we will see, the path towards their analysis truly begins by considering the way in which embedded interrogatives (e.g. *Bill knows who smokes*) affect the truth-conditions of larger, declarative sentences.

### 5. Specific Dates of Interest or Importance

- **February 7:** Last Day to Drop Class With No Record
- **February 11:** **Decide on paper for class presentation**
- **February 22:** No Class (Monday Schedule)
- **March 14 – 18:** No Class (Spring Break)
- **March 29:** Last Day to Drop Class With ‘DR’
- **May 3:** Last Day of Class
- **May 17:** **Final Papers Due**
- **May 19:** Final Grades Due
6. Classroom Policies Relating to COVID-19

- Please be vigilant about yourselves and any symptoms of viral infection that you may be experiencing. Many of us live with partners or children who are immunocompromised or who are currently too young to be vaccinated against COVID. We all applaud and deeply appreciate those who put the health and risks of others above personal considerations and conveniences.

- If anyone is at all feeling at any of the range of symptoms that we all now understand to be associated with COVID – or has received a positive COVID test – please let me know ASAP and then **do not** come to class.

- I have designed the course to be a ‘hybrid’ between an in-person and an online course, allowing for maximum flexibility during these continually complex and evolving times.
  - All course handouts, assignments, and other materials will be transmitted via the course Moodle or the course website.
  - **Anyone unable to attend class in person can view the lecture live via Zoom, using the Zoom link available on the course Moodle.**

- In addition, if I am ever feeling symptomatic or receive a positive COVID test, then we will **not hold in-person class**. Depending on the severity of my symptoms, we will hold class remotely, over Zoom. The Zoom link we will use in these circumstances can be found on the course Moodle.

- While we all look forward to continued in-person classes this Spring, we have to temper that enthusiasm with due caution against further spread of this virus. We should therefore expect that many of our classes this fall will end up being over Zoom, for at least a limited period of time. Please then always keep an eye out for any emails from me, informing of a remotely held class meeting for that day.