LING 106: Intro to Formal Linguistics

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Class 1

The format of the class

Three main components (apart from exams):

1. Video lectures + basic quiz
2. Group work in class
3. Weekly homework

Video lectures

- ca. 10-15 minutes, introducing basic concepts
- usually 2-3 per class
- available a week in advance
- short quiz to ensure understanding of fundamental ideas

Group work

- Bulk of class time: working on exercise to deepen understanding of materials and get hands-on practice
- group work to submitted for credit, largely evaluated in terms of making a 'good faith effort'
- Roles:
  - Scribe/Canvas
  - Reporter
  - Manager
  - Board
- Group roles are posted for each class

Notes on Group work

- Diverse class in terms of majors / background
- Help each other learn!
  - If you already know materials well, use this as a challenge to think through teaching them to others
  - If all is new to you, don't be shy to ask questions
- Be patient! Be kind!
- Make use of Instructors/TAs!

Homework

- Solidify your knowledge
- Use analytical tools on your own
- Apply basic concepts to new problems

Overall Approach

- Interactive way of learning
- Lots of opportunity to practice and seek help and advice
- Your responsibility: prepare for class and make good use of the resources

Overview: The Formal Study of Language

What do Linguists do?

- Being a speaker of a natural language involves an extensive amount of specialized knowledge.
- Linguists try to
  - understand what this linguistic knowledge consists of,
  - and to characterize it precisely by means of formal tools.

The Formal Study of Language

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- Whether a certain sound or sound sequence is a possible part of L

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What sorts of things do speakers of a language L know?

- What constitutes a sentence of L
- What a sentence of L means
- Whether a certain sound or sound sequence is a possible part of L
- (and much more. . .)

Some Examples - Syntax

Which of the following are English sentences?

(1) a. John is the guy that **ate all the Nutella**.

b. John is the guy **ate all the Nutella**.

Some Examples - Syntax

Which of the following are English sentences?

(3) a. John is the guy that **ate all the Nutella**.

b. John is the guy **ate all the Nutella**.

(4) a. The Nutella that **John ate was from Europe**.

b. The Nutella **John ate was from Europe**.

Some Examples - Syntax

Which of the following are English sentences?

(5) a. John is the guy [$_{RC}$ that ate all the Nutella].

b. ~~John is the guy [$_{RC}$ ate all the Nutella].~~

(6) a. The Nutella [$_{RC}$ that John ate] was from Europe.

b. The Nutella [$_{RC}$ John ate] was from Europe.

Some Examples - Syntax

Which of the following are English sentences?

(7) a. John is the guy [$_{RC}$ that ate all the Nutella].

b. ~~John is the guy [$_{RC}$ ate all the Nutella].~~

(8) a. The Nutella [$_{RC}$ that John ate] was from Europe.

b. The Nutella [$_{RC}$ John ate] was from Europe.

→ Shared judgments reflect shared knowledge!

Some Examples - Semantics

Which of the following situations can these sentences describe?

(9) a. A **black circle** is (currently) connected to every triangle.

Some Examples - Semantics

Which of the following situations can these sentences describe?

(11) a. A **black circle** is (currently) connected to every triangle.

b. A **circle** that is (currently) connected to every triangle is **black**.

Some Examples - Semantics

Which of the following situations can these sentences describe?

(13) a. A **black circle** is (currently) connected to every triangle.

b. A **circle** that is (currently) connected to every triangle is **black**.

Situations to consider

(14) a. One black circle with connections to each and every triangle.

b. For each and every triangle there is a (potentially different) black circle with a connection to it

Despite their superficial similarity, the sentences do not describe the same situations!

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How do you (and every other English speaker) know these things?

Can you explain your judgments?

- You know English, so you should be able to tell me, right?

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Can you explain your judgments?

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- Actually, the linguistic knowledge that we study is generally unconscious.
- To figure out what it consists of, we have to do some work

The general method

Recreating linguistic knowledge

- Come up with some basic generalizations about speakers' judgments about expressions of the language **L** they speak.
- Come up with a method of constructing expressions. Call the result **L'**.
- Compare the expressions of L' to those of L

The better the correspondence between L' and L, the closer your method gets towards modeling (a part of) the knowledge a speaker of L has.

The general method

Keeping things straight

In doing Linguistics, it's important to be clear what you are talking about:

- We can investigate facts about English.
  → What are the properties of L?
- We can reflect on what expressions our method produces
  → What are the properties of L'?
- We can compare the L' to L
  → How similar are the properties of L' to those of L?

In this class, we mainly talk about properties of L' and the methods we can come up with for characterizing languages in general.

Descriptive vs. Prescriptive Grammar

What Linguists **Don't Do**

You may be familiar with grammar 'rules' such as the following:

- Don't end a sentence with a preposition
- Don't use *who* in place of *whom*
- Don't split infinitives

Such rules that tell people what to do (or what not to do) in order to use a certain language 'properly' are called **prescriptive**.

Theoretical Linguists are interested in **what people actually do**!

The **Formal** Study of Language

Some comments on the term 'formal'

- We use tools from mathematics and logic
- These provide us with various formalisms
- Formalisms are not an end in and of themselves. They should help us to be
  - precise
  - concise
  - perspicuous

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$2 + 2 = 4$ and *Two Plus Two is Four*

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Part of the goal of this course is to make you more familiar and comfortable with using various formalisms.

A more General Perspective: Studying Structures

Describing Structures

The formal tools we will study are useful tools for characterizing structures

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Structures in the Human Mind

Human minds are constantly processing vast amounts of sensory input for which they induce structure

- E.g., Visual system: detect 'edges', create representations of objects
- Language:
  - Segment stream of auditory input into segments
  - Categorize individual sounds
  - Identify words
  - (Re-)construct structure in which words are put together

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Formal Linguistics

The formal tools help us study the structures utilized by the human mind.