

An Introduction To Natural Language Processing

Jacob Eisenstein

This course

Natural Language Processing is the set of methods for making language accessible to computers.

- ▶ This course is about learning what methods are available,
- ▶ ...how and why they work,
- ▶ ...and how they can best be applied.

Day 1

- ▶ Natural language processing and its neighbors
- ▶ Three themes in natural language processing

Natural language processing and its neighbors

Natural language processing draws on a diverse array of intellectual traditions.

- ▶ **Linguistics**
- ▶ **Machine learning**
- ▶ **Artificial intelligence**
- ▶ **Computer science**
- ▶ **Speech processing**

It also raises interesting questions about **human-computer interaction** and **ethics, fairness, and accountability**.

NLP and Linguistics

The goal of **linguistics** is understand how language works (possibly using computational techniques). For example:

- ▶ What are the major language families and how are they related to each other?
- ▶ What are the principles that determine whether a sentence is grammatical? Can we identify shared principles that explain grammaticality across many different kinds of languages?
- ▶ How and why do languages change?
- ▶ How do people learn their first language? What, if anything, is different when they learner their second language?

Natural language processing leverages insights from linguistics to build language technology.

References I