Is NLP hard?

What does this sentence mean? “*I made her duck*”

“duck”: noun or verb?
“make”: “cook X” or “cause X to do Y” ?
“her”: “for her” or “belonging to her” ?

Is NLP hard?

What does this sentence mean? “*I made her duck*”

- I cooked waterfowl for her
- I cooked waterfowl belonging to her
- I created the (plaster?) duck she owns
- I caused her to quickly lower her head or body
- I waved my magic wand and turned her into undifferentiated waterfowl

These different meanings are caused by a number of ambiguities

Is NLP hard?

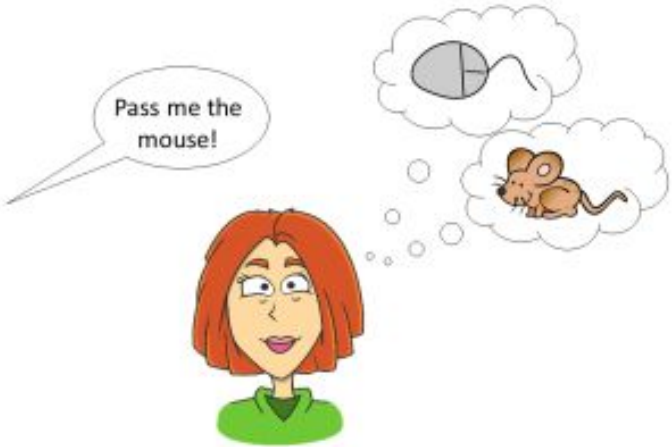
What does this sentence mean? “*I made her duck*”

- I cooked waterfowl for her
- I cooked waterfowl belonging to her
- I created the (plaster?) duck she owns
- I caused her to quickly lower her head or body
- I waved my magic wand and turned her into undifferentiated waterfowl

These different meanings are caused by a number of ambiguities

- First, the words duck and her are morphologically or syntactically ambiguous in their part-of-speech
  - Duck can be a verb or a noun, while her can be a dative pronoun or a possessive pronoun
- Second, the word make is semantically ambiguous; it can mean create or cook
- Finally, the verb make is syntactically ambiguous in a different way

We Need to Disambiguate



Disambiguation

Models and algorithms in this course are ways to resolve or disambiguate these ambiguities

- Deciding whether duck is a verb or a noun can be solved by part-of-speech tagging
- Deciding whether make means “create” or “cook” can be solved by word sense disambiguation

Resolution of part-of-speech and word sense ambiguities are two important kinds of lexical disambiguation

A wide variety of tasks can be framed as lexical disambiguation problems

- A text-to-speech synthesis system reading the word lead needs to decide whether it should be pronounced as in lead pipe or as in lead me on
- Deciding whether her and duck are part of the same entity or are different entities is an example of syntactic disambiguation and can be addressed by probabilistic parsing