

A few applications of natural language processing...

- Spelling correction, grammar checking ...
- Better search engines
- Information extraction
- Psychotherapy; Harlequin romances; etc.
- New interfaces:
 - Speech recognition (and text-to-speech)
 - Dialogue systems (USS Enterprise onboard computer)
 - Machine translation (Babel fish)

Levels of Language

- **Phonetics/phonology/morphology:** what words (or subwords) are we dealing with?
- **Syntax:** What phrases are we dealing with? Which words modify one another?
- **Semantics:** What's the literal meaning?
- **Pragmatics:** What should you conclude from the fact that I said something? How should you react?

Ambiguity: Favorite Headlines

- Iraqi Head Seeks Arms
- Juvenile Court to Try Shooting Defendant
- Teacher Strikes Idle Kids
- Stolen Painting Found by Tree
- Kids Make Nutritious Snacks
- Local HS Dropouts Cut in Half
- Obesity Study Looks for Larger Test Group

Ambiguity: Favorite Headlines

- British Left Waffles on Falkland Islands
- Never Withhold Herpes Infection from Loved One
- Red Tape Holds Up New Bridges
- Man Struck by Lightning Faces Battery Charge
- Clinton Wins on Budget, but More Lies Ahead
- Hospitals Are Sued by 7 Foot Doctors

Text understanding is very hard

John stopped at the donut store on his way home from work. He thought a coffee was good every few hours. But it turned out to be too expensive there.

- NL *relies on* ambiguity! (Why?)
- “We haven’t had a sale in 40 years”

What’s hard about the story?

John stopped at the **donut** store on his way home from work. He thought a coffee was good every few hours. But it turned out to be too expensive there.

To get a donut (spare tire) for his car?