Winograd Schema Problems

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So …where are we now?

- Still plenty of room for growth in coreference resolution!
- Recently, lots of interest in **Winograd Schema** problems
  - Coreference resolution problems that are:
    - Easy for humans to solve
    - Particularly challenging for computers to solve, due to their reliance on world knowledge and common sense reasoning

Winograd Schema Problems

- Winograd Schema problems are characterized by the following:
  - There are two statements that differ by only one word or phrase
  - There are two entities that remain the same across statements
  - A pronoun preferentially refers to one of the entities, but could grammatically also refer to the other
  - A question asks to which entity the pronoun refers
  - If one word/phrase in the question is changed, the human-preferred answer changes to the other entity

Example Winograd Schema Problem

Nikolaos lost the race to Usman because he was **slower**.

Who was slower?

Nikolaos

Example Winograd Schema Problem

Nikolaos lost the race to Usman because he was **slower**.

Who was slower?

Nikolaos

Nikolaos lost the race to Usman because he was **faster**.

Who was faster?

Usman

Example Winograd Schema Problem

Nikolaos lost the race to Usman because he was **slower**.

Who was slower?

Nikolaos

Nikolaos lost the race to Usman because he was **faster**.

Who was faster?

Usman

Best way to solve Winograd Schema problems computationally?

- Currently, a mix of language modeling and external knowledge bases