Computational Logics, Semantics and Pragmatics: Semantic Interpretation

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Motivation

Sbdm ip im vdu yonrckblms.
Abf ip im vdu bhhigu.
Sbdm yigaus ly vdu hbbvfnoo.
Abf zumv vb vdu aivgdum.
Mduku ip vdu hbbvfnoo? A:yonrckblms
Mduku znp Abf fuhbku vdu aivgdum? A:bhhigu

Motivation

John is in the playground.
Bob is in the office.
John picked up the football.
Bob went to the kitchen.
Where is the football? A:playground
Where was Bob before the kitchen? A:office

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Motivation

מִפְלָגָה

Motivation

พรรค

Motivation

party

Motivation

party

- Which sense of “party”?
- How many senses have “party”?
- How a computer should represent these senses?
- How these senses combine to form phrases?
- How phrases combine?

Motivation

- For example:
  - The lexical-semantic knowledge allows us to better **characterize** the different meanings of the words

  - *In 1992 Perot tried to organize a third **party** at the national level*
  - *She joined the **party** after dinner*
  - *They organized a **party** to search for food*
  - *He planned a **party** to celebrate Bastille Day*
  - *The **party** of the first part*

Motivation

- This better characterization may consist of:
- Add domain tags to each word sense
  - party$^{1}_{n}$: politics
  - party$^{4}_{n}$: free-time
- Distinguish the semantic relations that apply to each concept
  - party$^{1}_{n}$: member of: political_system$^{1}_{n}$
  - party$^{4}_{n}$: hyponym: wedding$^{1}_{n}$
- Lexical Knowledge Bases, Ontologies, word embeddings, pre-trained language models?

Content

1) Introduction to semantics and computational pragmatics
   - German Rigau @ HiTZ <german.rigau@ehu.eus>
   - 23/03, 24/03

2) Introduction to logical formalisms and logic programming
   - Javier Alvez @ LOREA <javier.alvez@ehu.eus>
   - 13/04, 14/04, 15/04, 20/04, 21/04

3) Computational Semantics: Semantic Interpretation
   - German Rigau @ HiTZ <german.rigau@ehu.eus>
   - 22/04, 27/04, 28/04, 29/04

4) Computational Pragmatics and Discourse
   - Mikel Iruskieta @ HiTZ <mikel.iruskieta@ehu.eus>
   - 04/05, 5/05, 6/05

Bibliography

- Blackburn, Patrick, and Johan Bos. Representation and inference for natural language. A first course in computational semantics. CSLI (2005).

- Blackburn, Patrick, and Johan Bos. Working with Discourse Representation Theory. An Advanced Course in Computational Semantics . CSLI (2005).

- Patrick Blackburn, Johan Bos, Kristina Striegnitz Learn Prolog Now!

Evaluation

1) Introduction to logical formalisms and logic programming
    - Javier Alvez @ LOREA
    - Teacher exercises 30%

2) Computational Semantics: Semantic Interpretation
    - German Rigau @ HiTZ
    - Teacher exercises 40%

3) Computational Pragmatics and Discourse
    - Mikel Iruskieta @ HiTZ
    - Teacher exercises 30%

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