CS579: Computational Linguistics

Fall Semester, 2021

Objective

- Computational linguistics is the scientific study of language from a computational perspective, and an interdisciplinary field, involving linguistics, computer science, mathematics, logic, cognitive science, and cognitive psychology.
- This course addresses theoretical aspects of computational linguistics, in particular in its subfield computational semantics, which derives suitable meaning representations from natural language expressions and reason with such meaning representations.
- We review a number of fundamental techniques for computing semantic representations for fragments of natural language and performing inference with the result. We also discuss the underlying theory and its implementation in Prolog.

Instructor

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Teaching Assistant

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Lecture Hours

- 14:30 ~ 16:00, Tuesdays and Thursdays

Venue

- Zoom (on-line, real-time): The link information is available at KLMS.

Course Resources

Primary Reference

- Blackburn and Bos, Representation and Inference for Natural Language: A First Course in Computational Semantics, CSLI Studies in Computational Linguistics, CSLI Publications, 2005.

Secondary Reference

- Blackburn, Bos, and Striegnitz, Learn Prolog Now!, College Publications, King's College, 2006. http://www.learnprolognow.org

Lecture Schedule

- Weeks 1, 2 & 3: Introduction, Prolog
- Weeks 3 & 4: First Order Logic

- Weeks 5 & 6: Lambda Calculus
- Week 7: Underspecified Representations & Proposal Presentations
- Week 8: Midterm Exam Period (no exam; no class)
- Weeks 9 & 10: Underspecified Representations
- Weeks 11 & 12: Propositional Inference
- Weeks 12, 13 & 14: First Order Inference
- Week 14: Putting It All Together
- Week 15: Final Presentations
- Week 16: Final Exam Period (no exam; no class)

Evaluation Criteria

- Term Project: 50%
    - Proposal (10%), Proposal Presentation (10%)
    - Final Presentation (15%), Final Report (15%)
- Homework: 30%
    - #1 (15%), #2 (15%)
- Attendance/Class Participation: 20%
    - Attendance, Summary, Interactions
- Grading by A/B/C