

CSE 576 Introduction to Natural Language Processing

Arizona State University
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Essentials

Fall 2008, 12:15-1:30pm, Mondays and Wednesdays, BYAC 240.

Instructors: Chitta Baral, Gregory Aist

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Office hours

Prof. Baral: TBD Dr. Aist: Brickyard 474, Mondays 2:15-3:15PM, Thursdays 10:30-11:30AM.

Course Overview

This course focuses on natural language semantics, primarily from a focus on natural language understanding (input) of sentences and written texts. Language in written and spoken forms and from multiple natural languages may be considered, but most of the focus will be on the processing of written English text.

Schedule

The two main sections of the course are *Semantics of Sentences* and *Semantics of Discourse*. Specific weekly topics listed are tentative. The primary textbooks for the course are the two volumes of Blackburn and Bos. Additional reading selections, if any, will be made available prior to the class period during which they will be discussed.

Assignments and Grading

Students will be graded on the following criteria.

- 20 percent: Class participation
- 30 percent: Exam (early November)
- 50 percent: Term project - done in groups of three or four students

Other Information

This course will make use of electronic communication such as electronic mail or Blackboard, e.g. for submitting assignments. (Please turn in assignments using the Digital Drop-box.) Access to computer, networking, and library facilities will be needed. Students are expected to read the assigned readings prior to class, come to class on time and be ready to participate in discussions.

If you need disability accommodations for this class, please contact the instructors as soon as possible, so that we may work with Disability Resources for Students (<http://www.asu.edu/drs/>) to meet your needs. Information regarding disability is confidential.

Textbooks

Patrick Blackburn and Johan Bos. *Representation and Inference for Natural Language: A First Course in Computational Semantics*. Volume 1. CSLI.

Patrick Blackburn and Johan Bos. *Representation and Inference for Natural Language: A First Course in Computational Semantics*. Volume 2: Working with Discourse Representation Structures. CSLI.

Additional books you may find useful include:

Daniel Jurafsky and James H. Martin. 2008. *Speech and Language Processing: An Introduction to Natural Language Processing, Computational Linguistics, and Speech Recognition*. Upper Saddle River, NJ: Pearson/Prentice Hall.

Hans Kamp and Uwe Reyle. *From Discourse to Logic*. Springer.

Please see the next page for the week-by-week course schedule.

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Course Schedule

Introduction

Mon. Aug. 25th - Overview of the course. Role of computational semantics within NLP, AI, and computer science; role of computational semantics within the study of meaning and the language sciences.

Wed. Aug. 27th - Philosophy of language. (OR, begin discussion of syntax; OR, NLP in a nutshell - overview of various sorts of NLP processing to see where semantics fits in) . Note that the philosophy of language material is distributed out to the "issues" weeks in this version of the syllabus.

Mon. Sept. 1st - Labor Day (no class)

Wed. Sept. 3rd - Syntax (Chapter zero of Kamp and Reyle).

Mon. Sept. 8th and Wed. Sept. 10th - Logic (First Order Logic chapter of Blackburn and Bos).

Semantics of Sentences

Mon. Sept. 15th and Wed. Sept. 17th - Issues in Meaning Representation of Sentences.

Mon. Sept. 22nd and Wed. Sept. 24th - Lambda Calculus (Chapter 2, vol. 1).

Mon. Sept. 29th and Wed. Oct. 1st - Underspecified Representations (Chapter 3, vol. 1).

Mon. Oct. 6th and Wed. Oct. 8th - Propositional Inference (Chapter 4, vol. 1).

Mon. Oct. 13th and Wed. Oct. 15th - First-Order Inference (Chapter 5, vol. 1).

Mon. Oct. 20th and Wed. Oct. 22nd - Putting It All Together (Chapter 6, vol. 1).

Semantics of Discourse

Mon. Oct. 27th and Wed. Oct. 29th - Issues in Meaning Representation of Discourse.

Mon. Nov. 3rd and Wed. Nov. 5th - Discourse Representation Theory (Chapter 1, Vol. 2)

Mon. Nov. 10th and Wed. Nov. 12th - Building Discourse Representations (Chapter 2, Vol. 2)

Mon. Nov. 17th and Wed. Nov. 19th - Pronoun Resolution (Chapter 3, Vol. 2)

Mon. Nov. 24th and Wed. Nov. 26th - Presupposition Projection (Chapter 4, Vol. 2)

Thurs. Nov. 27th and Fri. Nov. 28th - Thanksgiving Break

Final Weeks

Mon. Dec. 1st and Wed. Dec. 3rd - TBD.

Mon. Dec. 8th - TBA; likely, preliminary discussions of projects.

Final Draft of Term Project due at end of semester.

Presentation of final projects during final exam period.