Formal Semantics of Natural Language

NASSLLI 2014

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The course will give a concise and tightly-structured introduction to compositional modeltheoretic semantics in the Montague tradition, with ample discussion and new directions coming from recent research. Concentrating on the underlying methodological principles, I will aim to attract students' attention to the scientific value of describing intricate semantic phenomena using elegant and rigorously-defined mathematical techniques. The course is intended for students who don't necessarily have deep knowledge in logic or linguistics, but have some basic mathematical or general scientific background. The foundational concepts and techniques that will be covered include: entailment as a rich empirical domain, ambiguity, compositionality, direct model-theoretic interpretation, types and model structure, generalized quantifiers and abstract categorial grammar. Motivations and examples will draw on recent research of coordination, quantifier scope, reciprocity, intensionality and long-distance dependencies. Further remarks about diverse problems involving plurality, spatial expressions, conceptual semantics and experimental pragmatics will be made as time permits.

At the end of the course students will have acquired basic formal notions of natural language semantics, which will allow them to approach much of the literature in this field, and many of the NASSLLI courses this year.

The course is based on a textbook in preparation – *Elements of Formal Semantics* (EFS, see phil.uu.nl/~yoad/efs/main.html).

Schedule

The course consists of five sessions: three classes and two tutorials.

Session 1: Class – Introduction and Technical Preliminaries
Saturday June 21: 1-4pm
- Semantic intuitions: entailment, tautology, contradiction
- The truth-conditionality criterion
- Comparison to philosophical and mathematical logic
- Compositionality
- Structural ambiguity
- Ambiguity vs. vagueness
- Types and domains
- Characteristic functions
- Currying
- Arbitrary, combinatorial and logical denotations
- Using Lambda notation
Reading: Chapters 1-2 EFS (from webpage)

Session 2: Tutorial on session 1
Saturday June 21: 4:15-5pm

+ Homework between 1/2 to 1 hour work

Session 3: Class – Generalized Quantifiers
Sunday June 22: 9:30-11:30pm
- NP denotations as sets of sets
- Quantifier monotonicity
- Determiner denotations as relations between sets
- Determiner monotonicity
- Conservativity
- Quantifier coordination
- Boolean coordination vs. conjunction reduction
- Negative polarity items and monotonicity
Reading: Chapter 3 EFS (from webpage)

Session 4: Tutorial on session 3
Sunday June 22: 11:45-12:30pm

Session 5: Class – Long-Distance Meaning Relationships
Sunday June 22: 2:30-5:30pm
- Scope ambiguity
- Extraction
- Hypothetical reasoning
- Saussurean signs
- Abstract categorial grammar (ACG)
- Concluding remarks
Reading: Chapter 4 EFS (from webpage)