Advances in Logical Grammar: Course Overview

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June 6, 2012

What this Course is About (1/2)

Using **mathematical logic** to construct theories about natural language (NL).

- More specifically: we use *linear logic (LL)* and *higher order logic (HOL)*—which we will review/introduce— to write categorial grammars of an especially simple kind, called **linear grammars (LG)**.

- Also based on HOL, we develop a kind of *possible worlds semantics* which makes finer meaning distinctions than the usual intensional kind (Montague semantics). This fine-grained, or *hyperintensional*, semantics is called **agnostic semantics (AS)**.

What this Course is About (2/2)

- We combine LG and and AS into a *static* theory of the syntax-semantics interface. Here *static* means 'ignoring the dynamic relationship between interpretation and the utterance context.'

- Then we upgrade the static semantics into a **hyperintensional dynamic semantics (HDS)** that takes into account not just truth-conditional meaning of assertions, but also context-dependent phenomena such as questions and answers, (in-)definiteness, presupposition, and conventional implicature.

- We call the resulting theory—LG coupled with HDS—**dynamic categorial grammar (DyCG)**

Tentative Syllabus (1/4)

Suggested readings and these slides are at:

Day 1 (Wednesday, June 6):

Course overview (that's this!); sequent-style natural deduction (ND) for linear logic (LL) and intuitionistic propositional logic (IPL); typed lambda calculus (TLC) and the Curry-Howard correspondence

Slides: introsl.pdf, proofsl.pdf, tlcsl.pdf
Handouts: introho.pdf, proofho.pdf, tlc cho.pdf
Suggested reading: crouch-genabith.pdf

Day 2 Friday, June 8):

Higher order logic (HOL); agnostic semantics (AS)

Slides: holsl.pdf, agnosl.pdf
Handouts: holho.pdf, agnoho.pdf
Suggested reading: hyper.pdf, agno.pdf, prop.pdf

Day 3 (Monday, June 11):

Linear Grammar basics: historical background; pheno (concrete syntax) and tecto (abstract syntax); lexical entries; logical rules; parsing as deduction; ordering of basic tectos; "features" (case, verb inflection, etc.)

Slides: lgsl.pdf
Handouts: lgho.pdf
Suggested reading: oehrle1994.pdf, muskens-acl13.pdf, muskens2007.pdf, fg10vmcp.pdf

Day 4 (Wednesday,June 13):

Linear Grammar continued: modification and predication; control and raising, *tough*-'movement'

Slides: lgsl.pdf
Handouts: lgho.pdf
Suggested reading: pred.pdf, nonfinite.pdf, control.pdf, udcho.pdf

Day 5 (Friday, June 15):

Dutch cross-serial dependencies; quantifier scope; parasitic scope (*same* and *different*, superlatives and phrasal comparatives)

Slides: dutchsl.pdf; pscopsl.pdf, compsupsl.pdf
Handouts: dutchho.pdf, pscopho.pdf, compsupho.pdf
Suggested reading: muskens2007.pdf, eas-cjp-salt22.pdf

Day 6 (Monday, June 18):

Integrating intonation into grammar
Slides: ptecsl.pdf, prossl.pdf
Handouts: ptecho.pdf, prosho.pdf

Day 7 (Wednesday, June 20):

Hyperintensional dynamic semantics (HDS)

Slides: hds.pdf
Suggested reading: donkeystrength.pdf

Day 8 (Friday, June 22):

Questions and answers, acceptances and rejections,
presuppositions and conventional implicatures
Slides: questsl.pdf
Handouts: questho.pdf
Suggested reading: salt22gksmho.pdf