

**ANNOUNCEMENT**  
**Erasmus Mundus Program in Language and  
Communication Technologies (LCT)**

**COMPACT COURSE**

**Erasmus Mundus Visiting Scholar  
Professor Carl Pollard, Ohio State University**

**Professor Pollard will offer the course “Logical Grammar”  
as part of his Erasmus Mundus visiting scholar residency  
in the department of Computational Linguistics.**

**The course is open to all Coli students and students of LCT partner  
universities and will be held on the following dates:**

**July 4 C74, Aquarium  
July 6 C74, Aquarium  
July 8 C74, Aquarium  
July 11 C72, Conference Room 2.11  
July 13 C74, Aquarium  
July 15 C74, Aquarium**

**11.45 – 2.15 PM.**

**This course has been scheduled over the midday period to  
avoid conflicts with other classes. You are welcome to  
bring your lunch along.**

**The course can be attended for credit or on an auditing  
basis.**

**A complete course description is attached.**

**Attendance for credit: sign up in the usual way in the  
registration database.**

**Auditing: please signal your interest by mailing Bobbye  
Pernice at [bobbye@coli.uni-sb.de](mailto:bobbye@coli.uni-sb.de)**

# Compact Course: Logical Grammar

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In this two-week course, we introduce some basic tools of mathematical logic, and show how they can be applied to develop a simple yet powerful theory of natural language syntax, semantics, and their interface. The logical tools introduced include the following:

1. *sequent-style natural deduction* (ND) for *linear logic* (LL) and *positive intuitionistic propositional logic* (PIPL)
2. *typed lambda calculus* (TLC)
3. *higher-order logic* (HOL)

Following the lead of Oehrle, de Groote, and Muskens, we develop an English grammar with only two rules (modus ponens and hypothetical proof), in which syntactic categories are LL formulas and syntactic analyses ('trees') are ND proofs of these formulas. Grammars written in this style maintain a sharp distinction between **abstract syntax** (also called **tectostructure**), which guides the compositional assembly of meaning, and **concrete syntax** (also called **phenostructure**), which corresponds roughly to phonology (broadly construed to include prosody and word order).

We use terms of HOL to represent meanings of linguistic expressions (more or less as in Montague semantics), but also (again following Oehrle) to represent phenostructure. However, unlike Montague semantics, our meanings are not **intensions** (functions from possible worlds to extensions) but rather **hyperintensions**, which make more fine-grained meaning distinctions. This semantic approach solves a number of foundational problems of Montague semantics by taking propositions rather than worlds as the

unanalyzed primitives; at the same time, it eliminates the need for grammars to make reference to possible worlds or to the extensions of linguistic expressions.

Time permitting, we will also sketch how to extend this grammar architecture to dynamic phenomena of the kind analyzed by frameworks such as discourse representation theory and file change semantics (cross-sentential anaphora, ‘donkey’ anaphora, novelty condition on indefinites, etc.).

Enrolled participants are expected to complete a take-home problem set.

The course is tentatively to be taught in six two-and-a-half-hour sessions on July 4 (M), 6 (W), 8 (F), 11 (M), 13 (W) and 15 (F). Precise coordinates will be announced in due course.