Categorial and Type-Logical Grammars (LING419F)

1. Course Information

Time	MW 3:00pm - 4:15pm
Location	LEF1222
Instructor	Darryl McAdams
Contact	dmcadams@umd.edu
Office Hours	MMH 1407A (times TBA), email for appointments
Course Website	purelytheoretical.com/teaching/LING419F
Materials	None required
Communication	Will email the class with updates concerning the schedule, due dates, etc

2. Course description
   In this course, we will discuss categorial approaches to natural language grammars, exploring the common core of a variety of different theories, together with their semantic components. We will then investigate some of the drawbacks that simple categorial grammars have, particularly in how they address common syntactic phenomena such as binding constraints and islands, and augment them with richer type-theoretic devices. In the process, we will become familiar with formal, proof-theoretic techniques using Natural Deduction and the Sequent Calculus.

3. Course Goals and Expectations
   Students will

   (a) be able to do syntactic analysis in a variety of proof-theoretic systems

   (b) be able to critically evaluate the pros and cons of the approach

   (c) develop an understanding of the distinction between the phenomena that linguistic theories aim to explain, the theory that explains them, and the formalism that these are formulated in

   (d) give a presentation on a paper analyzing a phenomenon using CG/TLG

   (e) be able to use LaTeX to produce professional work

4. Grading
   Because of the rigorous nature of this course, prep exercises and home-

work must be typeset. Correct use of the formalism with be an important criterion in grading.

Participation	10%
Prep Exercises	5%
Homework	30%
Presentation	10%
Midterm	20%
Final	25%

A+	98 – 100%
A	94 – <98%
A-	90 – <94%
B+	87 – <90%
B	84 – <87%
B-	80 – <84%
C+	77 – <80%
C	74 – <77%
C-	70 – <74%
D+	67 – <70%
D	64 – <67%
D-	60 – <64%
F	<60%

5. Procedures and Policies

Submissions Homework and prep exercises must be handed in via email (in PDF form), or in paper within the first 10 minutes of class. A 1% penalty will be applied for every hour that passes after the deadline. Exceptions will be made only in cases of extreme illness or emergencies that are communicated to the instructor in a timely manner.

Attendance Attendance is expected, but will be excused for medical reasons, family emergencies, religious holidays, etc. You must inform me in advance when possible. Due dates will be pushed back to the next reasonable date.

Collaboration Real world science is never done by lone individuals. Collaboration is not only allowed, but encouraged on homework,

provided that all contributors are listed. Prep exercises cannot be collaborated on, however.

Academic Integrity "I follow the University's policies on academic honesty and penalize cheating, fabrication, plagiarism, and facilitation of academic dishonesty. Cheating is intentionally using or attempting to use unauthorized materials, information, or study aids in any academic exercise. Fabrication is intentional and unauthorized falsification or invention of any information or citation in an academic exercise. Plagiarism is intentionally or knowingly rep- resenting the words or ideas of another as one's own in any academic exercise. Facilitating academic dishonesty is intentionally or knowingly helping or at- tempting to help another to cheat, fabricate, plagiarize, or facilitate academic dishonesty. Any member of the University community who has witnessed an apparent act of academic dishonesty, or has information that reasonably leads to the conclusion that such an act has occurred or has been attempted, has the responsibility to inform the Honor Council promptly in writing. The penalties for behavior assessed to be academic dishonesty range from an "XF" grade for the course and the notation "failure due to academic dishonesty" on the student's transcript up to suspension or expulsion. Please review the full Code of Academic Integrity used by the University."

Disabilities Accommodations will be made. All official DSS accommodations should be requested a week in advance and with appropriate documentation. Other accommodations will be made on an as-needed basis.

6. Topics
   The following topics will be covered in the order they are presented. They will be covered as fully as possible, as time permits, but without a strict schedule.

   (a) Syntactic types, Natural Deduction proofs
   (b) Associativity in Categorial Grammar
   (c) Meta-proof systems
   (d) Semantics in Categorial Grammar
   (e) Proof search and the Sequent Calculus

(f) Empirical limitations of pure Categorial Grammar

(g) Subtypes

(h) Parametrically polymorphic types

(i) Discontinuity operators

(j) Type modalities

(k) Continuations

7. Course Notes and Materials
   Course notes on these topics will be provided on the website. No books will be required, however the following materials may be useful for reference purposes when the course notes are insufficient:

   Lambek, J. The Mathematics of Sentence Structure. (paper)

   Steedman, M. The Syntactic Process. (book)

   Morrill, G. Type Logical Grammar. (book)

   Pfenning, F. Proof theory foundations. (OPLSS 2012 lecture videos)