

ESSLLI 2013 Schedule

WEEK 1 - SLOT 1			
George Metcalfe and Rosalie Iemhoff	Admissible Rules	LoCo	Introductory
Henriette de Swart and Bert Le Bruyn	Weak Referentiality: research methods in cross-linguistic semantics	LaLo	Foundational
Jirka Hana and Anna Feldman	Computational Morphology	LaCo	Introductory
Joshua Sack	Reasoning with Probabilities	LoCo	Advanced
Michael Franke and Elliott Wagner	Language and Games	LaLo	Advanced
Oleg Kiselyov and Chungchieh Shan	Lambda: the ultimate syntax-semantics interface	LaCo	Advanced
WEEK 1 - SLOT 2			
Chris Cummins and Jan De Ruiter	Computational approaches to the pragmatics problem	LaCo	Introductory
Daniel Altshuler and Hana Filip	Aspect: From Verb to Discourse	LaLo	Advanced
Daniel Lassiter and Noah Goodman	Probability in Semantics and Pragmatics	LaLo	Introductory
Fabio Mogavero and Aniello Murano	Strategic Reasoning	LoCo	Advanced
Gerald Penn	Text-to-Speech Synthesis	LaCo	Foundational
Jan Broersen	Logics for (Artificial) Agency	LoCo	Introductory
Claire Beyssade and Alda Mari	Genericity	LaLo	Introductory
WEEK 1 - SLOT 3			
Andrew Fish and Alexander Heußner	Why diagrammatic proofs are sometimes worth 1000 formulae: an Introduction to Formal Diagrammatic Reasoning Systems	LoCo	Introductory
Camilo Thorne	Semantic Complexity of Aggregate Noun Phrases	LaLo	Workshop
Hans-Christian Schmitz and Henk Zeevat	Workshop on Bayesian Natural Language Semantics and Pragmatics	LaCo	Workshop
William Starr and Sarah Murray	Speech Acts	LaLo	Introductory
Hubie Chen	Constraint Satisfaction: Complexity and Consistency	LoCo	Introductory
Janina Rado and Gert Webelhuth	Non-canonical constructions	LaCo	Introductory
WEEK 1 - SLOT 4			
Carl Pollard	Introduction to Linear Categorical Grammar	LaLo	Advanced
Anton Benz and Katja Jasinskaja	Discourse Coherence, Information Structure, and Implicatures	LaLo	Workshop
Bijan Parsia and Pavel Klinov	Practical Reasoning for Description Logics	LoCo	Foundational
Donka Farkas and Floris Roelofsen	Questions, Assertions, and Hybrids in an Inquisitive Discourse Model	LaLo	Introductory
Robert Levine and Manfred Sailer	Lexical Resource Semantics: Where empirical grounding meets computational tractability in the syntax/semantics interface	LaCo	Introductory
Umberto Rivieccio and Achim Jung	From bilattices to d-frames	LoCo	Advanced

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WEEK 2 - SLOT 1			
Ani Nenkova	Affect processing in text and speech	LaCo	Advanced
Hans Kamp	Psychological Reality of Semantic Theories	LaLo	Introductory
Philippe Balbiani	Spatial logics	LoCo	Advanced
Sandra Kübler and Markus Dickinson	Extrinsic Parse Improvement	LaCo	Workshop
Stefan Müller	An Introduction to Grammar Development	LaCo	Foundational
Valentin Goranko	Logics for multi-agent systems and strategic reasoning	LoCo	Introductory
WEEK 2 - SLOT 2			
Asad Sayeed	Grammar-based approaches to opinion mining	LaCo	Advanced
Denys Duchier and Yannick Parmentier	High-level Methodologies for Grammar Engineering	LaCo	Workshop
Marta R. Costa-Jussà and Mireia Farrús	The role of linguistics in Statistical Machine Translation	LaCo	Introductory
Roy Cook and Sean Walsh	Abstraction Principles: Their Mathematical Strength, Linguistic Underpinnings, and Philosophical Applications	LaLo	Advanced
Thomas Schneider and Dirk Walther	Modularity in Ontologies	LoCo	Introductory
Ulle Endriss	Logic and Social Choice Theory	LoCo	Foundational
Heather Burnett and Daniel Lassiter	Gradability, Scale Structure, and Vagueness	LaLo	Introductory
WEEK 2 - SLOT 3			
Eric Pacuit and Wes Holliday	Ten Puzzles and Paradoxes about Knowledge and Belief	LaLo	Foundational
Giorgio Satta	Everything you always wanted to know about parsing	LaCo	Advanced
Nina Gierasimczuk	Belief Revision Meets Formal Learning Theory	LoCo	Introductory
Robert Levine and Yusuke Kubota	Empirical Foundations for Hybrid Type-logical Categorical Grammar	LaLo	Advanced
Barbora Hladka and Martin Holub	A Gentle Introduction to Machine Learning in NLP using R	LaCo	Introductory
Philippe Balbiani and Cigdem Gencer	Unification in description logics and modal logics	LoCo	Advanced
WEEK 2 - SLOT 4			
Reut Tsarfaty	Introduction to Parsing Morphologically Rich Languages	LaCo	Advanced
Hanoch Ben-Yami	The Truth Value Approach to Logic	LaLo	Introductory
Wojtek Jamroga and Leon Van Der Torre	Reasoning for Agreement Technologies	LoCo	Advanced
Alexander Koller and Marco Kuhlmann	Tree Automata and Tree Transducers in Parsing and Translation	LaCo	Advanced
Ulle Endriss and Eric Pacuit	Logical Models of Group Decision Making	LoCo	Workshop
Yoad Winter	Formal Semantics of Natural Language	LaLo	Foundational

WEEK 1 SLOT 1			
Lecturers	Title	Field	Level
George Metcalfe and Rosalie Iemhoff	Admissible Rules	LoCo	Introductory
Henriette de Swart and Bert Le Bruyn	Weak Referentiality: research methods in cross-linguistic semantics	LaLo	Foundational
Jirka Hana and Anna Feldman	Computational Morphology	LaCo	Introductory
Joshua Sack	Reasoning with Probabilities	LoCo	Advanced
Michael Franke and Elliott Wagner	Language and Games	LaLo	Advanced
Oleg Kiselyov and Chungchieh Shan	Lambda: the ultimate syntax-semantics interface	LaCo	Advanced
Lecturers	Title	Field	Level
George Metcalfe and Rosalie Iemhoff	Admissible Rules	LoCo	Introductory
<p>The main aim of this course is to introduce students to the fascinating and varied roles played by admissible rules in logic. Informally, a rule is admissible for a logic if adding it to the logic produces no new theorems. Equivalently, the rule is admissible if for each instance of the rule, whenever the premises are theorems, the conclusion is also a theorem. Such rules are often crucial for proving completeness results, developing proof systems, or establishing "hidden properties" of a logic. Algebraically, they correspond to quasi-equations holding in free algebras, while from a computational perspective, admissibility is closely related to, and in certain cases reduces to, equational unification. For classical logic, derivability and admissibility coincide: the logic is structurally complete. However, for many non-classical – in particular, Introductory, modal, many-valued, and substructural – logics this is not the case, prompting questions of finite or recursive axiomatizability, decidability, and complexity.</p>			
Henriette de Swart and Bert Le Bruyn	Weak Referentiality: research methods in cross-linguistic semantics	LaLo	Foundational
<p>This course offers an introduction to cross-linguistic semantics, a recent discipline defined by the seminal work of Chierchia (1998), Matthewson (2010), ... Our empirical domain will be that of weakly referential NP/DPs, argumental expressions that do not set up individual discourse referents in conversational space (de Swart & Zwarts 2010):</p> <p>(i) John is in jail. #It is a brick building.</p> <p>(ii) Mary is listening to the radio. #It is an old machine but the sound is still fine.</p> <p>Even though we mainly focus on Romance and Germanic, we also look into languages that figure prominently in the literature on weak referentiality (Mandarin, Hungarian, Russian, Hindi, ...). The course aim is to promote and to familiarize students with theory-driven empirical research (including on- and offline experiments and mono- and multilingual corpus research) that allows us to probe the syntactic, pragmatic and semantic dimensions of cross-linguistic variation.</p>			

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Jirka Hana and Anna Feldman	Computational Morphology	LaCo	Introductory
<p>Abstract: The course will introduce the students to the methods of processing morphology of natural languages. It starts with a linguistic overview of morphology, discussing features of a wide variety of languages including fusional languages such as German and Czech and agglutinative such as Turkish and Esperanto. After that, a discussion of corpora, tagsets and annotation will follow.</p> <p>The core of the course covers supervised, unsupervised and semi-supervised methods of morphological analysis, morpheme segmentation, lexicon creation, etc. The course covers standard and well established methods (two-level morphology, Porter stemmer), but also includes discussion of recent important papers, for example, Yarowsky & Wicentowski 2000, Creutz and Lagus 2007, Monson 2009, and Tepper & Xia 2010.</p>			
Joshua Sack	Reasoning with Probabilities	LoCo	Advanced
<p>Abstract: Both logic and probability provide a powerful tool for reasoning about uncertainty in diverse and dynamic environments. The goal of this course is to explore tools used by logicians, computer scientists, philosophers, and game theorists for modeling systems that employ logic and incorporate probability. Such tools will address logical frameworks of multi-agent uncertainty, clarify various conceptual issues (Aumann's agree to disagree result) and puzzles (such as Monty Hall puzzle). This course will focus on both important conceptual issues (e.g., Dutch book arguments, higher-order probabilities, and interactions between qualitative and quantitative uncertainty) and main technical results (e.g., completeness and decidability of probabilistic modal logics).</p>			
Michael Franke and Elliott Wagner	Language and Games	LaLo	Advanced
<p>Linguistic behavior is frequently likened to a game that interlocutors play (much in the spirit of Wittgenstein, 1953/2001), with implicit rules governing what counts as conventionally proper behavior, i.e., what can and ought to be said and inferred in particular situations. This course takes this comparison seriously. After covering the relevant essentials of (mostly: evolutionary) game theory, the course focuses on applications of signaling games to the evolution of meaningfulness (building on Skyrms, 2010, as an introductory textbook). The overall aim of this course is to introduce the main conceptual motivation behind the signaling approach (going back to Lewis, 1969) and from there to provide an overview about the current state-of-the-art. To that end, we will cover basic results on the evolutionary dynamics of the relevant games, including costly signaling and games played on (social) networks, but also more advanced applications of the signaling approach, such in explanations of the evolution of compositionality and basic logical operators, the emergence of basic speech-act distinctions, and the co-evolution of categorization and linguistic meaning, the latter with an eye to explaining the emergence of color concepts, vagueness and the use of gradable adjectives for reference to concrete objects.</p>			

Oleg Kiselyov and Chungchieh Shan	Lambda: the ultimate syntax-semantics interface	LaCo	Advanced
<p>Spreadsheets and Matlab are popular because they let domain experts write down a problem in familiar terms and quickly play with potential solutions. Natural-language semanticists have a better tool. It displays truth conditions, infers types, simplifies terms, and computes yields. Its modularity facilities make it easy to try fragments out, scale them up, and abstract encoding details out of semantic theories.</p> <p>This tool is not just a niche experiment among semanticists, but a proven combination of techniques for using a mature, general-purpose programming language. This tool was recently created by functional programmers, but they are unaware of its application to semantics just as most semanticists are. Our hands-on course teaches this application simultaneously to linguists and programmers, so as to bridge the two communities. We work our way from propositional logic and context-free grammars to dynamic and continuation treatments of quantification and anaphora.</p>			

WEEK 1 SLOT 2

Lecturers	Title	Field	Level
Chris Cummins and Jan De Ruiter	Computational approaches to the pragmatics problem	LaCo	Introductory
Daniel Altshuler and Hana Filip	Aspect: From Verb to Discourse	LaLo	Advanced
Daniel Lassiter and Noah Goodman	Probability in Semantics and Pragmatics	LaLo	Introductory
Fabio Mogavero and Aniello Murano	Strategic Reasoning	LoCo	Advanced
Gerald Penn	Text-to-Speech Synthesis	LaCo	Foundational
Jan Broersen	Logics for (Artificial) Agency	LoCo	Introductory
Claire Beyssade and Alda Mari	Genericity	LaLo	Introductory
Lecturers	Title	Field	Level
Chris Cummins and Jan De Ruiter	Computational approaches to the pragmatics problem	LaCo	Introductory

In this course, we discuss some approaches to computational pragmatics, focusing on the problem of recognising the speaker’s communicative intention. Unlike other aspects of human language, pragmatics involves a systematic many-to-many mapping between form and meaning, which renders the computational problems of encoding and decoding meaning especially challenging in artificial systems. It is similarly difficult to account for how humans so rapidly manage to perform these tasks in everyday communicative interactions, and many linguistic pragmatic theories are profoundly underspecified when it comes to explaining how this process is undertaken. We exemplify some of the main lines of attack on these two problems, focusing especially on practical computational methods that are derived from traditions of more philosophical linguistic argumentation.

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Daniel Altshuler and Hana Filip	Aspect: From Verb to Discourse	LaLo	Advanced
<p>This course examines the grammatical expression of aspectual distinctions in a number of typologically distinct languages (English, German, Russian, Czech, Hindi, Thai, SENĆOŦEN, among others) with the aim of opening up new lines of inquiry in three core domains. The first domain concerns typological and formal questions about what makes an aspectual marker (im)perfective, the second concerns the interaction between (im)perfectivity and aspectual classes, and the third concerns the pragmatic role of grammatical aspect in creating discourse coherence via implicatures and anaphoric relations. Drawing on the recent research in scalar and possible-world semantics, we will account for the puzzling range of meanings that perfective forms express in natural languages and their connection to telicity. Moreover, we will provide clear criteria that distinguish the semantics of perfectivity from that of imperfectivity, on the one hand, and that delimit imperfectivity from genericity (aka habituality), on the other hand.</p>			
Daniel Lassiter and Noah Goodman	Probability in Semantics and Pragmatics	LaLo	Introductory
<p>Formal models of uncertainty play a crucial role in the study of natural language meaning and interpretation. While simple set-based representations of uncertainty have been considered adequate for some time, recent work has suggested that the richer format of probability theory is needed to fully explain a number of important phenomena. This course will provide a self-contained introduction to probability theory geared toward students with background in logic, emphasizing points of contact with modal logic and intensional semantics. We will then discuss probabilistic models that have been proposed to account for various phenomena: epistemic modality, genericity, conditionals, anaphora resolution, quantity and manner implicatures, expressive/affective subtext, and presupposition triggering and projection.</p>			
Fabio Mogavero and Aniello Murano	Strategic Reasoning	LoCo	Advanced
<p>In open systems verification, to formally check for reliability, one needs an appropriate formalism to model the interaction between agents and express the correctness of the system no matter how the environment behaves. An important contribution in this context is given by modal logics for strategic ability, in the setting of multi-agent games, such as ATL, ATL*, and the like.</p> <p>Strategic reasoning is nowadays one of the most active research area in multi-agent system domain. The literature in this field is extensive and provides a plethora of logics for modeling strategic ability. Theoretical results in this area are now being used in many exciting domains, including software tools for information system security, robot teams with sophisticated adaptive strategies, and automatic players capable of beating expert human adversary, to cite a few. All these examples share the challenge of developing novel theories and tools for agent strategies that take into account the likely behavior of adversaries.</p> <p>This course aims to introduce students to the field of strategic reasoning, mainly from a theoretical point of view.</p>			
Gerald Penn	Text-to-Speech Synthesis	LaCo	Foundational
<p>This 1-week course provides an introduction to text-to-speech synthesis for students and researchers with no background in speech processing.</p>			

Jan Broersen	Logics for (Artificial) Agency	LoCo	Introductory
<p>This course introduces students to the research on logics of agency that has been conducted over the last 10 years. Starting with Davidson '71 the phenomenon of agency was originally studied in philosophy. The problem of agency is to understand how it can be that we can claim that agents are responsible for actions, choices or state changes, in the context of either a deterministic or indeterministic world view. A radical departure from the Davidsonian view on agency emerged in the 90ies with the work of Belnap and others who put forward stit-theory (stit is an acronym for `seeing to it that'). Some 8 years ago, it was recognized that stit theory has much in common with formalisms used to reason in the context of multi-agent systems in computer science (Coalition Logic and Alternating Time Temporal Logic). This was the starting point for many fruitful investigations linking stit logics with logics for strategies, dynamic logics, agent programming languages, planning theories (HTN planning), deontic logics, BDI logics, probabilistic logics, Markov decision process, logics of attempt and risk taking, etc. This course will give an overview of the work done in this area and will introduce students to the fascinating open problems and controversies of this field of research.</p> <p>The material used in the course will be based on a draft version of forthcoming book on stit theory in philosophy and computer science.</p>			

Claire Beyssade and Alda Mari	Genericity	LaLo	Introductory
<p>This introductory course bears on the expressions of genericity in natural language, and aims at discussing recent developments in linguistics, philosophy and cognitive science. We will analyze the semantic contributions of the root noun, Number, and Determiner inside kind-referring DPs. We will consider VPs, and the relations between genericity, habituality, abilities, and dispositions. We will address the question of different types of generic judgments in relation with available expressions of genericity, and discuss the notion of `normality' in connection with genericity. It will be shown that many classical paradoxes about generic sentences can be solved by analyzing generic sentences not as quantified sentences but as a specific type of judgment bearing on norms and expressing a probability. Finally we will present an overview of experimental studies that examine how humans understand generic sentences.</p>			

WEEK 1 SLOT 3

Lecturers	Title	Field	Level
Andrew Fish and Alexander Heußner	Why diagrammatic proofs are sometimes worth 1000 formulae: an Introduction to Formal Diagrammatic Reasoning Systems	LoCo	Introductory
Camilo Thorne	Semantic Complexity of Aggregate Noun Phrases	LaLo	Workshop
Hans-Christian Schmitz and Henk Zeevat	Workshop on Bayesian Natural Language Semantics and Pragmatics	LaCo	Workshop
William Starr and Sarah Murray	Speech Acts	LaLo	Introductory
Hubie Chen	Constraint Satisfaction: Complexity and Consistency	LoCo	Introductory
Janina Rado and Gert Webelhuth	Non-canonical constructions	LaCo	Introductory

<p>Andrew Fish and Alexander Heußner</p>	<p>Why diagrammatic proofs are sometimes worth 1000 formulae: an Introduction to Formal Diagrammatic Reasoning Systems</p>	<p>LoCo</p>	<p>Introductory</p>
<p>Formal Diagrammatic Reasoning Systems are a class of formal systems whose syntax relies on diagrams and whose deduction rules can be expressed as diagram rewritings. Well known examples are Euler and Venn diagrams which play an integral part when guiding a researcher’s intuition, communicating ideas, or in logic education. However, they are rarely used to write formal proofs due to the current dominance of linear “text-based” symbolic representations. This course introduces a series of diagrammatic reasoning systems that have a rigorous formalization, and that need not hide behind other formal systems and logics. After presenting the well known Venn and Euler diagrams, in a formal setting, we precede to spider diagrams, existential graphs, and conceptual graphs. Along the way we, on the one hand, extend the logical toolbox of the participants with formalisms that can be helpful in practice, and on the other hand, provide a survey on fundamental results and ongoing research.</p>			
<p>Camilo Thorne</p>	<p>Semantic Complexity of Aggregate Noun Phrases</p>	<p>LaLo</p>	<p>Advanced</p>
<p>The following is a proposal for a 1-week introductory course on the formal Montague semantic analysis of aggregate noun phrases and questions, and on the computational properties that arise thereof (i.e., their semantic complexity). An aggregate noun phrase is a definite noun phrase like "the total number of vegans in New York", expressing a second order query-language-like aggregation function (a sum in the example). Such noun phrases while frequent in some natural language datasets, have a little understood semantics and unknown computational properties. This course intends to show students a possible semantic and semantic complexity analysis of such expressions, leveraging on Barwise and Cooper's generalized quantifier theory, Pratt and Third's theory on semantic complexity (and controlled fragments of English) and on the semantics of aggregations in better understood logic-based settings such as relational and rule-based formal query languages (bag and set semantics of aggregations). It targets advanced BSc-level students (and beyond) with some prior exposure to logic and formal semantics, within the Logic and Language track of ESLLI 2013.</p>			
<p>Hans-Christian Schmitz and Henk Zeevat</p>	<p>Workshop on Bayesian Natural Language Semantics and Pragmatics</p>	<p>LaCo</p>	<p>Workshop</p>
<p>Bayesian interpretation in NLI means that a stochastic process is defined to find the highest value for product of the probability of the interpretation in the context and the probability that the utterance is produced for this interpretation. It implements the idea that ambiguity is solved by the context, but then turns the NLP upside down: NL generation is the proper linguistic resource for interpretation. This idea is supported by strong evidence for simulated utterance production in interpretation.</p> <p>The workshop is an attempt to bring together various strands in the research on Bayesian interpretation: to particular phenomena in semantics, pragmatics and lexical interpretation, to theoretical models of NLI, to models of NLI that bring vision and NLI together, to models of the psychology of NLI, to competing frameworks.</p>			

William Starr and Sarah Murray	Speech Acts	LaLo	Introductory
<p>How do we manage to mean or communicate anything by the words we use? This course begins with work on this topic in the philosophy of language which leads into more recent work on convention, shared information and the dynamics of conversation. We then consider how the world's languages mark a distinction particularly relevant to the study of speech acts: mood. A dynamic approach to mood is presented wherein its meaning is understood in terms of how it changes shared information, issues and preferences. This approach improves on previous ones, but it does not fully address our basic question. It says only what happens when we do manage to mean something by an utterance, not what it is to mean something. The course concludes by considering work in AI on planning and intention, and its promise for a more complete answer to our basic question.</p>			
Hubie Chen	Constraint Satisfaction: Complexity and Consistency	LoCo	Introductory
<p>A current research focus is to understand which restricted cases of the CSP are computationally tractable and which are intractable. The literature centers on two ways of restricting the CSP. One is to restrict the /constraint language/; this permits the capture of well-known problems such as 3-SAT, 2-SAT, Horn SAT, and 3-colorability. This restriction can be studied via universal-algebraic notions and techniques. The second way to restrict the CSP is by limiting the interaction among variables; this restriction leads to the study of graph and hypergraph complexity measures such as treewidth and variants thereof. In this course, we aim to give a self-contained introduction to the computational complexity of constraint satisfaction problems. In particular, we will study consistency algorithms, which yield tractable cases for both types of restrictions.</p>			
Janina Rado and Gert Webelhuth	Non-canonical constructions	LaCo	Introductory
<p>The course takes a data-oriented approach to the investigation of non-canonical constructions. Non-canonicity will be viewed as a continuum, with canonical constructions at one extreme and fully idiosyncratic idioms at the other. The degree of non-canonicity is determined by the types and number of constraints (discourse, syntactic, lexical) a construction must satisfy. The constraints, in turn, transform the construction into a specialized instrument for expressing a particular lexical or discourse meaning.</p> <p>We will focus on Introductory points on the spectrum of non-canonicity: extraposition, topicalization and inversion as well as syntactically flexible idioms. Corpus data and when appropriate, psycholinguistic evidence will be used to evaluate current approaches to the discourse functions of the individual constructions. This will lead to generalizations concerning the discourse role of preposed and postposed constituents across different non-canonical constructions. Finally, we will examine the ability of different classes of idioms to occur in various syntactic constructions.</p>			

WEEK 1 SLOT 4

Lecturers	Title	Field	Level
Carl Pollard	Introduction to Linear Categorical Grammar	LaLo	Advanced
Anton Benz and Katja Jasinskaja	Discourse Coherence, Information Structure, and Implicatures	LaLo	Workshop
Bijan Parsia and Pavel Klinov	Practical Reasoning for Description Logics	LoCo	Foundational
Donka Farkas and Floris Roelofsen	Questions, Assertions, and Hybrids in an Inquisitive Discourse Model	LaLo	Introductory
Robert Levine and Manfred Sailer	Lexical Resource Semantics: Where empirical grounding meets computational tractability in the syntax/semantics interface	LaCo	Introductory
Umberto Rivieccio and Achim Jung	From bilattices to d-frames	LoCo	Advanced
Lecturers	Title	Field	Level
Carl Pollard	Introduction to Linear Categorical Grammar	LaLo	Advanced

Following up R. Muskens' 2007 ESLLI workshop New Directions in Type-Theoretic Grammar and P, de Groote and S. Salvati's 2009 ESLLI course on abstract categorial grammars (ACGs), this course is aimed primarily at showing linguists how to employ the linear-logic-based style of categorial grammar for practical language description and analysis. After an overview of logical prerequisites (proof theory of linear and intuitionistic logic, typed lambda calculus, and higher-order logic), we sketch a version of this style of categorial framework (called LINEAR CATEGORIAL GRAMMAR) and explain how its similarities to and differences from ACG and Muskens' lambda grammar. The rest of the course is devoted to linguistic analysis of a range of topics including parasitic scope constructions, interrogative constructions, coordinate constructions, free and semi-free word order, cliticization, and intonation, in a variety of languages (English, Dutch, Chinese, K'iche', Tagalog, and Bosnian/Croatian/Serbian).

Anton Benz and Katja Jasinskaja	Discourse Coherence, Information Structure, and Implicatures	LaLo	Workshop
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This workshop seeks to provide a platform for discussion of issues at the interface of three areas of linguistics and philosophy: (a) the structure and the semantics of discourse, the way meanings of sentences contribute to a coherent text or dialogue; (b) information structure, the way the informational status (topic vs. focus, given vs. new, etc.) of sentence constituents is reflected by the structure of the sentence; and (c) implicatures, pragmatic inferences driven by the assumption of the speaker's rationality and cooperativity that enrich the literal meaning of a sentence. Each of these areas has a long history of research and it is widely agreed that the areas are closely interdependent. However, the exact ways in which they interact are the subject of a lot of ongoing research and vivid debate.

Bijan Parsia and Pavel Klinov	Practical Reasoning for Description Logics	LoCo	Foundational
<p>Description Logics (DLs) are popular computational logics. Most prominently, they are the formal basis of popular ontology languages, most prominently, the Web Ontology Language (OWL). Recent crawls of the Web have retrieved tens to hundreds of thousands of OWL ontologies published on the Web. Such ontologies are used in bio-health informatics, data integration, configuration management, and a host of other applications in organisations such as NATO, Siemens, WHO, and IBM.</p> <p>Key to the success of these logics is the availability of high quality, high performing reasoners. Since the early 1990s, research on practical, scalable algorithms (even for supra-EXPTIME logics), their optimizations, and the analysis of their behavior has been a vibrant research area. In this course, we will introduce the most currently popular DLs, i.e., SROIQ, ALC, EL, and DL-Lite, and the contours of the practical reasoning space. We will examine core algorithms and optimizations, the engineering need to realize them, and empirical methods for evaluating them.</p>			
Donka Farkas and Floris Roelofsen	Questions, Assertions, and Hybrids in an Inquisitive Discourse Model	LaLo	Introductory
<p>The course aims to familiarize students with recent developments in semantics and pragmatics, focusing on assertions, questions, and a range of 'hybrid' speech acts that combine features of both. At a theoretical level, it integrates recent work in inquisitive semantics and pragmatics (e.g., Groenendijk & Roelofsen, 2009) with work on discourse structure (e.g., Farkas & Bruce, 2010), refining and enriching both. Empirically, it covers a wide range of discourse initiatives and responses to them, presenting in-depth analyses of cross-linguistic data from English, German, French, Romanian, and Hungarian.</p>			

<p>Robert Levine and Manfred Sailer</p>	<p>Lexical Resource Semantics: Where empirical grounding meets computational tractability in the syntax/semantics interface</p>	<p>LaCo</p>	<p>Introductory</p>
<p>Work in formal semantics and in constraint-based syntax has contributed tremendously to our understanding of the form-meaning relation in natural language. It has provided analyses to complex phenomena and sharpened our view on empirical and theoretical problems of compositionality. While based in this tradition, Lexical Resource Semantics (LRS) uses underspecification instead of lambda-calculus in semantic combinatorics. LRS maintains both a sound syntax and a fine-grained semantics. At the same time, it offers direct solutions to some challenges to compositionality. All ingredients of LRS will be empirically motivated and rigorously defined, both syntactically and semantically.</p> <p style="text-align: center;">Schedule:</p> <ol style="list-style-type: none"> 1) Introduction and prerequisites (predicate logic, syntax) 2) lexical constraints on readings: linking, selection 3) structural constraints on readings: scope ambiguity, semantic concord 4) constraint interaction: quantifier scope and modal verbs 5) computational implementation; summary 			
<p>Umberto Rivieccio and Achim Jung</p>	<p>From bilattices to d-frames</p>	<p>LoCo</p>	<p>Advanced</p>
<p>Generalizing Nuel Belnap's ideas on "How a computer should think", bilattices are among the most solid logical formalisms introduced in the last decades to deal with partial and contradictory information. The same motivation led, in more recent years, to the introduction of d-frames, generalizing the domain-theoretic approach to partiality in computer science originally proposed by Dana Scott. The two formalisms, which are closely related also from a purely mathematical point of view, gave rise to a theory which is of interest not only because of potential applications to different areas of logic and computer science, but also because of the unique interplay of ideas coming from a wide range of disciplines: lattice theory, algebraic logic, topology, universal algebra, category theory. We propose an introductory journey leading from bilattices to d-frames, with a particular focus on the fundamental theoretical results that tie together all the above-mentioned aspects of the two formalisms.</p>			

WEEK 2 SLOT 1

Lecturers	Title	Field	Level
Ani Nenkova	Affect processing in text and speech	LaCo	Advanced
Hans Kamp	Psychological Reality of Semantic Theories	LaLo	Introductory
Philippe Balbiani	Spatial logics	LoCo	Advanced
Sandra Kübler and Markus Dickinson	Extrinsic Parse Improvement	LaCo	Workshop
Stefan Müller	An Introduction to Grammar Development	LaCo	Foundational
Valentin Goranko	Logics for multi-agent systems and strategic reasoning	LoCo	Introductory
Lecturers	Title	Field	Level
Ani Nenkova	Affect processing in text and speech	LaCo	Advanced
<p>The ability to interpret others' emotions is key for effective human communication. As opportunities for human-computer interaction become more commonplace, the need for automatic analysis of user affective states has become a priority. In computer-assisted tutoring, it is important to detect hesitation and uncertainty, automated systems deployed at call centers need to identify angry or frustrated users, and numerous applications can benefit from the accurate detection of user engagement and levels of interest. Furthermore, a great deal of interest exists in analyzing user-generated content on blogs, discussion groups and Twitter for their emotional and affective content. Medical practitioners have also turned their attention to automatic measures of emotion and affect in diagnosing, assessing and helping patients suffering from depression, autism or schizophrenia, illnesses that are directly related to the impaired ability to express or interpret emotion. This tutorial will provide a comprehensive overview of affect processing all an interdisciplinary context.</p>			
Hans Kamp	Psychological Reality of Semantic Theories	LaLo	Introductory
<p>Formal Semantics has made remarkable progress over the past four decades. The principles that govern the syntax and semantics of many constructions in an ever larger number of human languages are now quite well understood, at least in the terms that formal semantics set out for itself in the second half of the sixties and early seventies. Moreover, we are beginning to develop a better understanding of the internal semantic structure of words. There also has been steady progress on the side of logic and ontology. Our understanding of the logical and ontological categories and relations that are relevant to natural language semantics has been deepened and refined and formalisms have been developed that capture semantically relevant ontological categories and structure more directly and transparently than can be done in classical Intensional Type Theory. (Much of this latter work has been done within Philosophical Logic and AI.)</p>			

Philippe Balbiani	Spatial logics	LoCo	Advanced
<p>The research on admissibility and unification for logical systems was originally motivated by automatic deduction tools. Today, admissibility and unification constitute the heart of an active research area: Rybakov (1984) and, later on, Ghilardi (1999) demonstrated that admissibility and unification in several intuitionistic and modal logics are decidable; Ghilardi (2000) established the unification types of several modal logics; Jerabek (2007) examined the complexity of admissibility for several intuitionistic and modal logics; proof-theoretic approaches for checking the admissibility of rules have been developed by Babenyshev et al. (2010); applications in the design and maintenance of knowledge bases has been considered by Baader and Narendran (2001). Nevertheless, much remains to be done, seeing that little is known about admissibility and unification in several important description and modal logics. In this course, we will give a survey of the results on unification in description and modal logics and we will present some of the open problems whose solution will have a great impact on the future of the area.</p>			
Sandra Kübler and Markus Dickinson	Extrinsic Parse Improvement	LaCo	Workshop
<p>The workshop in extrinsic parsing improvement will provide a forum for researchers who work on improving parsing as pre- or postprocessing steps. These extrinsic modifications are used for different goals such as parse improvement, error detection in syntactic annotations and in parses, domain adaptation and adaptation to non-canonical language. The workshop will bring researchers from these different areas together to foster crossfertilization.</p>			

Stefan Müller	An Introduction to Grammar Development	LaCo	Foundational
<p>Participants of this course will learn how to implement HPSG grammars using the TRALE system, which is currently used by various researchers to develop grammars for German, Danish, Persian, English, French, Polish, Maltese, Arabic, and Mandarin Chinese.</p> <p>The course participants will work in lab sessions on grammars of German and modify and extend them. The grammars capture morphological, syntactic, and semantic phenomena. Advanced participants can work on grammars for languages of their choice.</p> <p>Lexical entries for individual verbs will be written and descriptions of certain verb classes will be formulated, constraints for agreement (subject verb agreement) are introduced into the grammar and analyzes for adjuncts and complements will be developed. Generalizations over lexical entries will be captured by introducing lexical rules and classifying lexical items and using macros for the description of lexical items.</p> <p><i>Participants will work on their own laptops. The laptops should have at least 1 GB of main memory and some free space on the hard disk. Participants may experiment with the Grammix CD-Rom to see whether their hardware is suited for the course.</i></p> <p style="text-align: center;"><i>http://hpsg.fu-berlin.de/Software/Grammix/</i></p>			
Valentin Goranko	Logics for multi-agent systems and strategic reasoning	LoCo	Introductory
<p>This course is intended for a wide audience with basic knowledge of modal and temporal logics. It will introduce and discuss some of the most important and popular families of logics for multi-agent systems (MAS), including epistemic and dynamic epistemic logics. Then it will then focus on logics of strategic reasoning and abilities in MAS: with complete information or with incomplete and imperfect information; with no memory or perfect recall of players; for reasoning within dynamically changing strategy contexts; with stronger, constructive concepts of strategy, etc. Finally, I will present a logical framework for capturing the dynamics of information and strategic abilities in MAS and will discuss some applications to multi-player games.</p>			

WEEK 2 SLOT 2

Lecturers	Title	Field	Level
Asad Sayeed	Grammar-based approaches to opinion mining	LaCo	Advanced
Denys Duchier and Yannick Parmentier	High-level Methodologies for Grammar Engineering	LaCo	Workshop
Marta R. Costa-Jussà and Mireia Farrús	The role of linguistics in Statistical Machine Translation	LaCo	Introductory
Roy Cook and Sean Walsh	Abstraction Principles: Their Mathematical Strength, Linguistic Underpinnings, and Philosophical Applications	LaLo	Advanced
Thomas Schneider and Dirk Walther	Modularity in Ontologies	LoCo	Introductory
Ulle Endriss	Logic and Social Choice Theory	LoCo	Foundational
Heather Burnett and Daniel Lassiter	Gradability, Scale Structure, and Vagueness	LaLo	Introductory
Lecturers	Title	Field	Level
Asad Sayeed	Grammar-based approaches to opinion mining	LaCo	Advanced

This course will present recent work in the growing area of grammar-based approaches to opinion-mining, which are designed to handle genres for which opinions can be found at a granularity finer than sentence-level. These genres are associated with applications such as market prediction and corpus-based social science. We will cover existing training corpora, such as the MPQA and the recent JDPA, which have fine-grained annotations; we will also cover specialized corpus development, particularly through crowdsourcing. In terms of techniques, we will cover sequence models (labelling input strings by opinion weight), graph-based models (labelling grammatical structures), and we will refresh or introduce recent relevant advances in machine learning. Knowledge of basic machine learning and dependency parsing is required, but knowledge of opinion mining is not. Relevant references are taken from very recent experimental and survey papers.

Denys Duchier and Yannick Parmentier	High-level Methodologies for Grammar Engineering	LaCo	Workshop
<p>Many grammatical frameworks have been proposed over the last decades to describe the syntax (and semantics) of natural language. Among the most widely used, one may cite Tree-Adjoining Grammar (TAG) [Joshi et. Al, 1975], Lexical-Functional Grammar (LFG) [Bresnan and Kaplan, 1982], or Head-driven Phrase Structure Grammar (HPSG) [Pollard and Sag, 1994]. These frameworks present theoretical and practical interests. From a theoretical point of view, they provide a formal device for the linguist to experiment with her/his theories. From a practical point of view, they make it possible to automatically process natural language in applications such as dialog systems, machine translation, etc. They differ in their expressivity and complexity. Some reveal themselves more adequate for the description of a given language than others. Still, for many of these frameworks, large resources (i.e., grammars) have been designed, at first by hand, and later via dedicated tools (e.g., integrated grammar environments such as XLE for LFG [King et al, 2000]). In this workshop, we are concerned with this complex task of grammar engineering, keeping in mind the two above-mentioned theoretical and practical interests.</p> <p>We invite submissions regarding the following aspects of grammar engineering (without being limited to these):</p> <ul style="list-style-type: none"> + development, maintenance and enhancement of grammars + semi-automatic acquisition of grammars + debugging environments for grammar design + dedicated description languages for grammar engineering + applications of large-scale grammars <p>This workshop aims to bring together grammar engineers from different frameworks --- for example LFG, HPSG, TAG, CCG, dependency grammar --- to compare their research and methodologies.</p>			
Marta R. Costa-Jussà and Mireia Farrús	The role of linguistics in Statistical Machine Translation	LaCo	Introductory
<p>The course aims at introducing the main approaches in Machine Translation (MT): statistical, rule-based and hybrid translation, focusing on giving an overview of the state-of-the-art techniques and algorithms and outline the most challenging problems in the field.</p> <p>In addition, an overview of several evaluation approaches will be presented: automatic measures, human perception evaluation, and human linguistic evaluation, focusing on the advantages and disadvantages of each method.</p> <p>The course will emphasise the importance of taking into account the linguistic knowledge when developing machine translation systems, and how statistics and linguistics are combined in MT in both development and evaluation.</p>			

Roy Cook and Sean Walsh	Abstraction Principles: Their Mathematical Strength, Linguistic Underpinnings, and Philosophical Applications	LaLo	Advanced
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Abstraction principles are a versatile mathematical concept that have emerged in the context of Crispin Wright's revitalization of Frege's logicist project in the philosophy of mathematics. Given an equivalence relation E on second-order objects, the abstraction principle with respect to E is the following principle, wherein $@E$ is a map from second-order objects to first-order objects:

$$\forall X; Y \ E(X; Y) \ \& \ @E(X) = @E(Y)$$

The goal of this course is to survey the mathematics of these principles, their linguistic underpinnings, and their philosophical applications.

Albert Visser will serve as an additional co-teacher of the course. The course should be accessible to anyone who has had a course on first-order predicate logic. Some familiarity with second-order logic would be helpful but not presupposed. The relevant proof-theoretic, set-theoretic, and category-theoretic logical tools needed to state and prove the target results will be developed along the way.

Thomas Schneider and Dirk Walther	Modularity in Ontologies	LoCo	Introductory
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Nowadays, logical theories in guise of ontologies are designed for applications in bioinformatics, medicine, geography, linguistics and other areas. They are often based on expressive description logics (DLs), which are fragments of first-order logic with well-understood and -implemented reasoning problems and procedures.

Given the size of existing ontologies and problems parsing, storing, or reasoning over them, modularity has become important. It is comparable with modularity in software engineering, and is on its way of becoming as well-understood. In this course, we will provide an overview of the state of the art in modularity for ontologies. The course is meant to be a guide to the wealth of module notions, their properties and uses, as well as related concepts.

ESSLLI 2013 Schedule

Ulle Endriss	Logic and Social Choice Theory	LoCo	Foundational
<p>This course will provide a thorough introduction to social choice theory, the formal study of mechanisms for collective decision making, and highlight the role that logic has taken, and continues to take, in its development. We will cover the axiomatic method in social choice theory and see proofs for some of the seminal results in the field, such as Arrow's Theorem and the Gibbard-Satterthwaite Theorem. We will also discuss how modern logic and automated reasoning might be used to provide deeper insights into the nature of social choice. Finally, we will review the computational foundations of social choice, including applications of complexity theory and ideas from knowledge representation, and we will give an introduction to judgment aggregation, i.e., the aggregation of the judgments of several agents expressed in terms of formulas of propositional logic. Throughout the week, we will cover both classical results and touch upon the most recent research in the field. No specific technical background is required to follow this course.</p>			
Heather Burnett and Daniel Lassiter	Gradability, Scale Structure, and Vagueness	LaLo	Introductory
<p>This course is a high-level introduction to the semantics and pragmatics of gradation, scale structure, vagueness, and context-sensitivity of scalar expressions, presupposing only a general knowledge of formal semantics. The primary focus will be on issues of lexical and compositional semantics and how they support the distinctive pragmatics of this class of linguistic expressions. We will discuss in particular (a) gradability and vagueness across categories (adjectives, DPs, VPs, quantifiers, PPs); (b) the formal choice to characterize scales using degree-, delineation-, and/or measurement-theoretic tools, and its empirical consequences; (c) dimensionality and boundedness of scales and how they interact with the meaning of positive-form and modified expressions; (d) comparison classes and degree modification; (e) the treatment of vagueness and how it interacts with semantic and pragmatic issues discussed. Throughout we will draw connections with experimental work on indeterminate boundaries and on context and scale structure in the semantics of the positive form.</p>			

WEEK 2 SLOT 3

Lecturers	Title	Field	Level
Eric Pacuit and Wes Holliday	Ten Puzzles and Paradoxes about Knowledge and Belief	LaLo	Foundational
Giorgio Satta	Everything you always wanted to know about parsing	LaCo	Advanced
Nina Gierasimczuk	Belief Revision Meets Formal Learning Theory	LoCo	Introductory
Robert Levine and Yusuke Kubota	Empirical Foundations for Hybrid Type-logical Categorical Grammar	LaLo	Advanced
Barbora Hladka and Martin Holub	A Gentle Introduction to Machine Learning in NLP using R	LaCo	Introductory
Philippe Balbiani and Cigdem Gencer	Unification in description logics and modal logics	LoCo	Advanced

ESLLI 2013 Schedule

Lecturers	Title	Field	Level
Eric Pacuit and Wes Holliday	Ten Puzzles and Paradoxes about Knowledge and Belief	LaLo	Foundational
<p style="text-align: center;">Reasoning about the knowledge and beliefs of a group of agents interests many people at ESLLI.</p> <p>This course will introduce the fundamental questions that drive much of the research in <i>*formal epistemology*</i>. Rather than focusing on the details of specific formalisms, we will introduce and critically examine ten key puzzles and paradoxes. These include (knowledge closure and logical omniscience, Williamson's margin of error paradox, the lottery and preface paradoxes, the surprise examination paradox, the knowability paradox, the Judy Benjamin problem, the Brandenburger-Keisler paradox, Lewis' triviality argument, and Gardenfors' triviality result). For each one, we will introduce the requisite background, clearly state the puzzle and discuss the ramifications for the relevant formal theories of knowledge and belief.</p>			
Giorgio Satta	Everything you always wanted to know about parsing	LaCo	Advanced
<p>Tabular parsing, also known as chart parsing, is considered the most prominent paradigm in natural language parsing. This one-week course will investigate many tabular parsing algorithms, including CKY, Earley, Generalized LR, working for context-free grammars, as well as more recent tabular methods for projective and non-projective dependency parsing.</p> <p>We follow a well-established framework, originally introduced by (B. Lang, 1974)}, which allows us to relate tabular methods to underlying push-down nondeterministic automata. This discloses deep similarities between superficially different methods, and greatly simplifies the investigation of mathematical properties of these methods.</p> <p>If not everything, you will learn most of the things you always wanted to know about parsing (but were afraid to ask).</p>			
Nina Gierasimczuk	Belief Revision Meets Formal Learning Theory	LoCo	Introductory
<p>Nowadays the dynamics of information is one of the central topics of philosophical logic. In this course we will be concerned with two formal perspectives on the dynamics of informational states: various theories of belief revision on the one hand and formal learning theory on the other. We will see that the two paradigms are interested in similar and interrelated questions, but the communication between them is sometimes difficult. Learning theory is concerned with the global process of convergence to truth, often in the context of computability. Belief-revision theories usually focus on single steps of revision and constructive manners of obtaining new states. The goal of the course is to discuss the methodology and the benefits of the meet between the theories of doxastic dynamics and formal learning theory.</p>			

ESSLLI 2013 Schedule

Robert Levine and Yusuke Kubota	Empirical Foundations for Hybrid Type-logical Categorical Grammar	LaLo	Advanced
<p>We offer a novel synthesis of both Lambek-based and linear-implication analytic traditions in Type Logical Categorical grammar, based not on formal proof-theoretic desiderata but rather on the severe empirical challenges posed by noncanonical coordinations in natural language, such as Dependent Cluster Coordination, Right Node Raising, and Gapping. The full range of complex syntax/semantic interactions in these coordinations pose serious problems for both major strands of CG research, a fact which is not widely appreciated in the literature. In this framework, Hybrid Type Logical Categorical Grammar (Hybrid TLCG), both directional and nondirectional modes of implication are utilized and, crucially, interact with each other in the course of proofs. This architecture makes possible simple and straightforward analyses of complex interactions between coordination, in particular apparent nonconstituent coordinations, with scopal phenomena involving not only generalized quantifiers, but auxiliaries, negation, and symmetrical predicates such as {\it same} and {\it different}.</p>			
Barbora Hladka and Martin Holub	A Gentle Introduction to Machine Learning in NLP using R	LaCo	Introductory
<p>The course provides a concise introduction to principles and algorithms of machine learning in natural language processing both theoretically and practically. We will focus on fundamental ideas in machine learning and the basic theory behind them. The principles of machine learning will be presented in a gentle way so that students do not have to be afraid of scary mathematical formulas.</p> <p>We will give a brief introduction to the R system for statistical computing, which we use as a tool for practical demonstration. Students will gain practical know-how needed to apply the machine learning techniques to new problems.</p> <p>The presented methods of machine learning will be practically demonstrated on selected tasks from the field of natural language processing. Understanding these tasks will not require any extra linguistic knowledge. We will show how to master NLP tasks using the R system and how to experiment with real data sets.</p>			
Philippe Balbiani and Cigdem Gencer	Unification in description logics and modal logics	LoCo	Advanced
<p>The research on admissibility and unification for logical systems was originally motivated by automatic deduction tools. Today, admissibility and unification constitute the heart of an active research area: Rybakov (1984) and, later on, Ghilardi (1999) demonstrated that admissibility and unification in several intuitionistic and modal logics are decidable; Ghilardi (2000) established the unification types of several modal logics; Jerabek (2007) examined the complexity of admissibility for several intuitionistic and modal logics; proof-theoretic approaches for checking the admissibility of rules have been developed by Babenyshev et al. (2010); applications in the design and maintenance of knowledge bases has been considered by Baader and Narendran (2001). Nevertheless, much remains to be done, seeing that little is known about admissibility and unification in several important description and modal logics. In this course, we will give a survey of the results on unification in description and modal logics and we will present some of the open problems whose solution will have a great impact on the future of the area.</p>			

WEEK 2 SLOT 4

Lecturers	Title	Field	Level
Reut Tsarfaty	Introduction to Parsing Morphologically Rich Languages	LaCo	Advanced
Hanoch Ben-Yami	The Truth Value Approach to Logic	LaLo	Introductory
Wojtek Jamroga and Leon Van Der Torre	Reasoning for Agreement Technologies	LoCo	Advanced
Alexander Koller and Marco Kuhlmann	Tree Automata and Tree Transducers in Parsing and Translation	LaCo	Advanced
Ulle Endriss and Eric Pacuit	Logical Models of Group Decision Making	LoCo	Workshop
Yoad Winter	Formal Semantics of Natural Language	LaLo	Foundational
Lecturers	Title	Field	Level
Reut Tsarfaty	Introduction to Parsing Morphologically Rich Languages	LaCo	Advanced

Morphologically rich languages (MRLs) are languages which, in contrast to English, exhibit rich morphological structure and flexible word order. MRLs have recently been the focal point of the parsing community due to the particular challenges that they pose for statistical parsers. This course addresses statistical parsing from a typological viewpoint, where the aim is to build parsing models that can effectively cope with the properties of the language that we aim to parse -- with MRLs as a case study. We start by characterizing the data of MRLs and outlining the challenges that these data pose for statistical parsing. We then present models and algorithms that effectively cope with learning and parsing such data, in different, constituency-based and dependency-based, frameworks. We finally discuss how to empirically evaluate parsers on the morphosyntactic disambiguation task and how to compare parsing results across-frameworks in real-world scenarios.

Hanoch Ben-Yami	The Truth Value Approach to Logic	LaLo	Introductory
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The course will present difficulties with the model-theoretic approach to the notions of truth and designation, and will develop an alternative, truth-valuational approach, which avoids these difficulties. The truth-valuational approach involves a substitutional account of the relation of the truth value of a quantified sentence to those of its substitution instances. Alleged difficulties with this approach shall be discussed and answered. The truth-valuational approach to identity and its implications will next be discussed. The adequacy of the first-order predicate calculus will then be demonstrated; the Henkin-style completeness proof on this approach is simpler than standard ones, and the reason for that will be explained. Lastly, the application of the truth-valuational approach to modal logic will be presented, with its consequent elimination of possible world semantics from logic, and its implications for issues surrounding the necessity of identity and possibly the Barcan formulas.

Wojtek Jamroga and Leon Van Der Torre	Reasoning for Agreement Technologies	LoCo	Advanced
<p>Mechanisms to reach agreements among different kinds of agents have been studied from various perspectives in multi-agent systems and computer science. An agreement technologies (AT) project started in 2008 in Spain and was subsequently extended to European Cost Action IC0801. The Action consists of five working groups, WG1: Semantics, WG2: Norms, WG3: Organizations, WG4: Argumentation & Negotiation, and WG5: Trust. A handbook on agreement technologies is in preparation, and the first international conference on agreement technologies will be held in October 2012. Since reasoning plays a central role in agreement technologies, various kinds of logics are used in the working groups, most importantly description logics to reason about semantics, deontic logics to reason about norms and organizations, non-monotonic logics to reason about argumentation and negotiation, and modal logics for reasoning about trust.</p> <p>We propose a course that gives a subjective glimpse of some logical formalisms that can be used to facilitate and reason about agreement in human as well as virtual societies. Given the breadth of the subject (and formal languages being already used), it is impossible to be comprehensive. Instead, we are going to offer an in-depth discussion of particular concepts and theories, one per each major subject within AT. Each lecture will conclude with a discussion on how the presented theory relates to the overall picture. We note that integration of different reasoning frameworks is the main topic of the handbook on agreement technologies.</p> <p>The lectures will include many technical details, and in consequence the course is intended for an advanced audience.</p>			
Alexander Koller and Marco Kuhlmann	Tree Automata and Tree Transducers in Parsing and Translation	LaCo	Advanced
<p>The course gives an overview of the use of tree automata, tree grammars, and tree transducers in computational linguistics. These are generalizations of finite-state string automata and transducers, and have become increasingly important tools in the formal analysis of grammar formalisms, in statistical machine translation, and in the development of parsing algorithms. The course introduces the basic theory of the tree-based approach, presents the fundamental algorithms, and illustrates the usefulness of tree automata and tree transducers by showing how existing, specialized algorithms for parsing and translation can be recast in a way that makes them easier to understand, verify, and implement.</p>			

Ulle Endriss and Eric Pacuit	Logical Models of Group Decision Making	LoCo	Workshop
<p>In recent years, in both logic and computer science, there has been a growing interest in the formal study of problems originating in economics, as witnessed by the emergence of research trends such as 'logic and games' and 'computational social choice'. This workshop will provide a forum for the discussion of ongoing research in this exciting field. It will specifically focus on the use of logic (rather than formal methods more generally) to model problems in group decision making (rather than problems in economics more generally). This focus addresses an important gap in current research practice: researchers coming from logic have often focused on modelling single agents and their strategies (rather than groups of agents and mechanisms of interaction), while those coming from social choice theory (which is concerned with those groups and mechanisms) have often used only fairly simplistic ideas from logic.</p>			
Yoad Winter	Formal Semantics of Natural Language	LaLo	Foundational
<p>The course will give a concise and tightly-structured introduction to compositional modeltheoretic semantics in the Montague tradition, with ample discussion and motivation 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, boolean operators, generalized quantifiers and abstract categorial grammar. Motivations and examples will draw on recent research of coordination, quantifier scope, 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.</p> <p>The course is based on a textbook in preparation.</p> <p>Winter, Y. (in prep.), Elements of Formal Semantics, To appear with Edinburgh University Press. www.phil.uu.nl/~yoad/efs/main.html. With exercises in www.phil.uu.nl/~yoad/semantiek2012/main.html</p>			