

LANMR07 Schedule

September 2007

	17	18	19
9:20--9:30	Opening		
9:30--10:30	Invited Talk: Dr. Otavio Bueno Department of Philosophy, University of Miami <i>Paraconsistency and scientific reasoning</i>	Invited Talk: Dr. Otavio Bueno Department of Philosophy, University of Miami <i>Paraconsistency and reasoning about Fiction</i>	
10:30--11:00	Invited Talk: Dr. Guillermo Morales CINVESTAV-IPN <i>Dealing with inconsistencies in security protocols</i>	Invited Talk: Dr. Robert Demolombe Institut de Recherche en Informatique de Toulouse <i>From Artificial Intelligence to Logical Agents</i>	<i>Efficient counting of models for boolean formulas represented by embedded cycles</i> Guillermo de Ita Luna, Pedro Bello Lopez, Meliza Contreras Gonzalez
11:00--11:30			<i>A new principle for defeasible reasoning</i> Marcelino C. Pequeno, Rodrigo de M. S. Veras, Wladimir A. Tavares
11:30--12:00	Coffee break		
12:00--12:30	Invited Talk: Dr. Rogelio Davila CUCEA Universidad de Guadalajara <i>Formal semantics for natural language: classical vs. constructive approaches</i>	Invited Talk: Dr. Robert Demolombe Institut de Recherche en Informatique de Toulouse <i>Modeling actions and causality in formal logic</i>	<i>Equivalence for the G3'-stable models semantics</i> Jose Luis Carballido, José Arrazola, Mauricio Osorio
12:30--13:00			<i>Planning using situation calculus, prolog and a mobile robot</i> Pilar Pozos, Edgardo Yescas, Jacob Vásquez
13:00-- 13:30	Invited Talk: Dr. Mauricio Osorio Universidad de las Americas, Puebla <i>Towards Intelligent agents based on paraconsistent logics</i>	<i>Deductive reasoning and text argument structure recovery</i> Rogelio Dávila, Sara C. Hernández, Juan F. Corona	<i>Analysis of the paraconsistency in some logics</i> Eduardo Ariza, Jose Arrazola
13:30--14:00		<i>Dialetheic truth theory: Inconsistency, non-triviality, soundness, incompleteness</i> Federico Marulanda	Closing
14:00--16:00	Luch		
16:00--17:00	Invited Talk: Dr. Hector Jimenez Universidad Autonoma Metropolitana, Unidad Cuajimalpa <i>Inferencia textual basada en lógica natural y subsunción empírica</i>		

The event will take place at:
 Edificio 157 salón 303
 (Auditorio 2 de Físico-Matemáticas),
 Facultad de Ciencias Físico Matemáticas, BUAP.

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 MEXICO

LANMR'07 talk abstracts

September 17th, 2007

Invited speaker: Dr. Otavio Bueno

Title: Paraconsistency and Scientific Reasoning

Abstract:

Invited speaker: Dr. Guillermo Morales

Title: Dealing with inconsistencies in security protocols

Abstract: Key agreement, either using classical or quantum methods, among parts insecure communication protocols has been the subject of several formal approaches. We will review some of them based in Temporal Logics Inconsistencies may appear within two types: space and temporal. We will focus on the conciliation of the first types through error correcting codes and the Privacy Amplification Protocols.

Invited speaker: Dr. Rogelio Dávila

Title: Formal Semantics for Natural Language: Classical vs. Constructive Approaches

Abstract: By the end of the XIX century, Gottlob Frege provided important insights on what has been called a theory of meaning for natural language. Most of the formal approaches based on Frege's ideas, such as Montague' semantics, Kamp's Discourse Representation Theory, Dynamic Logic, and Turner's Property Theory, have been developed within the classical framework of formal logic. A new approach based in a constructive semantics has being developed since the 90's in the works of Aarne Ranta and Goran Sundholm and others that offers important insights on natural language semantics following a proof theoretic approach. A review of both theories of meaning will be provided as well as some argumentation that supports the constructive framework.

Invited speaker: Dr. Mauricio Osorio Galindo

Titulo: Towards Intelligent agents based on paraconsistent logics.

Abstract: We discuss the use of paraconsistent logics to define some major ingredients to model intelligent agents. For the purpose of our presentation we select a particular paraconsistent logic that we call GLukG (or G3'). We show how to model a non-monotonic semantics similar to the stable semantics but closer to classical logic. We briefly discuss how to represent preferences, belief revision and updates.

Invited speaker: Dr. Hector Jimenez Salazar

Title: Inferencia textual basada en lógica natural y subsunción empírica.

Abstract: La creciente demanda por ontologías revela la carencia, en los sistemas actuales, de esquemas semánticos robustos y de amplia cobertura, sean éstos para realizar búsquedas en internet o bibliotecas digitales, analizar textos, u otras operaciones sobre entidades lingüísticas. El reto propuesto por ACL sobre el reconocimiento de implicación textual fue establecido hace unos años con avances importantes. Sin embargo, los resultados aún muestran el divorcio entre la teoría y la práctica. En el presente trabajo se propone un esquema preliminar que pretende conciliar los enfoques teórico y práctico para realizar inferencia textual. La propuesta se basa en la Lógica Natural (MacCartney & Manning 2007) y algunas formas de aplicar la subsunción a entidades lingüísticas.

September 18th, 2007

Invited speaker: Dr. Otavio Bueno

Title: *Paraconsistency and Reasoning about Fiction*

Abstract:

Invited speaker: Dr. Robert Demolombe

Title: From Artificial Intelligence to Logical Agents

Abstract: Iniciaré con una introducción rápida a la historia de la IA, empezando por su objetivo inicial, el de hacer una máquina que satisficiera la "Prueba de Turing" en que no se pueda hacer distinción entre las respuestas de dicha máquina y las de una persona. 10 años mas tarde se constata el fracaso y la IA se divide en varios objetivo diferentes; tratamiento del lenguaje natural, razonamiento automático, aprendizaje, reconocimiento de patrones, etc. Enseguida me concentraré y será la parte más importante, sobre la formalización del razonamiento, en particular para las interacciones entre agentes humanos y de software, Indicaré los problemas mas importantes por resolver: modelar formalmente el razonamiento sobre creencias, acciones, intenciones y obligaciones. Mostraré con ejemplos el por qué escoger principios de razonamiento no es fácil. Por ejemplo para razonar sobre creencias hay ventajas e inconvenientes de aceptar la omnisciencia, para las acciones tenemos que escoger entre tomar en cuenta o no la causalidad, tener acciones deterministas o no, etc. Para las intenciones mostraré los resultados contra-intuitivos que se obtienen si la intensión está cerrada por la consecuencia lógica, etc. En la última parte, mencionaré que los modelos formales pueden ser utilizados en por los diseñadores de un MAS y también en la realización de un agente de software. Indicaré que el interés de la formalización en lógica es el de distinguir claramente concepción y desarrollo, pero que ello necesita herramientas de deducción automática cuando se quiere analizar las propiedades de un sistema.

Invited speaker: Dr. Robert Demolombe

Title: Modeling actions and causality in formal logic

Abstract: There are two basic approaches to the formalization of actions in logic. In the first one, like in the Propositional Dynamic Logic, the aim is to describe how an action has been performed. In the second one, like in the STIT logic, the aim is to define the effects that have been caused by an action. A presentation will be given of the two approaches, and it will be shown that only the second one gives an account of the notion of causality. More specifically, it will be shown that causality involves a counterfactual condition that raises hard problems, in particular when several agents are interacting.

Title: Teaching Natural Deduction to improve Text Argumentation Analysis in Engineering Students

Autors: Rogelio Dávila, Sara C. Hernández, Juan F. Corona

Abstract: Teaching engineering students courses such as computer science theory, automata theory and discrete mathematics took us to realize that introducing basic notions of logic, especially following Gentzen's natural deduction approach [6], to students in their first year, brought a benefit in the ability of those students to recover the structure of the arguments presented in text documents, cartoons and newspaper articles. In this document we propose that teaching logic help the students to better justify their arguments, enhance their reasoning, to better express their ideas and will help them in general to be more consistent in their presentations and proposals.

Title: Dialethic truth theory: Inconsistency, non-triviality, soundness, incompleteness

Autor: Federico Marulanda

Abstract: The best-known application of dialetheism is to semantic paradoxes such as the Liar. In particular, Graham Priest has advocated the adoption of an axiomatic truth theory in which contradictions arising from the Liar paradox can be accepted as theorems, while the Liar sentence itself is evaluated as being both true and false. Such eccentricities might be tolerated, in exchange for great rewards. But in this note I show that it is not possible in Priest's truth theory to express certain semantic facts about that very theory, and thus that it enjoys no definite advantage over more orthodox approaches to semantic paradox.

September 19th, 2007

Title: Efficient Counting of Models for Boolean Formulas Represented by Embedded Cycles

Authors: Guillermo De Ita Luna, Pedro Bello López, Meliza Contreras González

Abstract: To compute the number of models of a 2-CF (conjunction of clauses with two literals at most), the well-known problem as #2-SAT, is a classical #P-complete problem. We show here an extensive class of instances of 2CF's where to compute the number of models can be done in polynomial time. Given a 2-CF Σ , we show that if its constrained graph $G\Sigma$ is acyclic or if its set of cycles can be arranged as a set of independent and embedded cycles then #2-SAT(Σ) can be computed in polynomial time. We present a procedure for detecting if a set of cycles can be embedded one into other. Furthermore, we design a polynomial reduction for given two restricted intersected cycles redraw those as embedded cycles. The resulting method for counting models for a 2-CF could be used to impact directly in the reduction of the complexity time of the algorithms for other counting problems. For example, for counting independent sets, counting colouring of graphs, counting cover vertex, etc.

Title: A new principle for defeasible reasoning

Autors: Marcelino C. Pequeno, Rodrigo de M. S. Veras, Wladimir A. Tavares

Abstract: We introduce some differences in the style defeasible information is represented and inferences are made in nonmonotonic reasoning. These, at first sight harmless, changes, in fact, helped us to discover a very important principle guiding how inferences should be drawn in nonmonotonic reasoning, we name it the exception-first principle or EFP. DLEF is our own variant for default logic complying with EFP. We also show alternative definitions for Reiter's default logics and its justified and constrained variants within our framework. DLEF does not produce anomalous extensions where the other default logics do. Restricted to the language of general logic programs, DLEF, Reiter's default logic and answer set programming all coincide. This explains why ASP is appointed as a solution to the anomalous extensions problem, ASP complies with EFP.

Title: Equivalence for the G3'-stable models semantics

Authors: José Luís Carballido, José Arrazola, Mauricio Osorio

Abstract: We study the notion of strong equivalence between two disjunctive logic programs under the G03-stable model semantics, also called the P-stable semantics, and we show how some particular cases of testing strong equivalence between programs can be reduced to verify if a formula is a theorem in some paraconsistent logics or in some cases in classical logic. We also present some program transformations for disjunctive programs which can be used to reduce the size of a program.

Title: *Planning using situation calculus, prolog and a mobile robot*

Autors: Pilar Pozos, Edgardo Yescas, Jacob Vásquez

Abstract: This paper presents a system that controls the behavior of a mobile robot. The system is based on situation calculus. The initial state is described and a goal is given, Prolog produces an answer to this goal and we use an interface in Visual Basic in order to interpret the answer given by Prolog. After interpret the actions given in the response we send the commands to the mobile robot through a serial port from a computer.

Title: Analysis of the paraconsistency in some logics

Authors: Eduardo Ariza and Arrazola Ramírez

Abstract: In Artificial Intelligence, as well as in data base updating or in the design of intelligent agents, it is necessary the use of contradictory information. For that, it is useful to direct our attention to paraconsistent logics. The goal of the present survey is to offer an initial analysis on paraconsistency in some logics like Pac, RM3, Lukasiewicz, G'3.