Program of the first Workshop on Preferences, Uncertainty and Vagueness (PRUV) 2014

All sessions take place in the room 107 in the FH.

Wednesday, July 23th

09:00-09:15	Session 161C: Opening
09:15-10:15	Session 163: Invited Talk
	Tommie Meyer: *Preferential semantics as the basis for defeasible reasoning*
10:15-10:45	Coffee Break
10:45-12:15	Session 166M: Vagueness to some degree
10:45	Libor Behounek: *In Which Sense Is Fuzzy Logic a Logic for Vagueness?*
11:15	Joohyung Lee and Yi Wang: *Stable Models of Fuzzy Propositional Formulas*
11:45	Arina Britz and Ivan Varzinczak: *Towards a Logic of Dilation*
13:00-14:30	Lunch Break
14:30-16:00	Session 172L: Reasoning for Vagueness perhaps
14:30	Andreas Ecke: *Similarity-based Relaxed Instance Queries in EL++*
15:00	David Mitchell: *Resolution and Clause Learning for Multi-Valued CNF Formulas*
15:30	Stefan Borgwardt, Marco Cerami and Rafael Peñaloza: *Many-valued Horn Logic is Hard*
16:00-16:30	Coffee Break
16:30-18:00	Session 175M: Favorite reasoning procedures for preferences
16:30	Eva Armengol: *Learning Preferences for Collaboration*
17:00	Tommaso Di Noia, Thomas Lukasiewicz, Maria Vanina Martinez, Gerardo Simari and Oana Tifrea-Marciuska: *Computing k-Rank Answers with Ontological CP-Nets*
17:30	Erman Acar and Christian Meilicke: *Multi-Attribute Decision Making using Weighted Description Logics*

Thursday, July 24th

09:00-10:15	Session 182D: Invited Talk:
	Gabriele Kern-Isberner: *Multiple iterated belief revision for ranking functions*
10:15-10:45	Coffee Break
10:45-12:15	Session 183G: Ontology-based reasoning, probably
10:45	Thomas Lukasiewicz, Maria Vanina Martinez, Cristian Molinaro, Livia Predoiu and Gerardo Simari: *Answering Ontological Ranking Queries Based on Subjective Reports*
11:15	Ala Djeddai, Hassina Seridi and Tarek Khadir: *A New DL-Lite N Bool Probabilistic Extension Using Belief*
11:45	Christoph Beierle, Markus Höhnerbach and Marcus Marto: *Generation of Parametrically Uniform Knowledge Bases in a Relational Probabilistic Logic with Maximum Entropy Semantics*
13:00-14:30	Lunch Break
14:30-16:00	Session 185D: Demo session and closing
16:00-16:30	Coffee Break

Invited Talks

Tommie Meyer (Centre for Artificial Intelligence Research and CSIR Meraka, South Africa)

Preferential semantics as the basis for defeasible reasoning

Preferential extensions of classical logics provide a promising foundation on which to base notions of entailment for defeasible reasoning. In this talk I will give an overview of one such a preferential extension, originally proposed by Sarit Kraus, Daniel Lehmann, and Menachem Magidor. This approach has two main advantages. Firstly, it permits a formal analysis of defeasible properties, which plays a central role in assessing how appropriate the obtained results are. And secondly, it allows for decision problems to be reduced to classical entailment checking, sometimes without blowing up the computational complexity with respect to the underlying classical case. The focus of the talk will be on the recent application and extension of this approach to the class of description logics, allowing for the expression of defeasible subsumption, defeasible equivalence, defeasible disjointness, defeasible quantification, and defeasible querying.

Gabriele Kern-Isberner (TU Dortmund, Germany)

Multiple iterated belief revision for ranking functions

Belief revision has been shaped predominantly by the so-called AGM theory, named after a seminal paper by Alchourron, Gärdenfors, and Makinson in 1985 that set up a framework of rationality postulates for reasonable belief change when the prior knowledge is a deductively closed set of propositions, and the new information comes in also as a proposition. This theory prepared the grounds on which the field of modern belief revision grew. However, limitations of the AGM theory became apparent soon. First, AGM theory deals with just one step of revision, not caring about further revisions in the future. So, the need for an extended framework also dealing with "iterated revision" became apparent soon and has been a topic of intense research since the nineties of the last century. Further problems which are caused not by the AGM approach itself but by the chosen framework of classical propositional logic have been discussed in the broad community only quite recently: How to change beliefs rationally if both prior knowledge and new information need richer semantical frameworks than propositional logic? What to do if multiple pieces of new information ("multiple revision") have to be integrated? In particular, this last problem has been ignored for a long time because in propositional logic, a set of propositions is equivalent to the conjunction of the propositions, i.e., in classical logic, one proposition can replace a set of propositions, so this case seemed to have been covered by AGM theory as well. However, counterintuitive examples showed that unsatisfactory belief sets result from this simplification.

In this talk, I will present an approach to belief revision from a broader point of view that offers quite natural methods for iterated revision and tackles the problem of multiple revision right from the beginning. This approach also takes the ideas of AGM as a starting point but investigates belief revision in richer epistemic structures like probabilities, or qualitative rankings. Therefore, it is compatible to AGM theory (and proposed extensions for iterated revision) in propositional logic but is not trapped by its limitations that are caused by the classical propositional view. I will explain how this approach unifies belief revision in different semantical frameworks and offers powerful approaches for belief revision even for very advanced scenarios, i.e., when an epistemic state has to be revised by a set of conditional beliefs. For the framework of Spohn's ranking functions, the talk will present a constructive and concise schema for multiple iterated revision that is evaluated with respect to well-known and also recently proposed postulates. Furthermore, some novel postulates for multiple iterated revision are proposed and discussed.