

Title: "Foundation, implementation and application of the knowledge base paradigm using FO($\cdot$)"

Speaker: Marc Denecker , KU Leuven, Belgium

Abstract: This course is about the Knowledge Representation and Reasoning project IDP. The speaker will come back to classical logic, explain the good ground in it and what it lacks for KRR. He will explain logic programming, come back to the historical unsolved negation as failure problem, the solutions that were proposed on the level of formal semantics, and important, on the level of informal semantics. He will discuss the solution of viewing programs as definitions and compare it with the view of programs as default/autoepistemic theories. The need for adding (inductive) definitions to FO for KRR will be motivated, and it will be shown that definitions cannot be expressed in FO using the compactness theorem. A logic extending logic programming under the well-founded semantics will be introduced. The link with stable semantics may be discussed as well. Then we see the knowledge base paradigm, a declarative problem solving paradigm is based on a strict separation of information and problem. All the above will be illustrated in the context of the IDP system.

Short Biography: Prof. Dr. Marc Denecker obtained a master in mathematics and one in informatics at the KU Leuven, Belgium. He did his PhD at this university and worked for several years as a postdoctoral researcher. He became Assistant Professor at the Université Libre de Bruxelles and then obtained a research position at the KU Leuven in 2002. Since 2015, he is a full Professor at the KU Leuven. He is head of the Knowledge Representation and Reasoning research group, with 7 PhD students and 3 faculty members. His current interests include a range of theoretical topics such as foundations of knowledge representation, nonmonotonic reasoning, logic programming, classical logic, fixpoint and modal logics, knowledge representation, and the use of formal specifications to solve computational problems by various forms of inference. At the computational level, he and his group is developing and implementing the knowledge base system IDP.

Date	Time	Room
25-27-30/05/2016	15:00	MT11– 30B