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SEMINÁRIO DE LÓGICA MATEMÁTICA

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A unifying approach for (reflexive) autoepistemic logic, nonmonotonic S4F and ASP

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Abstract:

Autoepistemic logic is an important form of nonmonotonic reasoning, introduced by Moore in order to allow an agent to reason about his own knowledge. It extends classical propositional logic by an epistemic modal operator L . Schwarz has shown that autoepistemic logic (AEL) and reflexive autoepistemic logic (RAEL) are the nonmonotonic variants of respectively the modal logics KD45 and SW5. In this talk, we implement the same strategy, embedding nonmonotonic S4F into a monotonic bimodal logic MLF*, to AEL and RAEL. This way, we propose a unifying mechanism for these major forms of nonmonotonic reasoning. Pearce's equilibrium logic (EL) is a general-purpose nonmonotonic formalism, principally proposed as a semantical framework for answer set programming (ASP). Farinas et al. has recently embedded EL into a monotonic bimodal logic called MEM. Finally, in this talk, we discuss the relations between these two approaches, and try to find out the potential capability for capturing MEM under MLF*.

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