Ústav informatiky
Akademie věd České republiky

Pod Vodárenskou věží 2, 182 07 Praha 8

ÚI AV ČR ve spolupráci s Odbornou skupinou aplikované matematické logiky České společnosti pro kybernetiku a informatiku

pořádá

v seminární místnosti ÚI AV ČR - místnost č. 318
(stanice metra C Ládví)

Seminář aplikované matematické logiky

který se schází **ve středu v 10.00 hod.**

Program na květen 2016:

4. 5. 2016 - *Tommaso Moraschini*

Translations between logics and adjunctions between quasi-varieties

We present an algebraic and combinatorial description of right adjoint functors between generalized quasi-varieties, inspired by the work of McKenzie on category equivalence. This result is achieved by developing a correspondence between the concept of adjunction and a new notion of translation between relative equational consequences. More precisely, we introduce a notion of translation that satisfies the following condition: given two generalized quasi-varieties K and K', every translation of the equational consequence relative to K into the one relative to K' corresponds to a right adjoint functor from K' to K and vice-versa. In a slogan, translations are the duals of right adjoint functors. Examples of this correspondence between right adjoints and translations abound in the literature, e.g., Goedel's translation of IPC into the gobal modal logic S4 corresponds to the functor that takes an interior algebra to the Heyting algebra of its open elements, and Kolmogorov's translation of CPC into IPC corresponds to the functor that takes a Heyting algebra to the Boolean algebra of its regular elements.

11. 5. 2016 - *Petr Cintula*

Towards consequence relations with multisets of premises

One could argue that casting non-contractive logics in the usual Tarskian set-based, and so essentially contractive, setting defies the motivations which led us to study these logics in the first place.
After showing that it is not such a big deal (by clearly separating the 'external' and 'internal' meaning of contraction), I present arguments that it actually makes a very good sense to require non-contraction even on the external (consequence) level. After presenting a naive and doomed approach, I present a much radical departure from the usual Tarskian paradigm. I will argue that, despite the apparent weirdness of the proposed framework, it is a natural generalization of the classical one, offering more flexibility but being still robust enough to recover crucial notions of abstract algebraic logic.

This seminar is intended to present a work in progress and give an opportunity to discuss basic notions of the new approach.

18. 5. 2016 - *Amanda Vidal*

On modal expansions of t-norm based logics with rational constants

Fuzzy logics are systems that aim to formalize approximate reasoning (allowing multiple truth values), while modal logics focus on dealing with qualification of sentences (reasoning with concepts such as "possible", "necessary","provable",etc). Modal expansions of fuzzy logics have received attention in the last years, due to their expressive power and possibly lower complexity than FOL. In this seminar we focus on the study of some modal logics over MTL, using natural generalizations of the classical Kripke relational structures where propositions at possible worlds can be many-valued, but keeping classical accessibility relations. We will first solve the problem on how to (strongly) axiomatize the logic of an arbitrary left-continuous t-norm using infinitary axiomatic systems, and later see how this allows us to proceed with the axiomatization of the corresponding expansion with modalities.