SELECTED TOPICS IN MODEL THEORY

The seminar pre-supposes some interest in the classical model theory of first-order logic, but is also explores specific directions towards non-classical themes and connections, e.g. with combinatorical issues and the model theory of finite structures. Devoted to a bunch of selected separate topics, the seminar should allow participants to choose and prepare a topic following individual preferences. The following is a preliminary collection of suggested themes.

- the Keisler–Shelah theorem on isomorphic ultrapowers (involving some infinitary set-theoretic combinatorics, otherwise 'pure' classical model theory)
- expressive completeness of positive existential FO for homomorphism preservation: Rossman’s approach to the classical as well as the finite model theory version
- expressive completeness of existential FO for preservation under extensions: a restricted finite model theory variant due to Atserias–Dawar–Grohe (pure finite model theory)
- pebble games with counting in the study of the Sherali–Adams hierarchy for integer linear programming, based on papers by Atserias–Maneva and Grohe–Otto (finite model theory and combinatorics)
- Lindström theorems for interesting fragments of FO, based on papers by (among others) van Benthem, ten Cate and Väänänen (classical model theory for logics other than FO)

References


