Order theoretic Correspondence theory for Intuitionistic mu-calculus

Sumit Sourabh

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Abstract

Sahlqvist correspondence theory [3], [4] is one of the most important and useful results of classical modal logic. It gives a syntactic identification of a class of modal formulas whose associated normal modal logics are strongly complete with respect to elementary (i.e. first-order definable) classes of frames. Every Sahlqvist formula is both canonical and corresponds to some elementary frame condition which can be effectively obtained from the formula. Recently this class has significantly been extended to inductive and complex formulas in [2]; moreover, analogous characterizations for logics with a weaker than Boolean propositional base have been given, thanks to a novel, duality based approach [1].

Using the algebraic approach, Sahlqvist and inductive formulas can be equivalently defined in terms of order theoretic conditions on the algebraic interpretation of the logical connectives. The present talk is about an ongoing work with Alessandra Palmigiano and Yves Fomatati, where we focus on modal mu-calculus. Concretely, we generalize the results in [5] to the wider setting of Intuitionistic mu-calculus. We identify the order-theoretic principles leading to the identification of the Sahlqvist mu-formulas in [5], extending it to the Intuitionistic mu-calculus. We also expand the calculus for correspondence defined for Distributive modal logic in [1], which allows us to define an ALBA-type algorithm [1] for logics with fixpoints.

References

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