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Title: Modal Fixed-Point Logic and Changing Models

Abstract:

First-order logic enjoys many closure properties, e.g., relativization for a unary predicate, substitution, and definable model construction by forming pairs. In this talk, we focus on two closure properties for modal fixed-point logics. One is relativization, related to public announcement in epistemic logics, and the other is a natural product construction, suggested by 'product update' from general dynamic-epistemic logic. We show that E-PDL (Epistemic Propositional Dynamic Logic) and the modal-mu-calculus are both closed under relativization and our modal product construction. Although the former result was already known, we will give a new proof method, which yields many further insights, and open questions, about modal fixed-point logics, including the long-standing issue of what makes (E-)PDL such as special fragment of the complete mu-calculus.