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Proof complexity meets finite model theory

Finite model theory studies the power of logics on the class of finite structures. One of its goals is to characterize symmetric computation, that is, computation that abstracts away details which are not essential for the given task, by respecting the symmetries of the input. In this talk I will discuss connections between proof complexity and finite model theory, focussing on lower bounds. For certain proof systems, the existence of a succinct refutation can be decided in a symmetry-preserving way. This allows for a transfer of lower bounds from finite model theory to proof complexity.