

# Canonical extensions, Duality theory, and Formal Concept Analysis

Mai Gehrke

LIAFA CNRS – University of Paris 7, France

**Abstract.** The theory of canonical extensions, developed by Jonsson and Tarski in the setting of Boolean algebras with operators, provides an algebraic approach to duality theory. Recent developments in this theory have revealed that in this algebraic guise duality theory is no more complicated outside than within the setting of Boolean algebras or distributive lattices. This has opened the possibility of exporting the highly developed machinery and knowledge available in the classical setting (e.g. in modal logic) to the completely general setting of partially ordered and non-distributive lattice ordered algebras. Duality theory in this setting is a special instance of the connection between formal contexts and concept lattices and thus allows methods of classical algebraic logic to be imported into FCA.

This will be an introductory talk on the subject of canonical extensions with the purpose of outlining the relationship between the three topics of the title.