Priestley-type dualities beyond the case of finite dualizing objects

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Categorical dualities between classes of algebras and classes of topological spaces equipped with relational structure underlie a great number of remarkable results in the field of algebraic logic and beyond. A systematic account covering many such dualities exists in the form of the theory of natural dualities, developed over the last decades among others by Davey, Priestley, and Werner. This theory has been worked out in much detail for the case of quasivarieties generated by a finite algebra (which acts as a dualizing object inducing a so-called concrete duality). However, only a fragment of this theory has been developed beyond the case of finite dualizing objects. Taking inspiration from dualities for (weakly) locally finite MV-algebras due to Cignoli, Dubuc, Marra, and Mundici, we establish a Priestley-type duality induced by a possibly infinite dualizing algebra with a near unanimity term (such as the standard MV-chain or the standard positive MV-chain) and showcase some of its applications.

The talk is based on joint work with Marco Abbadini.