▸ MARCO ABBADINI, ADAM PŘENOSIL, *Natural duality for finitely valued algebras.*
Research Institute in Mathematics and Physics, Université Catholique de Louvain, Building Marc de Hemptinne, Chemin du Cyclotron, 2, 1348 Louvain-la-Neuve, Belgium.
E-mail: marco.abbadini@uclouvain.be.
URL Address: https://marcoabbadini-uni.github.io.
Departament de Filosofia, Universitat de Barcelona, C. de Montalegre 6, Barcelona 08001, Spain.
E-mail: adam.prenosil@gmail.com.

The theory of natural dualities [4] provides a well-developed framework for studying Stone-like dualities induced by an algebra $\mathbf{L}$ which acts as a dualizing object when equipped with suitable topological and relational structure. The development of this theory has, however, largely remained restricted to the case where $\mathbf{L}$ is finite. Motivated by the desire to provide a universal algebraic formulation of Cignoli and Marra's duality for locally weakly finite MV-algebras [3] and to extend it to a corresponding class of positive MV-algebras [1], we investigate Stone-like dualities with $\mathbf{L}$ possibly infinite. This requires a restriction from the whole prevariety generated by $\mathbf{L}$ to the subclass of algebras representable as algebras of $\mathbf{L}$-valued functions of finite range, a distinction not arising for $\mathbf{L}$ finite. Under some conditions on $\mathbf{L}$, our main result establishes a categorical duality for this class of algebras, covering the above cases of MV-algebras and positive MV-algebras.

This abstract is based on [2].

[1] Marco Abbadini, Peter Jipsen, Tomáš Kroupa, Sara Vannucci, *A finite axiomatization of positive MV-algebras*, ***Algebra Universalis***, vol. 83 (2022), no. 3, Id/No 15.

[2] Marco Abbadini, Adam Přenosil, *Duality for finitely valued algebras*, under review, preprint available at https://arxiv.org/abs/2505.11490.

[3] Roberto Cignoli, Vincenzo Marra, *Stone duality for real-valued multisets*, ***Forum Mathematicum***, vol. 24 (2012), no. 6, pp. 1317–1331.

[4] David M. Clark, Brian A. Davey, ***Natural dualities for the working algebraist***, Cambridge Studies in Advanced Mathematics, Cambridge University Press, 1998.