

Abstract

Achim Jung and Drew Moshier developed a Stone-type duality theory for bitopological spaces, amongst others, as a practical tool for solving a particular problem in the theory of stably compact spaces. By doing so they discovered that the duality of bitopological spaces and their algebraic counterparts, called d-frames, covers several of the known dualities.

In this thesis we aim to take Jung's and Moshier's work as a starting point and fill in some of the missing aspects of the theory. In particular, we investigate basic categorical properties of d-frames, we give a Vietoris construction for d-frames which generalises the corresponding known Vietoris constructions for other categories, and we investigate the connection between bispaces and a paraconsistent logic and then develop a suitable (geometric) logic for d-frames.