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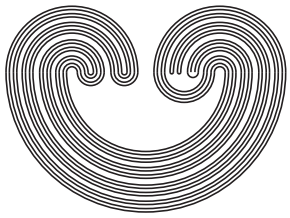

Duality theory for the category of stable compactifications

by

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DUALITY THEORY FOR THE CATEGORY OF STABLE COMPACTIFICATIONS

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Abstract. We introduce the category of stable compactifications of T_0-spaces and obtain a dual description of it in terms of what we call Raney extensions of proximity frames. These are proximity frame embeddings of a regular proximity frame into a Raney lattice, i.e. the lattice of upsets of a poset. This duality generalizes the duality between compactifications of completely regular spaces involving de Vries extensions given in [8]. It also specializes to give a duality between T_0-spaces and Raney extensions that are maximal in a certain sense. This duality is related to the duality for T_0-spaces given in [7] using the notion of a Raney algebra, i.e. a Raney lattice with a certain type of interior operator.

To the memory of Ralph Kopperman

1. Introduction

This paper contributes to the study of compactifications of non-Hausdorff spaces. It is done through the lens of proximity, a central notion in the historical development of topology. These represent some of the many interests in topology that we shared with our colleague and friend Ralph Kopperman. We were involved in a number of conferences with Ralph. In particular, he was an invited speaker at the BLAST conference organized at NMSU in 2009. It is with sadness and many fond memories that we dedicate this work to him.

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Key words and phrases. Stably compact space, stable compactification, stably compact frame, proximity frame, Raney lattice.