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COMPACTIFICATION OF κ-FRAMES

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ABSTRACT. In this paper we show that the category $\mathbf{KR}\kappa\mathbf{Frm}$, of all compact regular κ-frames and κ-frame homomorphisms, is a coreflective subcategory of the category $\kappa\mathbf{Frm}$, of all κ-frames and κ-frame homomorphisms. Then, a compactification for any completely regular κ-frame and any proximal κ-frame is given. The theory of κ-frames was introduced by Madden [3].

1. Background

Here we recall some notions and notations from [2], [4].

1.1 Let κ be any regular cardinal. A *κ-set* is a set of cardinality strictly less than κ. A *κ-frame* is a bounded lattice L which has joins of κ-subsets and satisfies the distributive law:

$$x \wedge \bigvee S = \bigvee \{x \wedge s : s \in S\}$$

for $x \in L$ and S a κ-subset of L. A *κ-frame homomorphism* $h : L \to M$ is a lattice homomorphism preserving joins of κ-subsets. The resulting category is denoted by $\kappa\mathbf{Frm}$. The theory of κ-frames was introduced by Madden [3].

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