Coproducts in the category of Alexandroff frames

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An *Alexandroff frame* L is a pair (L_0, L_1) where L_0 is a frame and L_1 a completely regular sub-σ-frame of L_0 which generates L_1 [4]. Since each element of such an L_1 is a cozero element, it is natural to call such an L_1 a *cozero base* for L_0. An Alexandroff frame is the pointfree version of an *Alexandroff space*, i.e. a pair $(E, \mathcal{A})$, where E is a set and $\mathcal{A}$ is a completely regular sub-σ-frame of the family of all subsets of E.

Alexandroff frames are sufficiently close to completely regular frames to maintain some fine distinctions which exist there between analogues of characterisations of realcompactness in topological spaces, yet they retain nice features analogous to those that Alexandroff spaces have in contrast to their topological counterparts [1],[2],[3].

In this talk we will characterise the coproduct in the category of Alexandroff frames and look to how it behaves with respect to various compactness properties.

References

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[2] B. Banaschewski, C. Gilmour, *Realcompact Alexandroff frames*, in preparation.

[3] H. Gordon, *Rings of functions determined by zero-sets*, Pacific J. Math. 36 (1971), 133-157.

[4] N. Marcus, *Realcompactifications of Frames*, MSc thesis, University of Cape Town, 1994.