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We answer a question of Heindorf and Shapiro: there is a non-free rc-filtered boolean algebra with homogeneous Stone space. Our minimal specific example is, in topological terms, the clopen algebra of an openly generated homogeneous 0-dimensional compactum  $X$  with a continuous surjection onto the Vietoris hyperspace of  $2^{\aleph_2}$ .

Abstracting from our proof, we introduce sufficient hypotheses—we call them narrow cocompleteness, mixing, and lifting—for a class  $\mathcal{B}$  of boolean algebras (possibly with extra structure) and associated classes  $\mathcal{E}$  and  $\mathcal{I}$  of embeddings and involutions to be such that every  $A \in \mathcal{B}$  has an  $\mathcal{E}$ -embedding into some  $B \in \mathcal{B}$  whose Stone space is homogeneous, with homogeneity witnessed by  $\mathcal{I}$ -involutions of  $B$ .

For constructing  $X$  as above, the relevant  $\mathcal{E}$  consists of what we call multicommutative embeddings between directed systems of finite boolean algebras. We will also discuss related results and questions for when  $\mathcal{E}$  consists of projective embeddings, rc embeddings, or arbitrary embeddings. (Received February 19, 2013)