

On involutive FL_e algebras

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Abstract

$\mathcal{U} = \langle X, *, \leq, e, f \rangle$ is called an *involutive FL_e -algebra* if $\mathcal{C} = \langle X, \leq \rangle$ is a poset, $*$ is a uninorm over \mathcal{C} with neutral element e , for every $x \in X$, $x \rightarrow_* f = \max\{z \in X \mid x * z \leq f\}$ exists, and for every $x \in X$, we have $(x \rightarrow_* f) \rightarrow_* f = x$.

We will give an overview on the structural description of involutive FL_e -algebras with respect to their underlying t-norm and t-conorm operations. A new construction, called twin-rotation will be introduced. Particular attention will be devoted to the finite case and to the complete, densely-ordered chain case.

Keywords: FL_e , uninorms, t-norms, t-conorms, co-residuation, twin-rotation.

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