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Additive Closure Operators on Abelian Unital l-groups

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Abstract

In the paper an additive closure operator on an abelian unital l-group (G, u) is introduced and one studies the mutual relation of such operators and of additive closure ones on the MV-algebra $\Gamma(G, u)$.

Key words: MV-algebra; l-group.

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1 Introduction

In [6] additive closure (and multiplicative interior) operators on MV-algebras were introduced as a natural generalization of topological closure (and interior) operators on Boolean algebras. Closure and interior MV-algebras (MV-algebras endowed with additive closure or multiplicative interior operators) generalize topological boolean algebras in a natural way.

Let us recall the notions of an MV-algebra and of an additive closure operator on an MV-algebra.

Definition 1.1 An algebra $\mathcal{A} = (A, \oplus, \neg, 0)$ of the signature $\langle 2, 1, 0 \rangle$ is called *an MV-algebra* iff for each $x, y, z \in A$:

(MV1) $\quad x \oplus (y \oplus z) = (x \oplus y) \oplus z;$

(MV2) $\quad x \oplus y = y \oplus x;$