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Direct decompositions of dually residuated lattice ordered monoids. (English) Zbl 1068.06016
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Dually residuated lattice-ordered monoids $(M, +, 0, \vee, \wedge)$ (DRL-monoids) were defined by T. Kovář by the usual axioms adding four new ones (compare with G. Birkhoff or L. Fuchs). This concept is a common generalization of l -groups, Brouwerian lattices, MV- and GMV-algebras, BL- and pseudo BL-algebras. An ideal of a DRL-monoid M is a non-empty subset I of M satisfying:

- (i) $x, y \in I \Rightarrow x + y \in I$, and
- (ii) $x \in I, y \in M, |y| \leq |x| \Rightarrow y \in I$.

In this paper, direct products of DRL-monoids are studied. For example, it is shown that, for ideals I, J of M such that $I + J = M, I \cap J = \{0\}$ and $x + y = x' + y'$ ($x, x' \in I, y, y' \in J$) $\Rightarrow x = x', y = y'$, M is isomorphic with the direct product $I \times J$. Also, if M satisfies these conditions except possibly the first, $I + J = M$, then the direct factors in M form a Boolean sublattice of the lattice of all ideals in M .

Reviewer: [H. Mitsch \(Wien\)](#)

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