Jakubík, Ján

Atomicity of the Boolean algebra of direct factors of a directed set. (English) Zbl 0938.06011

Math. Bohem. 123, No. 2, 145-161 (1998).

Let L and L_i $(i \in I)$ be directed sets. If φ an isomorphism of L onto the direct product $\prod_{i\in I} L_i$, then the relation $\varphi : L \to \prod_{i\in I} L_i$ is called a direct product decomposition of L. An internal direct product decomposition of L is defined in a corresponding way. A refinement theorem is stated in 2.7 as follows: Let $L = \prod_{i\in I} A_i$ and $L = \prod_{j\in J} B_j$ be two internal direct decompositions of L. Then $L = \prod_{i\in I, j\in J}(A_i \cap B_i)$ is a common refinement of both decompositions. Namely, for each $i \in I$ and each $j \in J$ we have $A_i = \prod_{j\in J}(A_i \cap B_j)$ and $B_j = \prod_{i\in I}(A_i \cap B_j)$. Let $D(L)$ be defined as the partially ordered set consisting of all internal direct factors of L. An extensive study of $D(L)$ and of direct decompositions of intervals in L is carried out in Sections 3 and 4 of the paper. The result of 3.14 deserves to be picked out as a sample statement: The partially ordered set $D(L)$ is a Boolean algebra.

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MSC:

06E05 Structure theory of Boolean algebras

Keywords:

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