

Title: CD-independent subsets in distributive lattices

Author(s): Gábor Czédli, Miklós Hartmann, E. and Tamás Schmidt

A subset X of a lattice L with 0 is called *CD-independent* if for any $x, y \in X$, either $x \leq y$ or $y \leq x$ or $x \wedge y = 0$. In other words, if any two elements of X are either comparable or “disjoint”. Maximal CD-independent subsets are called *CD-bases*. The main result says that any two CD-bases of a finite distributive lattice L have the same number of elements. It is also shown that distributivity cannot be replaced by a weaker lattice identity. However, weaker assumptions on L are still relevant: semimodularity implies that no CD-basis can have fewer elements than a maximal chain, while lower semimodularity yields that each maximal chain together with all atoms forms a CD-basis.

Address:

Gábor Czédli
University of Szeged
Bolyai Institute
Aradi vértanúk tere 1
H-6720 Szeged
Hungary

Address:

Miklós Hartmann
University of Szeged
Bolyai Institute
Aradi vértanúk tere 1
H-6720 Szeged
Hungary

Address:

E. Tamás Schmidt
Mathematical Institute of
the Budapest University of
Technology and Economics
Műegyetem rkp. 3
H-1521 Budapest
Hungary