Almost distributive lattices edit

Abbreviation: ADLat

Definition 1. An *almost distributive lattice* is a neardistributive lattice $\mathbf{L} = \langle L, \vee, \wedge\rangle$ such that

$AD_\wedge$: $v \wedge [u \vee (x \wedge [y \vee (x \wedge z)])] \le u \vee [(x \wedge [y \vee (x \wedge z)]) \wedge (v \vee (x \wedge y) \vee (x \wedge z))]$

$AD_\vee$: $v \vee [u \wedge (x \vee [y \wedge (x \vee z)])] \ge u \wedge [(x \vee [y \wedge (x \vee z)]) \vee (v \wedge (x \vee y) \wedge (x \vee z))]$

Morphisms. Let $\mathbf{L}$ and $\mathbf{M}$ be almost distributive lattices. A morphism from $\mathbf{L}$ to $\mathbf{M}$ is a function $h : L \to M$ that is a homomorphism:

$h(x \vee y) = h(x) \vee h(y)$, $h(x \wedge y) = h(x) \wedge h(y)$

Basic Results.

Examples.

1. $D[d] = \langle D \cup \{d'\}, \vee, \wedge\rangle$, where D is any distributive lattice and d is an element in it that is split into two elements d, d' using Alan Day's doubling construction.

Properties. (description)

Classtype	variety
Equational theory	
Quasiequational theory	
First-order theory	undecidable
Locally finite	no
Residual size	unbounded
Congruence distributive	yes
Congruence modular	yes
Congruence n-permutable	no
Congruence regular	no
Congruence uniform	no
Congruence extension property	
Definable principal congruences	
Equationally def. pr. cong.	
Amalgamation property	no
Strong amalgamation property	no
Epimorphisms are surjective	

Finite Members. $f(n) =$ number of members of size n.

$f(1) = 1$
$f(2) = 1$
$f(3) = 1$
$f(4) = 2$
$f(5) = 4$
$f(6) =$
$f(7) =$

Subclasses.

Distributive lattices

Superclasses.

Neardistributive lattices

References

[1]