Bounded residuated lattices edit

Abbreviation: $\mathbf{RLat}_b$

Definition 1. A *bounded residuated lattice* is a residuated lattice that is bounded:

$\bot$ is the least element: $\bot \vee x = x$

$\top$ is the greatest element: $\top \vee x = \top$

Morphisms. Let $\mathbf{A}$ and $\mathbf{B}$ be bounded residuated lattices. A morphism from $\mathbf{A}$ to $\mathbf{B}$ is a residuated lattice homomorphism $h : A \to B$ that preserves the bounds: $h(\bot) = \bot$ and $h(\top) = \top$.

Basic Results.

Examples.

1.

Properties. (description)

Classtype	variety
Equational theory	decidable
Quasiequational theory	undecidable
First-order theory	undecidable
Locally finite	no
Residual size	unbounded
Congruence distributive	yes
Congruence modular	yes
Congruence n-permutable	yes, $n = 2$
Congruence regular	yes
Congruence uniform	no
Congruence extension property	yes
Definable principal congruences	no
Equationally def. pr. cong.	no
Amalgamation property	
Strong amalgamation property	
Epimorphisms are surjective	

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

$f(1) =$ 1	$f(6) =$
$f(2) =$	$f(7) =$
$f(3) =$	$f(8) =$
$f(4) =$	$f(9) =$
$f(5) =$	$f(10) =$

Subclasses.

... subvariety

... expansion

Superclasses.

... supervariety

... subreduct

References

[1] F. Lastname, *Title*, Journal, **1**, 23–45 MRreview