Complete lattices edit

Abbreviation: CLat

Definition 1. A *complete lattice* is a structure $\mathbf{L} = \langle L, \bigvee, \bigwedge \rangle$ such that $\bigvee, \bigwedge$ map subsets of L to elements of L and

$\langle L, \vee, \wedge \rangle$ is a Lattices

$\bigvee S$ is the least upper bound of S

$\bigwedge S$ is the greatest lower bound of S

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

$h(\bigvee S) = \bigvee h[S]$ and $h(\bigwedge S) = \bigwedge h[S]$

Basic Results.

Examples.

1. $\langle \mathcal{P}(X), \bigcup, \bigcap \rangle$, the set of all subsets of a set X, with union and intersection of families of sets.

Properties. (description)

Classtype	Second-order
Amalgamation property	Yes
Strong amalgamation property	Yes
Epimorphisms are surjective	Yes

Subclasses.
Algebraic lattices

Superclasses.
Lattices

References

[1]