Categorical equivalence of finite semilattices

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A variety of algebras is considered to be a category here; the objects are the algebras in the variety and the morphisms are the homomorphisms between them. Two algebras A and B are called categorically equivalent, if there is a categorical equivalence between the varieties they generate that sends A to B.

In [1], McKenzie gave necessary and sufficient condition for two algebras to be categorically equivalent using invertible idempotent terms and matrix powers.

In [2], Bergman and Berman described all invertible idempotent terms of semilattices.

Using these two results the following proposition is proved: finite semilattices are categorically equivalent if and only if they are isomorphic.

References

[1] R.N. McKenzie, An algebraic version of categorical equivalence for varieties and more general algebraic categories, *Lecture Notes in Pure and Applied Mathematics*, New York, 1996, 211-243.

[2] C. Bergman and J. Berman, Categorical equivalence of modes, *Discuss. Math. Algebra Stochastic Methods* 19, 1999, 41-62.