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Roger D Maddux* (maddux@iastate.edu), Department of Mathematics, 396 Carver Hall, ISU, Ames, IA 50011. *Relational relevance algebras.*

Relational relevance algebras are algebras in which the elements are binary relations and the operations are intersection, union, composition, and converse-complimentation.

A relational relevance algebra is dense (transitive) if every relation in it is dense (transitive), and commutative if the operation of composition is commutative.

Relational relevance algebras provides semantics for relevance logic, just as Boolean algebras of sets provide semantics for classical propositional calculus.

The class of commutative dense relational relevance algebras is sound but not complete for the system of relevance logic known as R.

The class of transitive commutative dense relational relevance algebras is both sound and complete for the system of relevance logic known as RM, also called R-mingle. This follows from another result, that all normal Sugihara algebras are isomorphic to relational relevance algebras. (Received January 21, 2009)