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Michael Winter* (mwinter@brocku.ca). *Categories of L-Fuzzy Relations.*

Relation algebras and categories of relations, such as allegories and Dedekind categories, establish a point-free and algebraic approach to the theory of binary relations. Lattice-valued relations, or L -fuzzy relations, are among the models of these algebraic and/or categorical theories. However, certain concepts such as crispness cannot be formulated using the algebraic language alone. Arrow and Goguen categories are an extension of categorical approach capable of expressing these additional concepts. In this talk we want to provide an overview of the theory of Goguen categories and related structures. In particular, we want to investigate their relationship, opportunities to define relational operators based on semigroup operations, the representation theory of Goguen categories, and the uniqueness of the kernel operation with respect to a given Dedekind category. (Received September 04, 2012)