This paper is a survey of some work on finding equational bases for the truth value algebra of type-2 fuzzy sets and some of its reducts. The varieties generated by this algebra and these reducts are generated by finite algebras, giving a finite procedure for determining whether or not an equation holds in the original algebra. The general problem of the existence of an equational basis remains open, but its study has led to the investigation of a family of related algebras. The emphasis in this talk is on this family of algebras, called bichains. An algebra with two binary operations $\cdot$ and $+$ that are commutative, associative, and idempotent is called a bisemilattice. Each of these operations induces a partial order. A bisemilattice for which each of these semilattices is a chain is called a bichain. A bisemilattice satisfying Birkhoff’s equation $x \cdot (x + y) = x + (x \cdot y)$ is a Birkhoff system. A bichain is a Birkhoff system. We note some elementary properties of bichains, and characterize finite bichains that are weakly projective in the variety of Birkhoff systems as those that do not contain a certain three-element bichain. As subdirectly irreducible weak projectives are splitting, this provides some insight into the fine structure of the lattice of subvarieties of Birkhoff systems. The connection with type-2 fuzzy sets is that the variety generated by the truth value algebra of type-2 fuzzy sets with only its two semi-lattice operations in its type is generated by a four-element bichain.