A Topological Representation of Double Boolean Lattices

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Boolean Concept Logic has been introduced by R. Wille as a mathematical theory based on Formal Concept Analysis. Concept lattices are extended with two new operations, negation and opposition which then lead to algebras of protoconcepts which are equationally equivalent to double Boolean algebras and concept algebras which are quasi-equationally equivalent to dicomplemented lattices, respectively. In this paper, we provide a topological representation for double Boolean algebras based on the so-called DB-topological contexts. A double Boolean algebra is then represented as the algebra of clopen protoconcepts of some DB-topological context.