Prime Ideal Theorem for Weakly Dicomplemented Lattices

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To develop a *Boolean Concept Logic* there is a need to have a notion of negation on *formal concepts*. One of the solutions proposed by Rudolf Wille leads to *concept algebras*: these are concept lattices with two unary operations called *weak negation* and *weak opposition*. The motto is that the negation of a formal concept should be a formal concept. Introduced to capture the equationnal theory of concept algebras, *weakly dicomplemented lattices* are bounded lattices equipped with two unary operations: a *weak complementation* and a *weak opposition*. The *prime ideal theorem* is the corner stone of well-known representation theorem such as topological representation of Boolean algebras by M.H. Stone, of bounded distributive lattices by H.A. Priestley, or of lattices by G. Hartung. For weakly dicomplemented lattices the prime ideal theorem is rather easy to prove. However it seems to be insufficient to get a representation theorem for this class of algebras. In this talk I will present the prime ideal theorem and address the question to what extent it might be useful.

References

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