On derived weak congruence representability

Vanja Stepanović

University of Belgrade, Republic of Serbia

Weak congruence is, by definition, a symmetric and transitive relation on the support of an algebra that agrees with all it's operations. All the weak congruences of an algebra form a lattice under inclusion, which is called the weak congruence lattice. The problem of weak congruence representation of lattices is the following: given an algebraic lattice and an element a of the lattice, is there an algebra whose weak congruence lattice is isomorphic to the given lattice, in an isomorphism mapping the diagonal relation on the support of that algebra to a.

Derived weak congruence representability is a brand new direction in the investigation of the weak congruence representability, where the representability of a lattice is derived from the representability of another lattice, or some set of lattice. We show that in certain cases a filter, an ideal, a sublattice or a suborder of a representable lattice is representable. Starting from a representation of the lattice we build a representation of the mentioned related lattice. In a similar way, two cases when the representability of some set of lattices implies the representability of another lattice are given.

This is a joint work with Andreja Tepavčević and Branimir Šešelja (University of Novi Sad, Serbia)

`dunjic_v@yahoo.com`