

Congruence preimages of tolerances and four ways Béla Csákány influenced their study

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The homomorphic image of a congruence is always a tolerance but, within a given variety, a tolerance is not necessarily obtained this way. By a Maltsev-like condition, we characterize varieties whose tolerances are homomorphic images of their congruences (TImC). As corollaries, we prove that the variety of semilattices, all varieties of lattices, and all varieties of unary algebras have TImC. We show that a congruence n -permutable variety has TImC if and only if it is congruence permutable, and construct an idempotent variety with a majority term that fails TImC.

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