

Radeleczki, Sándor

G. Czédli's tolerance factor lattice construction and weak ordered relations. (English)

Zbl 07317154

Algebra Univers. 82, No. 2, Paper No. 21, 10 p. (2021)

Summary: G. Czédli proved that the blocks of any compatible tolerance T of a lattice L can be ordered in such a way that they form a lattice L/T called the factor lattice of L modulo T . Here we show that the Dedekind-MacNeille completion of the lattice L/T is isomorphic to the concept lattice of the context (L, L, R) , where R stands for the reflexive weak ordered relation $\leq \circ T$. Weak ordered relations constitute the generalization of the ordered relations introduced by S. Valentini. Reflexive weak ordered relations can be characterized as compatible reflexive relations $R \subseteq L^2$ satisfying $R = \leq \circ R \circ \leq$.

MSC:

06B15 Representation theory of lattices

06B23 Complete lattices, completions

06A15 Galois correspondences, closure operators (in relation to ordered sets)

06B05 Structure theory of lattices

Keywords:

compatible tolerance; Dedekind-MacNeille completion of a lattice; weak ordered relation; formal context; concept lattice

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