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On generating sets of the clone of aggregation functions on finite lattices. (English)

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Summary: In a recent paper [the first and the third author, Inf. Sci. 329, 381–389 (2016; Zbl 1390.06006)] we have shown that aggregation functions on a bounded lattice L form a clone, i.e., the set of functions closed under projections and composition of functions. Moreover, for any finite lattice L we gave a finite set of unary and binary aggregation functions on L from which the aggregation clone is generated. In this paper, a general method for constructing generating sets of the aggregation clone on L is presented. Our approach is based on extending of L -valued capacities leading to so-called full systems of aggregation functions. Several full systems on L are presented (including singleton ones) and their arities are discussed.

MSC:

06B05 Structure theory of lattices

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

08A40 Operations and polynomials in algebraic structures, primal algebras

Keywords:

(monotone) clone; monotone function; aggregation function; lattice; capacity; generating set

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