Gehrke, Mai; **Jónsson, Bjarni**
Monotone bounded distributive lattice expansions. (English) Zbl 0972.06005
Math. Jap. 52, No. 2, 197-213 (2000).

From the authors' abstract: Monotone bounded distributive lattice expansions (DLMs) are bounded distributive lattices augmented with finitary operations that are isotone or antitone in each coordinate. Such algebras encompass most algebras with bounded distributive lattice reducts that arise from logic, and generalize bounded distributive lattices with operators. The authors define the canonical extension for DLMs and show that this extension is functorial.

A class of compatible DLMs is said to be canonical provided it is closed under canonical extensions. The main theorems are two criteria for canonicity: (1) If K is a canonical class of compatible DLMs closed under ultraproducts, then the variety generated by K is also canonical; in particular every finitely generated variety of DLMs is canonical. (2) Any variety of DLMs, for which the canonical extension of each basic operation of each DLM in the class is both continuous and dually continuous, is canonical. Both of these preservation theorems encompass varieties not encompassed by previous results in the literature even in the setting of Boolean algebras with additional operations.

Reviewer: Manuel Abad (Bahia Blanca)

MSC:

06D05	Structure and representation theory of distributive lattices
03G10	Logical aspects of lattices and related structures
06B20	Varieties of lattices

Keywords:

bounded distributive lattices augmented with finitary operations; canonical extension; variety