1084-06-210 **Cosimo Guido*** (cosimo.guido@unisalento.it), Dipartimento di Matematica, Via Arnesano, 73100 Lecce, Italy, and **Maria Emilia Della Stella**. *Algebras for lattice-valued mathematics.*

The development of lattice-valued mathematics and non-classical logics is based on a variety of lattice-ordered structures that suit for many-valued reasoning under uncertainty and vagueness. An order-theoretical approach to the algebras of logics is developed on the base of the following principle: "just like an order relation $\leq$ in a set L determines the lattice structure of L, each of its extensions relative to a true value $\top \in L$, e. g. any implication $\to : L \times L \to L$ s. t. for all $a, b \in L : \; a \leq b \; \Leftrightarrow \; a \to b = \top$, completely determines the richer lattice-ordered algebraic structure on L to be used either in classical or in non-classical logics.

The implicative structures $(L, \to, \top)$ so obtained have been specialized in a monograph of H. Rasiowa (1974) to characterize algebras of subsets and algebras of open sets; in recent papers of the authors, instead, it is shown how these structures include most algebras used in many-valued logics and lattice-valued mathematics, among which residuated lattices, MV algebras, quantales. Some applications to basic mathematical concepts are described to illustrate usefulness and appropriateness of these kinds of implicative structures for lattice-valued mathematics. (Received September 02, 2012)