

# A Survey of Lattice-Ordered Groups and their Connection with Generalized MV-Algebras

**W. Charles Holland**

Bowling Green State University

chollan@bgnnet.bgsu.edu

## **Abstract**

MV-algebras are the algebras of propositions in multi-valued logic, the analogues of Boolean algebras for two-valued logic. Generalized MV-algebras are non-commutative generalizations of these, where "and" is replaced with "and then". Lattice-ordered groups are both groups and lattices where the lattice operations are preserved by the group translations.

Both MV-algebras and lattice ordered groups have long been studied and much is known about them. Recently a very close connection between the two structures has been discovered, first by Mundici in the MV case, and then by Dvurecenskij in the GMV case. We will survey the strong influence this connection has on each of these classes of structures, and present some of the interesting new questions that it raises about each of them.