

UNORTHODOX ALGEBRAS AND THEIR ASSOCIATED LOGICS

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In the first half of my talk, I will introduce "unorthodox" algebras, four of which have 3-element chain as a lattice-reduct and the fifth one has a 4-element Boolean lattice as a lattice-reduct. These algebras are anti-Boolean and yet have some amazing similarities with Boolean algebras. I develop an algebraic theory of these algebras that leads to an equational axiomatization of the variety UNO1 generated by the unorthodox algebras. I, then, look at the structure of the lattice of subvarieties of the variety UNO1 and provide bases for all 32 subvarieties of UNO1. I also indicate why these algebras collectively generate a discriminator variety and individually are primal algebras. In the second half, I will introduce an algebraizable logic (in the sense of Blok and Pigozzi) called UNO100 whose equivalent algebraic semantics is the variety UNO1. Here I rely on the well-known results of Rasiowa on implicative logics and of Blok and Pigozzi on algebraizability. I will then present axiomatizations for all the axiomatic extensions of UNO1 and discuss decidability of these logics.

In Special Session 50 on Algebraic Logic at the Mathematical Congress of the Americas 2025.