

1092-03-163

Jeremy F Alm* (alm.academic@gmail.com), Department of Mathematics, 1101 W. College Ave., Jacksonville, IL 62650, and **Robin Hirsch** and **Jacob Manske**. *Finite Monk algebras and equational bases defining RRA over wRRA*.

A finite Monk algebra is a symmetric integral relation algebra whose only forbidden “triangles” (cycles of diversity atoms) are the monochromatic triangles (1-cycles). In this talk we briefly present three new results:

- (i) n -color Monk algebras are representable for all $n \leq 300$ (except possibly for $n = 8, 13, 292$);
- (ii) RRA is not definable over wRRA by equations using only finitely many variables, which is proven using algebras derived from Monk algebras by splitting atoms; and
- (iii) the smallest known weakly representable but not representable relation algebra has five atoms.

This is joint work with Jacob Manske (on (i)) and Robin Hirsch (on (ii) and (iii)). (Received August 07, 2013)