1089-05-284 **Ross Willard*** (rdwillar@uwaterloo.ca), Pure Mathematics Department, University of Waterloo, Waterloo, Ontario N2L 3G1, Canada. *Bipartite graphs and their idempotent polymorphisms.* Preliminary report.

Feder and Vardi reduced the general Constraint Satisfaction Problem Dichotomy Conjecture to the special case of bipartite graphs with constants. According to the Algebraic CSP Dichotomy Conjecture, the complexity of the CSP for a bipartite graph with constants should be completely determined by the identities (i.e., "Maltsev conditions") satisfied by the idempotent polymorphisms of the bipartite graph. We prove two results.

1. Call a digraph **strongly bipartite** if each vertex is either a source or a sink, but not both. Call a set with two equivalence relations a **2-equivalence structure** if the relations meet to the diagonal. We describe more-or-less obvious translations between finite bipartite graphs, finite strongly bipartite digraphs, and finite complement structures, and show that these translations preserve all "interesting" idempotent Maltsev conditions.

2. Using (1), we show that if a finite bipartite graph (or strongly bipartite digraph, or complement structure) has polymorphisms satisfying the Hagemann-Mitschke identities characterizing congruence 5-permutability, then it has a near-unanimity polymorphism.

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