

1048-05-152

Nicholas A. Loehr* (nloehr@vt.edu), 460 McBryde Hall, Blacksburg, VA 24061-0123, and
Jeffrey Remmel. *Rook-by-Rook Rook Theory.*

Rook theory is a branch of combinatorics in which one counts placements of non-attacking rooks on generalized chessboards. A well-known theorem of Goldman, Joichi, and White provides a simple criterion for deciding when two boards of partition shape are “rook-equivalent.” We will describe a bijective proof of this theorem in which non-attacking rook placements on one board are bijectively matched to placements on the other board. Our construction is based on the famed Involution Principle of Garsia and Milne. Another application of the Involution Principle produces bijective proofs of hit-equivalence. (Received February 05, 2009)