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Nicholas A. Loehr* (nloehr@vt.edu) and **Jeffrey B. Remmel** (jremmel@ucsd.edu).

Rook-by-Rook Rook Theory.

Rook theory studies placements of non-attacking rooks on generalized chessboards. A celebrated 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 algorithmically matched to placements on the other board. Our construction is based on the famed Involution Principle of Garsia and Milne. If time permits, we will discuss p, q -analogues, bijective proofs of hit equivalence, connections to q, t -Catalan numbers, and a related construction of Foata and Schutzenberger. (Received August 27, 2012)