1024-05-134 **Nicholas A. Loehr*** (nick@math.wm.edu), Dept. of Mathematics, College of William and Mary, Williamsburg, VA , and **Anthony Mendes**. *Bijective Matrix Inversion.*

If A and B are square matrices such that $AB = I$, then $BA = I$ automatically follows. We will describe a bijective version of this result, consisting of an algorithm that mechanically transforms any given bijective proof of $AB = I$ into a bijective proof of $BA = I$. A variant of the Garsia-Milne involution principle plays a key role here. Taking A and B to be the Kostka matrix and its combinatorial inverse, we thereby resolve an open problem posed by Remmel and Egecioglu in 1990. (Received January 08, 2007)