1056-05-166 **Anthony A. Mendes*** (aamendes@calpoly.edu), Anthony Mendes, Mathematics Department, 1 Grand, Ave., Cal Poly, San Luis Obispo, CA 93407. *Matrix Bijections.*

Let A and B be square matrices with entries which count collections of signed, weighted objects. Given an explicit bijection proving that $AB = I$, we can automatically produce an explicit bijection proving that $BA = I$. Our construction involves a modification of the Garsia-Milne involution principle. Given a matrix A, our methods can also produce a signed, weighted collection of objects which describe the entries of A^{-1}. The results in this talk are joint work with Nick Loehr. (Received August 10, 2009)