1023-08-96 **Aaron Lauve*** (lauve@lacim.uqam.ca), LaCIM, University of Quebec at Montreal, Case Postale 8888, succursale Centre-ville, Montreal, Quebec H3C 3P8, Canada, and **Christophe Reutenauer**, LaCIM (UQAM). *On novel ways to invert a matrix.* Preliminary report.

Given an $n \times n$ matrix A over a (not necessarily commutative) field F, the n^2 equations $AX = I$, if solvable, define an inverse for A in $End_F(F^n)$. For us, it is a small wonder that (i) the solution is unique, and (ii) the same solution is reached solving the n^2 *different* equations $XA = I$. We are led to the following question: from the $2n^2$ equations mentioned above, which choices of n^2 yield a unique solution X? The case $n = 2$ is already interesting, involving a (reducible) Coxeter group of order 8, a nice lemma of Cohn's on the roots of noncommutative polynomials, ... (Received July 30, 2006)