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**Aaron Lauve\*** (lauve@math.tamu.edu), Texas A&M University, Department of Mathematics, MS 3368 (601 Blocker), College Station, TX 77843-3368. *On matrix inversion using mixed information.* Preliminary report.

Given an  $n \times n$  matrix  $A = (a_{ij})$  over  $\mathbb{Q}$ , the  $n^2$  equations  $AX = I$ , if solvable, define a right inverse for  $A$ . It is a small wonder that (i) one reaches the same solution in solving the  $n^2$  *different* equations  $XA = I$ , and (ii) the solution is unique. 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 and the result that the two extremal choices above are the *only* ones that do not require additional assumptions on  $A$  (e.g.,  $a_{11}$  and  $a_{12}$  are nonzero). The original question comes from theory of rational languages, where it is more natural to state things over a *noncommutative field*. Time permitting, we will highlight these results as well as progress on the cases  $n > 2$ . (Received February 04, 2008)