# Tridiagonal Eigenvalue Problem Hyman’s Method

* What is backward stability. F is the real function x^2. F’ is the numerical computation of it. Say f takes 2.1 to 4.2. Then the forward error is (2.1)^2 = 4.41 and 4.41– 4.2 = 0.21. And since sqrt(4.2) = 2.0494…, the backward error is 2.1 – 2.0494 = 0.0506
* We take a Hessenberg matrix, and all tridiagonals are Hessenbergs. Just upper triangular with one lower diagonal.
* We break it into four block matrices using Higham from 2002
* We switch the block matrices by row. ABCD becomes CDAB
* Break it apart LU style
* We define a bunch of functions to make it look pretty. Such as p, x, and q and r.
* We take some derivatives and put them over themselves. This is probably connected to L’s method because you need derivatives over functions from the ln in it.
* We use the defined functions we synthesized from Hyman’s to compute things that help with L’s method, the “Laguerre correction terms”
* To-da!