1000-15-24 **Donald Beken**, Dept. of Mathematics and Computer Science, University of North Carolina at Pembroke, Pembroke, NC 28372, and **Ralph DeMarr*** (`demarr@unm.edu`), Dept. of Mathematics and Statistics, University of New Mexico, Albuquerque, NM 87131. *An initial value problem for eigenvalues of certain matrices.* Preliminary report.

We consider real matrices A and B of order n. We let t be a real parameter. We obtain a function $f(t)$ to satisfy the statement: if $A + B$ has eigenvalue c, then $A + tB$ has eigenvalue $f(t)$. The initial value is $f(1) = c$. The matrices A and B are selected from the *four squares*: nilpotent ($M^2 = 0$), idempotent ($E^2 = E$), involution ($S^2 = I$) or imaginary ($J^2 = -I$). We have obtained the function $f(t)$ for every combination of these four squares. Example: for A and B nilpotent we have: if $A + B$ has eigenvalue c, then $A + tB$ has eigenvalue $f(t) = c\sqrt{t}$. These results are easily tested by using MATLAB. (Received July 06, 2004)