Subject: Re: limits of 'invert'
Posted by K. Bowman on Wed, 16 Nov 2005 19:07:18 GMT
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In article <1132162119.050786.109730@g47g2000cwa.googlegroups.com>,
"queiny" <queiny98@yahoo.com> wrote:

> Dear IDL & Maths experts:
>
> Is there a limit for the 'invert' or 'la_invert', program to calculate
> the inversion of a square matrix, provided by IDL?
>
> When my matrix is 150x150, 'invert' return immediatelly, but when it is
> '15000x15000', 'invert' runs for more than a day. I am wondering
> whether it is in some infinite loop, or it simply needs that long.
>
> What is the reasonable upper limit that 'invert' or 'la_inver' can
> operate?
>
> Thanks,
>
> Q

Matrix inversion is an O(n^3) operation, so the second case should require ~100^3 times as long as the first, that is, ~10^6 times as long. (There are ~10^5 seconds/day.)

Also, storing a 15000 x 15000 array requires ~900 MB, so you may very well be swapping to disk, which will slow things down by another couple of orders of magnitude.

I suggest that you consult a good introductory numerical analysis book.

Cheers, Ken Bowman