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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  $\sim 100^3$  times as long as the first, that is,  $\sim 10^6$  times as long. (There are  $\sim 10^5$  seconds/day.)

Also, storing a 15000 x 15000 array requires  $\sim 900$  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

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