
Subject: Re: IDL inverse matrix problem

Posted by [wlandsman](#) on Mon, 12 Jan 2015 19:37:14 GMT

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You want to specify your matrix as double precision and then you will get the expected answer. It is **not** enough to use the /DOUBLE keyword to INVERT(). See, for example,

http://www.idlcoyote.com/math_tips/sky_is_falling.html

--Wayne

On Monday, January 12, 2015 at 12:56:36 PM UTC-5, Amin Farhang wrote:

> Dear All,

>

> I have a 16x16 sparse matrix which its values are big. Unfortunately IDL return wrong value for matrix inverse. Therefore when I run command (print,invert(A)##A) the returned is not an identity matrix. I check the singularity of matrix and this inversion returned correctly by other softwares like MATLAB or MATHEMATICA or even FORTRAN.

> What is happening?

>

>

> EXAMPLE:

>

> A = [[7.3339770e12, 0.0, 0.0, 0.0, 0.0, 7.3339770e12, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0], \$

> [0.0, 5.4254596e12, 0.0, 0.0, 0.0, 5.4254596e12, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0], \$

> [0.0, 0.0, 4.9832916e13, 0.0, 0.0, 0.0, 4.9832916e13, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0], \$

> [0.0, 0.0, 0.0, 9.7295220e13, 0.0, 0.0, 9.7295220e13, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0], \$

> [0.0, 0.0, 0.0, 0.0, 2.2853478e12, 2.2853478e12, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0], \$

> [7.3339770e12, 5.4254596e12, 0.0, 0.0, 2.2853478e12, 1.5044784e13, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0], \$

> [0.0, 0.0, 4.9832916e13, 9.7295220e13, 0.0, 0.0, 1.5037721e14, 3.2490665e12, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0], \$

> [0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 3.2490665e12, 3.2490665e12, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0], \$

> [0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 8.7204194e13, 8.7204194e13, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0], \$

> [0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 8.7204194e13, 1.9651177e14, 0.0, 0.0, 1.3385090e13, 9.5922483e13, 0.0, 0.0], \$

> [0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 4.6135226e12, 1.1430911e12, 0.0, 0.0, 1.9939955e12, 1.4764362e12], \$

> [0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 1.1430911e12, 1.1430911e12, 0.0, 0.0, 0.0, 0.0], \$

> [0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 1.3385090e13, 0.0, 0.0, 1.3385090e13, 0.0, 0.0], \$

> [0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 9.5922483e13, 0.0, 0.0, 9.5922483e13, 0.0, 0.0], \$

> [0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 1.9939955e12, 0.0, 0.0, 1.9939955e12, 0.0, 0.0], \$

> [0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 1.4764362e12, 0.0, 0.0, 0.0, 0.0, 1.4764362e12]]

>

>

> BUT IDL return wrong inverse matrix

```
>
> IDL> B = invert(A,/double)
> IDL> print, B
>
> 1.0e-05 *
>
> [-0.134,-0.134, 0.0, 0.0,-0.134, 0.134, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0,-0.0,-0.0, 0.0, 0.0], $
> [-0.134,-0.134, 0.0, 0.0,-0.134, 0.134, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0,-0.0,-0.0, 0.0, 0.0], $
> [0.0, 0.0, 0.0152, 0.0152, 0.0, 0.0,-0.0152, 0.0152, 0.0, 0.0, 0.0, 0.0,-0.0,-0.0, 0.0, 0.0], $
> [0.0, 0.0, 0.0152, 0.0152, 0.0, 0.0,-0.0152, 0.0152, 0.0, 0.0, 0.0, 0.0,-0.0,-0.0, 0.0, 0.0], $
> [-0.134,-0.134, 0.0, 0.0,-0.134, 0.134, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0,-0.0,-0.0, 0.0, 0.0], $
> [0.134, 0.134, 0.0, 0.0, 0.134,-0.134, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0,-0.0,-0.0, 0.0, 0.0], $
> [0.0, 0.0,-0.0152,-0.0152, 0.0, 0.0, 0.0152,-0.0152, 0.0, 0.0, 0.0, 0.0,-0.0,-0.0, 0.0, 0.0], $
> [ 0.0, 0.0, 0.0152, 0.0152, 0.0, 0.0,-0.0152, 0.0152, 0.0, 0.0, 0.0, 0.0,-0.0,-0.0, 0.0, 0.0], $
> [ 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0167,-0.0167, 0.0, 0.0, 0.0167, 0.0167, 0.0, 0.0], $
> [ 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0,-0.0167, 0.0167, 0.0, 0.0,-0.0167,-0.0167, 0.0, 0.0], $
> [ 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0,-1.342, 1.342,-0.0,-0.0, 1.342, 1.342], $
> [ 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 1.342,-1.342, 0.0, 0.0,-1.342,-1.342], $
> [ 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0167,-0.0167, 0.0, 0.0, 0.0167, 0.0167, 0.0, 0.0], $
> [ 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0167,-0.0167, 0.0, 0.0, 0.0167, 0.0167, 0.0, 0.0], $
> [-0.0,-0.0,-0.0,-0.0,-0.0,-0.0,-0.0,-0.0,-0.0,-0.0, 1.342,-1.342, 0.0, 0.0,-1.342,-1.342], $
> [-0.0,-0.0,-0.0,-0.0,-0.0,-0.0,-0.0,-0.0,-0.0,-0.0, 1.342,-1.342, 0.0, 0.0,-1.342,-1.342] ]
>
>
> best regards,
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