
Subject: Re: Matlab Syntax

Posted by [James Kuyper](#) on Thu, 20 Nov 2003 21:44:21 GMT

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David Fanning wrote:

```
>
> Folks,
>
> I need more Matlab help. Here is the line I am
> struggling with:
>
>   invAI = inv(A + gamma * diag(ones(1,N)));
>
> A is a matrix and gamma is the scalar 1.0.
>
> Here is the output from Matlab when I print
> A and invAI:
>
> A =
>      8   -5    1    1   -5
>     -5    8   -5    1    1
>      1   -5    8   -5    1
>      1    1   -5    8   -5
>     -5    1    1   -5    8
>
> invAI =
>
>      0.3158    0.2105    0.1316    0.1316    0.2105
>      0.2105    0.3158    0.2105    0.1316    0.1316
>      0.1316    0.2105    0.3158    0.2105    0.1316
>      0.1316    0.1316    0.2105    0.3158    0.2105
>      0.2105    0.1316    0.1316    0.2105    0.3158
>
> I have the matrix A in my IDL session:
>
> IDL> print, array
>      8.00000   -5.00000    1.00000    1.00000   -5.00000
>     -5.00000    8.00000   -5.00000    1.00000    1.00000
>      1.00000   -5.00000    8.00000   -5.00000    1.00000
>      1.00000    1.00000   -5.00000    8.00000   -5.00000
>     -5.00000    1.00000    1.00000   -5.00000    8.00000
>
> But I get the wrong answers when I invert. Here is
> my translation of the Matlab inverse line:
>
>   invARRAY = Invert((ARRAY + gamma) ## Diag_Matrix(Replicate(1,npts)) )
```

I know nothing special about Matlab, but the matlab equation seems

pretty clear. I assume that `inv()` and `Invert()` do the same thing, and that `diag()` and `Diag_Matrix()` serve the same purpose, and that `ones(1,N)` does the same thing as `Replicate(1,npts)`. If so, then unless I'm massively confused (which is possible), shouldn't that be:

```
invARRAY = Invert((ARRAY + gamma * Diag_Matrix(Replicate(1,npts)))) )
```
