Subject: Re: 3d matrices and LUSOL
Posted by Craig Markwardt on Thu, 24 Jan 2002 23:22:57 GMT
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"M" <mrmanish@bigfoot.com> writes:
> Hi all,
>
> I am in desperate need of help!!
>
> I have a set of linear equations represented as matrix arrays which need to
> be solved using the LU decomposition technique. The two arrays consist of a
> 14 x 14 array, and a 14 x 1 array, but each element in the matrices itself
> is an array of 221 elements (ie the matrices are 3dimensional...?)
>
> So i need to solve the system using LUDC and LUSOL, but i have to do it 221
> times (ie a solution for each 'layer' of the matrices)
>
> The first question is, is there a way to declare the two input arrays as
> 3-d? I tried defining the matrix using matrix=[[a,b,..],[...,...,...] etc]
> where a,b,... = arrays, but this isn't recognised as a 14 x14 square matrix
> which is 221 elements 'deep'. Instead, it expands each array across the
> row, making it a 3094 x 14 matrix. (it needs to be square to run LUDC)
>
> Is there a way i can force IDL to see it as a 'layered' 3-d matrix?

First of all, IDL can do up to eight dimensions. Since you mention
the notation [[a,b,...]], you are probably not getting the syntax
exactly right. It doesn't really matter though. If you really have a
3094 x 14 matrix, it is straightforward to use REFORM to make that
221x14x14 matrix (ie, matrix = reform(matrix,221,14,14))

I am pretty sure that LUDC/LUSOL will not handle a "3-d" matrix. Can
your solution be applied component by component? I.e., can you solve
each of the 221 14x14 matrix equations separately using a FOR loop?

Good luck,
Craig

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