Subject: Re: FFT and ROTATE
Posted by Kenneth P. Bowman on Thu, 04 Sep 2008 06:11:22 GMT
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In article
<0473bd21-6928-45b9-9e59-56a8aa5ab9df@r15g2000prh.googlegroups.com>,
 wheinz@gmail.com wrote:

> Hello,
>
> I have been wrestling with the FFT and ROTATE functions recently. One
> of the properties of the Fourier transform is that the transform of a
> rotated object is equal to the rotation of the transform of the
> unrotated object. To test this in IDL, I took the FFT of an nxn array
> (called image) and the FFT of that array rotated 90 degrees, image90 =
> ROTATE(image,1). Then, I sorted the real and imaginary parts of the
> coefficients of the results of the FFTs and compared the sorted
> values. I expected that the sorted list of real parts from the FFT of
> the original and rotated arrays would be identical, and that the same
> would be true for the imaginary parts. This is not the case. The sets
> of the magnitudes of the coefficients are equal, as expected.
>
> I understand that edge effects can play a role, but when I rotate a
> square array by 90 degrees, I expect that the sets of real and
> imaginary values that define the coefficients to be equal.
>
> Is this a consequence of how the FFT is calculated -- rows first then
> columns or vice versa? Or is there something else going on? Any help
> or suggestions will be greatly appreciated.

Are the differences of the order of the machine precision?

Ken Bowman