Subject: Re: Integrator taking vectors as input?
Posted by Craig Markwardt on Thu, 27 May 2010 14:35:24 GMT
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On May 27, 2:31 am, Elias <elias.rous...@gmail.com> wrote:
> On May 26, 5:18 pm, "jsch...@gmail.com" <jsch...@gmail.com> wrote:
>
>>> I was wondering if an IDL integrator exists where it can accept
>>> vectors instead of scalars as inputs for upper and lower limits of the
>>> integral. I want to apply it to big datasets and I want to avoid using
>>> loops, which tend to be much slower.
>
>> The IDL routines like QROMB accept vector inputs as the limits.
>
>> See the documenation (e.g.http://star.pst.qub.ac.uk/idl/QROMB.html)
>> for details.
>
>> Josiah
>
> Thanks a lot,
>
> I tried QROMB and QSIMP, the problem is that they use internally loops
> when vectors are provided for the limits. In that case, since my
> integrals have constants that they are dependent from the values of
> the limits, it doesn't work, since the constants are also vectors
> (that I pass in the function I integrate through a COMMON block).
>
> Eg. at a single step of the internal QROMB loop, the limits are
> scalars while the constants are vectors. Therefore the code crashes...

It's really up to you. You are really demanding a lot of an integrator: *no* loops and also presumably you want the result to be accurate. I suspect you will need to write your own if it's that important to you. Since most integrators need to subdivide the interval in some way - and hence use a loop - you are presumably limiting your accuracy that can be achieved with a single step of the trapezoidal rule.

Craig