Subject: Re: Array Integration
Posted by Craig Markwardt on Fri, 13 Jul 2012 19:45:35 GMT
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On Friday, July 13, 2012 2:51:01 PM UTC-4, Maryam wrote:
> Hello.
>
> I am trying to perform a numerical integration in IDL where one of my variables is an array. Here is what I wrote:
>
> pro ind_intg
>
> delta=1.0
> W=[0.0212330,0.0424661,0.127398,0.212330,0.297263,0.424661,0
.530826,0.636991,0.743157,0.849322,0.955487,1.06165,1.16782, 1.27398]
> num_elements=14
> A = fltarr(num_elements)
> for i = 0, num_elements-1 do begin
> A(i) = qpint1d('((2.*!pi*deltan^4) * x * (1+deltan^2*x^2)^(-3) * exp(-wn^2*x^2))', $
> /expression, 0., +inf)
> endfor
> print, A
>
> stop
> end
>
>
> But I get the following error message:
>
> % QPINT1D: USAGE:
> % QPINT1D: G = QPINT1D(FUNCNAME, A, B, $
> % QPINT1D: [EPSABS=, EPSREL=, ERROR=, STATUS=])
> % QPINT1D: (or)
> % QPINT1D: G = QPINT1D(EXPR, A, B, /EXPRESSION, $
> % QPINT1D: [EPSABS=, EPSREL=, ERROR=, STATUS=])
> NaN NaN NaN NaN NaN NaN NaN NaN
NaN
> NaN NaN NaN NaN NaN
>
>
> Can anyone please let me know where I could be making a mistake? Thanks...

You need to pass PRIVATE data to your expression. At the time QPINT1D evaluates your expression, it doesn't know about DELTAN or WN.

Try this instead,
P = {wn:wn, deltan:deltan}
my_expression = '((2.*!pi*(P.deltan)^4) * x * (1+(P.deltan)^2*x^2)^(-3) * exp(-(P.wn)^2*x^2))'

A[i] = qpint1d(my_expression, /expression, 0, +inf, P, ...)
Here "P" is the PRIVATE variable.

Craig
