Subject: Re: Fun with Int_tabulated.pro
Posted by pgrigis on Mon, 02 Nov 2009 14:15:36 GMT
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On Oct 31, 10:12 am, Jeremy Bailin <astroco...@gmail.com> wrote:
> On Oct 30, 1:20 pm, wlandsman <wlands...@gmail.com> wrote:
>
>
>
>> I ran into a couple of gotchas with int_tabulated.pro this
>> morning, It performs numerical integration for the simple case:
>
>> IDL> x = findgen(5)
>> IDL> y = x^2
>> IDL> print,int_tabulated(x,y)
>> 21.3333
>
>> But if one has flipped both vectors (say while converting wavelength
>> to frequency), then -- even though a plot of the two vectors looks
>> exactly the same -- int_tabulated gives a different answer.
>
>> IDL> x = reverse(x) & y = reverse(y)
>> IDL> print,int_tabulated(x,y)
>> 42.3619
>
>> A closer look at the int_tabulated documentation tells us that if X if
>> not monotonic increasing, then one needs to set the /SORT keyword.
>> So now we follow the documentation:
>
>> IDL> print,int_tabulated(x,y,/sort)
>> 21.3333
>
>> and get the right answer again. But as the documentation also "sort"
>> of warns
>> you, setting the /SORT keyword reorders the input X and Y variables.
>> This is
>> probably not a problem unless one has modified the Y vector on the fly
>> by
>> some factor f
>
>> f = findgen(5) + 0.5
>> print,int_tabulated(x, y*f,/sort)
>
>> Upon output, the X vector has been sorted, but the Y vector has not,
>> since it
>> was passed as part of a temporary variable y*f. So one has lost
>> the one to
>> one correspondence between X and Y, screwing up all subsequent

>> processing.
>
>> --Wayne
>
> It looks ridiculous, but here's a workaround:
>
> print, int_tabulated(x+0, y*f, /sort)

I was looking at that thinking - yes, I see why that would help...
I feel an IDL hangover coming up :)

Ciao,
Paolo

Hint for the less addicted: issue help,x and
help,x+0 to see the subtle difference

>
> -Jeremy.
