Subject: Re: IDL is not accurate enough!
Posted by pgrigis on Mon, 15 Sep 2008 13:40:22 GMT
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noahh.schwa...@gmail.com wrote:
> On 11 sep, 16:44, pgri...@gmail.com wrote:
>> pgri...@gmail.com wrote:
>>> noahh.schwa...@gmail.com wrote:
>>>> On 28 ao t, 18:42, F LDY Lajos <fo...@rmki.kfki.hu> wrote:
>>>> > On Thu, 28 Aug 2008, noahh.schwa...@gmail.com wrote:
>>>> > > Hi,
>>
>>>> > > I've been having problems with IDL accuracy. I'm trying to perform
>>>> > > calculations using the gamma function. The problem is that it grows
>>>> > > VERY fast! Performing this calculation in double (namely gamma(x)/
>>>> > > gamma(y) with x and y big) yields the result: NaN...
>>>> > > Would it be possible to use a program like 'Mathematica' (or any
>>>> > > other) and to plug it in my ILD program? Some kind of CALL_EXTERNAL
>>>> > > that is to say. If it is possible, how can I do it and what is the
>>>> > > best program to use?
>>
>>>> > > Thanks,
>>>> > >Noah
>>
>>>> > gamma(x)/gamma(y) => exp(lngamma(x)-lngamma(y))
>>
>>>> > regards,
>>>> > lajos
>>
>>>> lngamma works fine for my propose! Would you know if an equivalent
>>>> function exists for the beselk function? Something like lnbeselk?
>>>> beselk(x) for x>709 doesn't seen to work.
>>
>>> Isn't 0 a good enough approximation?
>>
>> If not, log(K(x,n))~ln(sqrt(!pi/(2*x)))-x for large x
>>
>> Paolo
>>
>>
>>
>>> Paolo
>>
>>>> If not, I guess that I'll have to wait for the DLMs that add arbitrary
>>>> precision floating point...
>>
>>>> cheers,
>>>> Noah

>
>
>
> Hi Paolo,
> Your approximation seems to be missing a factor? This is what IDL
> gives me:
>
> IDL> x=705d & n=1.1 & print, alog10(beselk(x,n)), (alog(sqrt(!pi/
> (2*x)))-x)
>   -307.50372   -708.05331

I meant the natural log (why should a bessel function
care about base 10 anyway?), so use alog instead.

Cheers,
Paolo

>
> Cheers,
> Noah
