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Subject: Re: random numbers with gamma distribution  
Posted by [steinhh](#) on Wed, 04 Nov 1998 08:00:00 GMT  
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In article <MPG.10aa14fba7d2a20d989703@news.frii.com> davidf@dfanning.com \  
(David Fanning) writes:

> T.Osborn (f055@uea.ac.uk) writes:

>  
>> I'm trying to generate a random series that has a gamma distribution, using  
>> the randomu() function with the gamma keyword. The online help says to set  
>> gamma to an integer > 0. WHY DOES IT HAVE TO BE AN INTEGER? The gamma  
>> distribution is in fact defined for all gamma > 0, not just integers.  
>> I want to set gamma=0.5, which currently fails as it converts it to the  
>> integer 0, which is not > 0, and so it fails.  
>>  
>> Is this a bug, and is there any work-around?

>  
> Which gamma function are you running? Certainly not IDL's  
> GAMMA function which works perfectly well with non-integer  
> values:

>  
> IDL> print, gamma(0.5)  
> % Compiled module: GAMMA.  
> 1.77245

:~)

Read his post one more time, David - and open your eyes this time :-)

A number of useful options have been added to the RANDOMU function since I (we?) "learned" it. I don't know which version added the stuff, but you can now generate random numbers with various distributions (poisson, binomial, gamma, normal, uniform) straight away by setting some keywords. The /NORMAL keyword gives you the same as RANDOMN.

As far as I can make out a gamma distribution is proportional to

$$\frac{x^{(g-1)} \exp(-x)}{(g-1)}$$

From the formula you wouldn't expect any problems with g being fractional...since x is always positive. But I guess the implementation is easier if g is restricted to integers...

Regards,

