Subject: Re: Randomize array order
Posted by David Streutker on Thu, 26 Jul 2007 21:27:33 GMT
View Forum Message <> Reply to Message

On Jul 26, 2:32 pm, hradilv <hrad...@yahoo.com> wrote:
> On Jul 26, 11:57 am, David Streutker <dstreut...@gmail.com> wrote:
>
>
>
>> How about a Knuth shuffle?
>
>> (Disclaimer: I'm not a statistician; I just found it on Wikipedia.)
>
>> function kunsort, array
>> na = n_elements(array)
>> random = randomu(seed,na) * (na - array - 1) + array
>> for i=0L,na-2 do array[i] = array[random[i]]
>> return, array
>> end
>
>> Added to Vince's code (last column):
>
>> 0 100000 0.0619998 0.0780001 0.0320001
>> 1 166810 0.125000 0.125000 0.0780001
>> 2 278256 0.282000 0.218000 0.141000
>> 3 464158 0.547000 0.406000 0.235000
>> 4 774263 1.07800 0.657000 0.390000
>> 5 1291549 1.93700 1.09400 0.703000
>> 6 2154435 3.51500 1.89100 1.20300
>> 7 3593812 6.34400 3.11000 1.98400
>> 8 5994841 11.5470 5.21800 3.36000
>> 9 10000000 20.3750 8.67200 5.60900
>
>> Windows XP, dual 2.66 GHz, 3 GB RAM, IDL 6.3
>
> I'm not sure, but I think that will give you "with replacement".

You're right, I wasn't swapping. Corrected, and in the form of
Allan's method:

```
function kunsort, array
  na = n_elements(array)
  rarray = array

  b = randomu(seed,na-1) * (na - lindgen(na-1) - 1) + lindgen(na-1)
  for i=0L,na-2 do begin
    tmp = rarray[i]
    rarray[i] = rarray[b[i]]
```

```
    rarray[b[i]] = tmp
  endfor

  return, rarray
end
```

With the change, it's slightly slower than Allan's. However, for what it's worth, there are claims this is a less biased method. (Again, I am no expert. But the recent poker craze seems to have revived interest in the probabilities of shuffling.)
