
Subject: Re: L-moments

Posted by [rogass](#) on Mon, 28 Feb 2011 13:22:33 GMT

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On 28 Feb., 13:13, Gray <grayliketheco...@gmail.com> wrote:

> On Feb 28, 6:43 am, chris <rog...@googlemail.com> wrote:

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>> On 25 Feb., 16:25, Mark Shephard <mark.w.sheph...@gmail.com> wrote:

>

>>> Hi,

>

>>> I was wondering if anyone has anyone develop IDL routines for the
>>> method of L-moments?

>

>>> Thanks,

>>> Mark

>

>> Hi Mark,

>> something like this?

>

>> function cr_binomial,n,m

>> n1=1d & m1=1d & n1m1=1d

>> for i=1d,n do n1*=i

>> for i=1d,m do m1*=i

>> for i=1d,(n-m) do n1m1*=i

>> return,n1/(m1*n1m1)

>> end

>

>> function cr_l_moment,dat

>> n=n_elements(dat)

>> l1 = total(dat,/double)/cr_binomial(n,1)

>> l2=0d &l3=0d &l4=0d

>> for i=1d,n do begin

>> b1 = cr_binomial(i-1,1d)

>> b2 = cr_binomial(n-i,1d)

>> b3 = cr_binomial(i-1,2d)

>> b4 = cr_binomial(n-i,2d)

>> b5 = cr_binomial(i-1,3d)

>> b6 = cr_binomial(n-i,3d)

>> l2+=(b1-b2)*dat[i-1]

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>> l3+=(b3-2*b1*b2+b4)*dat[i-1]
>> l4+=(b5-3*b3*b2+3*b1*b4+b6)*dat[i-1]
>> endfor
>> l2*=0.5d /cr_binomial(n,2d )
>> l3*=(1d / 3d )/cr_binomial(n,3d )
>> l4*=(1d / 4d )/cr_binomial(n,4d )
>> return,{l1:l2,l2:l2,l3:l3,l4:l4}
>> end
>
>> IDL> r=randomu(seed,5,5)
>> IDL> inf=cr_l_moment(r)
>> IDL> print,float(inf)
>> { -0.000558181 -0.000558181 -0.0111168 0.212071}
>
>> Cheers
>
>> CR
>
> I have no idea what L-moments are, but do you really need to use all
> the FOR-loops?
>
> function cr_binomial,n,m
> n1 = product(dindgen(n)+1)
> m1 = product(dindgen(m)+1)
> n1m1 = product(dindgen(n-m)+1)
> return, n1/(m1*n1m1)
> end

```

No, it is not necessary, so your suggestion reduces it to:

```

function cr_l_moment,dat
n=double(n_elements(dat))
bin=product(dindgen(n)+1d,/c)
l1 = total(dat)/bin[n-1]
l2=0. &l3=0. &l4=0.
for i=1!,n do begin
  b1 = bin[i-1]
  b2 = bin[n-i]
  b3 = b1/2d
  b4 = b2/2d
  b5 = b1/6d
  b6 = b2/6d
  l2+=(b1-b2)*dat[i-1]
  l3+=(b3-2*b1*b2+b4)*dat[i-1]
  l4+=(b5-3*b3*b2+3*b1*b4+b6)*dat[i-1]
endfor
l2*=bin[n-1]
l3*=(1./3.)/(bin[n-1]/6d)

```

```
l4*=(1./4.)/(bin[n-1]/24d)
return,{l1:l2,l2:l2,l3:l3,l4:l4}
end
```

Cheers

CR
