Subject: Re: Fast way to calculate sum of discrete poisson distribution
Posted by Jonathan Dursi on Sat, 24 Feb 2007 23:12:54 GMT
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On Feb 24, 4:10 pm, b...@kaifler.net wrote:
> I have been struggeling with this for a while. Basically I need to
> calculate the quadratic sum of the discrete poisson distribution:
>
> k = INDGEN(8)
>
> sum = TOTAL(p^k / FACTORIAL(k) * EXP(-p) * k^2)
>
> This workes fine for a scalar p. Is there a way to calculate the
> quadratic sum for every element of an array p without using a loop?

So something like this seems to work:

```
IDL> k = rebin(indgen(8),8,3)
IDL> p = transpose(rebin([.1,.4,.9],3,8))
IDL> print, k
      0       1       2       3       4       5       6       7
      0       1       2       3       4       5       6       7
      0       1       2       3       4       5       6       7
IDL> print, p
    0.100000     0.100000     0.100000     0.100000     0.100000
0.100000     0.100000     0.100000
    0.400000     0.400000     0.400000     0.400000     0.400000
0.400000     0.400000     0.400000
    0.900000     0.900000     0.900000     0.900000     0.900000
0.900000     0.900000     0.900000

IDL> sum = total(p^k/factorial(k)*exp(-p)*k^2,1)
IDL> print, sum
      0.11000000      0.55999927       1.7096826
```

- Jonathan
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