Subject: Re: Principal component analysis
Posted by Haje Korth on Wed, 05 Dec 2007 16:13:55 GMT
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Mort,
thanks for validating this. I tend to just go with PCOMP since I don't
really know what the IMSL routine actually does. As I wrote in the response
to David I just got thrown off by not being able to reconcile the output
from the different routines.

Thanks,
Haje

"mort canty" <m.canty@fz-juelich.de> wrote in message
news:fj6fp9$4jl8$1@zam602.zam.kfa-juelich.de...
> Haje Korth schrieb:
>> Hi,
>> I am puzzled by principal component analysis. I calculated the
>> eigenvalues using both PCOMP and IMSP_PRINC_COMP routines. Could someone
>> enlighten me why the results are completely different? I have tried
>> different keywords to see whether I can match them by trial and error,
>> but I had no success. There must be someone out there who undertstands
>> this much better than I do.
>>
>> Thanks so much,
>> Haje
>>
>>
>> IDL> a=[[1,-2,-6],[-2,1,-3],[-6,-3,5]]
>> IDL> pca=pcomp(a,eigenvalues=ev) & print,transpose(ev)
>> 2.24227 0.757732 0.000000
>> IDL> ev=imsl_princ_comp(a) & print,ev
>> 9.53359 -5.19751 2.66392
>
> Haven't the foggiest what imsl_princ_comp() does, but pcomp() is correct:
>
> pro pca
> a=[[1,-2,-6],[-2,1,-3],[-6,-3,5]]
> ; covariance matrix
> s1 = correlate(a,/covariance)
> print, s1, ' '
> ; correlation matrix
> s2 = correlate(a)
> print, s2, ' '
> ; diagonalize
> print, eigenql(s1)
> print, eigenql(s2), ' '
> ; compare

```
>  pca=pcomp(a,eigenvalues=ev,/covariance) & print,transpose(ev)
>  pca=pcomp(a,eigenvalues=ev) & print,transpose(ev)
>  end
>
>       12.3333      2.33333     -19.6667
>       2.33333      4.33333     -5.66667
>      -19.6667     -5.66667      32.3333
>
>      1.00000     0.319173    -0.984839
>      0.319173      1.00000    -0.478731
>     -0.984839    -0.478731      1.00000
>
>       45.2906      3.70938-1.52795e-006
>       2.24227     0.757732-5.49480e-008
>
>       45.2906      3.70938-1.52795e-006
>       2.24227     0.757732      0.000000
>
>  Mort
```