
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 understands
>> 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
```
