Subject: Re: Principal component analysis
Posted by Mort Canty on Wed, 05 Dec 2007 15:24:33 GMT
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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
