
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 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
