

---

Subject: Re: Principal component analysis  
Posted by [Vince Hradil](#) on Wed, 05 Dec 2007 16:57:06 GMT  
[View Forum Message](#) <> [Reply to Message](#)

---

On Dec 5, 10:47 am, "Haje Korth" <haje.ko...@nospam.jhuapl.edu> wrote:  
> Yup, that'll do it. I am still not sure I understand the logic behind this.  
> I though the correlation is part of the PCA.  
>  
> "Vince Hradil" <hrad...@yahoo.com> wrote in message  
>  
> news:8362380a-217a-45d2-b7c4-0198e5931b39@y5g2000hsf.googleg rroups.com...  
>  
>> On Dec 5, 10:08 am, "Haje Korth" <haje.ko...@nospam.jhuapl.edu> wrote:  
>>> I have tried that, it gives  
>>> IDL> ev=imsl\_princ\_comp(correlate(a,/cov)) & print,ev  
>>> 45.2906 3.70938-2.65683e-006  
>  
>>> These EVs are the same as you get using PCOMP with /COV keyword.  
>  
>>> "Vince Hradil" <hrad...@yahoo.com> wrote in message  
>  
>>> news:54fc6ed8-ccd7-4ac6-8e0d-09f5d190eeac@o6g2000hsd.googleg rroups.com...  
>  
>>>> On Dec 5, 9:12 am, Vince Hradil <hrad...@yahoo.com> wrote:  
>>>> > On Dec 5, 8:00 am, "Haje Korth" <haje.ko...@nospam.jhuapl.edu> wrote:  
>>>> >  
>>>> > > 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

```

>
>>>> > From the HELP:
>
>>>> > Syntax
>>>> > Result = IMSL_PRINC_COMP(covariances [, /COV_MATRIX]
>>>> > [, /CORR_MATRIX] [, CORRELATIONS=variable] [, CUM_PERCENT=variable] [,
>>>> > DF=variable] [, /DOUBLE] [, EIGENVECTORS=variable] [,
>>>> > STDEV=variable] )
>
>>>> > Note that IMSL_PRINC_COMP requires that you pass the covariance or
>>>> > correlation matrix - not the vectors.
>
>>>> so maybe try
>>>> ev=imsl_princ_comp(correlate(a,/covariance) & print, ev
>>>> (I don't have an analyst license)
>
>> There you go 8^)
>> How about
>> ev=imsl_princ_comp(correlate(a)) & print, ev

```

Oh, yes correlation IS part of PCA, it's just that IMSL decided to let the user do that part him/herself. IMSL\_PRINC\_COMP calculates the principal components of the cov/cor matrix. Calculating these principal components is just part of "Principle Components Analysis". IMSL leaves it up to the user to decide how to implement the principal components in his/her analysis.

---