
Data Analysis in Physics and Astronomy

Exercise 8

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1 Principal component analysis

1.1 Recreate Table 3 from Francis & Wills (1999)

Table 1: Results of Eigenanalysis - The Principal Components^a

	PC1	PC2	PC3	PC4	PC5
Eigenvalue	6.9295	3.0247	1.6852	0.6285	0.6056
Proportion	0.538	0.235	0.131	0.049	0.047
Cumulative	0.538	0.773	0.904	0.953	1
Variable	PC1	PC2	PC3	PC4	PC5
log L1216	0.362	1.606	-0.217	-0.052	-0.243
alpha	2.038	-0.583	0.157	0.293	-0.148
logFWHM Hbeta	-2.301	0.214	-0.594	-0.094	-0.076
FeII/ Hbeta	2.368	-0.404	-0.024	-0.328	-0.074
logEW [OIII]	-2.133	0.034	0.449	0.226	-0.101
logFWHM CIII]	-1.354	0.209	-1.055	0.093	0.228
logEW Lalpha	-1.208	-1.518	-0.017	-0.073	0.031
logEW CIV	-2.307	-0.803	0.081	-0.06	-0.174
CIV/ Lalpha	-2.358	0.176	0.048	-0.11	-0.338
logEW CIII]	-1.791	-1.256	-0.222	-0.093	0.01
SiIII/ CIII]	2.362	-0.434	-0.029	-0.227	-0.029
NV/ Lalpha	1.594	-0.159	-0.969	0.08	-0.196
1400A/ Lalpha	1.668	-1.098	-0.316	0.206	-0.166