3.1 PCA

Table 1: **I want this in Bold**

PC	Variance explained	Culmulative Proportion
1	5.0312012	0.7187430
2	1.1975728	0.8898249
3	0.6780034	0.9866825
4	0.0683645	0.9964488
5	0.0187136	0.9991222
6	0.0053320	0.9998839
7	0.0008124	1.0000000

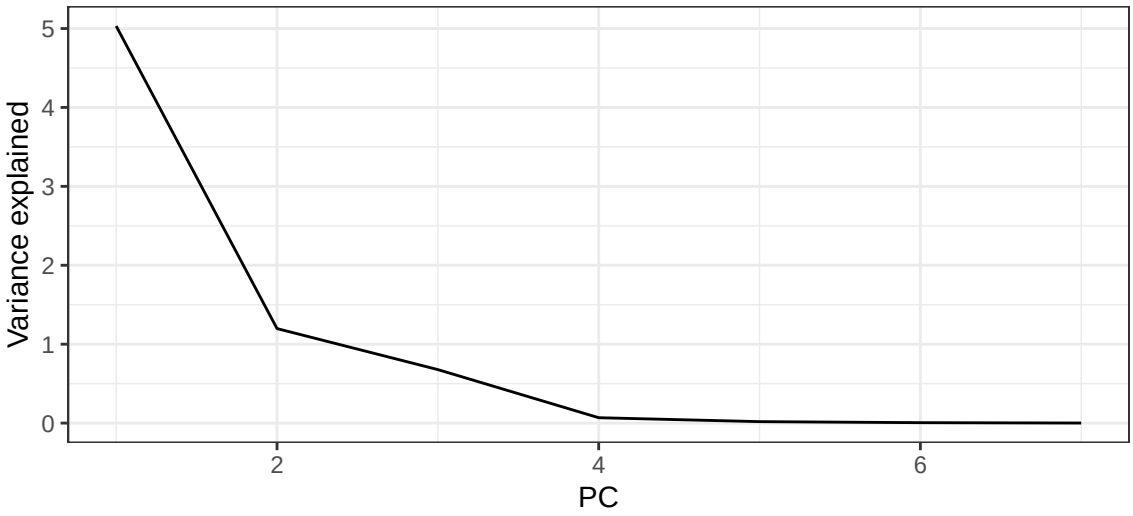

Figure 3.1:

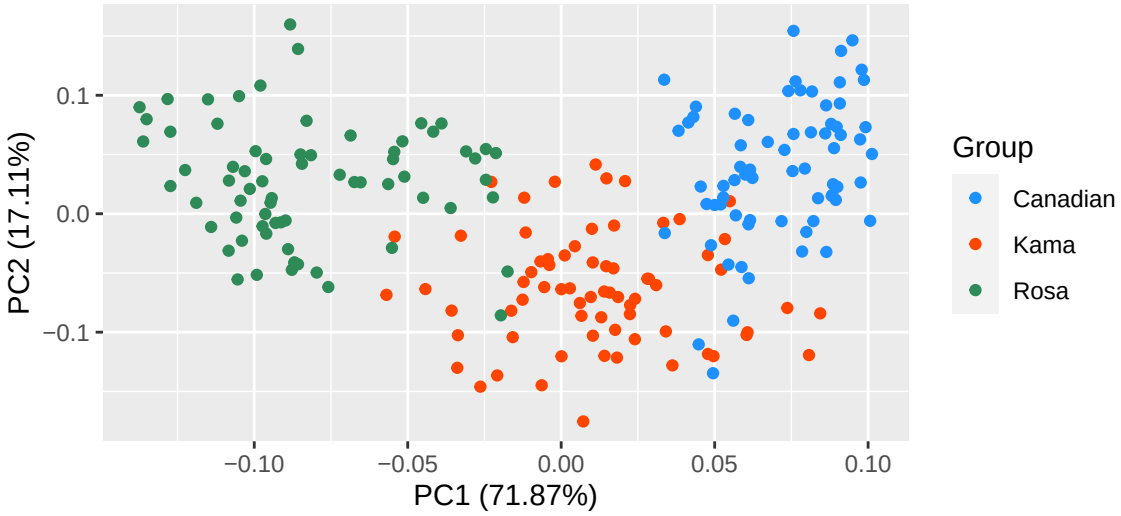

Figure 3.2:

By examining the first 2 eigenvectors, we can see that pc1 is a general measure of the area, perimeter, kernel length, width and groove length. whereas the main contribution to pc2 is by the asymmetry coefficient and to a lesser extent, kernel length and groove length.

Table 2: Table 3.2

Variable	Eigenvector 1	Eigenvector 2	Eigenvector 3
area	-0.4444735	0.0265636	-0.0258709
perimeter	-0.4415715	0.0840028	0.0598391
compact	-0.2770174	-0.5291513	-0.6296918
length_k	-0.4235633	0.2059752	0.2118797
width_k	-0.4328187	-0.1166896	-0.2164834
asym	0.1186925	0.7168820	-0.6795058
length_k_g	-0.3871608	0.3771933	0.2138972

3.2 Factor analysis

Table 3: Table 3.3

	Factor 1	Factor 2	Factor 3
Variance explained	5.031201	1.1975728	0.6780034
Culmulative proportion of total variance	0.718743	0.8898249	0.9866825

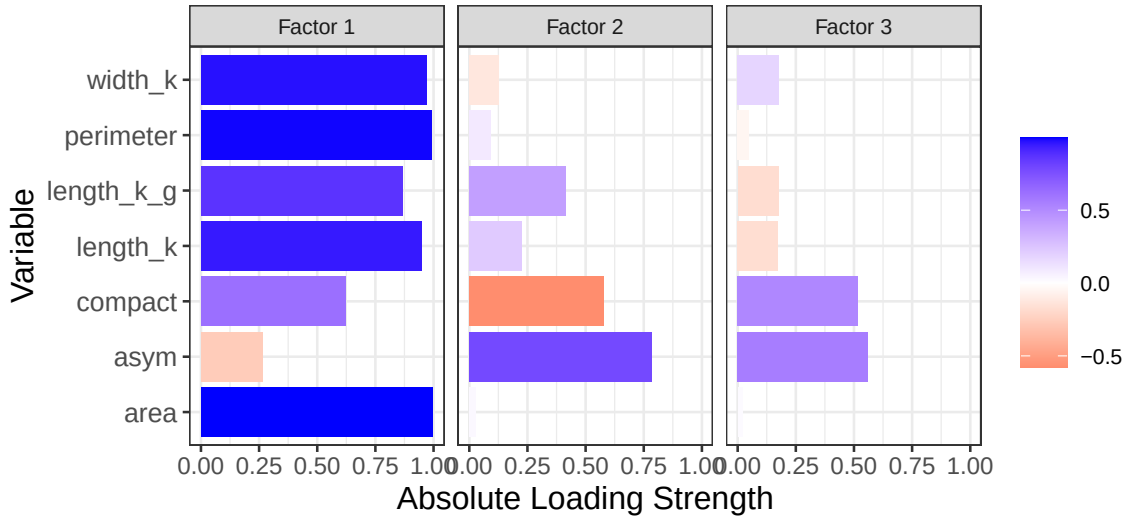

Figure 3.3:

Table 4: Table 3.4

	Factor 1	Factor 2	Factor 3
Variance explained	4.1861181	1.0524208	1.6682386
Culmulative proportion of total variance	0.5980169	0.7483627	0.9866825

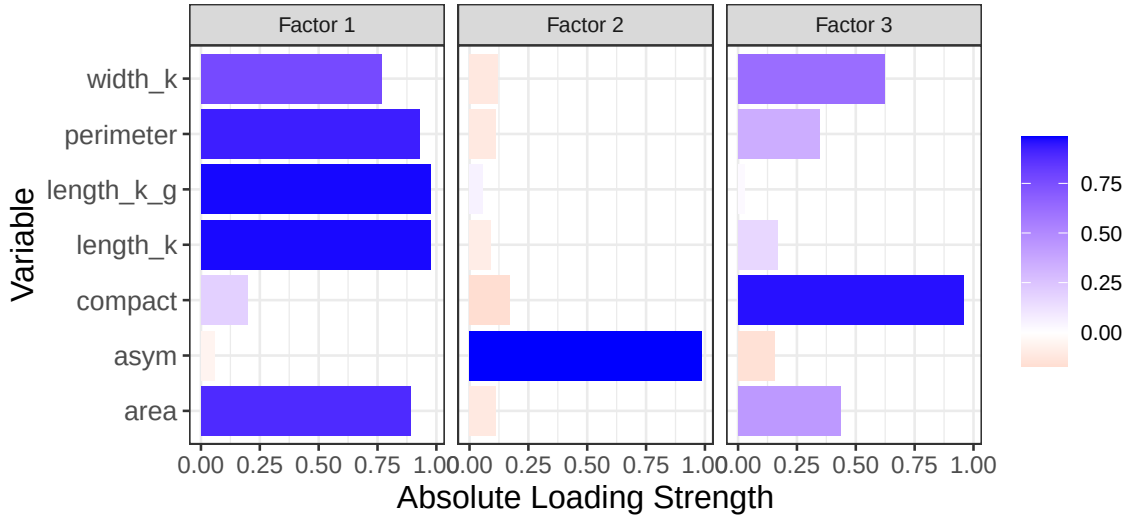

Figure 3.4:

```
##                Df Wilks approx F num Df den Df    Pr(>F)
## factor(group)   2 0.149   163.83      4    412 < 2.2e-16 ***
## Residuals     207
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```