# ProbSet 6?

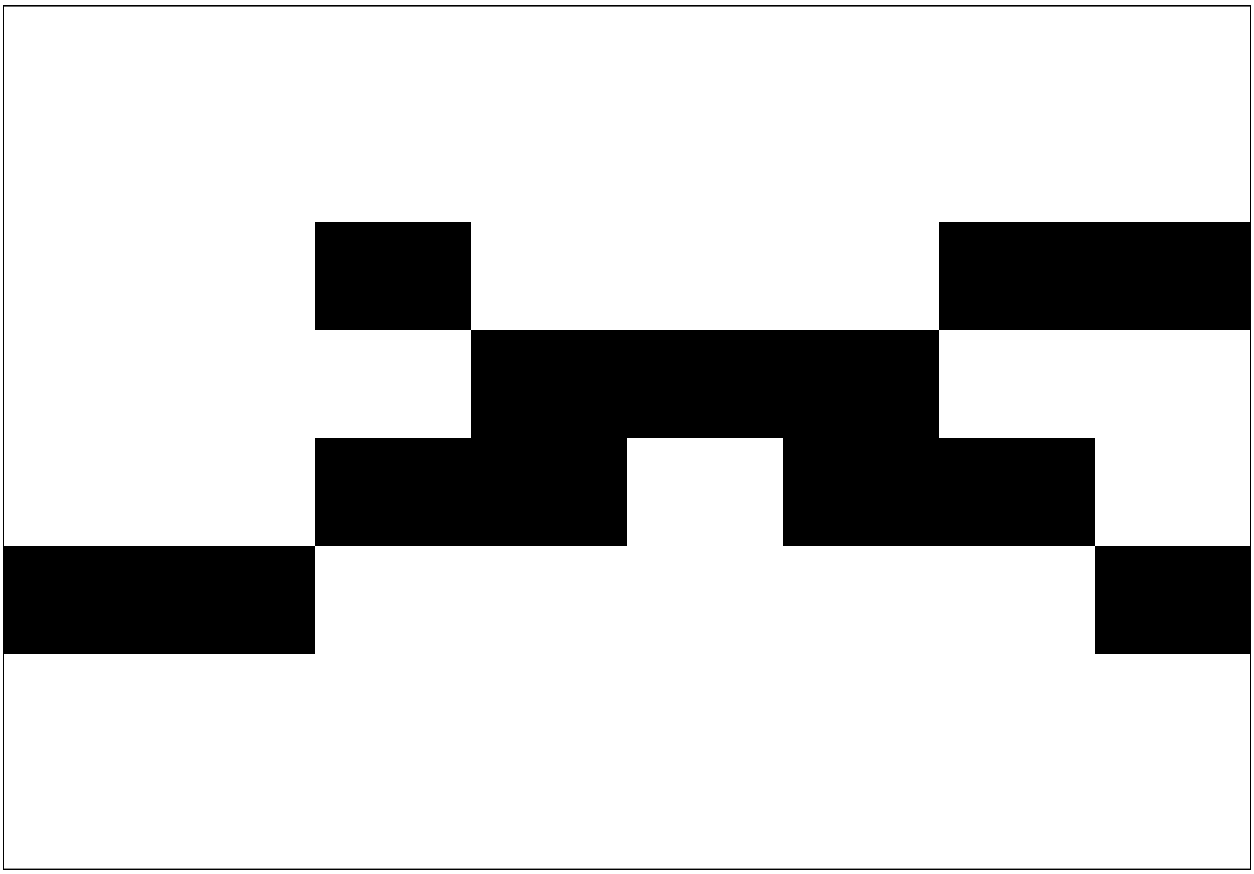
*Theodore Dounias*

*November 9, 2017*

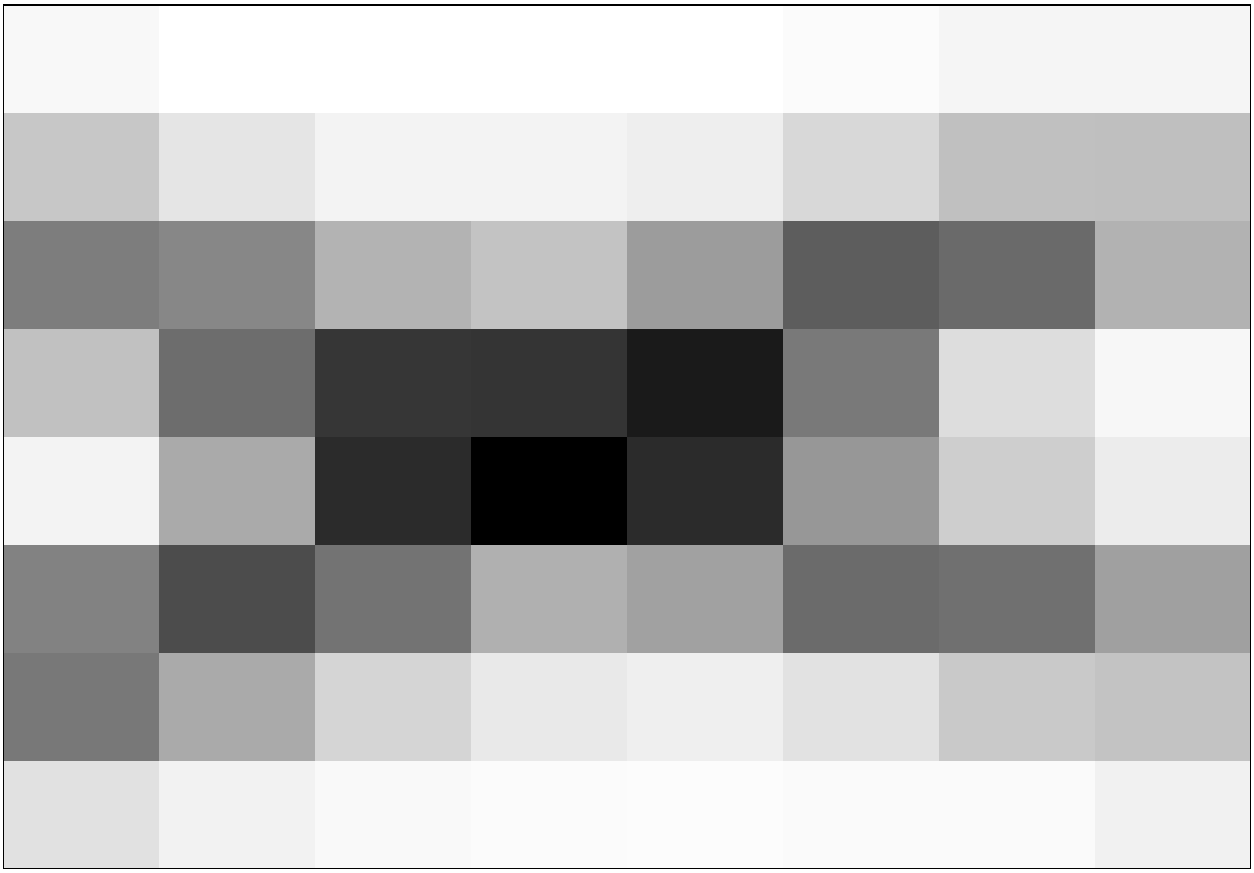
```
d <- d %>%
  filter(letter == "x")
```

```
## Warning: package 'bindrcpp' was built under R version 3.3.3
```

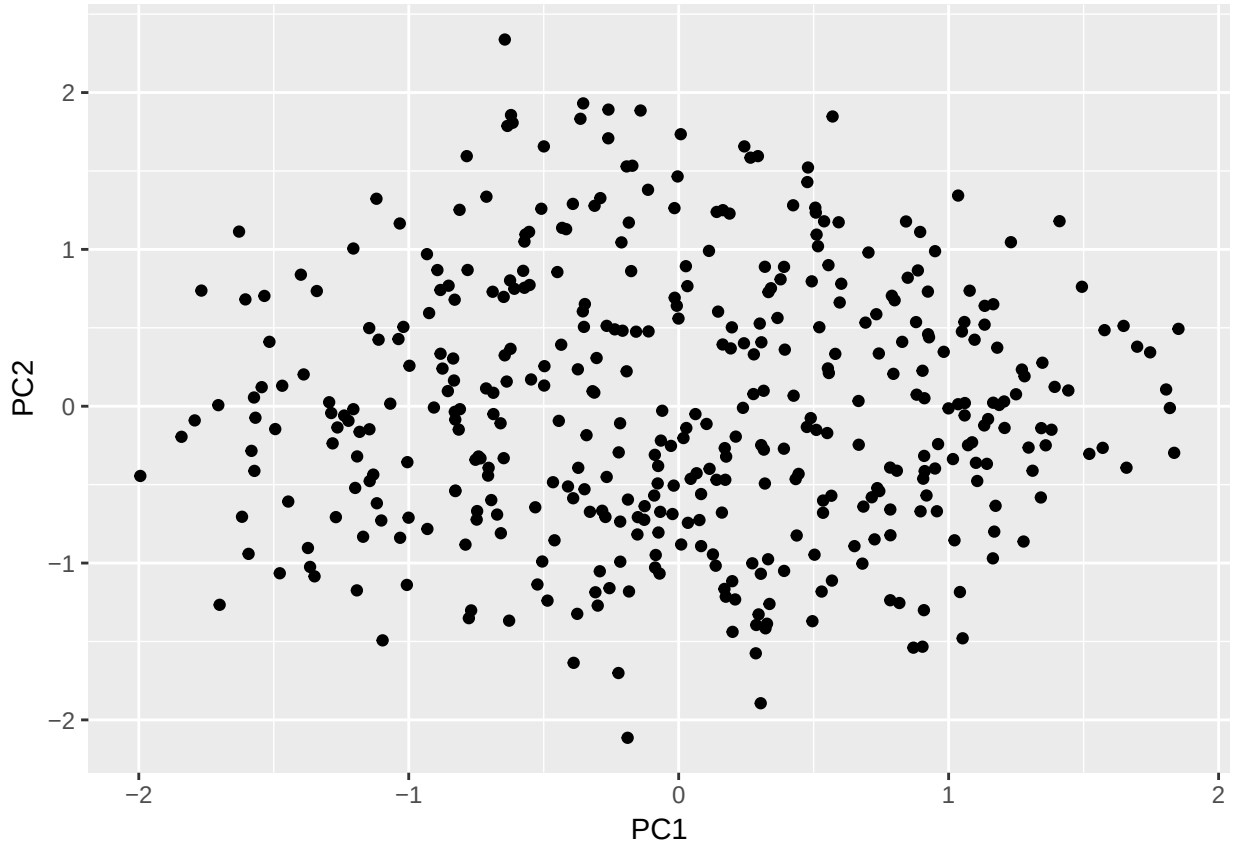
```
plot_letter(d[12, ])
```



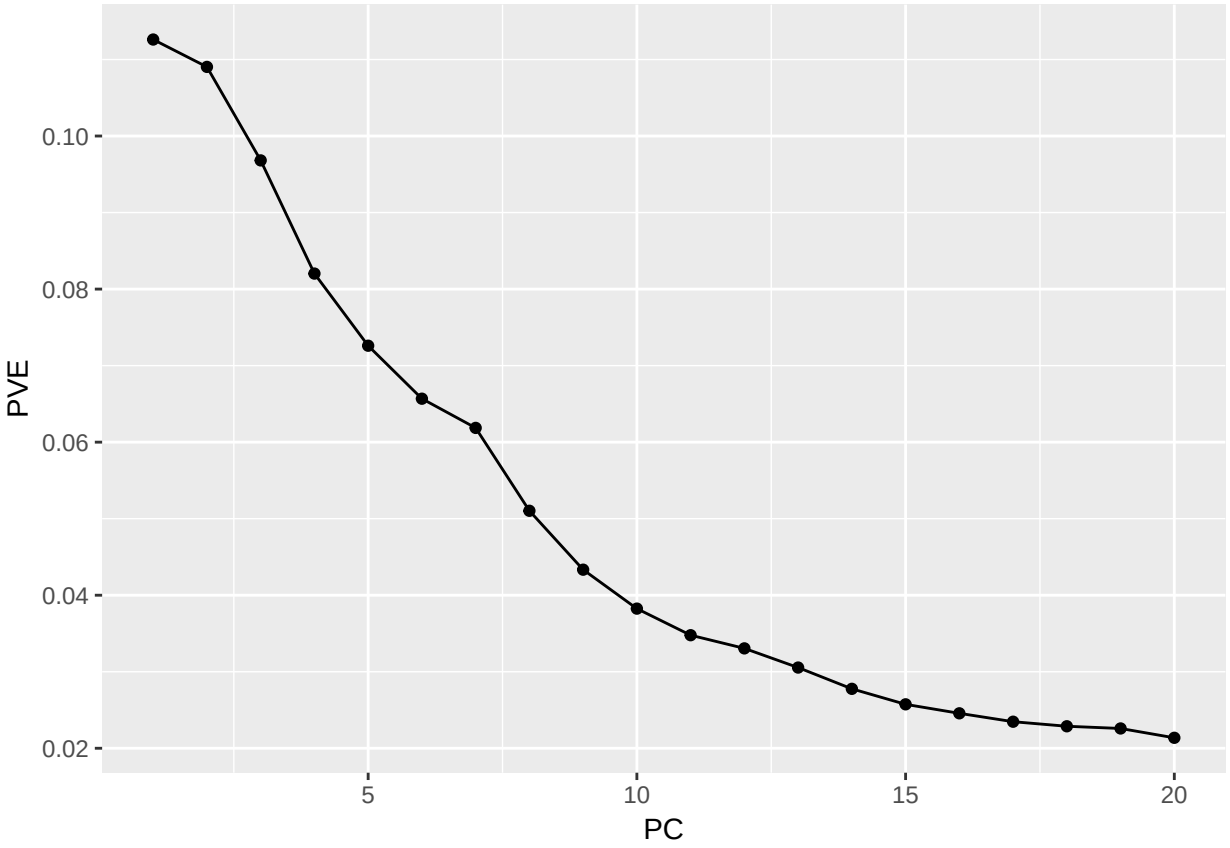
```
g_mean <- colSums(d[, -1])/nrow(d)
plot_letter(g_mean, hasletter = FALSE)
```



```
pca1 <- prcomp(d[, -1])
data <- as.data.frame(pca1$x)
p1 <- ggplot(data, aes(x = PC1, y = PC2)) +
  geom_point()
p1
```




```
scree <- data.frame(PC = 1:20,
                    PVE = pca1$sdev[1:20]^2 / sum(pca1$sdev[1:20]^2))
ggplot(scree, aes(x = PC, y = PVE)) +
  geom_line() +
  geom_point()
```


0.10
0.08
0.06
0.04
0.02
PVE
5
10
15
20
PC