Lab14

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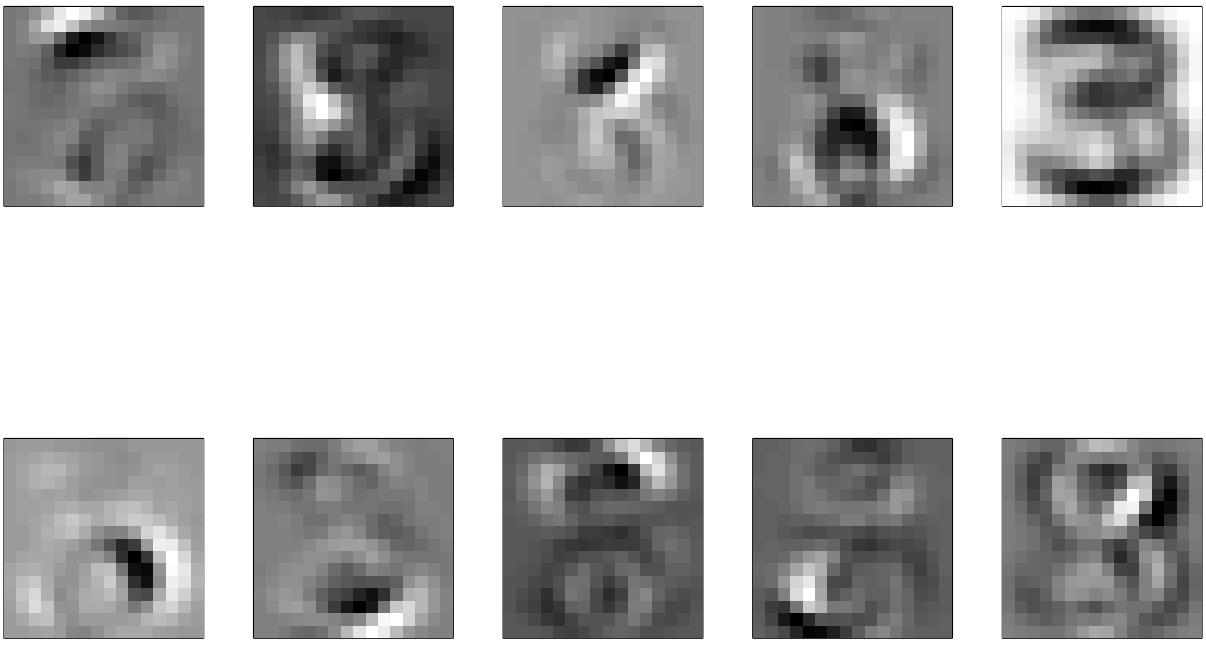
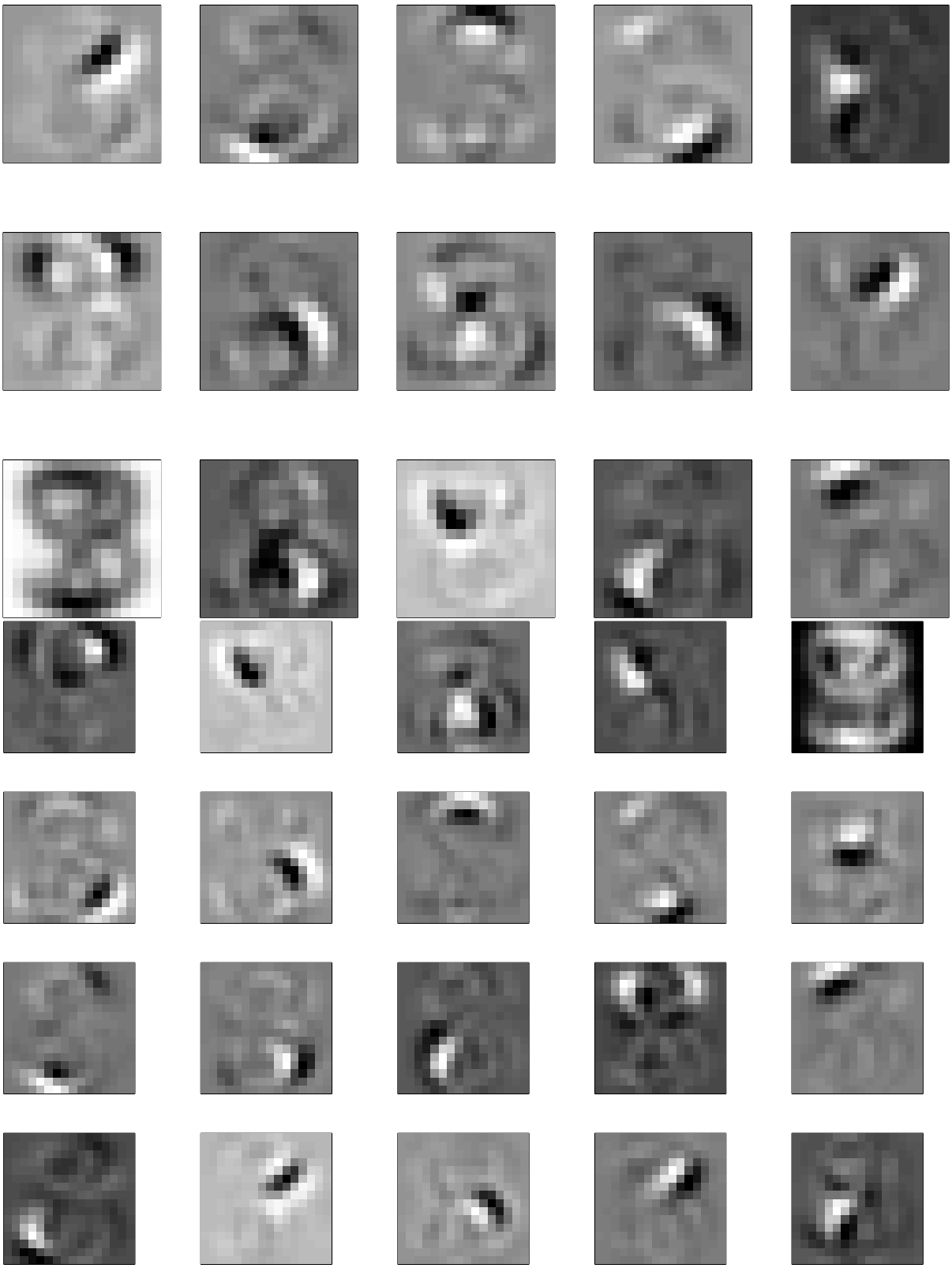
Independent component analysis (ICA)

```
library(fastICA)
require("fastICA")

K = c(10, 15, 20)
for (k in K) {
  icafit = fastICA(t(dat38),n.comp=k)

  #plot independent source signals
  options(width = 60)
  par(mfrow=c(k/5, 5), mar = c(1, 1, 1, 1), pty="s")
  for(i in 1:k){
    imagedigit(icafit$S[,i])
  }
}
```





Non-negative matrix factorization (NMF)

```
#Note that this may take a while to run - try using smaller values of K
library(NMF)
```

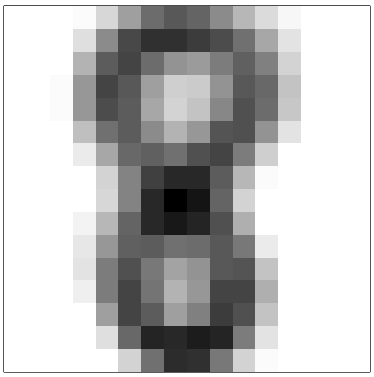
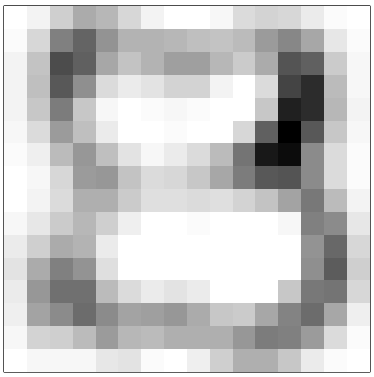
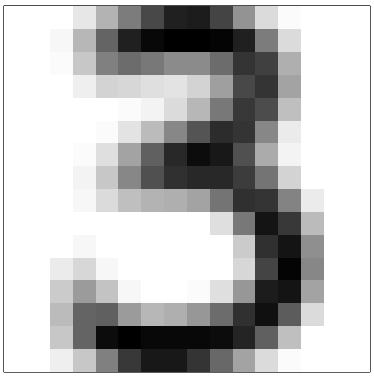
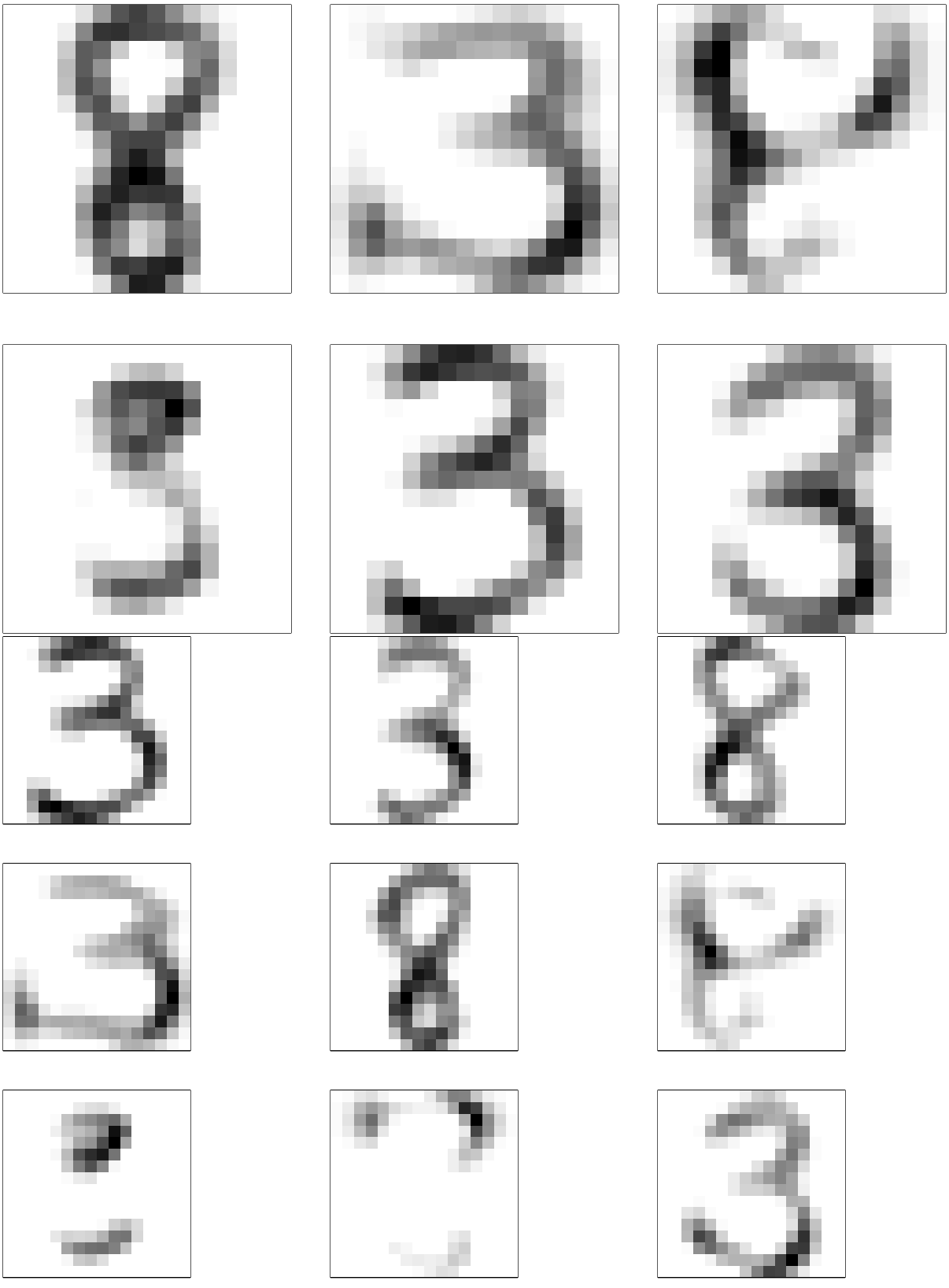
```
## Loading required package: pkgmaker
```

```
## Loading required package: registry
```

```
## Loading required package: rngtools
```

```
## Loading required package: cluster
```

```
## NMF - BioConductor layer [OK] | Shared memory capabilities [NO: bigmemory] | Cores 7/8
```

```
##   To enable shared memory capabilities, try: install.extras('
## NMF
## ')
```

```
K = c(3, 6, 9)
for (k in K) {
  nmffit = nmf(dat38+1,rank=k)
  W = basis(nmffit)
  H = coef(nmffit)

  #plot NMF basis factors
  options(width = 60)
  par(mfrow=c(k/3,3),mar = c(1, 1, 1, 1), pty="s")
  for(i in 1:k){
    imagedigit(H[i,])
  }
}
```