

```

library(e1071)

names(iris)
[1] "Sepal.Length" "Sepal.Width" "Petal.Length" "Petal.Width" "Species"

S = c(rep(1,50),rep(2,50),rep(3,50))
pairs(iris[,1:4],pch=S)
out = svm(Species ~ .,data=iris)
summary(out)

```

```

Call:
svm(formula = Species ~ ., data = iris)

```

```

Parameters:
  SVM-Type: C-classification
  SVM-Kernel: radial
    cost: 1
    gamma: 0.25

```

```

Number of Support Vectors: 51

( 8 22 21 )

```

```

Number of Classes: 3

```

```

Levels:
setosa versicolor virginica

```

```

table(iris$Species,predict(out))

      setosa versicolor virginica
setosa      50           0         0

```

```
versicolor      0      48      2
virginica       0       2     48
```

```
n = nrow(iris)
hat = rep(1,n)
hat[predict(out)=="versicolor"]=2
hat[predict(out)=="virginica"]=3
plot(iris$Petal.Width,iris$Petal.Length,pch=hat,col=hat)
print(sum(predict(out)!=iris$Species)/n)
```

```
[1] 0.02666667
```

```
library(MASS)
out2 = lda(Species ~ .,data=iris)
print(sum(predict(out2)$class != iris$Species)/n)
```

```
[1] 0.02
```



