Housekeeping

Jan-Philipp Kolb

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Mehrere Minimas

```
a <- c(1,4,6,23,1,7,4,3,2)
min(a)
```

```
## [1] 1
```

```
which(a==min(a))
```

```
## [1] 1 5
```

```
sort(a)
```

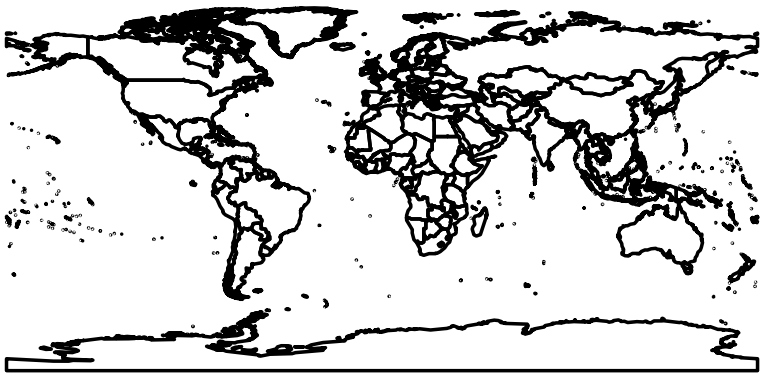
```
## [1]  1  1  2  3  4  4  6  7 23
```

```
  # die drei kleinsten Werte
which(a%in%sort(a)[1:3])
```

```
## [1] 1 5 9
```

Kartendaten bekommen

```
library(maptools)
data(wrld_simpl)
plot(wrld_simpl)
```

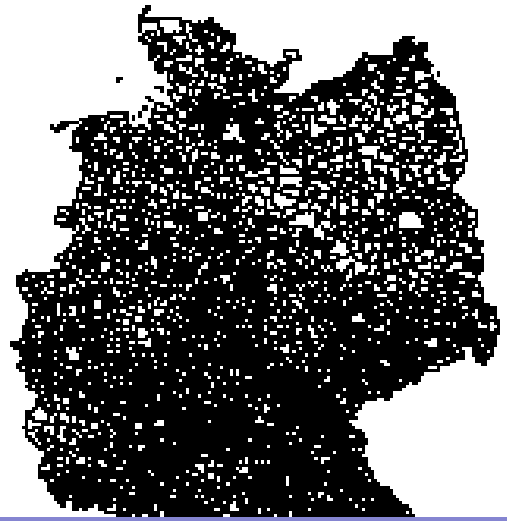


Kartendaten unterhalb von Staaten

```
DEU <- raster::getData(name = "GADM",country="DEU", level=3
```

Die Karte plotten

```
plot(DEU)
```



Die Daten der Karte

```
head(DEU@data)
```

```
##    GID_0  NAME_0   GID_1              NAME_1 NL_NAME_1
## 1    DEU Germany DEU.1_1 Baden-Württemberg       <NA> DEU
## 6    DEU Germany DEU.1_1 Baden-Württemberg       <NA> DEU
## 7    DEU Germany DEU.1_1 Baden-Württemberg       <NA> DEU
## 8    DEU Germany DEU.1_1 Baden-Württemberg       <NA> DEU
## 9    DEU Germany DEU.1_1 Baden-Württemberg       <NA> DEU
## 10   DEU Germany DEU.1_1 Baden-Württemberg       <NA> DEU
##              NAME_2 NL_NAME_2       GID_3          NAME_3
## 1  Alb-Donau-Kreis       <NA> DEU.1.1.1_1    Allmendinger
## 6  Alb-Donau-Kreis       <NA> DEU.1.1.2_1      Blaubeurer
## 7  Alb-Donau-Kreis       <NA> DEU.1.1.3_1       Blaustein
## 8  Alb-Donau-Kreis       <NA> DEU.1.1.4_1      Dietenheim
## 9  Alb-Donau-Kreis       <NA> DEU.1.1.5_1       Dornstadt
## 10 Alb-Donau-Kreis       <NA> DEU.1.1.6_1 Ehingen (Donau)
```

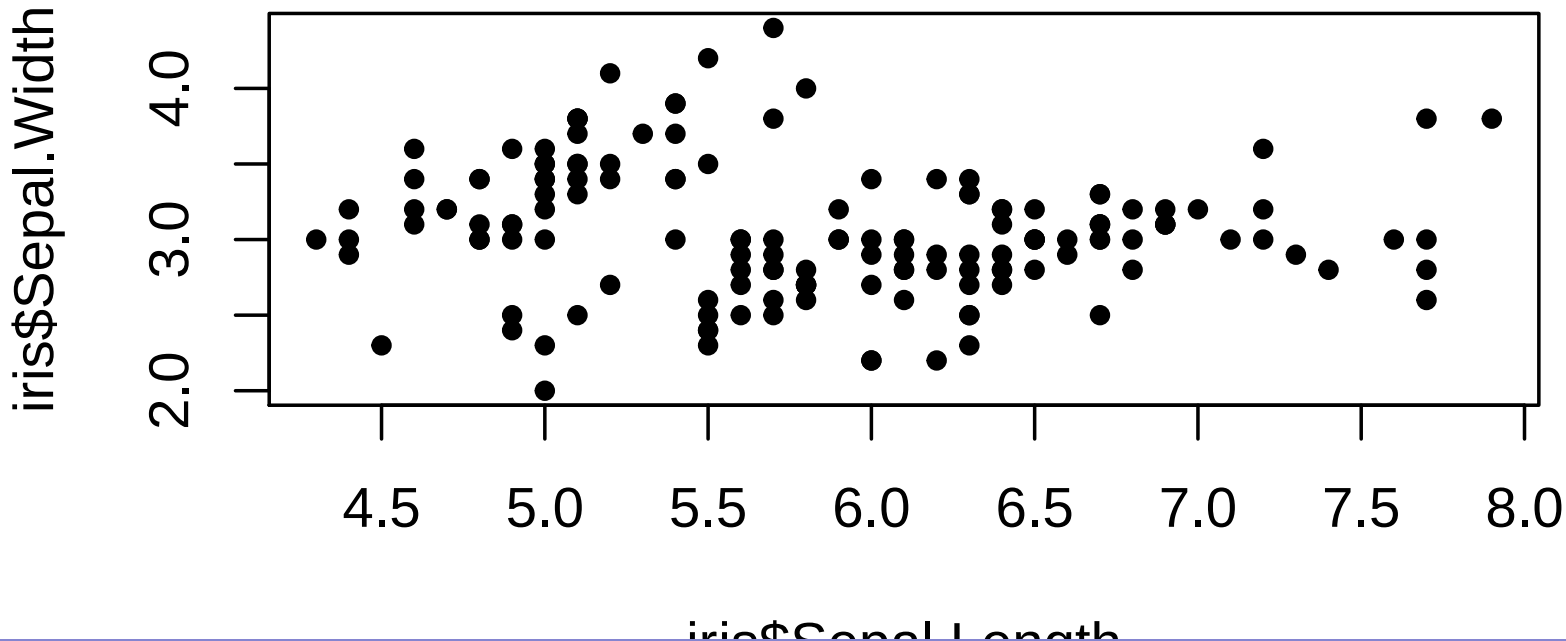
Nur BaWü plotten

```
plot(DEU[DEU$NAME_1=="Baden-Württemberg",])
```

Scatterplot

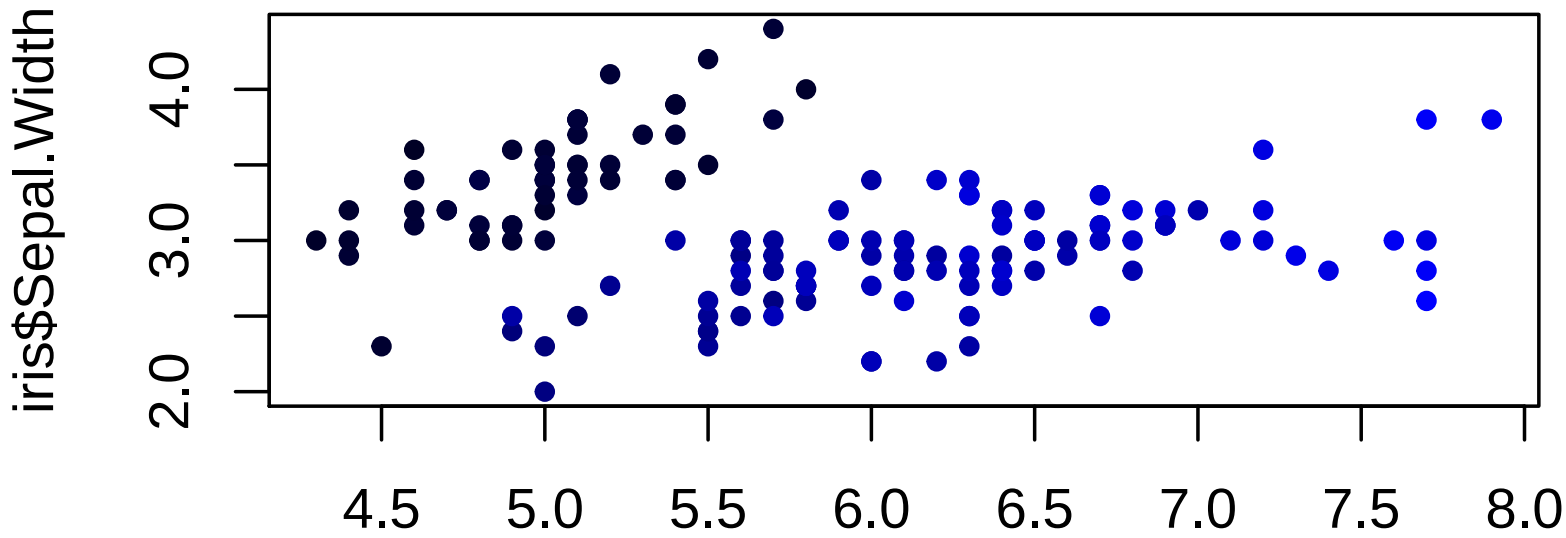
```
data(iris)
```

```
plot(iris$Sepal.Length,iris$Sepal.Width,pch=20)
```



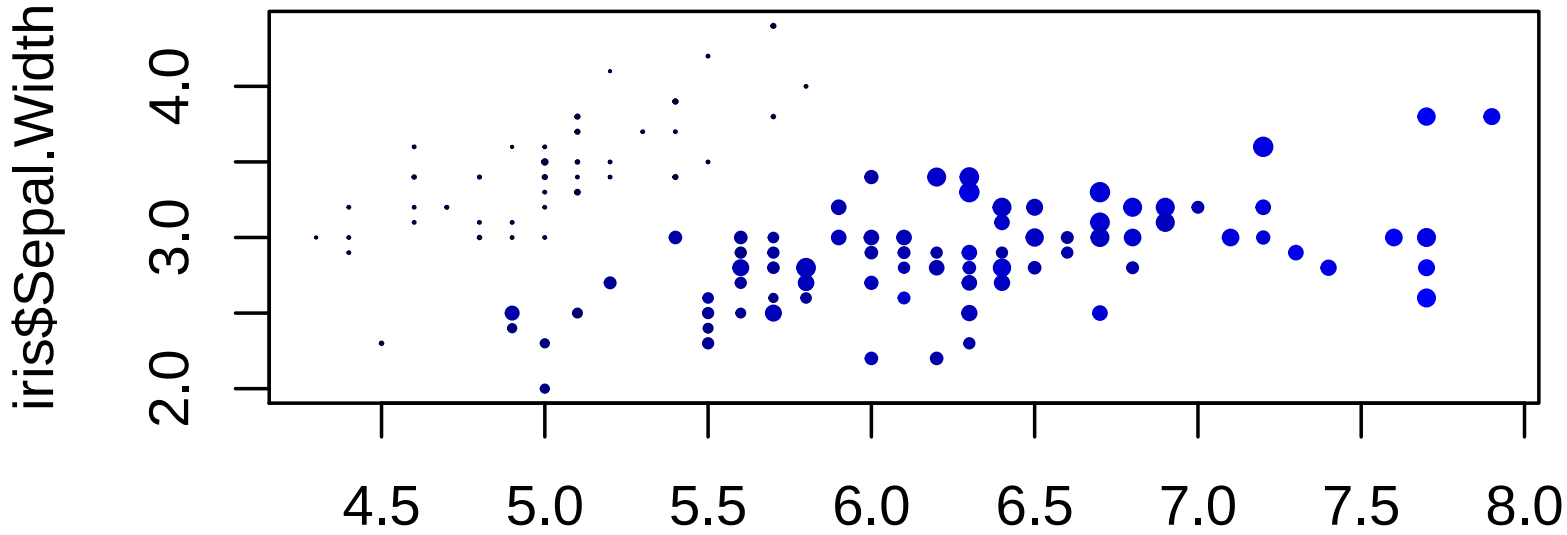
Plot mit Farbabstufung

```
colseq <- iris$Petal.Length/max(iris$Petal.Length)
plot(iris$Sepal.Length,iris$Sepal.Width,pch=20,
     col=rgb(0,0,colseq))
```



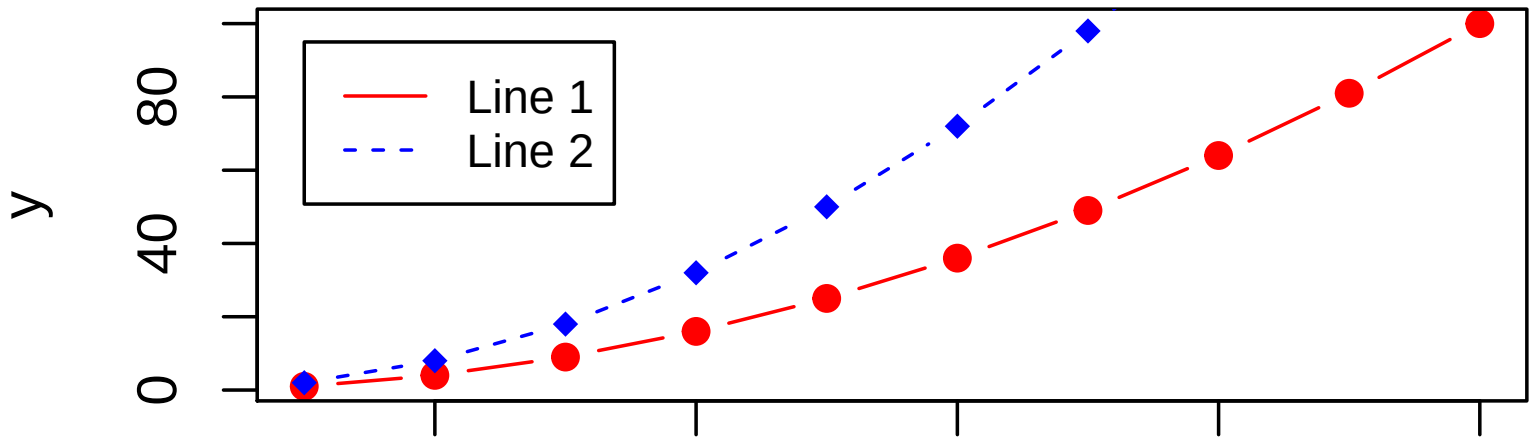
Abstufung bei Grösse der Punkte

```
sizeseq <- iris$Petal.Width/max(iris$Petal.Width)
plot(iris$Sepal.Length,iris$Sepal.Width,pch=20,
     col=rgb(0,0,colseq),cex=sizeseq)
```



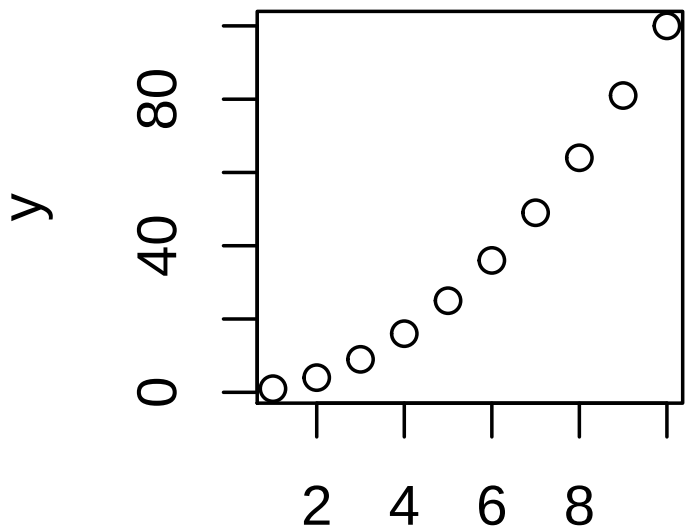
Legende hinzufügen

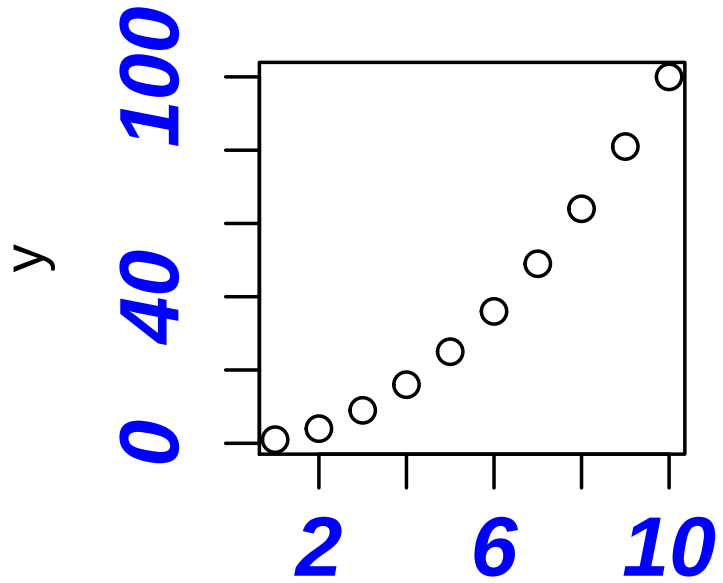
```
x<-1:10; y1=x*x; y2=2*y1
plot(x, y1, type="b", pch=19, col="red", xlab="x", ylab="y"
lines(x, y2, pch=18, col="blue", type="b", lty=2)
legend(1, 95, legend=c("Line 1", "Line 2"),
       col=c("red", "blue"), lty=1:2, cex=0.8)
```



Achsenbeschriftung ändern

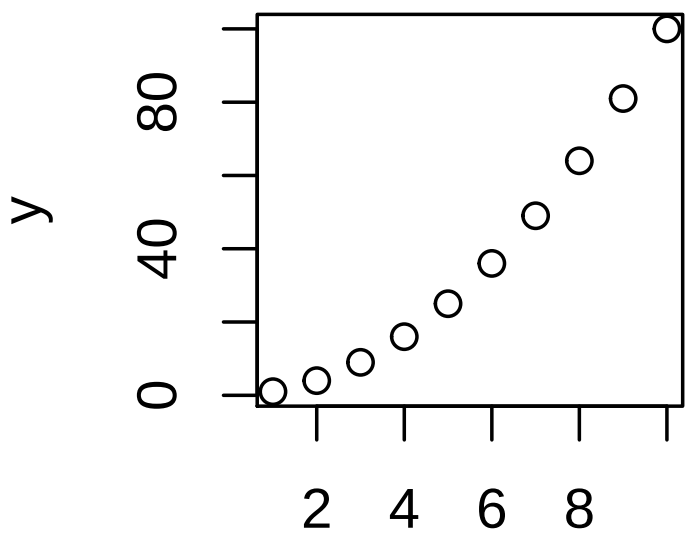
```
x<-1:10; y<-x*x
par(mfrow=c(1,2))
plot(x, y)
plot(x,y, col.axis="blue", font.axis=4, cex.axis=1.5)
```

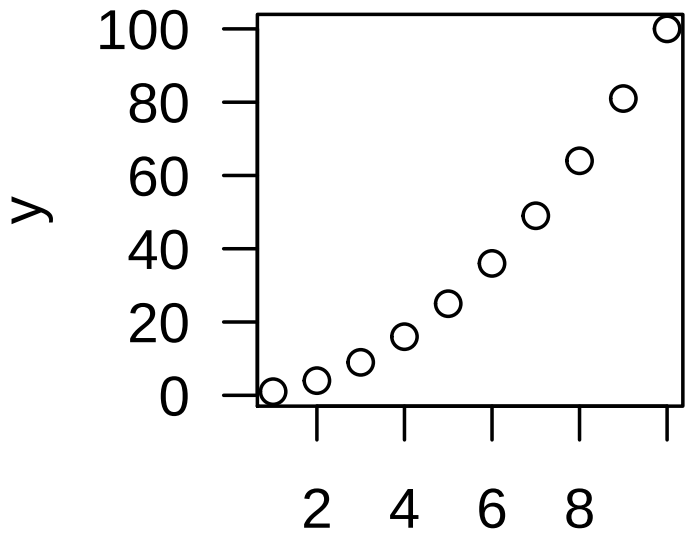




Achsenbeschriftung - Orientierung

```
par(mfrow=c(1,2))
plot(x, y, las=0) # parallel
plot(x, y, las=1) # horizontal
```





Abstand Beschriftung

```
plot(x, y, xaxt="n", yaxt="n")
xtick<-seq(0, 10, by=5)
axis(side=1, at=xtick, labels = FALSE)
text(x=xtick,  par("usr")[3],
     labels = xtick, srt = 45, pos = 1, xpd = TRUE)
```