# Intro Datenanalyse mit R - ggplot2

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08 Mai, 2019

# Das Paket ggplot2

- Entwickelt von Hadley Wickham
- Viele Informationen unter:
- http://ggplot2.org/
- Den Graphiken liegt eine eigene Grammitik zu Grunde

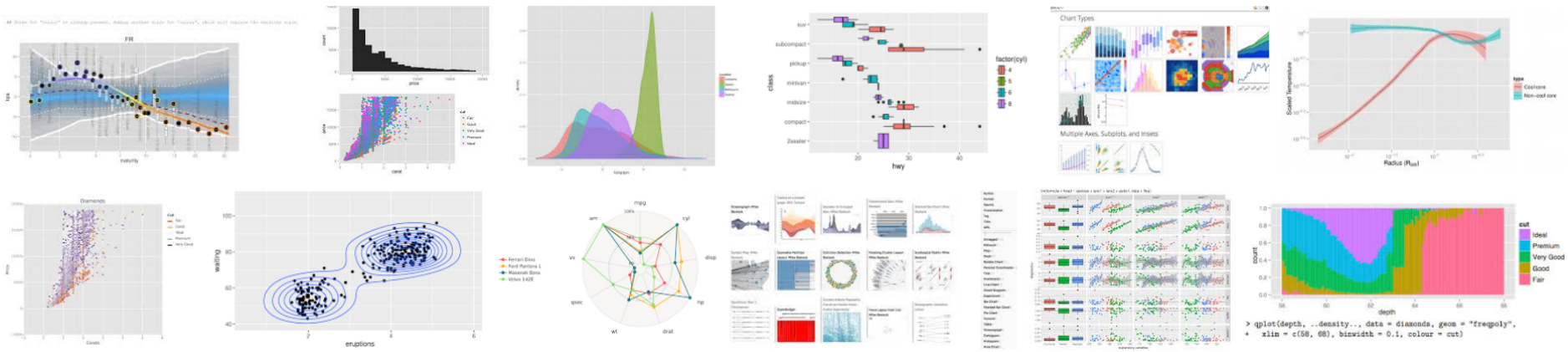



**Figure 1**

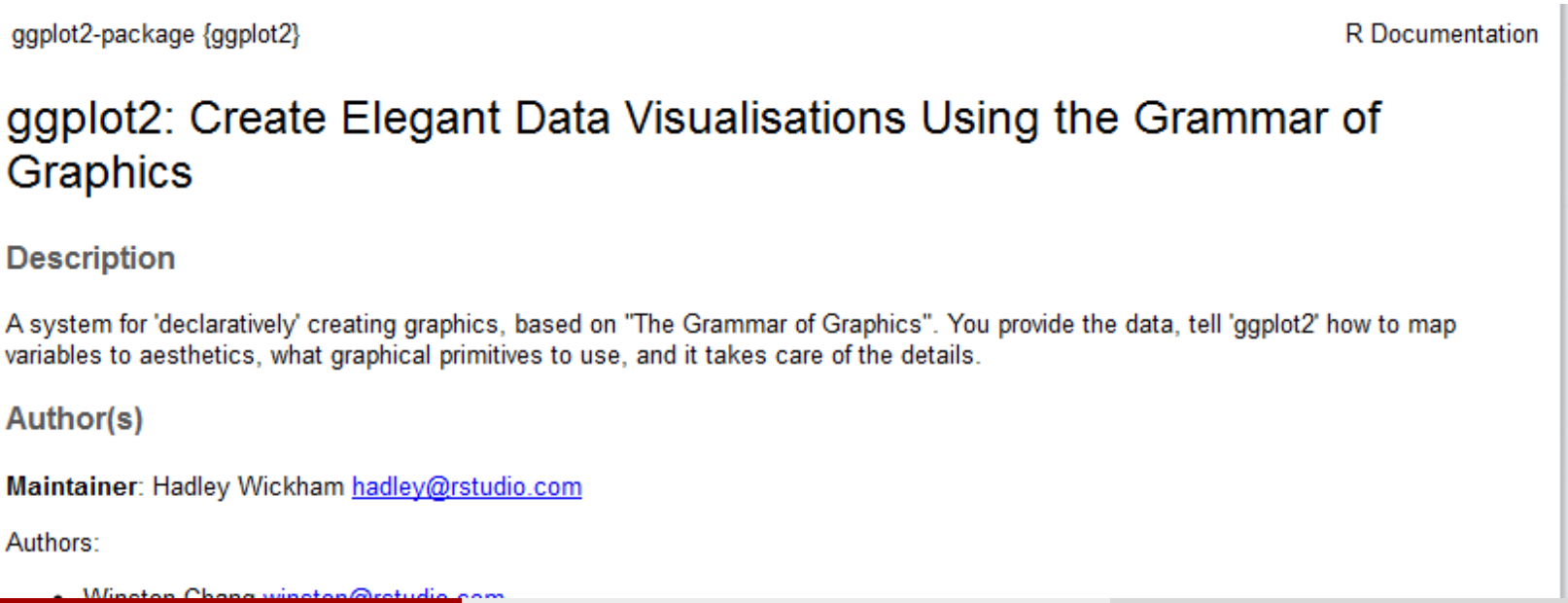
# Einführung in ggplot2

http://www.r-bloggers.com/basic-introduction-to-ggplot2/

```
install.packages("ggplot2")
```

```
library(ggplot2)
```

```
?ggplot2
```



ggplot2-package {ggplot2} R Documentation

## ggplot2: Create Elegant Data Visualisations Using the Grammar of Graphics

### Description

A system for 'declaratively' creating graphics, based on "The Grammar of Graphics". You provide the data, tell 'ggplot2' how to map variables to aesthetics, what graphical primitives to use, and it takes care of the details.

### Author(s)

**Maintainer**: Hadley Wickham hadley@rstudio.com

Authors:

# Der `diamonds` Datensatz

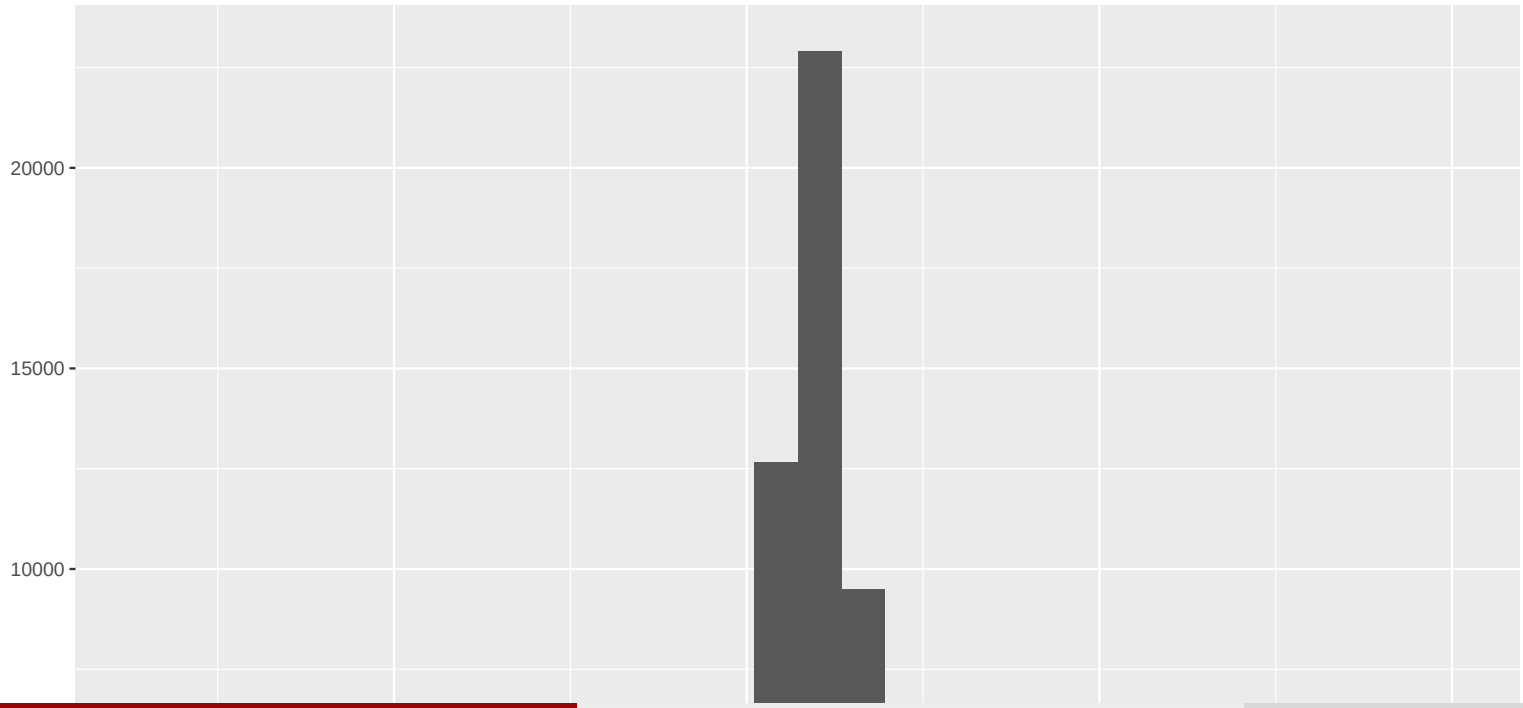
```
head(diamonds)
```

| carat | cut | color | clarity | depth | table | price | x | y | z |
|---|---|---|---|---|---|---|---|---|---|
| 0.23 | Ideal | E | SI2 | 61.5 | 55 | 326 | 3.95 | 3.98 | 2.43 |
| 0.21 | Premium | E | SI1 | 59.8 | 61 | 326 | 3.89 | 3.84 | 2.31 |
| 0.23 | Good | E | VS1 | 56.9 | 65 | 327 | 4.05 | 4.07 | 2.31 |
| 0.29 | Premium | I | VS2 | 62.4 | 58 | 334 | 4.20 | 4.23 | 2.63 |
| 0.31 | Good | J | SI2 | 63.3 | 58 | 335 | 4.34 | 4.35 | 2.75 |
| 0.24 | Very Good | J | VVS2 | 62.8 | 57 | 336 | 3.94 | 3.96 | 2.48 |

# Wie nutzt man qplot

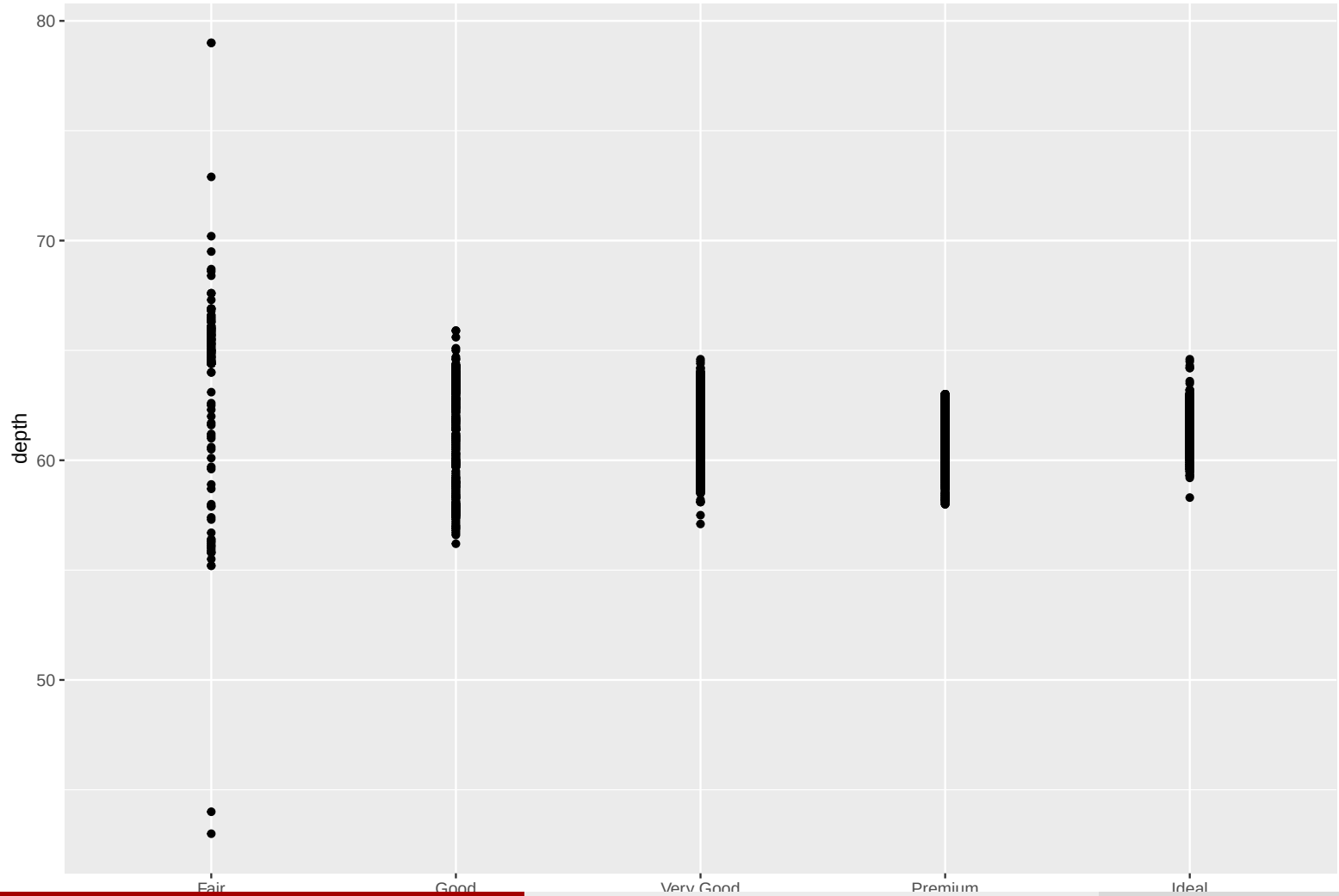
- Die Funktion qplot wird für schnelle Graphiken verwendet (quick plots)
- bei der Funktion ggplot kann man alles bis ins Detail kontrollieren

```
# histogram
qplot(depth, data=diamonds)
```



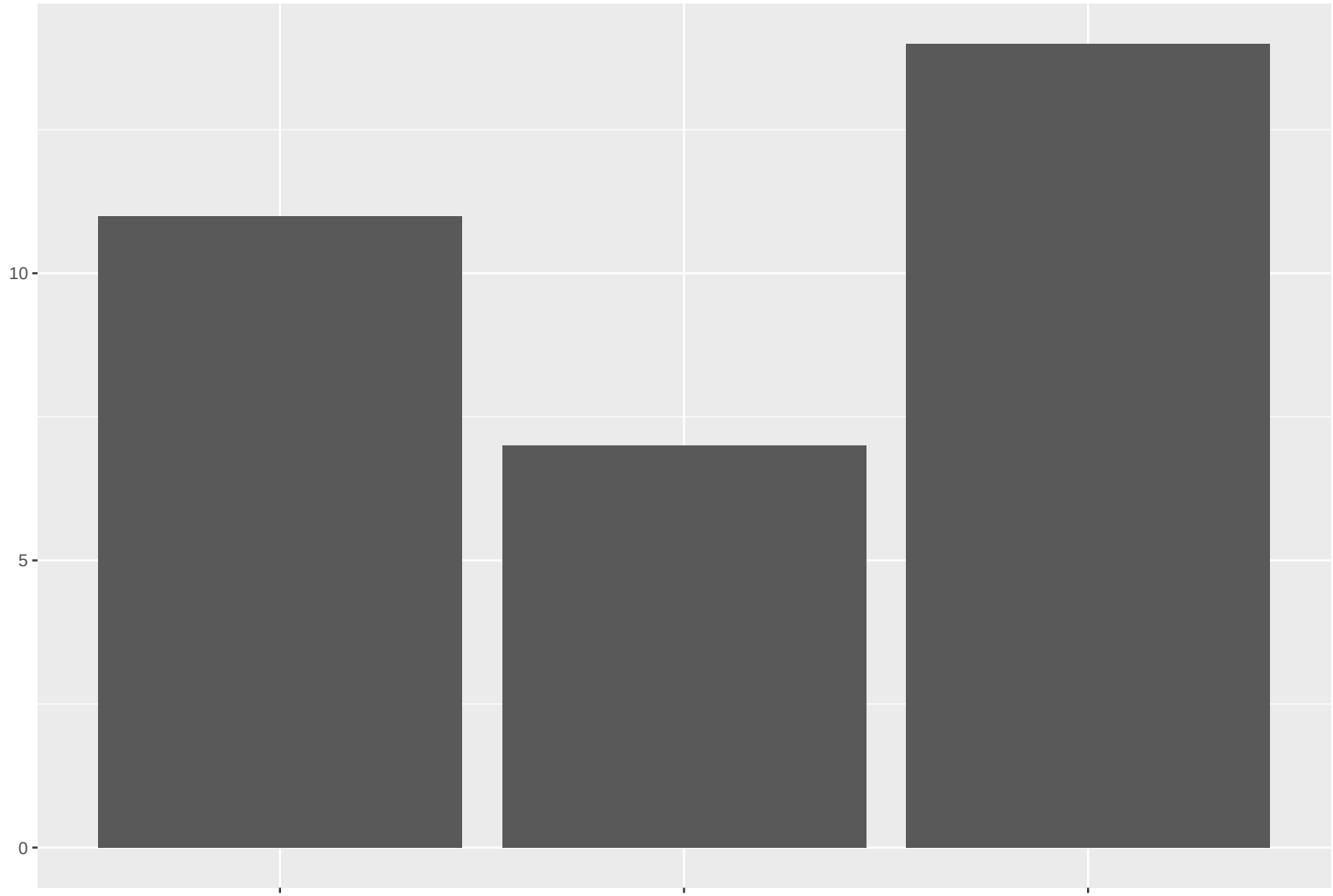
# Ein Balkendiagramm

```
qplot(cut, depth, data=diamonds)
```



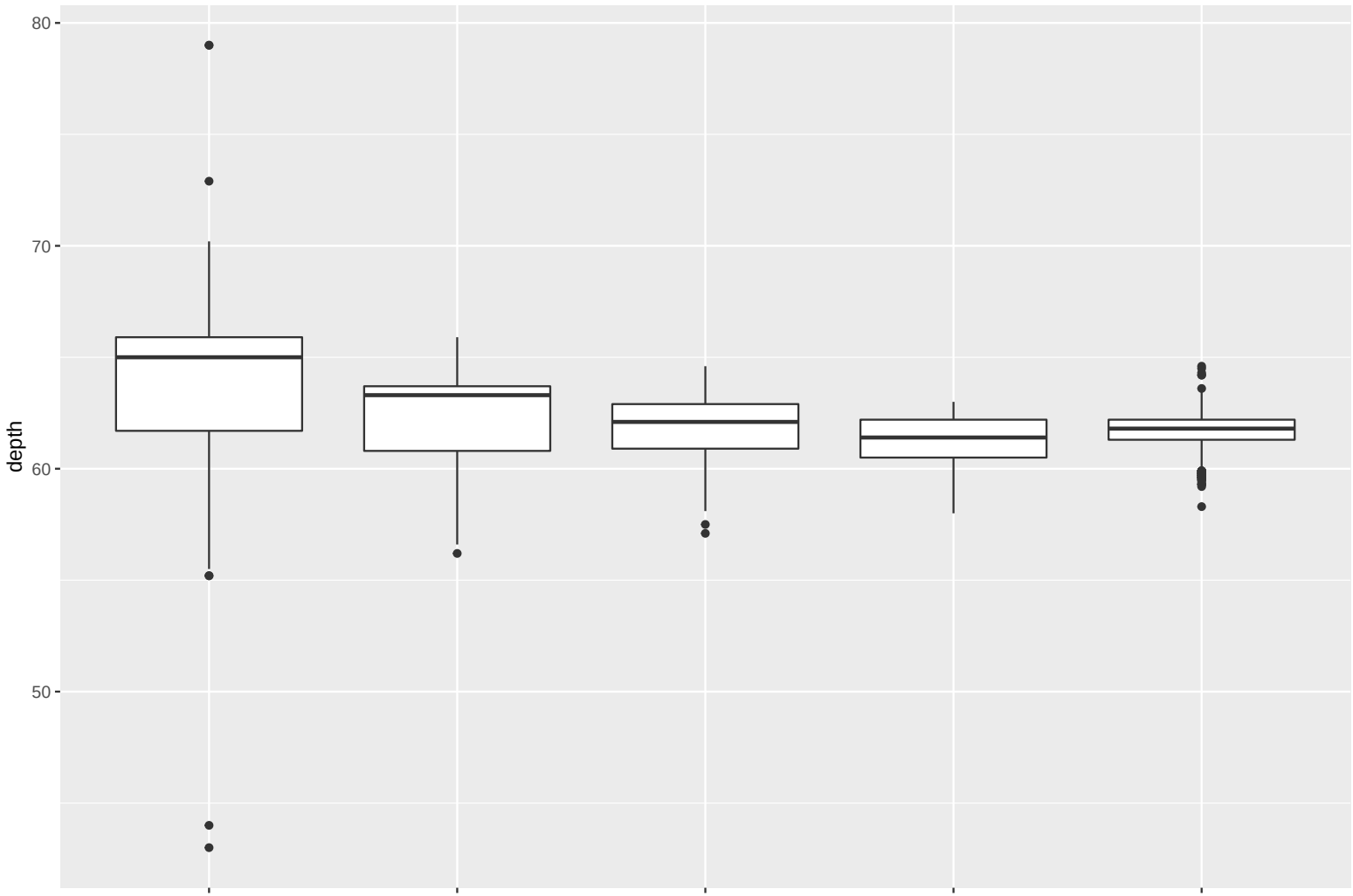
# Ein weiteres Balkendiagramm

```
qplot(factor(cyl), data=mtcars,geom="bar")
```



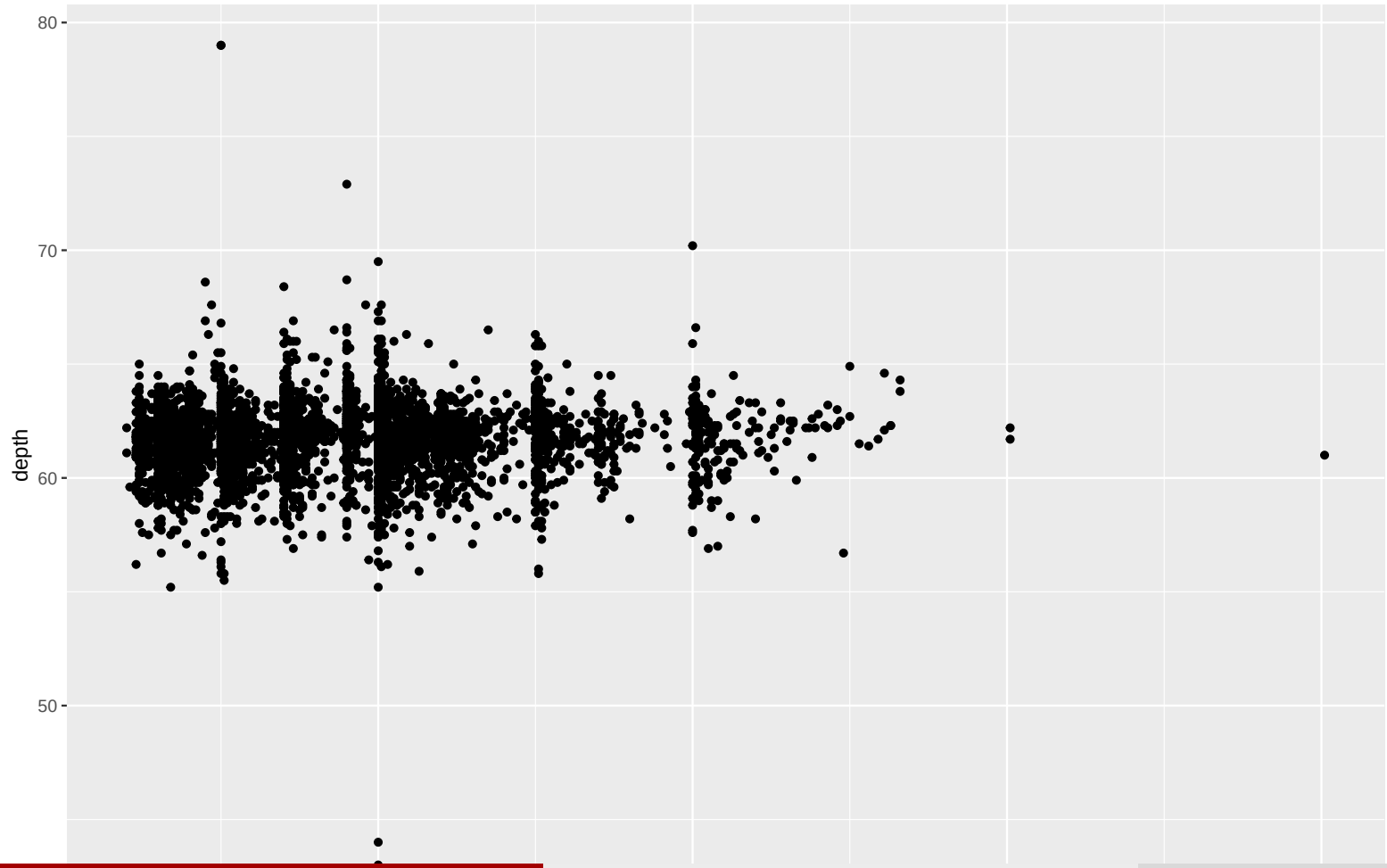
# Boxplot

```
qplot(data=diamonds,x=cut,y=depth,geom="boxplot")
```



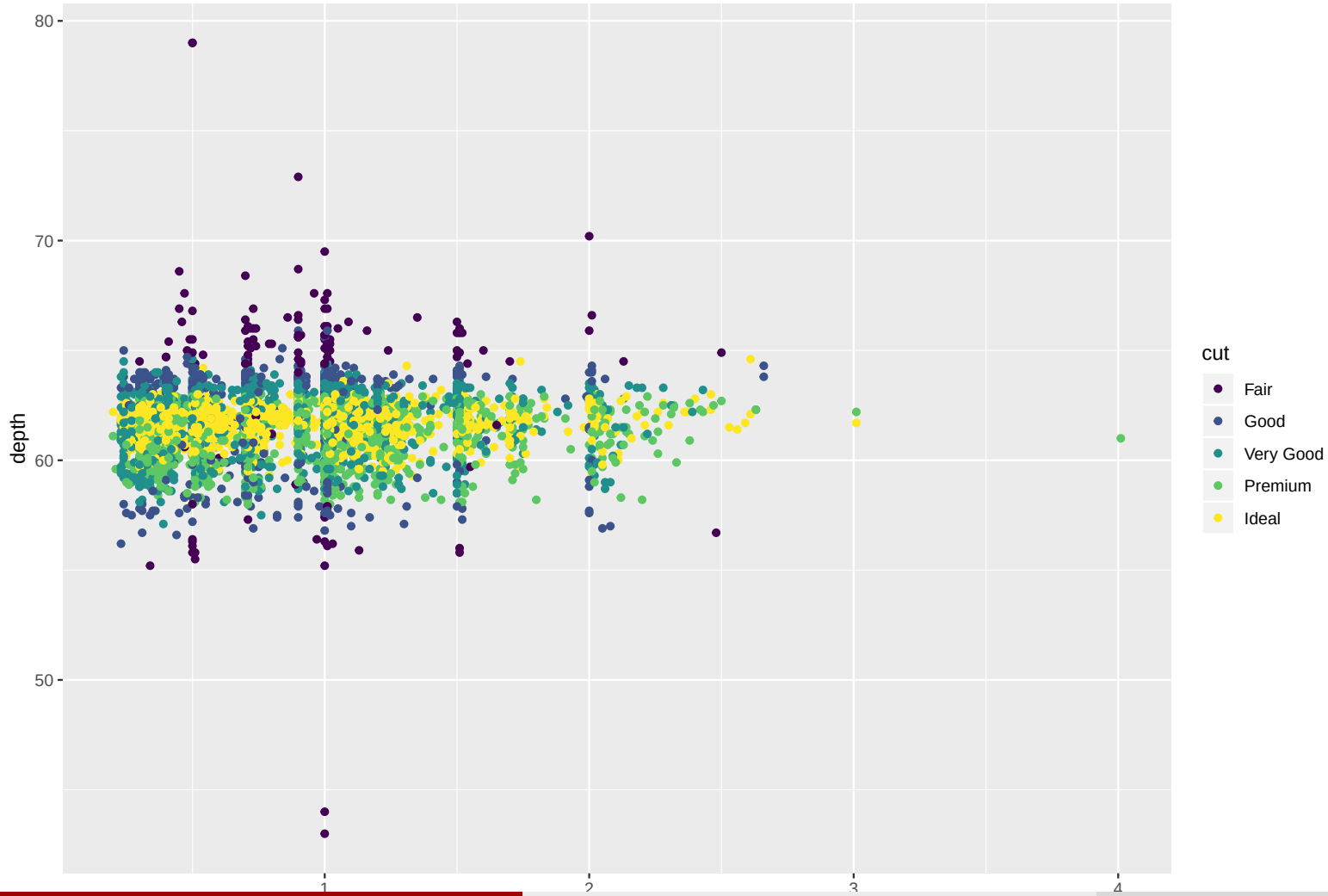
# Scatterplot

```
# scatterplot
qplot(carat, depth, data=diamonds)
```



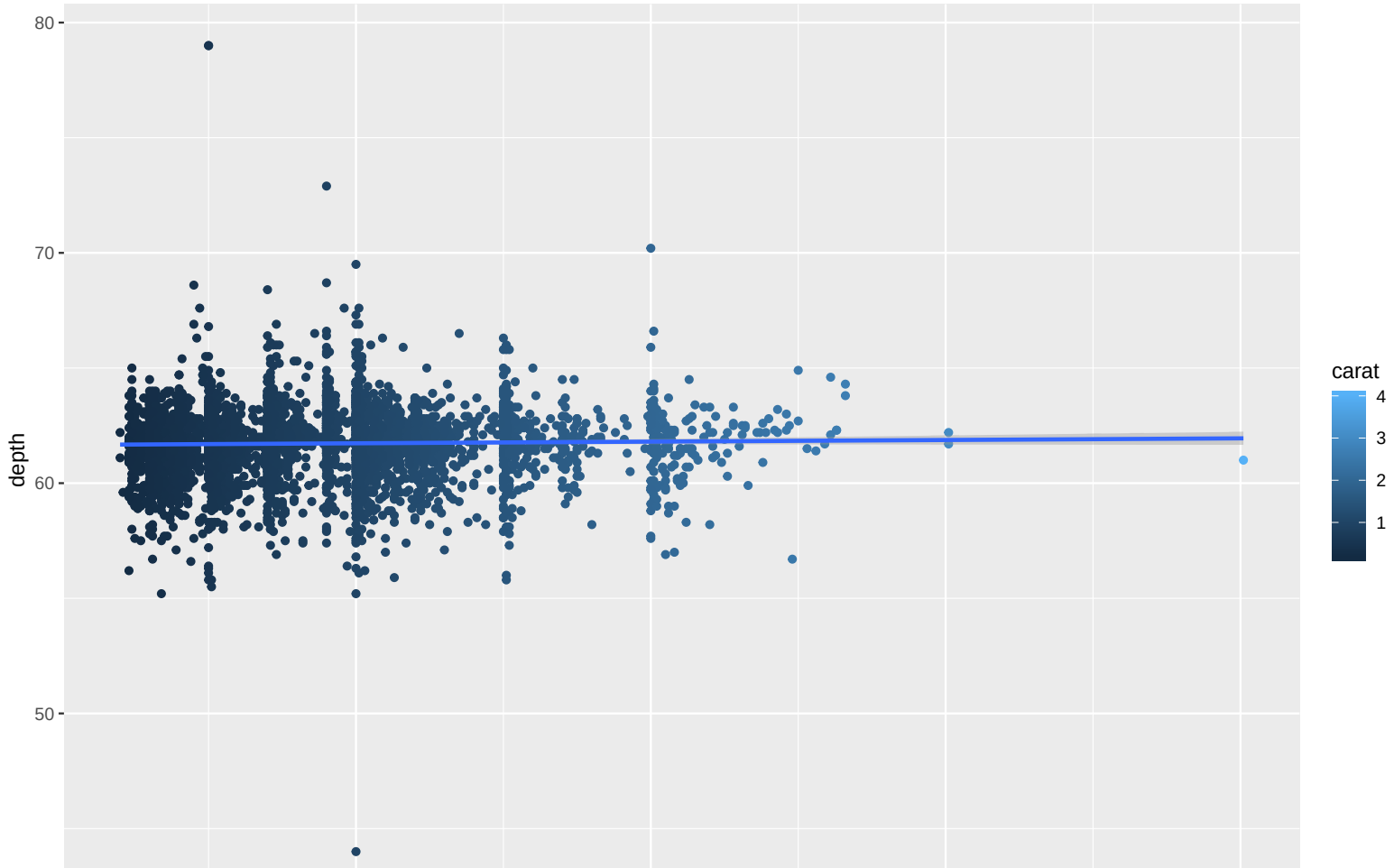
# Farbe hinzu:

```
qplot(carat, depth, data=diamonds,color=cut)
```



# Trendlinie hinzufügen

```
myGG<-qplot(data=diamonds,x=carat,y=depth,color=carat)
myGG + stat_smooth(method="lm")
```



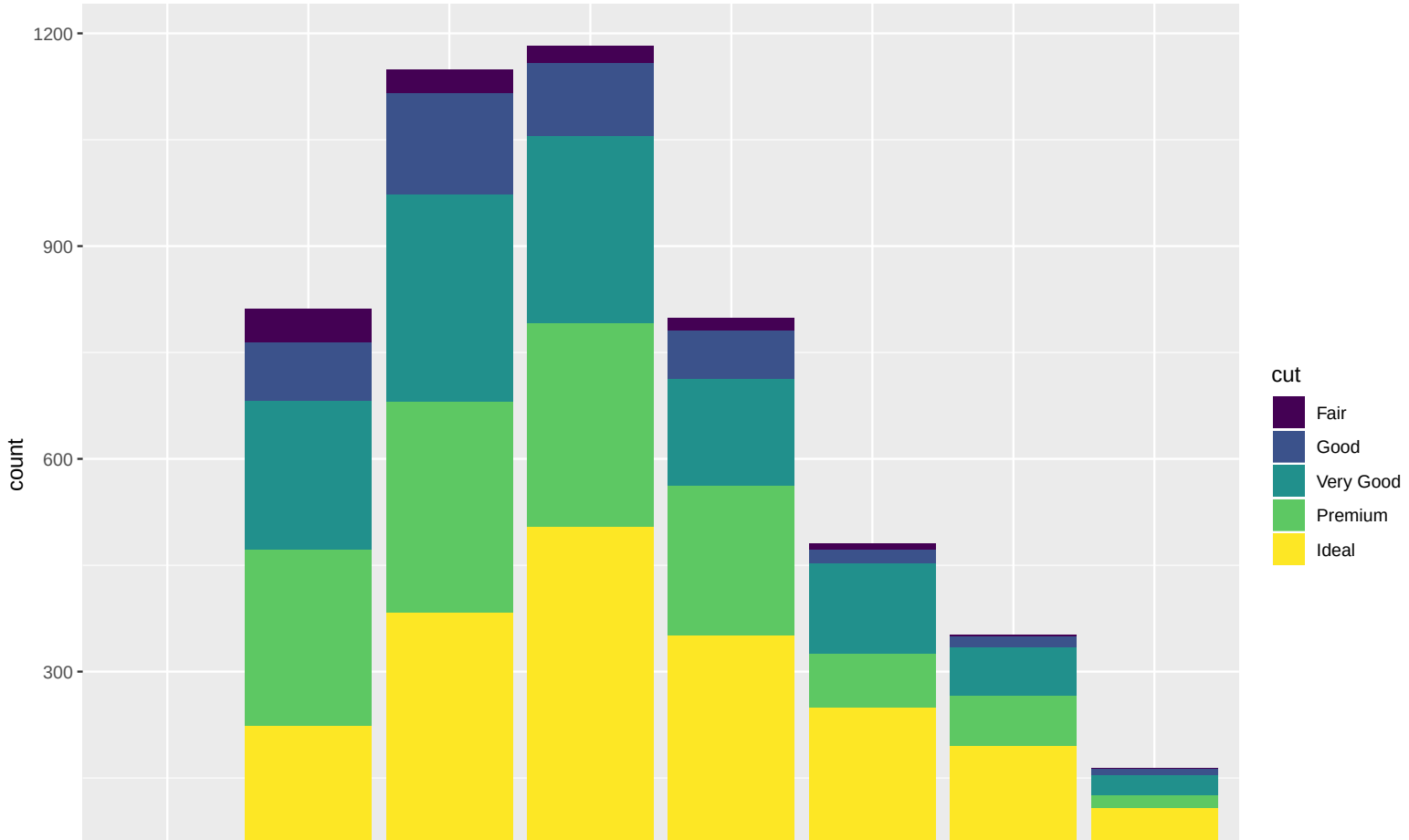
# Graphik drehen

```
qplot(factor(cyl), data=mtcars, geom="bar") +
coord_flip()
```

# Wie nutzt man ggplot

- die aestetics:

```
ggplot(diamonds, aes(clarity, fill=cut)) + geom_bar()
```



# Farben selber wählen

Es wird das Paket `RColorBrewer` verwendet um die Farbpalette zu ändern

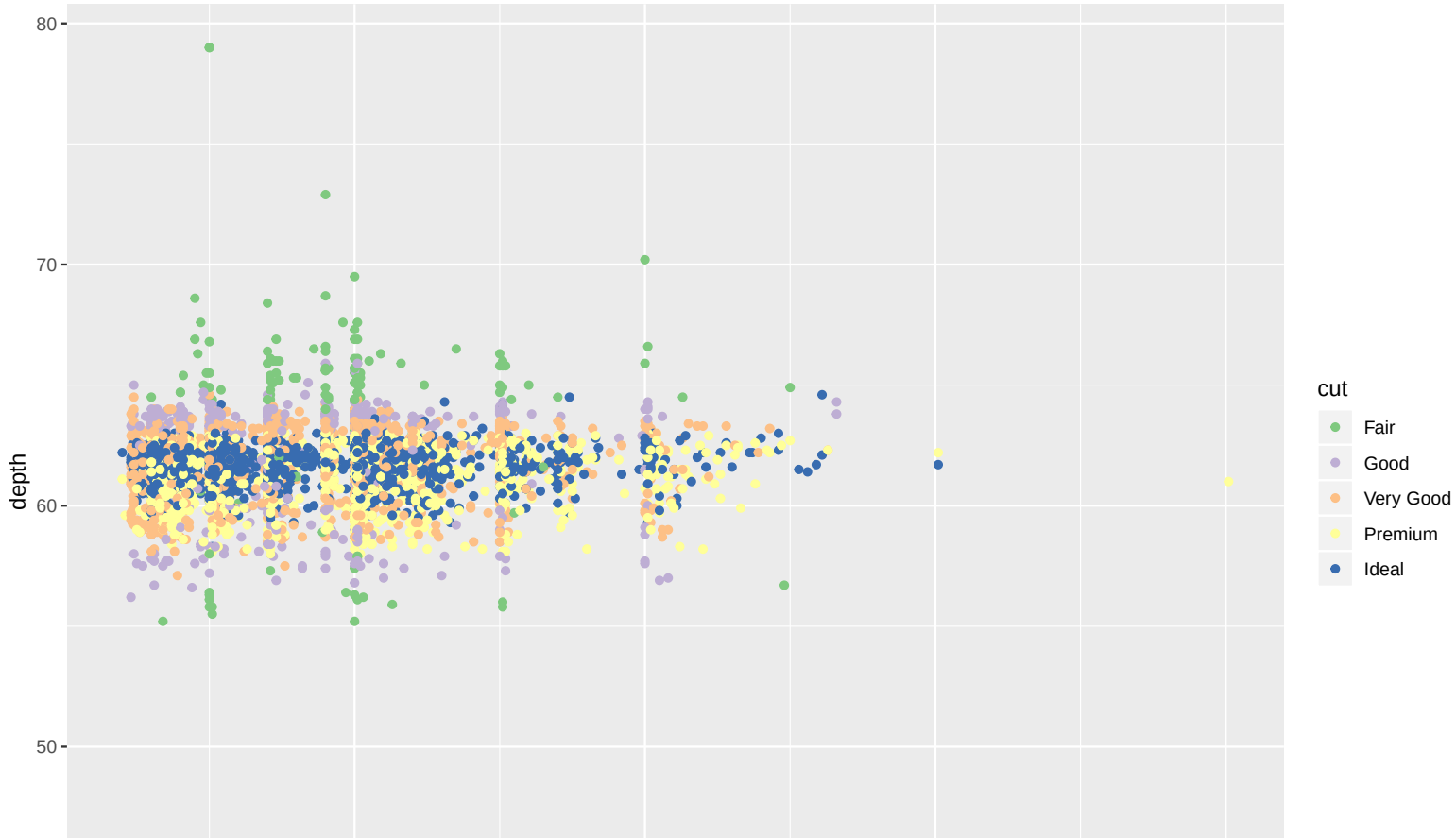
```
install.packages("RColorBrewer")
```

```
library(RColorBrewer)
myColors <- brewer.pal(5,"Accent")
names(myColors) <- levels(diamonds$cut)
colScale <- scale_colour_manual(name = "cut",
                                values = myColors)
```

http://stackoverflow.com/questions/6919025/

# Eine Graphik mit den gewählten Farben

```
p <- ggplot(diamonds,aes(carat, depth,colour = cut)) +
  geom_point()
p + colScale
```



# Speichern mit ggsave

```
ggsave("Graphik.jpg")
```

# Links

- Warum man ggplot2 für einfache Grafiken nutzen sollte


**Figure 3**