Motor Trend Cars

Data

This data is from Motor Trend magazine in 1974.

1. Data overview

```
?mtcars
```

```
## starting httpd help server ...
```

```
##  done
```

```
summary(mtcars)
```

```
##       mpg             cyl             disp             hp
##  Min.   :10.40   Min.   :4.000   Min.   : 71.1   Min.   : 52.0
##  1st Qu.:15.43   1st Qu.:4.000   1st Qu.:120.8   1st Qu.: 96.5
##  Median :19.20   Median :6.000   Median :196.3   Median :123.0
##  Mean   :20.09   Mean   :6.188   Mean   :230.7   Mean   :146.7
##  3rd Qu.:22.80   3rd Qu.:8.000   3rd Qu.:326.0   3rd Qu.:180.0
##  Max.   :33.90   Max.   :8.000   Max.   :472.0   Max.   :335.0
##       drat             wt             qsec             vs
##  Min.   :2.760   Min.   :1.513   Min.   :14.50   Min.   :0.0000
##  1st Qu.:3.080   1st Qu.:2.581   1st Qu.:16.89   1st Qu.:0.0000
##  Median :3.695   Median :3.325   Median :17.71   Median :0.0000
##  Mean   :3.597   Mean   :3.217   Mean   :17.85   Mean   :0.4375
##  3rd Qu.:3.920   3rd Qu.:3.610   3rd Qu.:18.90   3rd Qu.:1.0000
##  Max.   :4.930   Max.   :5.424   Max.   :22.90   Max.   :1.0000
##        am              gear            carb
##  Min.   :0.0000   Min.   :3.000   Min.   :1.000
##  1st Qu.:0.0000   1st Qu.:3.000   1st Qu.:2.000
##  Median :0.0000   Median :4.000   Median :2.000
##  Mean   :0.4062   Mean   :3.688   Mean   :2.812
##  3rd Qu.:1.0000   3rd Qu.:4.000   3rd Qu.:4.000
##  Max.   :1.0000   Max.   :5.000   Max.   :8.000
```

```
dim(mtcars) # The first number is the number of rows in the data frame and the second is the number of
```

```
## [1] 32 11
```

```
names(mtcars)
```

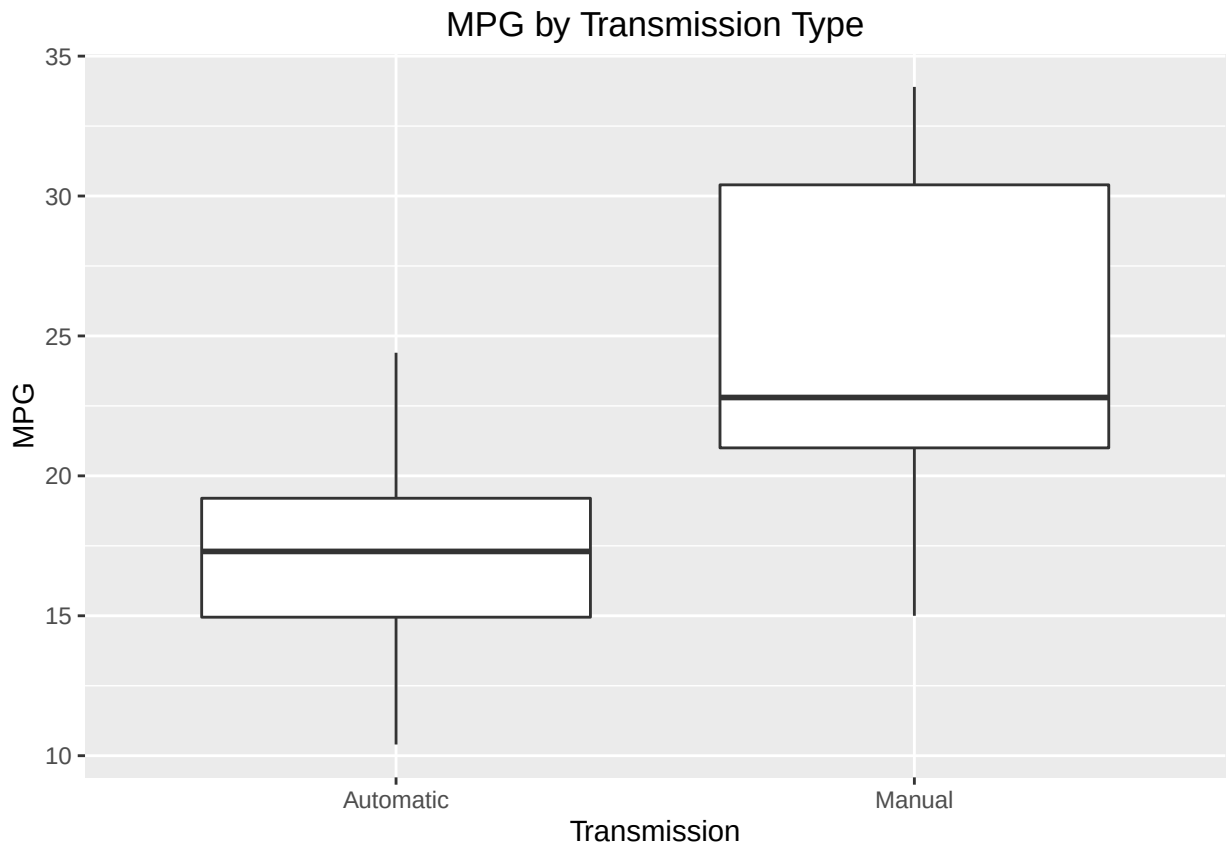
```
##  [1] "mpg"  "cyl"  "disp" "hp"   "drat" "wt"   "qsec" "vs"   "am"   "gear"
## [11] "carb"
```

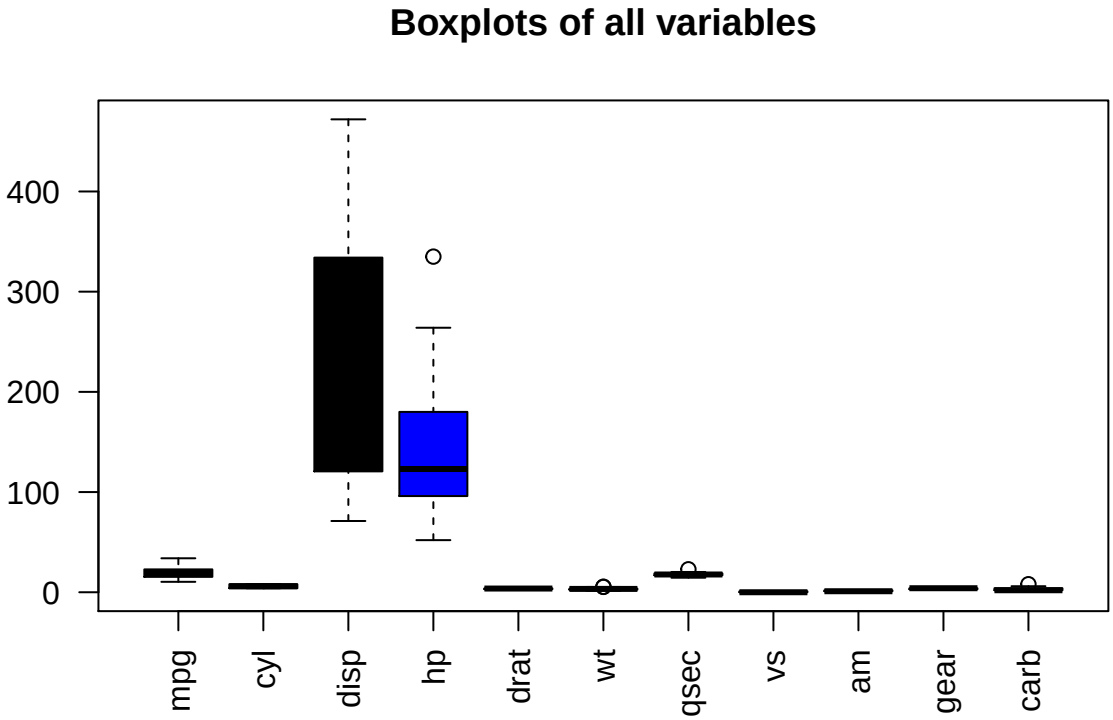
```r
# Labelling variables
var.labels = c(mpg="Miles per gallon", cyl="Number of cylinders", disp="Displacement", hp="Horsepower",

label(mtcars) = lapply(names(var.labels),
function(x) label(mtcars[,x]) = var.labels[x])

View(mtcars)
```

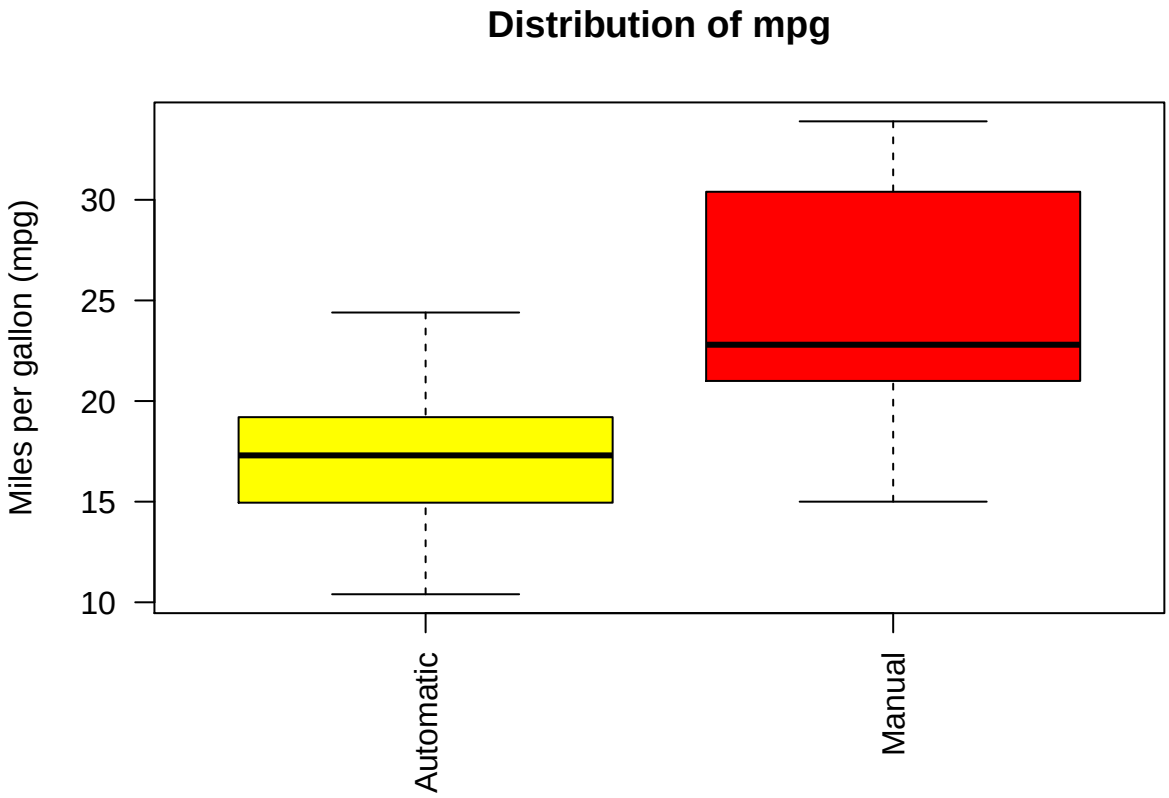
2. Exploring the variables

```
##                      x
## median       19.2000000
## mean         20.0906250
## SE.mean       1.0654240
## CI.mean.0.95  2.1729465
## var          36.3241028
## std.dev       6.0269481
## coef.var      0.2999881
```

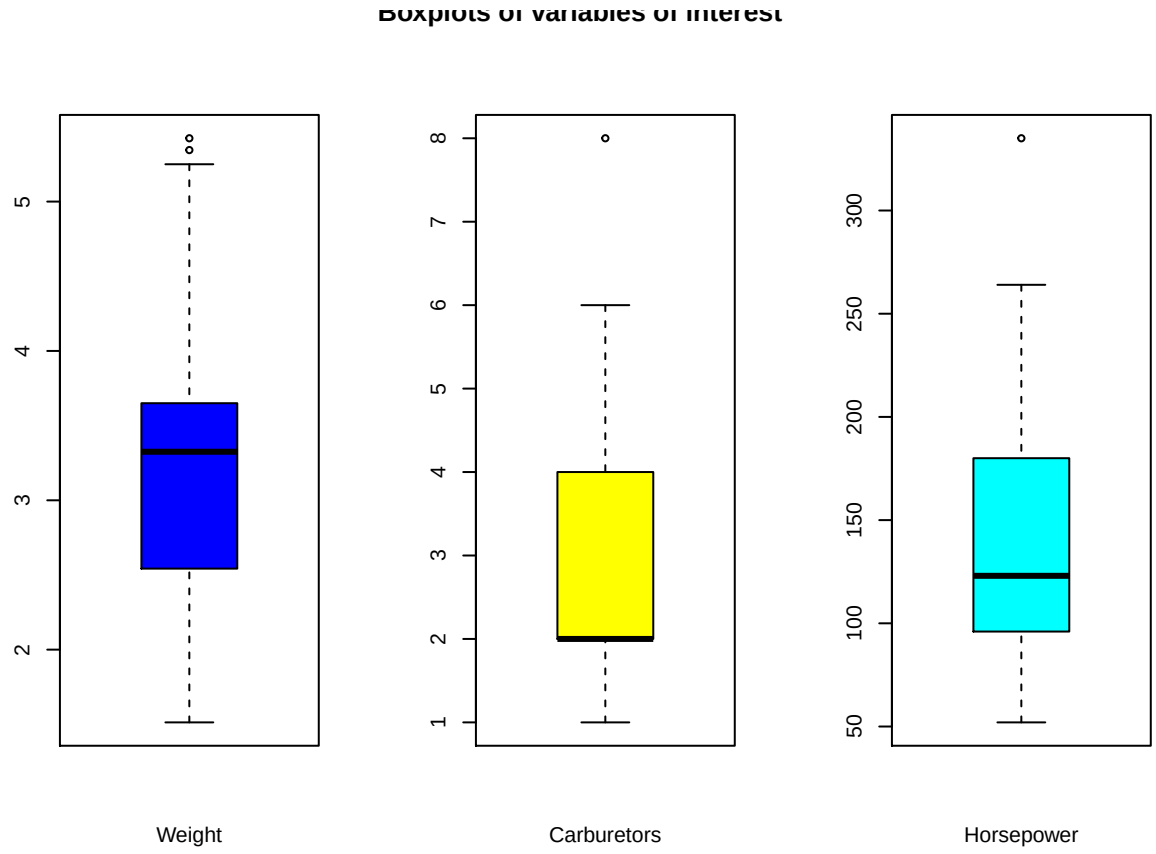
Plots



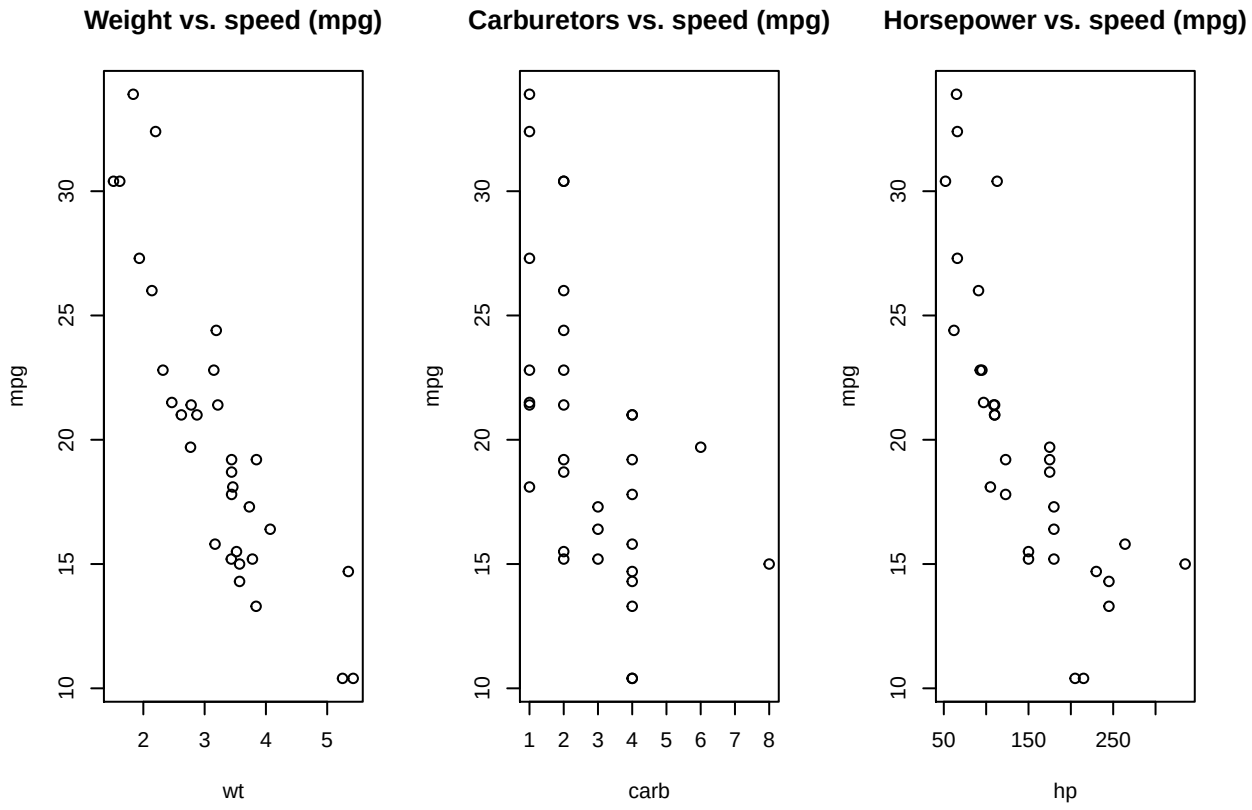

Boxplots of all variables
400
300
200
100
0
mpg
cyl
disp
hp
drat
wt
qsec
vs
am
gear
carb



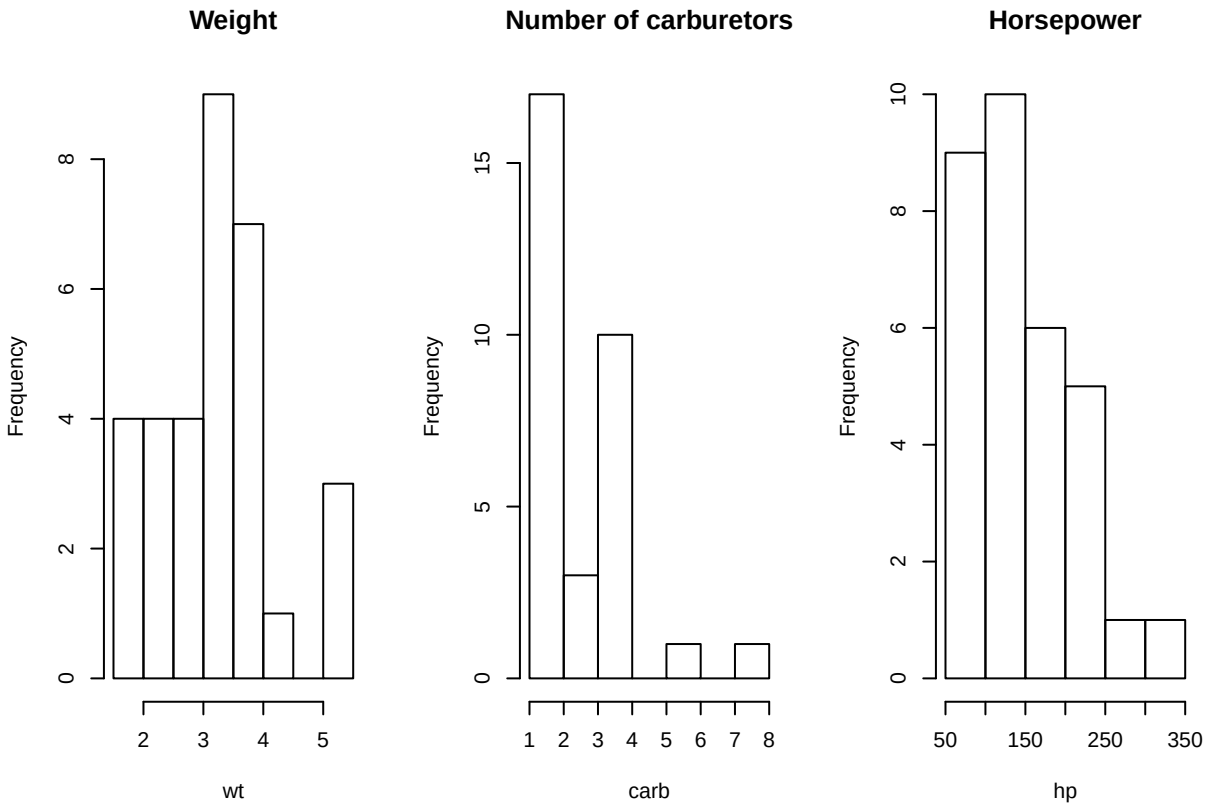

```
## The following object is masked from package:ggplot2:
##
##     mpg
```



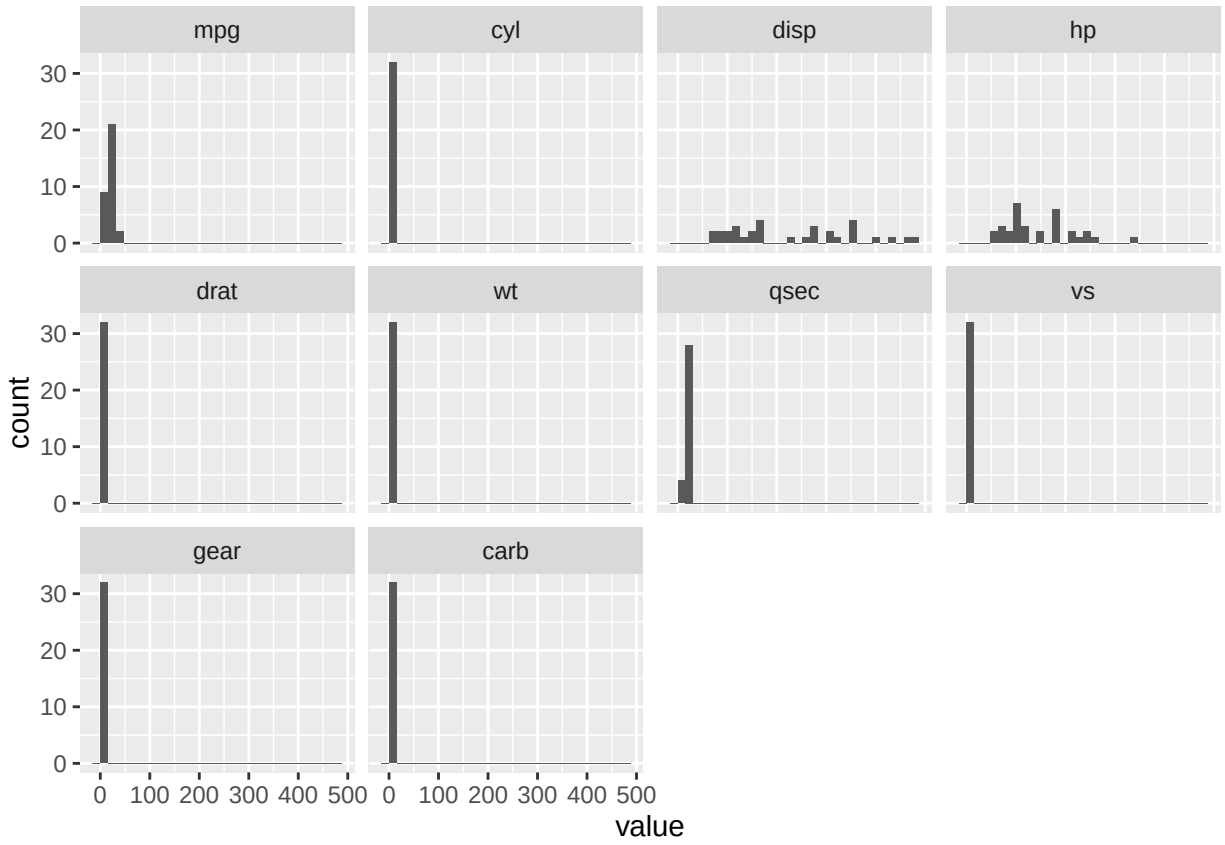

```
## The following objects are masked from mtcars (pos = 3):
##
##     am, carb, cyl, disp, drat, gear, hp, mpg, qsec, vs, wt
##
## The following object is masked from package:ggplot2:
##
##     mpg
```




```
## The following objects are masked from mtcars (pos = 3):
##
##     am, carb, cyl, disp, drat, gear, hp, mpg, qsec, vs, wt

## The following objects are masked from mtcars (pos = 4):
##
##     am, carb, cyl, disp, drat, gear, hp, mpg, qsec, vs, wt

## The following object is masked from package:ggplot2:
##
##     mpg
```




```
## Using am as id variables

## Warning: attributes are not identical across measure variables; they will
## be dropped

## `stat_bin()` using `bins = 30`. Pick better value with `binwidth`.
```


mpg
cyl
disp
hp
drat
wt
qsec
vs
gear
carb
count
value
0
10
20
30
0
100
200
300
400
500