Statistics in R: Task 1

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```
library(ggplot2)
library(dplyr)
library(tidyr)
library(chron)
library(corrplot)
library(ggpubr)
```

Anscombe

```
data(anscombe)
head(anscombe)
```

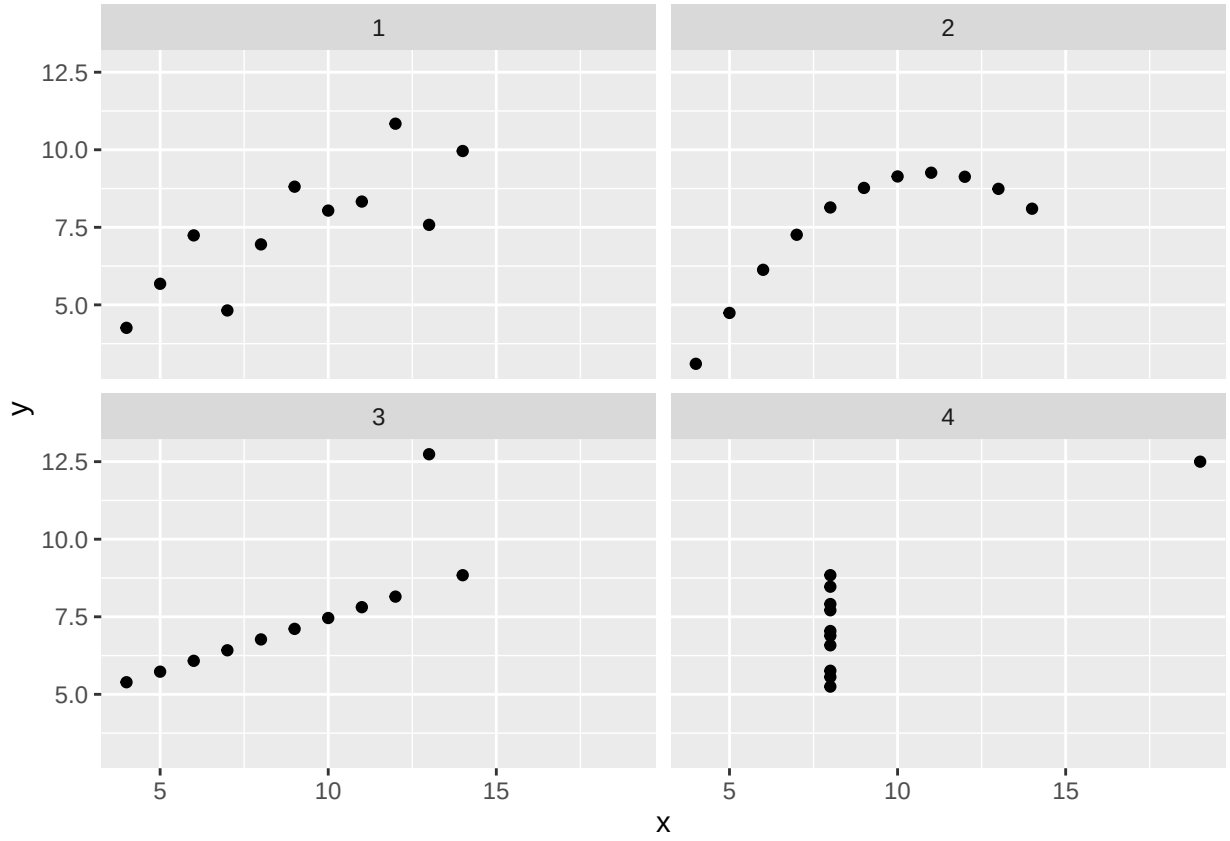
```
##   x1 x2 x3 x4   y1   y2    y3   y4
## 1 10 10 10  8 8.04 9.14  7.46 6.58
## 2  8  8  8  8 6.95 8.14  6.77 5.76
## 3 13 13 13  8 7.58 8.74 12.74 7.71
## 4  9  9  9  8 8.81 8.77  7.11 8.84
## 5 11 11 11  8 8.33 9.26  7.81 8.47
## 6 14 14 14  8 9.96 8.10  8.84 7.04
```

```
anscombeL <- data.frame(
    set = rep(1:4, each=11),
    x = unlist(anscombe[,c(1:4)]),
    y = unlist(anscombe[,c(5:8)]))
rownames(anscombeL) <- NULL
head(anscombeL)
```

```
##   set  x    y
## 1   1 10 8.04
## 2   1  8 6.95
## 3   1 13 7.58
## 4   1  9 8.81
## 5   1 11 8.33
## 6   1 14 9.96
```

Scatter plot facetted by set

```
ggplot(data=anscombeL, mapping=aes(x, y)) +
    geom_point() +
    facet_wrap(~set)
```



Summary calculation (mean, sd) grouped by set

```
by_set <- anscombeL %>%
  group_by(set)
```

```
by_set %>%
  summarise_all(list(~mean(.), ~sd(.)))
```

```
## # A tibble: 4 x 5
##     set x_mean y_mean  x_sd  y_sd
##   <int>  <dbl>  <dbl> <dbl> <dbl>
## 1     1      9   7.50  3.32  2.03
## 2     2      9   7.50  3.32  2.03
## 3     3      9   7.5   3.32  2.03
## 4     4      9   7.50  3.32  2.03
```

Correlations by set

```
by_set %>%
  summarise(cor_pearson = cor(x, y, method="pearson"),
            cor_kendall = cor(x, y, method="kendall"),
            cor_spearman = cor(x, y, method="spearman"))
```

```
## # A tibble: 4 x 4
##     set cor_pearson cor_kendall cor_spearman
##   <int>       <dbl>       <dbl>        <dbl>
## 1     1       0.816       0.636        0.818
## 2     2       0.816       0.564        0.691
## 3     3       0.816       0.964        0.991
## 4     4       0.817       0.426        0.5
```

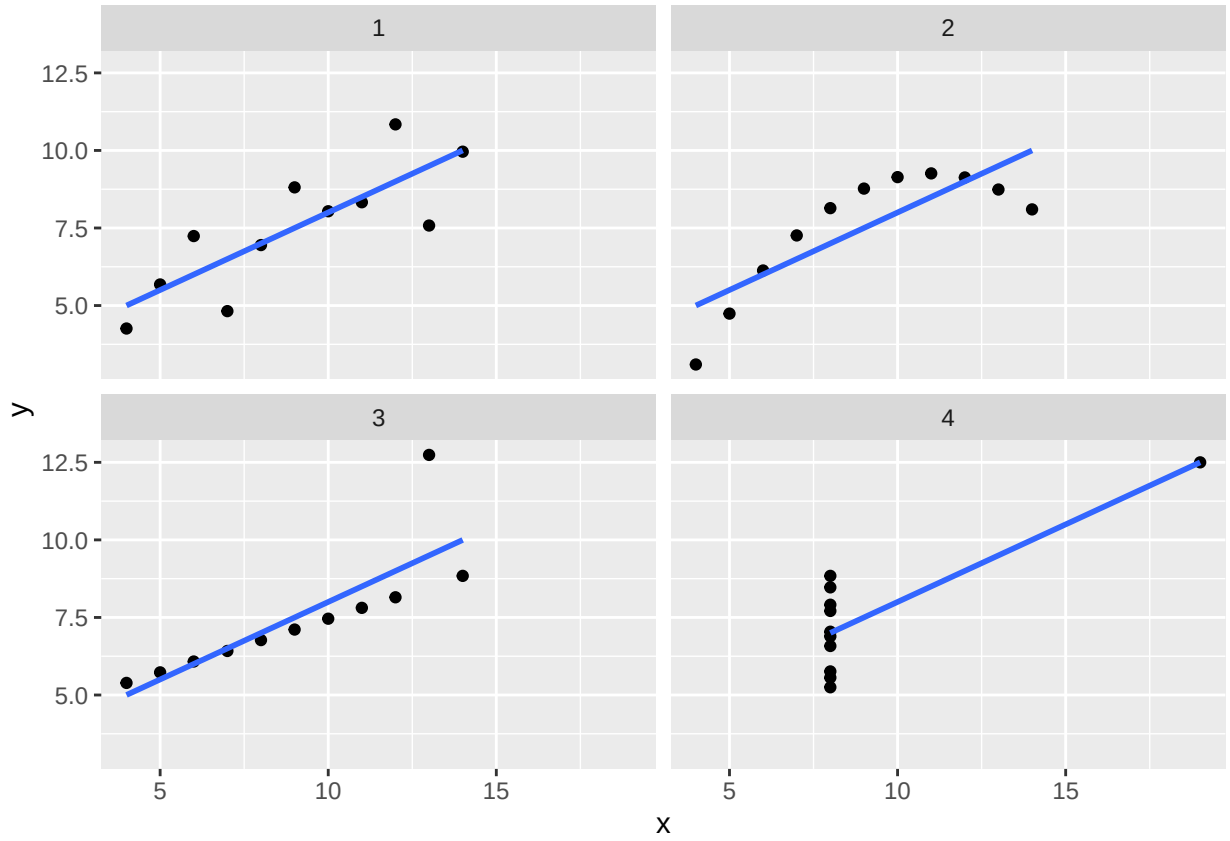
```
by_set %>%
  summarise(p_pearson = cor.test(x, y, method="pearson")$p.value,
            p_kendall = cor.test(x, y, method="kendall")$p.value,
            p_spearman = cor.test(x, y, method="spearman")$p.value)
```

```
## # A tibble: 4 x 4
##     set p_pearson   p_kendall p_spearman
##   <int>     <dbl>       <dbl>      <dbl>
## 1     1   0.00217 0.00571        0.00373
## 2     2   0.00218 0.0165         0.0231
## 3     3   0.00218 0.000000551    0
## 4     4   0.00216 0.114          0.117
```

Scatter plot facetted by set with geom_smooth()

```
ggplot(data=anscombeL, mapping=aes(x, y)) +
    geom_point() +
    geom_smooth(method='lm', se=F) +
    facet_wrap(~set)
```

```
## `geom_smooth()` using formula 'y ~ x'
```



Air quality

```
air_quality <- read.csv('AirQualityUCI.csv', sep=';')
str(air_quality)
```

```
## 'data.frame':    9471 obs. of  17 variables:
##  $ Date         : Factor w/ 392 levels "","01/01/2005",..: 116 116 116 116 116 116 129 129 129 129 .
##  $ Time         : Factor w/ 25 levels "","00.00.00",..: 20 21 22 23 24 25 2 3 4 5 ...
##  $ CO.GT.       : Factor w/ 105 levels "","-200","-200,0",..: 35 28 31 31 20 16 16 13 12 9 ...
##  $ PT08.S1.CO.  : int  1360 1292 1402 1376 1272 1197 1185 1136 1094 1010 ...
##  $ NMHC.GT.     : int  150 112 88 80 51 38 31 31 24 19 ...
##  $ C6H6.GT.     : Factor w/ 409 levels "","-200,0","0,1",..: 41 404 400 402 374 327 237 234 125 19 .
##  $ PT08.S2.NMHC.: int  1046 955 939 948 836 750 690 672 609 561 ...
##  $ NOx.GT.      : int  166 103 131 172 131 89 62 62 45 -200 ...
##  $ PT08.S3.NOx. : int  1056 1174 1140 1092 1205 1337 1462 1453 1579 1705 ...
##  $ NO2.GT.      : int  113 92 114 122 116 96 77 76 60 -200 ...
##  $ PT08.S4.NO2. : int  1692 1559 1555 1584 1490 1393 1333 1333 1276 1235 ...
##  $ PT08.S5.O3.  : int  1268 972 1074 1203 1110 949 733 730 620 501 ...
##  $ T            : Factor w/ 438 levels "","-0,1","-0,2",..: 68 65 51 42 44 44 45 39 39 35 ...
##  $ RH           : Factor w/ 755 levels "","-200","10,0",..: 377 365 428 488 484 480 456 488 485 490
##  $ AH           : Factor w/ 6685 levels "","-200","0,1847",..: 1898 1729 1855 2058 2068 2047 1911 19
##  $ X            : logi  NA NA NA NA NA NA ...
##  $ X.1          : logi  NA NA NA NA NA NA ...
```

Tidying

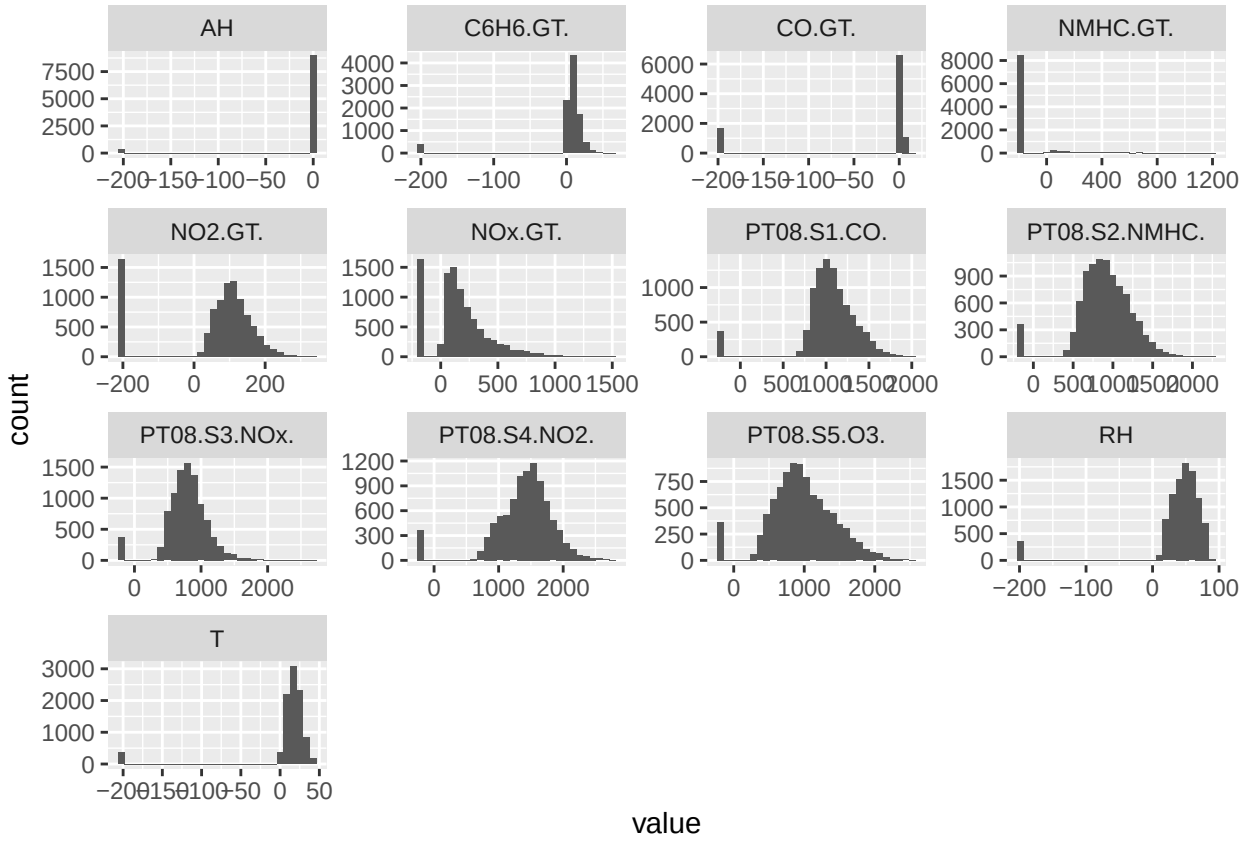
```
air_quality <- air_quality[-c(9358:nrow(air_quality)),
                           !(names(air_quality) %in% c('X','X.1'))]

air_quality$Date <- as.Date(as.character(air_quality$Date), "%d/%m/%Y")
air_quality$Time <- chron(times=air_quality$Time, format=c('h.m.s'))

columns <- c('CO.GT.', 'C6H6.GT.', 'T', 'RH', 'AH')
air_quality[columns] <- lapply(air_quality[columns], function(x) gsub(",", ".", x))
air_quality[columns] <- lapply(air_quality[columns], as.numeric)

str(air_quality)
```

```
## 'data.frame':    9357 obs. of  15 variables:
##  $ Date         : Date, format: "2004-03-10" "2004-03-10" ...
##  $ Time         : 'times' num  18.00.00 19.00.00 20.00.00 21.00.00 22.00.00 ...
##   ..- attr(*, "format")= chr "h.m.s"
##  $ CO.GT.       : num  2.6 2 2.2 2.2 1.6 1.2 1.2 1 0.9 0.6 ...
##  $ PT08.S1.CO.  : int  1360 1292 1402 1376 1272 1197 1185 1136 1094 1010 ...
##  $ NMHC.GT.     : int  150 112 88 80 51 38 31 31 24 19 ...
##  $ C6H6.GT.     : num  11.9 9.4 9 9.2 6.5 4.7 3.6 3.3 2.3 1.7 ...
##  $ PT08.S2.NMHC.: int  1046 955 939 948 836 750 690 672 609 561 ...
##  $ NOx.GT.      : int  166 103 131 172 131 89 62 62 45 -200 ...
##  $ PT08.S3.NOx. : int  1056 1174 1140 1092 1205 1337 1462 1453 1579 1705 ...
##  $ NO2.GT.      : int  113 92 114 122 116 96 77 76 60 -200 ...
##  $ PT08.S4.NO2. : int  1692 1559 1555 1584 1490 1393 1333 1333 1276 1235 ...
##  $ PT08.S5.O3.  : int  1268 972 1074 1203 1110 949 733 730 620 501 ...
##  $ T            : num  13.6 13.3 11.9 11 11.2 11.2 11.3 10.7 10.7 10.3 ...
##  $ RH           : num  48.9 47.7 54 60 59.6 59.2 56.8 60 59.7 60.2 ...
##  $ AH           : num  0.758 0.726 0.75 0.787 0.789 ...
```

Checking each variable

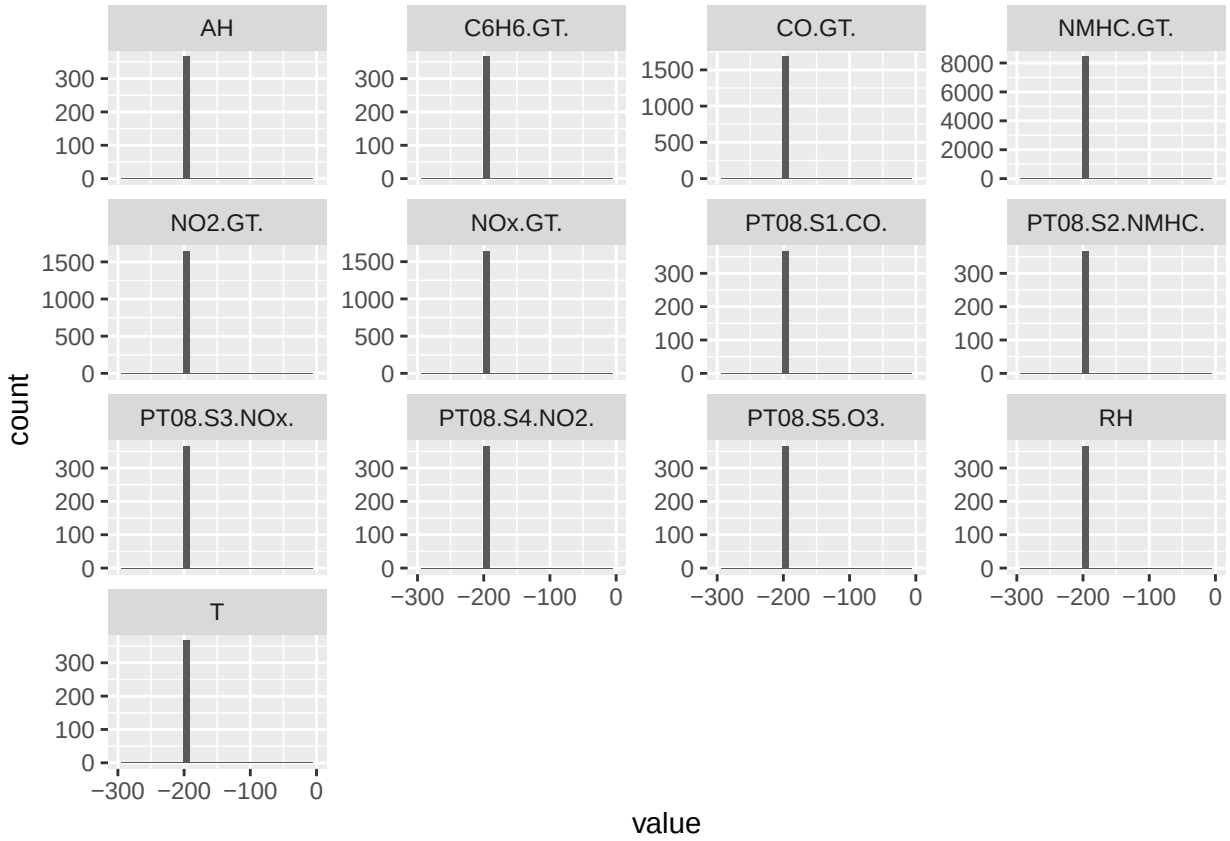
```
airq_for_hist <- pivot_longer(air_quality, cols=CO.GT.:AH)
ggplot(airq_for_hist, aes(value)) +
    geom_histogram() +
    facet_wrap(~name, scales='free')
```

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




```
ggplot(airq_for_hist, aes(value)) +
    geom_histogram() +
    facet_wrap(~name, scales='free_y') +
    xlim(-300, 0)
```

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



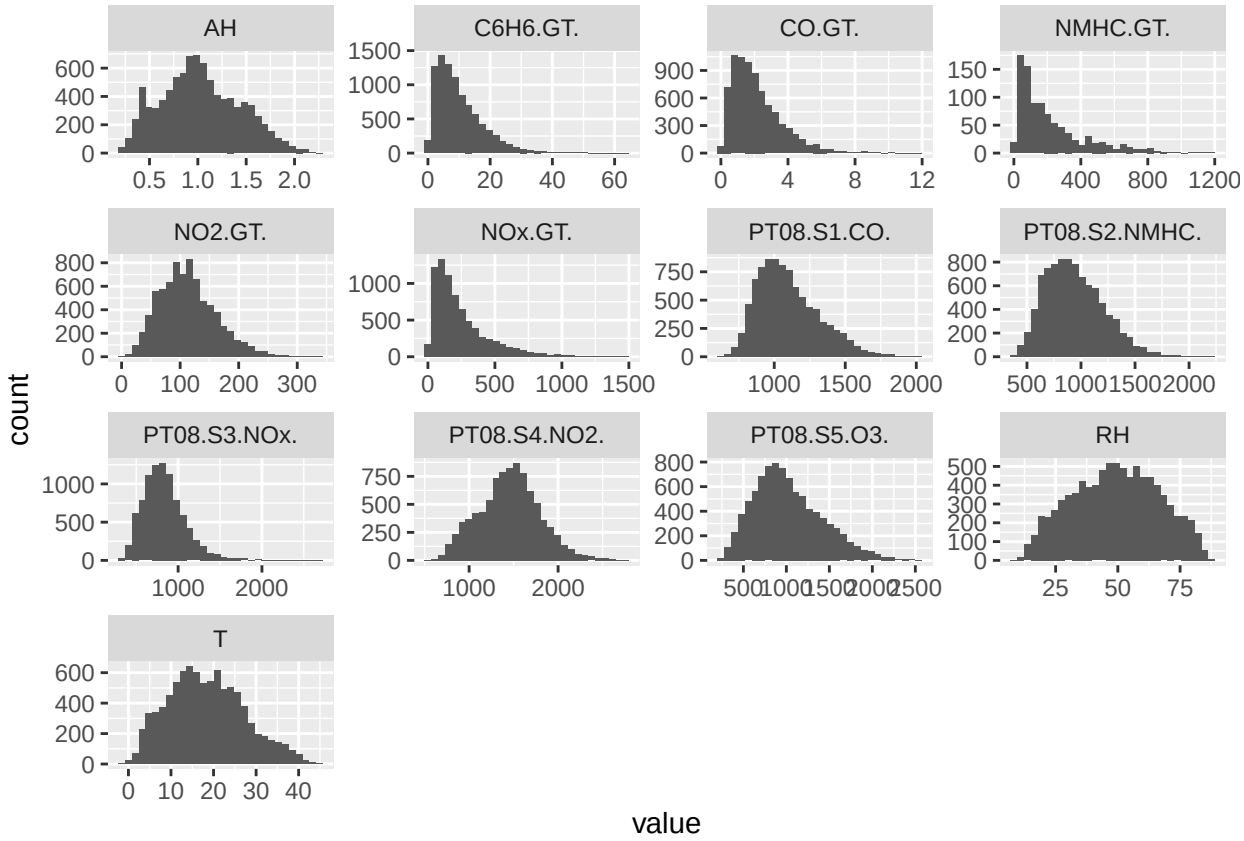
-200 like the default value for this data. I will not delete all rows with this value because this way I will loose too much data (8,530 rows out of 9,357), but I will replace all individual values with NAs to pairwise exclude them in correlation analysis ("use='pairwise.complete.obs'" argument in "corr" function).

Cleaning

```
air_quality[air_quality == -200] <- NA
```

```
airq_for_hist <- pivot_longer(air_quality, cols=CO.GT.:AH)
ggplot(airq_for_hist, aes(value)) +
    geom_histogram() +
    facet_wrap(~name, scales='free')
```

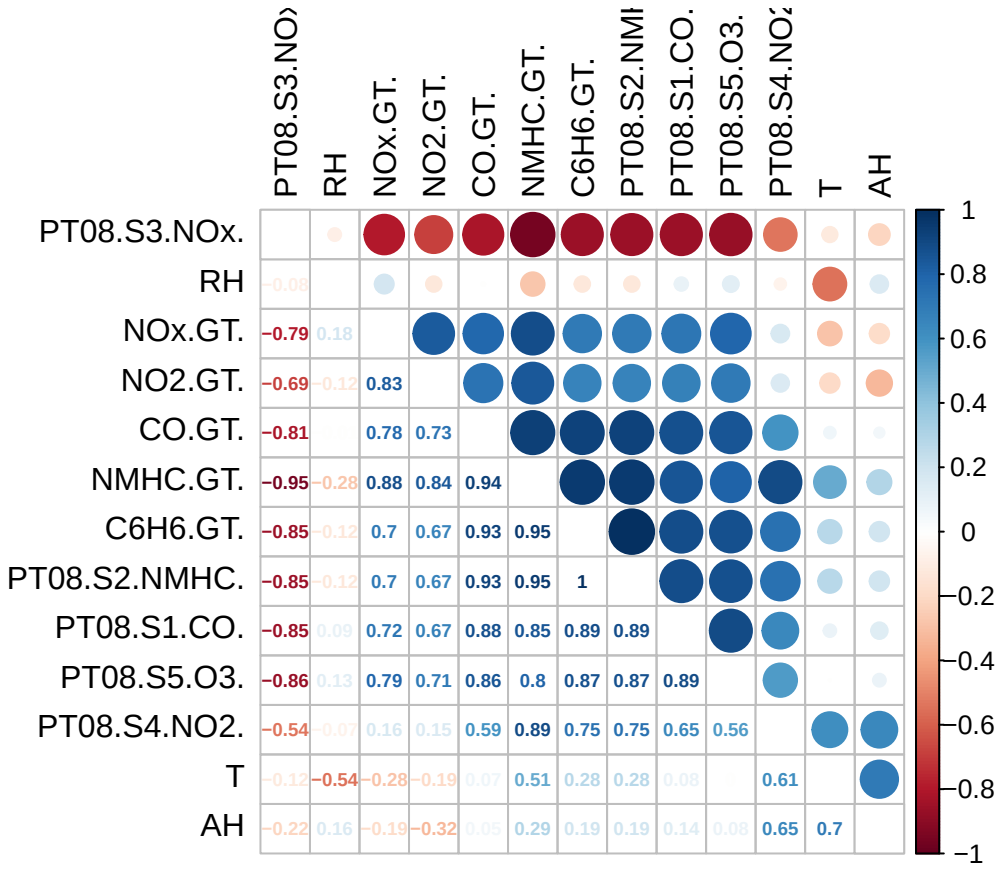
```
## `stat_bin()` using `bins = 30`. Pick better value with `binwidth`.
```



Cross correlations

```
cors <- cor(air_quality[3:15], use='pairwise.complete.obs', method='spearman')
```

```
corrplot.mixed(cors, order='hclust', lower='number', tl.pos='lt', tl.col='black',
               number.cex=0.55)
```

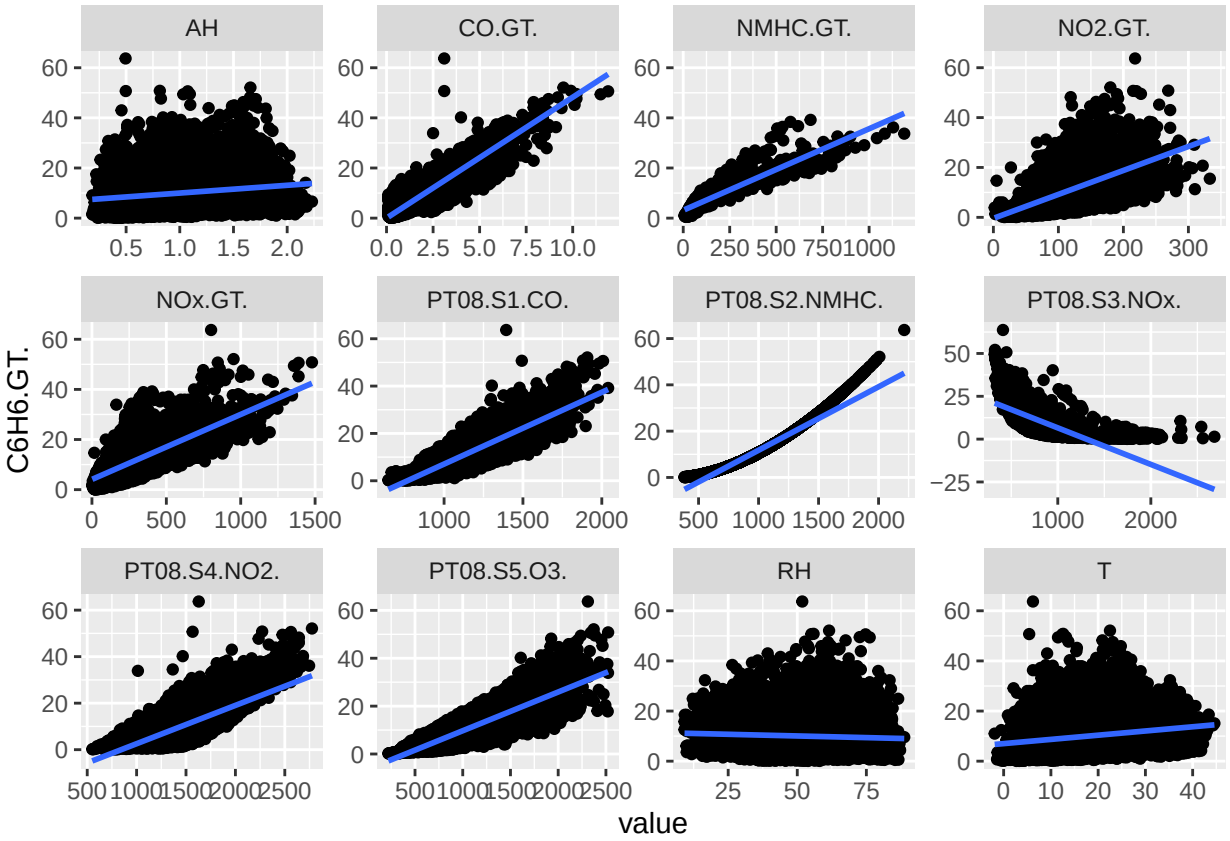


Linear models, response - C6H6(GT)

Checking the linearity of dependencies

```
airq_for_lm <- pivot_longer(air_quality, cols=-c('Date','Time', 'C6H6.GT.'))
ggplot(airq_for_lm, aes(x=value, y=C6H6.GT.)) +
    geom_point() +
    geom_smooth(method='lm', se=F) +
    facet_wrap(~name, scales='free')
```

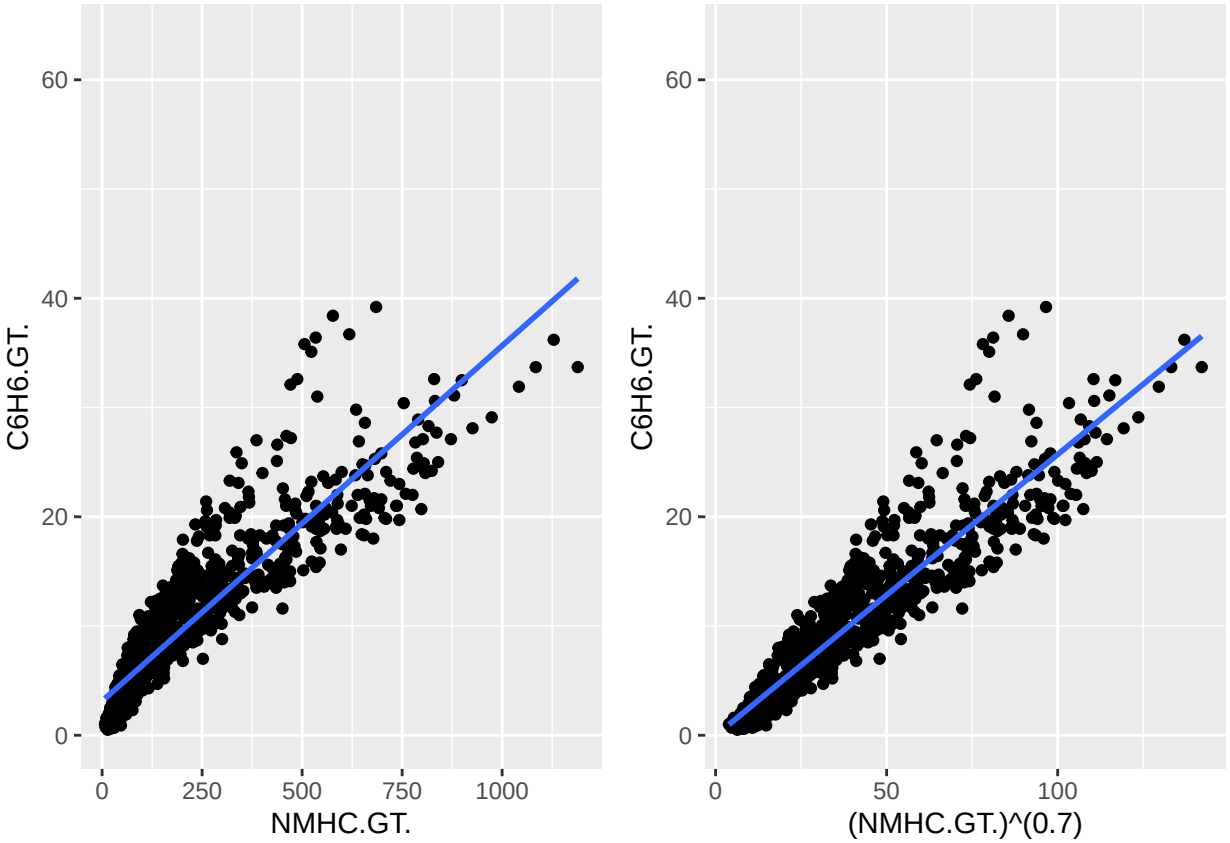
```
## `geom_smooth()` using formula 'y ~ x'
```



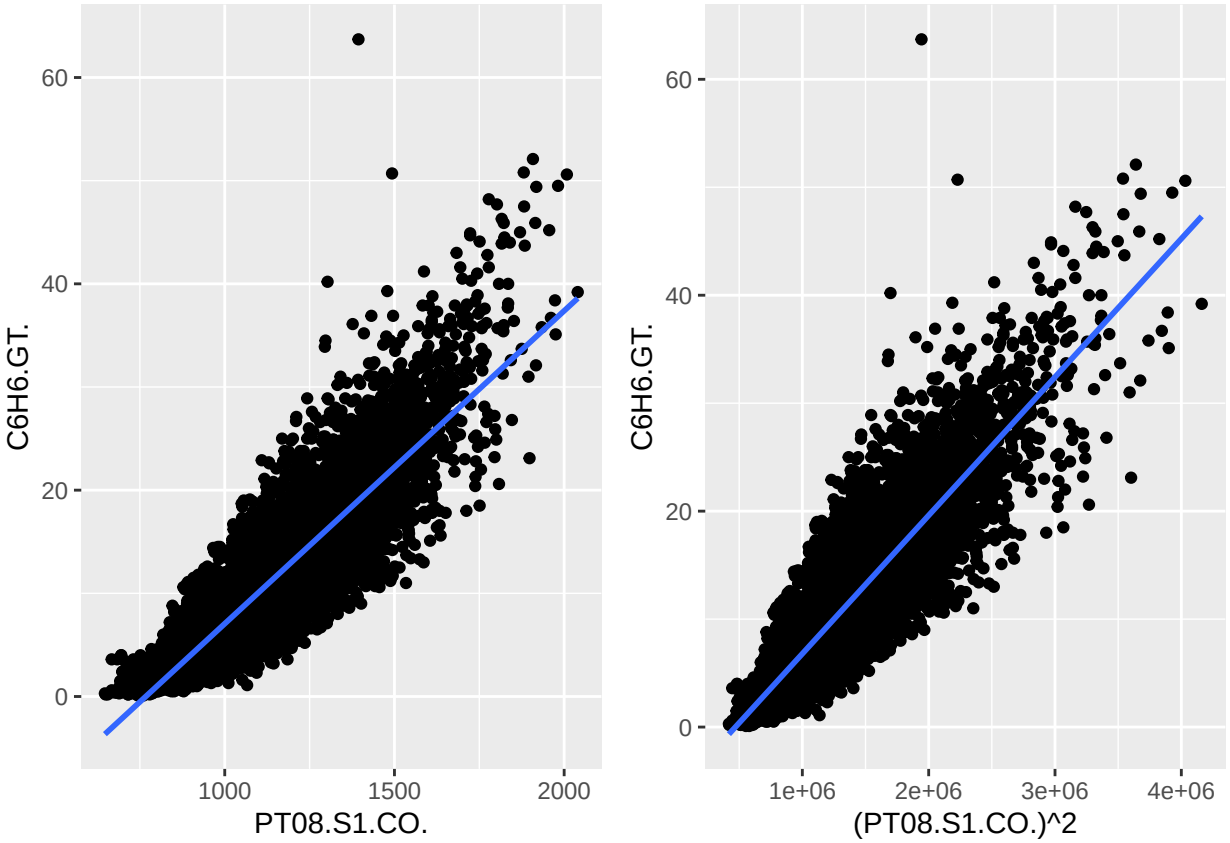
Linearizing

```
plot <- function(equation) {
  ggplot(air_quality, aes_string(x=equation, y='C6H6.GT.')) +
    geom_point() +
    geom_smooth(method='lm', se=F)
}

equations <- c('NMHC.GT.', '(NMHC.GT.)^(0.7)',
               'PT08.S1.CO.', '(PT08.S1.CO.)^2',
               'PT08.S2.NMHC.', '(PT08.S2.NMHC.)^2',
               'PT08.S3.NOx.', '1/(PT08.S3.NOx.)^2',
               'PT08.S4.NO2.', '(PT08.S4.NO2.)^(2.5)',
               'PT08.S5.O3.', '(PT08.S5.O3.)^(1.5)')
plots <- lapply(equations, plot)
ggarrange(plotlist=plots, ncol=2)
```

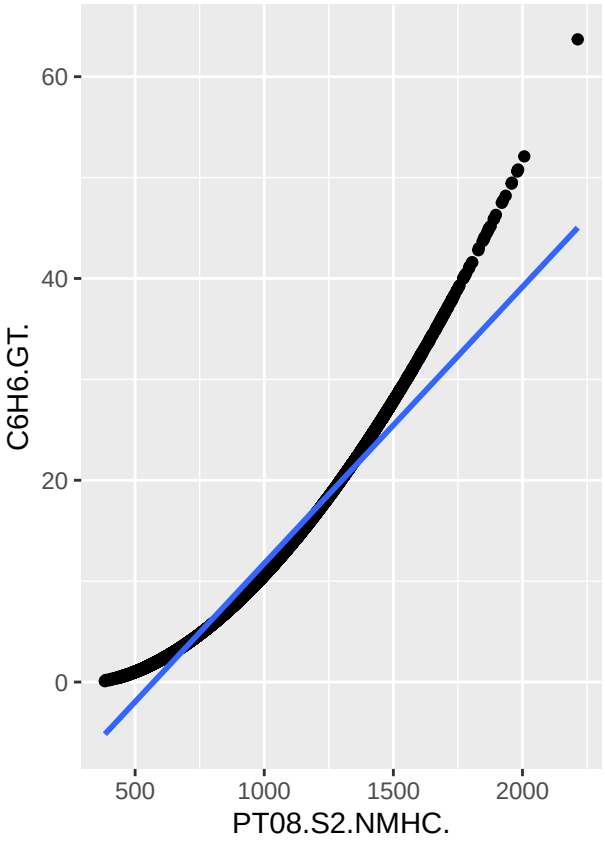
```
## $`1`
```

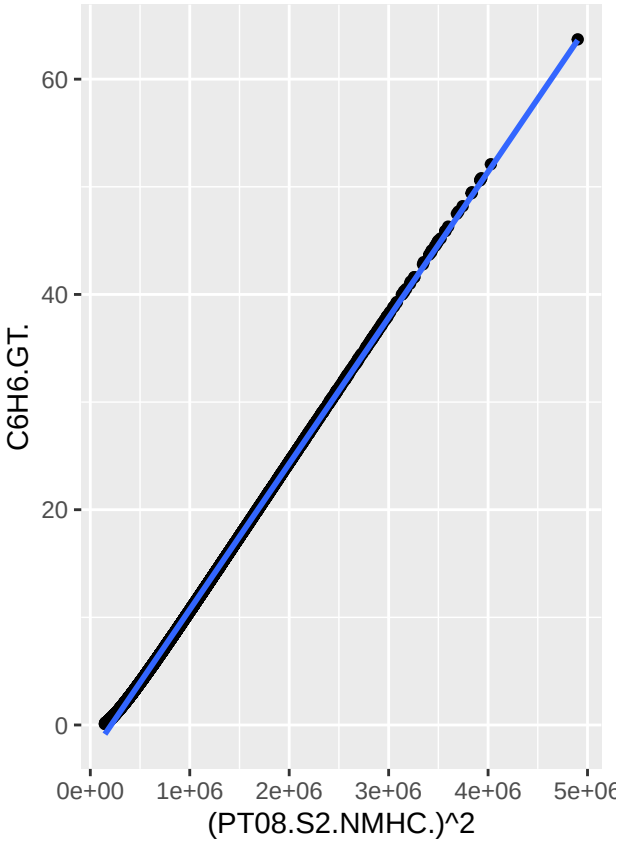

60
40
20
0
C6H6.GT.
0
250
500
750
1000
NMHC.GT.
60
40
20
0
C6H6.GT.
0
50
100
(NMHC.GT.)^(0.7)

```
##
## $`2`
```

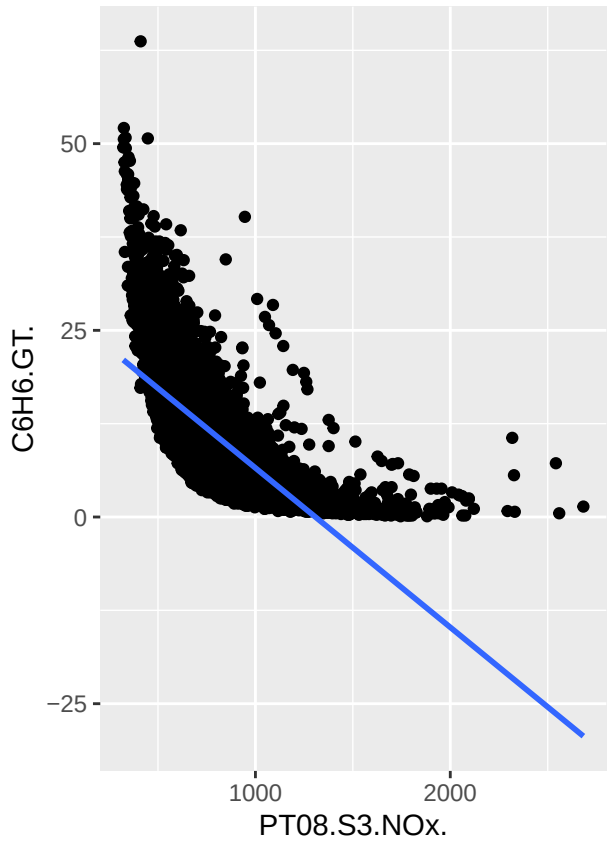

60
40
20
0
C6H6.GT.
1000
1500
2000
PT08.S1.CO.
60
40
20
0
C6H6.GT.
1e+06
2e+06
3e+06
4e+06
(PT08.S1.CO.)^2

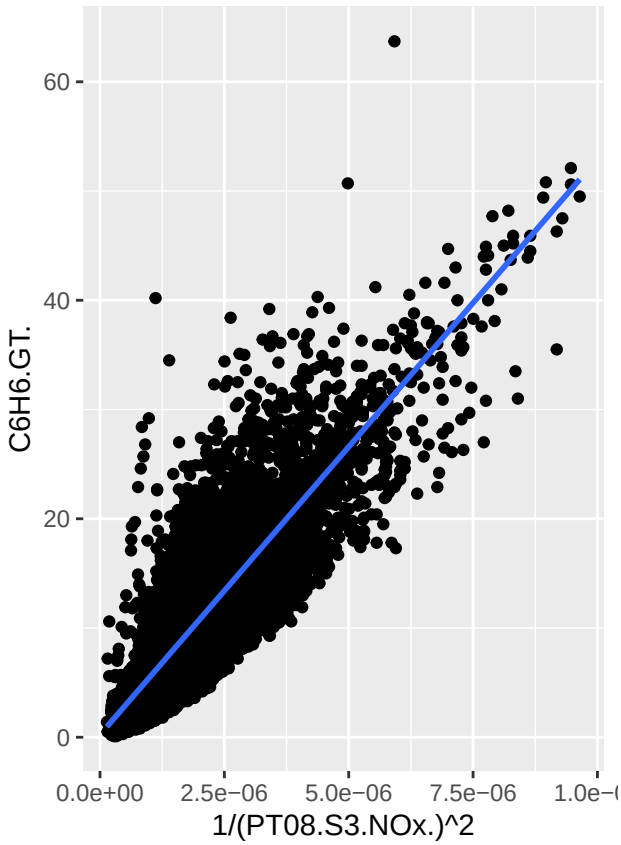
```
##
## $`3`
```


60
40
20
0
C6H6.GT.
500
1000
1500
2000
PT08.S2.NMHC.

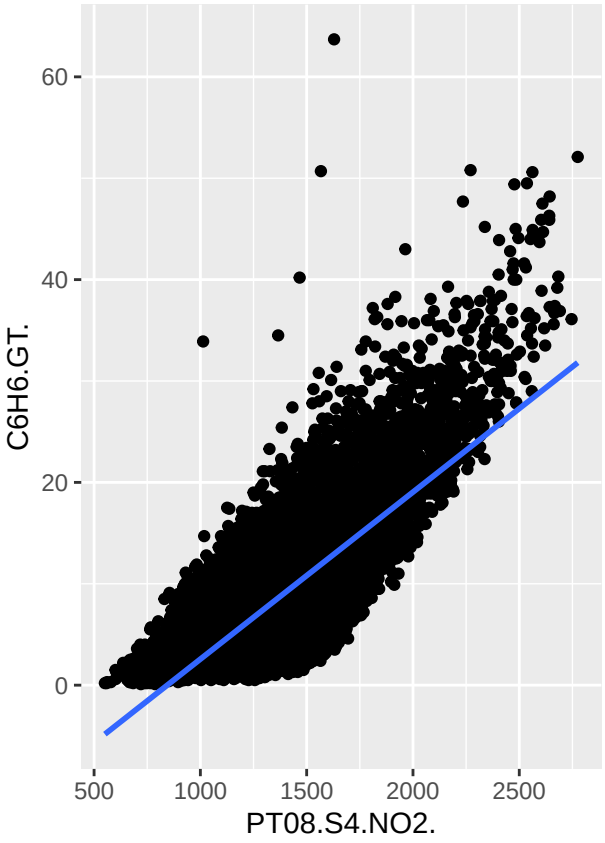

60
40
20
0
C6H6.GT.
0e+00
1e+06
2e+06
3e+06
4e+06
5e+06
(PT08.S2.NMHC.)^2

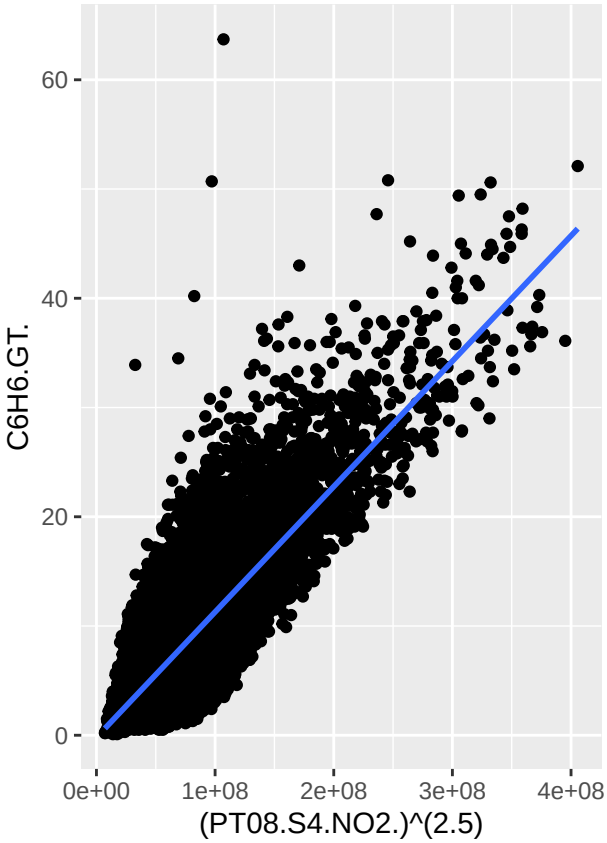
```
##
## $`4`
```


C6H6.GT.
50
25
0
−25
1000
2000
PT08.S3.NOx.

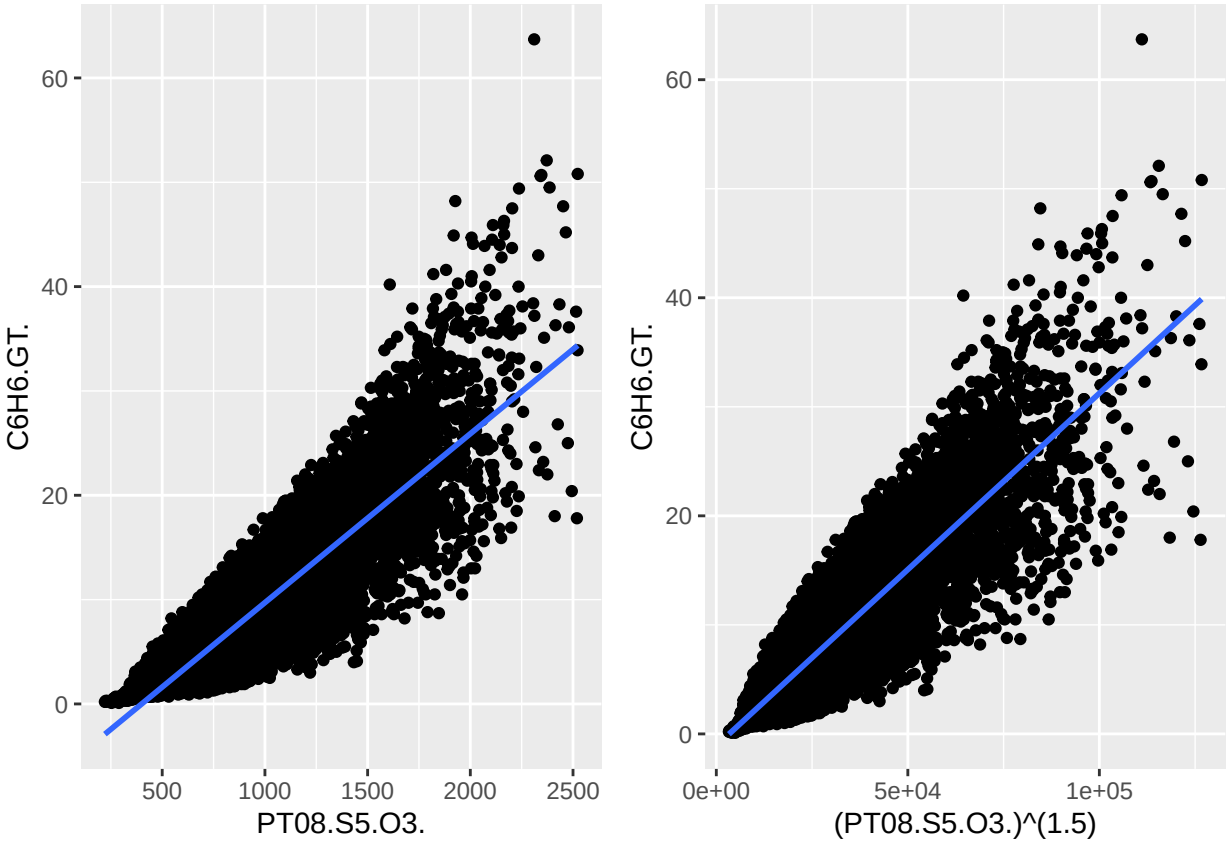

C6H6.GT.
60
40
20
0
0.0e+00
2.5e−06
5.0e−06
7.5e−06
1/(PT08.S3.NOx.)^2

```
##
## $`5`
```


60
40
20
0
C6H6.GT.
500
1000
1500
2000
2500
PT08.S4.NO2.


60
40
20
0
C6H6.GT.
0e+00
1e+08
2e+08
3e+08
4e+08
(PT08.S4.NO2.)^(2.5)

```
##
## $`6`
```




```
##
## attr(,"class")
## [1] "list"      "ggarrange"
```

```
airq_l <- air_quality
airq_l$NMHC.GT. <- air_quality$NMHC.GT.^(0.7)
airq_l$PT08.S1.CO. <- air_quality$PT08.S1.CO.^2
airq_l$PT08.S2.NMHC. <- air_quality$PT08.S2.NMHC.^2
airq_l$PT08.S3.NOx. <- 1/air_quality$PT08.S3.NOx.^2
airq_l$PT08.S4.NO2. <- air_quality$PT08.S4.NO2.^(2.5)
airq_l$PT08.S5.O3. <- air_quality$PT08.S5.O3.^(1.5)
```

Building linear models

```
benzene_lm_summary <- function(predictor) {
  airq_l %>%
    lm(data = ., C6H6.GT. ~ predictor) %>%
    summary()
}

lapply(airq_l[, !(names(airq_l) %in% c('Date', 'Time', 'C6H6.GT.', 'T', 'RH', 'AH'))],
       benzene_lm_summary)
```

```
## $CO.GT.
##
## Call:
## lm(formula = C6H6.GT. ~ predictor, data = .)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -15.206  -1.532  -0.161   1.455  48.744
##
## Coefficients:
##             Estimate Std. Error t value Pr(>|t|)
## (Intercept) 0.003968   0.056656    0.07    0.944
## predictor   4.823080   0.022055  218.68   <2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 2.715 on 7342 degrees of freedom
##   (2013 observations deleted due to missingness)
## Multiple R-squared:  0.8669, Adjusted R-squared:  0.8669
## F-statistic: 4.782e+04 on 1 and 7342 DF,  p-value: < 2.2e-16
##
##
## $PT08.S1.CO.
##
## Call:
## lm(formula = C6H6.GT. ~ predictor, data = .)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -17.039  -1.971  -0.225   1.694  44.821
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept) -6.020e+00  9.456e-02  -63.67   <2e-16 ***
## predictor    1.281e-05  6.958e-08  184.14   <2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 3.41 on 8989 degrees of freedom
##   (366 observations deleted due to missingness)
## Multiple R-squared:  0.7905, Adjusted R-squared:  0.7904
## F-statistic: 3.391e+04 on 1 and 8989 DF,  p-value: < 2.2e-16
##
##
## $NMHC.GT.
##
## Call:
## lm(formula = C6H6.GT. ~ predictor, data = .)
##
## Residuals:
##    Min     1Q Median     3Q    Max
## -6.929 -1.583 -0.626  1.144 16.387
##
## Coefficients:
```

```
##             Estimate Std. Error t value Pr(>|t|)
## (Intercept) -0.02808    0.17515   -0.16    0.873
## predictor    0.25728    0.00365   70.48   <2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 2.897 on 885 degrees of freedom
##   (8470 observations deleted due to missingness)
## Multiple R-squared:  0.8488, Adjusted R-squared:  0.8486
## F-statistic:  4968 on 1 and 885 DF,  p-value: < 2.2e-16
##
##
## $PT08.S2.NMHC.
##
## Call:
## lm(formula = C6H6.GT. ~ predictor, data = .)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -0.18511 -0.10417 -0.05005  0.06007  1.01125
##
## Coefficients:
##               Estimate Std. Error t value Pr(>|t|)
## (Intercept) -2.842e+00  3.261e-03  -871.6   <2e-16 ***
## predictor    1.356e-05  2.964e-09  4574.6   <2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.1544 on 8989 degrees of freedom
##   (366 observations deleted due to missingness)
## Multiple R-squared:  0.9996, Adjusted R-squared:  0.9996
## F-statistic: 2.093e+07 on 1 and 8989 DF,  p-value: < 2.2e-16
##
##
## $NOx.GT.
##
## Call:
## lm(formula = C6H6.GT. ~ predictor, data = .)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -12.926  -3.974  -1.115   2.840  38.846
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept) 4.0861758  0.0927714   44.05   <2e-16 ***
## predictor   0.0259280  0.0002916   88.92   <2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 5.174 on 7394 degrees of freedom
##   (1961 observations deleted due to missingness)
## Multiple R-squared:  0.5167, Adjusted R-squared:  0.5167
## F-statistic:  7906 on 1 and 7394 DF,  p-value: < 2.2e-16
```

```
##
##
## $PT08.S3.NOx.
##
## Call:
## lm(formula = C6H6.GT. ~ predictor, data = .)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -14.283  -2.400  -0.897   1.808  34.077
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept) 2.345e-01  7.699e-02   3.046  0.00233 **
## predictor   5.270e+06  3.467e+04 152.000  < 2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 3.943 on 8989 degrees of freedom
##   (366 observations deleted due to missingness)
## Multiple R-squared:  0.7199, Adjusted R-squared:  0.7199
## F-statistic: 2.31e+04 on 1 and 8989 DF,  p-value: < 2.2e-16
##
##
## $NO2.GT.
##
## Call:
## lm(formula = C6H6.GT. ~ predictor, data = .)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -18.063  -3.454  -0.595   2.468  43.171
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept) -0.403719   0.174719  -2.311   0.0209 *
## predictor    0.096021   0.001434  66.960   <2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 5.872 on 7391 degrees of freedom
##   (1964 observations deleted due to missingness)
## Multiple R-squared:  0.3776, Adjusted R-squared:  0.3775
## F-statistic:  4484 on 1 and 7391 DF,  p-value: < 2.2e-16
##
##
## $PT08.S4.NO2.
##
## Call:
## lm(formula = C6H6.GT. ~ predictor, data = .)
##
## Residuals:
##    Min     1Q Median     3Q    Max
## -9.065 -3.127 -0.626  2.266 51.601
```

```
##
## Coefficients:
##               Estimate Std. Error t value Pr(>|t|)
## (Intercept) -1.964e-01  9.163e-02  -2.143   0.0321 *
## predictor    1.148e-07  8.831e-10 129.996   <2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 4.39 on 8989 degrees of freedom
##   (366 observations deleted due to missingness)
## Multiple R-squared:  0.6528, Adjusted R-squared:  0.6527
## F-statistic: 1.69e+04 on 1 and 8989 DF,  p-value: < 2.2e-16
##
##
## $PT08.S5.O3.
##
## Call:
## lm(formula = C6H6.GT. ~ predictor, data = .)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -21.9820  -2.0572  -0.1852   1.9298  28.8736
##
## Coefficients:
##               Estimate Std. Error t value Pr(>|t|)
## (Intercept) -1.084e+00  7.654e-02  -14.16   <2e-16 ***
## predictor    3.232e-04  1.915e-06  168.77   <2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 3.649 on 8989 degrees of freedom
##   (366 observations deleted due to missingness)
## Multiple R-squared:  0.7601, Adjusted R-squared:  0.7601
## F-statistic: 2.848e+04 on 1 and 8989 DF,  p-value: < 2.2e-16
```

Selected predictors

PT08.S2(NMHC) {PT08.S2(NMHC)^2 after linearizing} - titanium dioxide (R^2 = 0.9996), CO(GT) - carbon monoxide (R^2 = 0.8669), NMHC(GT) {NMHC(GT)^0.7 after linearizing} - nonmethane hydrocarbons (R^2 = 0.8488).

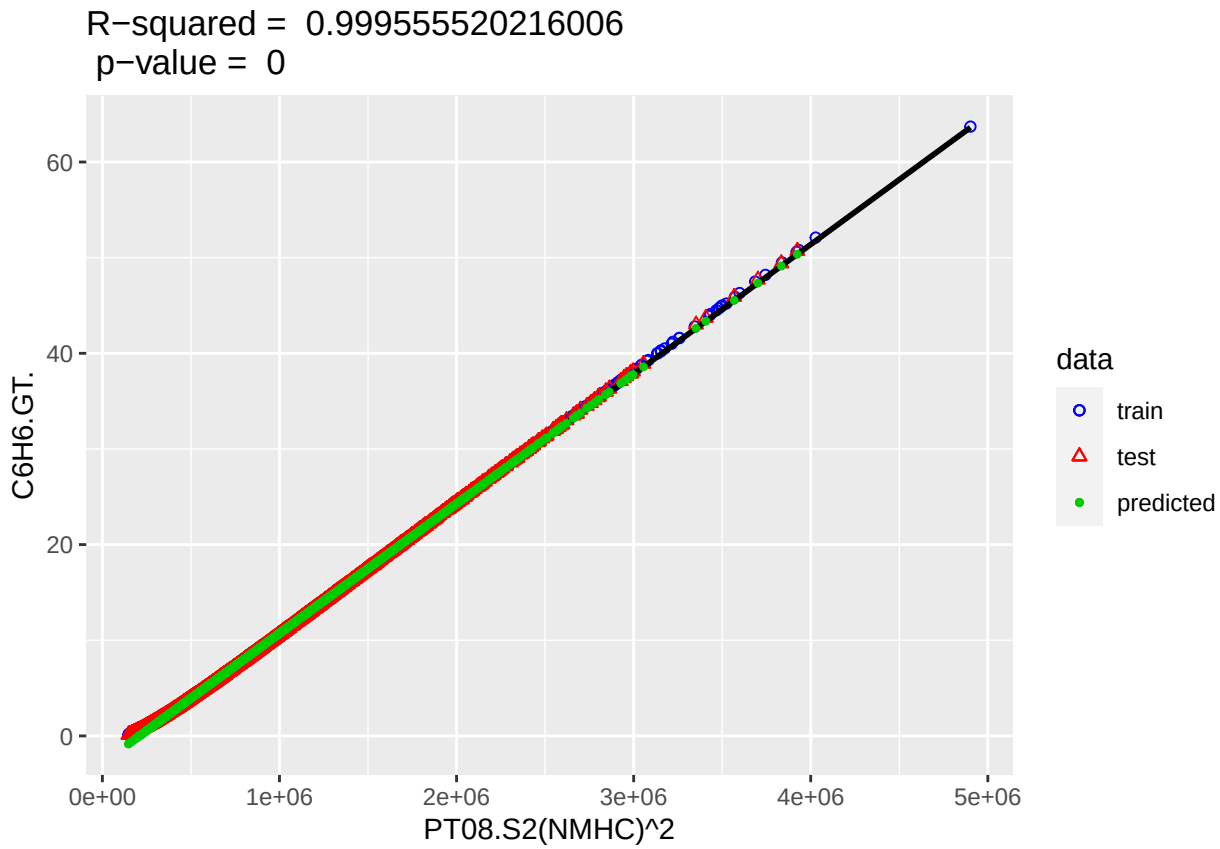
```
set.seed(42)
sample <- sample.int(n=nrow(airq_l), size=floor(.75*nrow(airq_l)))
train <- airq_l[sample, ]
test <- airq_l[-sample, ]

model_PT08S2 <- lm(data=train, C6H6.GT. ~ PT08.S2.NMHC.)
model_CO <- lm(data=train, C6H6.GT. ~ CO.GT.)
model_NMHC <- lm(data=train, C6H6.GT. ~ NMHC.GT.)
summary_PT08S2 <- summary(model_PT08S2)
summary_CO <- summary(model_CO)
summary_NMHC <- summary(model_NMHC)
```

```
test$C6H6byPT08S2 <- predict(model_PT08S2, newdata=test)
test$C6H6byCO <- predict(model_CO, newdata=test)
test$C6H6byNMHC <- predict(model_NMHC, newdata=test)
```

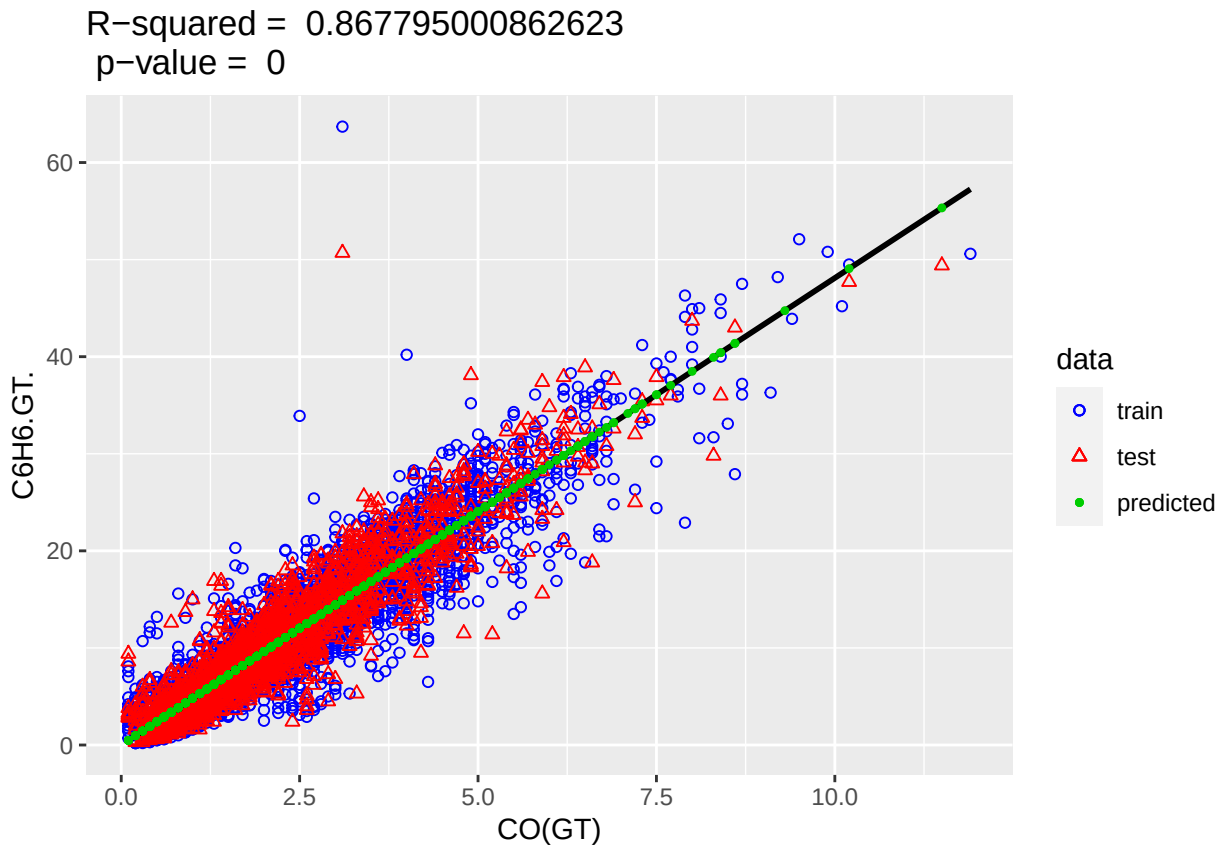
Plots

```
plot <- function(lm_info) {
    ggplot() +
    geom_point(data=train, aes_string(x=lm_info[[1]], y='C6H6.GT.',
                                      color=shQuote('train'), shape=shQuote('train'))) +
    geom_point(data=test, aes_string(x=lm_info[[1]], y='C6H6.GT.',
                                     color=shQuote('test'), shape=shQuote('test'))) +
    geom_smooth(method='lm', se=F, data=train, aes_string(x=lm_info[[1]], y='C6H6.GT.'),
                color='black') +
    geom_point(data=test, aes_string(x=lm_info[[1]], y=lm_info[[2]],
                                     color=shQuote('predicted'), shape=shQuote('predicted'))) +
    scale_colour_manual(name="data", breaks=c('train', 'test', 'predicted'),
                        values=c(train="blue", test="red", predicted="green3")) +
    scale_shape_manual(name="data", breaks=c('train', 'test', 'predicted'),
                       values=c(train=1, test=2, predicted=20)) +
    xlab(lm_info[[3]]) +
    ggtitle(paste("R-squared = ", lm_info[[4]], '\n', "p-value = ", lm_info[[5]]))
}

# list(predictor, predicted, xlab, R^2, p-value)
PT08S2 <- list('PT08.S2.NMHC.', 'C6H6byPT08S2', 'PT08.S2(NMHC)^2',
               summary_PT08S2$adj.r.squared, summary_PT08S2$coefficients[,4][[2]])
CO     <- list('CO.GT.', 'C6H6byCO', 'CO(GT)',
               summary_CO$adj.r.squared, summary_CO$coefficients[,4][[2]])
NMHC   <- list('NMHC.GT.', 'C6H6byNMHC', 'NMHC(GT)^0.7',
               summary_NMHC$adj.r.squared, summary_NMHC$coefficients[,4][[2]])

info <- list(PT08S2 = PT08S2, CO = CO, NMHC = NMHC)
lapply(info, plot)
```

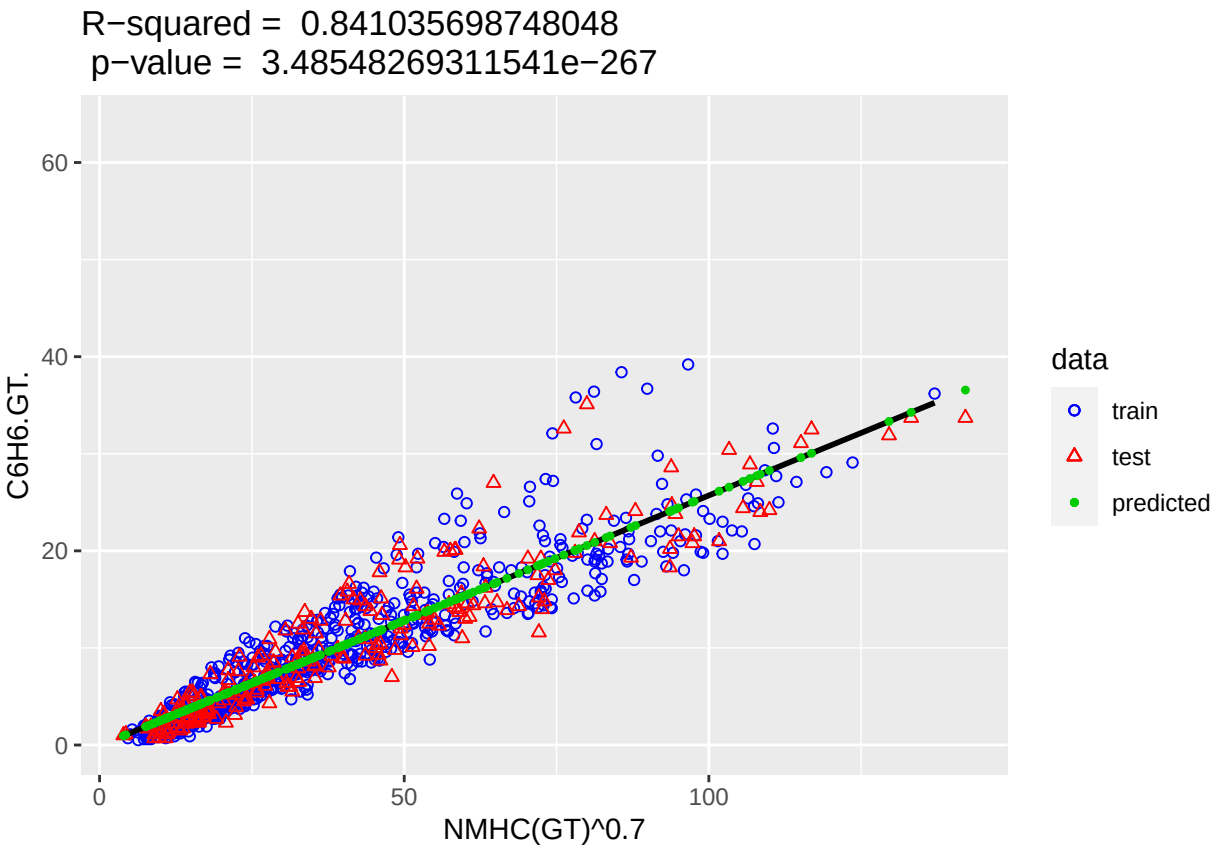
```
## $PT08S2

## `geom_smooth()` using formula 'y ~ x'
```




```
##
## $CO

## `geom_smooth()` using formula 'y ~ x'
```




```
##
## $NMHC

## `geom_smooth()` using formula 'y ~ x'
```


R−squared = 0.841035698748048
p−value = 3.48548269311541e−267
C6H6.GT.
NMHC(GT)^0.7
0
20
40
60
0
50
100
data
train
test
predicted