Descriptives

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```
library('ggplot2')
library('forecast')
```

```
## Warning: package 'forecast' was built under R version 3.4.2
```

```
## Warning in as.POSIXlt.POSIXct(Sys.time()): unknown timezone 'zone/tz/2017c.
## 1.0/zoneinfo/Europe/Madrid'
```

```
library('tseries')
library('gridExtra')
library('TSA')
```

```
## Loading required package: leaps
```

```
## Loading required package: locfit
```

```
## locfit 1.5-9.1    2013-03-22
```

```
## Loading required package: mgcv
```

```
## Loading required package: nlme
```

```
##
## Attaching package: 'nlme'
```

```
## The following object is masked from 'package:forecast':
##
##     getResponse
```

```
## This is mgcv 1.8-17. For overview type 'help("mgcv-package")'.
```

```
##
## Attaching package: 'TSA'
```

```
## The following objects are masked from 'package:stats':
##
##     acf, arima
```

```
## The following object is masked from 'package:utils':
##
##     tar
```

```
library('imputeTS')
```

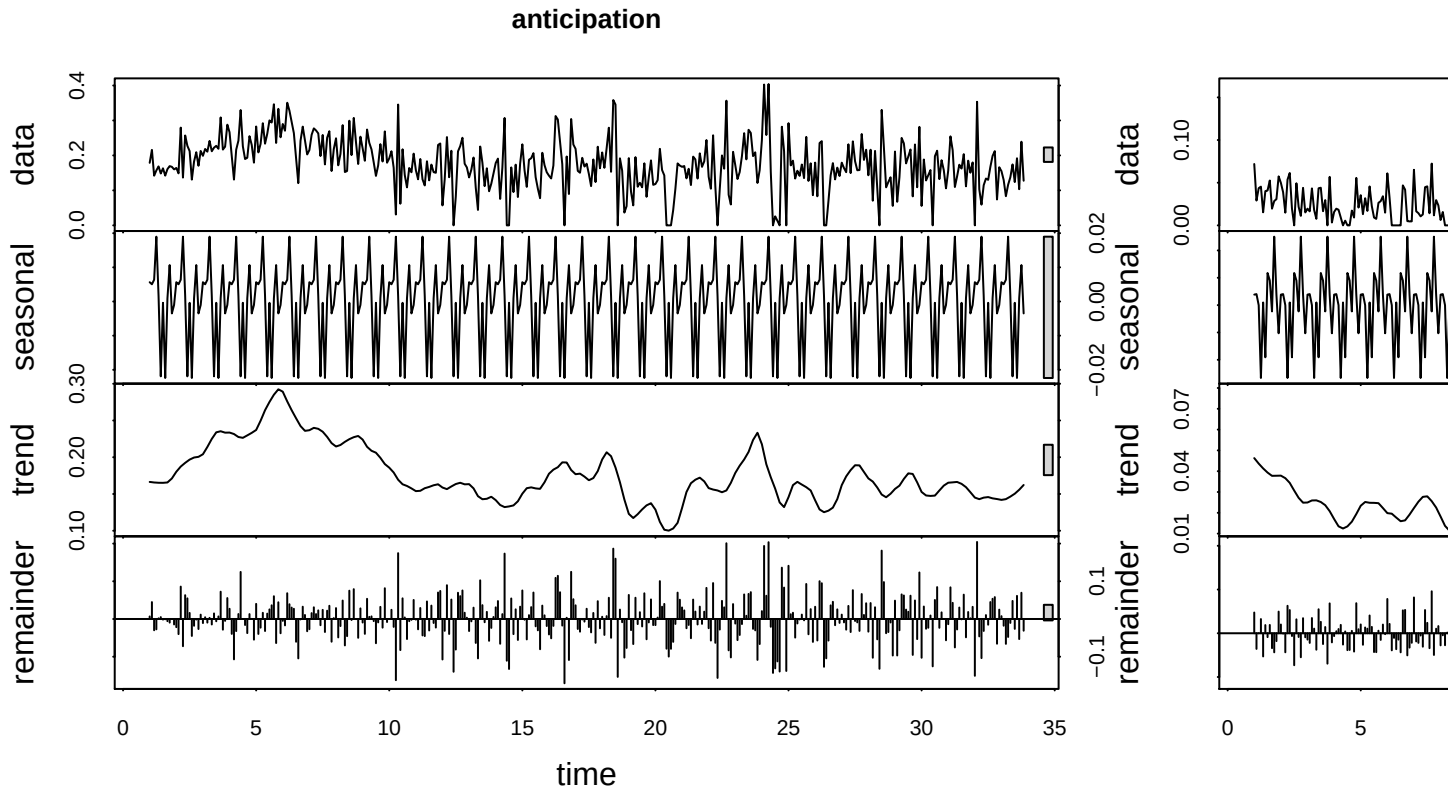
```
##
## Attaching package: 'imputeTS'
```

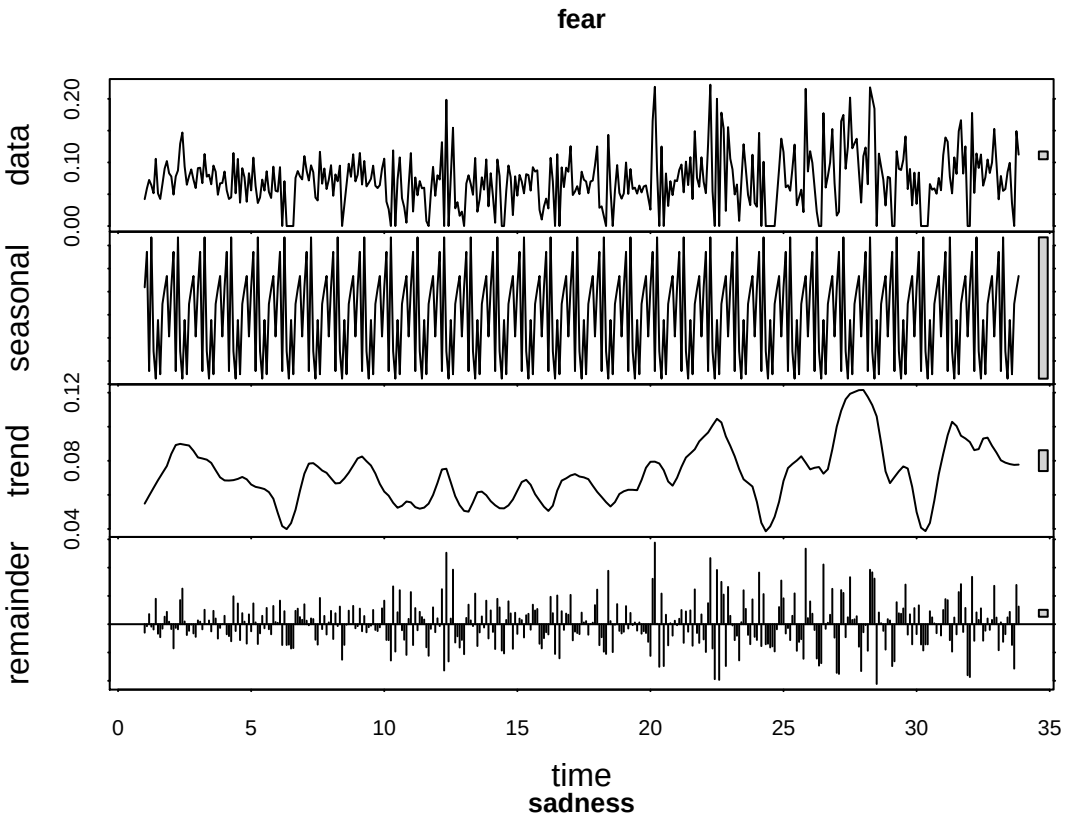
```
## The following object is masked from 'package:tseries':
##
##     na.remove
```

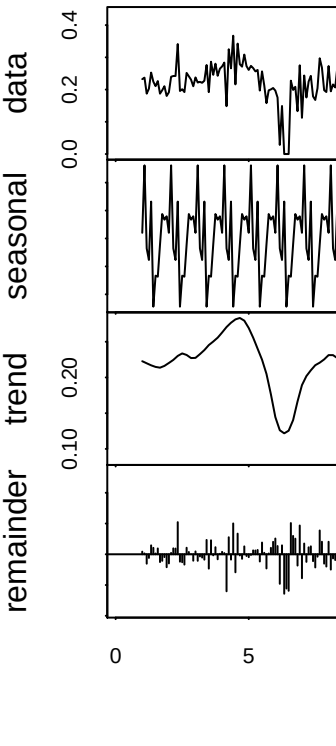
```
library('mgcv')


cat = read.csv("cat nrc ts.csv", sep=",") # catalonia
```

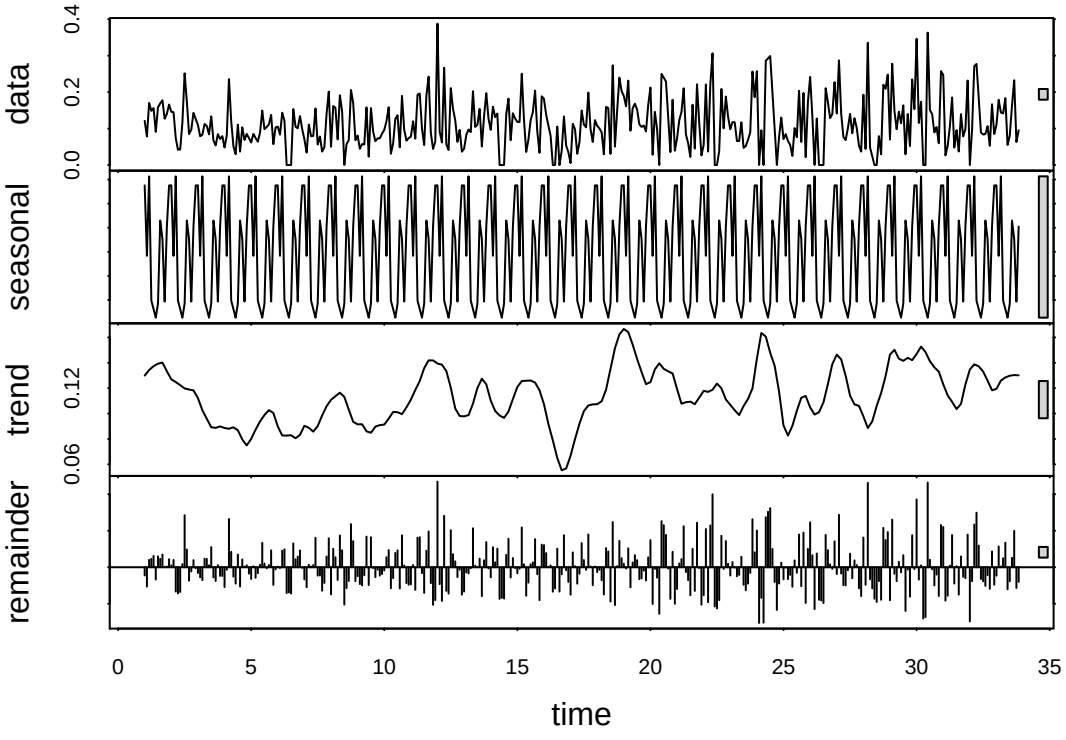
```
shocks = read.csv2("shocks.csv", sep=','); shocks[1:3,3] = 0 # events
cat$index <- strptime(cat$index,format= "%Y-%m-%d %H:%M:%S")
cat <- subset(cat, cat$index < "2017-10-18 00:00:00")
as.numeric.factor <- function(x) {as.numeric(levels(x))[x]}
```

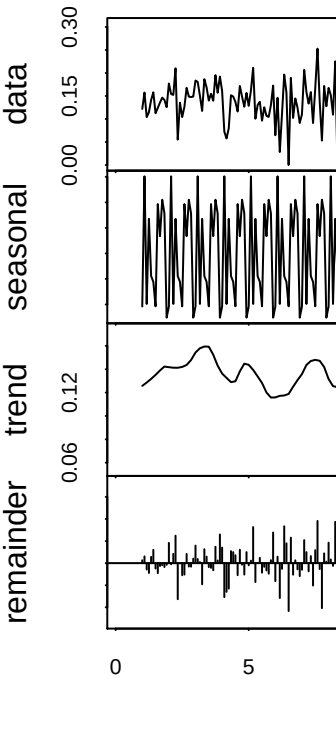
```
# filter down outliers
for (i in 3:10) {
  cat[[i]] = tsclean(cat[[i]])
}

# filter out seasonality
ts_cat = data.frame(matrix(ncol = 8, nrow = nrow(cat)))
colnames(ts_cat) = colnames(cat[1:8])
cm_cat = list()
for (i in 3:10) {
  ts_cat[i-1] = ts(na.omit(cat[[i]]), frequency=12)
  decomp = stl(ts_cat[[i-1]], s.window="periodic")
  cm_cat[[i-1]] = decomp
  ts_cat[[i-1]] <- seasadj(decomp)
}
names(cm_cat)[1:8] = colnames(cat[,3:10])
for (i in 2:length(cm_cat)) {
  plot(cm_cat[[i]], main=names(cm_cat[i]))
}
```

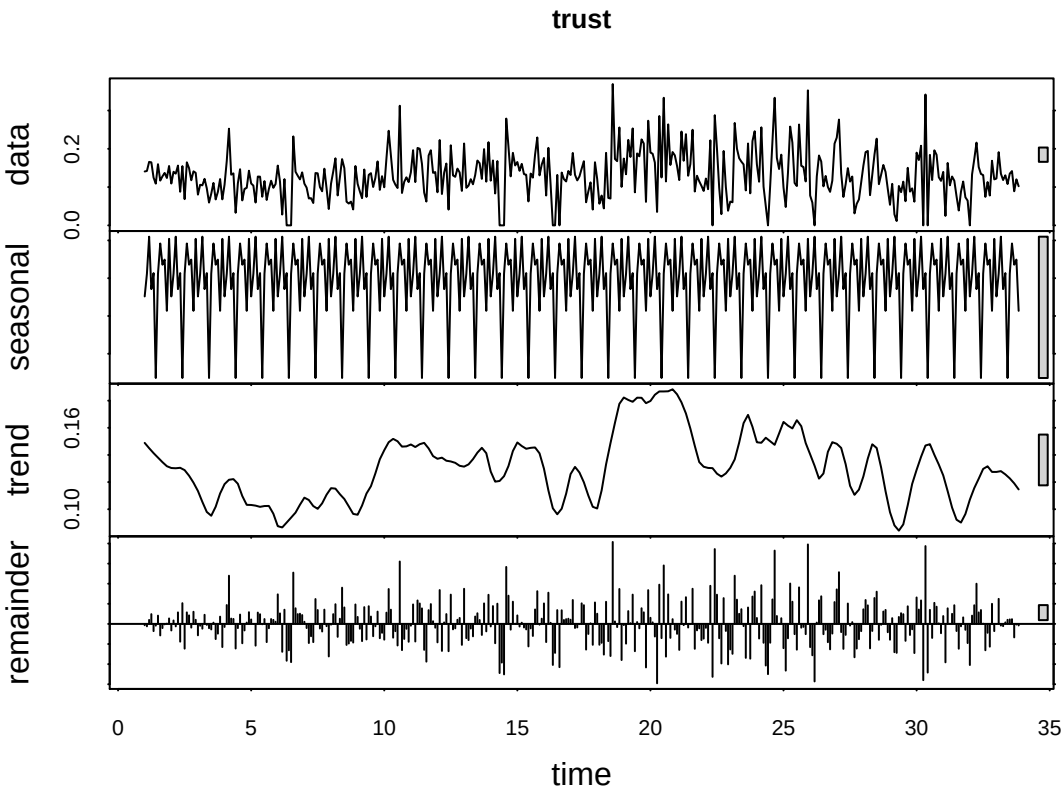



fear
data
seasonal
trend
remainder
0.00
0.10
0.20
0.04
0.08
0.12
0
5
10
15
20
25
30
35
time


data
seasonal
trend
remainder
0.0
0.2
0.4
−0.006
0.002
0.10
0.20
−0.10
0.05
0


sadness
data
seasonal
trend
remainder
0.0
0.2
0.4
0.06
0.12
−0.1
0.1
0
5
10
15
20
25
30
35
time


data
seasonal
trend
remainder
0.00
0.15
0.30
−0.010
0.010
0.06
0.12
0
5


trust
data
seasonal
trend
remainder
0.0
0.2
0.10
0.16
−0.02
0.00
0.06
0.12
0.18
−0.15
0.05
0.20
0
5
10
15
20
25
30
35
time