Periodicity example

Emilio Berti

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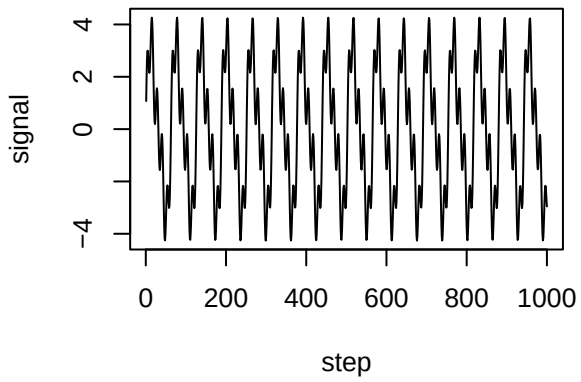
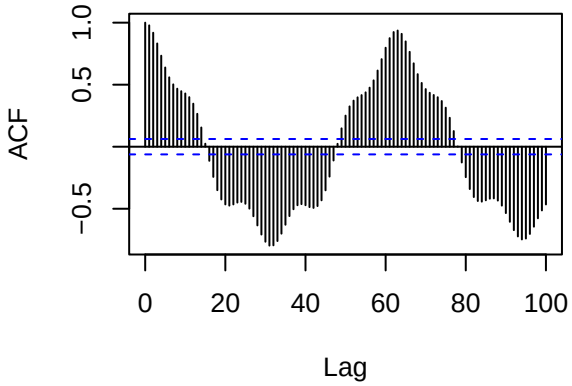
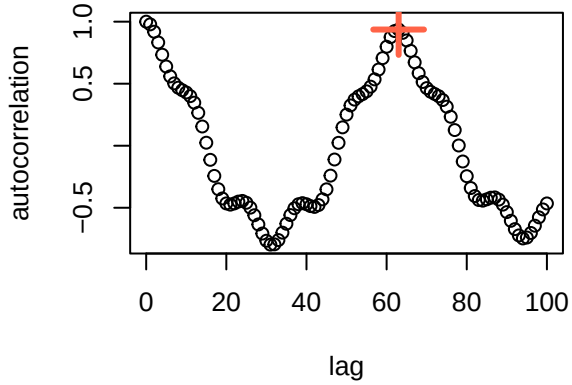
Load the functions:

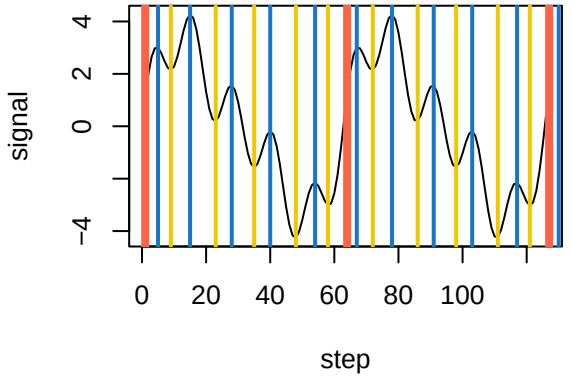
```
source("utils.R")
```

```
# first signal --------------
time <- seq_len(1e3)
A <- sin(.2 * time)
B <- 3 * sin(.1 * time)
C <- 1.2 * sin(.5 * time)
signal <- A + B + C

periodicity_signal(
  signal,
  min.lag = 10,
  lag.max = 1e2,
  demean = FALSE,
  plot = TRUE
)
```





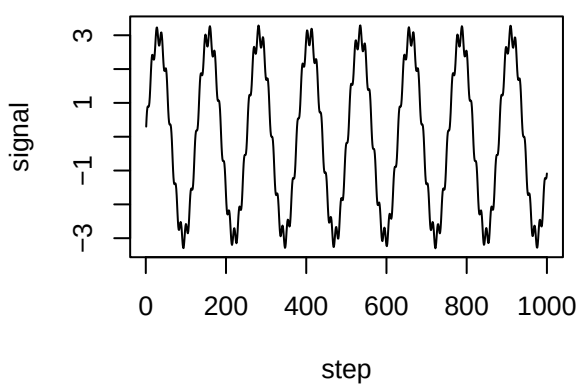


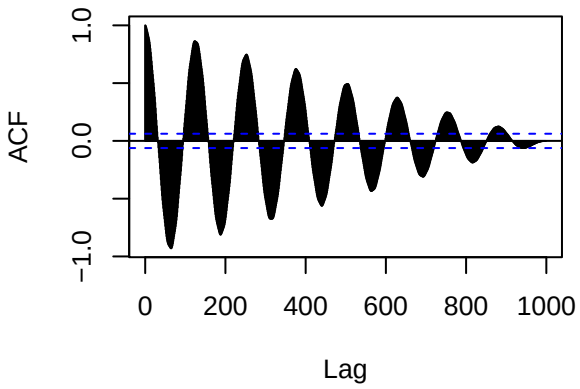


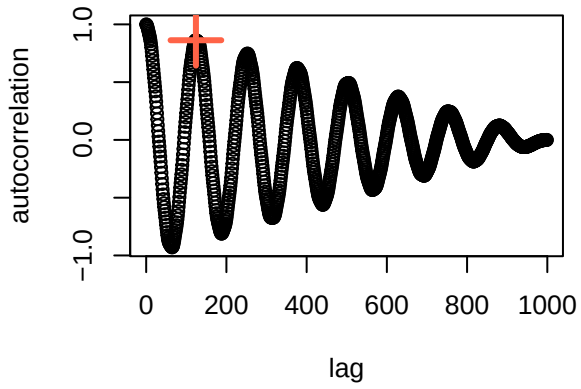

```
## $best.lag
##    lag autocorrelation
## 64  63       0.9365396
##
## $period
## [1] 10
##
## $extremes
##        signal step    bump
## 5   2.9979142    5 minimum
## 9   2.1507922    9 maximum
## 15  4.2592049   15 minimum
## 23  0.1928820   23 maximum
## 28  1.5624266   28 minimum
## 35 -1.5661143   35 maximum
## 40 -0.1855149   40 minimum
## 48 -4.2495146   48 maximum
## 54 -2.1515786   54 minimum
## 58 -3.0129958   58 maximum
```

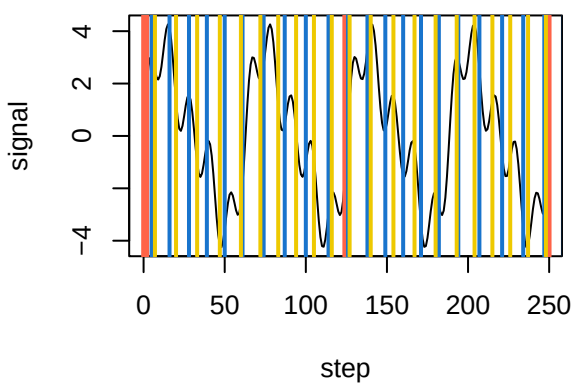
```r
# second signal ------------------
A <- 0.3 * sin(.52 * time)
B <- 2 * sin(.05 * time)
C <- sin(.05 * time)
signal2 <- A + B + C

periodicity_signal(
```

```
  signal2,
  min.lag = 1e2,
  lag.max = 1e3,
  demean = FALSE,
  plot = TRUE
)
```










```
## $best.lag
##     lag autocorrelation
## 125 124        0.862601
##
## $period
## [1] 20
##
## $extremes
##         signal step    bump
## 5    0.8968623    5 minimum
## 7    0.8852852    7 maximum
## 16   2.4200776   16 minimum
## 20   2.2760650   20 maximum
## 28   3.2299282   28 minimum
## 33   2.6927082   33 maximum
## 39   3.0839292   39 minimum
## 47   1.9428254   47 maximum
## 50   2.0241840   50 minimum
## 60   0.3590843   60 maximum
```

```
## 61   0.3642167   61 minimum
## 72  -1.4044280   72 maximum
## 74  -1.3783353   74 minimum
## 83  -2.7577644   83 maximum
## 87  -2.5197421   87 minimum
## 94  -3.2946333   94 maximum
## 100 -2.5807845  100 minimum
## 105 -2.8556391  105 maximum
## 114 -1.5324022  114 minimum
## 116 -1.5704868  116 maximum
```