Example Windowed Cross-Correlations

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```
library(devtools)
```

```
## Loading required package: usethis
```

```
install_github("MalloryJfeldman/synchr")
```

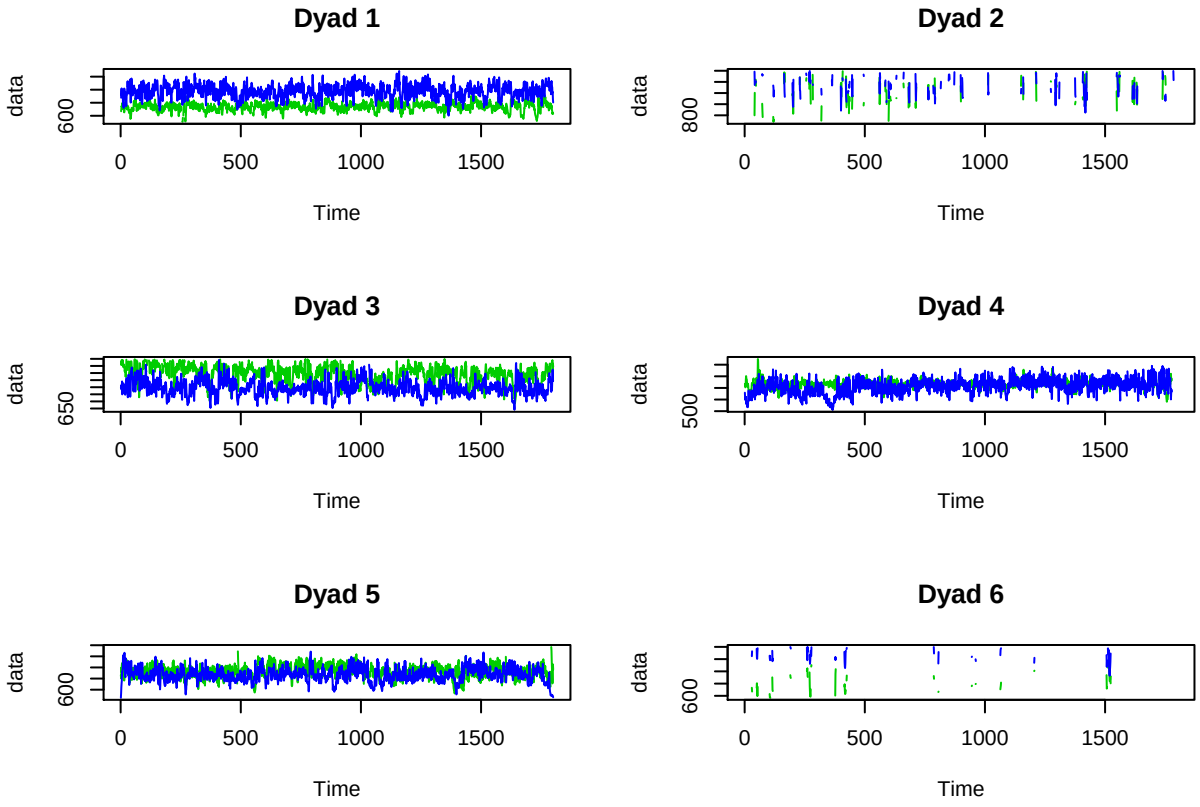
```
## Skipping install of 'synchr' from a github remote, the SHA1 (53ec5f24) has not changed since last ins
##   Use `force = TRUE` to force installation
```

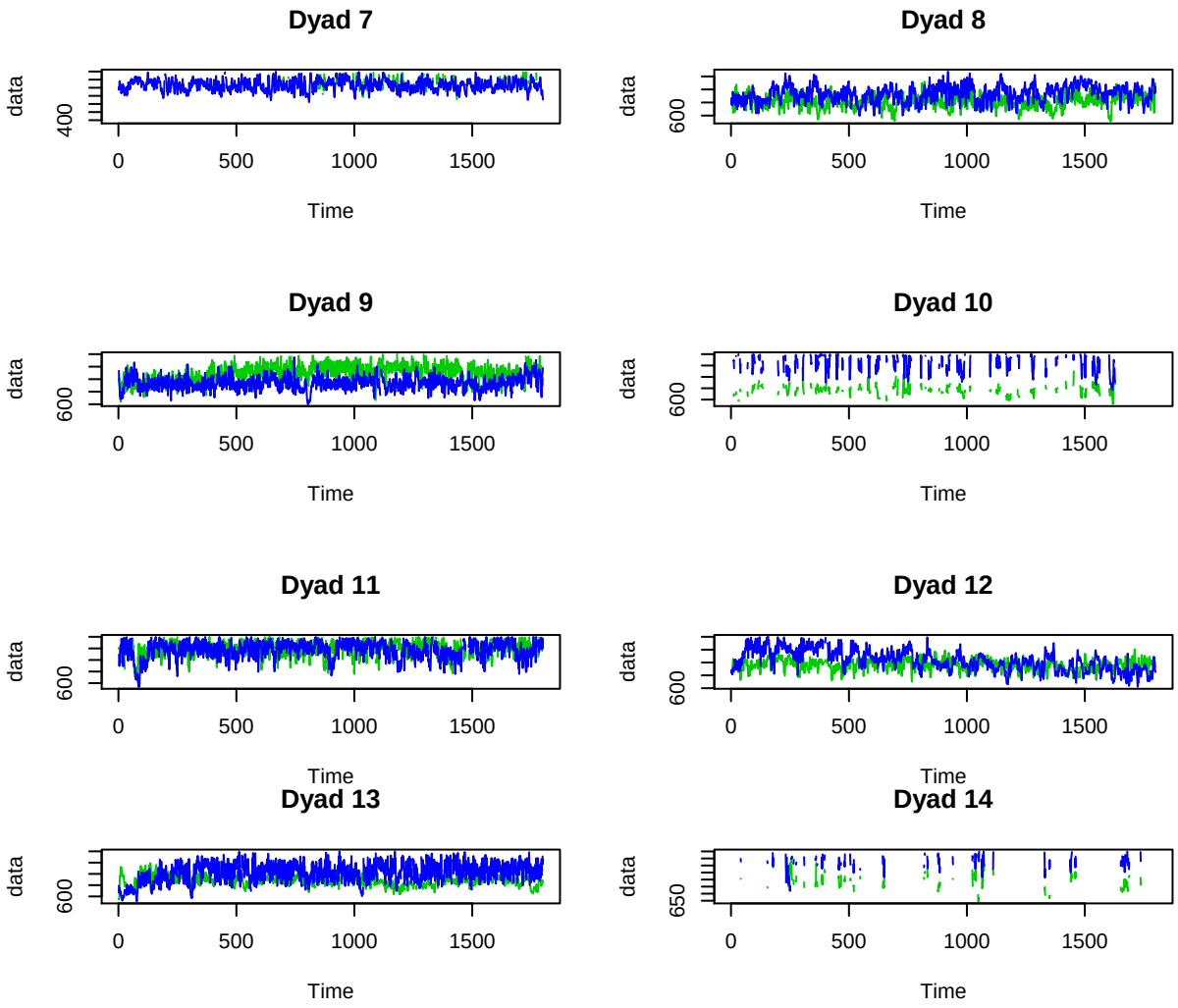
```
library(synchr)
```

```
dyad.data<-synchr.read(data = "~/Dropbox/ResearchProjects/PE-Card/CompPsychProject/Data/IBI_Series")
head(dyad.data[[1]])
```

```
##   Time_Sec P1_meanIBI_mSec P2_meanIBI_mSec
## 1        1              NA              NA
## 2        2           634.5           738.5
## 3        3           650.0           787.0
## 4        4           676.0           810.0
## 5        5           668.0           756.0
## 6        6           677.0           780.5
```

```
synchr.ts(dyad.data)
```






```
#initializing list to store dataframes with all correlation coefficients from windowed cross-correlatio
windowedcorrlist <- list()
#initializing list to store dataframes with the averrage windowed cross-correlations (by dyad)
avgwindowedcorrlist <- list()

for (p in 1:length(dyad.data)) {
  data <- dyad.data[[p]]
  synchrcorrs <- synchr.analyze(data, window = 5) #might want to add a verbose function
  windowedcorrlist[[p]] <- synchrcorrs$windowed_cc
  avgwindowedcorrlist[[p]] <- synchrcorrs$avg_windowed_cc
} #still outputting cat
```

```
## The maximum averaged windowed cross-correlatin is  -0.0046738 , and it is at  lag0 .
## The maximum averaged windowed cross-correlatin is  -0.2553754 , and it is at  lag0 .
## The maximum averaged windowed cross-correlatin is  0.02041723 , and it is at  lag1 .
## The maximum averaged windowed cross-correlatin is  -0.02294518 , and it is at  lag-1 .
## The maximum averaged windowed cross-correlatin is  -0.0334218 , and it is at  lag-1 .
## The maximum averaged windowed cross-correlatin is  0.1926599 , and it is at  lag0 .
## The maximum averaged windowed cross-correlatin is  0.03637043 , and it is at  lag-1 .
## The maximum averaged windowed cross-correlatin is  0.01990561 , and it is at  lag-1 .
## The maximum averaged windowed cross-correlatin is  -0.08490007 , and it is at  lag-1 .
## The maximum averaged windowed cross-correlatin is  0.1004015 , and it is at  lag0 .
```

```
## The maximum averaged windowed cross-correlatin is  0.00906301 , and it is at  lag0 .
## The maximum averaged windowed cross-correlatin is  0.04441835 , and it is at  lag0 .
## The maximum averaged windowed cross-correlatin is  -0.01194281 , and it is at  lag1 .
## The maximum averaged windowed cross-correlatin is  -0.06996214 , and it is at  lag0 .
```

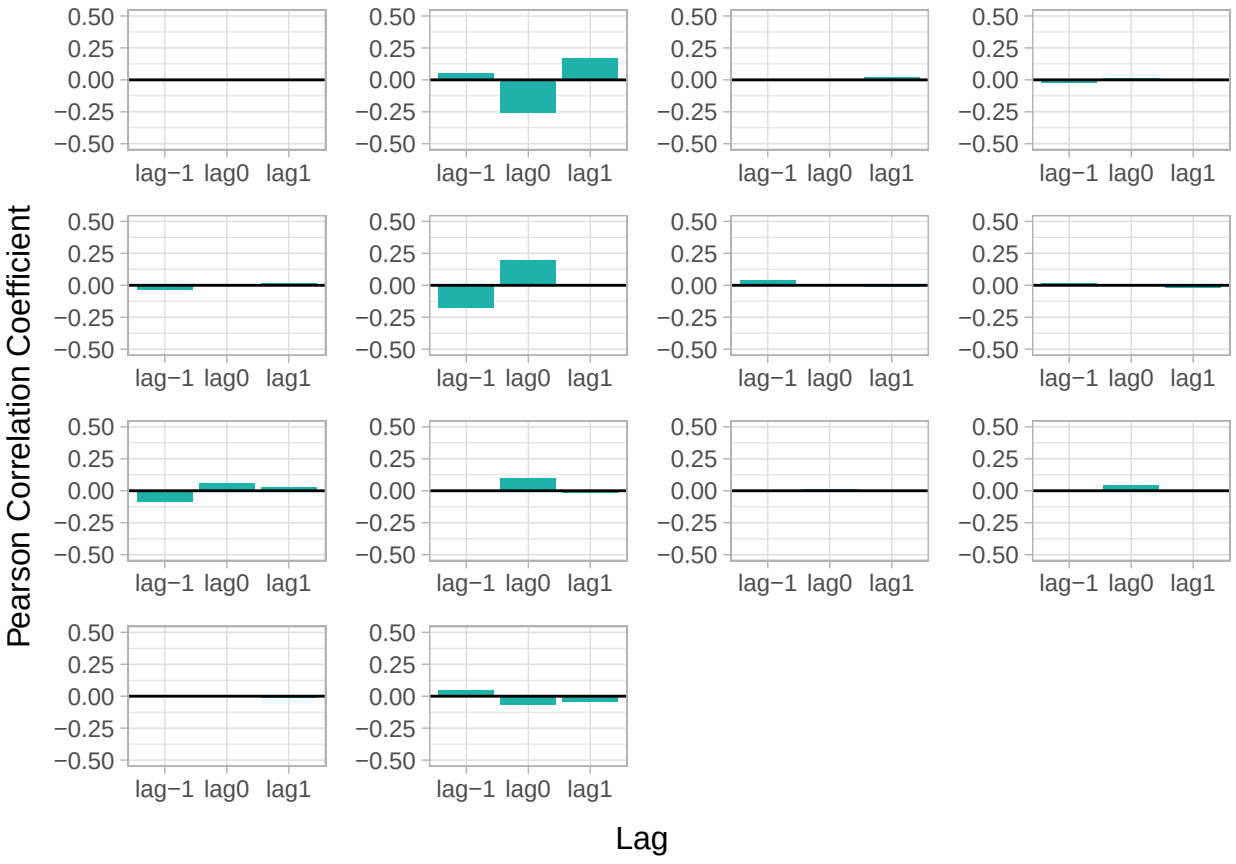
```
head(windowedcorrlist[[1]])
```

```
##            lag-1       lag0       lag1
## 1-5   -0.5079670  0.6721306  0.5150896
## 6-10   0.6033470  0.6276320  0.2167379
## 11-15 -0.2538696 -0.8846382 -0.3124341
## 16-20  0.5896365 -0.8571046  0.2721182
## 21-25 -0.7814482 -0.4114805  0.7478800
## 26-30 -0.1361120  0.3333863  0.1994765
```

```
head(avgwindowedcorrlist[[1]])
```

```
##            lag-1       lag0          lag1
## [1,] 0.001944623 -0.0046738 -0.0008058578
```

```
synchr.barplots(avgwindowedcorrlist)
```




```
synchstyles <- synchr.classify(avgwindowedcorrlist)
head(synchstyles)
```

```
##          lag-1         lag0          lag1           Style
## 1  0.001944623 -0.004673800 -0.0008058578   leader-leader
## 2  0.049225875 -0.255375421  0.1717697548 leader-follower
## 3 -0.005651095 -0.004202824  0.0204172284   leader-leader
```

```
## 4 -0.022945177  0.010333530  0.0071592639   leader-leader
## 5 -0.033421799 -0.005490765  0.0151790997   leader-leader
## 6 -0.175668745  0.192659862 -0.0018300030           <NA>
```