ERP figures

Candice Wang

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R Markdown

```
library(erpR)
```

```
## Loading required package: rpanel
```

```
## Loading required package: tcltk
```

```
## Package `rpanel', version 1.1-3: type help(rpanel) for summary information
```

```
library(R.matlab)
```

```
## R.matlab v3.6.1 (2016-10-19) successfully loaded. See ?R.matlab for help.
```

```
##
## Attaching package: 'R.matlab'
```

```
## The following objects are masked from 'package:base':
##
##     getOption, isOpen
```

```
library(dplyr)
```

```
##
## Attaching package: 'dplyr'
```

```
## The following objects are masked from 'package:stats':
##
##     filter, lag
```

```
## The following objects are masked from 'package:base':
##
##     intersect, setdiff, setequal, union
```

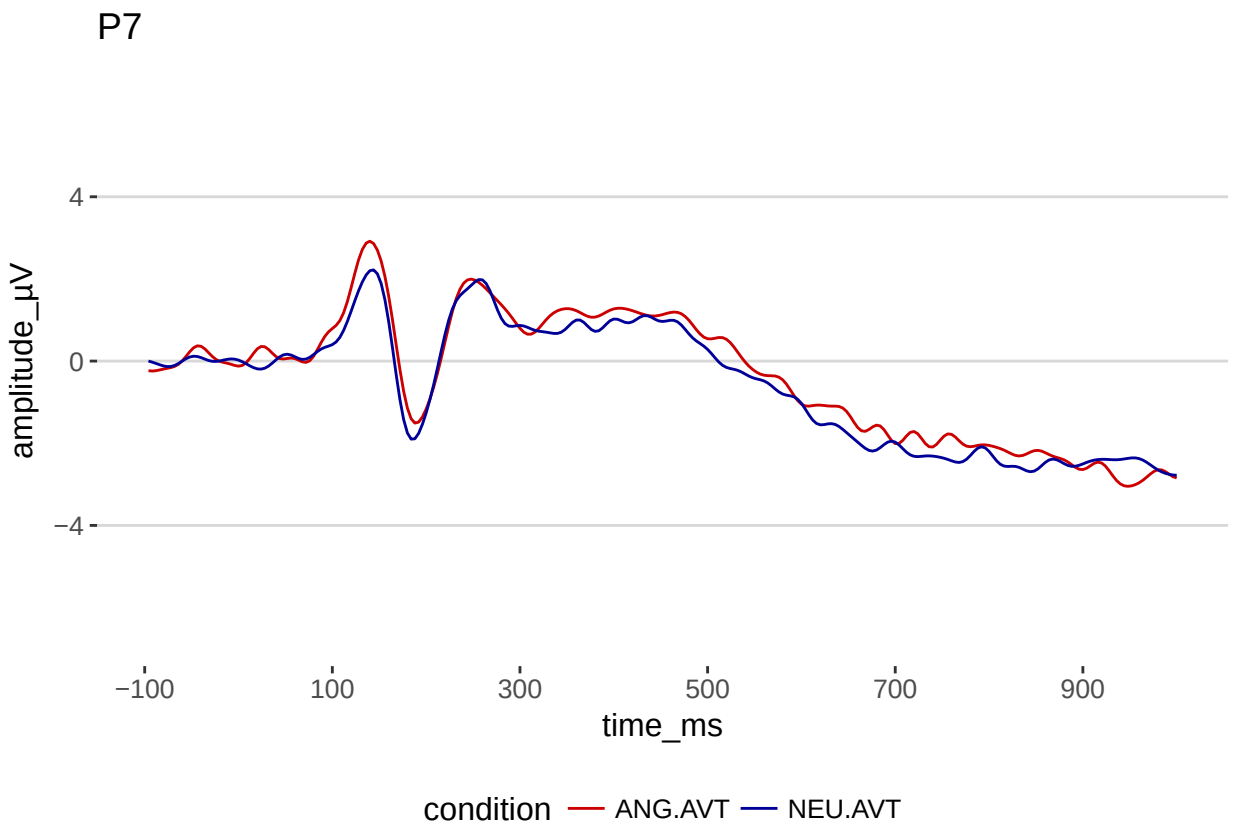
```
# imported data: rows = electrodes, columns = time points, entries = signal amplitudes
n28 <- readMat("n28_ave_ref_blc_dif_ave.mat")

# angry averted P7 channel 58
ang.avt <- n28$Angry.Averted.Average.multiple.subjects %>% data.frame()
names(ang.avt) <- c(1:275)
P7.ang.avt <- c(ang.avt[58,]) %>% as.numeric()
time <- c(1:275) %>% as.numeric() %>% time*4
time <- time-100
type.ang <- c(rep("ANG.AVT", 275))
P7.ang.avt.frame <- data.frame(time, P7.ang.avt, type.ang)
names(P7.ang.avt.frame) <- c("time_ms", "amplitude_μV", "condition")
# neutral averted P7 channel 58
neu.avt <- n28$Neutral.Averted.Average.multiple.subjects %>% data.frame()
names(neu.avt) <- c(1:275)
P7.neu.avt <- c(neu.avt[58,]) %>% as.numeric()
type.neu <- c(rep("NEU.AVT", 275))
```

```
P7.neu.avt.frame <- data.frame(time, P7.neu.avt, type.neu)
names(P7.neu.avt.frame) <- c("time_ms", "amplitude_μV", "condition")
# P7 channel 58 with both conditions
P7 <- rbind(P7.ang.avt.frame, P7.neu.avt.frame)

# angry averted P8 channel 96
P8.ang.avt <- c(ang.avt[96,]) %>% as.numeric()
P8.ang.avt.frame <- data.frame(time, P8.ang.avt, type.ang)
names(P8.ang.avt.frame) <- c("time_ms", "amplitude_μV", "condition")
# neutral averted P8 channel 96
P8.neu.avt <- c(neu.avt[96,]) %>% as.numeric()
P8.neu.avt.frame <- data.frame(time, P8.neu.avt, type.neu)
names(P8.neu.avt.frame) <- c("time_ms", "amplitude_μV", "condition")
# P8 channel 96 with both conditions
P8 <- rbind(P8.ang.avt.frame, P8.neu.avt.frame)

# angry averted PO7 channel 65
PO7.ang.avt <- c(ang.avt[65,]) %>% as.numeric()
PO7.ang.avt.frame <- data.frame(time, PO7.ang.avt, type.ang)
names(PO7.ang.avt.frame) <- c("time_ms", "amplitude_μV", "condition")
# neutral averted PO7 channel 65
PO7.neu.avt <- c(neu.avt[65,]) %>% as.numeric()
PO7.neu.avt.frame <- data.frame(time, PO7.neu.avt, type.neu)
names(PO7.neu.avt.frame) <- c("time_ms", "amplitude_μV", "condition")
# PO7 channel 96 with both conditions
PO7 <- rbind(PO7.ang.avt.frame, PO7.neu.avt.frame)

# angry averted PO8 channel 90
PO8.ang.avt <- c(ang.avt[90,]) %>% as.numeric()
PO8.ang.avt.frame <- data.frame(time, PO8.ang.avt, type.ang)
names(PO8.ang.avt.frame) <- c("time_ms", "amplitude_μV", "condition")
# neutral averted PO8 channel 90
PO8.neu.avt <- c(neu.avt[90,]) %>% as.numeric()
PO8.neu.avt.frame <- data.frame(time, PO8.neu.avt, type.neu)
names(PO8.neu.avt.frame) <- c("time_ms", "amplitude_μV", "condition")
# PO8 channel 90 with both conditions
PO8 <- rbind(PO8.ang.avt.frame, PO8.neu.avt.frame)

# angry averted Pz channel 62
Pz.ang.avt <- c(ang.avt[62,]) %>% as.numeric()
Pz.ang.avt.frame <- data.frame(time, Pz.ang.avt, type.ang)
names(Pz.ang.avt.frame) <- c("time_ms", "amplitude_μV", "condition")
# neutral averted Pz channel 62
Pz.neu.avt <- c(neu.avt[62,]) %>% as.numeric()
Pz.neu.avt.frame <- data.frame(time, Pz.neu.avt, type.neu)
names(Pz.neu.avt.frame) <- c("time_ms", "amplitude_μV", "condition")
# Pz channel 62 with both conditions
Pz <- rbind(Pz.ang.avt.frame, Pz.neu.avt.frame)

# angry averted Cz channel 129????
Cz.ang.avt <- c(ang.avt[129,]) %>% as.numeric()
Cz.ang.avt.frame <- data.frame(time, Cz.ang.avt, type.ang)
names(Cz.ang.avt.frame) <- c("time_ms", "amplitude_μV", "condition")
```

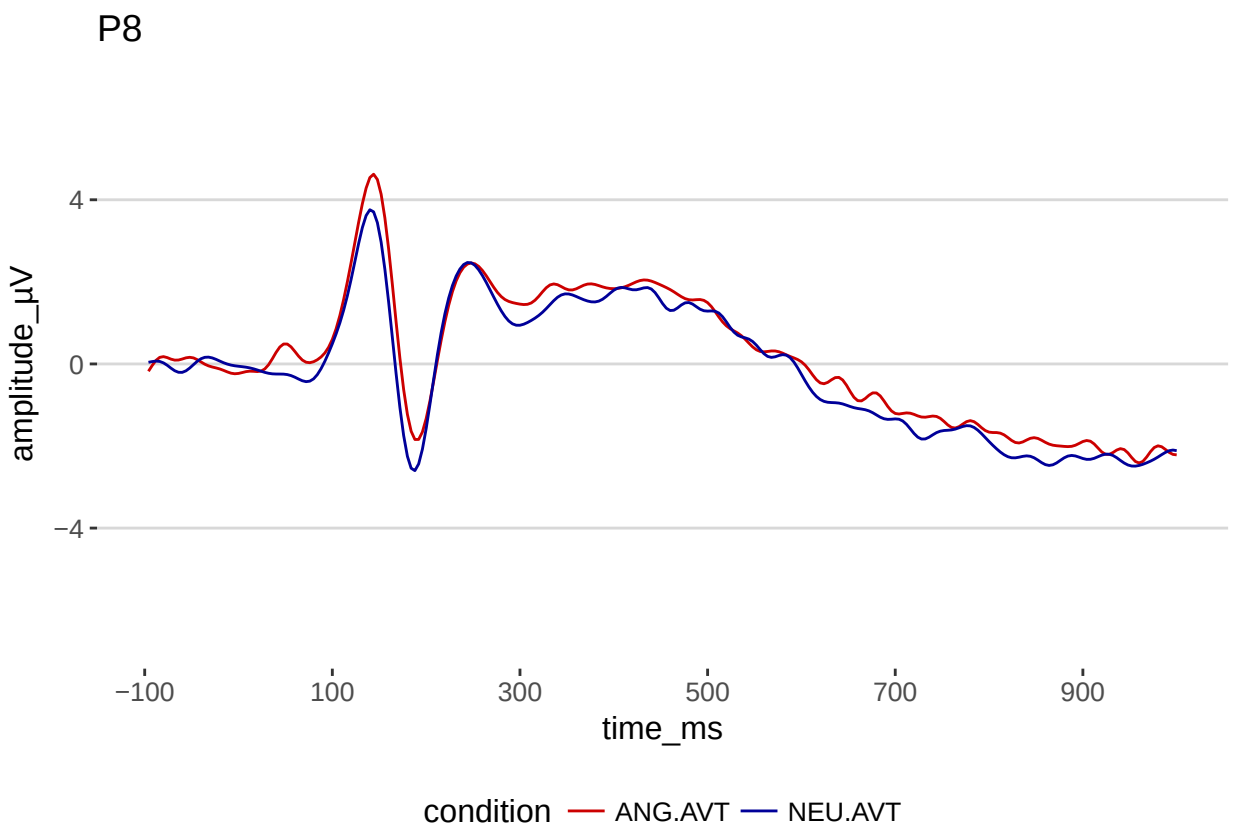
```r
# neutral averted Cz channel 129
Cz.neu.avt <- c(neu.avt[129,]) %>% as.numeric()
Cz.neu.avt.frame <- data.frame(time, Cz.neu.avt, type.neu)
names(Cz.neu.avt.frame) <- c("time_ms", "amplitude_μV", "condition")
# Cz channel 129 with both conditions
Cz <- rbind(Cz.ang.avt.frame, Cz.neu.avt.frame)
```

Plots

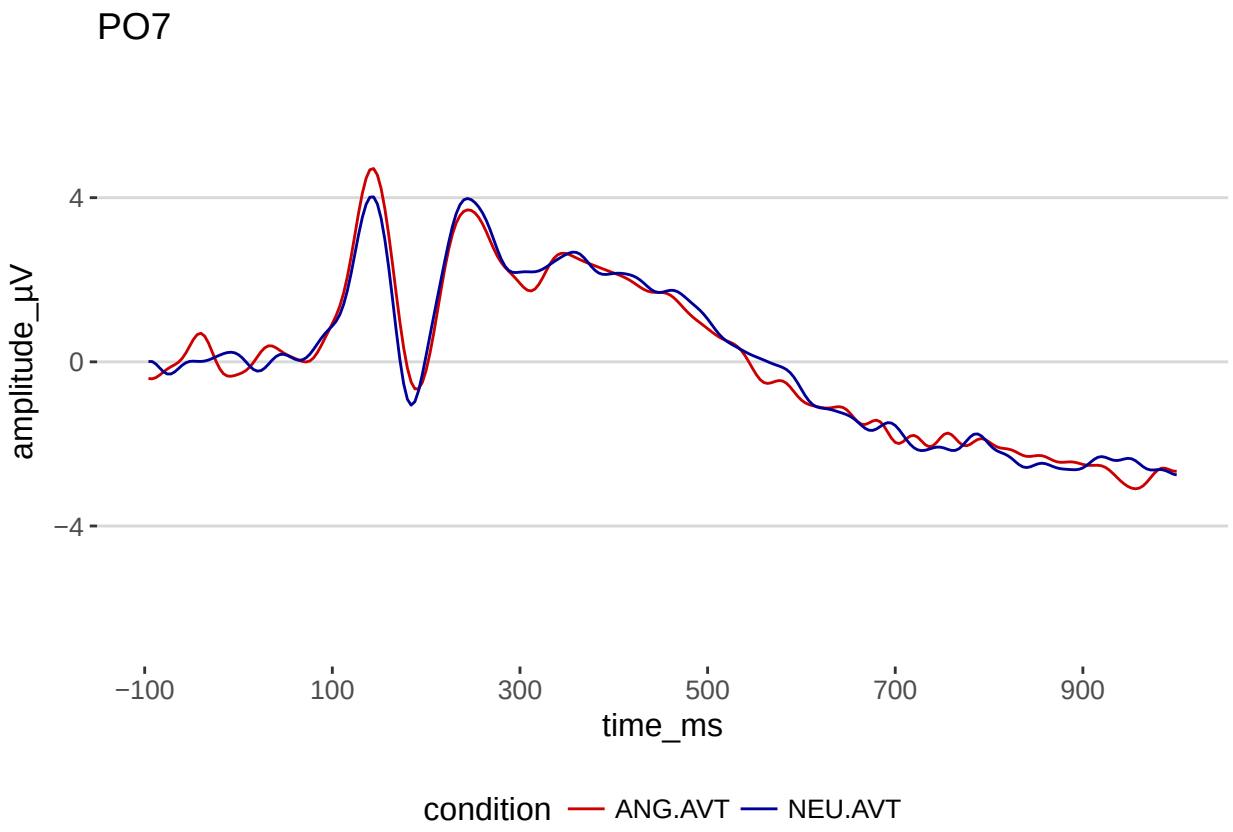
```
## Scale for 'y' is already present. Adding another scale for 'y', which
## will replace the existing scale.
```



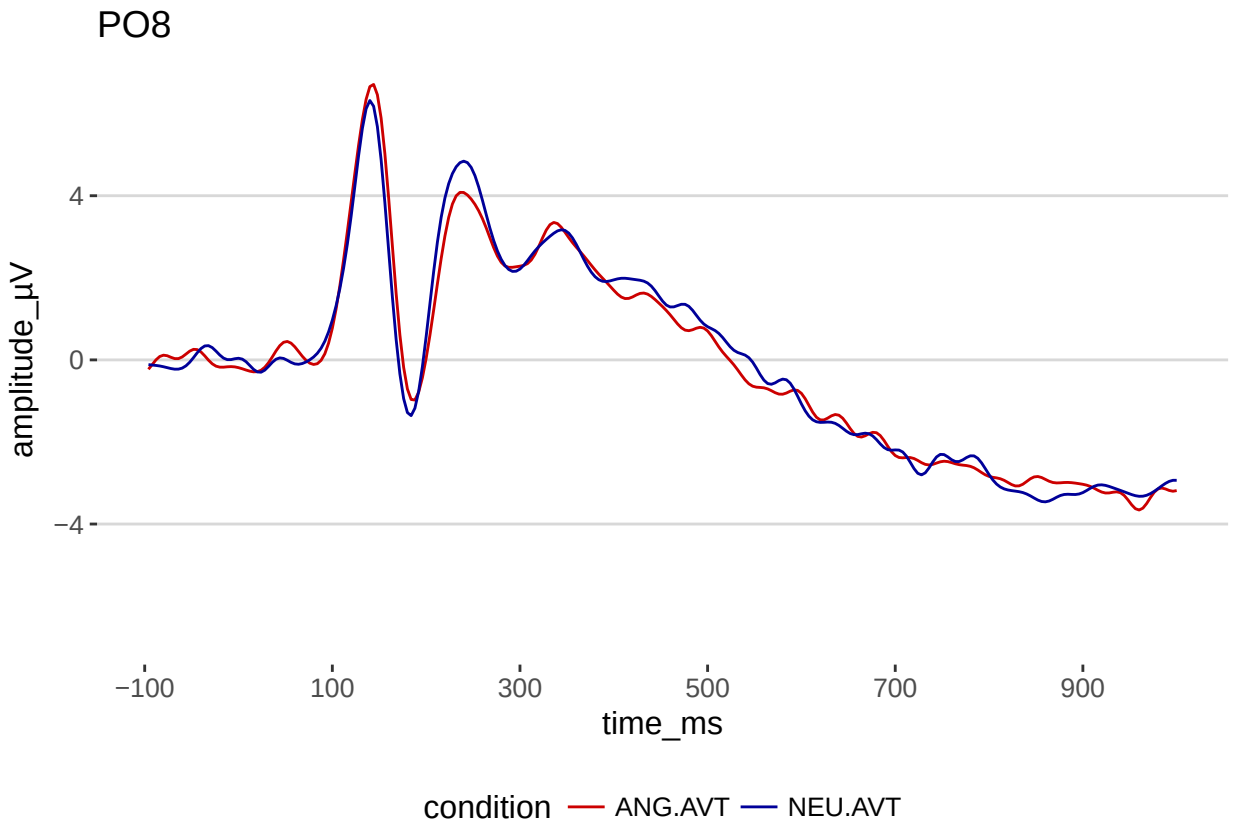

```
## Scale for 'y' is already present. Adding another scale for 'y', which
## will replace the existing scale.
```



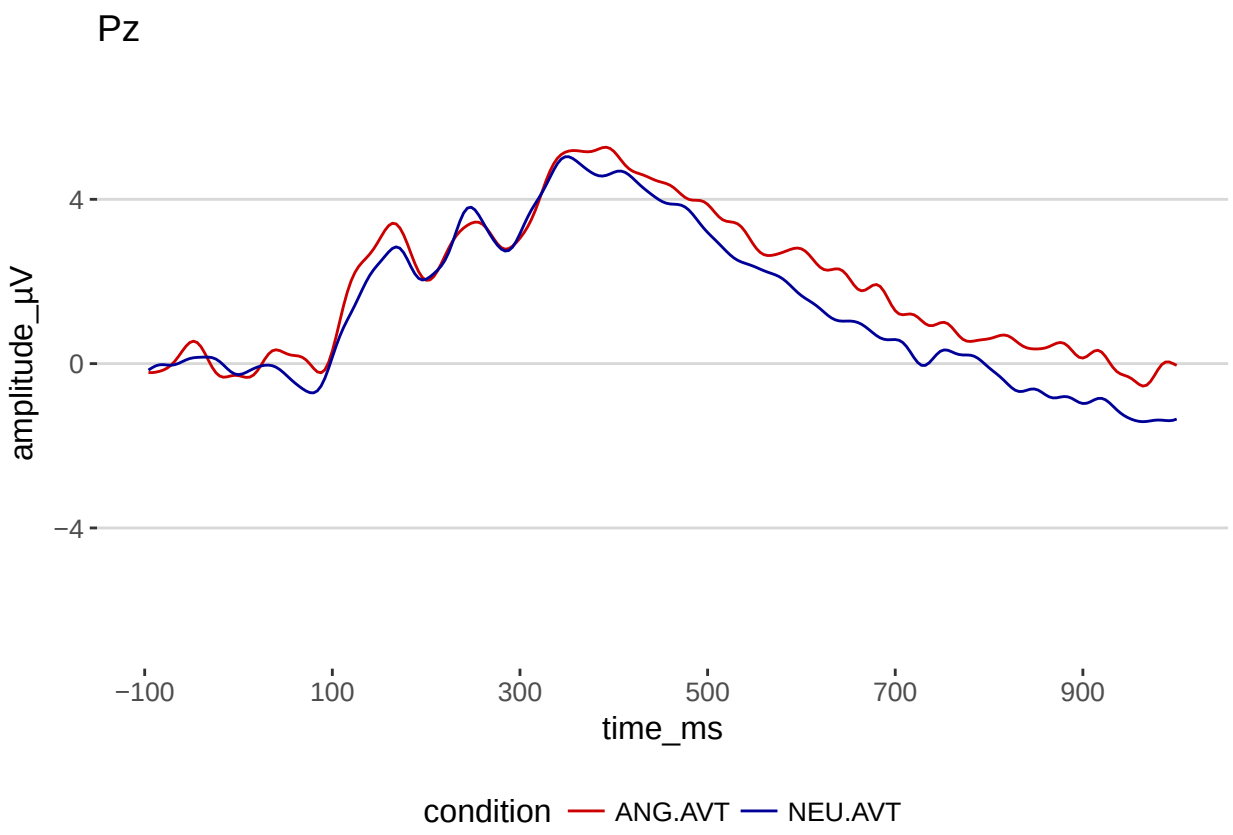

```
## Scale for 'y' is already present. Adding another scale for 'y', which
## will replace the existing scale.
```



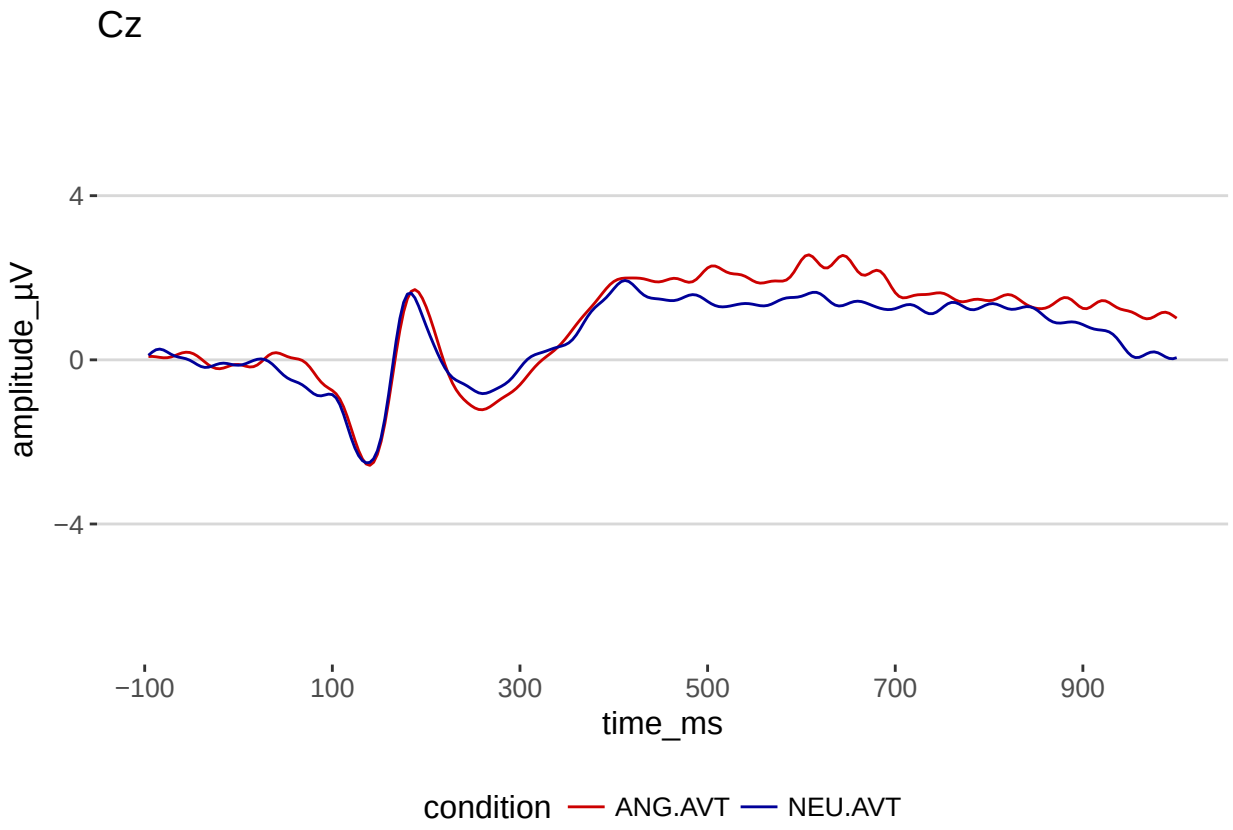
```
## Scale for 'y' is already present. Adding another scale for 'y', which
## will replace the existing scale.
```




```
## Scale for 'y' is already present. Adding another scale for 'y', which
## will replace the existing scale.
```




```
## Scale for 'y' is already present. Adding another scale for 'y', which
## will replace the existing scale.
```



Topoplots

```
library(erpR)
# electrodes in columns, time points in rows. different from previous data frames
# erpobj.ang.avt <- n28$Angry.Averted.Average.multiple.subjects %>% t() %>% data.frame()
# names(erpobj.ang.avt) <- c(1:129)
# topoplot(erpobj.ang.avt, startmsec=-100, endmsec=1000, 180,
# 180,  exclude = NULL, elec.coord=NULL, projection="orthographic",
# palette.col="jet", palette.steps=10, return.coord = FALSE, zlim=NULL,
# interpolation = "cubicspline", extrap = TRUE, interp.points = 500,
# return.notfound=FALSE, mask = TRUE,  contour=TRUE, x.rev=FALSE,
# draw.elec.pos=TRUE,  draw.nose=FALSE, draw.elec.lab=TRUE,
# elec.lab.adj=c(0.5, NA), head.col="black", head.lwd=1)
# need to name the electrodes correctly...
```