RangingData_Wilcox.Test

Y. Gomez

General Data Preparation

first: extraction of the within-hen DTW distances (Henx from day 1 to Day 72) for each hen and all the between-hen comparisons for each hen (Hen X+1 until last Hen from Day 1 to Day 72 with all hens (inkluding Hen1)) using the 4 different distmat.csv files for the 4 pens (11-14). second: of these Hen individual within- and between-hen lists - extraction of the medians, saved as amedian (within-hen) and bmedians (between-hen) for each HenID, respectively for each Pen. This was done using the following code:

distmat <- read.csv("G:/VPHI/Welfare/2- Research Projects/Yamenah Gomez/Ranging_Data/Distmat13.csv", sep=",", header=T,stringsAsFactors=FALSE) # was conducted with all 4 pens individually typeof(distmat) distmat.1 <- as.matrix(distmat) distmat.1[1:10,1:10] rownames(distmat.1) <- distmat.1[,1] distmat.1[1:10,1:10] distmat.1 <- distmat.1[,-1] distmat.1[1:10,1:10] distmat.2 <- apply(distmat.1,1,as.numeric) median(distmat.2[1:10,1:10]) Factors <- do.call(cbind.data.frame,strsplit(rownames(distmat.1),split="[.]")) Hens <- unique(t(Factors)[,1]) Days <- unique(t(Factors)[,2])

test <- matrix(0,ncol=3,nrow=length(Hens))

A <- 1 # first day B <- 72 # number of hendays per hen

for(i in 1:length(Hens)){ a <- distmat.2[A:B,A:B] a[lower.tri(a, diag = T)] <- NA amedian <- median(a,na.rm=T)

b <- distmat.2[A:B, - c(A:B)] bmedian <- median(b,na.rm=T) A <- B+1 B <- B + 72
test[i,] <- cbind(Hens[i],amedian,bmedian) } test

write.csv(test, file ="pen13_ABmedian_new.csv") # for each pen conducted separately

Data Analysis Pen 11

Data preparation

Read in the ABmedian file

In total there are 108 tracked hens within this pen. # hc11: 108 hens

Run Stats

```
median.df$amedian <- as.numeric(as.character(median.df$amedian))
median.df$bmedian <- as.numeric(as.character(median.df$bmedian))

amedian <- subset(median.df,  select = amedian)
bmedian <- subset(median.df,  select = bmedian)

# compute the difference
d <- with(median.df,
          amedian - bmedian)
```

```
wilcox.test(median.df$amedian,median.df$bmedian, paired = T, alternative = "two.sided")
```

Plot paired data

```
pd <- paired(amedian, bmedian)
plot(pd, type = "profile") + theme_bw()
```

```
d <- data.frame(before = amedian, after = bmedian)
ggpaired(d, cond1 = "amedian", cond2 = "bmedian",
         fill = "condition", group = median.df$pen,palette = "jco")
```

Data Analysis Pen 12

Data preparation

Read in the ABmedian file

In total there are 103 tracked hens within this pen. # hc12: 103 hens

Run Stats

```
median.df$amedian <- as.numeric(as.character(median.df$amedian))
median.df$bmedian <- as.numeric(as.character(median.df$bmedian))

amedian <- subset(median.df,  select = amedian)
bmedian <- subset(median.df,  select = bmedian)

# compute the difference
d <- with(median.df,
          amedian - bmedian)
```

```
wilcox.test(median.df$amedian,median.df$bmedian, paired = T, alternative = "two.sided")
```

Plot paired data

```
pd <- paired(amedian, bmedian)
plot(pd, type = "profile") + theme_bw()
```

```
d <- data.frame(before = amedian, after = bmedian)
ggpaired(d, cond1 = "amedian", cond2 = "bmedian",
         fill = "condition", group = median.df$pen,palette = "jco")
```

Data Analysis Pen 13

Data preparation

Read in the ABmedian file

In total there are 108 tracked hens within this pen. # hc13: 106 hens

Run Stats

```
median.df$amedian <- as.numeric(as.character(median.df$amedian))
median.df$bmedian <- as.numeric(as.character(median.df$bmedian))

amedian <- subset(median.df,  select = amedian)
bmedian <- subset(median.df,  select = bmedian)

# compute the difference
d <- with(median.df,
          amedian - bmedian)
```

```
wilcox.test(median.df$amedian,median.df$bmedian, paired = T, alternative = "two.sided")
```

Plot paired data

```
pd <- paired(amedian, bmedian)
plot(pd, type = "profile") + theme_bw()
```

```
d <- data.frame(before = amedian, after = bmedian)
ggpaired(d, cond1 = "amedian", cond2 = "bmedian",
         fill = "condition", group = median.df$pen,palette = "jco")
```

Data Analysis Pen 14

Data preparation

Read in the ABmedian file

In total there are 104 tracked hens within this pen. # hc14: 104 hens

Run Stats

```
median.df$amedian <- as.numeric(as.character(median.df$amedian))
median.df$bmedian <- as.numeric(as.character(median.df$bmedian))

amedian <- subset(median.df,  select = amedian)
bmedian <- subset(median.df,  select = bmedian)

# compute the difference
d <- with(median.df,
          amedian - bmedian)
```

```
wilcox.test(median.df$amedian,median.df$bmedian, paired = T, alternative = "two.sided")
```

Plot paired data

```
pd <- paired(amedian, bmedian)
plot(pd, type = "profile") + theme_bw()
```

```
d <- data.frame(before = amedian, after = bmedian)
ggpaired(d, cond1 = "amedian", cond2 = "bmedian",
         fill = "condition", group = median.df$pen,palette = "jco")
```