Response to reviewer 2

Abby

04 January, 2019

Reviewer comment #2

I really like the tree-based representation of dietary intake! When analyzing the individualized nature of dietary intake, did the authors consider predictable patterns in individual dietary intake? The authors write that the subjects "often consume meals with conventional food pairings". Are there patterns or some sort of periodicity (e.g., autoregressive models) in dietary intake? Can this affect/predict the diet-microbiome interactions?

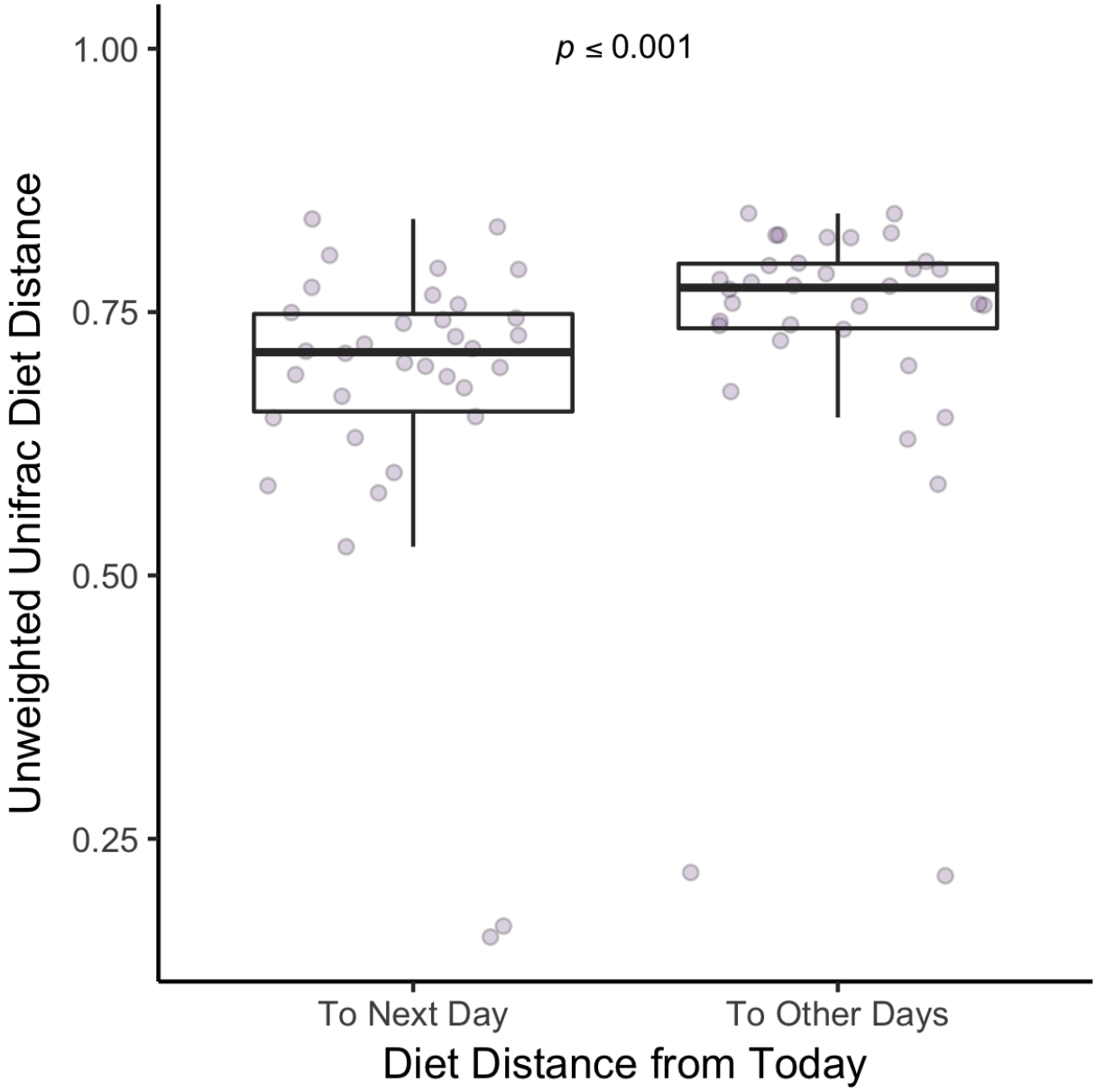
Thoughts to address

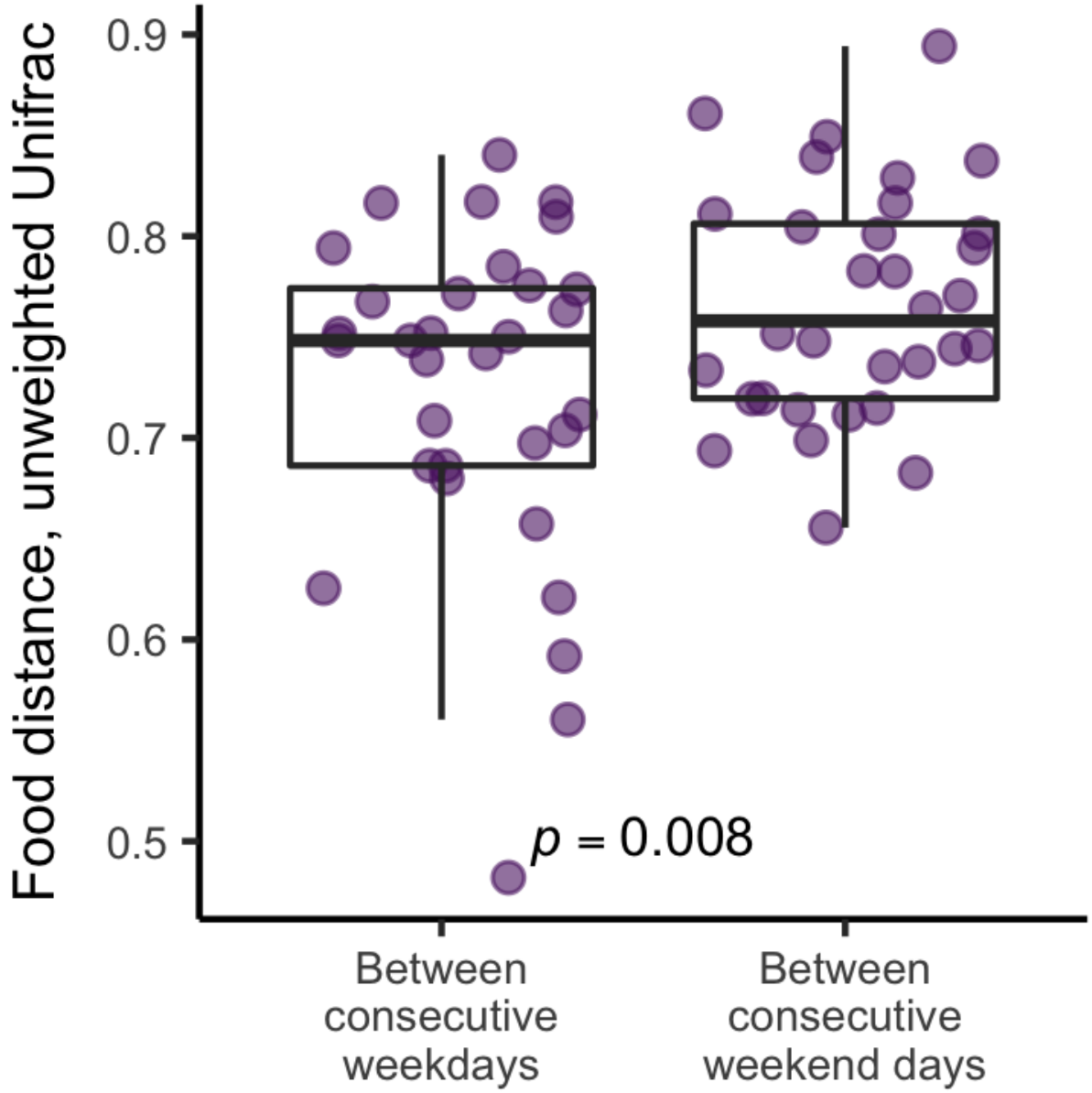
Week day v. weekend diet?

Week day microbiome v. weekend? Are microbiome samples from Wednesday's more similar to themselves than compared to other days of the week for example? Can we show this in diet?

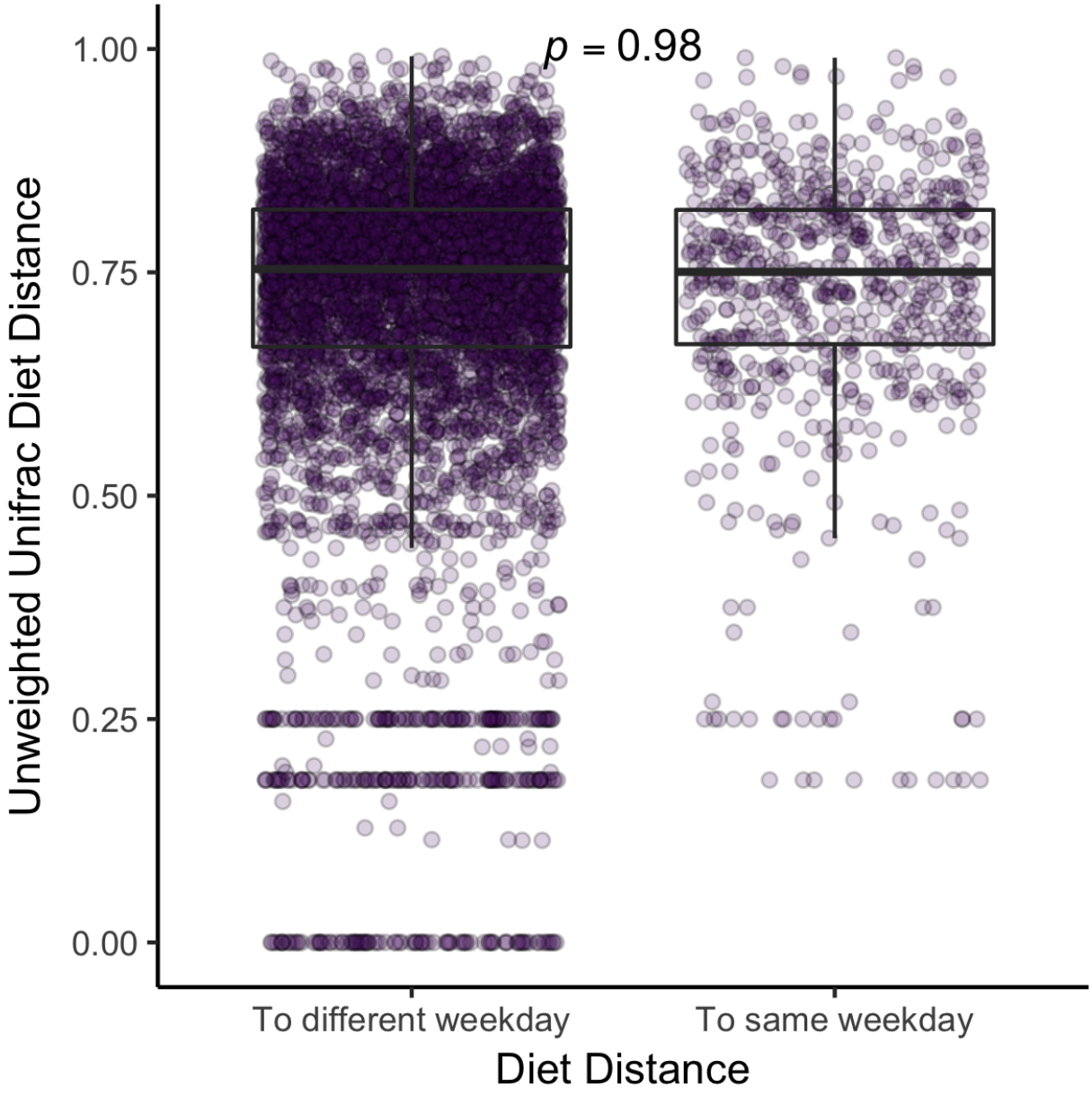
Potential to include the identification of patterns from dietary principal coordinates as it makes sense for this discussion.

Is next day diet more similar than all other days diet?




Food distance, unweighted Unifrac
0.9
0.8
0.7
0.6
0.5
p = 0.008
Between consecutive weekdays
Between consecutive weekend days

Are same days of the week more similar to each other than different week days?




```
names(day1diffall) <- unique(map$UserName)
mydistance <- stack(day1diffall)
names(weekdaysall) <- unique(map$UserName)
mydays <- stack(weekdaysall)

plot <- cbind(mydistance, mydays)
colnames(plot) <- c("Distance", "UserName", "Day", "UserName2")
plot <- aggregate(plot$Distance, by = list(plot$Day, plot$UserName), FUN = mean)

plot <- subset(plot, !plot$Group.2 %in% c("MCTs11", "MCTc12") )
```

```r
plot$Group.1 <- factor(plot$Group.1, levels = c("Monday", "Tuesday", "Wednesday", "Thursday", "Friday",

ggplot(plot, aes(x = Group.1, y = x)) + geom_boxplot(aes(group = Group.1)) + geom_hline(aes(yintercept =
```