Lab 8 Activity

Load in the `Ornstein` data from the `carData` package, along with the `tidyverse` package. Read the help page for the `Ornstein` data to better understand these data.

```
library(tidyverse)
data("Ornstein", package = "carData")
```

Here is a description of the data:

variable	description
assets	Assets in millions of dollars
sector	Industrial sector. A factor with levels: AGR, agriculture, food, light industry; BNK, banking; CON, construction; FIN, other financial; HLD, holding companies; MAN, heavy manufacturing; MER, merchandizing; MIN, mining, metals, etc.; TRN, transport; WOD, wood and paper
nation	Nation of control. A factor with levels: CAN, Canada; OTH, other foreign; UK, Britain; US, United States
interlocks	Number of interlocking director and executive positions shared with other major firms

1. For today, we will use `interlocks` as the DV, and `sector` and `nation` as IVs.

- However, we are only interested in whether the nation is Canada or not, so we want to combine the `OTH`, `UK`, and `US` factor levels. Modify the `nation` variable such that we are only left with `CAN` for canada, and `Other` for other nations. There are many ways of doing this, but the `ifelse()` function should be helpful; here is an example of how it works:

```
ifelse(test = c("some", "thing", "some", "other") != "some",
       yes = "new",
       no = "some")
```

```
[1] "some" "new"  "some" "new"
```

- Finally, omit data from the "BNK", "CON", and "HLD" levels of `sector` because they have relatively few observations.

2. plot the means of `interlocks` by `sector` and `nation`. Do you expect to find a significant interaction effect in between `sector` and `nation`? You use violin plots of the `ggeffects` package.

3. Conduct a two-way ANOVA on these data and calculate the partial ω^2 for each of the effects. What do you find? Use an appropriate type of sums of squares.

4. Based on your results in the previous part, either report the simple main effects or ordinary main effects. What do you conclude?