

# So, to make sense of our output

- We found a significant effect of Beverage type ( $F(2,42) = 297.05$ ,  $p < .001$ , partial  $\eta^2 = .93$ ). Bonferroni comparisons revealed that the Water group differed significantly worse than the Single Espresso Group ( $p < .001$ ), that the Water group differed significantly worse than the Double Espresso Group ( $p < .001$ ), and that the Single Espresso Group performed significantly worse than the Double Espresso Group ( $p < .001$ ).
- In other words, drinking a some coffee improves motor performance relative to drinking water, and drinking a lot of coffee improves motor performance even more.

# ANOVA for factorial designs

- A particularly good package for factorial ANOVA is by Henrik Singmann and called `afex`.
- Built to work like ANOVA in SPSS - uses Type III Sums of Squares with *effect* coding of contrasts. This overrides the default contrast coding in *R* which is for *dummy* coding.