We can work out the mean of our reference group (Water) by plugging in the values to our equation - note that Gaming is not a factor and we need to enter the mean of this variable (which is 12.62296). So,…

Ability = Intercept + *β1(*Gaming) + *β2*(Double Espresso) + *β3*(Single Espresso) + *ε*

Ability = -3.4498 + 0.8538(12.62296) + (- 1.0085)(0) + (-0.4563)(0) + ε

Ability = -3.4498 + 10.777 + ε

Ability = 7.33 + ε

7.33 is the adjusted mean for the Water group…which is what we had from calling the `emmeans` function following the ANCOVA…

You can now build ANOVA models in R for different kinds of designs, add between participant co-variates, factor out the influence of these co-variates, and you also know why AN(C)OVA is a special case of regression (with dummy coding of variables)…