The dataset “eats” has data from a (hypothetical) taste test where participants rated their enjoyment of two foods, hot dogs and ice cream, with each of two condiments, chocolate sauce and mustard. The variable named enjoyment shows their enjoyment rating on a scale of 0 to 100, the variables named food and condiment are text variables containing the type of food and condiment consumed. hotdog is an indicator variable of the food being a hot dog (1=hot dog, 0=ice cream), and chocsauce is an indicator variable for condiment (1=chocolate sauce, 0=mustard). The variable hotchoc is equal to the cross-product of hotdog\*chocsauce.

1. Is there a significant interaction between food type and condiment type in their effect on the enjoyment rating? If so, describe the direction of this interaction (no need to directly interpret its magnitude) in terms of how these two factors (food type and condiment type) relate to enjoyment

Programming hint: you may use proc reg with the indicator variables and numeric cross-product term provided, or proc glm with the text variables. If you use GLM, you can put a cross-product term (e.g., v1\*v2) directly on the model statement, but would need the solution option on the model statement (after a forward-slash) if you want to see the regression equation (although you have not been asked to write out the equation for this problem).

The dataset “oxygen” has data from a study by Yoshida (as presented in question 9 in chapter 8 of the textbook), in which the oxygen consumption of wireworm larva groups was measured at five temperatures (variable name TEMP). The dependent variable is the rate of O2 consumption per larva group (in milliliters per hour), which was transformed to 0.5 less than the common (base 10) logarithm (variable name O2). Another independent variable (other than temperature) of importance was larva group weight (variable name WGT), also transformed to common logarithms.

1. Is the effect of temperature on oxygen consumption modified by weight? Give the regression equation, the hypotheses, and your conclusion.
2. If there is no effect modification by weight, does weight act as a confounder in estimating the effect of temperature on oxygen consumption? Why or why not? (Fit whatever regression models are needed to answer this question and comment on why you do or do not think there is confounding.)
3. If the goal of the model fitting were to best predict oxygen consumption, which predictors would you keep in the model? Why?