TWO WAY ANOVA

1. **Interaction plot**

To draw interaction plot (mean profile plot), you can use

*interaction.plot(Name of factor 1,Name of factor 2, Name of the numerical variable)*

Example 1: Do the interaction plot to compare the response between the group for the ANOVA data shown in the second slide of the lecture note. You will need to change the variable time and tool into factor. What do you think of the plot?

1. **Two-way ANOVA:**

To do two-way ANOVA (full model)

* *Name of your model = aov (data~group1+group2+group1\*group2, data=Name of your data)*
* *summary(Name of your model)*

If you reject the null hypothesis, you need to do Tukey test as below:

* *TukeyHSD(Name of your model, “name of your variable”, conf.level= …..)*
* *plot(TukeyHSD(Name of your model, “name of your variable”, conf.level= …..), las=1 or 2)*

Example 2: Do a two-way ANOVA analysis for your data. What is your conclusion? Then, follow by some Tukey test. What is your conclusion?

1. **Regression**

Example 3: As you seen from the lecture note “13\_ANOVA and Regression”, the two methods are related. Fit a linear model to this data set. Interpret the result.