Case study: WIMP (GUI) vs. HYBRID (graphical command line)

Motivation
• WIMP interfaces are slow because of the mouse
• Command line interfaces are fast (for experts who know how to use them), but take longer to learn
• Can we create a hybrid interface that is graphical but can be fully operated through the keyboard?

Independent variables:
• interface: WIMP, hybrid
• command line expertise: novice, expert
• command parameters: zero, one, two
  – E.g., bold (zero), font ariel (one), print –copies 2 –color greyscale (two)
  – Note: zero parameter commands can be done using shortcuts keys in WIMP

Dependent variables:
• performance: speed, error
• satisfaction

With your neighbor:
1. Given the above independent and dependent variables, identify the factors in the experiment. For each factor, list the levels.

   Factor                  Levels

2. For each factor, list whether it should be between subjects or within subjects. Explain.
   a. Between Subjects:

   b. Within Subjects:
3. For each of the following graphs from the case study results, annotate the graphs with the requested information.

**Interface x Expertise**

a. Label the mean for each interface, collapsing expertise (★)
   - Compare the mean speeds:
     Do you think there is a significant main effect of *interface*?

b. Label the mean for each type of expertise, collapsing interface type (●)
   - Compare the mean speeds:
     Do you think there is a significant main effect of *expertise*?

c. Do you think there a significant interaction effect?
   If yes, write down your interpretation of the effect.

**Interface x Number of Parameters**

d. Label the mean for each type of interface, collapsing parameters (★)
   - Compare the mean speeds:
     Do you think there is a significant main effect of *interface*?

 e. Label the mean for each parameter number, collapsing interface (●)
    - Compare the mean speeds:
      Do you think there is a significant main effect of *parameter*?

f. Do you think there a significant interaction effect? If yes, write down your interpretation.
g. Given the three graphs above, do you think that there might be an interaction between Interfaces x Expertise x Parameters? If yes, describe your interpretation.