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Practice: Visualizing the Area Measurement MSA Data

In a previous practice, you measured the area of several objects. In fact, several other inspectors measured these same objects in random order. In this practice, you visually explore these data using a variability chart.

1. Open your saved **Area MSA Exercise *Name*.jmp** file (where ***Name*** is your name).

2. To add data from the other inspectors, click the green triangle next to **Add Other Inspectors** in the top left corner of the data table.

   Your final table should have 96 rows. Save this file as **Area MSA Exercise Name Combined.jmp**.

   Note: If you did not save this file, or if you cannot locate the file, you can analyze the MSA without your data. These data are stored in the file **Area MSA Exercise Combined.jmp**. This file has 84 rows.

3. Create a variability chart to visualize these data. To do this, select **Measurement Systems Analysis** from the **Analyze** menu under **Quality and Process**. Then enter **Measured Value** for **Y, Response, Inspector** as the **X, Grouping** variable, and **Part Number** for **Part, Sample ID**. Then change **MSA Method** to **Gauge R&R**.

   a. Is there any repeatability variation?

   b. Select **Show Group Means** from the top red triangle. Is there a difference, on average, between the inspectors?

   c. Select **Connect Cell Means** from the top red triangle. Is the pattern of measurements for the parts different across the inspectors?

   a. Yes, many of the lines connecting the repeated measures are long, so there is a lot of repeatability variation

   b. Some of the lines, representing the means, are similar, but some of the lines are lower than the others. There appear to be some differences, on average, between the inspectors.

   c. Yes, the patterns for the measurements for the parts for the different operators are different. For example, look at Part 5 for Hans M and Jian P. Their measurements on this part, on average, are different. This indicates that there are some interactions.

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