

**Instruction Manual for
Poka-Yoke Double Entry System Version 2.2.01**

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Introduction

Data entry errors reduce reliability, power, and effect sizes (Barchard & Pace, 2011). In some cases, they can introduce outliers that completely invalidate statistical analyses (Barchard & Pace, 2011; Hoaglin & Velleman, 1995; Kruskal, 1960; Wilcox, 1998). Tukey (1977) recommends researchers use holistic methods such as histograms and frequency tables to check for outliers. However, most data entry errors are within the allowable range for the variables (Barchard & Pace, 2011; Barchard & Verenikina, 2013) and so would not be detectable with holistic methods. Moreover, in-range errors can still have drastic effects on statistical results (Barchard & Pace, 2011). Therefore, it is more effective to use entry-by-entry data checking methods.

There are three commonly used entry-by-entry data checking methods. One method is visual checking: visually comparing the data on the screen to the data on the piece of paper. Another method is read aloud: having one person read the data out loud while another person checks the data on the screen. The disadvantage of these two procedures is that there is no way to know if it has been done well. If the person who is doing the checking fails to see a mismatch, there is no evidence of this in the data file. The third method is to enter the data a second time, and make sure they agree. This is called double-entry, and this is the system used here. The advantage of double-entry is that it is easy to tell if the data match: There is a record of this in the data entry file itself. If the data entry person fails to catch a mismatch, their supervisor will see the error and can correct it. Empirical evidence shows that double entry is far superior to visual checking (Barchard & Pace, 2011; Barchard & Verenikina, 2013) and read aloud (Barchard & Verenikina, 2013; Johnson, Temple, Pearsons, Webster, 2009; Kawado, Hinotsu, Matsuyama, Yamaguchi, Hashimoto, & Ohashi, 2003). For example, read aloud and visual checking had more than 20 times as many errors as double entry (Barchard & Verenikina, 2013).

Because double entry is so accurate, researchers can be confident in data quality when using a wider variety of data entry procedures. First, double-entry allows researchers to delegate data entry to research assistants, saving valuable researcher time. Alternatively, if no research assistants are available, double-entry allows the researcher to enter data when they themselves are tired or inattentive. They do not need to enter data during their most productive time of the day; they can rely upon the double-entry system to catch their errors.

This file explains how to use the Poka-Yoke Data Entry System. “Poka-yoke” (pronounced POH-Ka YOH-Kay) means “mistake-proofing” in Japanese. This term originated with Shigeo Shingo (1986), who is considered the father of the modern Toyota production system. A Poka-yoke system either completely prevents incorrect parts from being made or makes detection of imperfections particularly easy. Applied to data entry, a Poka-yoke system would involve nearly perfect data checking, and would virtually eliminate the need for after-the-fact data cleaning.” (Barchard & Pace, 2008).

The Poka-Yoke Data Entry System has three advantages. First, it is easy to use. It requires no programming or special knowledge to set up the system for a particular dataset or to enter and check the data. Second, it can be set up quickly for any type of data. For each variable, just enter the labels and the minimum and maximum values, and you are ready to start entering data. Third, it is free. This system was written in Microsoft Excel 2010, which is a program that most researchers (and most research assistants) have easy access to. As later versions of Excel become available, it will be easy to save this file in the new version of Excel, and continue using this system.

References

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Resources and Reference

This system has been designed to assist researchers in implementing high quality data entry. It incorporates double-entry, checking for mismatches, and checking for out-of-range values. For most research projects, all you need to do is follow the instructions given here, and you will be able to use this system for your data entry. However, if you want to understand how this program works or if you want to have greater flexibility in creating a data entry system that meets your needs, consult the following paper:

Barchard, K.A. & Pace, L.A. (2008). Meeting the challenge of high quality data entry: A free double-entry system. *International Journal of Services and Standards*, 4, 359-376. This paper is also available from Kim Barchard, Department of Psychology, University of Nevada, Las Vegas, 4505 S. Maryland Parkway, Las Vegas, NV, 89154-5030, barchard@unlv.nevada.edu

If you use this double entry system for work that is later published, we would appreciate it if you would provide the following citation for the Poka-Yoke System:

Barchard, K. A., Verenikina, Y., & Pace, L. A. (2015, April). *Poka-Yoke Double Entry System Version 2.2.01*. Unpublished file for Excel 2010 that allows double entry, checking for mismatches, and checking for out-of-range values. Available at <http://faculty.unlv.edu/barchard/doubleentry/> or from Kimberly A. Barchard, Department of Psychology, University of Nevada, Las Vegas, kim.barchard@unlv.edu.

or this citation for the Poka-Yoke PLUS System:

Barchard, K. A., Verenikina, Y., & Pace, L. A. (2013, April). *Poka-Yoke PLUS Double Entry System Version 2.0.34*. Unpublished file for Excel 2010 that allows double entry, double corrections, checking for mismatches, and checking for out-of-range values. Available at <http://faculty.unlv.edu/barchard/doubleentry/> or from Kimberly A. Barchard, Department of Psychology, University of Nevada, Las Vegas, barchard@unlv.nevada.edu.

Suggestions

If you have any suggestions for improvements to either the data entry system or these instructions, please send them to Kimberly A. Barchard at kim.barchard@unlv.edu.

Versions

There are two versions of the Poka-Yoke System:

Poka-Yoke Double Entry System

Each data point is typed twice, on the “First Entry” and “Second Entry” sheets. Mismatches and out-of-range errors are highlighted on the “Check” sheet. The user corrects the highlighted values on the “Check” sheet by referring to the original paper data sheet. This “Check” sheet is the final data set.

This method of double entry is the industry standard for double entry and is sufficient for most research projects.

Poka-Yoke PLUS Double Entry System

Like in the Poka-Yoke system, each data point is typed twice, on the “First Entry” and “Second Entry” sheets. Mismatches and out-of-range errors are highlighted on the “Check” sheet and again on the “Double Check” sheet. The user corrects the highlighted values on the “Check” sheet by referring to the original paper data sheet.

The Poka-Yoke PLUS system goes further. The user corrects the highlighted values again, on the “Double Check” sheet. The “Triple Check” sheet compares the “Check” and “Double Check” sheets. The “Triple Check” sheet highlights mismatches and out-of-range errors. The user corrects the highlighted values in the “Triple Check” sheet by referring to the original paper data sheet. This “Triple Check” sheet is the final data set.

The purpose of correcting the errors twice is to ensure that the corrections themselves are done correctly.

This method of double entry should be used when the accuracy of the data is particularly important, or when a greater number of data errors are expected.

The Poka-Yoke PLUS Double Entry System is memory intensive. It is not recommended unless your computer has at least 8G of RAM. With less memory than that, the program will be too slow.

Poka-Yoke Double Entry System

Overview

1. Open the Poka-Yoke Double Entry System and save the file with the name of your dataset.
2. Data will be entered in two sheets, called “First Entry” and “Second Entry.”
3. These two sets of entries will be compared on the sheet called “Check.” If the two entries are the same, then the value of the entry will be shown on the “Check” sheet. If the two entries do not match (or one of them was left blank), the cell on the “Check” sheet will show the word, “MISMATCH” and will be highlighted in yellow.
4. If the cell is blank on both the “First Entry” and “Second Entry” sheets, then the cell will be left blank on the “Check” sheet and will be highlighted in *green*.
5. If there are minimum or maximum allowable values for some or all of your variables, you can specify these on the sheet called “Set Up” and then entries that fall outside that allowable range will be highlighted on the “Check” sheet. Values that are too high will be highlighted in *brown*, while values that are too low will be highlighted in *pink*.
6. If all of the values match, there are no blank cells, and there are no values that are too high or too low, then you are done: The “Check” sheet contains your final dataset.
7. If there are some errors, you need to fix them on the “Check” sheet, by checking the original data sheets. After you fix the errors, the highlighting will disappear.

Sheets

Set Up	This is where you will specify the names of the variables and any limits on their possible values.
First Entry	This is where data will be entered the first time.
Second Entry	This is where data will be entered the second time.
Summary	This sheet summarizes the errors on the “Check” sheet.
Check	This sheet compares the “First Entry” and “Second Entry” sheets to identify mismatches and out-of-range values.

Limitations

1. This version of the Poka-Yoke Double Entry System was designed for Microsoft Excel 2010. You can use it with Excel 2007, but it will not provide highlighting to indicate the location of the errors and it will not check if entries are within the allowable range.
2. This version of the Poka-Yoke Double Entry System is not case sensitive. Two entries will be considered identical if they only differ in terms of capitalization, and if you want to restrict entries to certain kinds of words, both upper case and lower case (and mixed) will be allowed.
3. **You must NEVER delete or insert a row (or column).** You can delete the *contents* of the row (or column), but don’t delete the row (or column) itself.
4. **You must NEVER copy-and-paste** data from one part of the Poka-Yoke file to another part of the file, even within the same sheet. If you type the data in the wrong row or column, delete the data and then type it again. If you do delete or insert rows or if you copy-and-paste, this will destroy the ability of this file to check that the data match from the first entry to the second entry. Ideally, the Poka-Yoke Double Entry System would prevent you from doing these things. However, because it does NOT use macros, it is impossible to disable these functions. [On the other hand, it is okay to copy-and-paste data from another file to the Poka-Yoke file (for example, if you started to enter data somewhere else), and it is okay to copy-and-paste data from the Poka-Yoke file to another file (for example, to copy your data into SPSS).]

Set up

Create New File

1. Open the Poka-Yoke Double Entry System and save the file with the name of your dataset.
2. You **MUST** start with a new, blank file for EVERY new dataset, because the process of checking data results in changes to the file itself. If you re-use a file and simply delete the previous data, the system might not detect all errors.

Dimensions

1. The Poka-Yoke Double Entry System has been designed for 100 variables and 300 participants.
2. If you have more than 100 variables or more than 300 participants, divide your data entry into two or more files.

Variables Labels

1. Create a list of the measures that will be entered. Decide what order they will be entered in.
2. For each measure, create a short abbreviation of the name. For example, the Emotion Management Scale might be abbreviated EM. If you plan to analyze your data in SPSS, do not put any spaces in the abbreviation, and start your abbreviation with a letter (not a number or symbol). See the hint box below for more suggestions.
3. For each measure, count the number of items.
4. Set up the data entry on the “First Entry” sheet. The variable labels will be given on the first row. The first cell (cell A1) names the variable that is used to identify the person who is doing the data entry. Here it is called “Enterer,” but you can change that to “RA” or “YOUR name” if you like. The next cell, (cell B1) names the variable that is used to identify the participant: Here it is called “ID,” but you can change that to “Participant ID,” or “Participant Name,” if you like. After these, enter the labels of the other variables in the first row.

Hint

There are two ways to create the variable labels:

Method 1: Type each of the labels by hand.

Method 2: Use the mouse to automatically fill in the labels. This method will work well if all the labels have the scale abbreviation, followed by the item number (e.g., EM1, EM2, EM3, etc.). Here's how to set up labels automatically. Type the first two labels in cells C1 and D1. Then select cells C1 and D1. Notice that there is a tiny little square box at the bottom right hand corner of cell D1. When you hover the mouse over this little box, it turns into a black "plus sign". Click and hold the mouse, while pulling right. This will create all of the appropriate variable labels for the other variables.

Minimum and Maximum Values

1. Some or all of your variables may have minimum or maximum values. If so, it may be helpful if out-of-range values are highlighted. To specify the minimum and maximum values, switch to the “Set Up” sheet.
2. The first row shows the names of your variables. They have been automatically copied into the first row.

3. In the second row, type the minimum allowable value for each variable. For example, if values range from 1 to 5, the minimum value is 1.
4. In the third row, type the maximum allowable values. For example, if values range from 1 to 5, the maximum value is 5.
5. If some of your variables do not have minimum or maximum values, leave those cells blank.
6. You can change minimum and maximum values later, if desired.

Examples

Agreement scale that ranges from -10 to 10: Set the minimum value to -10 and the maximum value to 10.

Frequency scale that ranges from 1 to 7: Set the minimum value as 1 and the maximum value as 7.

Math test where participants could plausibly give any positive number as their answer: Set the minimum value to 0 (or 1) and leave the maximum value blank.

ID values that are between 1001 and 1227: Set the minimum value to 1001 and the maximum value to 1227.

ID values that are always three digits: Set the minimum value to 100 and the maximum value to 999.

Letters and words: Leave the minimum and maximum values blank.

Specifying Exact Entries

1. For some of your variables, there may be only a short list of allowable entries. If so, it may be helpful to prevent anyone from entering anything that is not on that list.
2. For each relevant variable, you can specify the allowable entries on the “Set Up” sheet, starting in row 10.
3. When someone is entering data, Poka-Yoke will prevent them from entering anything that isn’t on the allowable list. Note that spaces count (“ male” and “male ” and “male” are all considered different) and differences in capitalization count (“Male” and “male” are considered different).
4. If you are going to use this feature, you should set up the list of allowable entries before anyone does any data entry. This feature does not erase, highlight, or count non-listed entries after the fact.
5. You can add to or subtract from the list of allowable entries, after data entry has begun (for example, if you find that some of your participants speak another language).

Examples

Sex, recorded as Male, Female

Sex, recorded as M, F

Sex, recorded as 0, 1

Likert-type responses, recorded as 1, 2, 3, 4, 5

Likert-type responses, recorded as Strongly Agree, Agree, Neutral, Disagree, Strongly Disagree

Likert-type responses, recorded as SA, A, N, D, SD

Multiple-choice item, recorded as a, b, c, d

Frequency sale, recorded as 1, 2, 3, 4, 5, 6, 7

Agreement scale, recorded as -10, -9, -8, -7, -6, -5, -4, -3, -2, -1, 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10

IDs, recorded as 101, 102, 103, 104, ... 215 (there is no limit to the number of values you specify as acceptable)

Language, recorded as English, Spanish, French, Farsi (you can add more languages to the list later)

Participant IDs

1. Every participant **MUST** be given an ID in column B of the “First Entry” and “Second Entry” sheets. The IDs can be numbers or letters.
2. You can enter all IDs when you first set up the data set, or you can enter the IDs one at a time, while you enter data.
3. IDs are used to count the number of participants, and are an integral part of the data checking. If your participants do not have IDs, enter the row number in this column, so that the Poka-Yoke Double Entry System can count your participants correctly.

Data Entry

1. Enter all data in the sheet called “First Entry.” See the hint box below.
2. Enter all data in the sheet called “Second Entry.”
3. Ideally, a different person will enter the data in the “Second Entry” sheet. If one person must do both sets of entry, it is best if they complete all data entry for the “First Entry” sheet first, and then they do all data entry for the “Second Entry” sheet. Ideally, these entries should be done on different days, or even different weeks. This way, they are less likely to remember what the data were from the first set of entries.
4. If you have already started data entry in another file (in either Excel or SPSS), you can copy and paste that data into this file. Make sure that the items in the previous data entry file include one row for each person and one column for each variable. Copy and paste the data into the sheet called "First Entry", starting in column C. Then you can complete the "Second Entry" for each participant, and you will know that it was entered correctly.

Hints

If you are entering numerical data, then we recommend that you hold the questionnaire in your left hand, and enter numbers on the numeric keypad using your right hand. You can use your thumb to hit the right arrow key to advance to the next cell.

As you scroll down in the worksheets, you will notice that they have been divided into four parts. The top part has the column headings (which tell you which column you are in), the left part tells you the ID number, and the bottom right part has the data itself. We used the Freeze Pane function to do this. The reason we set up the sheets this way is so that you will still be able to see the column headings, even when you have entered hundreds of rows of data.

We recommend that you ask research assistants to do your data entry. Although it is certainly possible to do the data entry yourself, it is more efficient to ask a research assistant to do it instead, and it is easy for you to check the work your research assistants are doing. You may want to try entering two or three participants yourself, first, to make sure that the file is set up correctly, and so that you can answer any

questions that your research assistants have. Be sure to tell assistants that they must NEVER copy-and-paste, or insert or delete rows, or this will destroy the error-checking ability.

Adding Participants

1. ALWAYS enter new participants at the END of the datasheet. Remember, NEVER insert rows between existing participants. If you do insert rows, this will destroy the ability of this file to check that the data match. Similarly, NEVER delete rows or columns. This will destroy the ability of this file to check that the data match.
2. Ideally, you will enter the data in the same order in the two sheets. If this is not possible, then you will need to sort the data by ID when you have finished entering all data. Remember to sort both the “First Entry” sheet and the “Second Entry” sheet. See the hint box for more information on sorting.

Hints

If you have entered one of the participant IDs incorrectly, then when you sort the data, that participant’s data will be out of sequence. When you check the data, you will see that a lot of the data does not match. If this happens, use the “Check” sheet to help you find the ID that you entered incorrectly. Fix the ID and then re-sort the data.

Similarly, if you forgot to enter one of the participants, then when you sort the data, many of the rows will not match. If this happens, use the “Check” sheet to help you find the value of the missing ID. Enter that ID at the BOTTOM of the sheet and then re-sort the data. Remember, NEVER insert a row.

Shared File

1. You may want multiple people to enter data simultaneously. There are two ways to do this.
 - a. First, you can store the file on a server that can be accessed from multiple terminals, and save the file as a Shared Workbook. To designate this file as a Shared Workbook, in Excel 2010 click on the Review tab. In the Changes panel, click “Share Workbook”. Check the box that says “Allow changes by more than one user at the same time. This also allows workbook merging.”
 - b. Second, you can label your variables in the “First Entry” sheet, and then save two copies of the file. Ask one person to enter data in the “First Entry” sheet of one file, and ask another person to enter data into the “Second Entry” sheet of the other file. When data entry is finished, copy the data from the second file into the “Second Entry” sheet of the first file. Then use the regular instructions to check that the data match.

Data Checking

1. When all data entry is finished, click on the “Summary” Sheet. It will tell you six things.
 - a. How many participants you have.
 - b. How many variables you have (including ID and the name of the Enterer).
 - c. How many of the entries disagree between the “First Entry” and “Second Entry” sheets.
 - d. How many of the entries were left blank on both the “First Entry” and “Second Entry” sheets.
 - e. How many of the entries in the “Check” sheet are too low (lower than the minimum allowable value).
 - f. How many of the entries in the “Check” sheet are too high (higher than the maximum allowable value).
2. Check that the number of participants is correct. If it isn’t, examine the IDs on the “First Entry” sheet and the “Second Entry” sheet. The number of participants should be exactly 1 less than the number of rows that have data in them on the “First Entry” and “Second Entry” sheets, because the variable names take up one row. Fix any missing IDs and blank lines.
3. Check that the number of variables is correct. If you have a 10-item questionnaire, there should be 12 variables, because Poka-Yoke counts the Enterer (column A) and ID (column B) as 2 variables. If the number of variables is incorrect, examine the variable names in the first row of the “Set Up” sheet. Fix any missing variables names and blank columns.
4. Finally, check the Mismatches, Blanks, Too Low, and Too High summary variables. If all of these are 0, then your work is done. The “Check” sheet contains your final dataset.
5. If one or more of these summary values is non-zero, this means there are errors. You will need to fix these errors.

Fixing the Errors on the “Check” Sheet

1. Click on the “Check” sheet to see the location of the errors. Errors will be highlighted.
 - a. In each cell, if the two sets of entries disagree (or if one of the two entries was left blank), the cell will be left blank. The cell will be highlighted in *yellow*, so that it is easy to see. See the hint box below for more information. You need to fix this error.
 - b. If the first and second entry are both blank, the cell will be left blank. The cell will be highlighted in *green*, so it is easy to see. You need to fix this error.
 - c. If the two sets of entries agree, that value will be shown.
 - d. If you specified minimum or maximum values for some or all of the variables, then values that are too high will be highlighted in *brown*, and values that are too low will be highlighted in *pink*. See the hint box below for more information. You need to fix these errors.
2. You will fix each of the errors, one at a time.
 - a. In the “Check” sheet, find the first ID that has an error.
 - b. Locate the paper data sheet for this ID.
 - c. Type the correct value in the highlighted cell on the “Check” sheet.
 - d. Indicate that you have corrected this cell by *italicizing* the entry.
 - e. Then proceed to the next ID that has an error.
3. Once all errors have been fixed, examine the “Summary” sheet again. If the Mismatches, Blanks, Too Low, and Too High summary variables are all 0, then your work is done. If not, examine the “Check” sheet more carefully, to locate and fix your remaining errors.
4. When all errors have been fixed, your final dataset will be given on the “Check” sheet.

Hints

The “Check” sheet will highlight a cell in yellow if there are any differences between the two entries. Differences in spacing are considered mismatches. However, this version of Poka-Yoke is not case sensitive. Thus, “male” and “ male” and “male ” are all considered to be different, but “male”, “Male”, and “MALE” are all considered to be the same.

If two different people completed the first and second entries, as we recommend, then on the “Check” sheet, the column that gives their names will show the word, “DIFFERENT”, and will be highlighted blue. That is normal and does NOT indicate any mistakes. Now that you are checking the data, you can type YOUR name in the first column. Alternatively, you can leave it as it is.

If the two entries disagree, then the cell will show the word, “MISMATCH,” on the “Check” sheet. Therefore, if only one of the two entries was outside the allowable range (either too high or too low), this will be displayed as a “MISMATCH” on the “Check” sheet. In order for a value to be highlighted as too high or too low, the two entries must first match each other.

Problem-Solving

1. **All your data disappeared.** Try scrolling to the left. The data sheets are divided into four quadrants. The top section shows the variables. The left section shows the IDs. The biggest section is the bottom right section. It contains all your data. If you have scrolled too far to the right, you may be past the last variable. Scroll left.
2. **All your variable labels disappeared.** Try scrolling up. The data sheets are divided into four quadrants. The top section shows the variable labels. Click inside this section, and scroll up. Then click inside the bottom right section, where your data are, and continue your work.
3. **The “Summary” sheet says I have fewer variables than I actually do.** Make sure all variables are labeled on the “Set Up” sheet. Poka-Yoke counts the number of variables you labeled on the “Set Up” sheet. This number is displayed on the “Summary” sheet. If you forget to label some (or all) of your variables, then the “Summary” sheet will display the wrong number. For example, if you label 3 variables, forget to label the next one, and then label 3 more variables, the “Summary” sheet will say there are 6 variables. To fix this error, put a variable label in every column on the “Set Up” sheet.
4. **The “Summary” sheet says I have fewer participants than I actually do.** Make sure that there are no blank rows on your “First Entry” and “Second Entry” sheets. The “Summary” sheet will not count rows if the entire row is blank for both the “First Entry” and “Second Entry” sheets.
5. **Some of your variables do not appear on the “Check” sheet.** Make sure that all variables have labels on the “Set Up” sheet. Poka-Yoke counts the number of variables you labeled on the “Set Up” sheet. This number is displayed on the “Summary” sheet. If you forget to label some (or all) of your variables, then the “Summary” sheet will display the wrong number, and “Check” sheet will not display all variables. For example, if you label 3 variables, forget to label the next one, and then label 3 more variables, the “Summary” sheet will say there are 6 variables, and the “Check” sheet will display the FIRST 6 variables. To fix this error, put a variable label in every column on the “Set Up” sheet.

6. **The highlighting is a real mess: It says two rows (or columns) disagree, but I checked them and they agree PERFECTLY.** Try the undo command. At some point, you may have inserted or deleted a row or column or you may have copy-and-pasted data from one part of the Poka-Yoke file to another part of the file. If you just made this mistake, you may be able to undo it. If not, see the section below on Recovery.
7. **The system is really slow.** The Poka-Yoke Data Entry System is memory intensive. If your computer has less than 4G of RAM, the system may be a bit slow, especially if you are working with a large data sheet. This can interfere with efficient data entry. To speed up the data entry, you can change the settings for Excel so that it only checks the data sheets when you save the file. To do this, click the File menu, click Options (near the bottom), click Formulas. In the Calculation Options section, change “Automatic” to “Manual”. Make sure the box for “Recalculate workbook before saving” is checked. Click OK. Once you have changed this setting, data entry should be very fast, because Excel is not checking your work as you go. The formulas will update only when the file is being saved. When you do want to examine the Check and Summary sheets, do remember to save the file.

Recovery

1. If you accidentally destroy the error-checking ability of the Poka-Yoke sheets (either by copying-and-pasting, or inserting or deleting a row or column, or through some other method), you may be able to undo that action right away.
2. If undo doesn't work, you can still recover your data.
 - a. Open a blank version of the Poka-Yoke Double Entry System and save it with the name of your dataset (give it a slightly different name from your corrupted file).
 - b. Copy the data from the old file and paste it into the new file. Above, we noted that you must never copy and paste within the Poka-Yoke file, because this will destroy the ability of the file to check that the first and second entries match. But it's okay to copy data from one file into a DIFFERENT file.
 - c. You will need to copy three sheets.
 - i. For the First Entry sheet, you should copy only those cells that have data. Do not copy the first row (which is filled automatically by Poka-Yoke) and do not attempt to copy column A (which says who entered the data) or column B (which is hidden). Make sure you paste these data to the FIRST ENTRY sheet, and that the data end up in the correct cells (if the data are in columns C-F on your original sheet, they should be in columns C-F of your new sheet). Next, you can copy column A (which says who entered the data) from the old file to the new file. Make sure you only copy those cells that have data in them (do not copy the first row).
 - ii. For the Second Entry sheet, you should copy only those cells that have data. Do not copy the first row (which is filled automatically by Poka-Yoke) and do not attempt to copy column A (which says who entered the data) or column B (which is hidden). Make sure you paste these data to the SECOND ENTRY sheet, and that the data end up in the correct cells (if the data are in columns C-F on your original sheet, they should be in columns C-F of your new sheet). Next, you can copy column A (which says who entered the data) from the old file to the new file. Make sure you only copy those cells that have data in them (do not copy the first row).
 - iii. For the “Set Up” sheet, you should copy all of the rows that you used. This includes the first three rows (with the variable labels, minimum and

maximum values), and it also includes any rows (after row 10) that contain allowable entries. Make sure you paste these values to the “Set Up” sheet, and that the values end up in the correct cells (if the values are in columns C-F on your original sheet, they should be in columns C-F of your new sheet).

- d. Once you have copied these sheets, you are ready to continue data entry and data checking in the new file.