

# Excel Structural Dependence

HELPING YOUR DATA BE MORE USEFUL

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Intentionally Blank

## Introduction

Many times you want to learn something about your data and you have to look at more than one row of the data to make sense of it. Look at the sample below, in order to learn that Felix Unger was a Notre Dame Business graduate we have to look at three rows of data in the table.

Univeristy	Major	Name
<b>Notre Dame</b>	Electrical Engineering	Barney Fife
		Mark Miller
	Business	Marge Simpson
		Felix Unger
<b>Baylor</b>	Nursing	Florene Nightingale
		Clara Barton
	Management	Peter Drucker
		Harold Kerzner

What appears above is known as “Structural Dependence”, where the physical arrangement of the data assists to interpret the data’s meaning. This arrangement is intuitive in our world, but a computer sees things much differently. We’d really like our data to look like the table below since it makes sorting, grouping and calculations much easier:

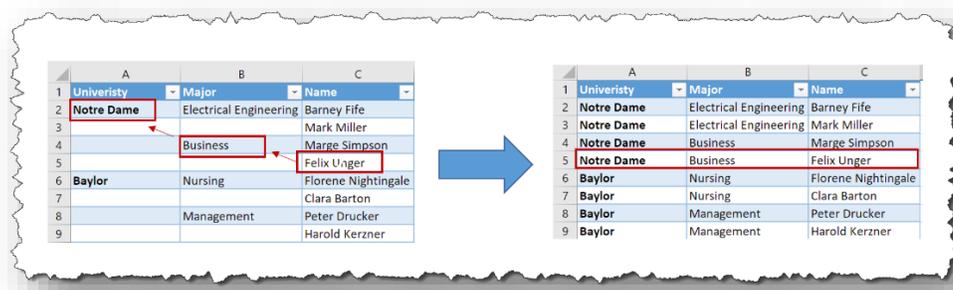
Univeristy	Major	Name
<b>Notre Dame</b>	Electrical Engineering	Barney Fife
<b>Notre Dame</b>	Electrical Engineering	Mark Miller
<b>Notre Dame</b>	Business	Marge Simpson
<b>Notre Dame</b>	Business	Felix Unger
<b>Baylor</b>	Nursing	Florene Nightingale
<b>Baylor</b>	Nursing	Clara Barton
<b>Baylor</b>	Management	Peter Drucker
<b>Baylor</b>	Management	Harold Kerzner

Although the first presentation might be more eye pleasing for a report or PowerPoint slide, the second form of the data is normalized for Excel to make quick work possible to answer ad hoc and structured questions about the data.

His paper shows one method that quickly convert the first data table into the second normal form in the second table (actually, that is truly database Geek Speak).

## Procedure

The easy way to fill down data exploiting the Excel “Fill-Down” feature:



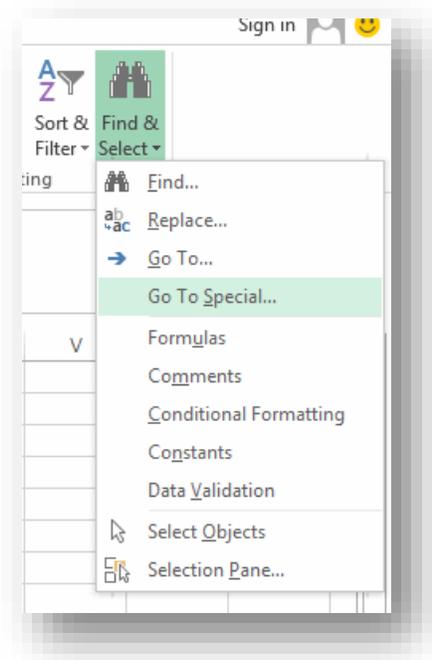
Note: The data on the left is structurally dependent where that problem is eliminated on the right. For instance, look at cell C5 that contains “Felix Unger”. To learn Felix Unger’s major and university, we need to visually inspect to determine C5 (Felix Unger rolls up to B4 (Business) in column “B” and then up to A2 (Notre Dame) in column “A”. The right side of the chart shows us Felix Unger is a Notre Dame Business major immediately.

### Here’s How:

Select a cell that is within the impacted data table, here I choose, A2:

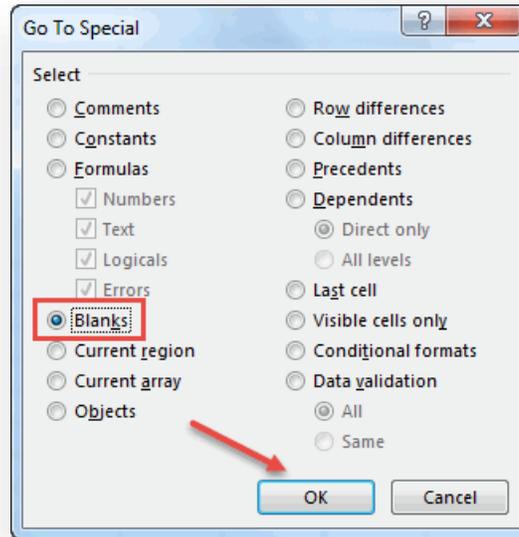
	A	B	C	D
1	Univeristy	Major	Name	
2	Notre Dame	Electrical Engineering	Barney Fife	
3			Mark Miller	
4		Business	Marge Simpson	
5			Felix Unger	
6	Baylor	Nursing	Florene Nightingale	
7			Clara Barton	
8		Management	Peter Drucker	
9			Harold Kerzner	
10				
11				

On the Home Tab, navigate Home → Find & Select → Go to special... Here is a screen shot:



When you select “Go To Special...” the Go To Special dialog box open

Select "Blanks" and then click on OK:



### Use a Temporary Formula

You will be placed back into Excel, and now all you need to do is type an easy formula. Excel is smart enough to figure out the cell to select, in this case we are in cell B3. The formula you need to enter is "=B2". WHY? Because B2 is the cell immediately above what is to be filled down:

	A	B	C
1	University	Major	Name
2	Notre Dame	Electrical Engineering	Barney Fife
3		=B2	Mark Miller
4		Business	Marge Simpson
5			Felix Unger
6	Baylor	Nursing	Florence Nightingale
7			Clara Barton
8		Management	Peter Drucker
9			Harold Kerzner
10			
11			

Simultaneously press CTRL+ENTER (control-enter). You are ALMOST done.

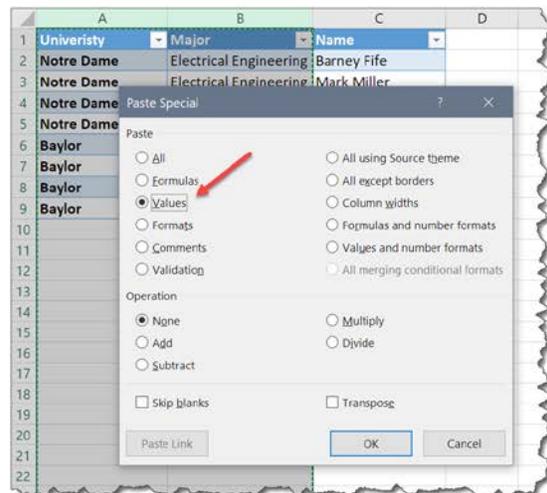
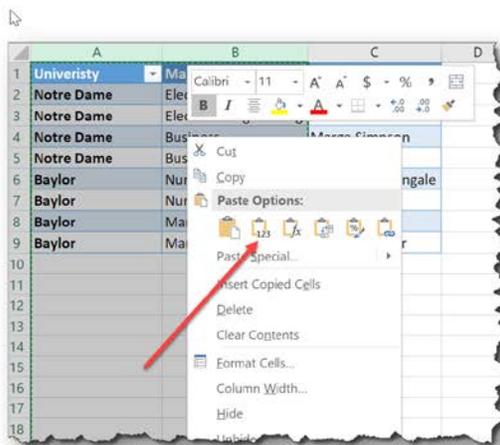
	A	B	C
1	Univeristy	Major	Name
2	Notre Dame	Electrical Engineering	Barney Fife
3	Notre Dame	Electrical Engineering	Mark Miller
4	Notre Dame	Business	Marge Simpson
5	Notre Dame	Business	Felix Unger
6	Baylor	Nursing	Florene Nightingale
7	Baylor	Nursing	Clara Barton
8	Baylor	Management	Peter Drucker
9	Baylor	Management	Harold Kerzner

What you actually did was create a formula in each of the cells to copy down the correct data.

### Remove Temporary Formulas

To remove the formulas, select all the data again and use Copy → Paste Special... and select “Values”:

I have included two screen shots below, just in case you are using Excel 2007 or are a “Right Click” type of user:



On the web:

<http://www.projectpmo.com/video-2-Excel.htm>

<https://www.youtube.com/watch?v=R4bqFy7XEIg>