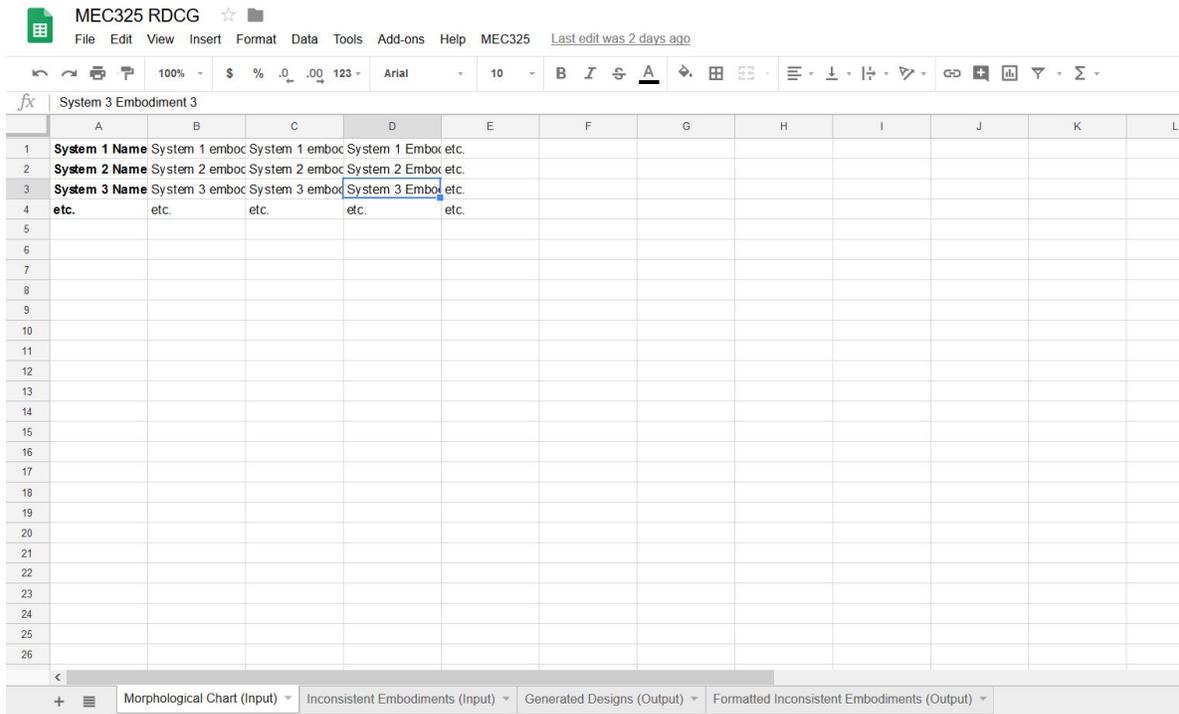


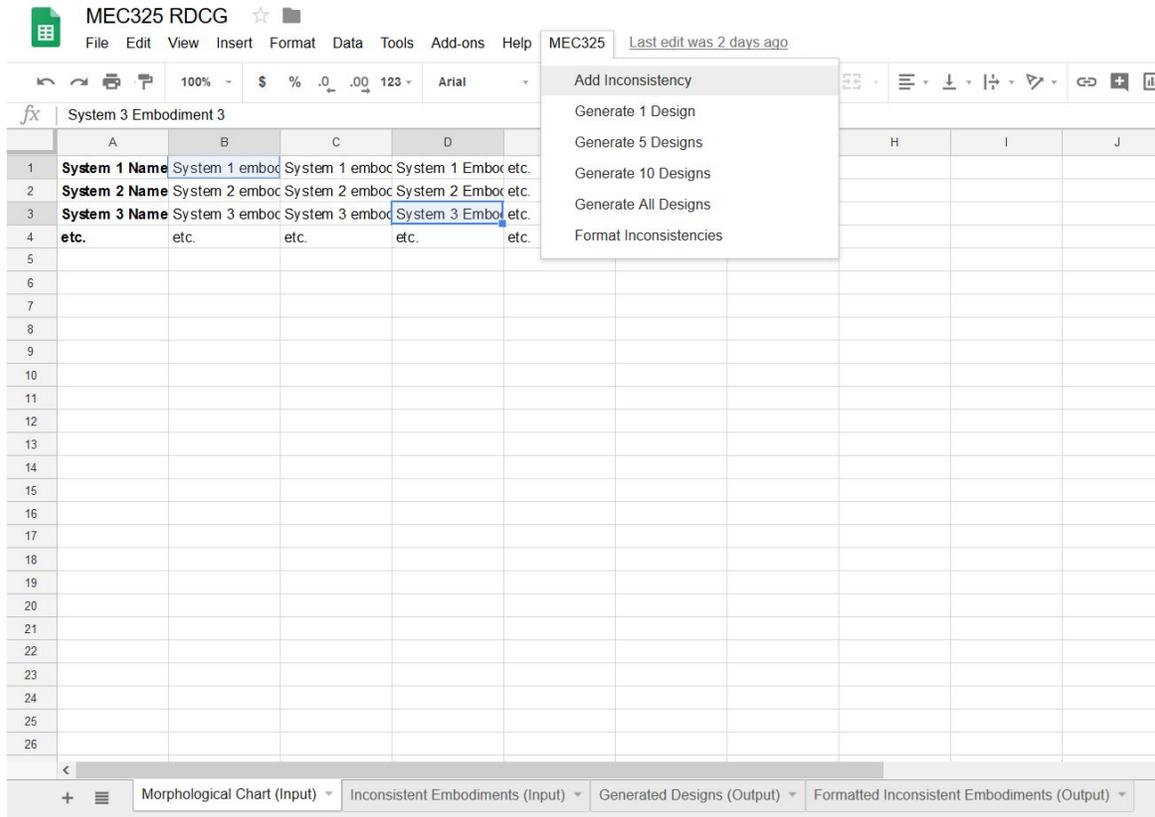
The MEC325 **R**andom **D**esign **C**oncept **G**enerator (referred to from here as RDCG) is a piece of software designed to simplify the process of generating design concepts (referred to from here as designs) from a fully prepared morphological chart.

To begin, the morphological chart should be entered into the first sheet of the RDCG, as shown in the below screenshot. Do not include any images in the RDCG, and every embodiment should have a unique name. If two embodiments have the same name, and the names can absolutely not be changed, just add a number to the end of each, of something else to differentiate them.



Bear in mind that, while it can handle as many systems as you can throw at it, more than 25 embodiments per system (one per letter, plus a system name) will make it malfunction. If you have that many embodiments for a given system, the best solution is probably to start your systems design from scratch.

Once you have entered your morphological chart into the first sheet in full, it is time to fill the second sheet with your list of inconsistent embodiments. To do so, select two embodiments which you would like to mark as inconsistent (they must, of course, be from different systems). Then, click the menu along the top of the sheet labeled “MEC325” and click “Add Inconsistency”, as shown in the below screenshot.



The RDCG will now prompt you to justify this inconsistency. You should enter your justification into the dialog box that appear, and click OK to record the inconsistency. If you click Cancel, the inconsistency will not be reported.

The program will warn you if you have made a mistake while selecting embodiments to mark as inconsistent (for example, both are from the same system).

Once you have finished entering all of your inconsistencies, the button in the MEC325 menu labeled “Format Inconsistencies” will format them for you, and drop them in the fourth sheet (you can select which sheet you are viewing along the bottom). See the next two screenshots for details.

MEC325 RDCG ☆

File Edit View Insert Format Data Tools Add-ons Help MEC325 All changes saved in Drive

100% \$ % .0 .00 123 Arial

fx System 1 Name

	A	B	C	D
1	System 1 Name	System 1 emboc	System 1 emboc	System 1 Emboc etc.
2	System 2 Name	System 2 emboc	System 2 emboc	System 2 Emboc etc.
3	System 3 Name	System 3 emboc	System 3 emboc	System 3 Emboc etc.
4	etc.	etc.	etc.	etc.
5				
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26				

Morphological Chart (Input) Inconsistent Embodiments (Input) Generated Designs (Output) Formatted Inconsistent Embodiments (Output)

- Add Inconsistency
- Generate 1 Design
- Generate 5 Designs
- Generate 10 Designs
- Generate All Designs
- Format Inconsistencies

MEC325 RDCG ☆

File Edit View Insert Format Data Tools Add-ons Help MEC325 All changes saved in Drive

100% \$ % .0 .00 123 Arial 10 B I S A

fx System 1

	A	B	C	D	E	F	G	H	I	J
1	System 1	Embodiment 1	System 2	Embodiment 2	Justification					
2	System 1 Name	System 1 emboc	System 3 Name	System 3 Emboc	This is an example justification.					
3										
4										
5										
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26										

Morphological Chart (Input) Inconsistent Embodiments (Input) Generated Designs (Output) Formatted Inconsistent Embodiments (Output)

Now, you should switch to the third sheet, labeled “Generated Designs (Output)”. This is where all generated designs will appear. All the buttons to generate designs are in the MEC325 menu along the top of the sheet. If your morphological chart contains 200 or fewer designs, you can choose to use the brute force search method to find the best designs. If not, then you need to use the hill climbing method. Both of the methods are outlined on [this page of the MEC325 Wiki](#).

If you are using the brute force method, then the button you should use is “Generate All Designs”. You can then proceed to work your way through them as outlined on the Wiki. A good way to do this would be to work your way down the list, with rows 1-10 as your initial concepts. Then, if concept 11 is better than, say, 5, click the row number for row 5, and click the strikethrough button along the top to strikethrough the entire row. If 11 is worse than all of concepts 1-10, then do this to row 11 instead. Working your way down the list means doing this for every single concept, from 11-200.

If you are using the hill climbing method, as outlined on the Wiki, then you should move away from the RDCG now. Use the buttons in the MEC325 menu to generate 10-15 starting concepts, then move to a pen-and-paper approach to start sketching them out and deciding which embodiments to replace.

Remember that, when you need to add the inconsistencies and justifications for them to your report, you should simply copy and paste them out of the fourth sheet in the RDCG.

Good luck with the rest of your project, and I hope that the RDCG has saved you some time.