Instructions for adapting the Spatial Arrangement Method of Multidimensional Scaling (E-Prime program) to suit your personal needs:

This experiment is designed to display up to 30 images (or pieces of text) at a time. So most of what you have to do to adapt it to future experiments is simply to account for what you are not going to use. For instance, the current sample experiment uses 15 stimuli. So in various places, you will see script commented out that refers to objects 16-30. Unfortunately, you can't remove a Slide sub-object simply with code. So the general method I use is to take the objects I'm not using, make them really small and dump them into the corner. That way, they are effectively invisible to the subject. This will make more sense when you begin to assess the code for yourself.

I encourage you to go through the script in its entirety, and don't forget the User script (User tab of the Script window… can be reached by pressing Alt+5). It will get you used to the various pieces of code that are used in the experiment, and allow you to change things as necessary. I included "NOTE: …" anywhere I think there is something you should draw specific attention to. If there isn't a NOTE, you can just disregard the script (i.e., you won't need to adjust it or modify it in any way).

1) The StimuliList. You'll see a List object nested in the TrialList called StimuliList. That's where you will place the text or image filenames that you will be using. That is where you can also adjust the size of the drag objects. For instance, if you have an image file called Stimulus1, you'd put "Stimulus1" in the ObjectFilename column of that List. You'd then put the dimensions of the image in the nWidth and nHeight columns. If you find that (when using text) some of the text is cut off, simply increase the width of that particular stimulus.

2) Make sure (if you are using images) to have an image file in your Resources folder called "Blank.bmp". If you are using a white background, simply create an image file that is plain white, and call it Blank.bmp. Place it in a folder called Resources in the same main folder as your E-Run file. When the experiment is run, it will be so small as to be functionally invisible anyway, but E-Prime will crash if it doesn't have a valid filename for the unused objects.

3) Starting configurations… depending on how many stimuli you are using, you will want to create your own starting configuration. For instance, if you have 25 stimuli, you could simply create 5 rows of 5 objects, spaced evenly. In the SetLocations inline, you will see a place to create these starting locations. Currently, I have set it up in 3 rows of 5 objects. I place the starting locations in the User-Defined array called arrCoord. Afterwards, I randomize this array so that when I set the locations of the stimuli, they each appear in random locations (rather than every subject receiving the same stimuli in the same starting locations).

4) I have built in an option that will allow you to set a minimum trial time. You may find that some subjects scale very quickly. If you want to force them to take their time, you can do so by setting the minTime variable to as many milliseconds as you wish. For instance, if you want them to take at least 1 minute to do the procedure, set minTime (in the DoHitTest Inline object) to 60000. You'll probably find that most people can accomplish the procedure (depending on the stimuli) in around 5 minutes.

5) Image creation… I have it set up to create an image file of each individual subject's MDS space. This is not necessary for data collection, but I've found it interesting to examine individual subject solutions. You may or may not find this useful. The image file will be created in the same folder as the E-Run file, just like an EDat file is created. If you wish to remove this feature, you can do so by commenting it out in the OutputData Inline object. Also, the filename of the image file will be MDS_SubjectNum, where "SubjectNum" is their actual subject number. That way you can match the image files with subject solutions.

6) Quality… the quality of the program will depend in part on the computer you are using. If you are using a slow computer with a poor graphics card, you may find that it draws a little choppy. That is, the movement of the objects are a little jumpy. Similarly, if you are using complex or large image files, the drawing may be affected. In general, I've found that the program works nicely, and we haven't been using particularly expensive computers. So hopefully you won't have any issues.

Please keep in mind that E-Prime was not designed to do this kind of task. I've essentially had to use the existing interface to create the illusion of drag-and-drop. I've done my best to make it seem as natural as moving objects in any normal Windows interface, but it's not perfect. I hope, however, that you'll find it satisfactory.

What to do after the experiment:

When the experiment is over, you will have an EDat file, just like any other E-Prime experiment. The Edat file will have 1 line of code for every possible pairwise combination. For instance, the sample has 15 stimuli, so the Edat file will have 105 rows.

1) Take note of the Comp1 and Comp2 attributes. Those will hold the filenames of all of your stimuli, in pairwise combinations. The Distance attribute will give the Euclidean distance for each pair (from the final solution). You won't need any other attributes aside from the Subject attribute.

2) To create the Matrices, you can use the MDS Matrix Creation macros posted elsewhere on the Software page of my website. You will also need to set the security settings of Excel to allow macros. You can do this via the Windows drop down, Excel Options, Trust Center, Trust Center Settings, Macro Settings… set it to Enable All Macros.

3) To use the sheet, simply copy the Comp1, Comp2, Distance, and Subject columns of the Edat file into the appropriate locations in the Excel sheet (it's pretty self explanatory). You can do this with a single subject. Or, you can merge all your Edat files and copy them en masse into the Excel sheet. The macros allow you to create as many matrices as you have subjects. Note that if you plan to use multiple subjects, I encourage you to merge them and copy the columns from one single EMRG file, rather than copy from individual EDat files. The reason for this is that you need to make sure the headers (Comp1, Comp2, etc) are not mixed in with the data. Also, it's faster than copying individual files.

4) Set the properties on the left of the sheet according to your needs. StartRow and StartCol will designate where your matrices appear. Then set the number of stimuli you are using, and the number of subjects you have.

5) Once the data is entered, simply hit the red Create Matrices button on the left side of the sheet, and voila. You can see your matrices being created from the data.

Disclaimer

I feel as if I should give a disclaimer here. The software, as it is free, is just my way of giving back to the Psychology community. I cannot assume liability for any problems that a user encounters with the E-Prime files, Excel sheets, etc. I imagine this is assumed from the outset (and I anticipate no problems whatsoever), but of course, I need to cover myself.

Finally, please note that there is always a possibility of bugs, etc. If you have any problems with the software, or if you are having difficulty adjusting it to your future needs, please feel free to contact me. I am quite willing to help anyone get the most out of this software. I hope you find it useful and fun. I also encourage you to visit my website periodically; I will have additional software and macros posted in the future, on the Software page of my site.

Thanks for your interest in this software, and please feel free to let me know how it works for you! I'm very curious to hear how well it works for other researchers, and what kind of purposes it is being used for.

-Mike

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