Plotting Tutorial: Now with Centroids!

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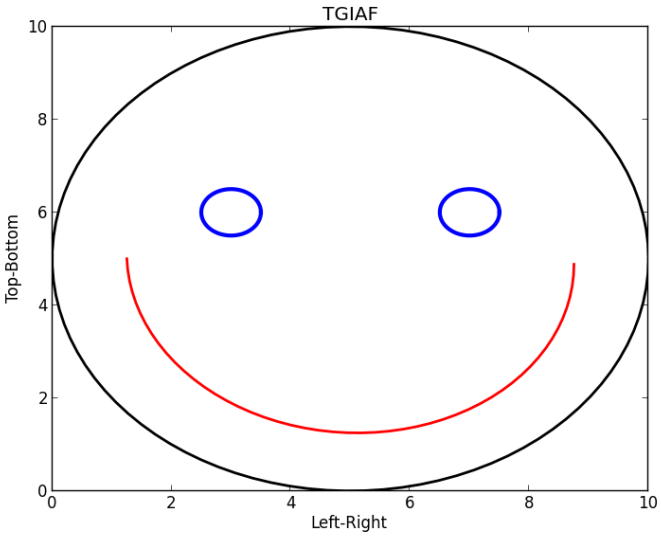

Figure 1: Why so serious?

1 Plotting

This tutorial will help you practice your plotting skills and become more aware of the plotting abilities in IDL. If you don't remember the long list of available options for plotting, remember that you can always use to get a list of keywords and examples via the online reference manual or within the interpreter.

Your task in today's tutorial is to write a procedure that makes a plot of a smiley face, as shown in Figure 1. You may use any combination of plotting commands you wish to create this, and it may be as complicated or as simple as you like. Please save the procedure you write as smile.pro. If you would like to save your image, you can use

```
psopen, 'smile.ps', \inches, \color, \psfonts, xsize=5, ysize=5
[All of your plotting code]
psclose
```

2 Bonus: Working with Centroids

If you are feeling pretty comfortable with plotting in IDL and would like more of a challenge, we've got one in store for you. In this part of the tutorial, you will make a two dimensional array of your smiley face (like...say...an image), and then find its centroid. To do this:

1. Create an empty two dimensional array of the appropriate size
2. Index the array iteratively to fill the positions corresponding to your (x,y) values for your smiley face with ones.
3. Collapes the array vertically to find the horizontal centroid value, and horizontally to find the vertical centroid value. Tip: Look into the arguments of different IDL functions to make this easier.
4. Add a colorful point to your plot in the position of the centroid of the image!