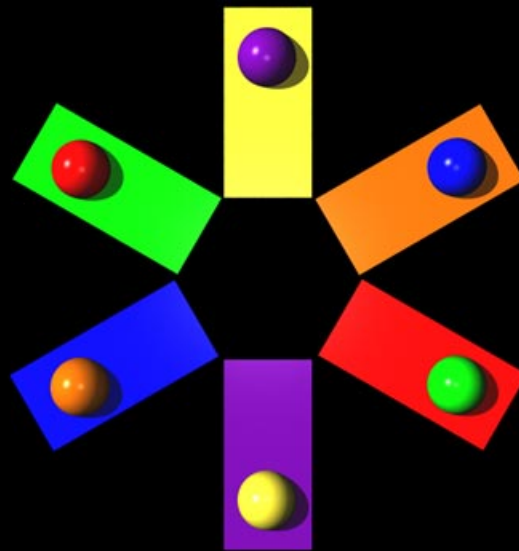


# Screen Print Tutorial

## Color Separations in Photoshop

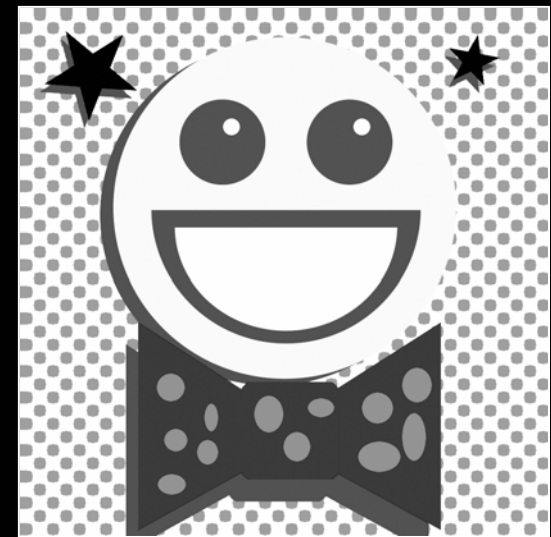
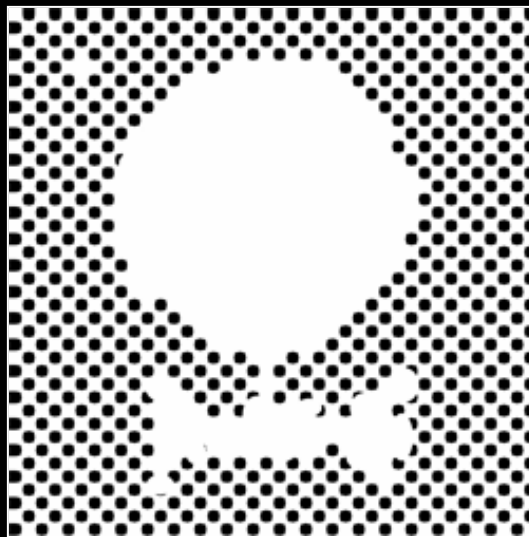
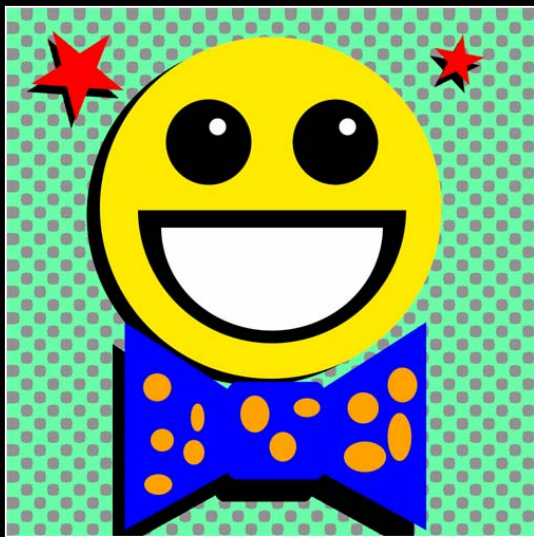
ARTS 332  
Spring 2011



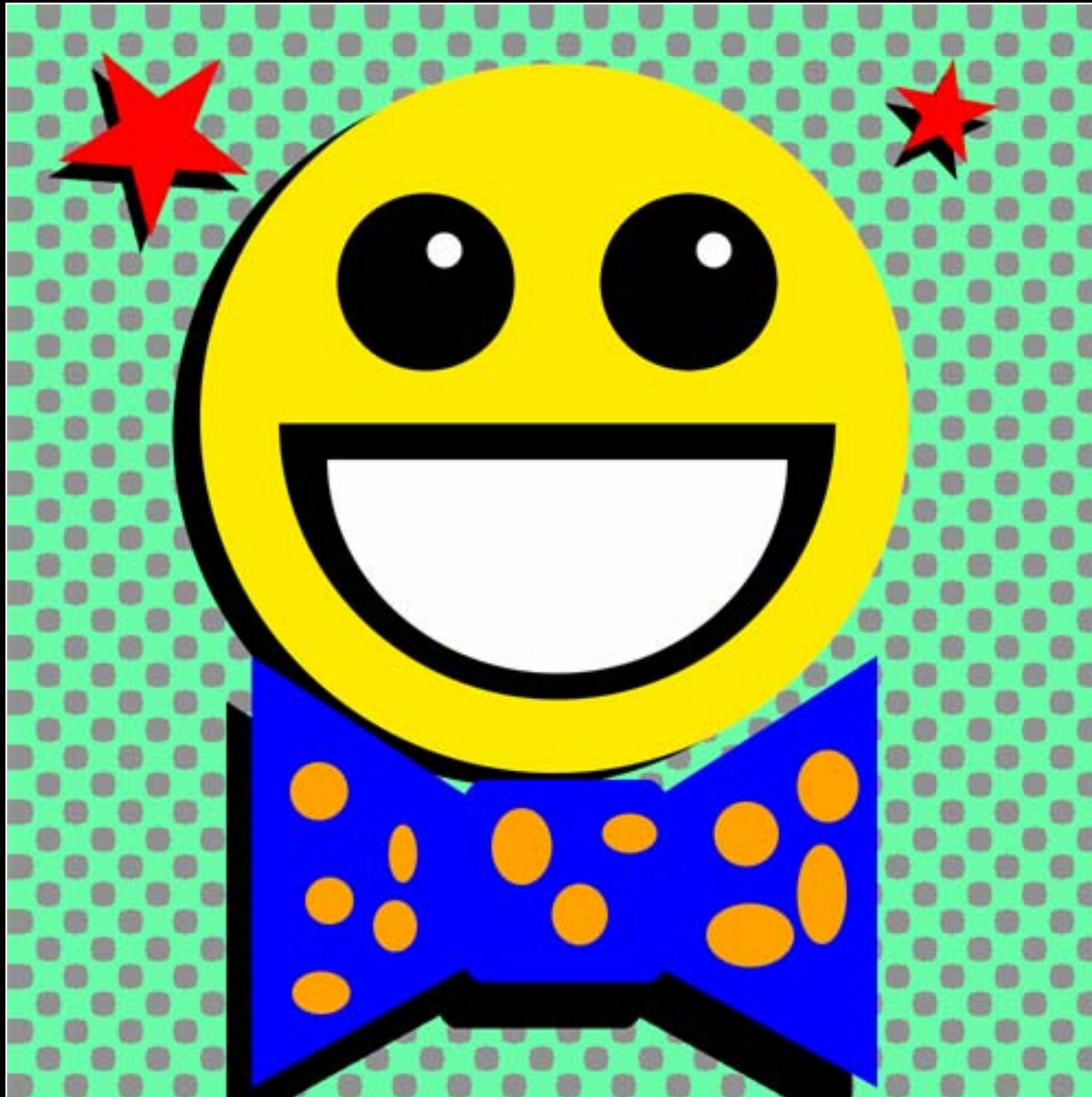
**Andy Rader**

# Color Separations in Photoshop

This presentation will walk you through a process where you can create simple color separations with Photoshop. The tutorial should work with any version of the application unless otherwise noted.



## Creating the Image



Let's start with an eight color image that has basic colors. I am including white as a color so it doesn't show a piece of paper in the center.

I intentionally made my background colors lighter so it would be easy to set up. If you have darker background colors, you may have to pull the squeegee twice across the screen to get good coverage.

\* You could set up two black separations (shadows separate from the face pieces). I will only be using one.

## BG – MG - FG



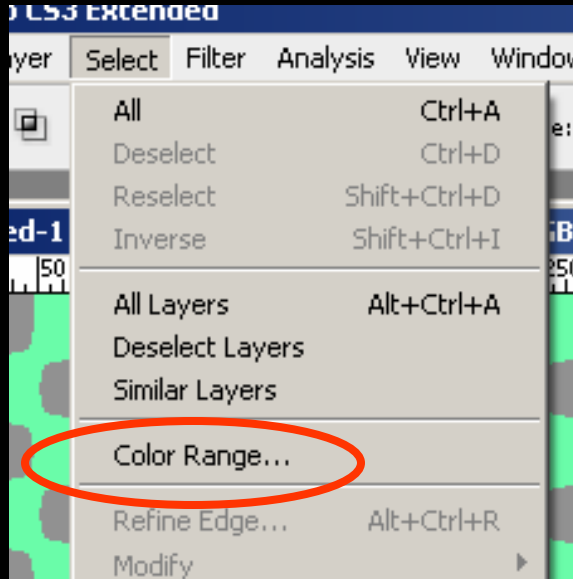
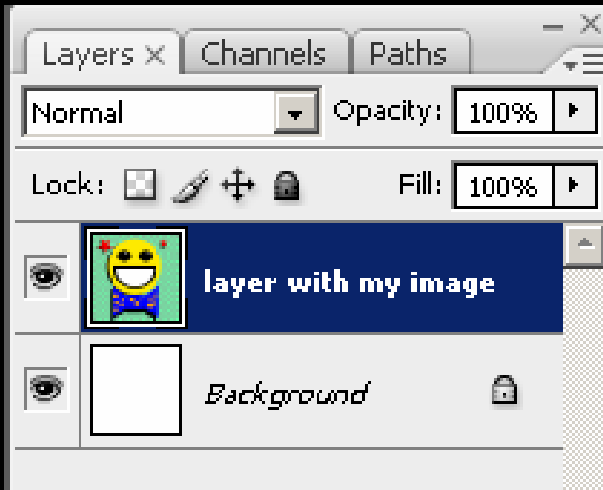
When I set up my separations, I build them by starting with the background images. Then middle and foreground.

In this example, we have a green/grey BG, shadows in the MG and the face and tie in the FG.

Even those layers will break down further. Eyes and dots might be on the forward part of the face and bowtie.

\* Before you begin color separations, think about the resolution of your image. Use 200 dpi for the screen as opposed to the 72 dpi monitor resolution.

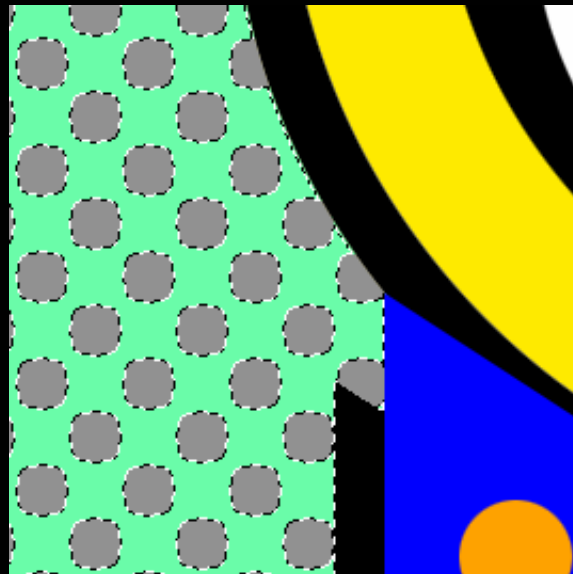
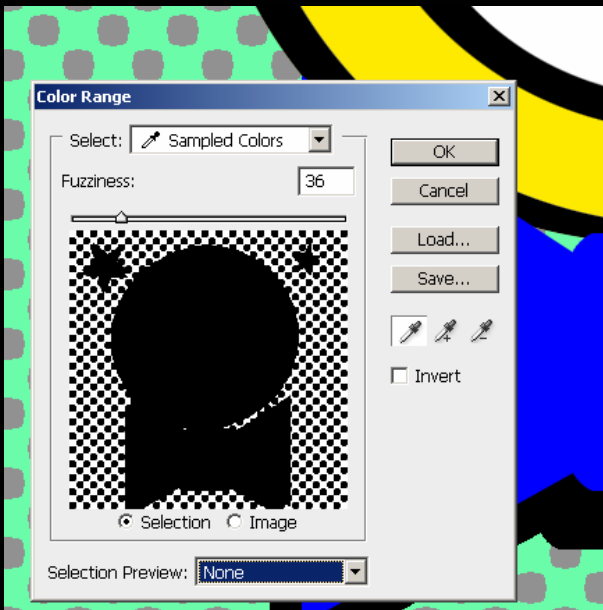
# Method 1: Selecting Colors



We'll go through a few methods in this tutorial. Starting with the easiest, we are going to select each color, copy, and paste.

Step 1:

Make sure you are on the layer with your image. If not, click the layer and it will highlight.

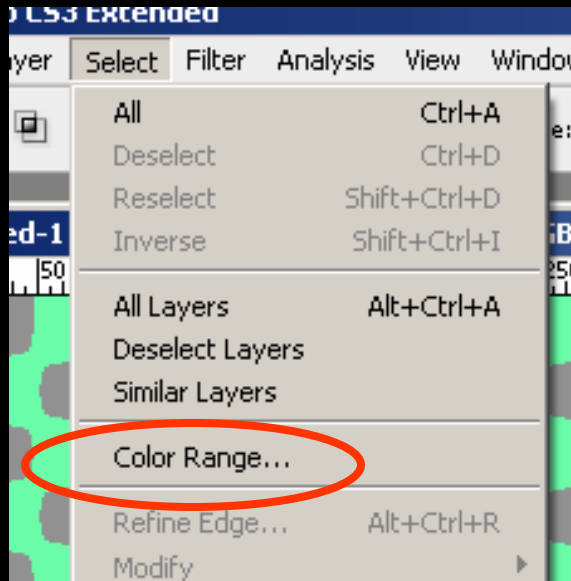
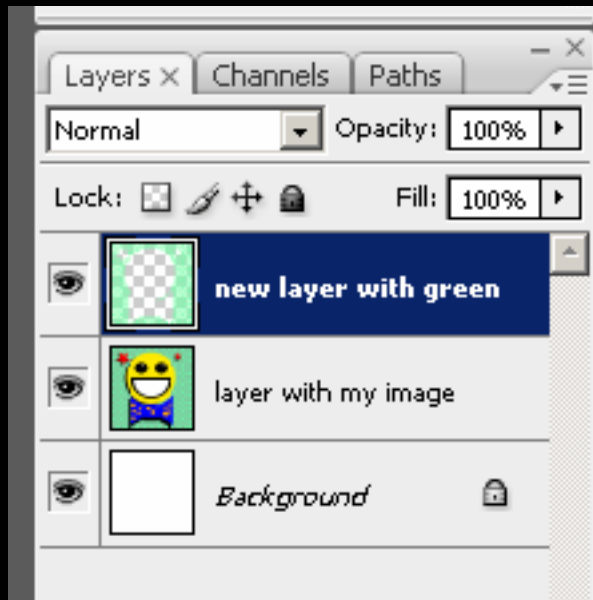


Step 2: We're going to select the light green color first. Go to **SELECT >> COLOR RANGE...**

An **EYEDROPPER** will appear and you can select the green.

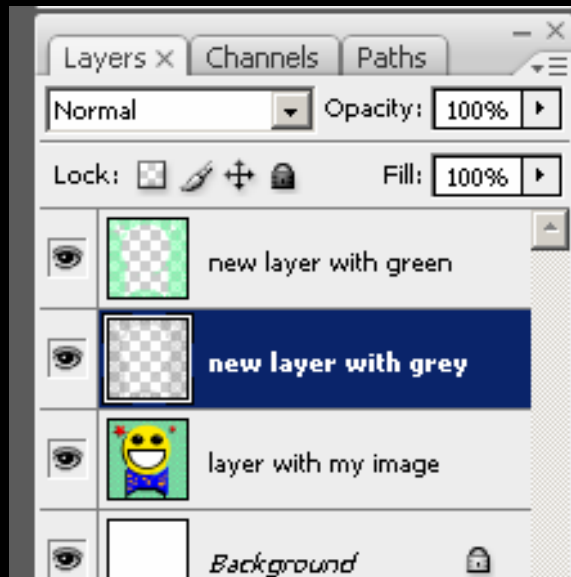
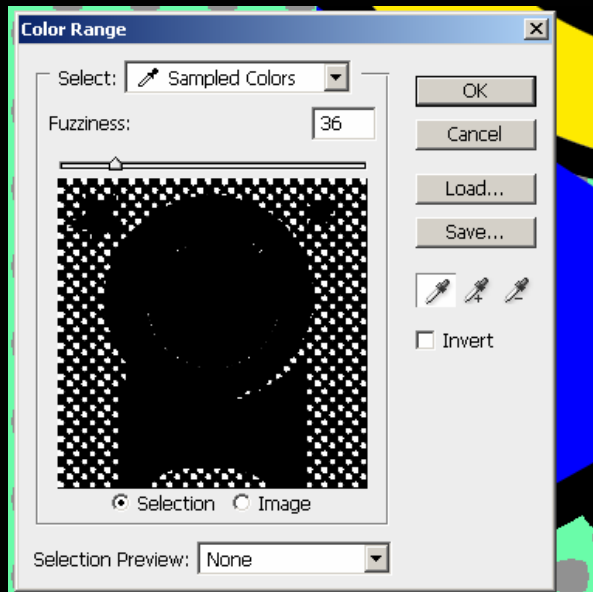
The little image displayed should reflect your selection. You can play with **FUZZINESS** to select more or less of the neighboring colors. Hit "OK" and the marching ants marquee will appear.

# Method 1: Creating the Layers



Step 3: With the marching ants going, COPY and then PASTE. A new layer will be created with only the green color in it.

Step 4: Select the layer with the original image and go through the color range selection process again with the grey color.

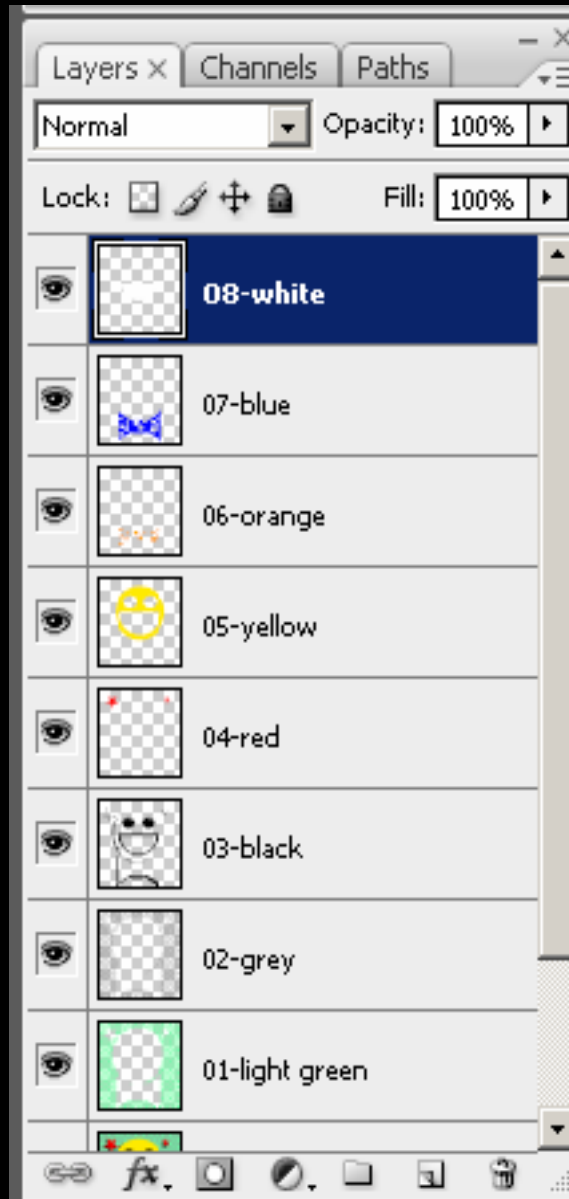
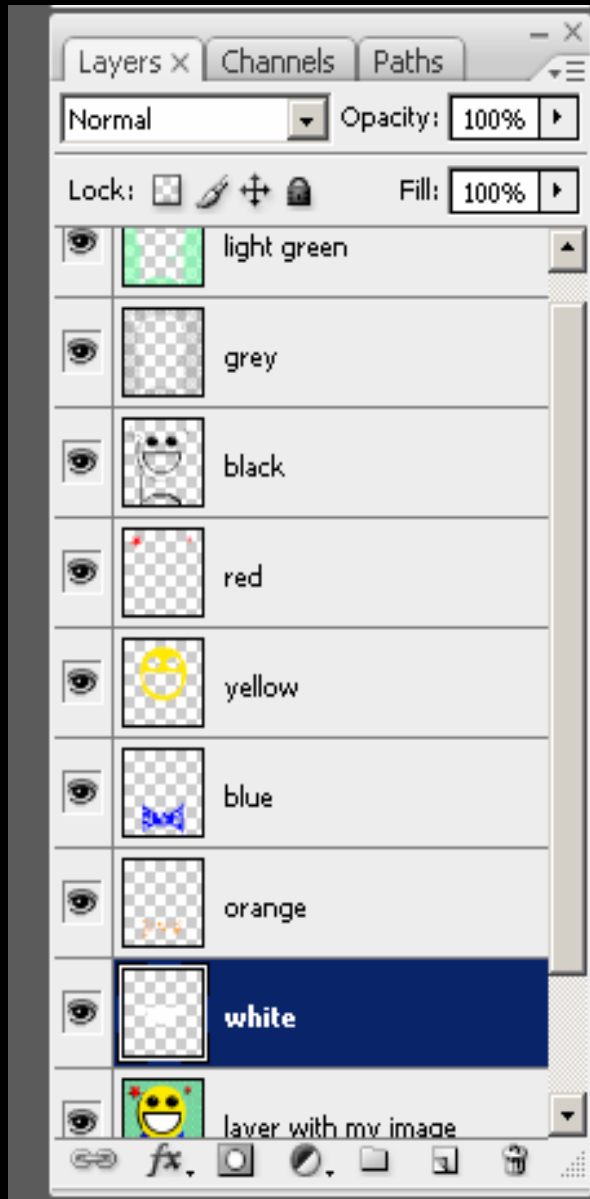


It's hard to see here, but look at how some pixels in the face were selected. That has to do with anti-aliasing in the image and fuzziness in the selection. I'll clean it up when we're done.

Now that you know the steps, you can do them from all of your colors.



# Method 1: Creating the Layers



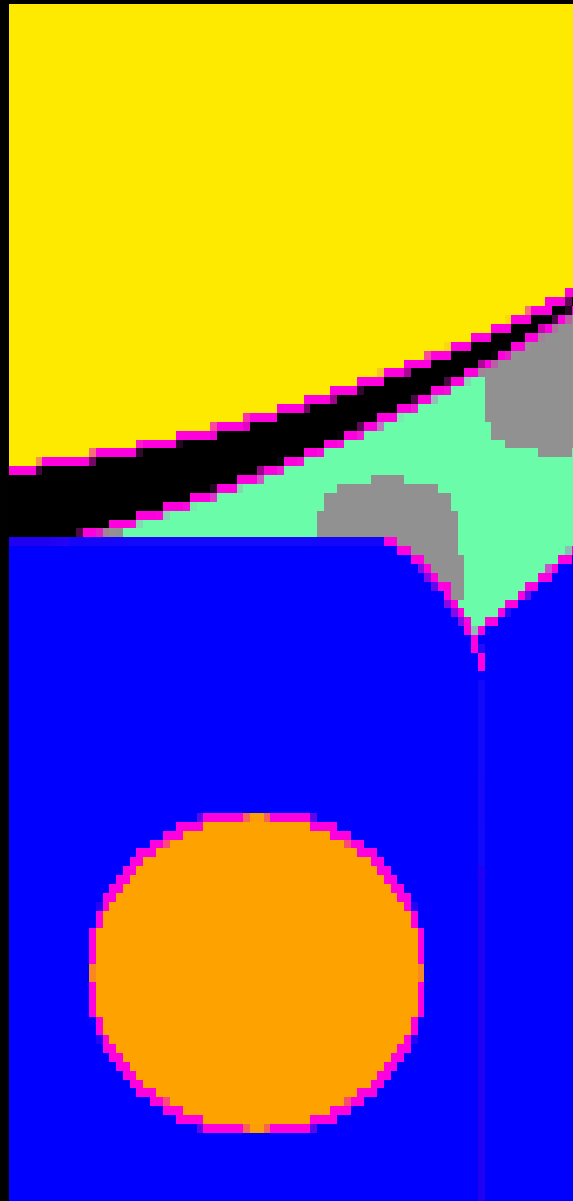
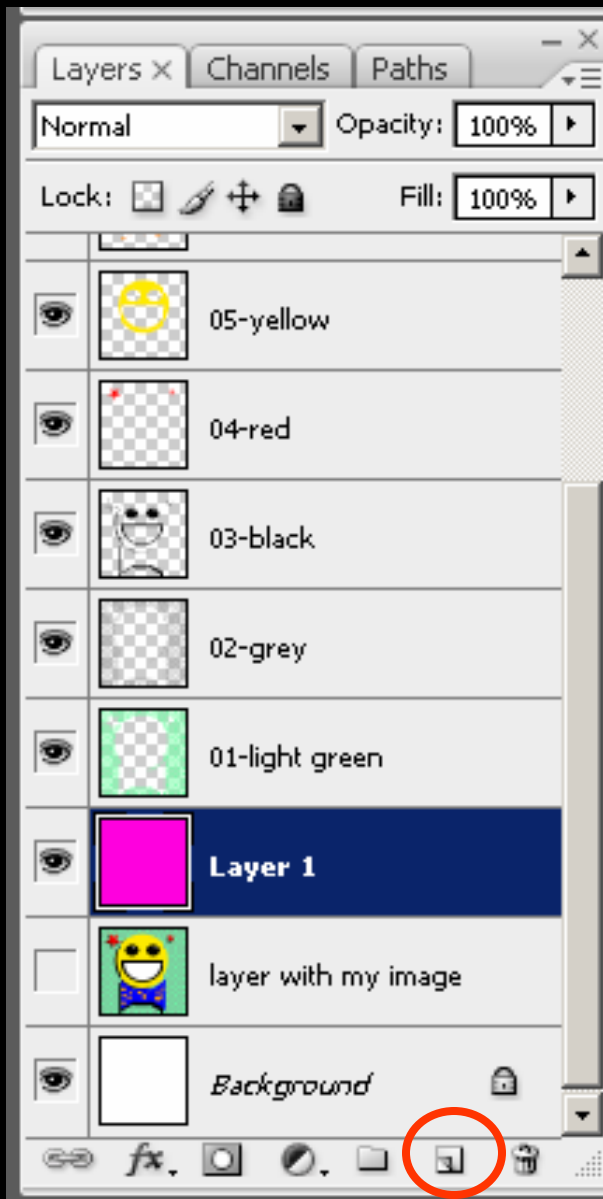
Step 5: I've finished with the color layers. I just picked them at random so now I need to reorder the layers in the way I want to print them. Your order might be different.

To change the layer order, just click and hold on the layer and drag it above or below the other layers.

Step 6: Rename the layers so you know how to use them. I often add numbers to the layer labels so after printing I know how to expose them.

If you were to have two black layers, the numbers will help out in the end.

# Method 1: Overlap and Trapping



Step 7: Now we have to fix any problems in our separations. Using the selection method, you have more control, but there are some flaws you need to fix.

Turn off the layer with your image by clicking the little eyeball.

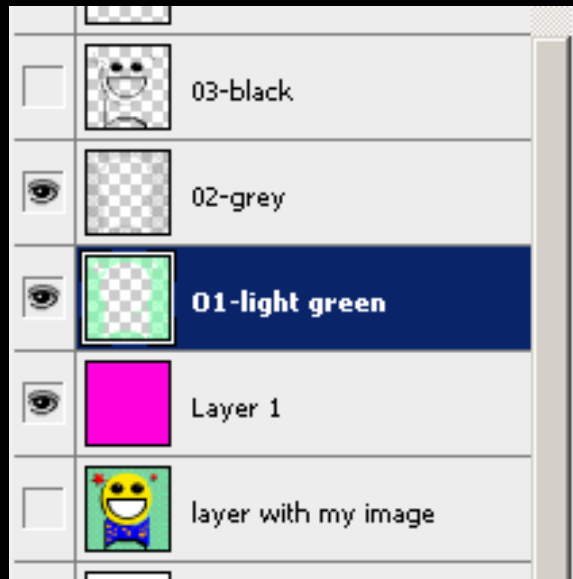
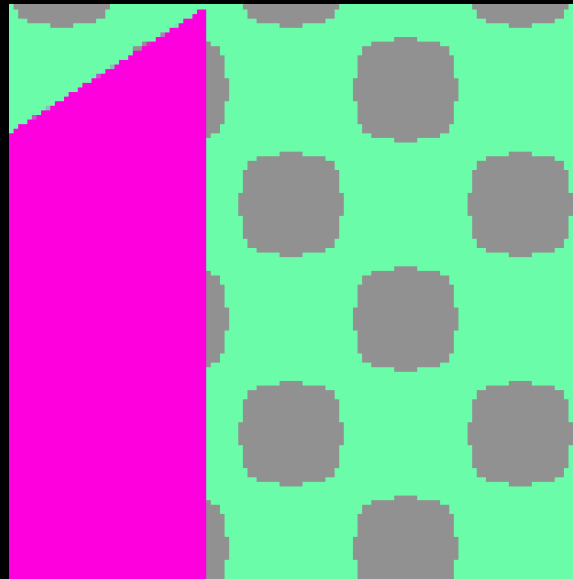
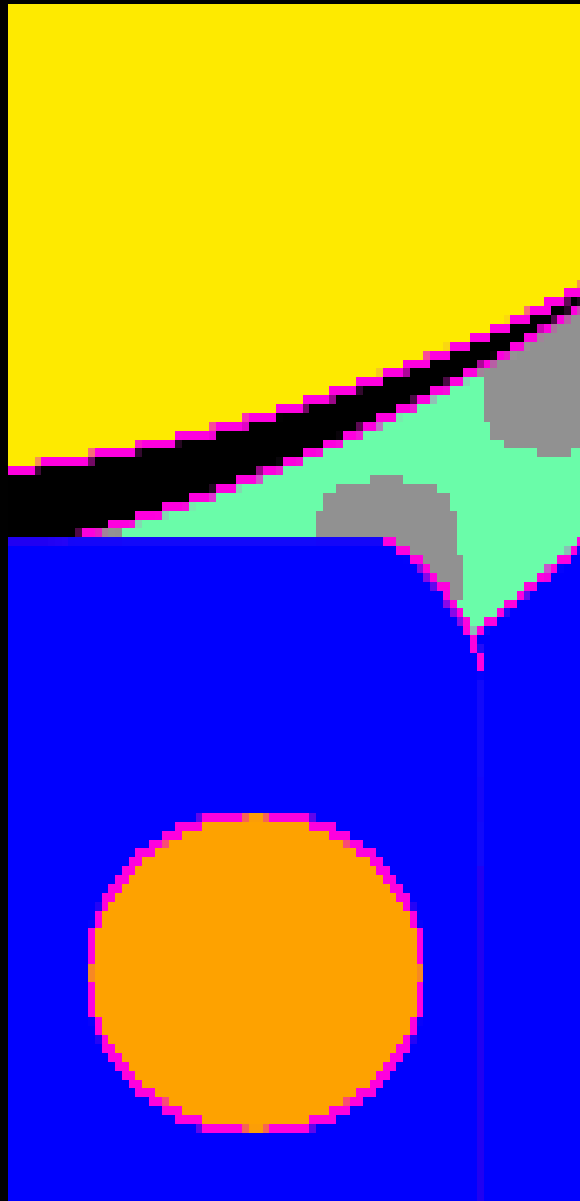
Create a new layer below 01 by clicking the little icon that looks like a folded piece of paper.

Use the paint bucket tool to fill that new layer with a nasty color that is NOT in your design.

Now you can see the spaces in your selections. Use the **MAGNIFYING GLASS** for a close look. Magenta is my nasty color of choice.



# Method 1: Overlap and Trapping



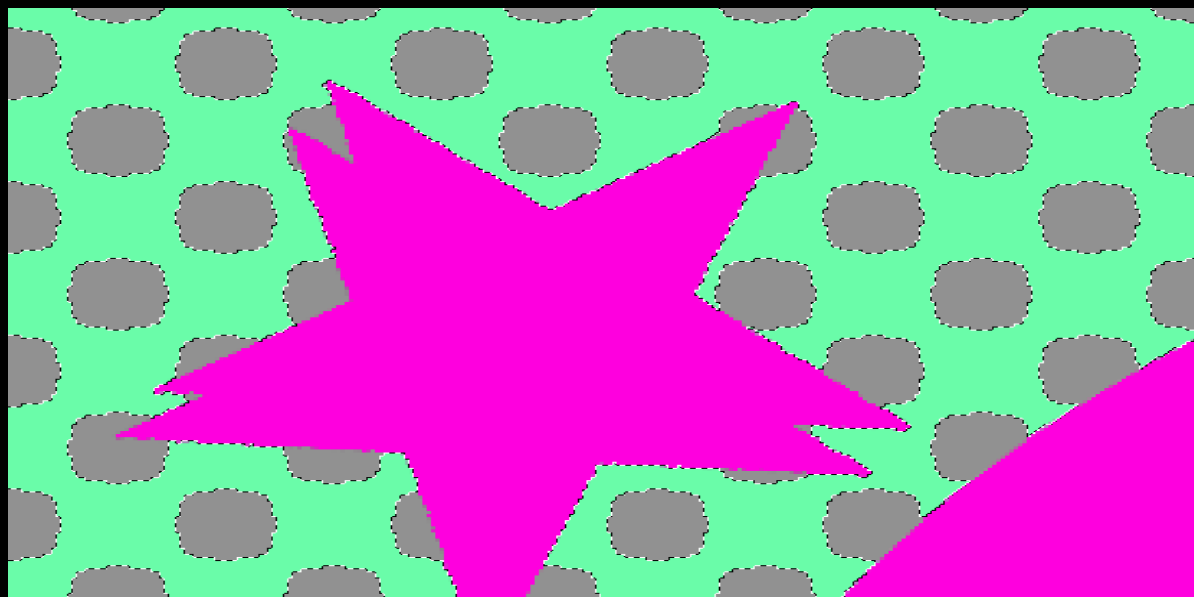
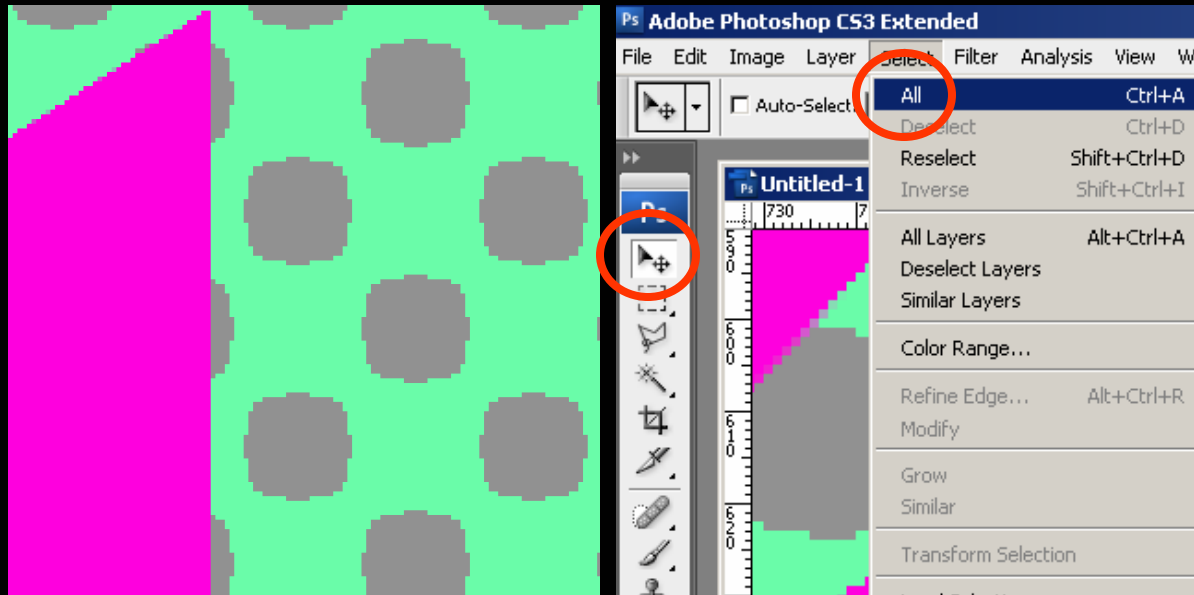
Notice how the grey and green have no problems. I created those colors with aliasing (no smooth transition). I'm still going to have to fix them though.

You want the colors to overlap a little when you print so that the edges match up. If you feel super confident, you can do an overlap of 1/16 of an inch. If not, you can do as much as you want but try 1/4 inch to start.

Step 8: Turn off the visibility on all the layers but green, grey, and the magenta.

We're going to work our way up the layers.

# Method 1: Overlap and Trapping



## Trapping (Wikipedia):

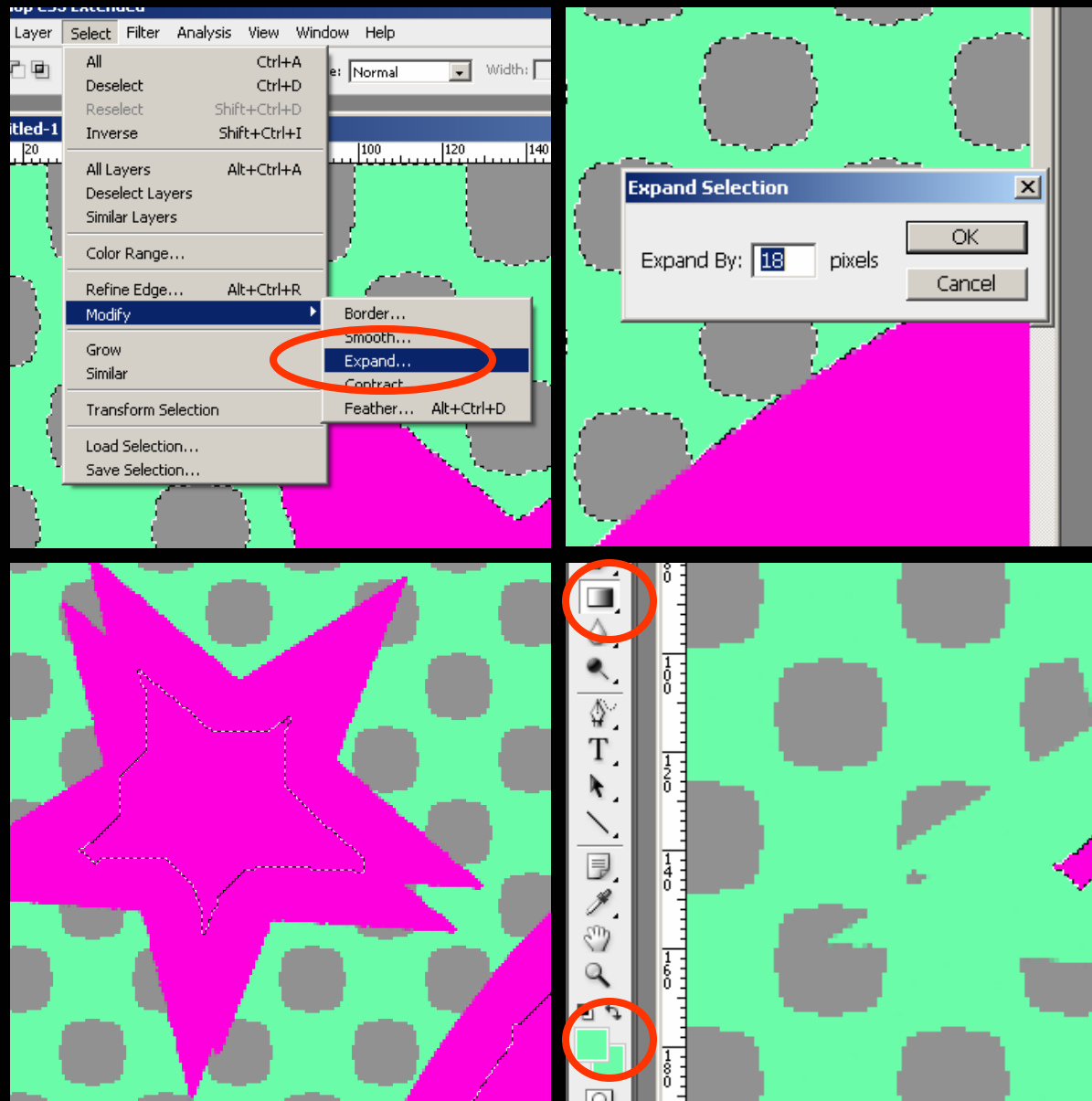
Trapping is a prepress technique, also known as spreading and choking. It consists of creating small overlaps between abutting colors in order to mask registration problems on the printing press later on in the graphical production.

Step 9: The bottom layers are the easiest. We're going to expand the green so that when the grey prints it will overlap the green.

- 1 - SELECT >> ALL
- 2 - Select the 'Move Tool'
- 3 - Hit the UP ARROW once
- 4 - Hit the DOWN ARROW once

Now the marching ants should be around the green area only.

# Method 1: Overlap and Trapping



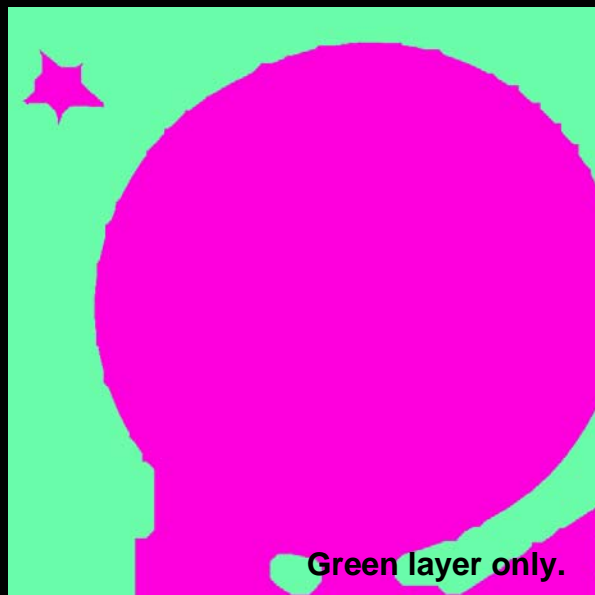
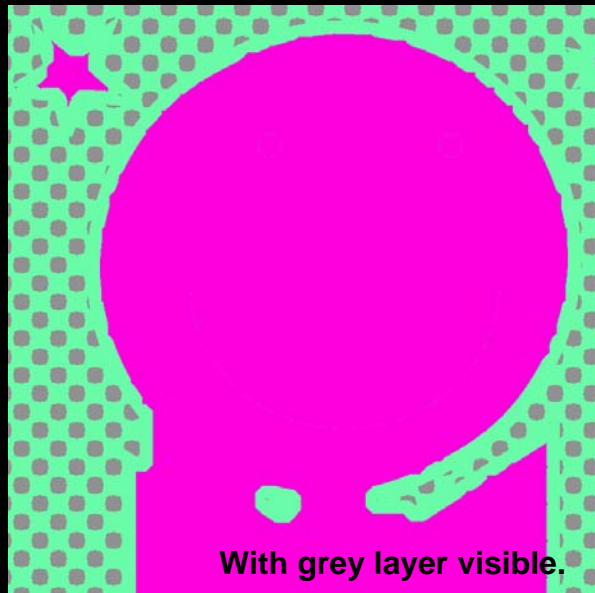
Step 10: To the Select Menu...  
SELECT>>MODIFY>>EXPAND

I'm using a 72 dpi image. For my 1/4 inch coverage, I used an expansion of 18 pixels. You have to choose yours based on your image resolution.

After you hit OK you will see the selection range has changed.

Step 11: I need to fill the new space now. To get the best coverage I use the GRADIENT tool in the same location of paint bucket. I create a gradient that goes from green to green. There are other ways, but I use this one. I'll use the same tool to finish the separation process.

# Method 1: Overlap and Trapping



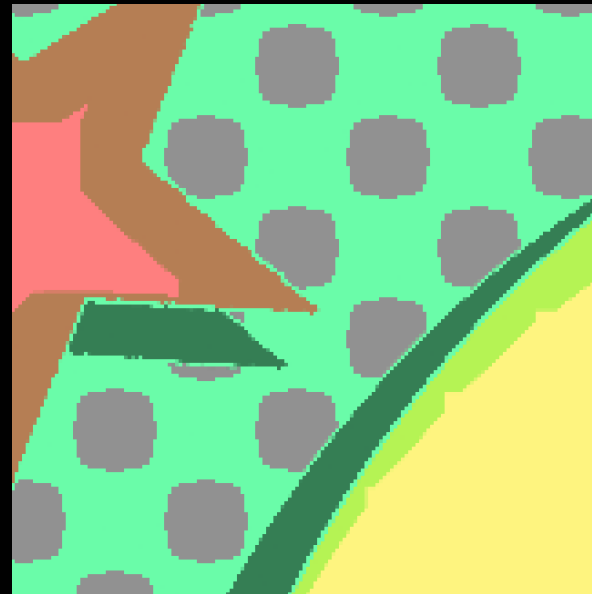
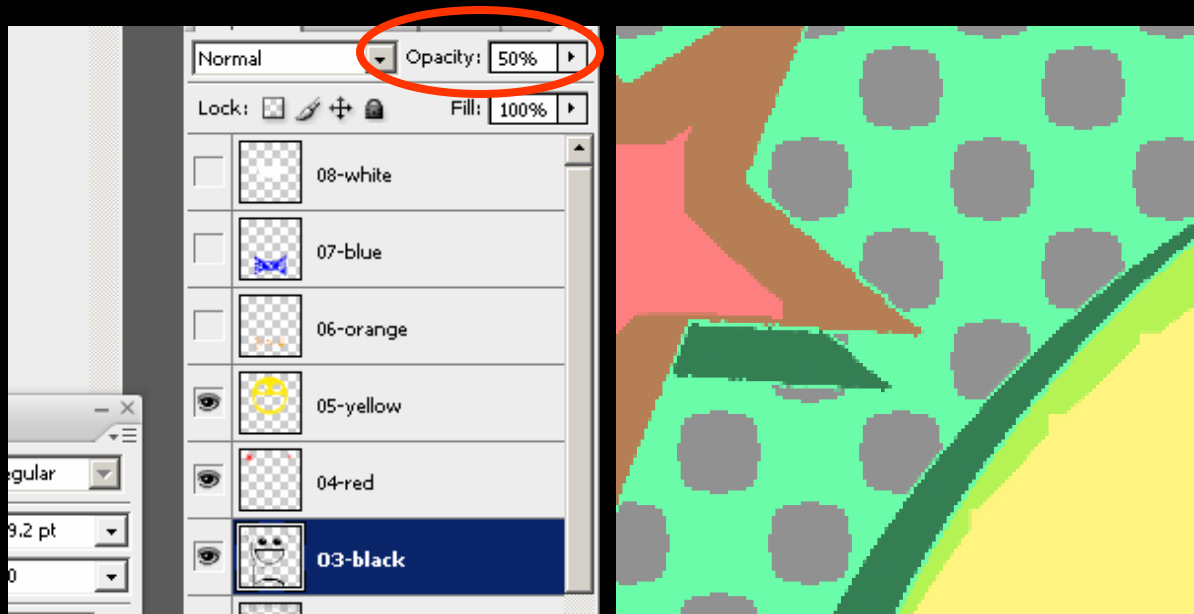
We've got some good green coverage going on. Let's move onto grey. But first...

Step 12: It's useful to lock a layer when you're happy with it. It makes sure you don't mess up your work. Lock the layer with the "Lock transparent pixels" icon.

You'll see a little white lock appear on the layer. Now you can't add anything you didn't plan on.

There's a more powerful lock tool, but since our layer only has one color, it's too limiting.

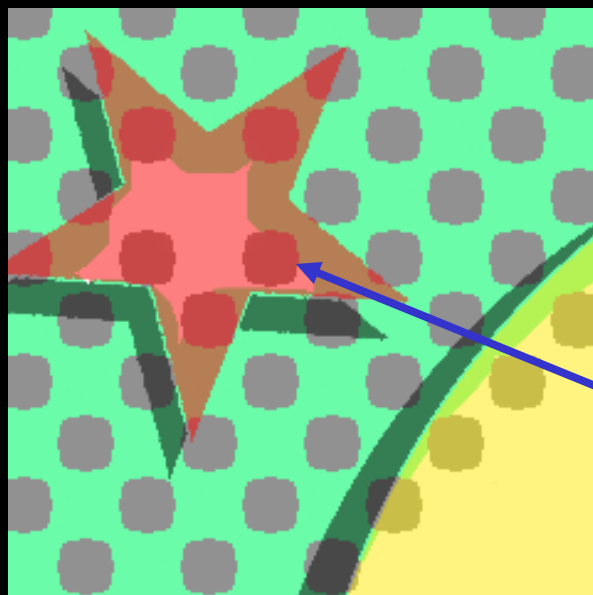
# Method 1: Overlap and Trapping



Let's hit the grey layer. We don't want to expand this layer because the pattern looks good. However we need some overlap where it bumps against the yellow and black layers.

We'll use the paintbrush for this task.

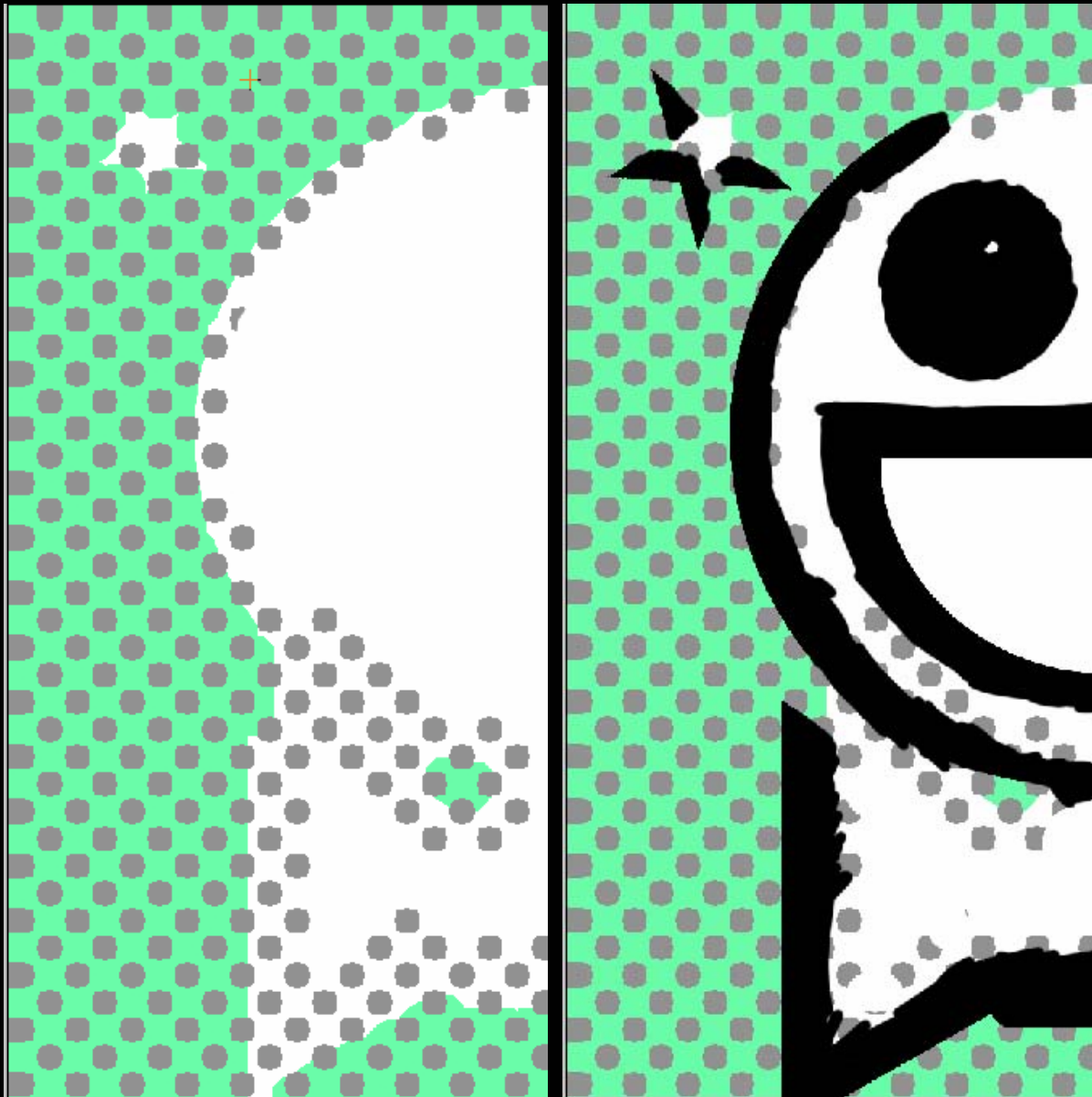
Step 13: Make the yellow, red, and black layers visible and set their OPACITY at about 50% so we can see where we need to paint.



My overlap is a bit large and I used a lot of copy and pasting in addition to the paintbrush. Your actions will be different, but the key is to overlap.

Step 14: Select the PAINT BRUSH and start to paint using the grey color. You want to overlap the colors to give you a little leeway when printing.

## Method 1: The Rest of the Layers



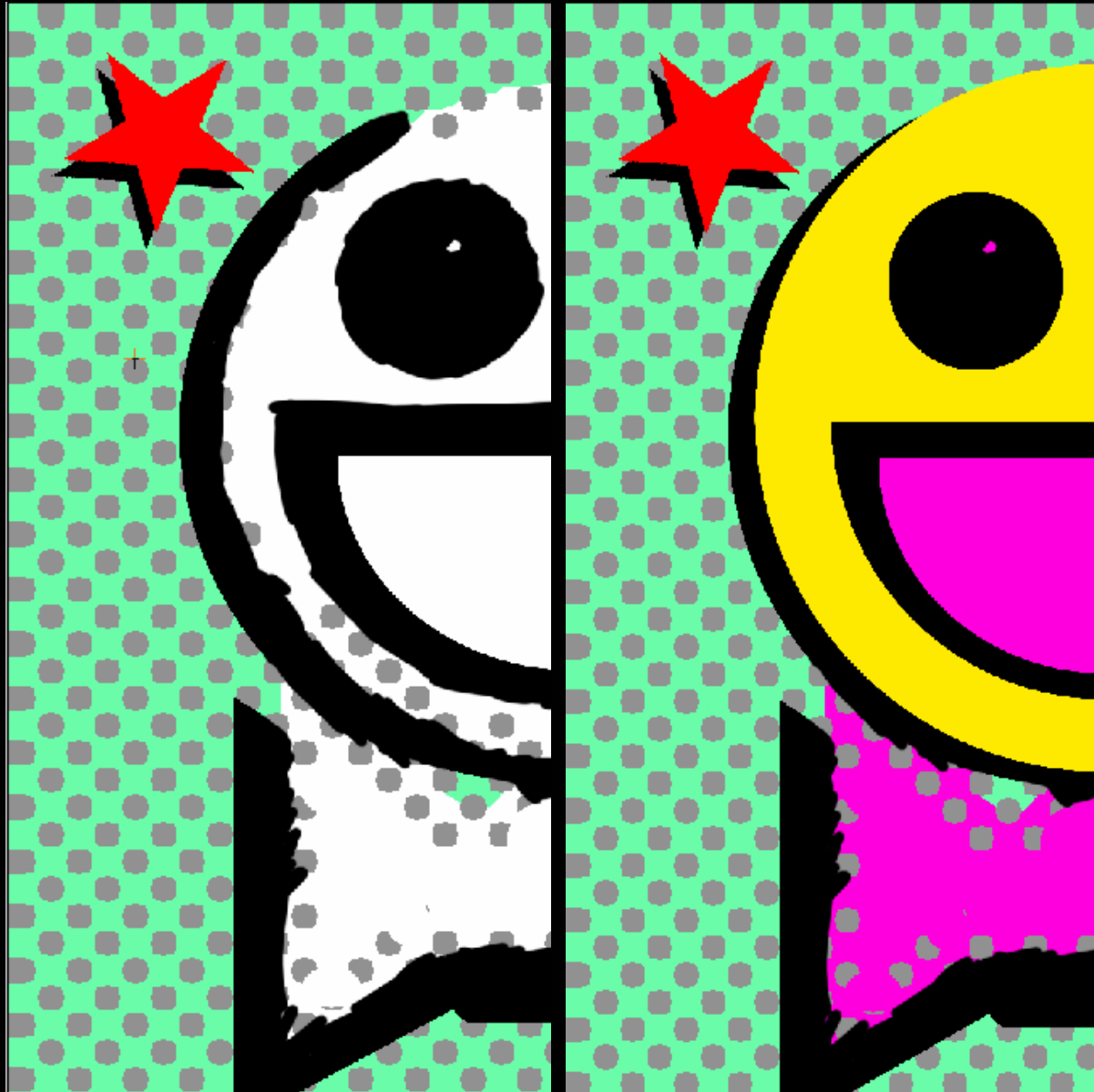
Lock up the grey layer and focus on the black. When you add to the black, remember you only need to overlap the color we haven't worked with.

You can see how I only used the paint brush to work this layer.

In hindsight, I could probably clean up the grey layer a little more, but it's fine for this. It will be up to you to focus on details when you do your piece.



## Method 1: The Rest of the Layers

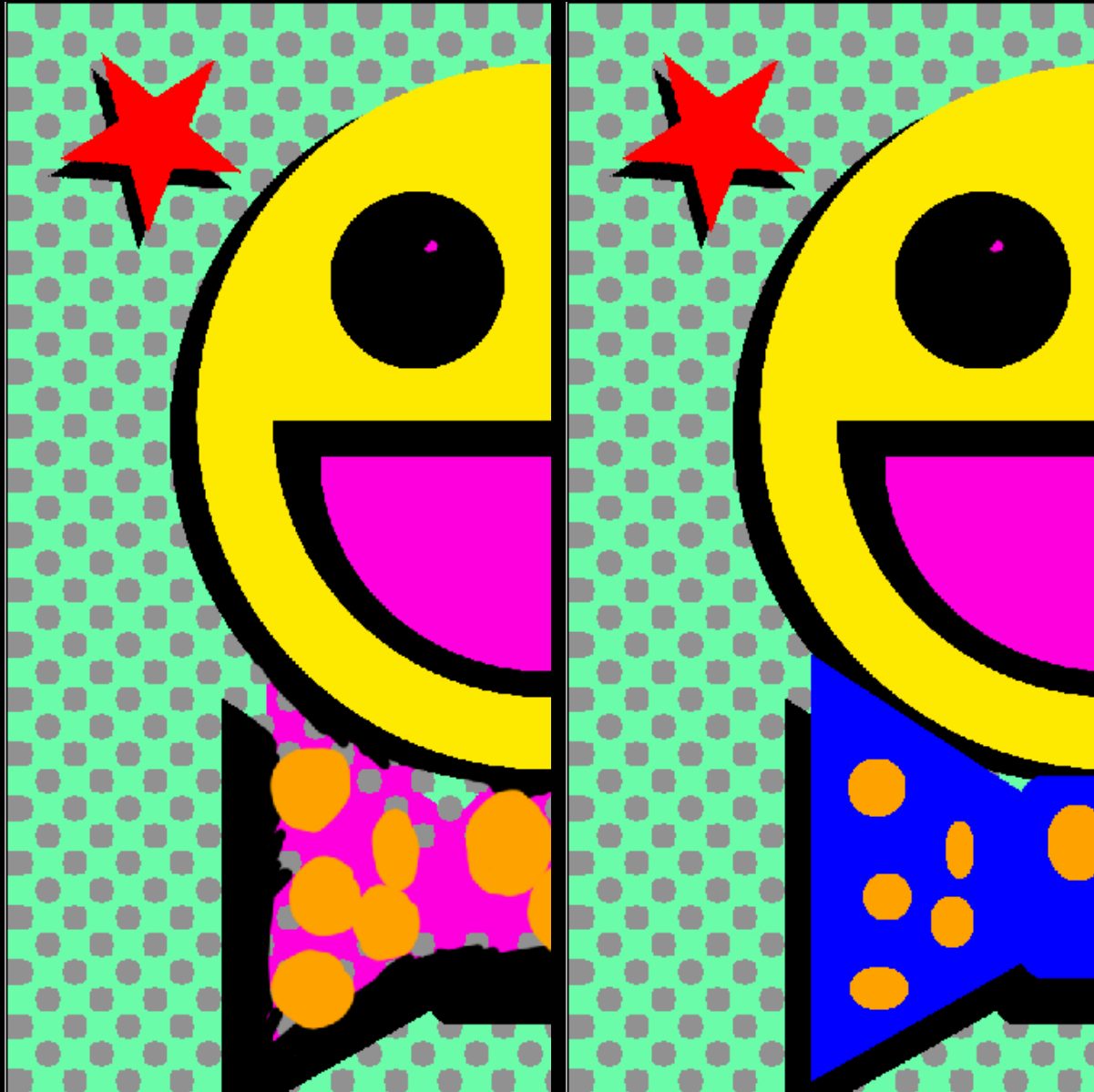


The red layer stood on it's own so it didn't need any work.

The yellow layer stood on it's own so it didn't need any work.

Notice that the magenta layer is disappearing. We're covering up all the spaces between the original color selections.

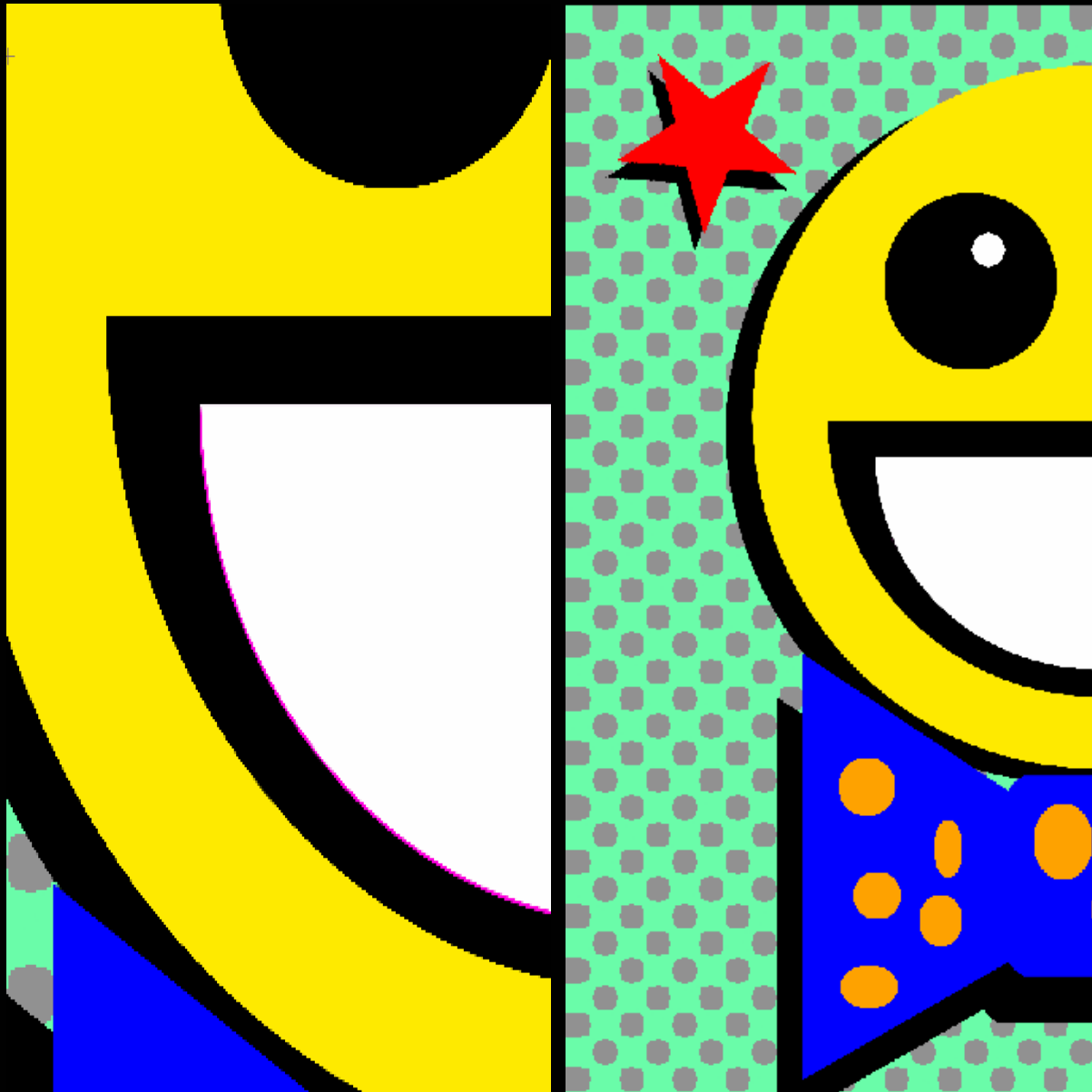
## Method 1: The Rest of the Layers



For the orange layer you could have used the `SELECT>>MODIFY>>EXPAND` command. I used the paintbrush because it was an easy shape to work with.

The blue layer got close, but did not directly touch the yellow layer. Since it was stand alone, I did nothing.

## Method 1: The Rest of the Layers

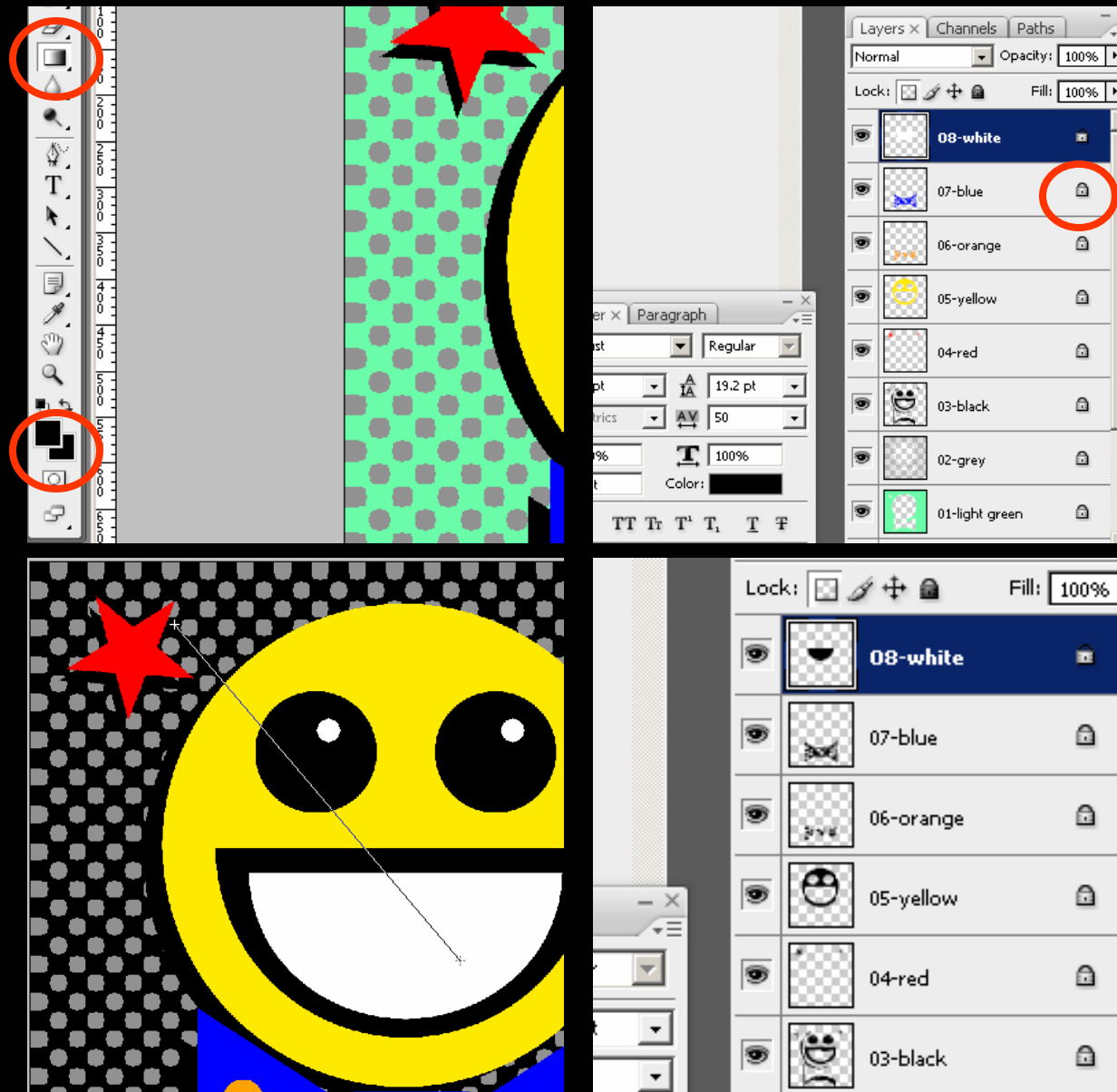


I thought I wouldn't have to do anything for the white layer, but there was some magenta showing through.

I went back to the black layer and added a little overlap and the layers were done.

Now we'll set it up for the laser printer.

# Method 1: Prep for the Printer



A?: SAVE the document and your work.

B: SAVE AS the document and add a “-print” to your filename. This is the one you can print out at the copy center or at home.

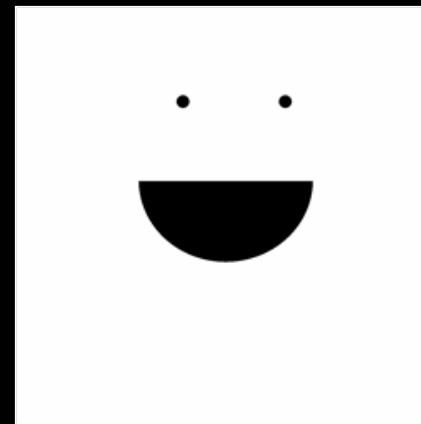
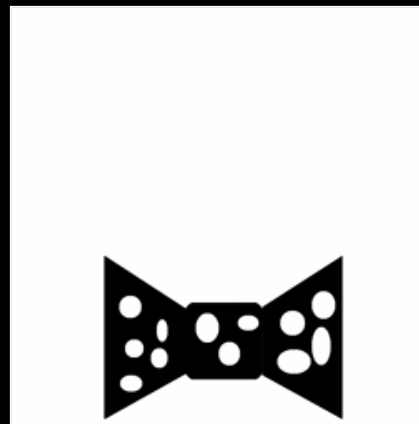
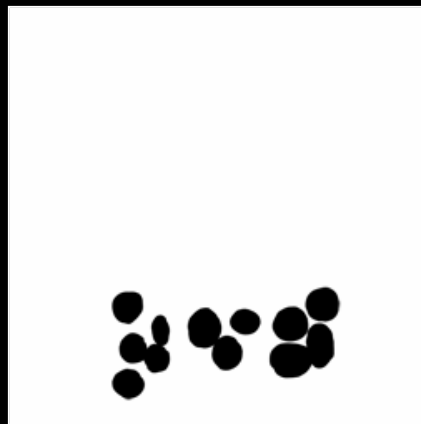
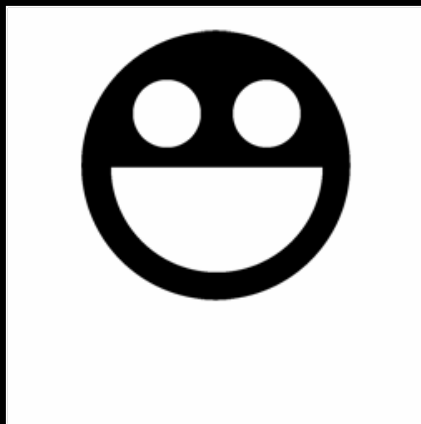
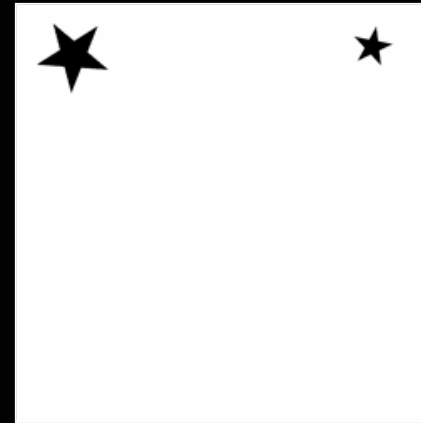
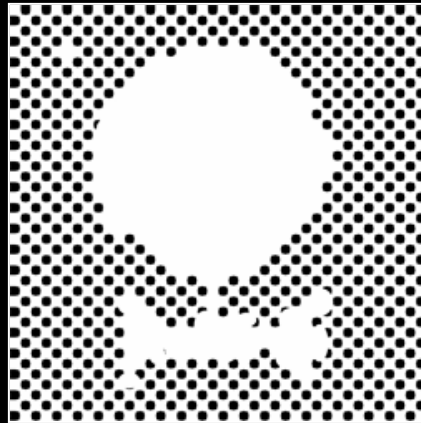
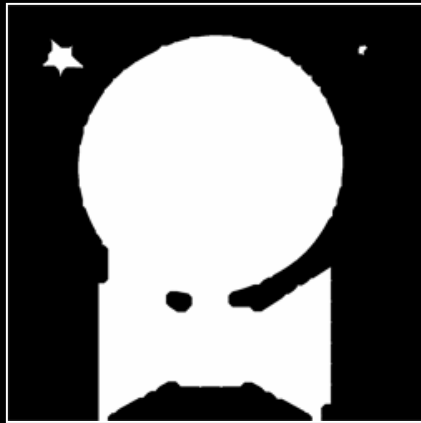
C: Select the GRADIENT TOOL and set it to go from black to black.

D: Since all of your layers have the transparency locked, use the gradient tool on each layer to make them a solid black color.

That should be it. When you print, print each layer on a separate sheet and they will all line up right.

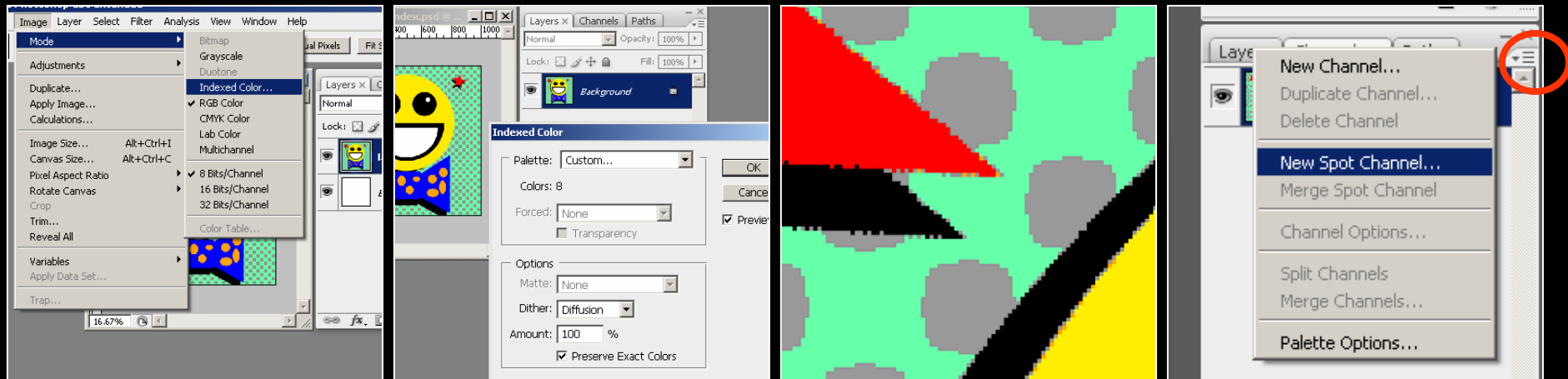
# Method 1: The Separations

So here they are ready to expose on your screen.



## Method 2: Indexing Your Colors

There are other methods for separating your colors. One is converting your image to an indexed color image and then setting up channels (next to the layers tab) for each color. You will still use the color selection tools we used before, but it's a bit more difficult to go in and overlap the colors.



Starting with your original image, you convert it to an indexed color image. Say OK to flatten layers.

You want a custom color palette and make sure you have 8 colors since that's your goal. Also check "Preserve Exact Colors."

See the jagged edges and how you have colors where you never planned them? Grays often get placed in borders between other colors. I just don't like it.

Use **SELECT >> COLOR RANGE** to grab a color. Select the **CHANNELS** tab, and click the menu button and choose "New Spot Channel".

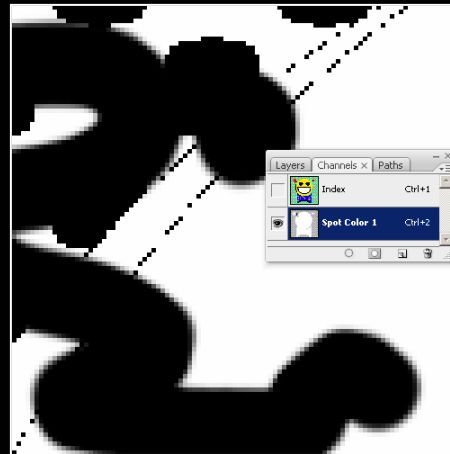


## Method 2: Indexing Your Colors

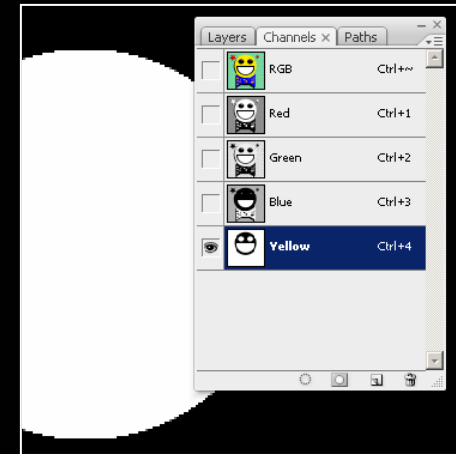
There are other methods for separating your colors. One is converting your image to an indexed color image and then setting up channels (next to the layers tab) for each color. You will still use the color selection tools we used before, but it's a bit more difficult to go in and overlap the colors.



Now you have a channel with just one color. In this case it's the gray one. You can make each channel visible and print it out like we did before.



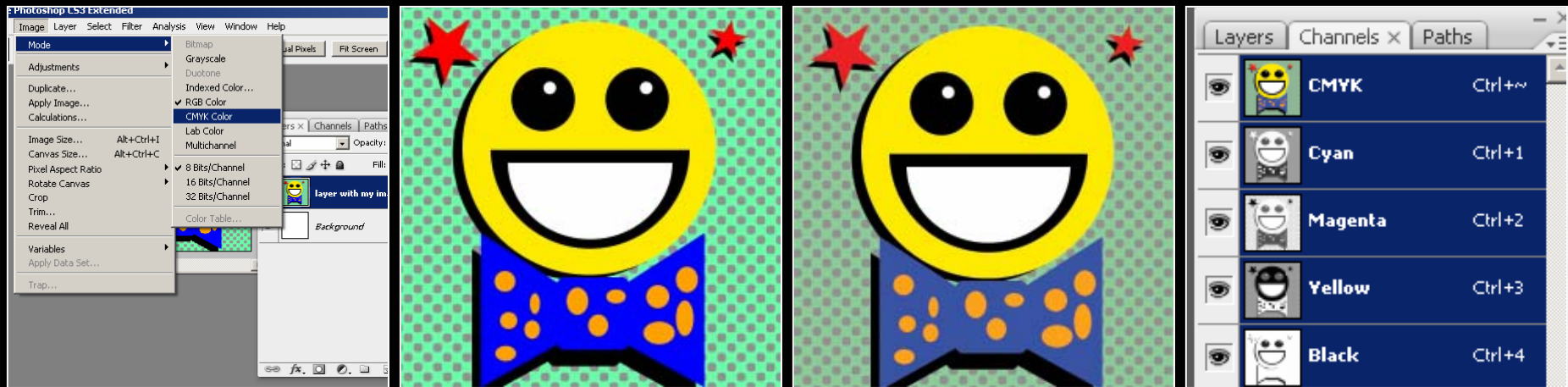
You can also go in with a paint brush and add "black" to your separation, but you still get all those extra pixels of color that are in the wrong places.



You could try using the "New Spot Channel" command when you're still in RGB mode (before conversion to index). I consider it to be an alternative to creating layers the way we did before. It's your choice on that one.

# Method 3: CMYK Separations

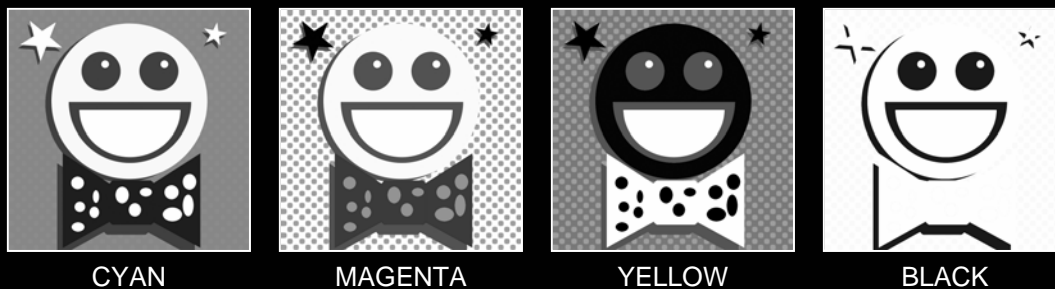
The last method of color separations is CMYK. Most professional printing services use CMYK colors (Cyan, Magenta, Yellow, Key black). The big thing to remember is that sometimes colors shift when you convert RGB (monitor) colors to CMYK. You might not like the results. Separations are easy though. There are only four no matter how complex your image is. When you print them for screen exposure you will need to print as a halftone and this tutorial does not cover halftones.



Starting with your original image, you convert it to a CMYK color image. Say OK to flatten layers.

The RGB palette does not always match up to the CMYK palette. See how the bright greens got shifted around in the conversion? The blue got it too. It's an art when you need to use CMYK printing, so just be aware.

And here's your new channels palette all ready to print out. Just turn off the visibility for the layers and you can print black and white images (with halftones).



CYAN

MAGENTA

YELLOW

BLACK

# Color Separations in Photoshop

So that's it. There are other ways to do these separations and you will probably find another that works faster for you. We never really talked about complex images. You will probably need to develop custom methods for those separations.

Consider this a starting point.

