

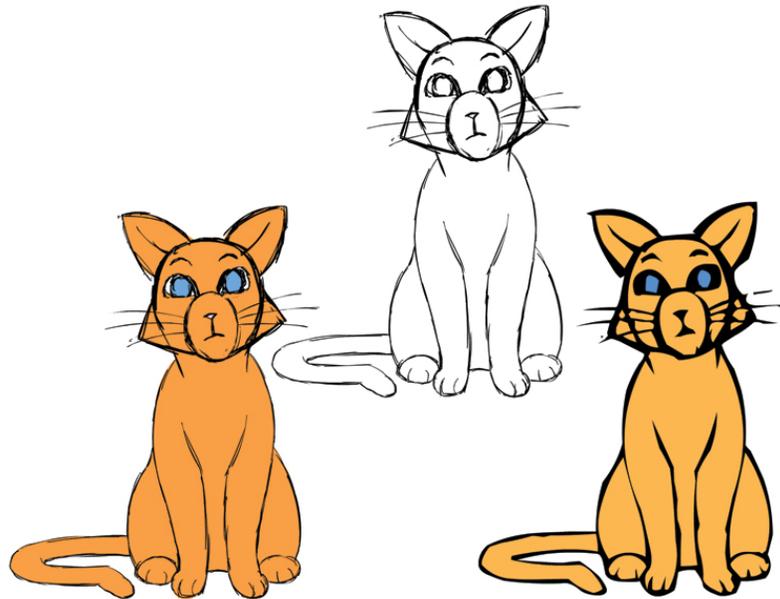
O'Hailey: Appendix Bonus Materials

Ink and Paint

Animation by Shani Varo, Cleanup by Jason Walling, 2009, SCAD group project.

Lecture Notes

Figure AIP.1



Rough lined animation inked in Flash (*left*) and Toon Boom (*right*).

On the group project *Jaguar McGuire*, the time came to test an ink-and-paint pipeline. While shots were still moving through their 2D and 3D animation stages, the rough animation stage had been completed for a few 2D shots that did not have 3D animation. We had many shots in which just the cat character was shown on screen. The animations that we will work with in this appendix are in a rough animation stage. There are more inbetweens to be added and, of course, cleanup still needs to take place.

All of the cat images in this appendix have been animated by the ever talented and hard-working Shani Vargo during the SCAD 2009 BFA Animation course.

While working out what software would be best to use for ink and paint, we also wanted to test how rough of a line quality could be used? The art director and director looked at *John Henry*, *101 Dalmatians*, and other rough-lined animation examples as inspiration. We then took the rough animation and decided to test ink and paint with it as is, without cleanup. We didn't expect

the final line to stay as rough as it was in the rough animation stage; it would be cleaned up somewhat. However, pushing this extremely rough line through for pipeline testing would give us a worst-case scenario.

The following is what we uncovered in these tests.

Toon Boom

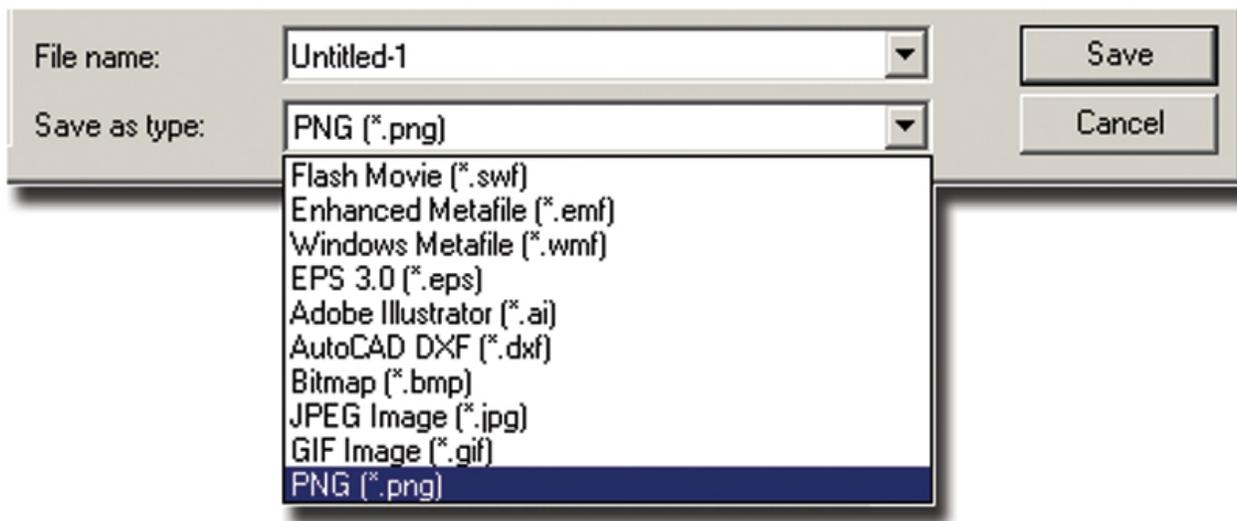
The first test was to try and use Toon Boom. This software has wonderful tools that help speed up the ink-and-paint process. Because we were dealing with a fast-approaching deadline and had an extremely small staff by the time we reached the back end of the process, we wanted to see if the software would work for our look so that we could use these advanced tools.

This is the process we went through. You can test it out for yourselves. The files for this process can be found in the companion data for this appendix.

Test 1: Bringing Rough-Lined Raster Animation into Toon Boom

The rough animation was completed using Flash and a Cintiq tablet. Inside of Flash, however, there is not a way to export raster images that are not compressed. Because most of our other pipeline included exporting movie files (without compression), this wasn't that large of a setback.

Figure AIP.2

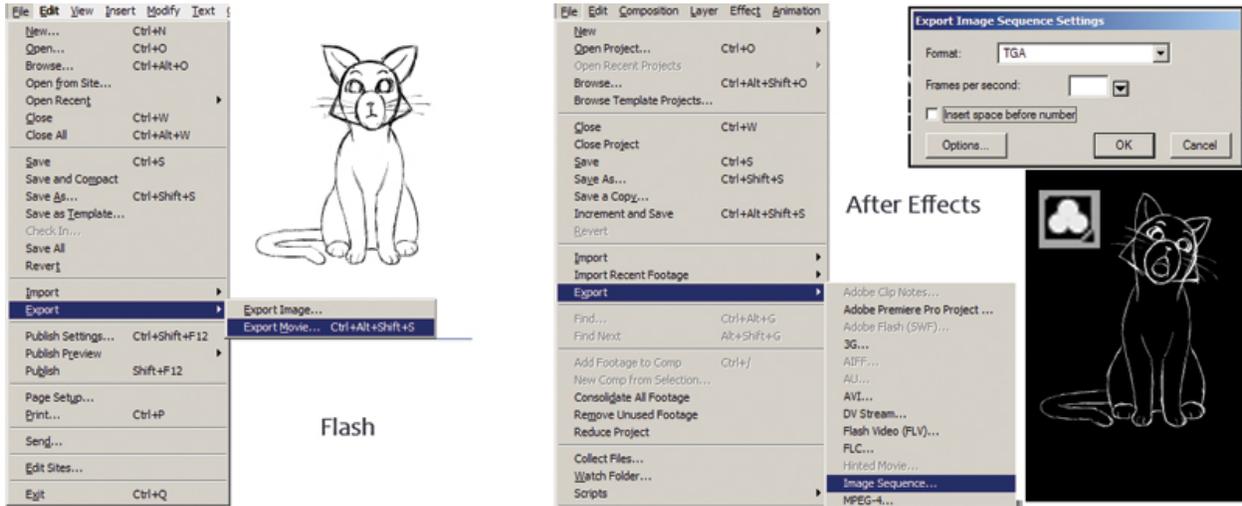


Flash does not export tga or tiff sequences.

1. You can start with the file **JM_ani_shot_06_v4.swf**. Import this swf into a new Flash document if you want to click along.

2. First, export a movie file from Flash by selecting **File > Export Movie**. Then in After Effects bring the movie in and export a tga image sequence under **File > Export > Image Sequence**. You can see in Figure AIP.3 that the alpha channel is present. (It is always good to check now before getting into the ink-and-paint package.)

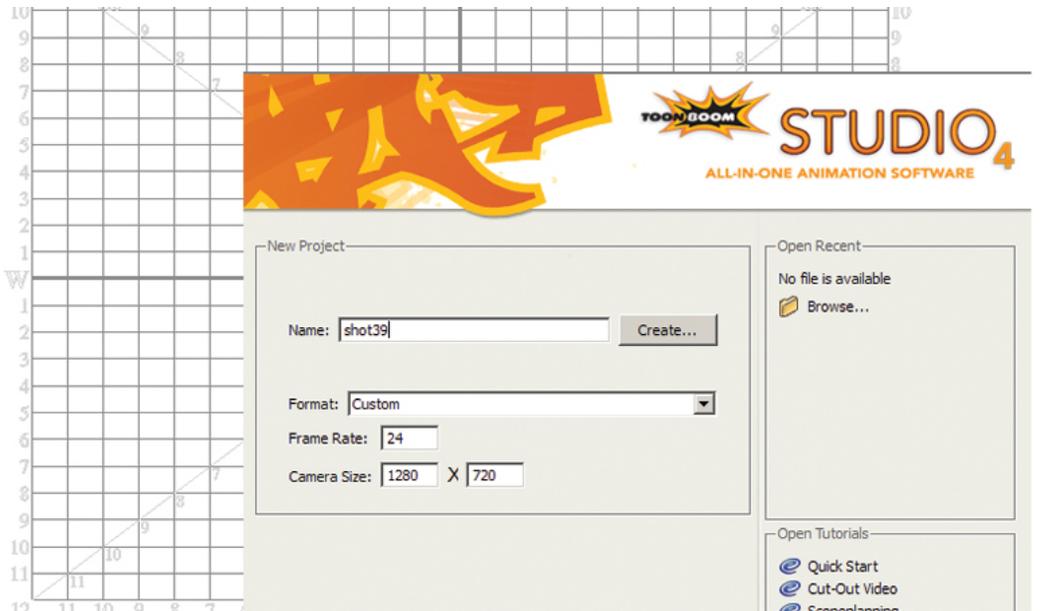
Figure AIP.3



Getting a sequence of tgas from a movie file.

3. Next, start a new scene in Toon Boom, making sure to match the correct frame rate and image size (Figure AIP.4).

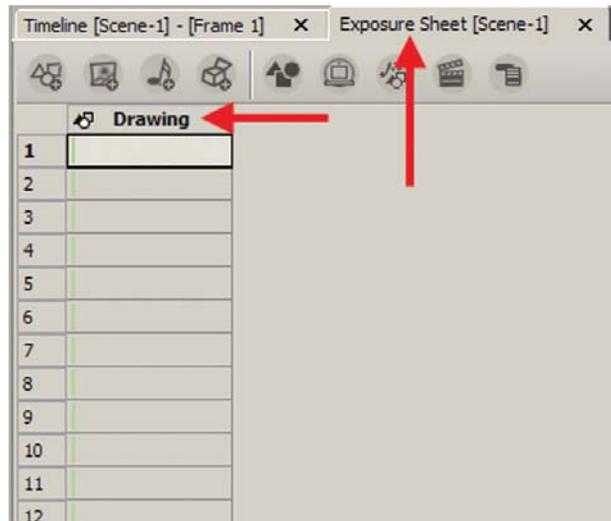
Figure AIP.4



A new scene in Toon Boom.

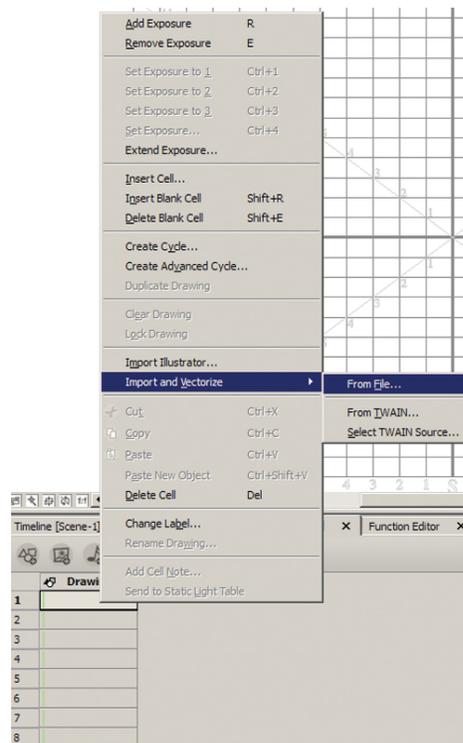
4. Locate the **Exposure Sheet** tab at the bottom of the screen. By default it has a drawing level there. We'll see the difference between drawing levels and image levels in this tutorial. **Right-click** on the drawing level and choose **Import and Vectorize > From File...** (For my students, usually a "... " in a name means that another window is going to be opened—not all the time, but usually that is the meaning.)

Figure AIP.5



Drawing level in the Exposure Sheet tab.

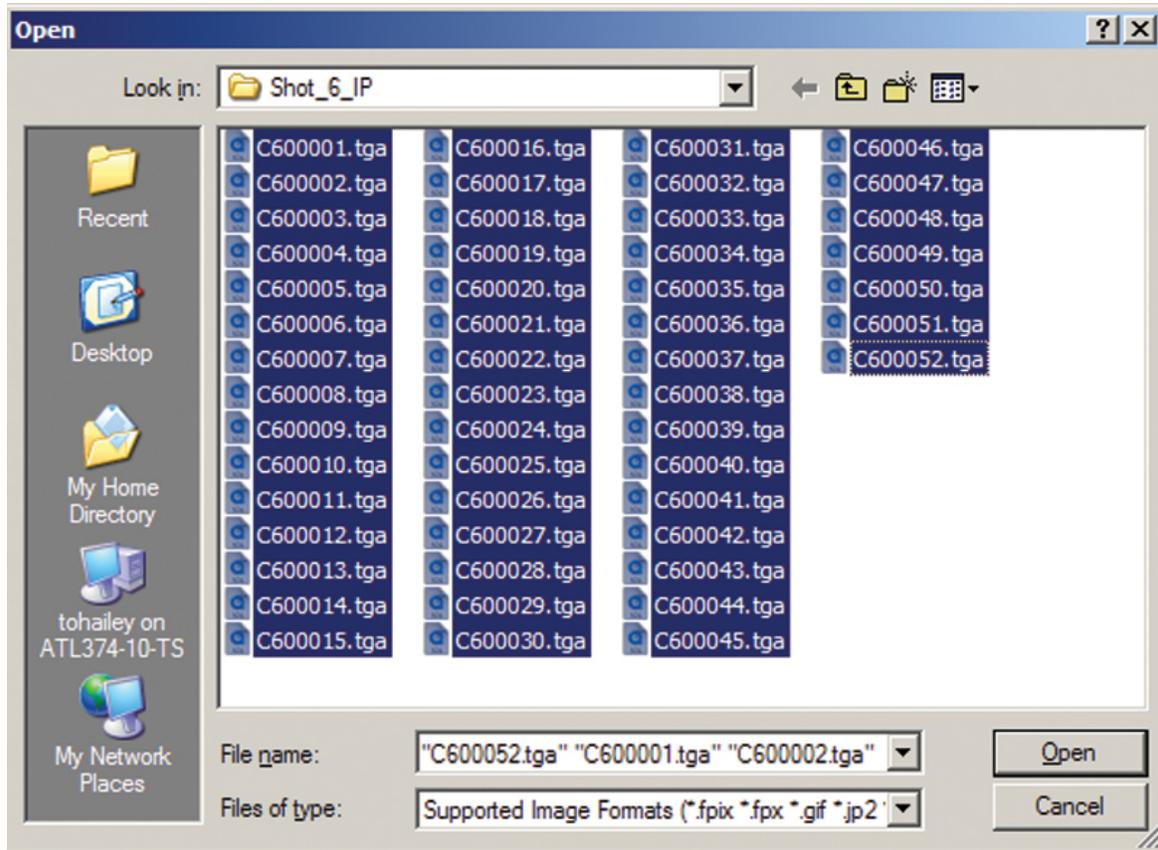
Figure AIP.6



Importing and vectorizing raster images.

5. The file browser opens up. Toon Boom does not autorecognize an image sequence. You will have to **shift-select** all of the images to import. Click **Open**.

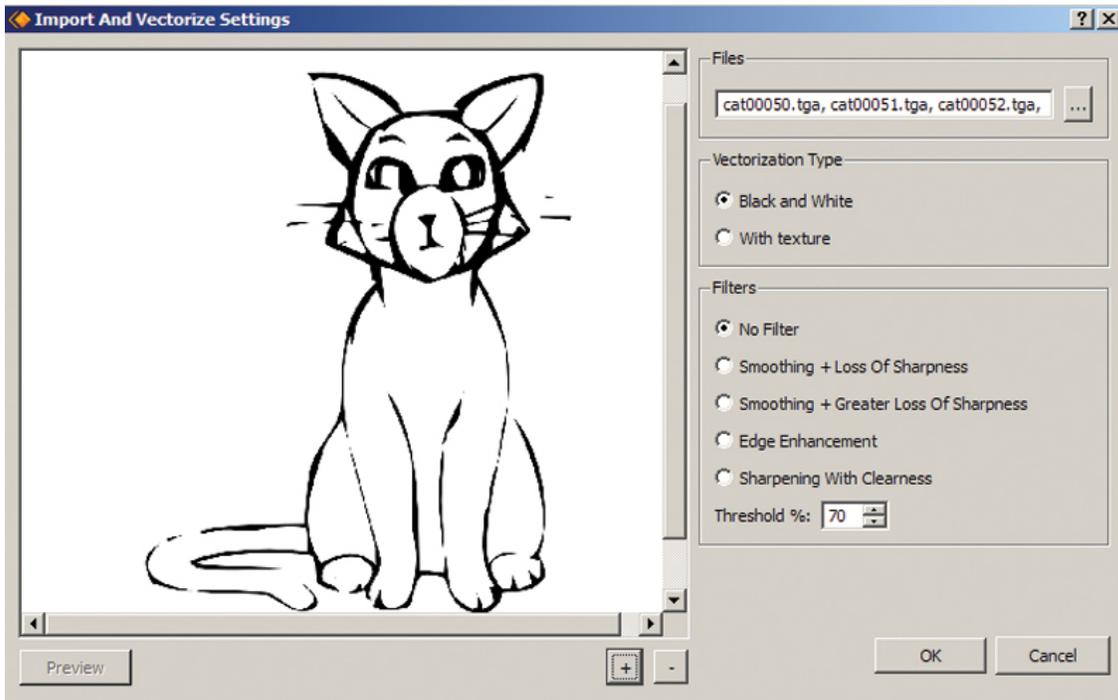
Figure AIP.7



Shift-select all images.

6. A preview window opens where you can see what exactly the vectorization is going to look like. You have the ability to smooth or sharpen your image. Toon Boom works great for drawn cleanup lines. However, it generalized the rough animation line into what one would expect from a vector algorithm. You might be able to get an interesting look from this by-product of vectorization.

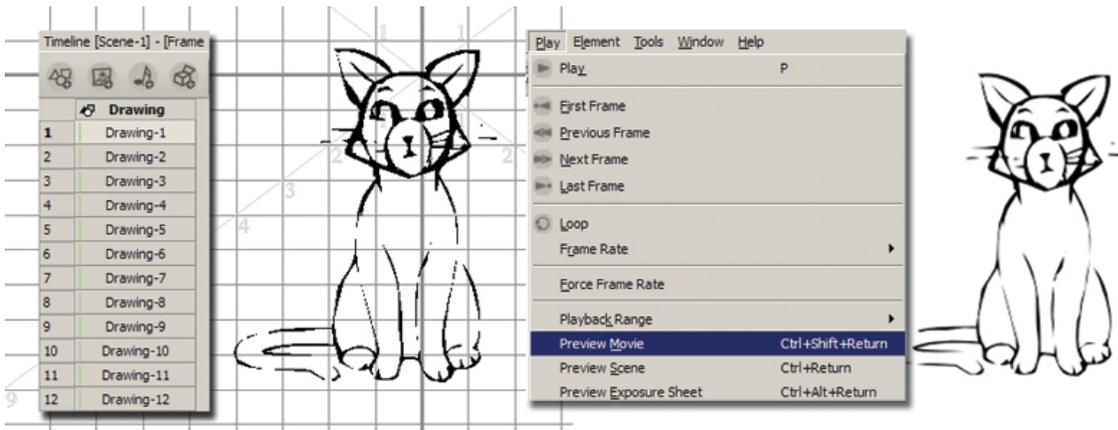
Figure AIP.8



Vectorization preview.

7. In Figure AIP.9, you can see that the cat animation is visible on the disk and in the exposure sheet. Remember that the image you see on the disk is a preview and at render time it will appear smoother. To see a render, you would select **Play > Preview Movie**.

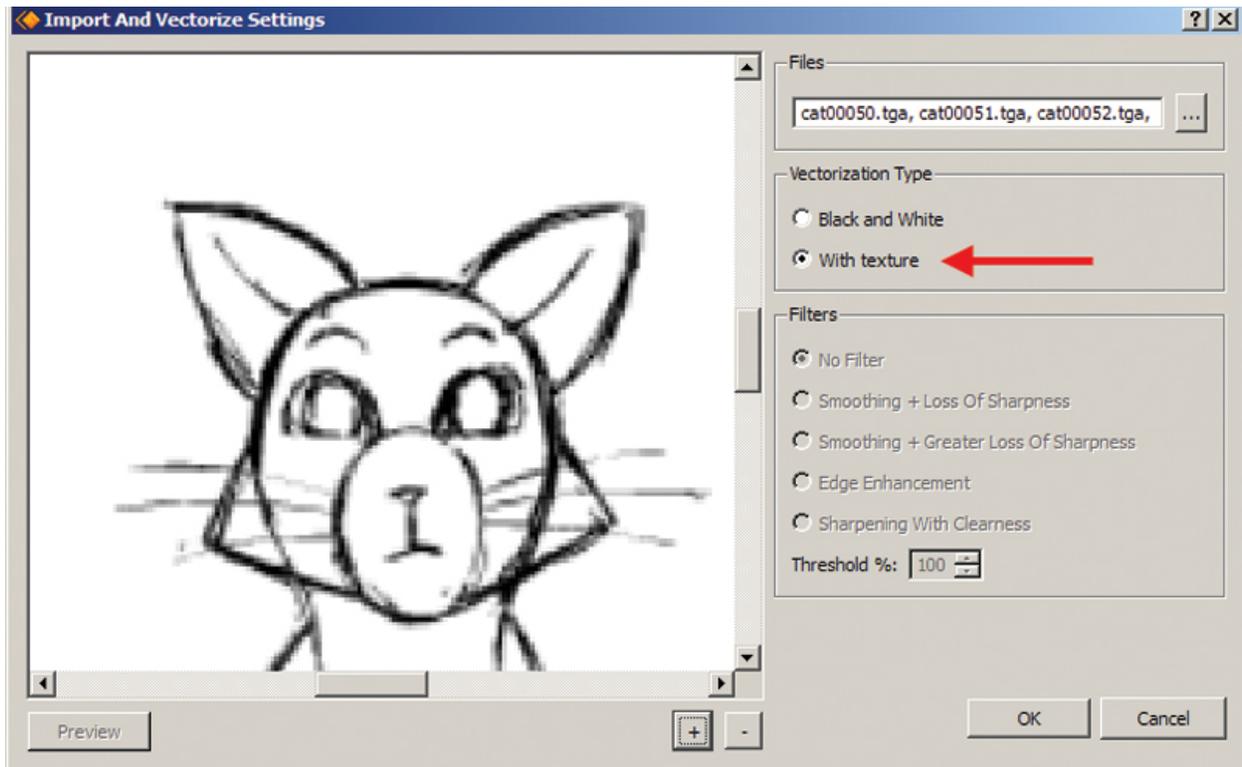
Figure AIP.9



Cat images vectorized and in exposure sheet.

Stepping back for a moment, we tested some of the other settings in step 4, **Import and Vectorize**. What would happen if you had selected **Vectorization Type: With Texture**? Glad you asked. We wondered too.

Figure AIP.10



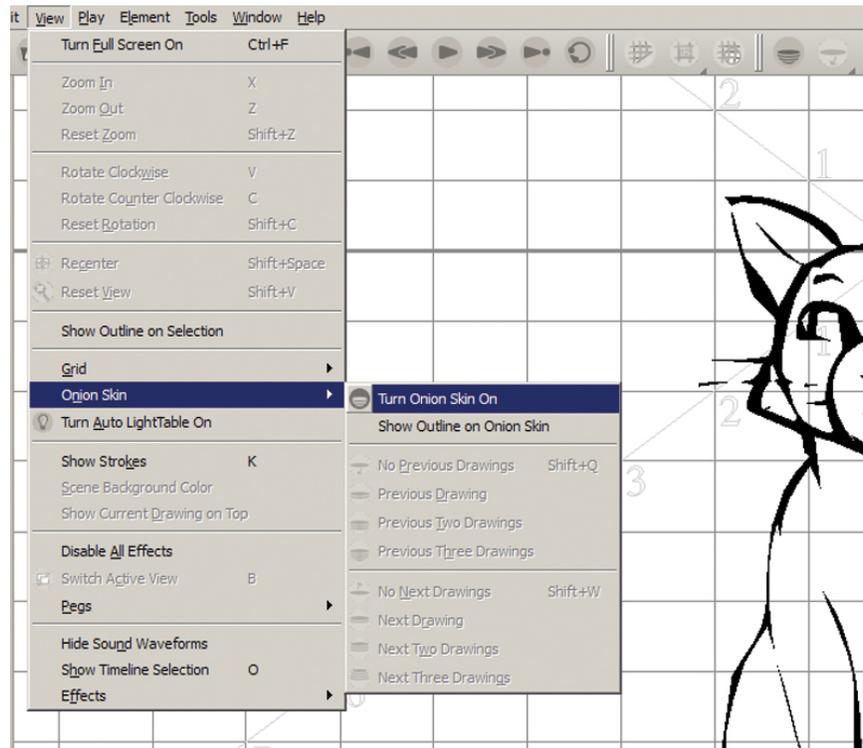
Testing vectorization with texture.

You will notice right away that the clumpy vectorization does not happen. Instead the rough line is maintained. However, in our testing we were unable to ink and paint an image brought in this way. Perhaps more testing is needed.

We will now continue to paint the vectorized cat that looks simplified. We will use the autopaint feature in Toon Boom to see if it will speed up our painting process:

1. First we will turn on the Onion Skinning feature to allow us to work with multiple images. Click **View > Onion Skin > Turn Onion Skin On**.

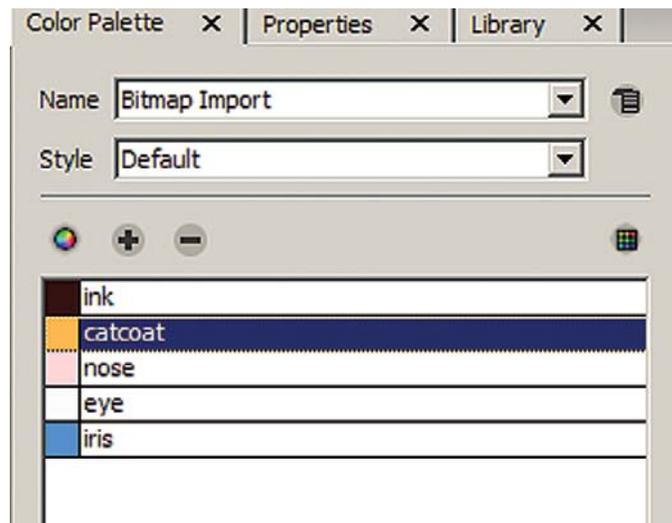
Figure AIP.11



Turning on the Onion Skinning feature.

2. Next, locate the color palette and add colors for your scene. The nice thing about Toon Boom is that these colors can be changed even after everything is painted, and all of the painted cels will be updated—an absolutely necessary feature when working with art directors.

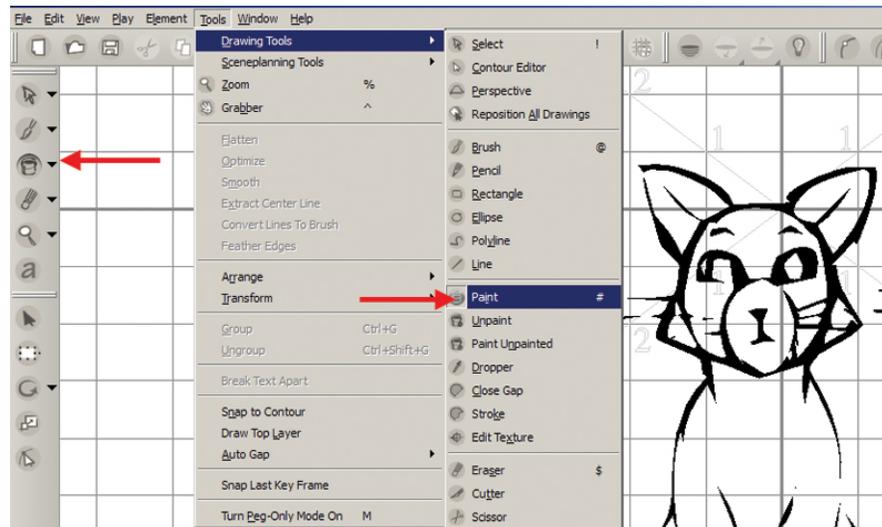
Figure AIP.12



The color palette.

3. To paint, select the correct color and the painting tool. They can be found in the toolbox on the left of the screen or under **Tools > Drawing Tools > Paint**.

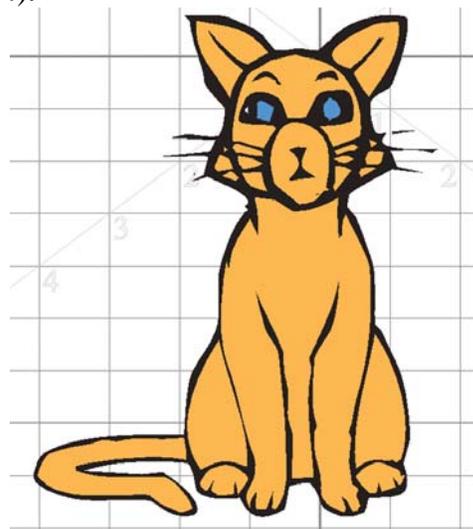
Figure AIP.13



Selecting the paint tool.

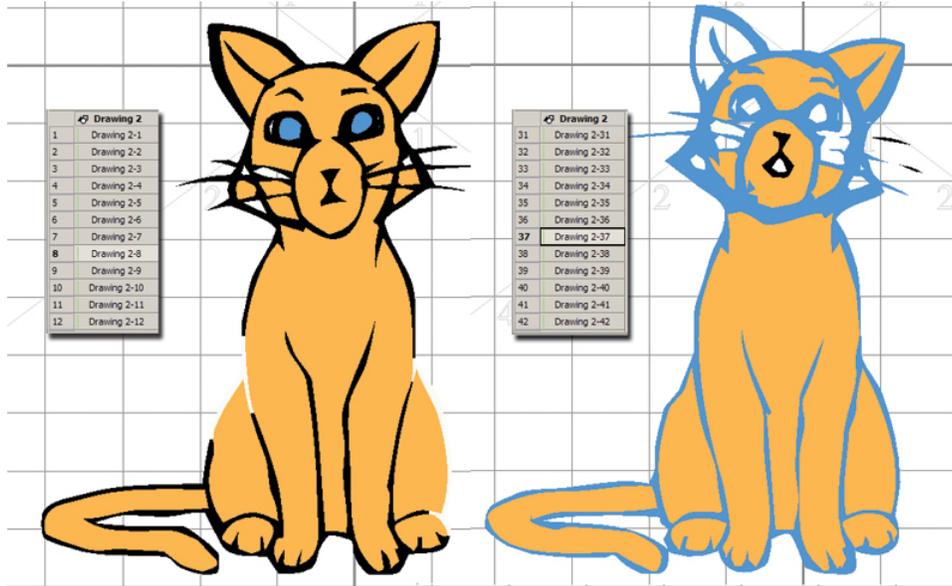
4. While using the paint tool, hold down the **Shift + Alt** buttons on the keyboard. This will cause the paint tool to do its best to autopaint the rest of the animation! It tries to track the vector areas and paint them the color you have selected. It works for many frames; for other frames, it becomes confused. You will have to go through each frame to double-check. You were going to go through each frame anyway. Autopaint has reduced the amount of clicking you were going to have to do. The image in Figure AIP.13 was completely autopainted. Many frames afterward looked perfect as well. Some needed to be touched up (Figure AIP.14).

Figure AIP.14



Holding Shift and Alt to autopaint the animation can give good results on the first frame.

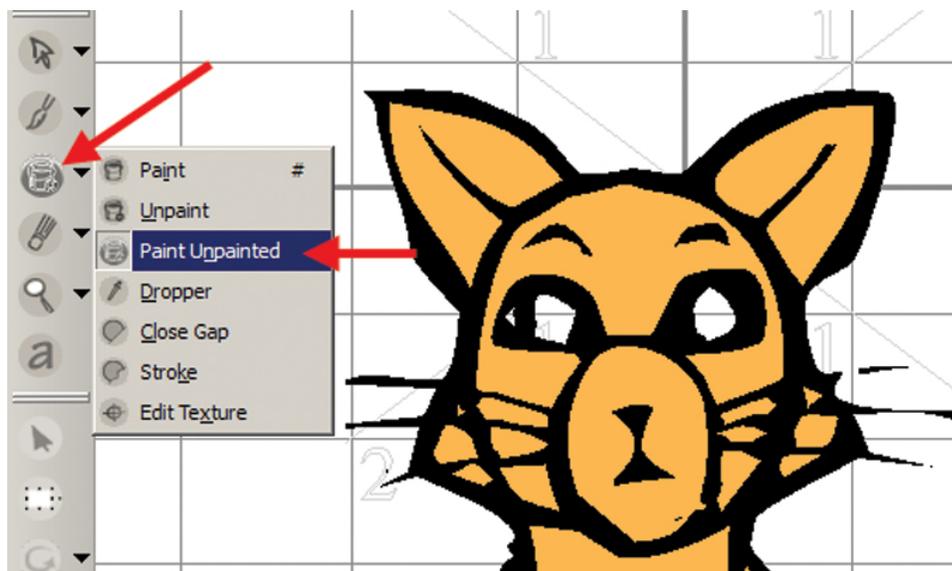
Figure AIP.15



Autopaint can miss some areas but ultimately saves clicks.

5. A useful method for inking and painting is to be able to drag a box around small areas that you can fill them in. In Toon Boom this tool is called **Paint Unpainted**, and it is found under the Paint tool option in the toolbox.

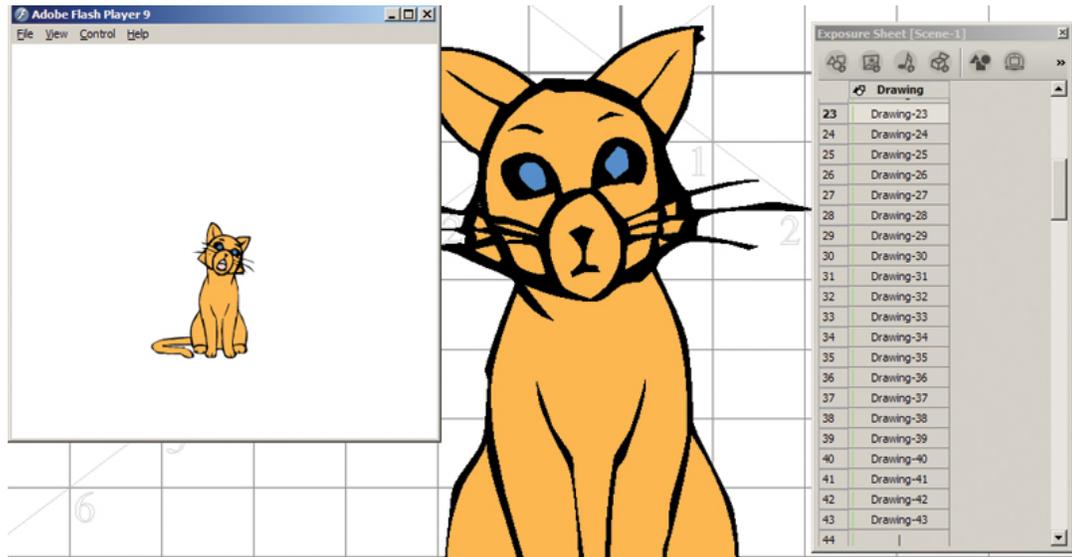
Figure AIP.16



Paint Unpainted for small areas.

Toon Boom has many timesaving features in its ink-and-paint portion. New versions continue to work on compositing and production-driven features. You can see the rough animation with its ink and paint from Toon Boom in the file **cat_6_IP_TB.swf**. Just to prove this is the rough version, you can see the final version in the companion data titled **catHighres.mp4**.

Figure AIP.17



Final painted image and test render.

Figure AIP.AA



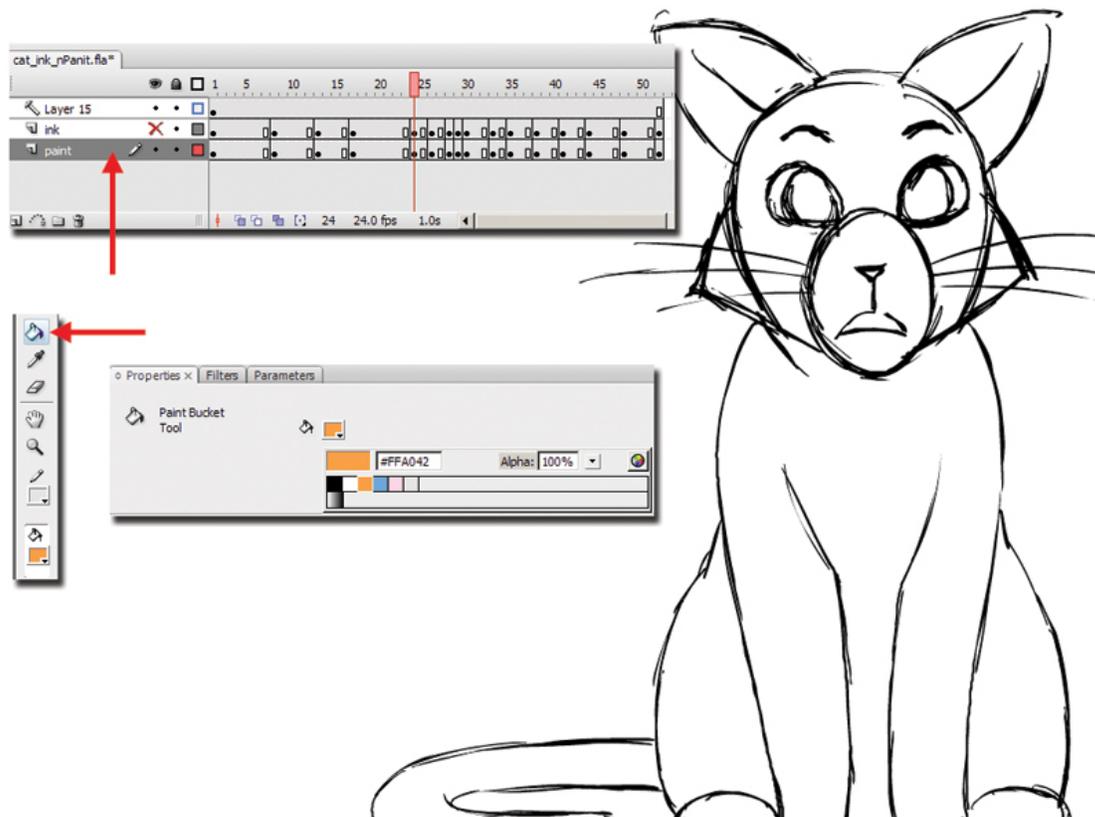
Animation by Shani Varo, Cleanup by Jason Walling, 2009, SCAD group project.

Test 2: Keeping Animation in Flash for Ink and Paint

For this test we stayed completely inside of Flash for rough animation and ink and paint. This let us keep our rough line, and we stayed completely within the vector. We made sure to keep our ink and paint on separate layers in case any compositing tricks need to be done later on.

1. Inside of Flash, **duplicate** the ink layer and **rename** it paint. **Lock and hide** the original ink layer.
2. Select the **paint** bucket tool and create the **color** needed.

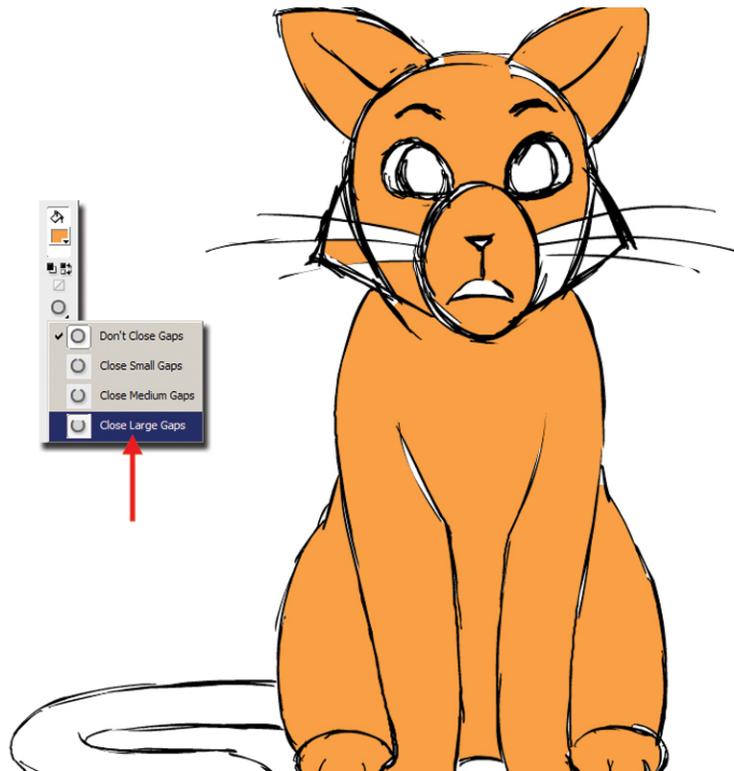
Figure AIP.18



Selecting paint bucket and color in Flash.

3. In the options area for the paint bucket, select **Close Large Gaps**. This will allow us to fill in areas of our cat that have sketchy lines. There are still some areas that have gaps that are too large to fill.

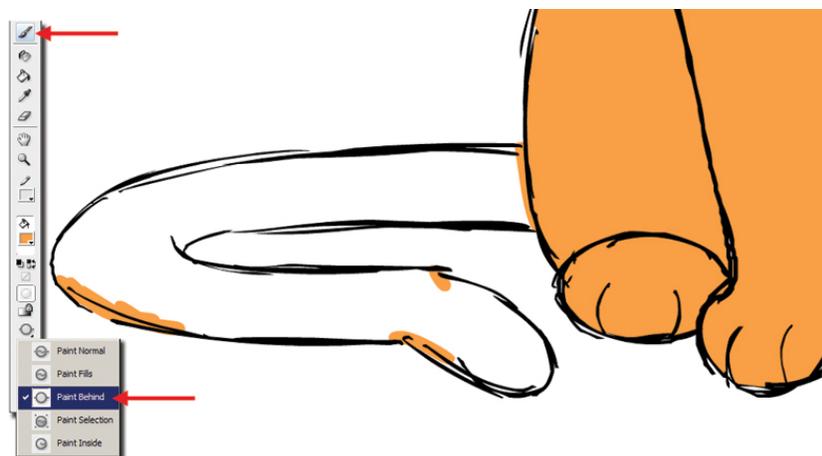
Figure AIP.19



Setting for Close Large Gaps.

4. To fill the gaps that are too large for the paint bucket tool, select the **brush** tool and choose the option **Paint Behind**.
5. Paint in the areas of the ink line (with the paint color) where there are large gaps (Figure AIP.20).

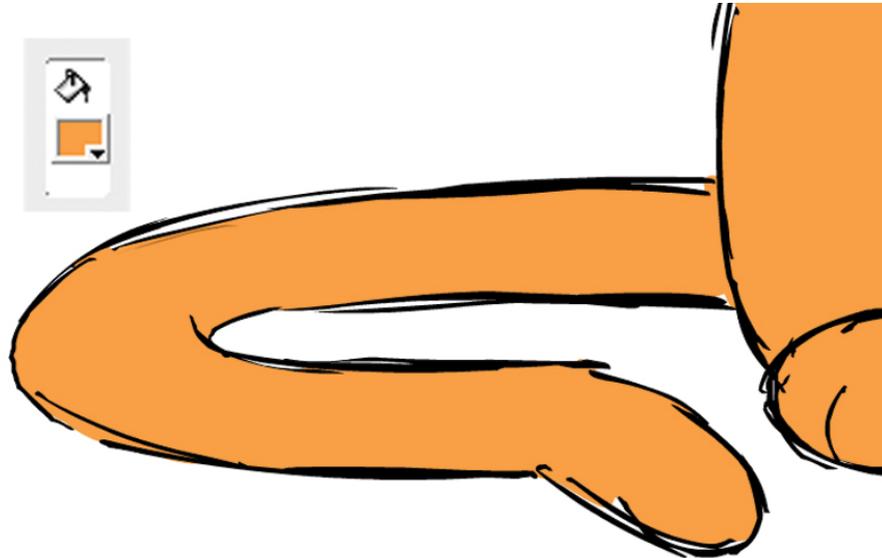
Figure AIP.20



Using the paintbrush to close the gaps.

6. With this paint in place, you can now use the paint bucket tool once again to fill the unpainted areas.

Figure AIP.21



The completely painted tail.

7. Use the paintbrush with the Paint Behind option to continue to paint in small areas.

Figure AIP.22



Use the paintbrush with the Paint Behind option to touch up small areas.

In the companion data for this appendix, you can see the rough animation with ink and paint from Flash in the file **cat_6_IP_Flash.swf**.