CHAPTER 9

Color Correction

Introduction

The color corrections tools in FCP are a group of effects in the Color category of the Effects Browser. In 10.4.2 there is the legacy Color Board from previous versions, and there are also additional advanced color correction effects, Color Curves, Color Wheels, Custom LUT, Hue/Saturation Curves, and HDR Tools.

This is intended as a replacement for Chapter 9 of *Final Cut Pro X Beyond the Basics: Advanced Tools for Editors*. It can of course be read separately, though it does presuppose that you have already achieved a basic understanding of working with the application. I would of course encourage you to get a copy of the full book, either in paper or in an ePub version. Also, to make it easier to illustrate some of the features in the tools, we will be using somewhat different media from that used in the published version.

In this chapter, we'll use a library called *BBCC* (Beyond the Basics Color Correction), which can be downloaded from my website at http://www.fcpxbook.com/BBCC.zip or the Media page. It is saved in version 10.4.2 of FCP and may need to be updated to work with later versions of the software. It will not work in 10.4 or earlier versions of FCP. I waited until the 10.4.2 release as there was a problem with the new Color Wheels in 10.4, which was indeed fixed in 10.4.1. Note that version 10.4.1 and 10.4.2 requires macOS 10.13.2 or later. It will no longer work in the Sierra OS.

The library used here includes material of a scene from *A Great Life*, which was also used in an earlier chapter of the book on continuity editing. Before we get started you should download the ZIP file, open it, and put the library on your dedicated media drive.

We'll begin by making a new project to work with:

1. In the *BBCC* library, select the *Color* event and use **Command-N** to make a new project and name it *Color*.

2. Set the *fix* Keyword Collection in *Color* to list view, select all the clips and append them into the Timeline. They will go into the project in the same order they are in the Browser.

TIP

Project in Keyword Collection: To make it easier to move between items in the Browser, one thing you can do it select the *Color* project, use **Command-K**, and type in *fix*. This will add the project to the *fix* Keyword Collection.

COLOR CORRECTION

Good exposure and color begin in the shooting. It's always easier and better if you shoot correctly from the beginning rather than trying to fix these issues in postproduction, that means lighting the scene well, exposing it correctly, setting your white balance correctly, and not leaving the camera's auto exposure and white balance to do the guessing.

The color correction tools in FCP are professional strength tools, so use them carefully. A feature in FCP is to rely on Apple's ColorSync to coordinate the color display and keep it consistent throughout the production process, from first importing, through editing, and for final sharing and export. For this to work properly the Displays System Preferences needs to be set to its default system color and not to a manually calibrated color setting.

Balance Color

Before we look at the Color effects, let's look at FCP's automatic color balancing tools that can be activated from the **Modify** menu, from the Enhancements menu at the bottom of the Viewer, or with the shortcut **Option-Command-B**.

When Balance Color is applied, the clip is either automatically adjusted based on a mathematical formula, or can be manually white balanced using an eyedropper. If you are used to working with Sony cameras, the automatic look Balance Color produces is probably acceptable. Sony cameras tend to produce results like these. For me, this feature is a little desaturated, but more importantly, it seems to have a bluish cast to it. Here's how to use the manual white balance:

1. Move the pointer in the Timeline over the first clip *cheese*, and **Option-click** to select it and move the playhead.

2. Select **Balance>Select Balance Color** in the **Enhancements** menu or press **Option-Command-B**. Balance Color appears under Effects in the Video inspector and can be toggled off and on with a checkbox.

3. Change the **Automatic** popup to **White Balance** to activate the eyedropper.

4. Use the eyedropper in the Viewer to drag a small selection in the white block of cheese on the right (see Figure 9.1).

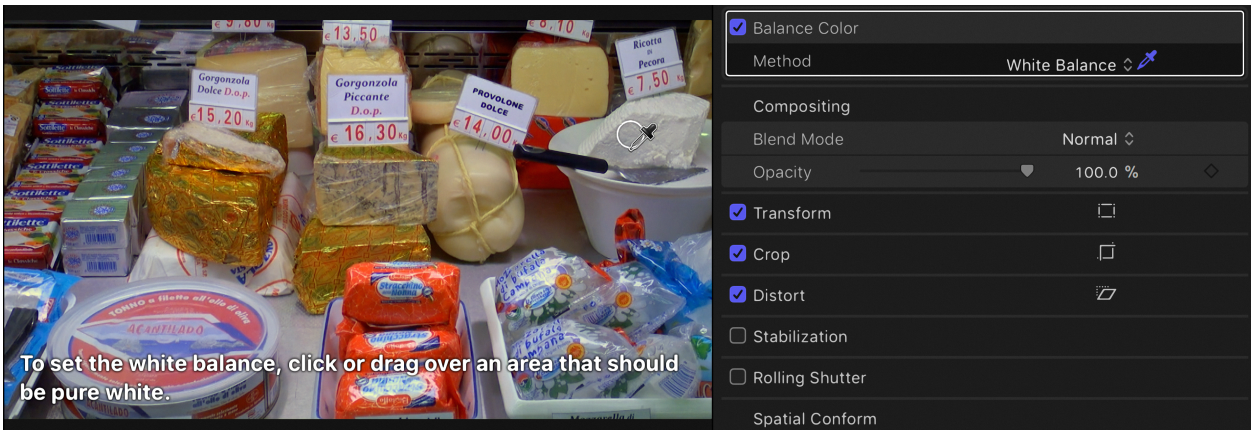

Figure 9.1 White Balance eyedropper.

For many shots the automatic correction will serve well enough. Using the eyedropper however, the image almost always has a warmer look I think is more pleasing than the automatic correction.

TIP

Compressed Video and Color Correction: If you're working with proxy video or heavily compressed video formats like AVCHD and MPEG-4, it's a good idea to transcode the media to ProRes, as this will handle heavy processing much better than compressed files. If you only want to transcode the clips that are in your project, use the filter HUD in the Browser, selecting the Library, not an event, so you get clips from multiple events. Use the + popup in the HUD to select **Used**. Select all the found clips, right-click, and choose **Transcode**.

Video Scopes

To adjust your color, you need to use the tools that FCP provides for assessing the color. These are the Video Scopes, which can be called up from the **Window** menu or with the keyboard shortcut **Command-7**. You can also open the Video Scopes by using the View popup menu in the upper right of the Viewer and selecting **Show Video Scopes**.

TIP

Close Browser: When you're doing color correction, screen space is at a premium, and at this stage, you rarely need to access the libraries and the Browser. You can close the Browser using **Control-Command-1,** or switch to the Color & Effects Workspace with **Shift-Control-2**. This both closes the Browser and opens the video scopes and the Effects Browser.

The default scope that opens with **Command-7** is the **Waveform**, which is the most important scope for controlling the luminance level of the video and should be used first. You can access it from the Scopes menu button at the top right of the scopes or **Control-Command-W** (see Figure 9.2). The Waveform set to Luma in the Scopes menu is a representation of the luminance values in the image, displayed just as it is on the screen, reading across the image from left to right. The bottom of the trace should be zero, which is black, while the top should 100. Figure 9.3 shows the *silhouette* shot on the right and the waveform of the file on the left. The bright areas in the image exceed 100 units or IRE, which is your target for peak white, while zero is your target for pure black. You can see in the Waveform the bright vertical sections in the trace that correspond to the bright areas of the wall behind the woman. The Waveform is your guide to setting your exposure and your video levels and is a critical tool in the color correction process.

NOTE

nits: Notice at the bottom of the scopes and settings popup that the scopes can be set to display in nits for those working in HDR spec projects using an HDR display.

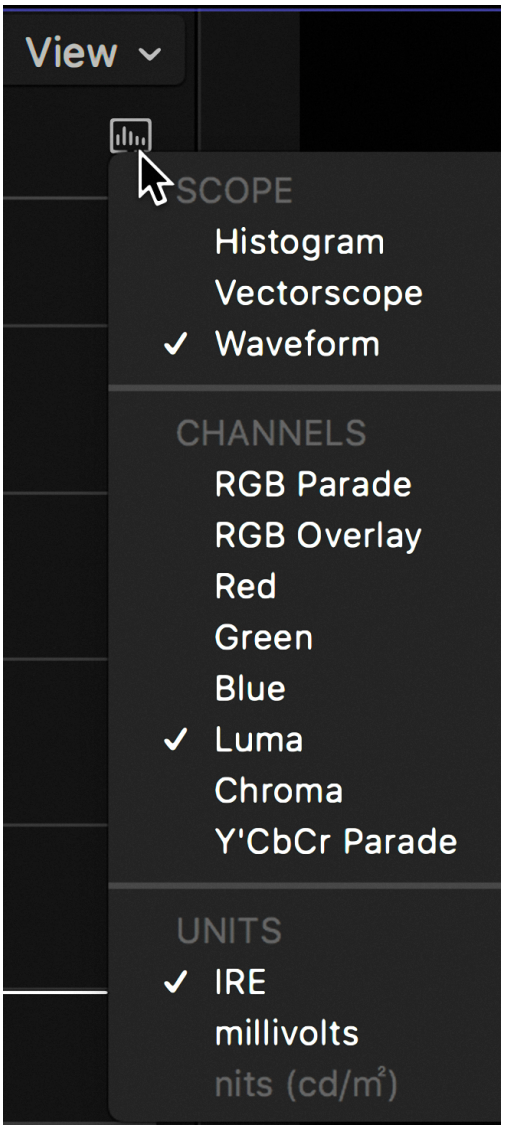

Figure 9.2 Scopes menu popup.

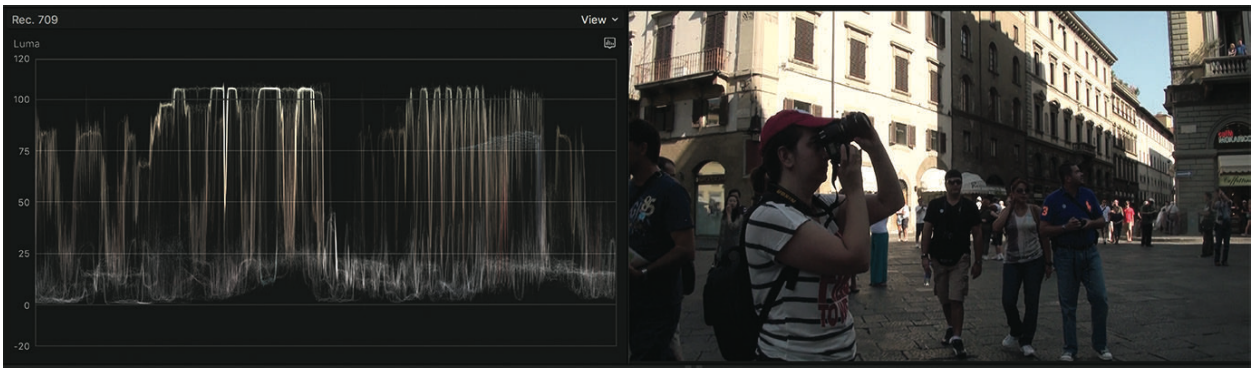

Figure 9.3 Waveform and image.

You can also set the Waveform using the Scopes menu in the upper right to display with an RGB Overlay the color values at specific luminances in the image (see Figure 9.4).

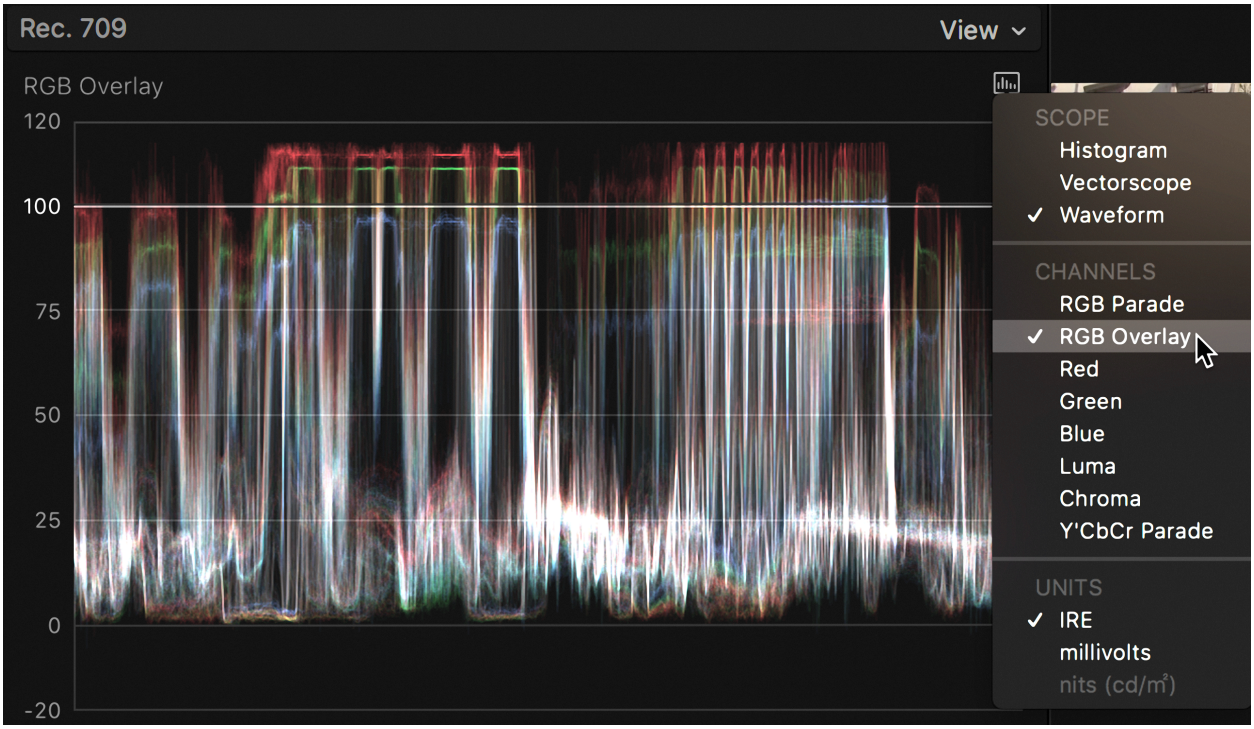

Figure 9.4 RGB Overlay.

With the Scopes menu still set to the Waveform, under Channels select **RGB Parade** (see Figure 9.5). Unfortunately there is no shortcut for this, nor an option for this in the Command Editor. The Parade is an important tool for color balancing. It displays three separate views of the image, showing amounts of red, green, and blue in the image. In this parade, you can see that the brightest areas of the image have a great deal of red in

them, while there is very little blue that's in the bright areas of the image. If you had an image with a very bright, blue sky, the parade would look the opposite, probably less in the red and a great deal in blue. Ideally, you would like to have equal proportions of red, green, and blue in the shadow areas of your image, black being the absence of color. If the three colors are balanced in the shadow areas, they are neutralized, and the image will show no color cast in the blacks. This image has a slight elevation in the blue levels at the bottom of the display, slightly higher amounts of blue than of red and green, probably not something you would notice with your eye, but something the scopes clearly see. If you use the automatic Balance Color, this blue elevation in the shadow areas becomes even more pronounced. On the bright end, it's generally not possible to balance the reds, greens, and blues so that equal quantities appear in the highlights, unless the highlights are actually white, like a close-up of a white shirt, where you do not want to color cast in the whites, so that white is white and not some shade of a color. Similarly, anything that's gray in the image should also show equal proportions of red, green, and blue.

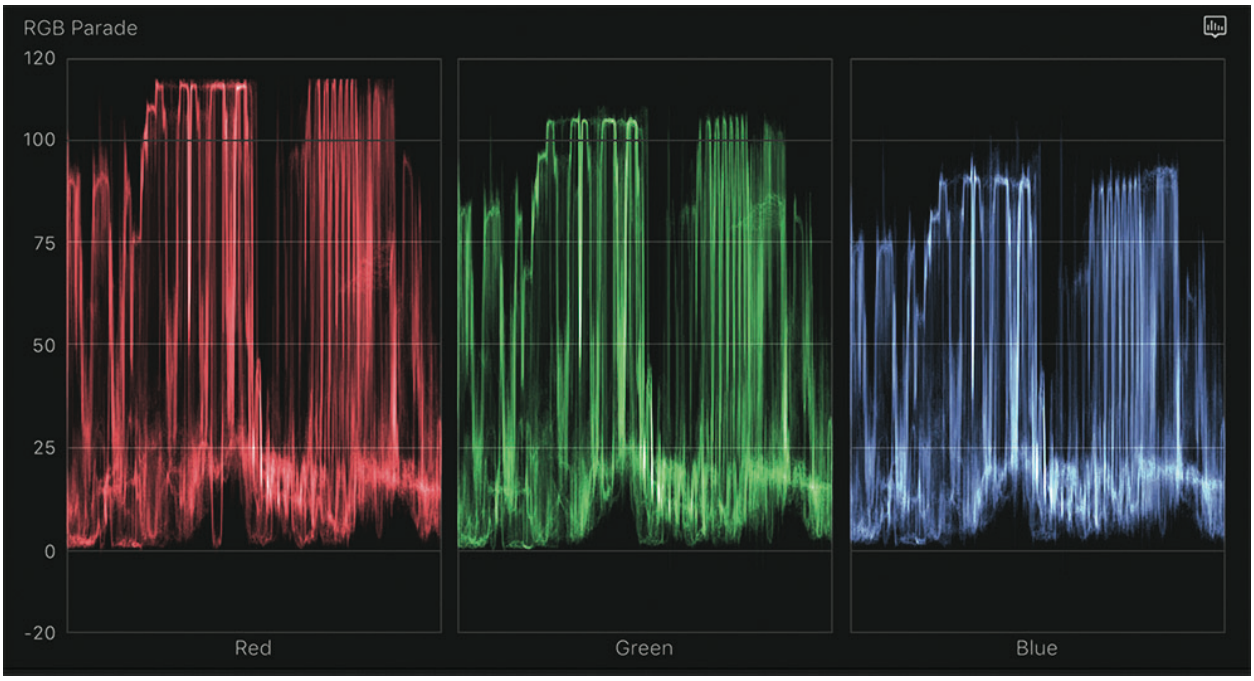

Figure 9.5 RGB Parade.

A third scope used in video is the **Vectorscope**, which you select in the Scopes menu or using **Control-Command-V** (see Figure 9.6). This is not a representation of the image at all, but a display of the amount of which colors are in the image. If you right-click in the scope, you can scale-up the display. You can see a thin color wheel ringing the scope and the target boxes for pure colors that would be hit by an SMPTE color bar chart, starting with red, just to the left of 12 o'clock, and going clockwise to magenta, blue, cyan, green, and yellow. Notice the diagonal line that goes from the upper left to

to the center of the scope. This is the flesh line. Any human skin in the image, if lit by neutral light, correctly balanced, will fall on this line. If it doesn't, you have a color imbalance. There is a large area of color in the *silhouette* clip that has a near flesh-tone color. The amount of actual flesh in the image is relatively small. If you use the automatic Balance Color, it will pull that near skin tone color of the walls onto the flesh line, and push the real skin areas to the image toward magenta-blue.

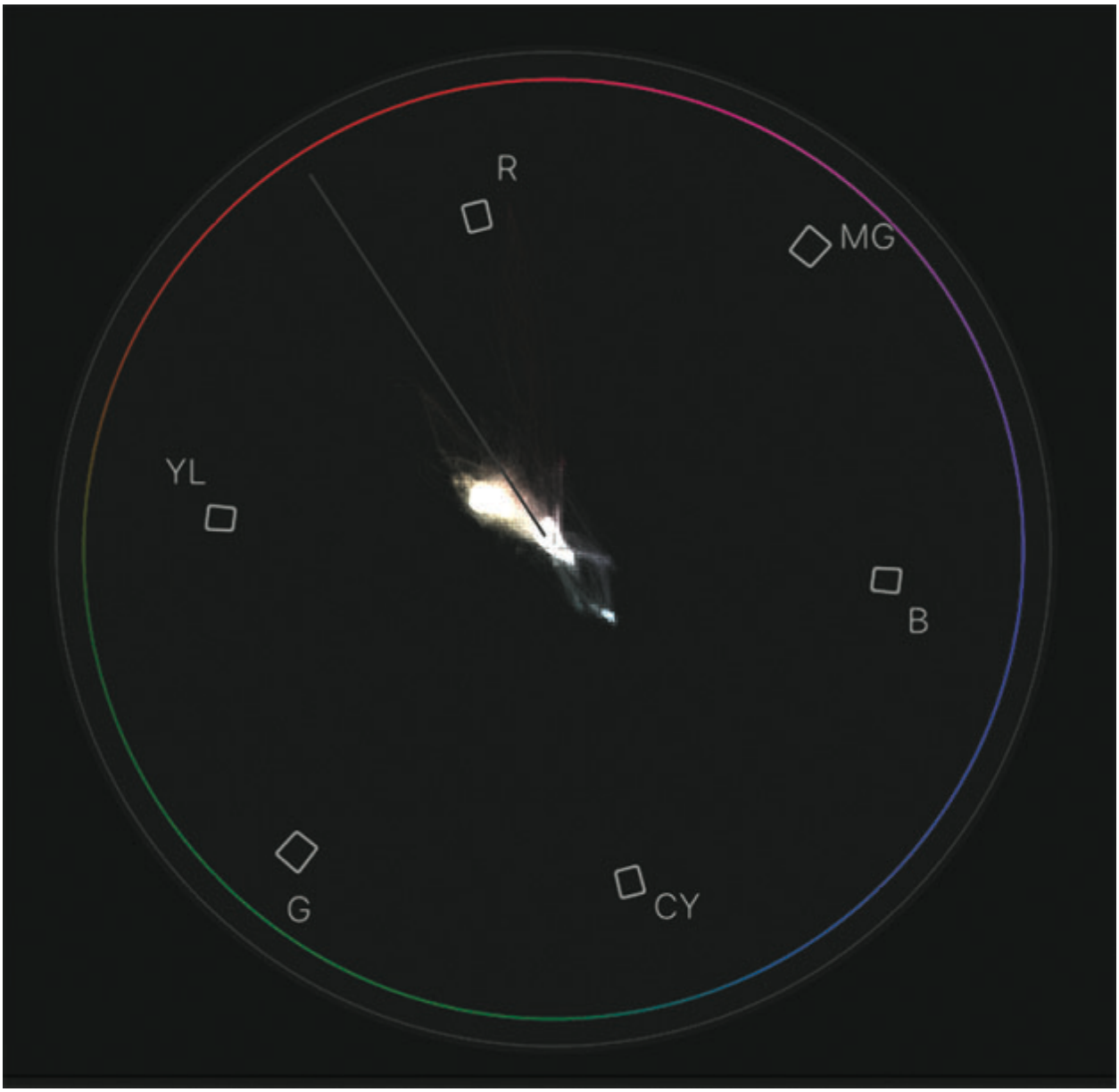

Figure 9.6 Vectorscope.

The fourth video scope, which is more familiar to stills photographers, is the **Histogram**. It can be selected with **Control-Command-H**. This shows the percentages of different luminance and colors in the image. Figure 9.7 is the histogram of the *silhouette* clip. In the histogram, pure black is zero and is on the left. Peak white is 100 and is on the right. Notice that this shot, and every shot here, and most every shot taken by most every consumer camera, will always record at video levels that exceed peak white and are not broadcast legal. If you are planning to put your video on a television set, every shot will need to be corrected. Apart from the video that exceeds 100 percent white, you can see from the histogram that this is a fairly even distribution some dark and some light in the image. Figure 9.8 is the histogram of the *ms musician* clip. As you can see in the clip and in the histogram, the majority of the luminance values and even of the color values are all to the left, and almost nothing is to the right of 50 percent.

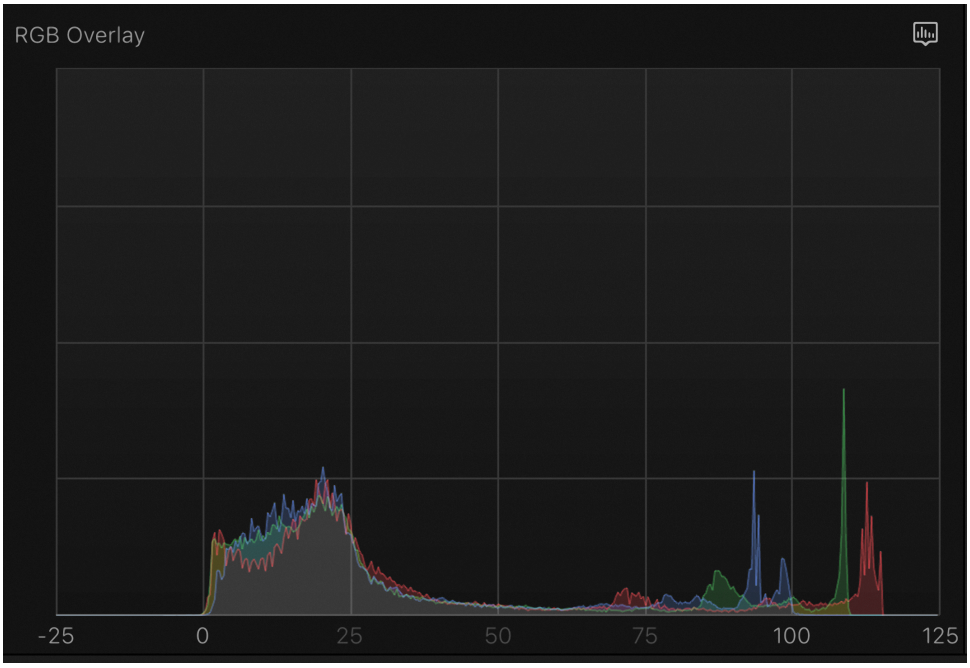

Figure 9.7
Histogram.

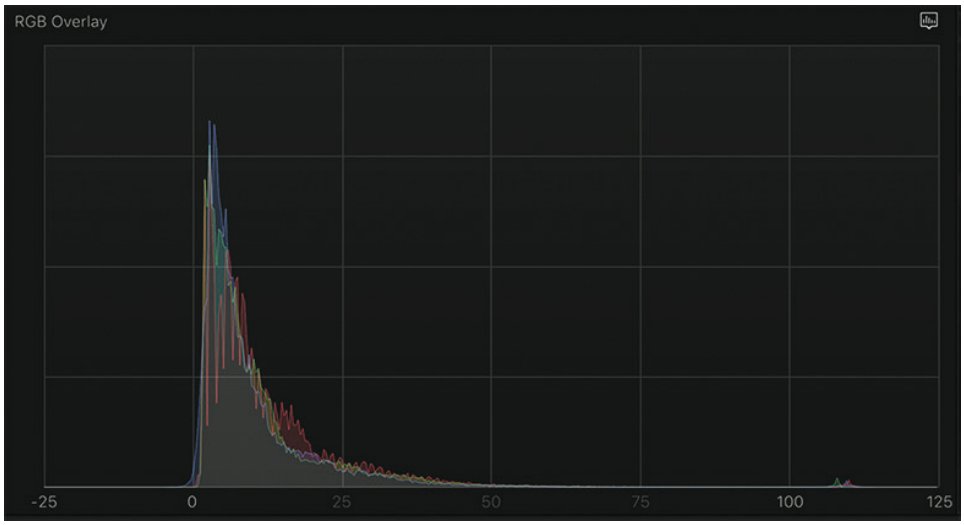

Figure 9.8
Histogram of dark image.

These are the scopes that we'll be switching between as we correct our color.

We have looked at the scopes individually; however, if you have the screen space and resolution, you can view multiple scopes at once by selecting the options from the View popup in the upper right of the Scopes pane (see Figure 9.9).

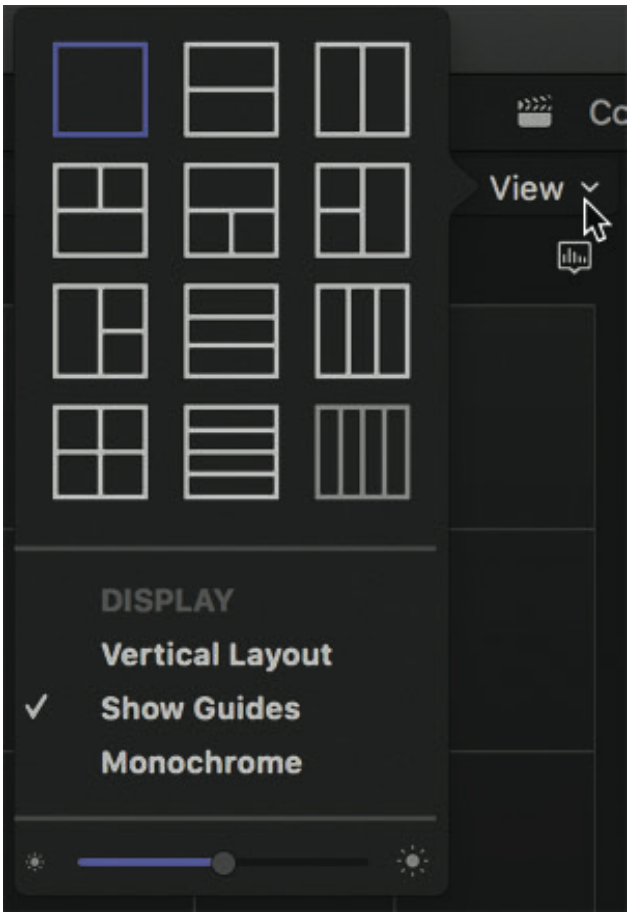

Figure 9.9 View options.

Notice the controls at the bottom of the drop-down menu that allow you to adjust the brightness and to set the display vertically underneath the Viewer, which many users like to set as a custom workspace based on the Organize workspace as in Figure 9.10.

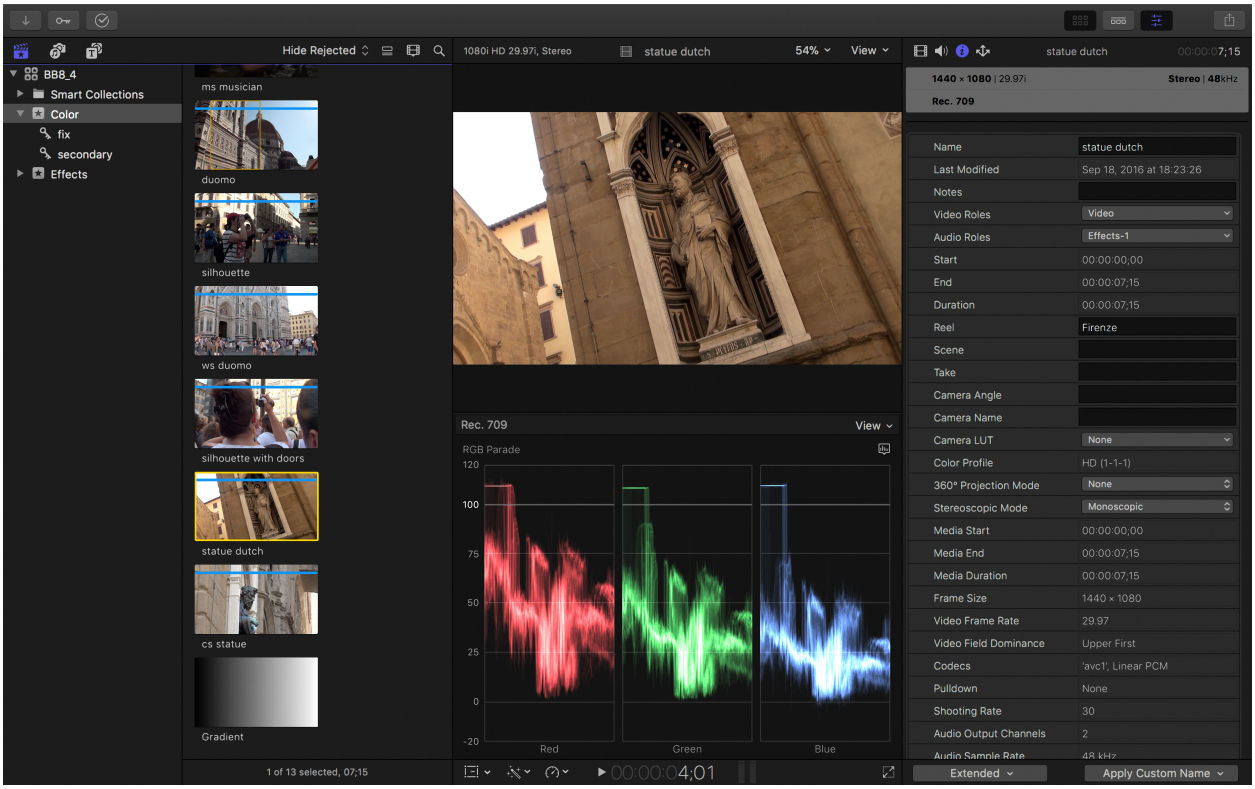

Figure 9.10 Vertical scopes in Organize workspace.

Color Board

The application default tool for color correction in FCP is the **Color Board**, which is accessed mostly easily by selecting a clip in the project, or simply having it targeted, and either pressing the keyboard shortcut **Command-6** or clicking the triangular button at the top of Inspector (see Figure 9.11). The default color correction tool will open and the button will change to being colored.

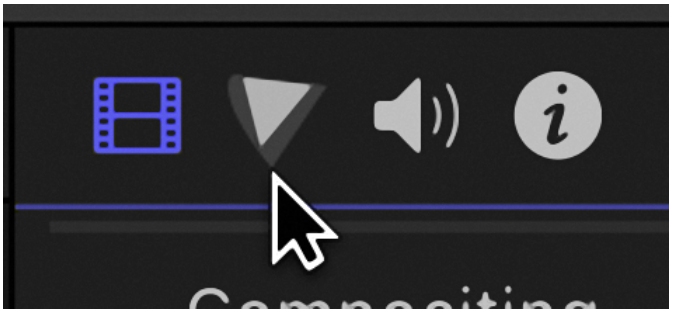

Figure 9.11 Color Correction button.

The Color Board has three panes (see Figure 9.12). The first that we see when we open the tool is the **Color** pane. The second is the **Saturation** pane, and the third is the **Exposure** pane (see Figure 9.13). The last two look almost identical. When the Color Board is the active pane, you can switch between the three panes with keyboard shortcuts, **Control-Command-C** for Color, **Control-Command-S** for Saturation, and **Control-Command-E** for Exposure. A list of the color control shortcuts can be found in Table 9.1.

Table 9.1 Principal Color Shortcuts

Color Scopes and Panels	*Shortcut*
Color Board	**Command-6**
Video Scopes	**Command-7**
Waveform	**Control-Command-W**
Histogram	**Control-Command-H**
Vectorscope	**Control-Command-V**
Color pane	**Control-Command-C**
Saturation pane	**Control-Command-S**
Exposure pane	**Control-Command-E**
Cycle through color panes	**Control-tab**
Cycle backward through color panes	**Shift-Control-tab**

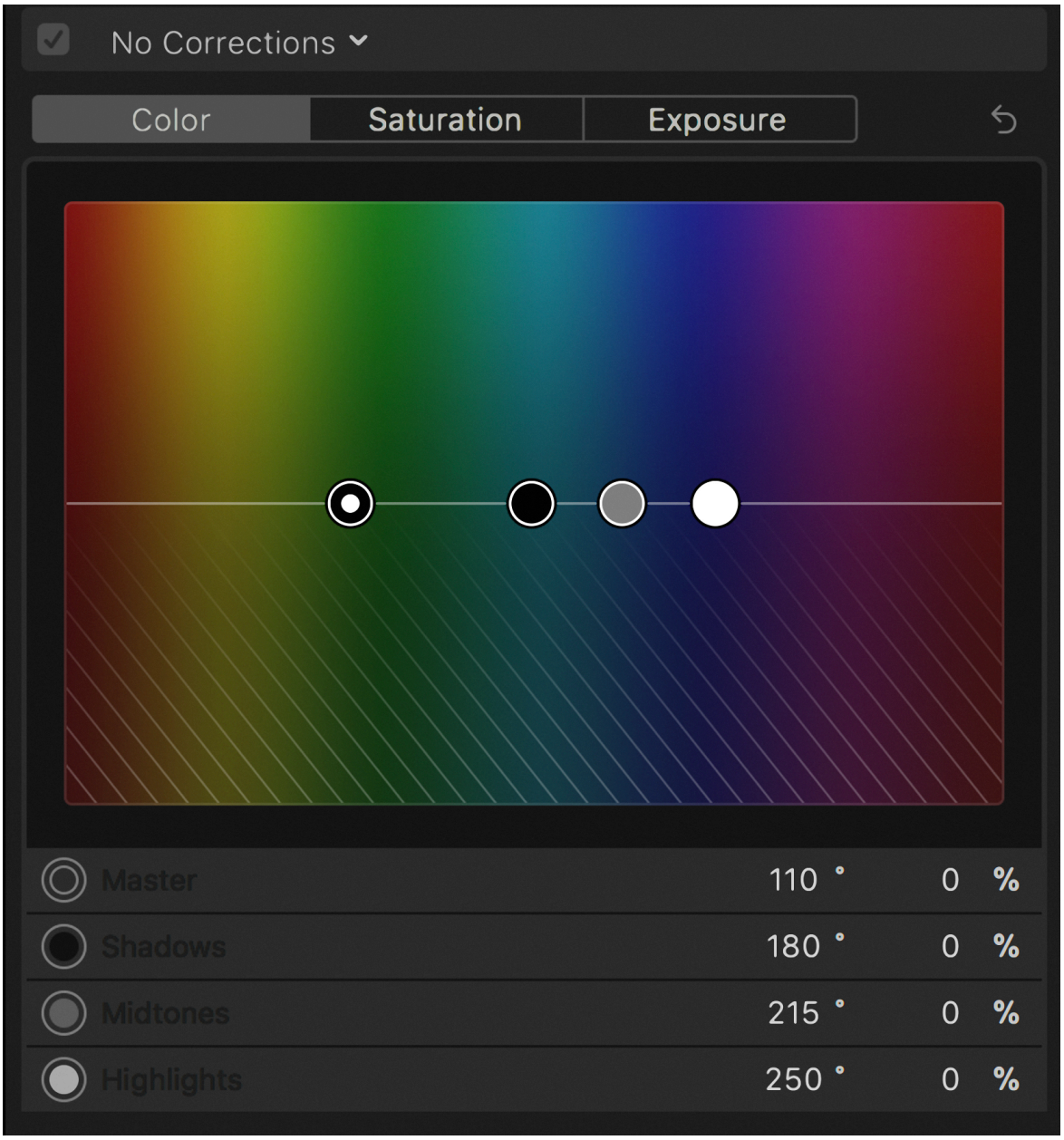

Figure 9.12 Color Board.

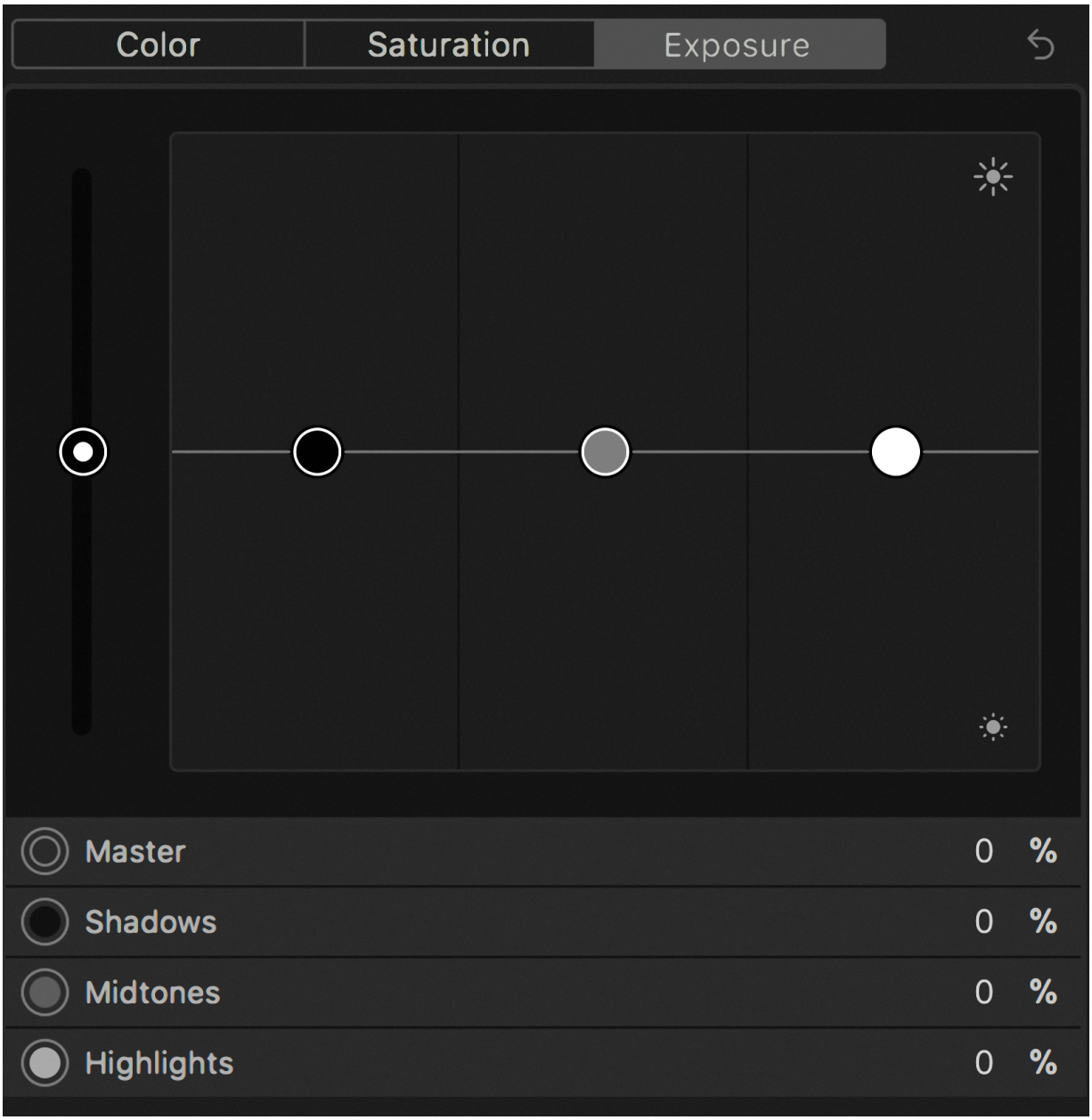

Figure 9.13 Exposure pane.

The Exposure pane has four buttons or pucks, which can only move vertically. On the left, the larger puck controls the overall exposure of the image, globally raising and lowering the brightness. Inside the Exposure pane are three separate pucks to raise or lower the Shadows, Midtones, and Highlights. These are not sharply defined regions but ones that have considerable overlap. The Shadows control will affect the luminance from 0 to about 70. The closer to zero, the greater effect the control will

have; the higher the luminance value, the less the effect. The Midtones cover a range from about 30 to 70 and affects the mid-portion most, having less effect at 30 and 70, essentially bending the luminance in a curve. The Highlights affect the range from 30 and above, again affecting the top end of the range more than the bottom. Let's see this in action.

1. Open the project in the *Color* event called *Exposure,* which contains a single graphics file *Gradient.png*.

2. With the playhead over the clip, press **Command-6** and then go to the Exposure pane (**Control-Command-E**).

3. Make sure the Waveform is open and set to Luma. Pull down the Global puck on the left (see Figure 9.14).

4. Reset the control by either using Undo or by selecting the puck and pressing the **Delete** key.

5. Push the Shadows puck up and the black level will go up while the highlights remain pegged (see Figure 9.15).

6. Reset the Shadows puck with Delete and pull down the Highlights puck. Black is pegged, when the highlight area goes gray (see Figure 9.16).

7. Reset the Highlights and try the Midtones puck. Push it up to reduce the contrast and pull it down to increase the contrast, making the image more black and white, with a narrower band of gray in the mid range (see Figure 9.17). Midtones bends the ramp, while the Shadows and Highlights remain relatively fixed.

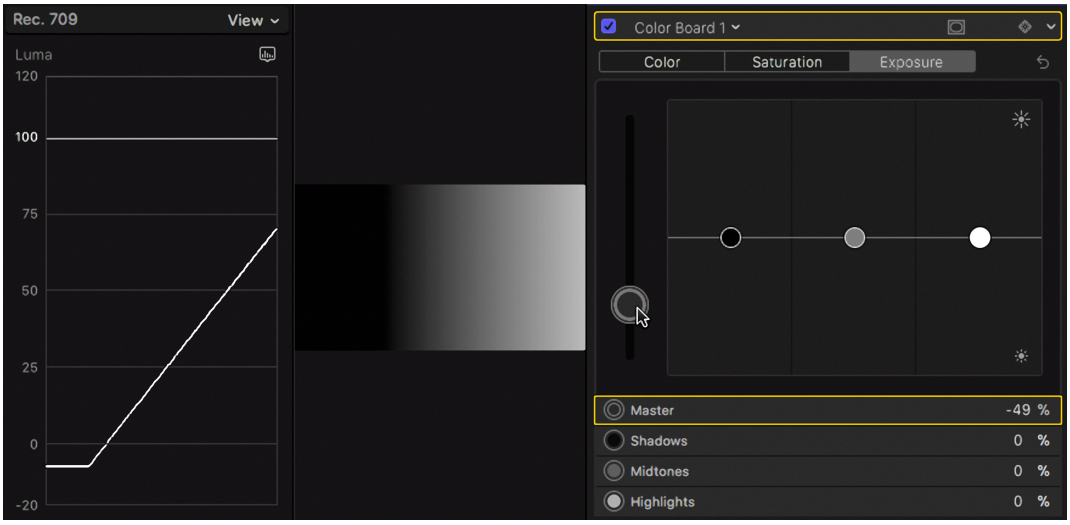

Figure 9.14 Decreasing global exposure

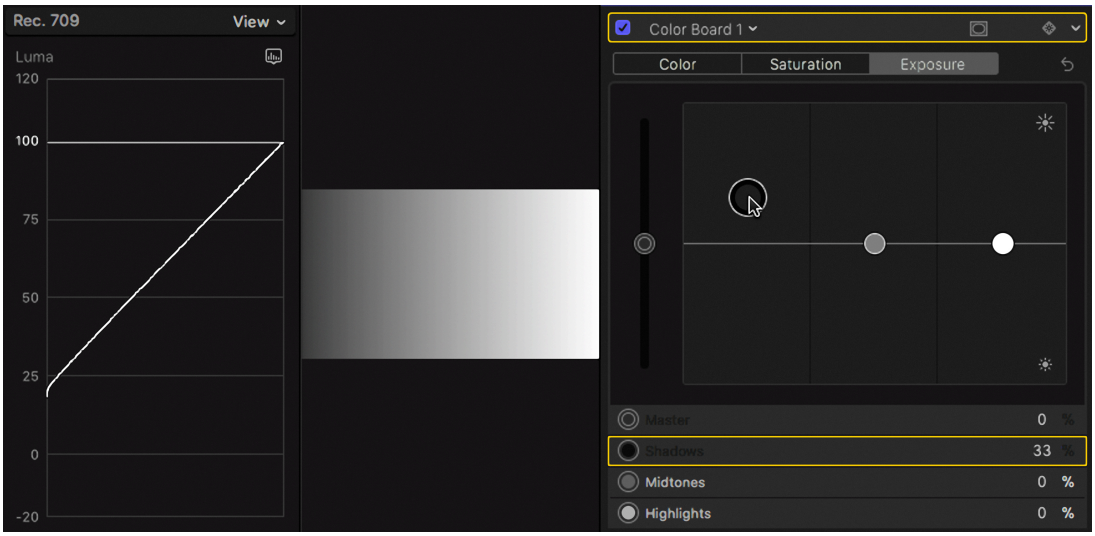

Figure 9.15 Increasing Shadows.

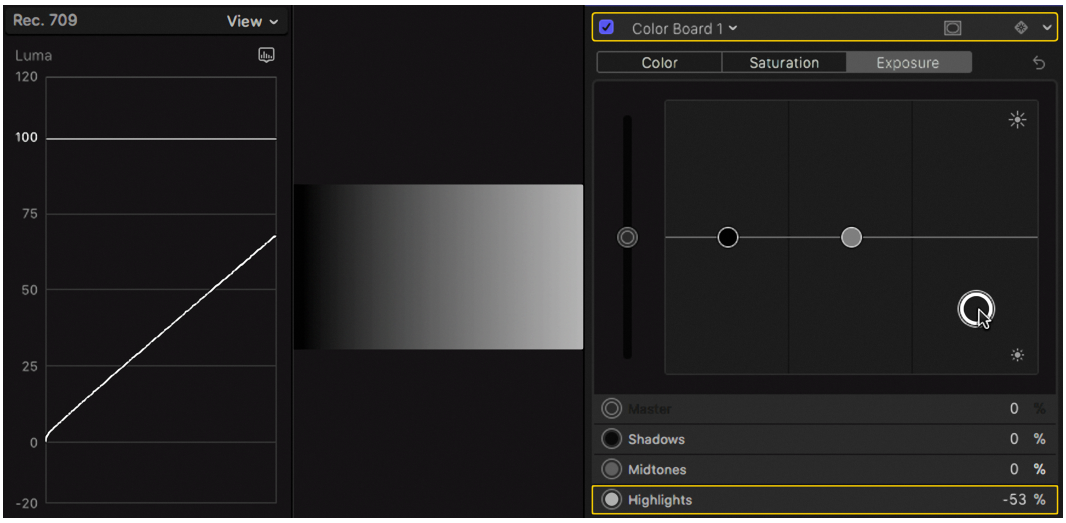

Figure 9.16 Decreasing Highlights.

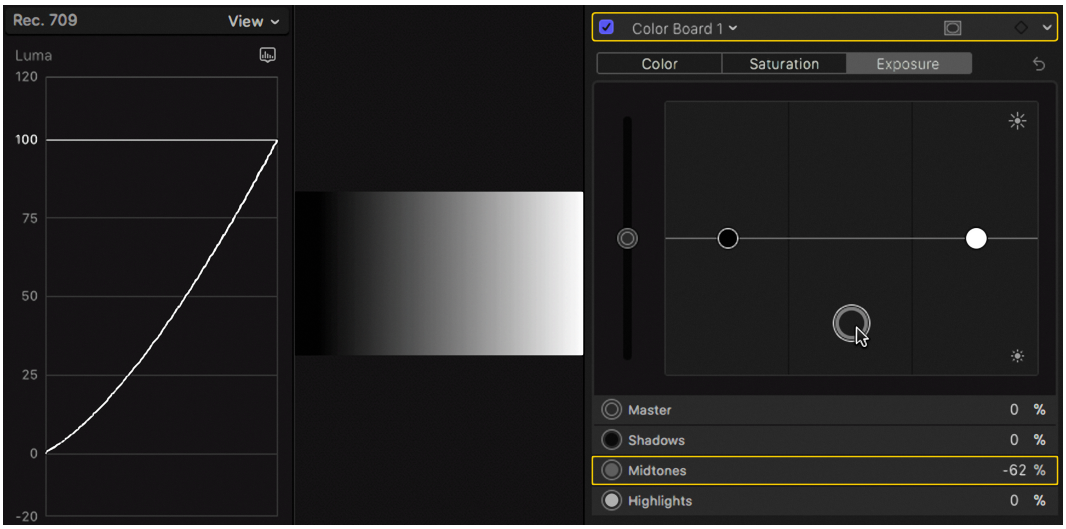

Figure 9.17 Decreasing Midtones.

Saturation is the amount of color in an image, whether it's colorful or washed out, or even black and white. The Saturation pane looks the same as the Exposure pane, with four pucks. The large one on the left controls the Global saturation, and the three others control how much color there is in Shadows, Midtones, and Highlights. The controls in the Saturation pane work similarly to the Exposure pane, increasing or decreasing the Global amount of color in the image, or the color in the Shadows, Midtones, or Highlights. Decreasing the Saturation in the Shadows is useful, as it helps to mitigate any color casts in the blacks.

The **Color** pane also has four controls. The larger puck raises and lowers the Global color in whatever hue you want. While the Exposure and Saturation pucks only move

vertically, here, the pucks also move horizontally. If you want to add more blue to the overall look of an image, take the large puck, move it to the blue section of the Color Board, and push it upward. Up will add more of a certain color, and down will remove a certain color. There are three smaller pucks that let you change the color values in specific luminance ranges: Shadows, Midtones, and Highlights (see Figure 9.18).

When you open the Color Board for a clip with **Command-6**, it says No Correction in the popup menu in the upper right. As soon as you make any change the popup changes to Color Correction 1, and the Color Correction effect is applied to the clip in the Timeline, and appears in the Video inspector.

Though the Color Board is laid out from left to right—Color, Saturation, Exposure—you should always make your color correction in a different order. Always set the Exposure first using the Waveform displaying Luma, then set the Color using the Waveform displaying the RGB Parade and the Vectorscope, and finally set the Saturation using the Vectorscope. Though you have the scopes in FCP to guide you, your primary tools for color correction are your eyes and, ideally, a properly calibrated broadcast monitor if your delivery format is for broadcast. If you watch television or go to the movies, you know that color in video and film can be anything you want it to be. The only goal you should try to maintain is to make sure your images are within specification. Fortunately, you have an effect, the Broadcast Safe effect, which makes this easy for you.

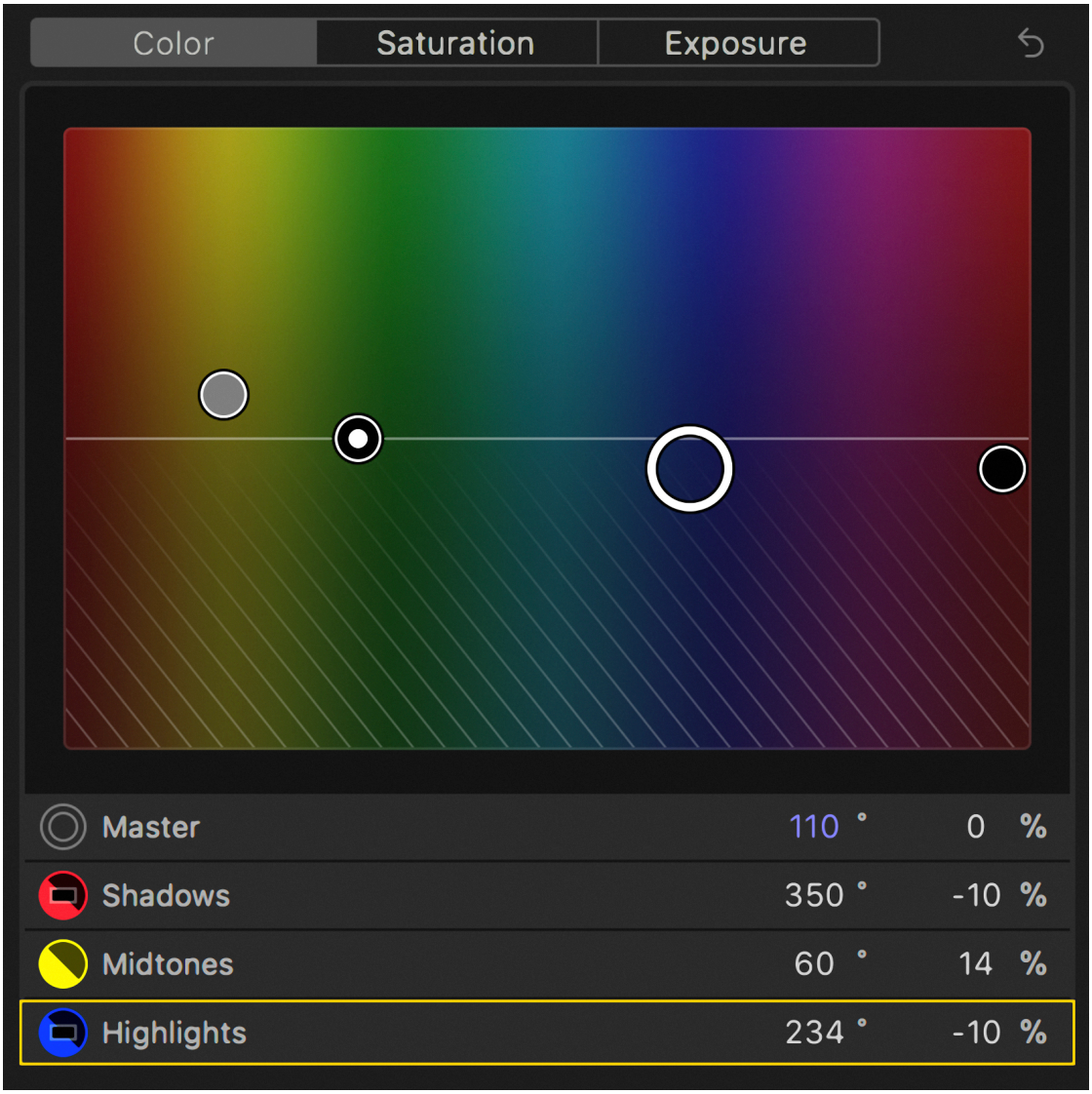

Figure 9.18 Corrected color board.

TIP

Selecting Pucks: In the Color Board, sometimes the pucks can get clustered in the same area, making it difficult to select individual pucks. A handy trick is to select the puck you want in the list underneath the Color Board and then use the arrow keys to move them around. Select a puck and use the **Left** or **Right arrow** keys to move it horizontally and the **Up** or **Down arrow** keys to move it vertically. This lets you move the puck with much greater precision than you can simply by dragging it, though it is probably not nearly precise enough for a professional colorist.

IMPORTANT NOTE

Library Color Space: The behavior described above is based on this library that has its color space set to Standard, Rec. 709. Should you change the library color space, regardless of the project color space, which is Rec. 709, the behavior of the various controls will change. The standard Rec. 709 project will behave based on the Wide Gamut Rec. 2020 color space, regardless of the project color space.

Color Wheels

Let's look at the Color Wheels next, which are new in FCPX 10.4. These are the first of the advanced Color Correction tools introduced in 2017. For many users, the Color Wheels will probably replace the Color Board as their primary color correction tool. If you worked with legacy FCP or other color correction tools you're familiar with the way Color Wheels work. There are separate wheels for Shadows, Midtones, and Highlights, and there's also a Master wheel, like the Global control in the Color Board (see Figure 9.19).

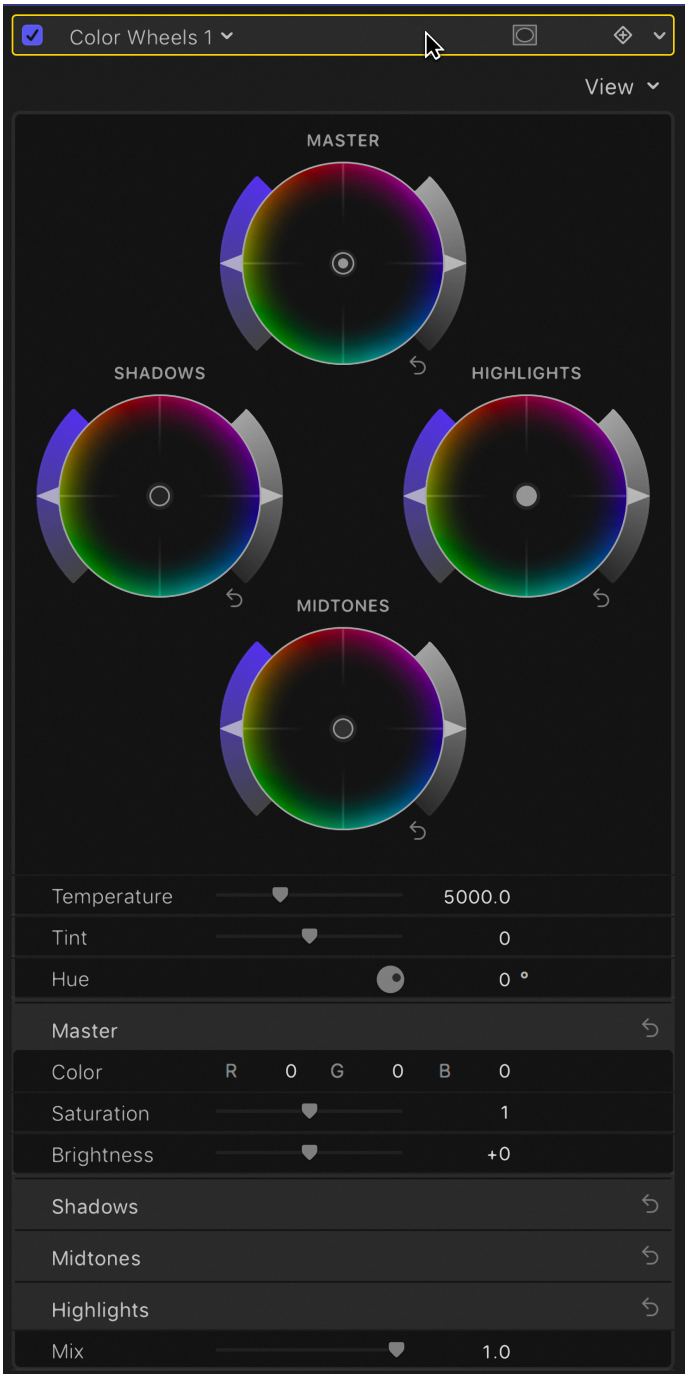

Figure 9.19 Color Wheels.

If you push the control in the center towards one of the colors on the edge of the wheel that color will be added to the image, with the color being displayed on the left side of the wheel (see Figure 9.20).

Figure 9.20 Adjusting Color Wheel.

Like the pucks in the Color Board, once a control is selected, you can move it around the wheel by holding down an **Arrow** key or by tapping the arrow for single unit adjustment. You can also reset a selected control by pressing the **Delete** key, or by double-clicking the control you want to reset, the color or luma or saturation controls.

Color in video is an additive system, so to reduce a color, you add in the complementary color on the opposite side of wheel. If the scene is too blue, you push the control away from blue to add in yellow; too magenta, push across the wheel towards green. Figure 9.21 shows the legacy color wheel, which nicely illustrates how the colors work with each other, the primary colors, red, green, and blue, with their complementary colors on the opposite side of the wheel, cyan, magenta, and yellow.

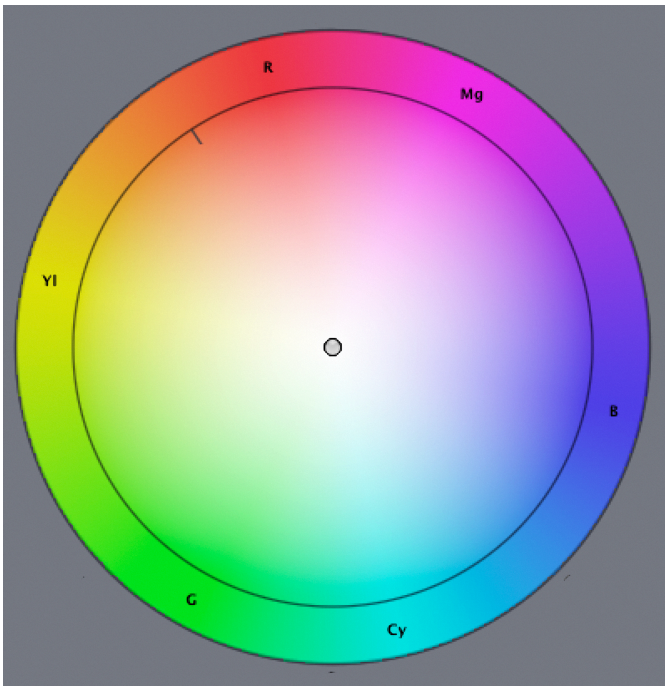

Figure 9.21 Legacy color wheel.

A little change goes quite a long way, especially with the Master wheel. To gear down the movement to gain finer control hold the **Option** key.

The arrow on the outside left will control the amount of the color added, down for less saturated, up for more. With the color control in the center it's purely a Saturation tool, raising or lowering the overall color level in the luminance range of the wheel you're working with (see Figure 9.22).

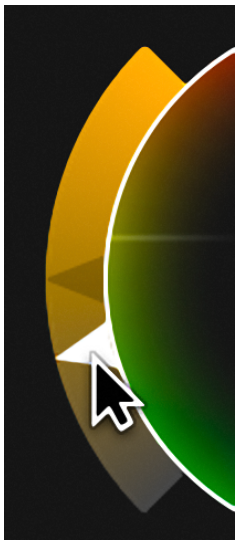

Figure 9.22 Saturation control.

I'm finding myself usually pulling down the Master wheel saturation. For instance, to add a warm look by pushing in more yellow-orange, the mid point is too much I feel and needs to have the Saturation control pulled down.

The arrow on the right side of the wheel will raise or lower the luminance values (see Figure 9.23).

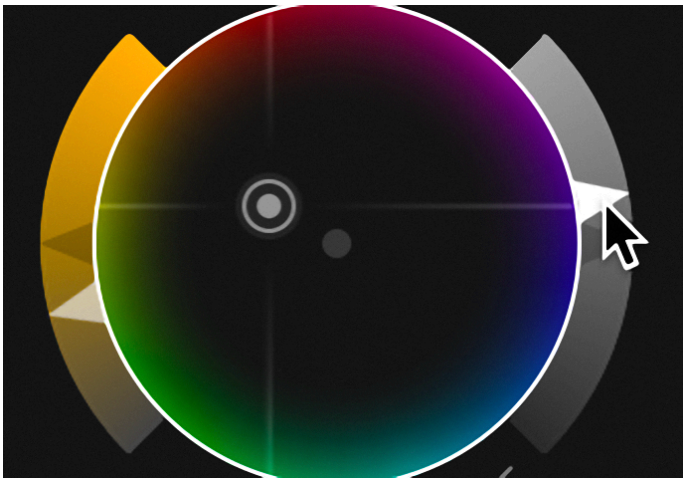

Figure 9.23 Luminance control.

A great feature of the new advanced tools is that they are keyframeable. The whole effect can be animate, as well as the Shape and Color Masks that we'll look at later.

The saturation and luminance controls on the side might seem limited in range, but you can keep pushing or pulling beyond the apparent end stop to increase or reduce the values even further.

In addition to the wheels there are RGB slider controls below the wheels if you prefer those. One thing good about the sliders is that there are values boxes, and like everywhere that there are value boxes in FCP you can use mouse gestures to raise and lower the values, which is very useful when working with the RGB Parade.

There are also sliders for color Temperature, Tint, and a dial for Hue. These are overall image controls. While Tint and Hue are pretty crude, Temperature works well to subtly control the look of the image from quite cool to warm. Notice also at the bottom there is a Mix slider, which allows you to blend the grade into the original. This can be really useful. There are also value boxes and sliders that correspond to each of the wheels, Master, Shadows, Midtones, and Highlights. These are useful when you have exact values you want to enter.

Most users accustomed to color wheel controls are used to seeing them displayed separately. In FCP to save screen space the wheels can all be collapsed into a single wheel with buttons to switch between them as in the Color Board (see Figure 9.24).

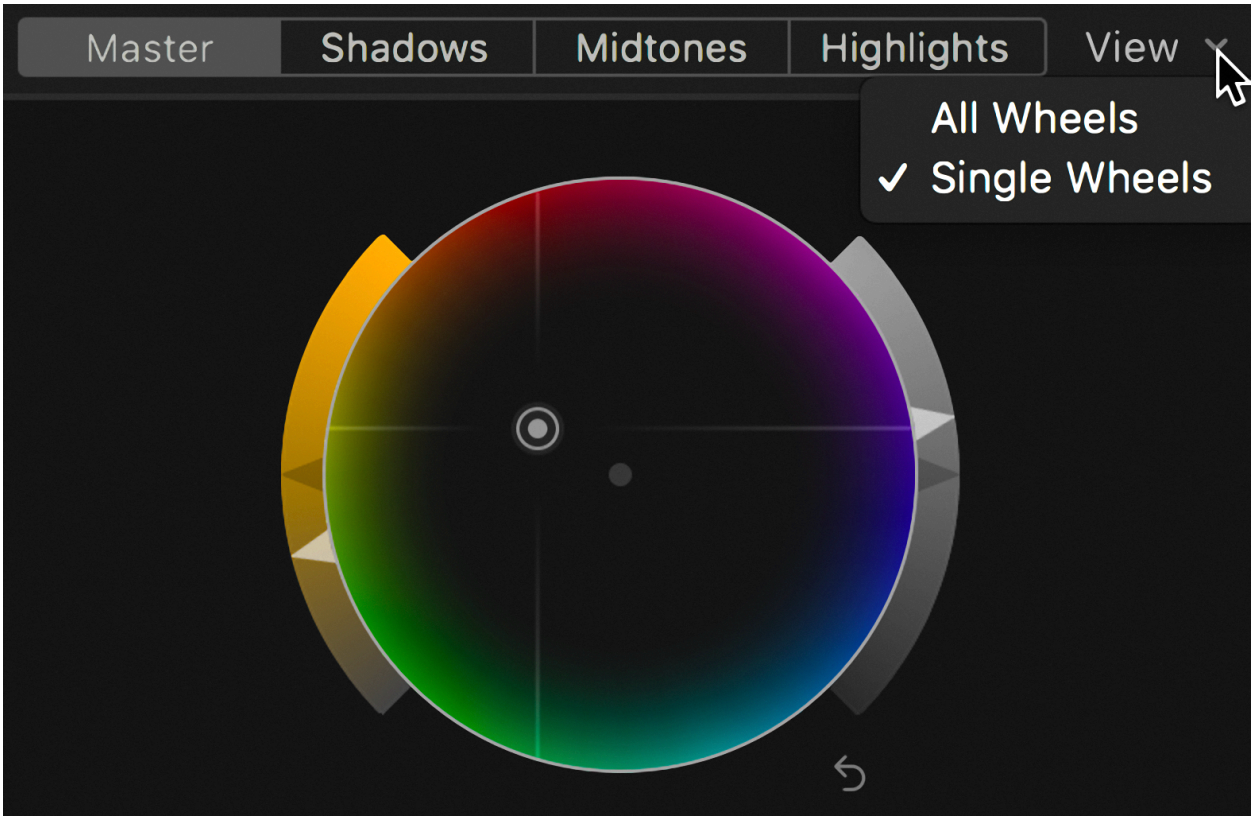

Figure 9.24 Single wheel.

TIP

Color Correction Preference: In FCP's Editing preferences you can now choose which tool you want to set as the default and automatically open when you click the color correction button on the clip, or when you press **Command-6** (see Figure 9.25).

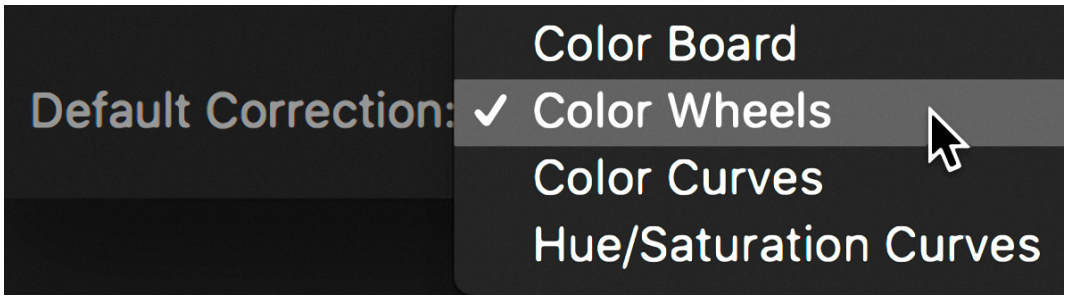

Figure 9.25 Color Correction preferences.

Let's look at working with Color Wheels on one of the images in the *Color* project, the *cheese* shot. The order in which your Browser is set may determine the order the project was laid out. In my project, the *cheese* shot is the first shot. Proceed like this:

1. With nothing selected in the project, put the playhead over the *cheese* shot so it's targeted.

2. If you had applied Balance Color to the clip, select it in the Video inspector and delete it.

3. With the clip still targeted press **Command-6**. If the Color Board opens, click on No Corrections at the top and change it to Color Wheels. Make sure the scopes are set to Waveform Luma.

4. There's nothing really wrong with the overall luminance levels of this shot. Pull down the Shadows luma control on the right of the Shadows wheel to bring the blacks down to zero.

5. Adjust the Highlights on the right of the Highlights wheel a little so they hit 100 IRE.

6. Push up the Midtones to brighten the look of the image and add a little pop to it. After you adjust the mids, you'll probably have to adjust the Shadows and Highlights again.

The process of color correction is a constant ping-ponging of pushing and pulling, raising one value and pulling down another to offset it in some areas.

Let's look at the Saturation. The saturation for the image is pretty good. I suggest just pushing up the Master chroma level on the left of the Master wheel a little to give it a

little more vibrancy. Take a look at the Vectorscope to make sure the reds aren't too strong.

Now we're ready to work on the color. Again the color isn't bad, except for a slight blue cast in the highlights and a little too much red in the shadows. To correct this:

1. Set your scopes to the Waveform and RGB Parade. Red is sitting a little high in the shadows, and you might want to warm up the image a little. So it's going to be a battle between keeping the reds down in the shadows while pushing warmth into the mids and highlights.

2. Start by pulling the Shadows control away from red toward cyan so the bulk of the colors at the bottom of the parade are about level.

3. Take the Highlights control and push it away from blue toward yellow to get some of the blue cast off the cheese on the right.

4. Finally, to warm the image a little, push the Midtones control just a little to yellow/orange.

TIP

Checking the Look: To see a before-and-after look, simply toggle the check box at the left of the Color Wheel effect. To reset the entire effect to start over use the triangle at the end, which is a popup, and select **Reset Parameter**.

Color Curves

Color Curves is one of the most powerful tools for color correction. Let's see what these controls can do and now they can transform an image. If Color Curves are not set as your default you can access it, like any other effect, from the Effects Browser in the Color category, or by using C**ommand-6** and then selecting Color Curves from the No Corrections popup.

There are curves for Luma, Red, Green, and Blue (see Figure 9.26). Like the Color Wheels, the four curves can be collapsed into a single line with buttons to select between them.

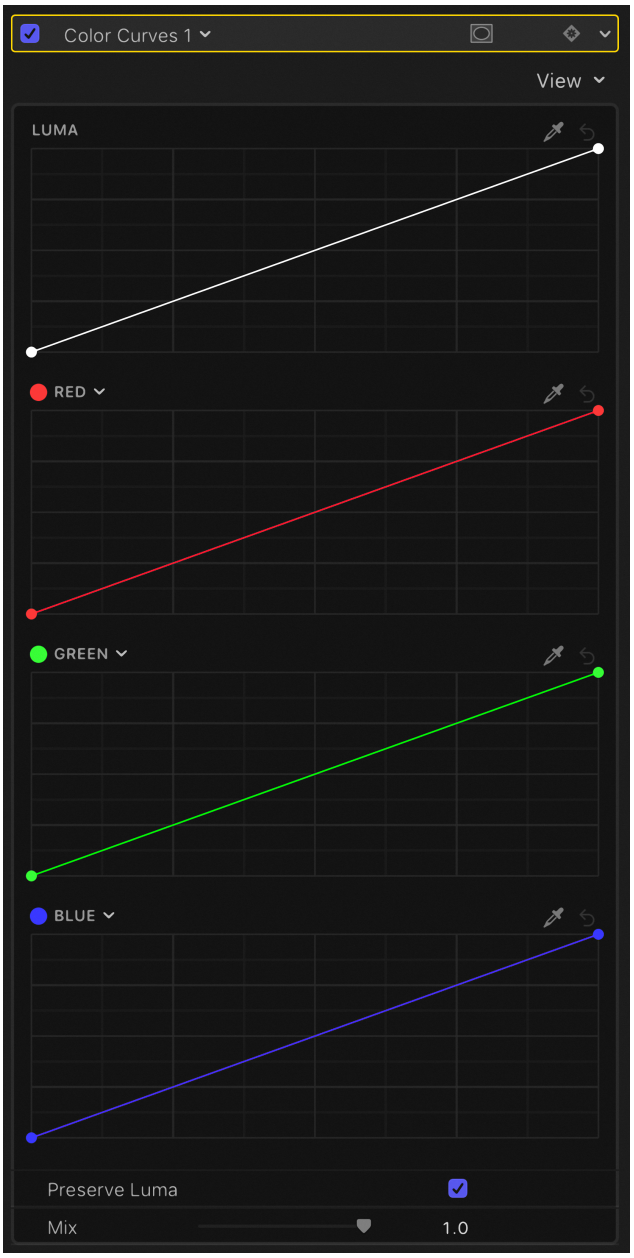

Figure 9.26 Color Curves.

The beauty of curves is that they give you great flexibility in controlling the image. The flat line you see is the four values as they are in the image. Also, notice the **Mix** slider and the important **Preserve Luma** checkbox, which is on by default. Curves' most common use is to adjust the Luma curve to increase the contrast for a filmic look, pulling down the Shadows, and raising the Highlights into an S-curve (see Figure 9.27).

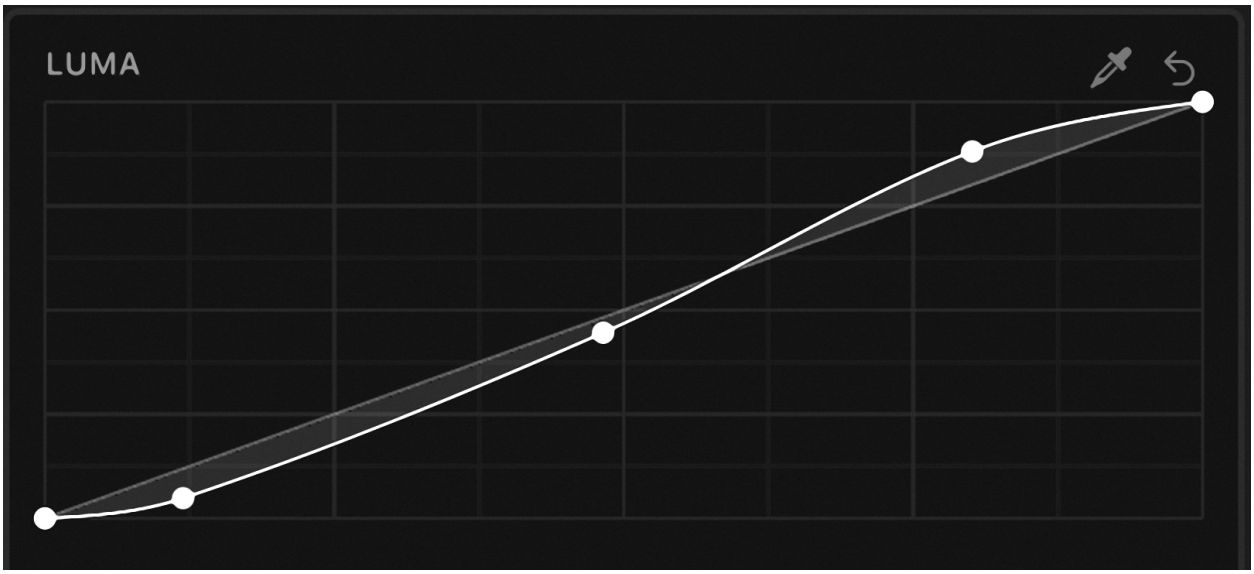

Figure 9.27 Luma S-curve.

While the curves are set to adjust the values of the primary colors, red, green, and blue, any curve and be changed, using a color wheel, to work any color value in the image. Notice the eyedropper in the upper right that allows you select a color or luminance value to adjust.

By pushing up the curve in that area you can punch up those color values without effecting the cooler colors in the image that would happen if you added an overall color cast. You can of course add as many points as you want to the ramp to reshape it, warming the highlights while cooling the shadow areas as in Figure 9.28.

Figure 9.28 Color Curves selection with wheel or eyedropper.

Let's see an example of the kind of effect curves can create. The shot we're going to work on is at the other end of the project, the clip called *statue dutch*. This shows a fairly common problem with consumer cameras. They often read a scene's color as either too warm or too cold. In this instance, the camera made the image overly yellow. More importantly, the focus of the image, the statue in the niche looks very flat. Let's see if we can make this better using the Color Curves:

1. As always, start by setting the Luma right. Add a point near the bottom of the curve and pull it down to bring down the Shadows, then pull down the point at the top of the ramp to reduce the Highlights to 100.

2. Add a point around the middle of the ramp and push it out to increase the brightness and contrast on the statue. Slide the point up and down the ramp and in and out, till it looks good. The Luma curve might look something like Figure 9.29.

3. To add a little punch to the image switch to the Red curve and use the eyedropper in the upper right to stroke the midtown beige of the stone. This will change the curve from Red to Orange.

4. Pull out a point from underneath the selection a short distance. To limit the effect to the area around the color add selection points bracketing it and pull the points back to center line as in Figure 9.30.

5. While Curves are great in some situations, when you want to make a real change in color the Hue/Sat Curves or even the old Color Board might be much better. To make a nice blue sky in the corner activate the Color Board by using the popup next to Color Curves 1.

6. First we'll add a Color Mask. Click the Mask popup and choose Color Mask. Drag a selection in the piece of sky in the upper left corner of the image.

7. In the Color pane move the Global puck to yellow and pull it down. This will take any yellow color cast from the area. Next, take the Highlights puck to blue-cyan and push it up to add a nice rich sky blue. Finally, you might want to push up the Saturation Global puck a little. Figure 9.31 shows the before and after of the adjustment, quite a different look, and more natural I think.

Curves are very tactile; you have to move things around to try different looks. Small movements can make a significant difference. This tactile feature of Curves make them

very popular with colorists using hardware like a Tangent control board. Because there are no exact values foe Color Curves reproduce settings from system to system can be tricky.

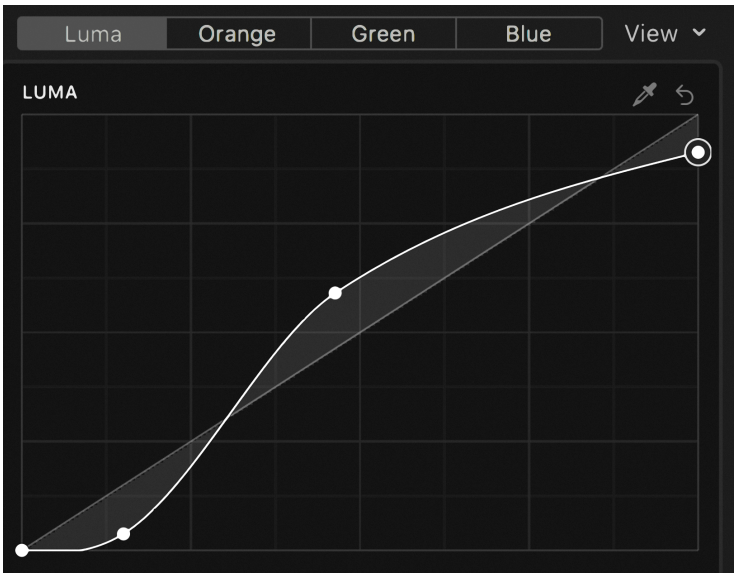

Figure 9.29 Luma curve adjustment.

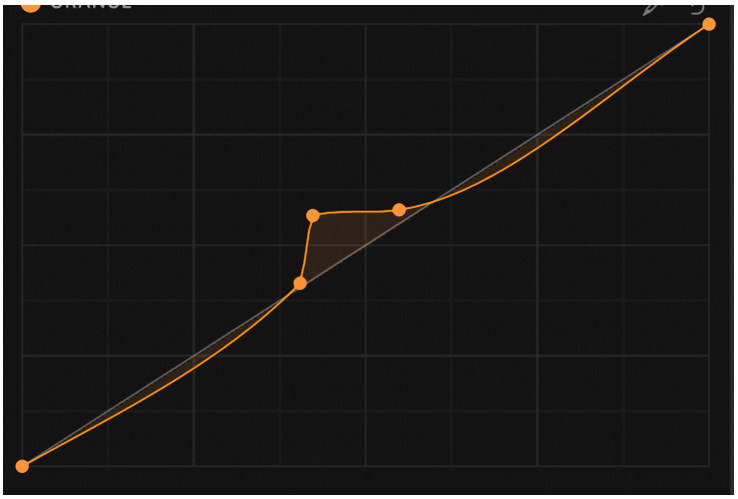

Figure 9.30 Blue curve adjustment.

Figure 9.31 *statue dutch* before and after.

There is no right way to fix this as long as you set your exposure correctly in the Waveform, take some of the yellow out of the sky, add some blue, and punch up the focal point of the image, the statue in the niche.

NOTE

Dutch: *Dutch* here means a shot that's tilted. The term goes back to the 1920s and is a corruption of *deutsch,* used because of German expressionist filmmakers' habit of shooting with a tilted camera to make shots more dynamic, intense, or disorienting.

Hue/Saturation Curves

Hue/Saturation Curves are six effects in one. Like the other advanced tools, these can either be seen independently in the full height Inspector, or collapsed into a single panel with selection buttons at the top and the Mix slider at the bottom (see Figure 9.32).

Figure 9.32 Hue/Saturation Curves.

The first curve is HvH, or Hue vs. Hue, which lets you select a hue using the eyedropper and change it to a different color. Let's see how to do this using the *silhouette* shot:

1. Select the shot in the Timeline and scrub the playhead to about half through the clip. A man in a blue Polo shirt is on the right side of the shot. We're going to adjust the color of his shirt.

2. Apply Hue/Saturation Curves to the clip either from the button at the top of the Inspector or from the Color category of the Effects Browser. You should have the first curve selected, HvH.

3. Click on the eyedropper in the upper right, activating it, and during it blue.

4. Drag a selection of the blue on the man's shirt. This will mark a narrow band on the curve, and add three control points, which are quite widely spaced for what we need.

5. Drag the two outside control points inward so they're quite close to the center control point, then pull the center control point down about two-thirds down, turning the shirt into a nice burgundy (see Figure 9.33).

Figure 9.33 Hue vs Hue correction.

HvS, Hue vs Sat, is really useful for those annoying colors that need to be toned down, or to punch up colors to give them real vibrancy. One nice aspect of this tool is that you can make multiple selections.

All these curves work in a similar fashion. Here in HvS, instead of changing the hue we'll change the saturation level. Let's do these in the *cheese* shot:

1. If you still have the Color Wheels applied to the shot, either switch the effect off with the checkbox or delete it in the Video inspector.

2. Move the playhead near the end of the shot and apply the Hue/Saturation Curves effect.

3. Switch to HvS and activate the eyedropper.

4. Drag a selection in the red packaging the foreground, and as before narrow the selection by pulling in the outer control points, and push up the central control point to increase the saturation.

5. Repeat the process on the blue packaging on the left side of the frame, narrow the selection and raise the saturation. Your HvS curve might look like Figure 9.34.

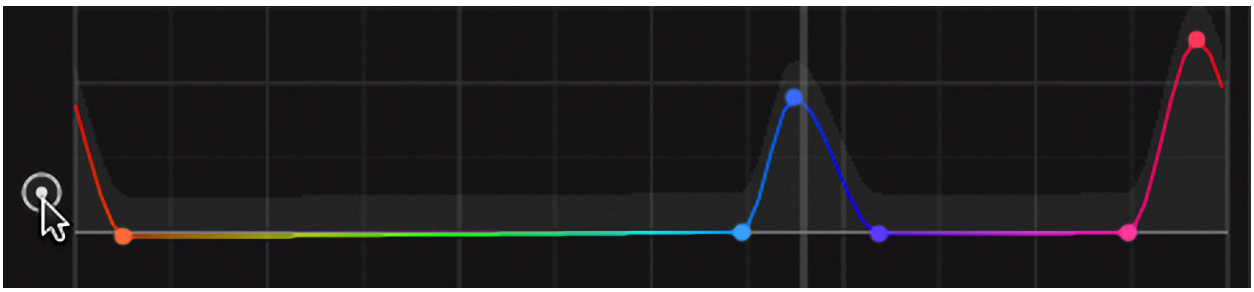

Figure 9. 34 HvS Curve.

Notice the button on the left side of the curve. This allows you to raise or lower the overall saturation of the image. The selected hues will be raised proportionately so watch the Vectorscope so you don't overdo it.

The next three curves work in basically the same way. HvL is Hue vs Luma, which lets you raise or lower the luminance value of a color range without affecting the saturation. This can be useful if specific colors are overly bright.

LvS, or Luma vs Sat, lets you pick a luminance value and raise or lower its saturation level. This great for a sky you want to pump up, or weaken something that looks too bright.

SvS, or Sat vs Sat, is the tool to push up or lower the saturation of specific levels of saturation. So values that are too high can be pulled down, and unlike HvS, this is regardless of hue. It's useful when there are multiple elements that are over or under saturated. This lets you pull down oversaturated elements, while raising the saturation of color that look flat.

Finally, there is Orange, Orange vs Sat. The curve isn't only to control orange, though that can be important as it's a color that will most commonly cause over-saturation, exceeding broadcast limits. Use the color wheel from the popup on the left (see Figure

9.35) or the eyedropper on the right to choose the color whose saturation you want to either raise or lower.

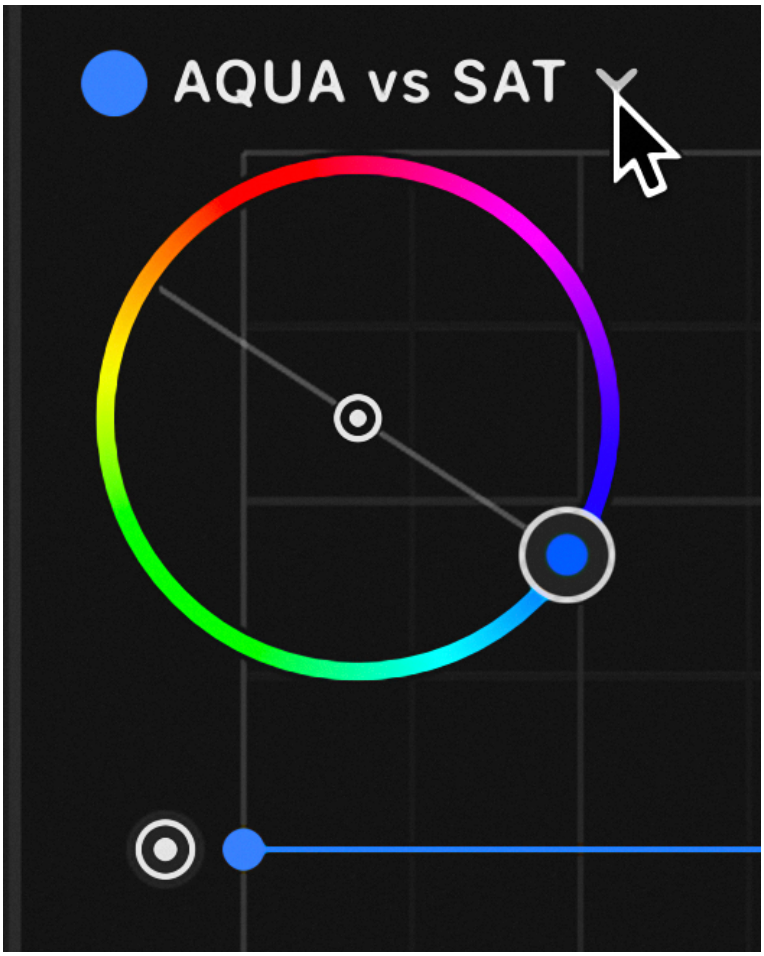

Figure 9.35 Color wheel in OvS.

This tool is only selecting a narrow range of color together with great control on the variations of that color's luminance values. Let's look at this in the *silhouette with doors* clip.

1. Put the playhead over the clip about three quarters of the way in so it's targeted. In the inspector remove any other effects that may be applied and add the **Hue/ Saturation Curves** effect.

2. Set the curves to show Orange and click the eye dropper in the upper right to select an area of the yellow on the golden doors.

3. Drag up a point in the center of the graph line to pull up the saturation. This will affect the whole luminance of that color. You might notice that it's also

impacting the blonde hair of the woman in the mid-ground as well as the arm of the woman in the foreground holding the camera.

4. Click a point on the curve to the left of the center and pull it down to the X axis of the graph. This will reduce the affect on the dark end of the yellow color

5. Also, click a point near the right side and pull it up. This will increase a little the top end of the luminance range (see Figure 9.36).

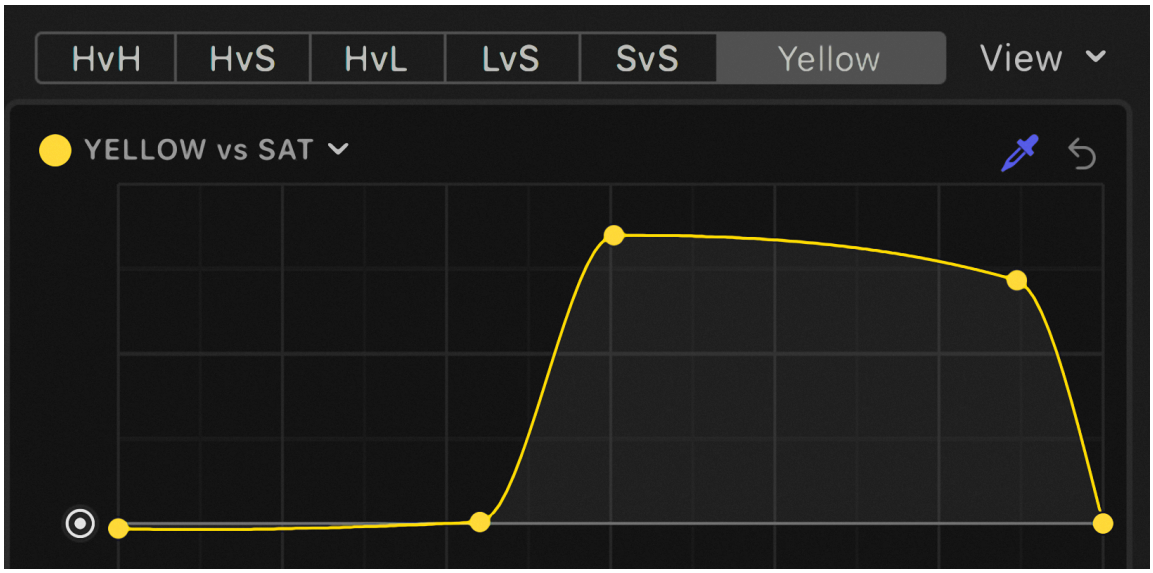

Figure 9.36 Yellow saturation curve.

Night

Let's look at the night shots. They are especially difficult because of the extreme low-light conditions. One of the problems, which really cannot be fixed, is that increasing the luminance levels will bring out a huge amount of grain. This can be improved to some degree by transcoding the media from the native AVCHD to ProRes. It can also be improved considerably with third party software like Neat Video (www.neatvideo.com). While this produces excellent results, you should be aware that it is very slow to process and render. This type of scene is where a large sensor camera will make a world of difference. With a little work, however, you might be able to save shots that are otherwise unusable. Let's start with the *ms musician* clip in the Timeline:

1. With Waveform open you can see that the skin of musician is very dark, not much more than 25 units. To be acceptable it really should be at least over 50

and closer to 70 in the highlights. To fix this we'll use the Color Curves as they give the most luminance control.

2. Apply the effect and using the Luma eyedropper drag a small selection on the brightest part of the flesh, near his elbow. Pull the selected point up to brighten the skin to a good level, a little darker than normal, perhaps around 60.

3. Now we need to the fix the rest of the image, darken the shadows and pull down the blown out highlights. Pull the bottom point a little to the right of drop the shadows to zero. Next pull the top point straight down to control the highlights. Add a fourth point to round out the curve, keeping the skin tones clear without pushing the highlights. The Luma curve might look something like Figure 9.37.

4. Let's add a little color to his cheek. Using the Red curve eyedropper sample a swatch on the side of his face. The point will be close to the first control point you made. Pull up the line just a drop to add a little warmth to the skin.

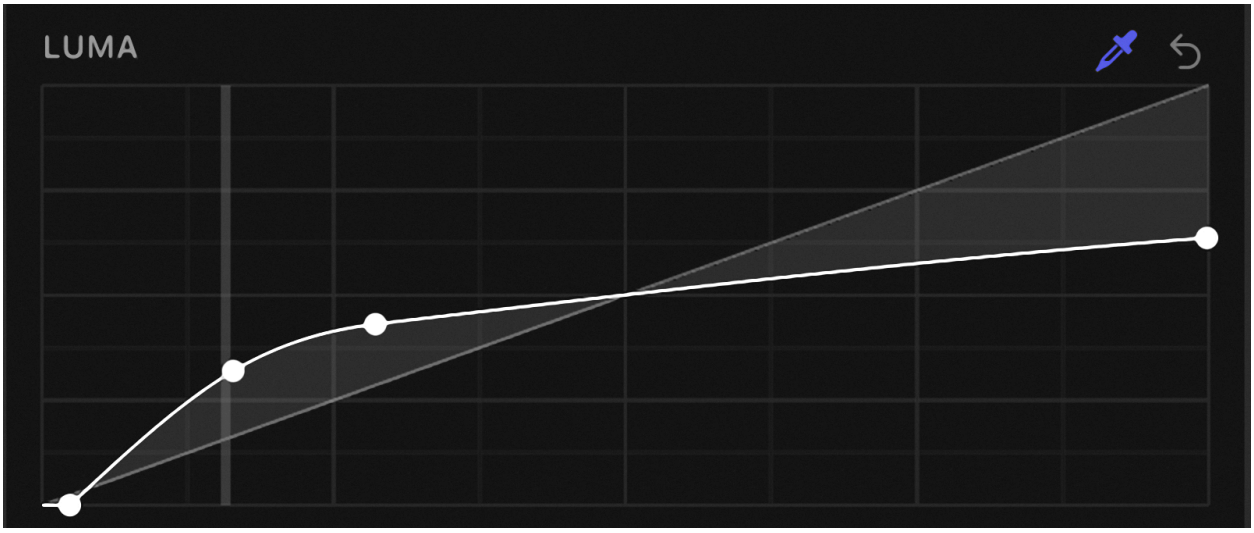

Figure 9.37 Luma curve.

That's the image, perhaps as good as can be salvaged. Figure 9.38 shows the before and after of the color correction. What would help it, of course, would be a better camera, with higher resolution, which did not exhibit the tremendous amount of grain introduced in the low-light conditions.

Figure 9.38 Before and after correction.

TIP

Adjusting a Clip Before You Edit It: Sometimes you want to correct a clip before you put it into a project. A shot such as an interview that's going to be reused multiple times might be better corrected before you edit it into the Timeline. To do this, select the clip in Browser and from the **Clip** menu choose **Open Clip**. This will open the clip into the Timeline pane where you can add the Color Correction effect with **Command-6**. Whenever you edit a piece of the shot

from the Browser into the Timeline, that color correction will be applied. Note that after you edit the shot into the Timeline, any subsequent changes made in the Browser to the color balance for that shot will have no effect on clips already edited into the project.

LUTs

More and more cameras are now shooting in Log processing that allow expanding the luminance gamma and color capabilities beyond what HD Rec. 709 can actually record.

When shooting in Log a LUT has to be applied to the video to expand the very flat-looking image into its full, rich contrast and vibrant color. For many cameras that use Log, the processing will be applied automatically, regardless of whether the material was actually shot in Log or not. A number of standard Camera LUTs are included and can be applied in the Settings option of the Info inspector (see Figure 9.39).

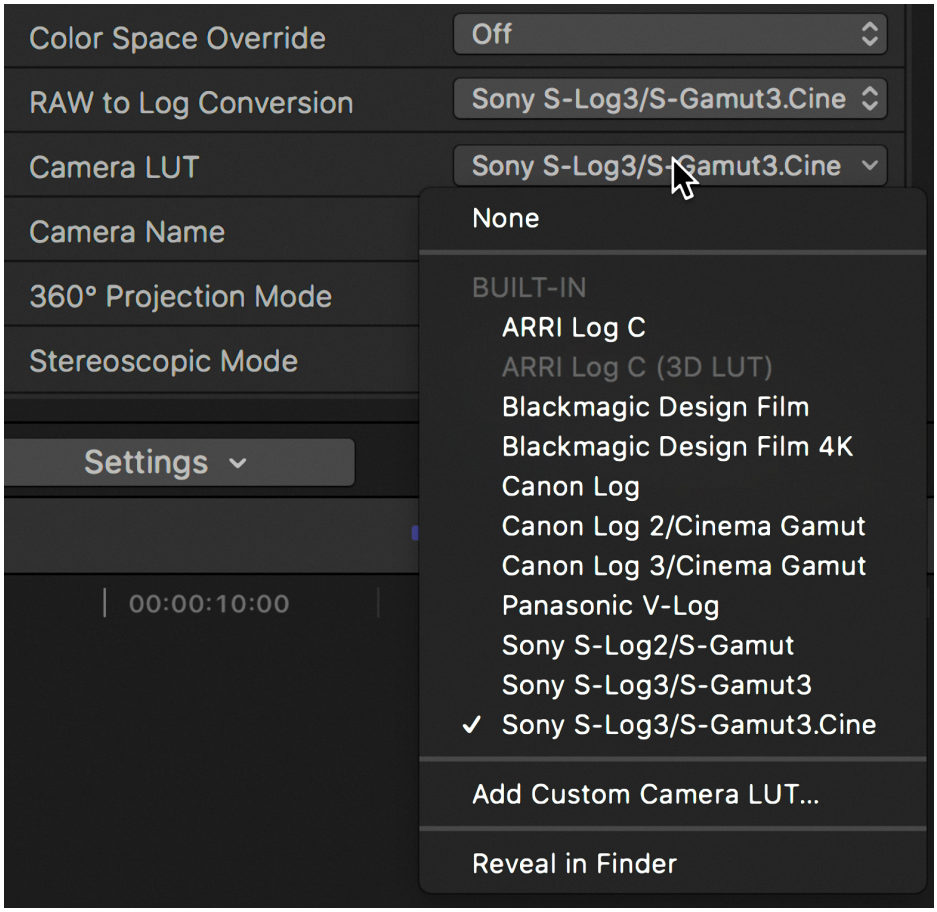

Figure 9.39 Log Processing in the Info inspector.

Here you can set one of the available options. If you did not shoot with Log processing and FCP is automatically selected one of the standards, be sure to switch processing to None.

Notice at the bottom of the menu the option to add custom camera LUTs, and the popups above Camera LUTs for RAW to Log Conversion and Color Space Override. The first sets ProRes RAW to a specific camera LUT, allowing you to set the Camera LUT properly, keeping the full range of the HDR capabilities of this codec (see the Sidebar: ProRes RAW). The Color Space Override allows you to set a different color space than the camera normally uses.

In addition to correct camera Log processing, many users are using LUTs to apply custom looks, either from third party providers or by creating their own using Affinity Photo. FCP now has a built-in LUT effect for custom LUTs called Custom LUT in the Color category of the Effects Browser. You can add not only single LUTs, but whole folders of LUTs to select from (see Figure 9.40). There are also popups to select the Input color space and to change to a different Output space. There are hundreds of LUTs available online, many free as well as excellent collections for plugin providers like CoreMelt and Color Grading Central.

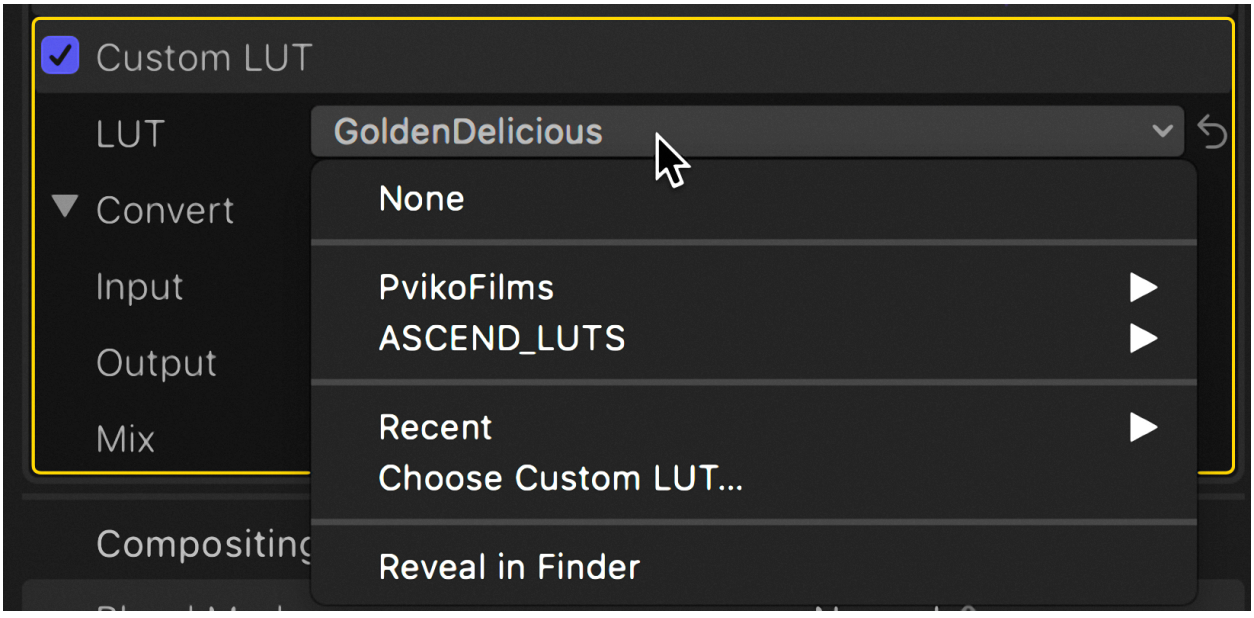

Figure 9.40 Custom LUT effect.

SIDEBAR

ProRes RAW

RAW and HDR are turning shooting upside down. The mantra when shooting used to be protect the top. Don't overexpose because when the highlights are blown out the content is lost. The shadow areas can be pulled up and detail recovered. With RAW and HDR there doesn't seem to be any visible limit to what can be recovered from the highlights. Expose for the shadow areas and recover detail from the limitless highlights. This new acquisition philosophy, which of course upends grading in post. What's appears to be lost in the image is in the highlights, so the temptation is to recover that first, set the highlights, and then pull up the shadows. Truth be told, with the wide luma and chroma range now available, with so much flexibility in the image, it doesn't matter if you start with the shadows or highlights. Nonetheless, perhaps simply because of habit and custom, I prefer to begin with shadow adjustments first, which if properly exposed, should be fairly minor, then move on to tackling the highlights. Because there is now so much latitude in the top end, once the highlight adjustments have been made, you will inevitably have to return to the shadows and bring them back up again, before setting the midtones.

In FCP 10.4.1 Apple introduced the amazing new acquisition codec for high-end production ProRes RAW. If you're working in ProRes RAW, acquired from one of the cameras or recorders such as the Atomos Shogun Inferno that record it, you need to take certain steps to ensure that you take full advantage of this new medium. You should make sure your library is set to use Wide Gamut. Select Wide Gamut whether you're outputting Rec. 709 or HDR Rec. 2020. With the library in Wide Gamut the application can access the whole luma and chroma range available in the PR RAW footage. Setting the library to Wide Gamut does not prevent you from creating Rec. 709 projects and outputting standard HD for delivery on YouTube and the great majority of delivery formats.

Because the footage is RAW has not been denoised in the camera, which is the case with all demosaiced and compressed formats. To overcome this it will likely be necessary to apply some denoising effect in the application. Apple may build it in a future version, but you will have to rely on third party plugins.

Range Check

Range Check is a tool in the Viewer that displays where there are luminance or chrominance values that exceed video standards. Range Check is switched on from the bottom of the View popup in the upper right of the Viewer. It displays diagonal striping over the offending areas of the image (see Figure 9.41). The zebra, as it's called, can be set to show areas of high Luminance, Chrominance, or both. I find the striping a little annoying to leave on all the time, but it's a good final check to look through your video when you think it's ready for delivery. Range Check will display based on whether your output specifications are Rec. 709 or wide gamut Rec. 2020. To have a wide gamut project the entire library has to be switched to wide gamut.

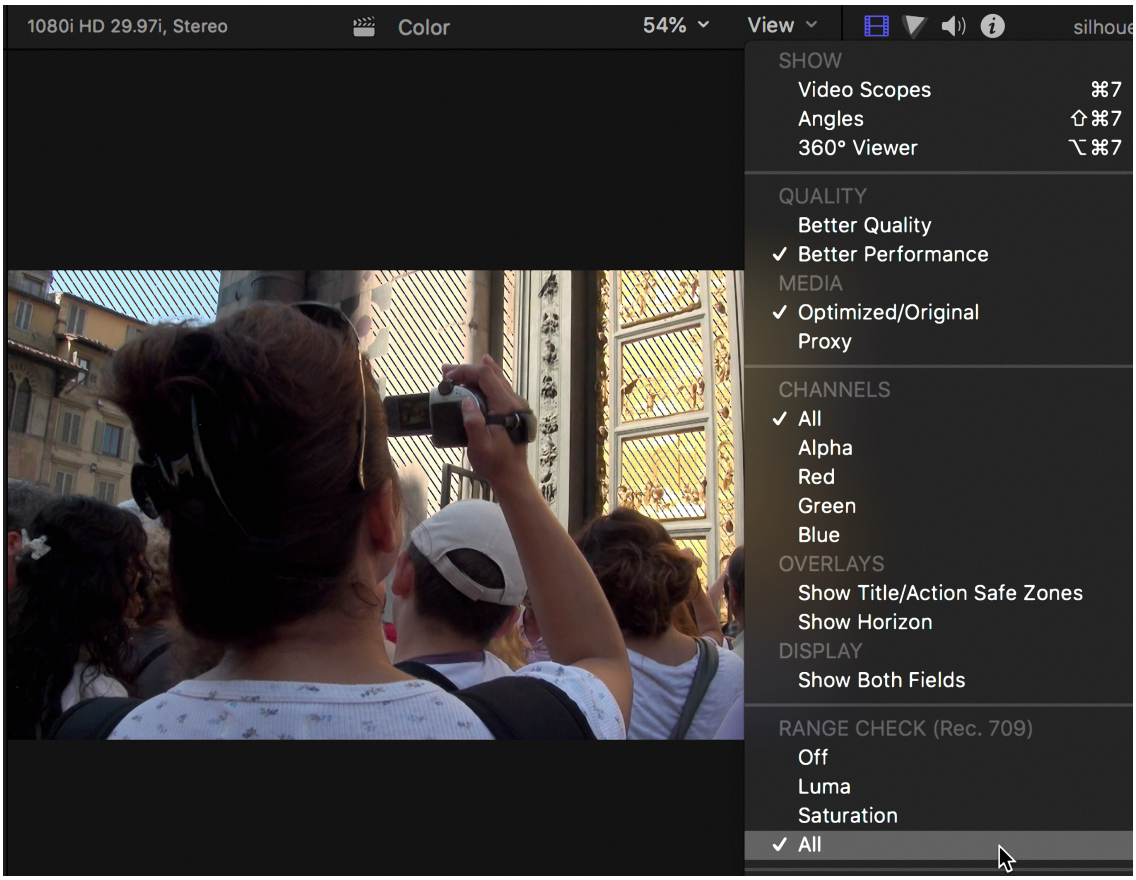

Figure 9.41 Range Check in the Viewer.

Broadcast Safe

Broadcast Safe is an effect that should be added to the *ms musician* shot or any clip that shows zebra striping with Range Check. It's used to clip off any high luminance or chrominance levels that appear on a clip.

1. Select the *ms musician* clip in the Timeline and open the Effects Browser with **Command-5**.

2. With All Video & Audio selected, type *broad* in the search box at the bottom. The Broadcast Safe effect will appear. If you have Range Check on, simply skim the effect in the Effects Browser to see what it does.

3. Double-click the effect to apply it to the clip. If you have Waveform open, you'll see the bright street lights that are exceeding 100 IRE being rounded off by the filter to 100 IRE, and any super black is clipped to zero.

The Broadcast Safe effect can be something of a magic bullet and works well at the default setting. In the effect controls there's a slider that lets you tweak the strength of effect. There is also a popup to select the color space you want to set the clip to, from Rec. 601 (NTSC) for standard definition, Rec. 709 for HD, to Rec. 2020 for UHD output. You should set this to whatever specification your project is using.

A common way to apply Broadcast Safe is to apply it globally to an entire project. You should select all the clips and make them into a Compound Clip, applying the effect to the compound.

1. Select all the clips in the Timeline and press **Option-G** to make them one long Compound Clip.

2. Select the Compound Clip and double-click the Broadcast Safe effect to apply it to all the clips.

Another option is to apply the Broadcast Safe effect to an adjustment layer. As we saw in the previous chapter on effects, you can apply any number of effects to an adjustment layer. A useful advantage of an adjustment layer for Broadcast Safe is that it allows you to make settings of the effect for a group of clips and a separate adjustment layer with different settings for another group of clips.

An adjustment layer can also be used to add an overall grade to multiple clips, warming up or increasing the contrast for an entire scene or group of clips without

affecting color balancing done to individual clips. Remember that luminance grades can affect RGB values, which you might want to adjust on a clip by clip basis. Applying Broadcast Safe globally with an adjustment layer will be effect all the clips in the project. If you have Waveform open and skim across the project, you'll see that the bright street lights in the night shots that haven't been corrected will also have their luminance values chopped o so as not to exceed 100 IRE.

Generally, the process of converting the project to a Compound Clip or adding an adjustment layer and applying the Broadcast Safe effect is the last step before you export or share your finished work.

Match Color

The **Match Color** function in FCP is a really useful feature. Sometimes it just seems to have almost magical properties, although sometimes it doesn't work as well as you might like. In that case, you can use FCP's extensive color correction tools to fix the problem manually. The simplest ways to apply the Match Color function are from the Enhancement menu in the Dashboard under the Viewer, or with the shortcut **Option-Command-M**.

We've already fixed the medium shot of the musician as best we could, but there are two other night shots: a wider shot of the musician and a shot of a photographer with a decidedly greenish cast to it. Let's see what the Match Color function does for us:

1. If you have made the project into a Compound Clip to apply the Broadcast Safe effect, that's not a problem. Simply double-click the Compound Clip to open it into the Timeline.

2. Option-click the *night shot* clip to select it and move the playhead over it.

3. Activate Match Color with one of the two ways just described. A two-up display appears with the image you want to fix on the right.

4. Move the pointer over the *ms musician* clip and click on it. Try different frames. The Match Color effect will match the shot on the right to the shot on the left (see Figure 9.42).

5. Click on **Apply** in the dialog to apply the selection.

6. With the scopes open and set to Vectorscope, toggle Match Color in the Video inspector off and on to see a graphic display the effect is having.

7. Apply the Color Wheels to *night shot* and push the Midtones up a bit to brighten it.

8. Repeat the process for the *musician night* shot, matching it to *night shot*. Try different frames for slightly different results. Frames toward the end of *night shot* might produce better results.

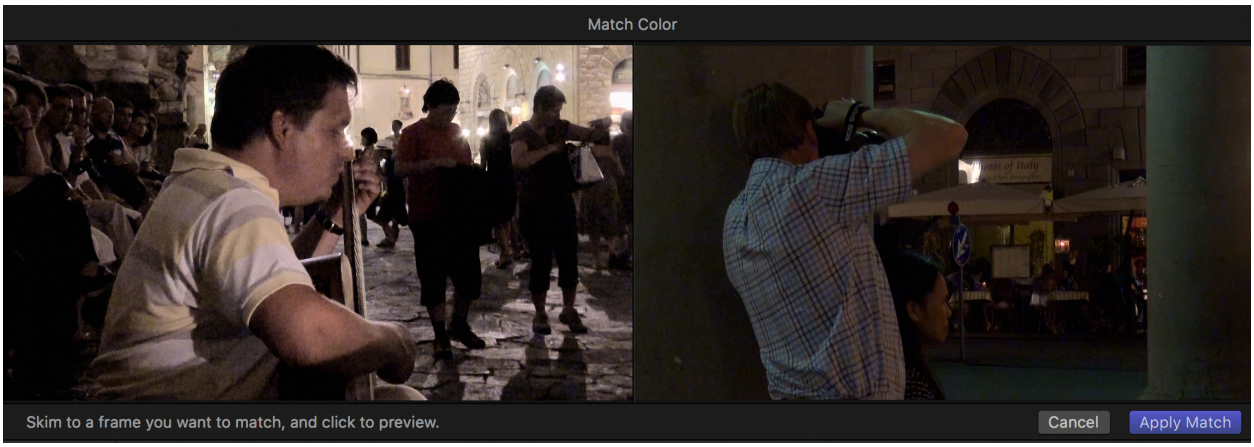

Figure 9.42 Match Color display.

The effect is quite good. The green tinge is taken off *night shot*, and the image's luminance values match that of the first shot better. Unlike the Broadcast Safe effect, the Match Color function is not so much of a magic bullet and sometimes doesn't work that well.

One thing you should be aware of is that the Match Color function does not actually use the Color Board or other color tools to correct the color and luminance of the image. It simply makes mathematical calculations and applies them based on which frame you click in the sampling image, so nothing it has done is reflected in the tools. Normally ion you're going to use Match Color it's applied first and Color Correction afterwards to tweak the result.

TIP

Setting a Level in the Waveform: A feature if the 10.4 scopes is the ability to set a line in the Waveform or RGB Parade to use as a reference. Simply skim in the Waveform and click to set the reference line as in Future 9.43. The makes comparing levels much easier, and will become more useful as we move forward.

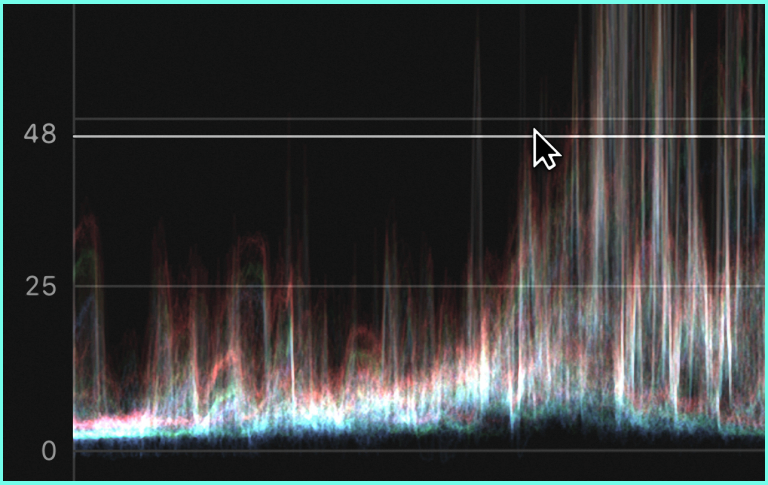

Figure 9.43 Waveform reference line.

Presets

Looks in film and video are created by talented, creative colorists who bring magic to the movies. Some looks, such as Bleach Bypass, have become popular to the point of cliché. Some presets are provided as effects, but more importantly, you can make and save your own. Generally, the basic color correction for an image—setting its Luma and Chroma levels, and matching it to other clips—should be done in one grade or correction, and any additional special looks or secondary color corrections should be done in additional grades that can be tweaked separately and switched on and off as needed. This also allows you to apply and try different looks. Remember, you also have the Audition feature that allows you to make duplicate copies of clips to which you can apply separate looks and grade effects: Let's see how this process works:

1. Inside the *Color* project, if you made the Compound Clip to apply Broadcast Safe, break the Compound Clip apart. Select it and use the shortcut **Shift-Command-G**.

2. Select the *silhouette with doors* shot and do a little basic correction to it in the Color Board or Color Wheels. Pull down the Highlights and the Shadows a bit, raise the Midtones. Increase the Saturation a little, and maybe warm the whole image with the Global puck in Color.

3. After adjusting the image to taste, with it still selected, go to the Color Presets category in the Effects Browser and try skimming a few looks like Artificial Light or Contrast or Sewer.

3. To apply the transition select one like Summer Sun and double-click it. It's a warm, bright, high-contrast look.

Like most of them, the Summer Sun preset is pretty extreme, but notice that unlike the Match Color and the Balance Color functions, these presets actually move the Color Board controls so you can see what it's doing. The existing presets in 10.4 were created for earlier versions of FCP and all use the Color Board as their grading tool. Because the effect is designed for all material, it uses extreme settings. All of them need to have their luminance levels fixed. The easiest way to fix these levels is to apply the Broadcast Safe effect, which clamps the levels without affecting the quality of the look across the central dynamic range of the shot. The Broadcast Safe effect obviously should be applied after all the other corrections have been added.

Notice that in addition to the available presets, you can create your own by pushing the pucks around and then using the **Save Effects Preset** at the bottom of the Inspector. A dialog appears that allows you to name the preset and save it in an effects category, such as Color Presets, or create your own category (see Figure 9.44). The presets are stored in your *~/Library/Application Support/ProApps/Effects Presets* folder.

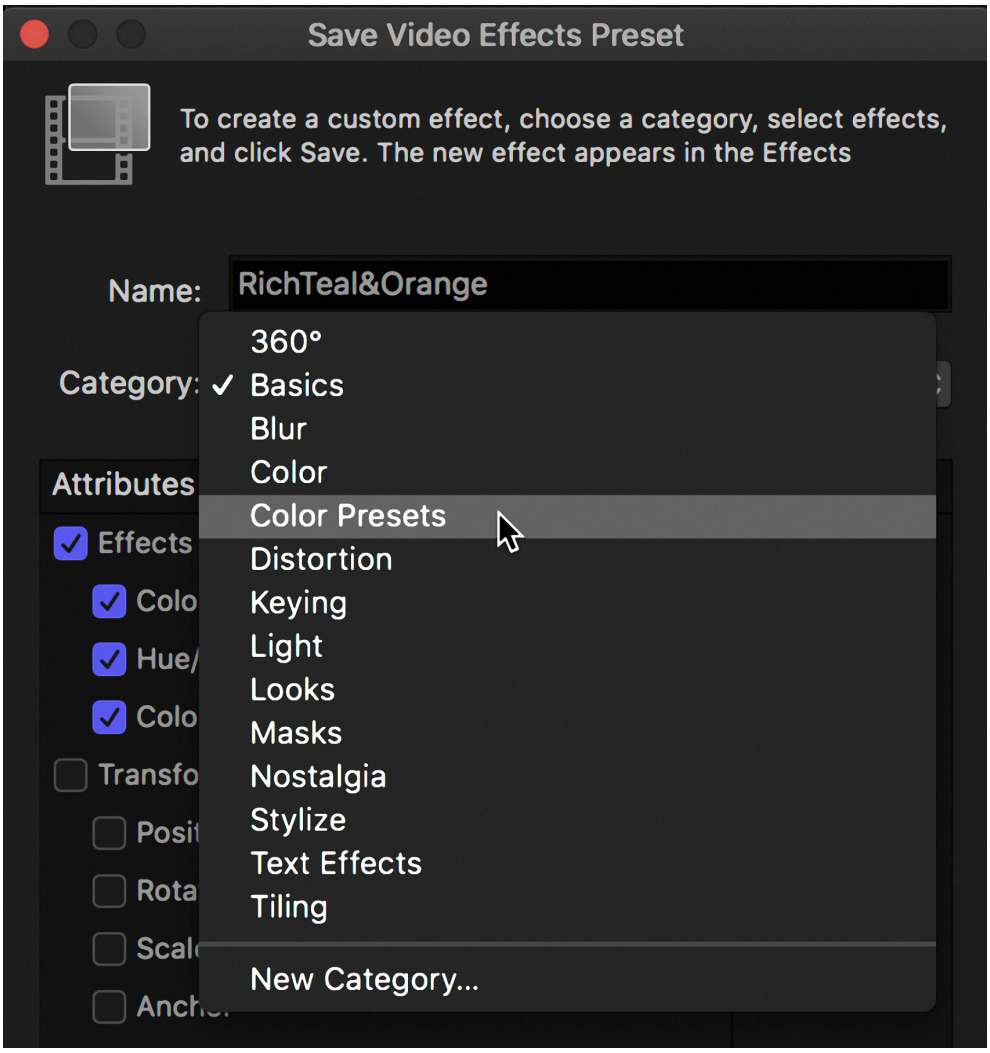

Figure 9.44 Save Video Effects dialog.

SECONDARY CORRECTION

So far we've done mostly primary color correction, fixing the Global Luma and Chroma of an image, even adding looks that affect the whole image. Sometimes, however, you want to correct only part of an image—make the sky more blue; make the yellow more yellow; or highlight an area of an image, like an actor's face, to make it pop. This is done on most every shot in primetime television and in the movies.

Shape Mask

There are two ways to make a selection in FCP to restrict the correction we're making. We do this by making masks. A mask is the area we select that we want to control. A

mask can be either a **Shape Mask** or a **Color Mask**. A Shape Mask is just that—a shape we create that defines the area of our correction—whereas the Color Mask is a specific color range that we select that we want to affect. You can use multiple shapes and color masks on every image, but let's try just a few and look at how these masks work.

Shape Masks are usually areas that are greatly feathered to gently blend the effect into the rest of the image. We'll start with the *cs statue* clip in the *secondary* Keyword Collection in the *Color* event:

1. Append the clip into the *Color* project and move the playhead over it. You don't have to select it. The black ball on the clip tells you it's targeted and its controls appear in the color controls when you go to the Color inspector. If you don't see the targeting ball over the clip under the playhead, press **Shift-Command-A** to **Deselect All**.

2. Let's do a basic grade to adjust its levels in the Color Board.

   a. In the Exposure pane, reduce the Shadows by about –6 percent and the Highlights about –13 percent.

   b. Increase the Global Saturation by +20 percent.

3. From the Corrections popup add Color Wheels as a secondary correction.

4. On the Color Wheel bar click on the Mask popup button and select Add Shape Mask (see Figure 9.45).

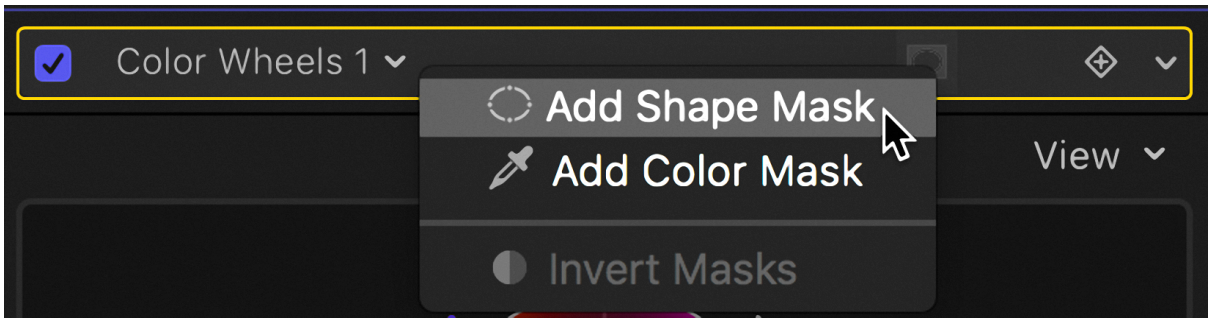

Figure 9.45 Shape Mask selection.

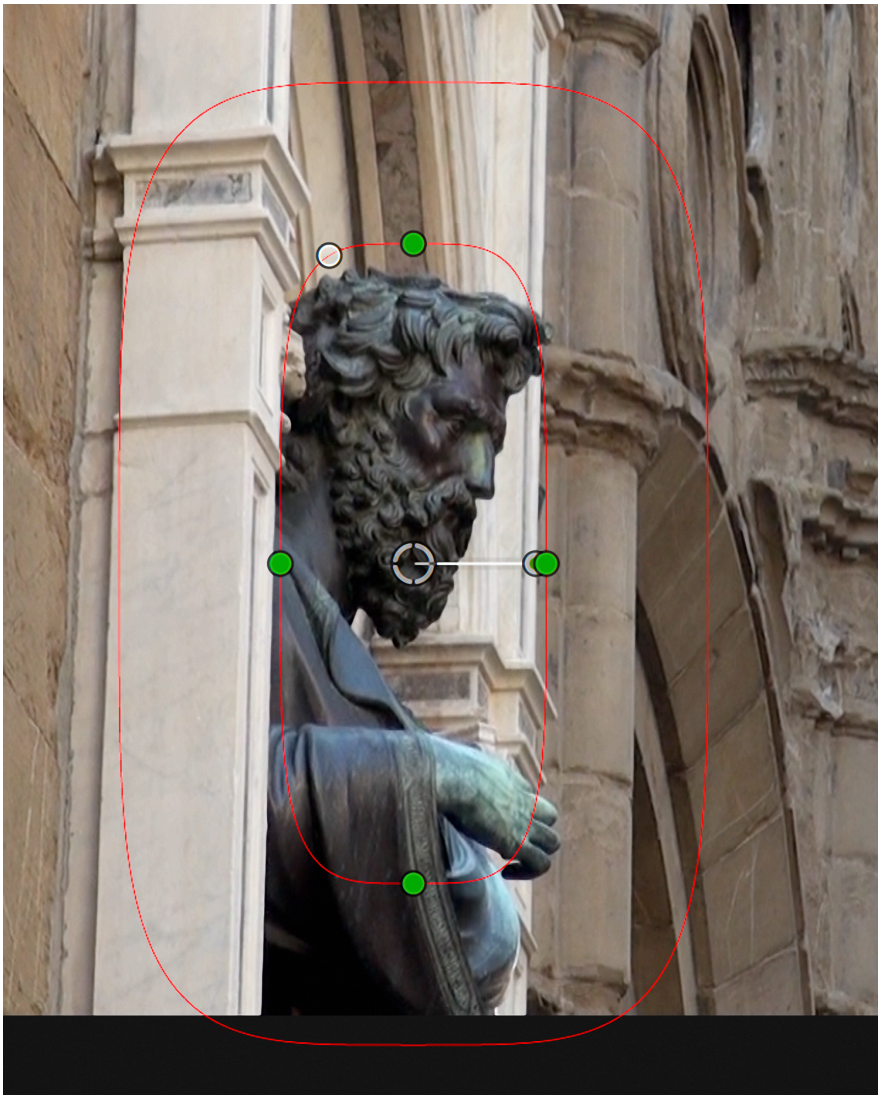

Figure 9.46 Shape Mask controls in the Viewer.

On-screen controls appear in the Viewer (see Figure 9.46). If you don't see the OSC, make sure Shape Mask 1 is selected at the bottom of the Color Wheels controls. In the OSC the inner circle is the area that will be fully affected by your controls. The outer circle is the fall-off from the affected area. You want to make the fall-off so smooth that the enhancement effect is not noticeable. The target in the center allows you to position the shape, while the handle allows you to change the angle. The white dot to the left of the upper green dot lets you pull out the circle and change the shape to a rounded rectangle. What we want to do is make a mask that allows us to brighten the statue while subduing the rest of the image so that the statue is the focus of the attention:

1. Draw out the top of the circle so it's a tall, narrow oval, with plenty of falloff, and then position it around the statue.

2. In the Color Wheels try these adjustments:

    a. Push up the Midtones Luma about +0.09. The values will appear in the Midtones bar at the bottom of the wheels.

    b. To increase the contrast, pull down the Shadows about –0.02.

    c. Increase the Highlights about +0.05.

This alters the area inside the Shape Mask. By increasing the contrast and brightness and, if there was color in the image, by increasing the saturation, you emphasize that part of the image.

To help the emphasis, you want to darken the outside, reducing the contrast and the saturation to de-emphasize that area. At the bottom of the Color Wheels inspector, notice two buttons: one for Inside Mask and the other for Outside Mask.

1. Click on **Outside Mask**. These are entirely separate controls, completely separate Color Wheels from the one for Inside Mask.

2. To reduce the contrast, we'll push up the blacks and pull down the whites in Exposure.

    a. Push Shadows Luma about +0.05.

    b. Pull the Highlights down –0.05.

    c. Pull down the Midtones to about –0.08.

If the fall-off is sufficient, the brightening of the statue will be imperceptible, or at most, the audience will think that a fortuitous shaft of light fell on the statue at that moment.

It's easier to see the effect without the On Screen Controls making it obvious. To hide the OSC, click the Color Wheels bar the top so that the Shape Mask 1 line is not selected.

A commonly used technique with photographers is to use a graduated filter to reduce the brightness of the sky in the upper parts of an image, which can be overly harsh, drawing the viewer's eye to it rather than focusing on the subject. Let's do something similar to a portion of the *ws duomo* shot in the *secondary* keyword collection.

1. Select about the first four seconds of the *ws duomo* shot, before the camera pans left, and append that into the Timeline. The cathedral is too bright in relation to the rest of the image.

2. Add the Color Wheels effect to the clip. We'll dispense with the primary correction and go straight to the Shape Mask. Add the Shape Mask and drag out a highly feathered horizontal rectangle, as in Figure 9.47.

3. In the Exposure pane, pull down the Shadows Luma about –0.12. Pull the Highlights down about –0.1. Pull down the Midtones to about –0.08.

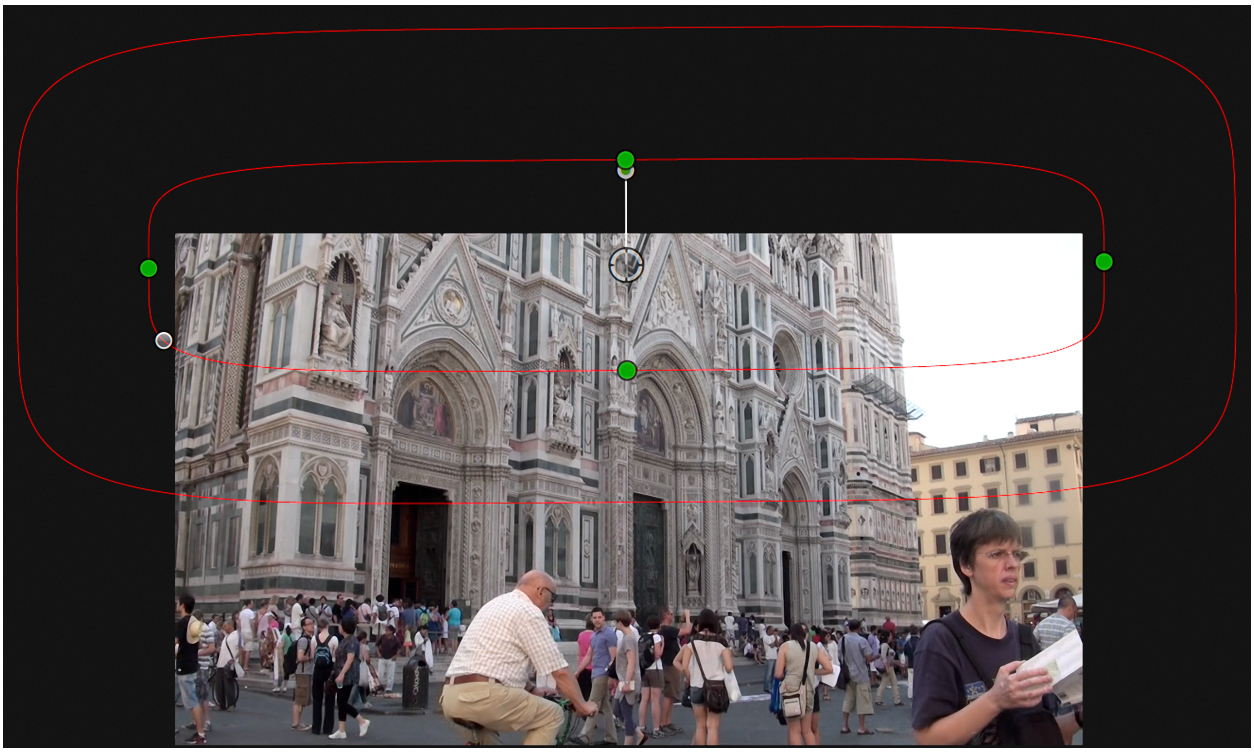

Figure 9.47 Large, horizontal, rectangle-shaped mask.

NOTE

Animating Shapes: In these images, we're working with statues and cathedrals, which don't move much, but sometimes you want to make a mask around a person, such as we did to the statue. People aren't so static, and Shape Masks need to be animated. This can be done by adding keyframes using the keyframe button that appears to the right of the Shape Mask as you move

the pointer over it in the Inspector. You can then manually reposition and animate the motion as the mask needs to move around the screen.

Color Mask

Sometimes you don't want to adjust an area on the image; you want to adjust a color or range of colors, make a color pop, or take out the color from everything else in the frame. Fixing the color itself is the easiest part of the process. The hard part is making the Color Mask and carefully selecting, adding to, subtracting from, and feathering the mask, like this:

1. For this exercise, we'll use the *duomo* clip from the *secondary* Keyword Collection. Append it into the storyline. What we want to do is to punch up the blue in the sky.

2. Select the clip in the Timeline and add the Color Wheels effect to it.

3. In the Color inspector, click on the **Mask** popup button and select **Add Color Mask.**

4. Go to the Viewer with the eyedropper and click and drag a small area of the sky (see Figure 9.48).

5. Hold the **Shift** key and drag another selection of the sky to add it to the selection. Repeat until you have most of the sky selected, but none of the building.

6. If you select too much, hold the **Option** key while dragging a selection to remove a color range from the selection.

7. Use the Softness slider to adjust the mask feathering as you like.

8. Click the **View Masks** button to see a black-and-white representation of the Color Mask (see Figure 9.49). What's white is selected. What's black is not selected.

9. In the Color Wheels, push the Highlights toward blue-cyan, adding sky color into the scene.

10. Switch to the Outside and push the Global color puck a bit toward yellow to warm the building and help the contrast with the blue of the sky.

Figure 9.48 Using the eyedropper to make a Color Mask.

Figure 9.49 Mask display in the Viewer.

That's it. The pale blue has become a vibrant blue that the chamber of commerce always wants. Using these tools, you can see the great range of techniques that can be used and their power in shaping and controlling the way you use light and color in your productions.

COLOR CONTINUITY

So far we've looked at color correction for single images, but often, especially in narrative fiction, the shots used in a scene must be balanced not only within themselves but also in relation to the other shots in the scene. The light, the color, the skin tones, the clothing, the furniture, everything has to match from shot to shot so as not to distract the audience, while at the same time making the image as pleasing and powerful as called for in the story.

Setup

For this section, we'll use the scene from Steve Oakley's short *A Great Life*. From the *Couch Scene project* event, open the *Color Continuity* project. The scene is essentially the edit we did in Chapter 4. In it there are basically three shots that need to be corrected, the master shot and the two close-ups, one for Michael and one for Kathy. The cutaway of the photo album can be dealt with on its own. Let's begin by marking the shots we need.

1. Move the playhead or skimmer over the second shot, close-up of Kathy, *028b*. Somewhere near the middle of the shot where you can see Kathy clearly, double-tap the **M** key.

2. Name the marker that's created *Kathy cu*.

3. Skim down to the middle of the master shot, *025,* and press **Option-M**.

4. Name the marker *wide*.

5. Go to the next shot, where Michael's looking toward Kathy, and add a marker, naming it *Michael cu*.

If there were more representative shots, maybe a medium two shot or a very wide master showing the whole room, you could mark those. Where to begin? Normally you begin by color correcting a master shot. This may not be the widest shot in the scene, which may not be representative of the closer lighting and the all-important skin tones

of the characters. Generally a medium wide master shot is where we begin, in this case *025* or *026*. Let's set up the color correction environment.

1. Use **Shift-Control-2** to set the workspace to Color & Effects. Set the scopes as you prefer as long as you see Waveform Luma. Also open the Timeline Index, **Shift-Command-2**, and set it to show Tags. If necessary, you could set it to show markers only, or To Do items. If there are a lot of markers in the Timeline, the index is the easiest way to navigate. With the Inspector and Effects Browser closed your workspace might look something like Figure 9.50.

2. Move to the *wide* marker. You can move between markers using **Control-apostrophe** to go to the next marker, and **Control-semicolon** to move to the previous marker.

3. Also switch off the skimmer with the **S** key. It's not helpful when color correcting except for one specific purpose where it's really useful.

4. Make sure nothing is selected in the Timeline and press **Command-6** to open the default color tools for the master shot underneath the playhead.

Figure 9.50 Color continuity workspace.

NOTE

Playhead Losing Focus: When you use the Timeline Index or the shortcut to move to a marker, the playhead loses focus from the clip. Normally the black ball hangs on the playhead as you move it around the Timeline, but when moving to a marker, the marker unfortunately becomes the selected item, not the clip underneath it. When you move to marker, you need to press **Shift-Command-A** to drop the marker selection and return focus to the clip.

Master Shot

We'll use the Color Wheels for the initial grade.

1. Figure 9.51 shows the Viewer and the Waveform Monitor. Notice the elevated bright light from the window. The fact is that these are not important to the scene. We need to spread the contrast area through the central portion of the image, ignoring the extraneous and relying on the Broadcast Safe effect to clamp the tops and bottoms of the luminance range.

2. Pull down the Shadows Luma down about -0.12, setting the bulk of the shadow just around zero.

3. Pull the Highlights Luma down to around –0.08. These two corrections will considerably darken the image.

4. Use the Midtones to set the brightness level for the scene. This is where your taste for the scene controls your setting. Somewhere around +0.04 should work well, but try something else. If you go too high, the scene will start to look washed out, and you'll have to push more Chroma into it.

5. Switch the Waveform Monitor from Luma to RGB Parade. This is where you set the Shadow color. When working with luminance, you do Shadows first, then Highlights, and then Midtones. You should do the same in Color: Shadows first, then Highlights, then Midtones. Figure 9.52 shows how elevated the reds are in the shadow areas in relation to the blues.

6. Move the Shadows puck away from red towards cyan/blue to try to balance the RGB values at the bottom of the scale. The easiest way to fine-tune the puck's position is to use the Arrow keys to move it around. Somewhere around RGB of 0,10,19 should work well.

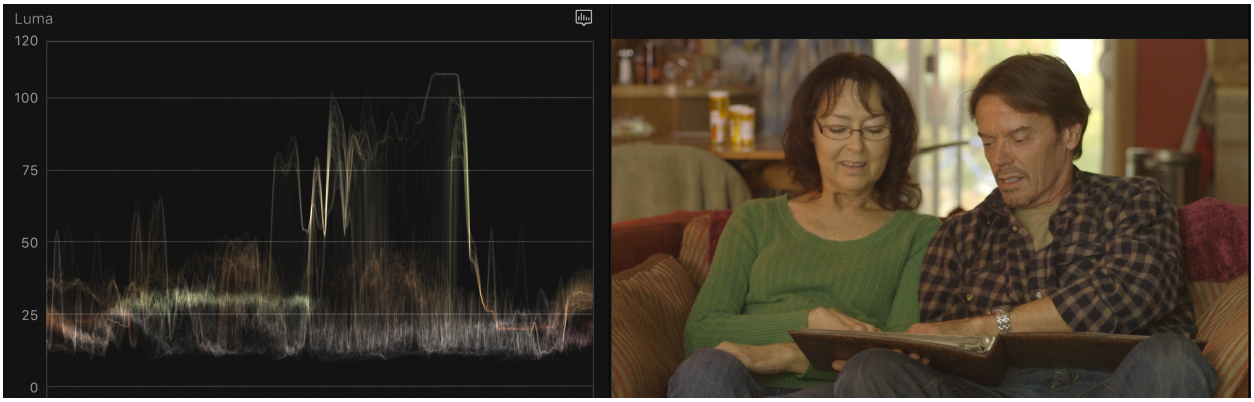

Figure 9.51 Viewer and waveform.

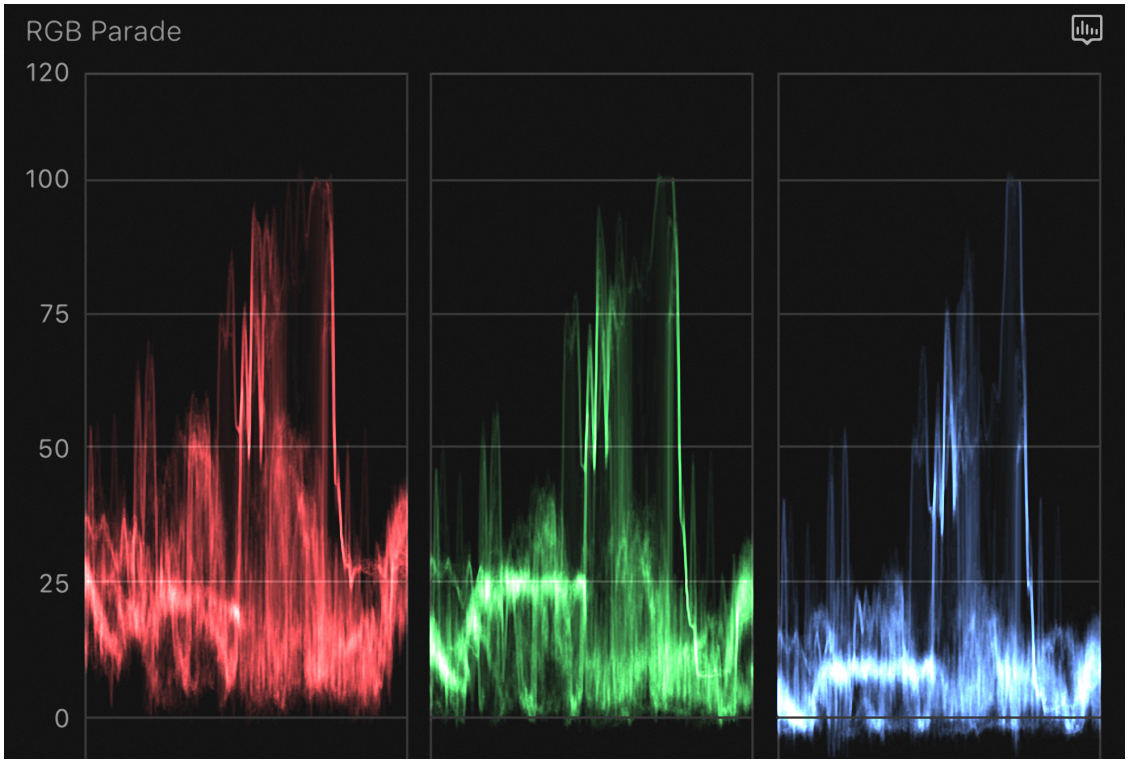

Figure 9.52 RGB parade.

There is very little highlight area in the image except for the window in the back, so we'll go to the Midtones. The principal color in this range we want to set is the skin tone. One trick to doing this is to limit the area that the scopes look at by using the Crop function. We'll look at cropping in more detail in the next chapter, but for now, let's use it to set the skin tone for Michael's face.

1. Activate the **Crop** function in the Viewer **Shift-C**.

2. Pull in the corners and side of the image as needed so that only the skin on Michael's cheek is visible.

3. Open the Vectorscope with **Control-Command-V** and you'll see a faint line sitting slightly off the flesh line.

4. Right-click in the Vectorscope and increase the scale to 133 percent to make it easier to read.

5. Select the Midtones puck in Color Wheels and move it around to drive the trace onto the flesh line, something RGB 7,0,14 should do it.

6. Go to the Video inspector and opposite Crop, use the reset button to remove the crop on the image, and see it in its full size. Make sure you click **Done** in the Viewer.

7. It's still a little flat looking, so let's adjust the Saturation. Because the window is of little importance to the scene, we can pull down the Highlights Saturation a bit, perhaps to 0.8. We can afford to push a great deal of Chroma into the Midtones to make the scene richer, perhaps up to 1.3.

If you want to give an overall color cast to the image, try using the Color Wheels Temperature slider primarily to warm up or cool down the scene.

Matching Shots

Before we move on to setting up adjacent shots, let's take the color grade we did for *025* master shot and apply it to the *026* master shot at the end of the project. The simplest way in this instance is to just copy and paste.

1. Select the corrected master shot in the middle of the project and press **Command-C**. That copies the clip and every value associated with it.

2. Select the *026* master at the end. You could use Paste Effects (**Option-Command-V**) to apply it, or you can use **Shift-Command-V** to Paste Attributes and check on **Color Wheels 1** to apply that.

Let's set up the close-up of Michael, *030a*, that follows the master shot.

1. Move the playhead to the *Michael cu* marker and make sure the marker isn't selected.

2. The Color Correction pane is probably open with the Color Wheels. If not switch to Color Wheels.

3. Start by pulling down the Shadows Luminance as we did before to about-0.08.

4. We'll use the Midtones to set the luma for Michael's skin. Because of the heavy color cast, to make this easier to see, pull the Master Saturation control down to zero. Do the same for the master shot.

5. This is where the skimmer becomes very handy. Activate it with the **S** key. Leaving the playhead at the *Michael cu* marker, move the skimmer over the master shot. Now toggle it off and on with the **S** key, allowing you to quickly compare the luminance values of the image in the Viewer and the Waveform. We want to try to set the skin tone to be about the same level. We probably should pull down the Mids to about 0.13 or so.

Once you've set what looks like the correct luminance levels, we'll have to work on adjusting the color. But first be sure to reset the Master Saturation controls for the shots. Just select each in of the Saturation arrows on the Master wheel and press the **Delete** key to reset it. The color is where the most radical difference is between the images, with the close-up having a distinct reddish cast.

1. In the Color Wheels for *030a* start with the Shadows puck. Move it to about RGB 0,6,2.

2. Pull down the Shadows Saturation arrow to around 0.77.

3. Push the Midtones puck a little toward cyan to about RGB 0,3,4.

4. Use the skimmer toggle to compare the two shots.

I'll probably leave it there for the time being, though I'd be tempted to use secondary color correction with a Color Mask on the left side of his face to pull down the extremes of the reddishness. It's not apparent when Kathy's face shadows his, but when it's in full light around the middle of the clip, it's quite distinctive (see Figure 9.53). Let's do that:

1. Add a second Color Wheels and apply a Color Mask.

2. Use the eyedropper in the Viewer to drag a selection in the red on the cheek on camera left.

3. Push the Midtones puck cyan perhaps as far as RGB 0,27,35.

Figure 9.53 Color mask selection.

The nice thing about using the Color Mask is that as Kathy's face covers Michael's, the secondary correction will have very little effect, because the selected red color is missing. I'll leave you to color match Kathy's close-up at the first marker, and when you're done, we're ready to apply your two close-up grades to the other shots. There are two ways to do this, one using the Timeline Index and the other using some hidden

keyboard menu items to which we can add keyboard shortcuts. Let's do Michael first with the Timeline Index.

1. Select the first Michael close-up we did, the *030a* shot right after the master and copy it.

2. In the Timeline Index for Clips, use the search box to find *030a*.

3. If the playhead is over the copied clip the indicator in the Index will show you which one was copied.

4. Select all the clips with **Command-A** and then **Command**-click the copied *030a* clip to deselect it (see Figure 9.54)

5. Use **Shift-Command-V** for Paste Attributes, checking on the two Color Corrections. It doesn't matter that one of the clips is audio only.

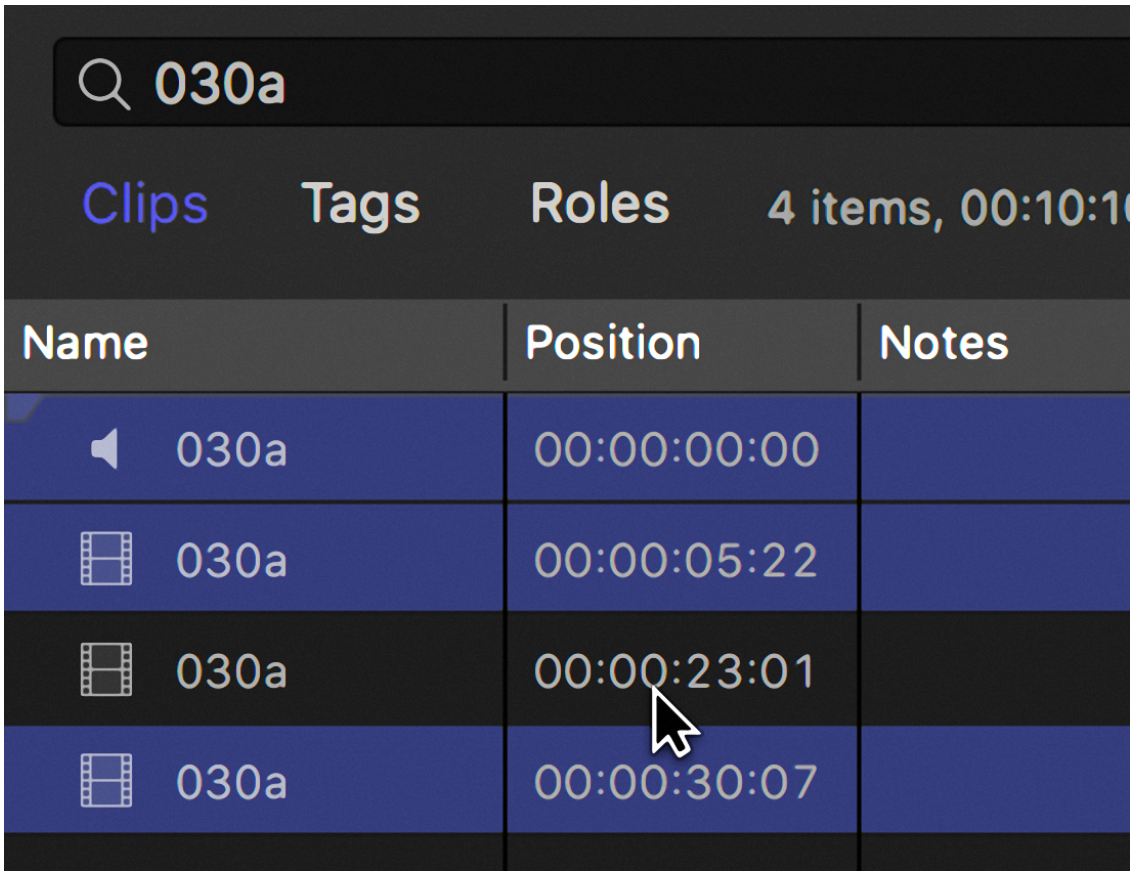

Figure 9.54 Timeline Index with selected clips.

Before we apply the Kathy's color corrections, let's set up some hidden menu items with shortcuts.

1. Open the Command Editor from the **Final Cut Pro** menu (**Option-Command-K**) and in the upper right search for *copy*. Eight items will appear. We're interested in the first three that copy a color correction from one clip and paste it to the selected clip.

2. For the first **Apply Color Correction from Previous Edit**, you can assign any keyboard shortcut you want. I chose **Control-Option-** (backslash), as in Figure 9.55.

3. For the second and third, **Apply Color Correction from Three Edits Prior** and **Apply Color Correction from Two Edits Prior**, I set the shortcuts **Control-Option-[** (left bracket) and **Control-Option-]** (right bracket), respectively.

4. Next copy the Kathy close-up under the first marker that you graded.

5. Select the *028b* shot that's between the two *030a* Michael close-ups after the master and use Paste Attributes to apply the color correction.

6. Select the last *028b* shot of Kathy and use the shortcut **Control-Option-]** to copy and apply from two shots previously.

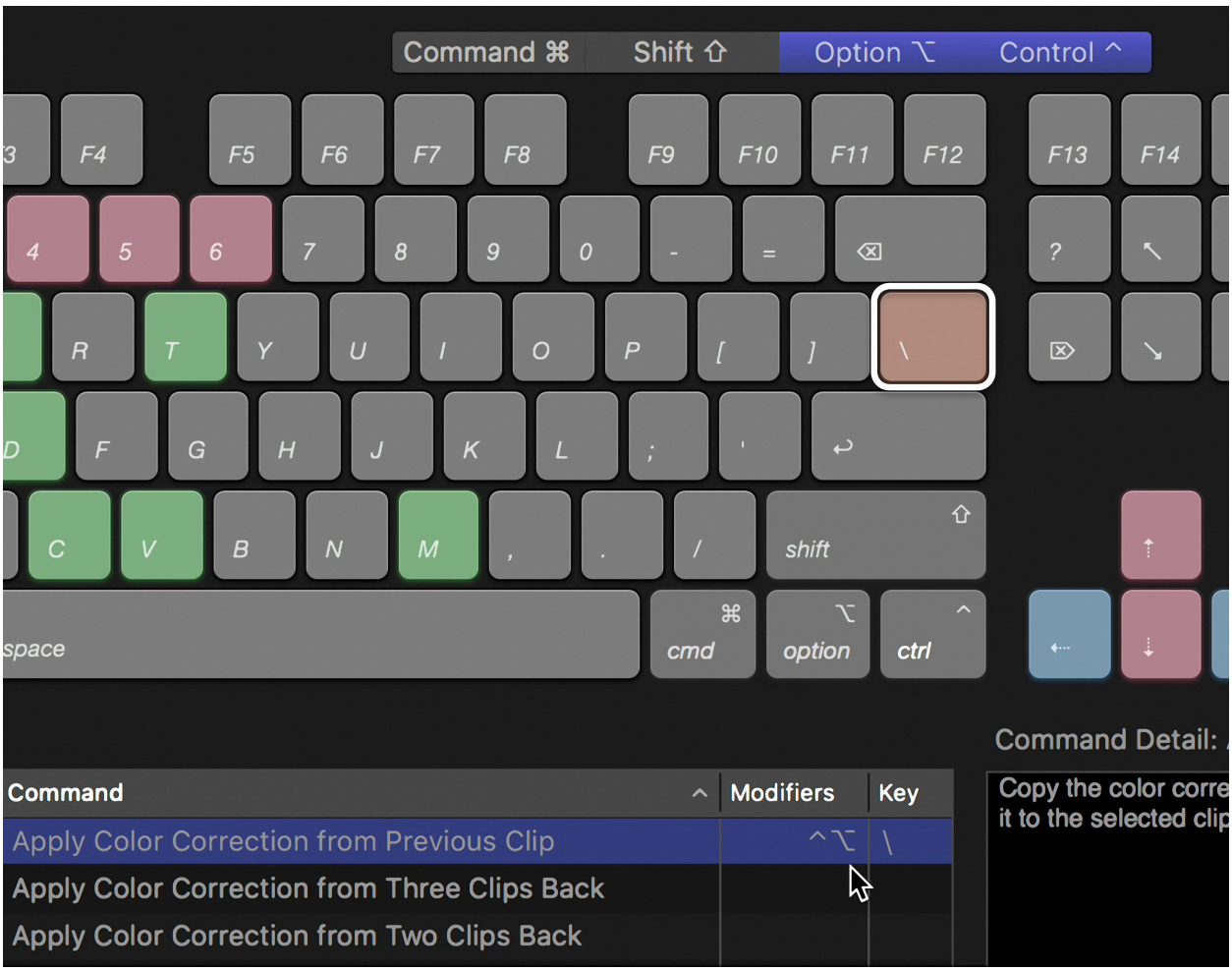

Figure 9.55 Hidden menu items in the Command Editor.

The shortcuts are especially useful for these types of dialogue scenes or for scenes such as interviews where the shots are cutting back and forth. You set your master shot and then use the Timeline Index to paste to every use of the master shot. Color correct the first two close-up shots and then use the shortcuts to step through the program applying the corrections to the appropriate shot as the camera switches back and forth.

Finally, don't forget, once you've done all your color corrections, apply them to the clips to combine them all into a Compound Clip, or use an Adjustment Layer, and add the Broadcast Safe effect to it to clamp those stray deep shadow and excess highlight areas.

TIP

Comparing to the Master Shot: Once you have the master shot set, you can use it to compare other shots. Select the master shot and convert it to a Compound Clip with **Option-G**. Use **Shift-**

F to find the compound in the event and select it. From the **Window** menu, select **Show Event Viewer**. If you have your scopes open, you can go to their **Settings** popup menu and choose **Vertical Layout**. You can do that for each Viewer and have separate Viewers and separate scopes, side by side, to compare the master shot with the shot you're working on.

TIP

Limiting Color Mask: Sometimes when you make a Color Mask selection, extraneous areas of the image get selected as well. You want to highlight someone's blue sweater and the blue curtains in the background get affected as well. You can prevent that by applying a Shape Mask after the Color Mask to limit the area the color selection gets applied to (see Figure 9.56). Notice that you can use the Shape Mask in different ways, to add to the Color Mask including it, or use it to select a different area and subtract it from the Color Mask.

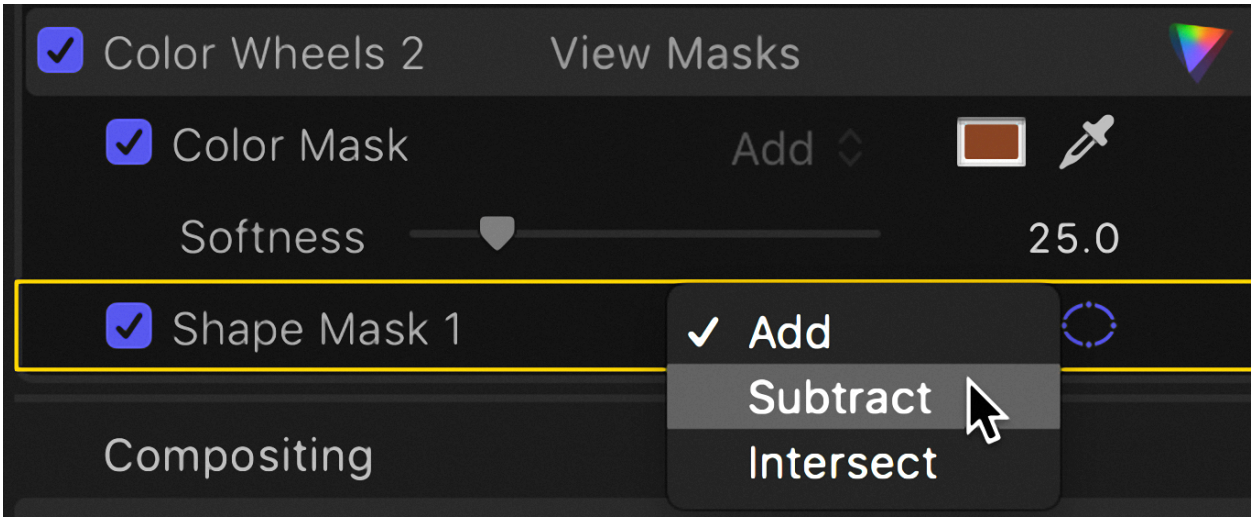

Figure 9.56 Shape Mask after Color Mask.

SUMMARY

In this chapter, we looked at the tools for color correction in FCP, starting with the automatic Balance Color function. For manual correction, we learned how to use the video scopes and the manual controls in the Color Board. We looked at working with the new color tools, Color Wheels, Color Curves, and Hue/Saturation Curves. We applied the Broadcast Safe effect to keep video from exceeding legal luminance levels working with Range Check. We also used the Match Color function to make two clips have the same color and tonal quality, and the preset looks to create special visual

effects. Finally, we saw the power of FCP's multiple secondary correction tools, including the extraordinary control of Shape and Color Masks. We also worked with a dialogue scene to match the colors accurately and to apply it to the various shots. In the next chapter, we'll look at the transform functions in FCP and use their animation capabilities.