

## The Shadow of the Rose

*Topics:* How the AB channels of LAB can be used for selections/masking, and in conjunction with Blend If.

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*Source of this file:* The author's draft as submitted to the magazine.

*Author's comment:* This column foreshadowed a similar chapter in Photoshop LAB Color, which I was preparing at the time. A few people knew how strong LAB was in boosting colors, but few realized the power of its selection tools. It perhaps shouldn't have been surprising, because it's usually easier to distinguish two objects by their color than it is by their darkness.

This archive, to be released over several years, collects the columns that Dan Margulis wrote under the *Makeready* title between 1993 and 2006. In some cases the columns appear as written; in others the archive contains revised versions that appeared in later books.

*Makeready* in principle could cover anything related to graphic arts production, but it is best known for its contributions to Photoshop technique, particularly in the field of color correction. In its final years, the column was appearing in six different magazines worldwide (two in the United States).

Dan Margulis teaches small-group master classes in color correction. Information is available at <http://www.ledet.com/margulis>, which also has a selection of other articles and chapters from Dan's books, and more than a hundred edited threads from Dan's Applied Color Theory e-mail list.

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## The Shadow of the Rose

Making selections and masks is easy enough if there's a big difference in color and contrast between the object you're trying to grab and the surrounding area. But if the difference is color only, you need to use LAB.

**M**y love, wrote Burns, is like a red, red rose, that's newly sprung in June. While much is to be said for the creative use of flowers in romance, and while redness is ordinarily a virtue, Image A is too much of a good thing. It's not a rose any more—all detail has vanished in an out-of-tune melody sung unsweetly in a chorus of cacophonous oversaturation.

There is, however, one area in which it excels. Because it's so radically different from its background, it's probably the easiest object we'd ever have to select in a photograph. And because it's so easy, it provides an excellent introduction to a two-column series on how and why certain selections become difficult, and how the use of the A and B channels of LAB can be the solution to otherwise intractable masking problems.

When we *select* an object, in Photoshop parlance, we allow ourselves to change it, whereas anything that isn't selected is locked. We can also make *partial selections*, which reduce the effect of any move, applying it less than on a fully selected area but more than on an area that isn't selected at all.

Too many people use selections as crutches. The better you get at image manipulation, the less you make them. Nevertheless, a selection is sometimes needed. To change image A into a yellow rose, or to import it into a different picture, or to ghost it out, or to tuck some type underneath it as part of a collage—all these moves

would require selections. Even in color correction, we sometimes want them.

Selections become portable when we choose Select: Save Selection to store them either as a separate Photoshop document or as a nonprinting (alpha) channel in an existing one. The term *mask* applies to such portable selections. They can be edited like any other grayscale pictures and used over and over. Creation of accurate masks is one of the most difficult tasks for a serious retoucher, because not every object is as ridiculously easy to isolate as this rose is.

**The rose at right (A) is so distinct from the background that it can be selected with the magic wand tool. A similarly colored flower, B, fades into the background as it gets darker. The red channel of RGB (C) has difficulty keeping the lower left and right edges defined. The A channel of LAB (D) has no such problem.**



Note, please, that we are speaking only of mask/selection generation, not necessarily image manipulation in LAB. If you prefer to work on an RGB or CMYK image, it's permissible to make a copy and convert it to LAB. A mask created there can be saved directly into any open RGB file that's the same size as the LAB one, as a direct copy would be.

**A Review of Masking Methods**

First, a quick inventory of the many Photoshop methods of selecting. If we want to grab this rose, here are some of the options, listed more or less in order of complexity.

- Hit the rose with Photoshop's **magic wand** tool, which has been around since the beginning of time. It's primitive, but granting the huge difference between this rose and its background, the magic wand will not break a sweat.
- Use the magic wand on a **single channel**, which often has greater contrast than the color composite. The red channel would be ideal, because its flower is extremely light, if not totally blank, and the background is dark. If you happen to be in CMYK, the same can be said of the cyan channel; and if you are in LAB, either the A or B will do.
- Click the rose after choosing the **Select: Color Range** command, to generate a selection of everything of a similar color.
- Trace the rose's edges with the **lasso** or the **pen tool**.
- Paint a selection by clicking into **Quick Mask** mode in the toolbox.
- Put the corrected version on a separate layer, and then use layer **Blending Options** to limit its effect to the desired areas.
- Try artificial intelligence to create the mask, using either Photoshop's **Filter: Extract** command or a **third-party masking plug-in**.
- Create a formal **mask**, usually by saving or blending existing channels and editing them. Sometimes the result will be loaded as a layer mask; sometimes merely as a selection by means of **Select: Load Selection**.

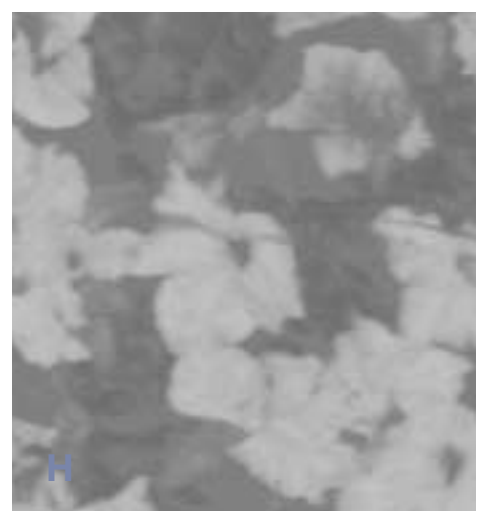
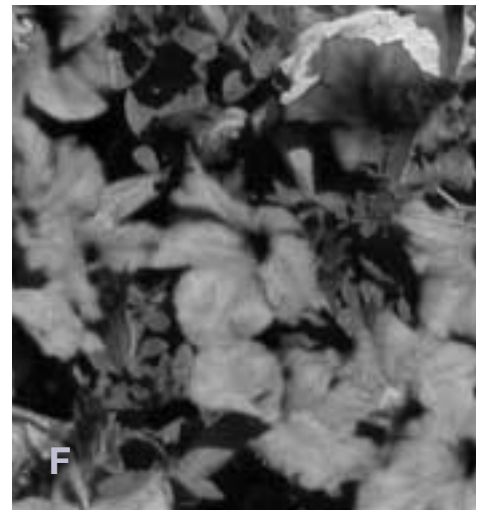
Every one of these methods works perfectly for this rose. Most of them are a total waste of time, since clicking with the magic wand would work just fine with a fraction of the effort. But as selections get more difficult, the options become more limited. Knowledge of channel structure saves an amazing amount of time, because the most accurate selections usually start with a single channel. The proper channel often lives in LAB.

**When darkness gets in the way**

As the flowers get darker, the selection problems mount—in RGB. To see how selecting overly dark colors can become irksome, take a sniff of a second red rose, image B. This time, the magic wand won't work: the flower's bottom edges are so dark that they blend into the background.

If you're working in RGB, the textbook method is to make a copy of the channel in which there is the greatest contrast between the rose and the background. Since red objects are light in the red channel, that's the one we'd pick (image C). Then, apply Auto Levels or something similar to the copy, trying to force the flower to be pure white and the background pure black. This usually leaves detritus in the center of the flower, which can be lassoed out easily if we're lucky. Then, as long as the copy has been saved as a fourth, nonprinting channel, we can activate it whenever we like with the command **Select: Load Selection**.

**The purple flowers in E are difficult to select. In the red channel of RGB (F) they are nearly the same tonality as the green leaves behind them. In the green channel (G), they are so dark that they can't be differentiated from the shadow. Only in the A channel of LAB (H) are the edges distinct.**



**Which of these images is the original, and which has had the background and jacket colors changed artificially? How can it be done without a selection?**

In this case, however, extra work would be needed to establish the bottom left and right edges—unless you start with a better-looking channel, like the one in image D. That's the A channel of LAB, remembering that you don't have to convert the original image to LAB, but only a copy that you can then use for mask creation.

In the A channel, a relatively light gray represents something more magenta than green. A darker gray is something more green than magenta. The B works the same way, except that a light gray is more yellow than blue and a dark gray is the reverse. In both, darkness is a foreign concept—they are color-only channels, as all contrast resides in the L.

Consequently, the edge is significantly better defined in D than in C. The rose may have gotten darker, but it remained more magenta than green. And bear in mind that the background is much lighter in D than in C. When contrast is enhanced to make it black, D will have an even bigger advantage than it already does.

### Color, contrast, and definition

Although selecting the rose in B is not the piece of cake that it was in A, it isn't all that difficult either. LAB makes the process quicker, that's all. But you can see where we're headed. The darker the transition, the less likely we are to be able to capture it in an RGB channel.

There is no problem selecting out the white petunia in image E: it has well-defined edges in every channel. The red and purple flowers are a different story.

The red is again the lightest RGB channel, but not by much. The color is so subtle that, the purple flowers in F merge into the green leaves, which are equally dark.

Nor is the green a suitable option. The flowers are so utterly non-green that they're blacked out in G. That differentiates them nicely from the leaves that were such a problem in F. Unfortunately, the flowers now merge seamlessly with the darkest parts of the background.

The mask can certainly be made without an LAB copy of the file and without a painting tool, but it will take a while, and require a fair amount of knowledge. An expert would know how to use the Image: Calculations command to com-



bine the red and green channels in such a way as to bring out the flowers. A multi-colorspace expert might instinctively realize that even though RGB channels almost always make better masks than CMYK ones do, this is the rare exception where the magenta of CMYK would be much better than the green of G. If you know how to do these things, pat yourself on the back. But before going to the trouble of constructing a mask in such a convoluted fashion, ask yourself, what's the point? The mask is just sitting there, waiting to be extracted, in the A channel.

In H, the flowers break easily away from both leaves and background. The A ignores darkness. It only knows that the leaves are green and the flowers magenta; that the background is neutral and the flowers aren't.

### Only his hairdresser knows for sure

Our final example is a more everyday one, and offers a slight variation on the previous themes: a different command syntax, and a different channel. Is image J the original, or is it K?

Clearly something has been done to isolate the man's face, shirt, and hair from whatever has been done to his jacket and the background. It will be really hard to base a mask on an RGB channel no matter which is the original image is. Some of the hair is darker than the background but some is lighter. The same is true of the jacket. If J were the original, we'd also have a tough time finding anything to work with in LAB, because the hair is more or less the same color as the background and jacket. Fortunately, it's not.

The original is K. The background and jacket are fully differentiated from every area of the man's head in the B channel. After all, skin is considerably more yellow than it is blue. And since his hair isn't black or gray, it must be some species of brown. All browns are more yellow than blue also. The background and the jacket are fairly close to gray, but have a bluish feel.



L

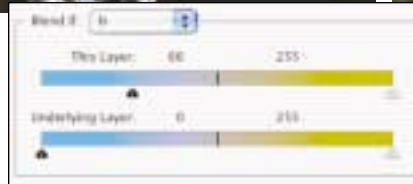


M



N

**Left to right: LAB curves transform the colors of image K; a Blend If slider in the B channel begins to restore areas that have become more blue than yellow; more accurate sliders produce a version that is acceptable except for the eyes.**



If the assignment is to create K out of J, it's possible to keep the original file in RGB, copying the file into LAB to make the mask. The following way is more efficient.

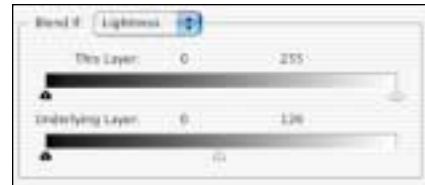
The objective is a layered LAB file having a version with the corrected background on top. That top layer can be produced in RGB, although I happened to do my top layer, image L, in LAB. Now, we use the Blend If sliders found in Photoshop's layer Blending Options menu to exclude those parts of the top layer that don't interest us, such as the space-aien skintone.

The Layer Style dialog that contains these options is accessed by the arrow on the right of the Layers palette, or by double-clicking the top layer's icon. By default, the sliders are wide open, meaning that the top layer takes precedence everywhere. We can, however, move them to exclude certain parts, based on any channel on either layer.

In image M, I'm trying to get back the original face and hair, by moving the slider to exclude things that are more blue than yellow on the top layer, B channel. I have not gone far enough, as the ugly blue blotches testify. As the slider moves to the left, more and more of this garbage will vanish, but there's still the risk of some kind of harsh break.. To avoid this, we Option/Alt-click the slider, which breaks it into two halves that can then be adjusted individually.

The B slider in Image N, therefore, instructs Photoshop to use the bottom layer for all areas found to the left of the left half of the left slider. It is to use the top layer for all areas between the right slider and the right half of the left slider. And in areas found between the two halves of the left slider, the two layers are merged smoothly.

I added an L channel slider to exclude the shirt, which wasn't affected much anyway, and the tie, which was. As both the face and the hair are relatively dark, excluding all areas that are relatively light in the L channel won't hurt anything.



By this time, the only remaining issue is the eyes, which were originally just as blue as the background and have therefore taken on the background brown. They are easily restored by creating a layer mask, lassoing them, and deleting the mask to black. The whole point of the LAB exercise is to avoid having to make painstaking hand-drawn selections. But if you can't lasso these eyes without going beyond the man's ears, you're even worse with the mouse than I am, if possible.

Once again, this selection routine would have taken much longer elsewhere. Pictures exist that require even harder selections, and for those, which we'll look at next time, sometimes you can't get by without LAB, as far as I know. Meanwhile, it pays to remember that just because a thing is dark doesn't mean it's colorless. And if it has color, it can be broken away from its background.

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*Portions of this column derive from Photoshop LAB Color: The Canyon Conundrum, published this month by Peachpit Press. It's the first completely new book from contributing editor Dan Margulis (DMargulis@aol.com) in nearly ten years. For information on Dan's color-correction tutorials in Atlanta, Chicago, and San Diego, call Sterling Ledet & Associates at 877-819-2665. To join his on-line color discussion group, www.ledet.com/margulis.*