

Every color sensation may be analyzed into three mathematically determinable elements: the hue, the brightness, and the brightness of the intermixed white. Herman Grassmann

Here is the structure of my proposes

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Talk about color

At first time, it was not easy and actually some point always remain "dark". It's just my hobby so perhaps, made some conceptual error.

It is important to become familiar with the vocabulary of the job :

Natural light being the combination of the colors of the spectrum (so-called fundamental colors)

Hue corresponds to the dominant wavelength of the color

A color is characterized by a relationship with lightness (brightness) and chromaticity

Lightness embodies the chromatic notion of Luminance, amplitude, the power of light.

[Chromaticity](#) The quality of color purity. Value of 0 for an achromatic gray, the higher the Chroma, the more intense the color.

The relationship between chromaticity and lightness characterizes a color.

Why L*a*b*?

It's a Uniform Color Space!

I recommend this [Page](#) below the graph we have a compact review of different color space, in simple term + -, compare with HSL.

The L * a * b * makes it possible to separate the B & W component of a component color by decoupling it temporarily, it is easier to modulate the color add, subtract and mix linearly,

Okay, I read an « approximation » [RLAB](#) see the last pages 42...

This encouraged me, explore a solution.

Try it and see! Many undo, redo...
And...found a solution, enough useful for me.

Test file :

Use a color wheel or your chart test image .

You can select this [L*a*b* graph](#) for better understanding, at the first time.

Jpg 8 bit to Lab 16 bit will induce posterization but OK for test

L * = white (L +) vs "black" (L = 0)

a * = red (a +) vs green (a-)

b * = Yellow (b +) vs blue (b-)

Note the zero end of the brightness dimension L * represents only the absence of light (surface reflectance) and not a real black color. In the strict or rather physical sense of the term black is the absorption of all the colors of the spectrum or the absence of light. Here black is not a painter color!

Method :

1 Go to Mode Lab

2 Duplicate Background twice

3 Go to the top one rename it Color (Chroma), and the middle rename it L (for Luminance)

At this step we have 3 layers

Color on the top Set it color mode (or Screen)

L on the middle Set it Luminosity mode

Background

4 The Color Layer

4.1 Select The Color layer. I prefer no white Color Erase White paper clear the white component and no Black Color I use black point on level adjustment. Black and White are not color here, just min and max limit.

4.2 Go to Channel windows Hide the L channel => Clear L Color lightness

4.3 Set the Blend mode on Color

5 The L Layer

5.1 Select the L layer

5.1 Go to Channel windows Clear L AOpponent & B Opponent

5.2 Set the Blend mode on Luminosity

6 Deselect Background

That's all

At this time, we have divide into 2 single-components, next time we tune, then see interrelationships adjusting at a highest level.

Possible have a* and b* individually decoupling. OK if the mode is screen. For me, more difficult without color print. b* some time had a better color balance effect (channel mixer [90... 110%].

Potential adjustment possibilities :

You can

=> Modulate the amount of the Color.

Minus the opacity of Color , or Add a copy of the Color layer and adjust the opacity.

Or better 2 layers with 50% opacity, the top one give you [75...125]

note do not use multiply mode, reflect mode, other derivative mode, give you another color

(eventually Divide by zero, and is not so logic operation in this space we have better choice ; but

no problem with L layer (L is a Grey layer 16 bit, or in fact Grey 16 bit is the L* layer)

=> Use a pixel layer in saturation mode well explained [here](#) and with good English not my maternal language.

note

- 1 paint with White or Black color give you 100% desaturation, modulate with x% opacity give x % of color here (White or Black Brush are 100% Saturation as we see in the color wheel).
- 2 Saturation mode, pass on Normal show your effect, return after on saturation mode
- 3 I made a palette with progressive saturation brushes, more useful x%S

=> Channel mixer L*a*b* Color Mode

you will see the decoupling an amount of colorization with the Grey layer,

note at the first time for learning, don't touch the L, we will modulate the amount of White or amount of Grey at the last Step.

Make attention 1 point is very important (to much!) and it 's no possible write with decimal!!

You can, must, use the opacity for better use but...

=> Selective color, I use it color by color. You will see the decoupling an amount of colorization with the Grey layer. It's my favorite tool adjustment, for color L*a*b*.

note at the first time for learning, don't touch the L we will see after later.

For each of 8 color you can adjust Hue mod, saturation mod, color mod, Luminosity mod and neutral

=> Adjust Saturation HSL. on the Color Layer.

use an HSL Shift Adjustment , here + or - % Saturation

HSL transposed in L a*b* , change tint, and + or- % Saturation, L is an another action for saturation modulation.

In RLAB, Saturation= Chroma/lightness = Color/ L

Note HSL is relatively compatible with L*a*b* mode, but HSL have intrinsic difference comportment. (HSL u,v will be better and in accord with lch, polar version of L*a*b*)

For modified tint, we have - + % angular rotation

For help me I print this [This file](#)

by example change orange point in a green point

First

rotation 90° on the left, here -90°C rotation, for green

Second

By suppose I want a darker shade,

decrease L, go in the direction of the achromatic point, darker the color.

=> Adjust color with **channel mixer**

Example:

Photo shoot at the blue hour.

Select a color on a pixel layer Merge with color & L select sampled color,
or on color layer only ; for me a blue in the sky color picker said me

LAB (38,-18, -36) L, a*, b*

Add a new sampler Lab fixe it in the blue zone selected

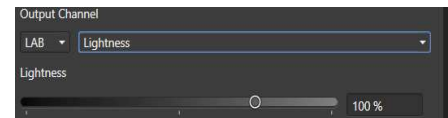
Photo 1.7 make a new palette it name it Document

Look on the [file reference](#), a color painting my choice prussian blue 40-17-36

(note The Scale is too compact ; we must have decimal!!!)

Go to channel mixer

correct Luminance with Output channel correct
Lightness slider below for have 40;

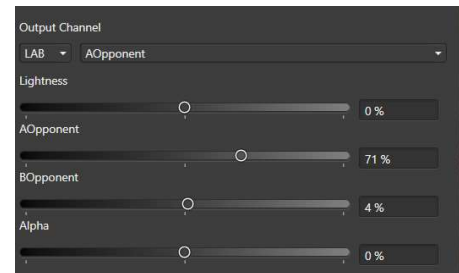


then

correct AOpponent the a* value slider for have -18;

then

correct BOpponent with b* value slider for have -36
in the sampler



Note Sometimes you have interactive effect A, B,
for one value a* or one value b*, if color are too different,
The Blend mode must be Color.
Okay, you can try just with feeling,

Workflow :

It's mine, see for you.

I trying gave some instructions which gives a new or different way to the effect of (multiple) adjustment.

If you are strict linear thinker, quite, do not panic, step by step, task by task, one by one.
L*a*,b* is a very good color space. We have to promote him and design tools.

I prefer sculpting light by subtracting starting with a big bloc . Also I start with a global little over-saturation, just a add an over +10 % for example. better view, objective of colorization...

3 step

First,

set a global over saturation,

Second time,

set desaturation, color by color,

Third time,

I adjust the global brightness (lightness), and color brightness

In RLAB, Saturation= Chroma/lightness = Color/ L

Wikimedia said "*adjusting the lightness in CIELAB while holding (a*, b*) fixed does affect the saturation.*" Yes indeed

For adjusting the lightness

Apply image equation LAB $DL = DL / x \times x$ see in place (0,8, down or up 1.15 example)

Curves Lab L parallel lines above or below the default line or

Level and or Luminance mask made with Blend Ranges or

Channel mixer or

Pixel layer, in overlay mode with white, or % Grey (*brightness of the intermixed white*).

Selective color, one of the most powerful tools for photographers, more useful for me.

Note L layer can be also duplicate many times. In this case, **Apply image equation give better precision**

Don't forget, the blend ranges, in this solution, it's very effective, for example, applied for dark or high light with great, sweat, progressive modulation.

“Repentir Saturation”

In practice, at final stage, you can accord the light, on HSL, on channel Mixer, on selective color, adjustment you have made before, and change one of the 5 light modes as linear light [0.. 15], vivid light (saturate color), use the opacity, hard light [0.. 25].

Divide and rules :

I show you a system. The difficulty have a global view. Be quiet, step by step.
for me, after the prime time, it's more easy, thinking in discrimination term

Saturation discrimination

Hue discrimination,

Luminance discrimination

Or in contrast term

Contrast Chrominance

Contrast Lightness

With experience, you can adopt a retro action loop, Color, L*, Color \Leftrightarrow Lightness

You can,

denoise selectively L layer or Color layer with great facilities, globally, for a color, a zone

add noise on the L layer for give a speckled aspect;

optimize accentuation;

or with a copy of color, add a Gaussian filter for change color aspect .

have better gradient color, (property use by the Cartographer).

You can,

use a mask made with the L layer modulate by curves (L, and Alpha, blend Range) or with the channel Mixer (L and Alpha), or Saturation RGB mask found on this forum (thanks to him), or Saturation L*a*b* mask (made with L modulate)

My workflow 1.7 now Raw (NEF for me) \Rightarrow RGB 32 bit **Linear** \Rightarrow Lab/16 \Rightarrow RGB /16 eventually 1.7 have better Interface for HSL and better color precision,

For me, it's enough useful and I have better adjust.

It's easy with experience, and method.

I take care well document the project, the job is multifaceted and sequential:

With this method, divide into single-component, tune, then, and “accord” interrelationships at the highest level.

I am aware that for my part this has asked for time ; time for mental impregnation, and it's just the beginning.

Cool hobby for me, cool and modern space color.

Take your time, enjoy and have fun.

Link:

<http://www.boronline.com/2012/03/26/Color-Spaces-for-Human-Beings/> HSL u,v

<https://www.handprint.com/HP/WCL/color14.html#satcost> Bruce MacEvoy

<https://www.handprint.com/HP/WCL/vwheel.pdf> very interesting, I print this.

Perhaps this last link can help you...

<https://www.handprint.com/HP/WCL/huepurity.html> in CIECAM last evolution... real coordinate color painting (a,b) little difference for us (c, a, b,) is (L,a*,b*)