Jay Zuga's Lighting Guide

Monte Zucker Forum **Basic Portrait Lighting**

Basic Portrait Lighting

This article first had life on Zuga. It was a thread that covered some 70 pages and took over a year. The thread had over 30,000 hits making it the second most popular thread on Zuga.

This thread is a recreation of the first assignment I got in my portrait class way back when I went to Brooks Institute. We had a lovely mannequin named Gurdy and we had to do all the lighting patterns in a 2/3's view. I got this mannequin off of Ebay, thought she'd be good for teaching.

My background. I have had a first class photographic education, a very long time ago. I was a motion picture major at Brooks Institute in Santa Barbara, California and graduated June 1976. Everyone there, including the MP majors, took the same first year classes, one of which was Portraiture I. That class is where this thread was born. It was the first assignment in my first portraiture class. All I wanted to do in this thread was duplicate that assignment. It is very, very basic information. You do not have to be a master to know it or to use it, just try.

I do not present myself as a portrait photographer, I am not. I am good with lights, meters and very much love the technical part of photography. If I can share that love of technique then I hope I have done some good. If you are looking to me to be a portraiture
guru I'm not the guy, I don't shoot people much.

If you want to go beyond just putting patterns of rubber heads then please look to the masters. Our own Mark Hamilton is just the kind of guy you need to take you to the next level. Take classes by Clay Blackmore.

A Plea,
If anyone gets anything out of this thread I hope it is this--Experiment. Please do not take what I say for gospel, try it yourself. Prove it to yourself. The thing I like about digital is its ability to test. You can try as much as you like and it doesn't cost a thing to do it. Think outside the box, and just maybe, get your lights out of the box too.

I for one would love to see great lighting return to photography. Rick deLorme is doing it at weddings, his work knocks me out.

Light is magical. Light is what we record on our images. Light is taken for granted. Lighting has been oversimplified to the point of becoming boring. Flat lighting is not portrait lighting; its illumination.

You don't have to pay a thing for great lighting, it's all around you. You just have to start looking for light coming from a good direction. Shoot from the shadow side of the face and you can't go wrong. I've got a five light studio up in my master bathroom. Windows are the key, mirrors give the fill, and I have a skylight that is a perfect hair/separation light. With natural light sources you have to think backwards, you have to move the subject to the good light. With a studio set up you can pose the subject then move the lights in to position.

The best natural places to look for light are those that are under partial cover or overhangs. Porches, front entranceways, under evergreens, covered storefront walkways, alcoves, the list can go on and on. Be careful with window light because most windows are too low to give you anything but split lighting. But even with low windows you can always cover the lower part with something to raise the effective height.

Monte has a fabulous CD out, How'd He Do Dat, and one of my favorite images on the CD is this set up shot. I like it because it shows the feminine pose very nicely. But it has another element, the placement for the key light for Monte's short loupe. Other than the split light, this is as low as a key light should ever get, and still, the key light is well ABOVE the subject's head.

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Monte came up with a great solution to setting his lights. He used a four light set for portraits (five lights for brides), Key, Fill, hair, and background. The key and hair light are both small Photogenic heads in Mini Apollo light boxes. Both are fitted to boom arms. The lights are placed on either side of the subject. The light that the subject is looking towards becomes the key light and the other is swung up to be the hair light. If the subject is posed in the opposite direction the lights switch, the former key goes up to the hair light position and the former hair light comes down to the key position. It works great! Only takes a second or two per light to move. I would never leave the lights nailed down to the set and make the subject change for them. The lights should always be easy enough to move any time your subject does. If you are working professionally you need to look in to the various suspended systems for hanging lights. Rails make life very easy as well.

There are five basic patterns, Loop, Rembrandt, Butterfly, Split and Kickers.

Loop.

Monte’s favorite pattern. It is the most universal of the five patterns and fits most people. It is characterized by the little shadow formed by the tip of the nose that points down towards the corner of the subject’s mouth. Loops can be tight or long. Monte tends towards a smallish loop. It is a lighting pattern that is as close to being frontal as you can get and still be a loop.

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Rembrandt.

A classic pattern that can be seen in many classic films. The Rembrandt is a triangle that is formed on the shadow side of the face. The shadow is just a continuation of the loup pattern just a bit longer shadow. The classic pattern does not have the triangle of light hitting the shadow side eye, but many photographers like to cheat the light up towards the far eye a bit to give it more life.

Butterfly.

Also know as glamour and Paramount. The key light is directly in front of the subject so a little shadow forms under the nose. The shape of the shadow can look like a butterfly in silhouette, thus the name. The Butterfly pattern works best on young, thin symmetrical faces and is used by fashion photographers to show off the bone structure of their highly paid models. This pattern tends to widen the face so it should not be used on round or heavy faces.

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Split.

The key light is at the same level as the subject’s face and lights the face so that half of the face is lit and the other half is in shadow with the shadow running down the middle of the nose. Can be used for very dramatic effect.

Kickers.

A light is placed behind the subject and aimed to skim the cheek. The light comes in to the camera. In the classic mode two kickers are used. The lighting is very dramatic and tends to bring out “character” in time weathered faces. Karsh was the master of kickers. Kickers can be used with dark skinned people to very nice effect. A subtitle kickers can be added to male subjects to add some “chrome to the Cadillac” It is very rare to use this pattern on women.

These are done with only two lights, a key and a fill. If you are good with reflectors you can do it with only one light. To learn this kind of lighting you do not need fancy equipment, you could go to the hardware store get a clip on light, put a 100 watt bulb in it and cover it with a duct taped on diffuser you can make from an empty white plastic milk jug. One of the nice things about digital is you can set the white balance to any color temp so cheep lights work fine, just look weird. Just move the light until the pattern is there, you'll find it. The shots above were done with Metz 45 CL-4 strobes mounted in 12” light boxes, no

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modeling lights at all, just guess and check. I like digital.

The kind of light you use doesn't matter, a candle, a window, full studio strobes, and old flashbar, it doesn't matter one bit. Light is light. Just look for the patterns.

Ok, here's the same patterns with a 2/3's view of the face.
Loop

Rembrandt

Butterfly

Split

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And finally the profile

Loop

Rim

Butterfly
(no image)

Rembrandt

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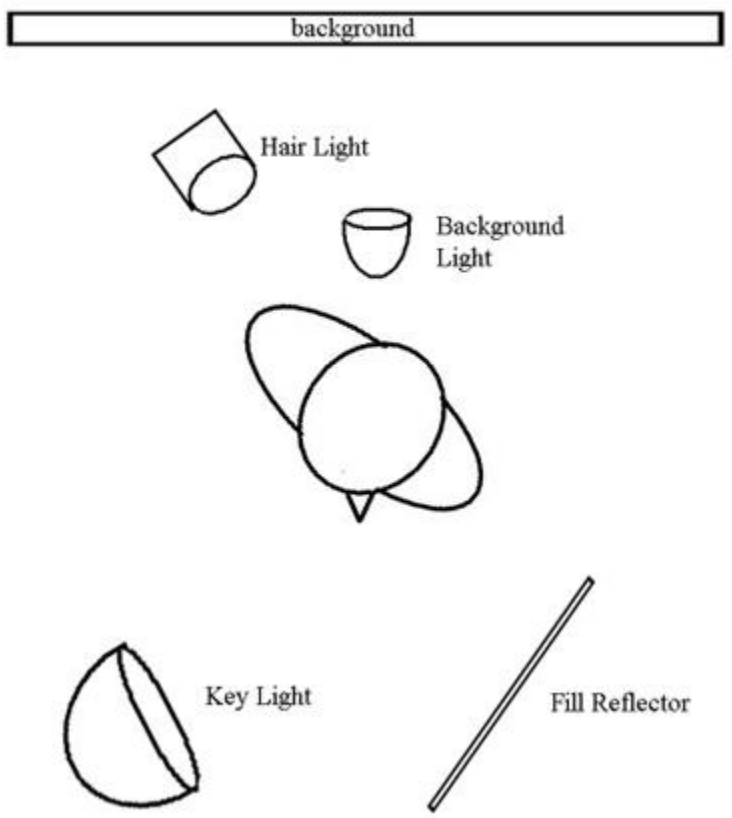
Here's a diagram of the lighting setup for a loop pattern



O.K. here's something fun to do. I shot four new pictures of my mannequin, one bare household bulb, one with a Metz 45 CL-4 without any light modifier, one with the Metz in a 12" by 14" softbox and one with the Metz bounced out of a 32" eclispe umbrella. All the light sources were the same distance away (about 2').

The correct choice of lighting

Take a close look at all the shots below. This mannequin has ideal features, a symmetrical facial structure and best of all she doesn't move or complain. Notice that the different lighting patterns have an effect on how you perceive her face shape to be. Butterfly and loupe patterns widen the face. Rembrandt, split and kickers narrow the face. The angle of view changes how we perceive the face as well. Full face is the widest while profile slimming. One thing I have noticed is how often photographers choose the wrong lighting for their subject. An example is shooting a heavy set woman full face in a glamour set up. Full face widens the appearance of the face, butterfly lighting does the same, but combined they can be brutal on someone who is not anorexic. What we want to do with lighting and camera angle is to take less than ideal faces and present them as close to ideal as possible. The correct choice of lighting can play a big part.
Lighting Comparison Shot

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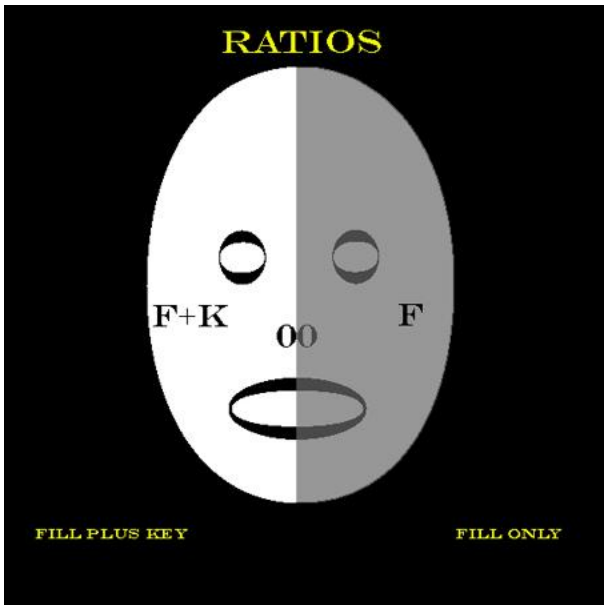
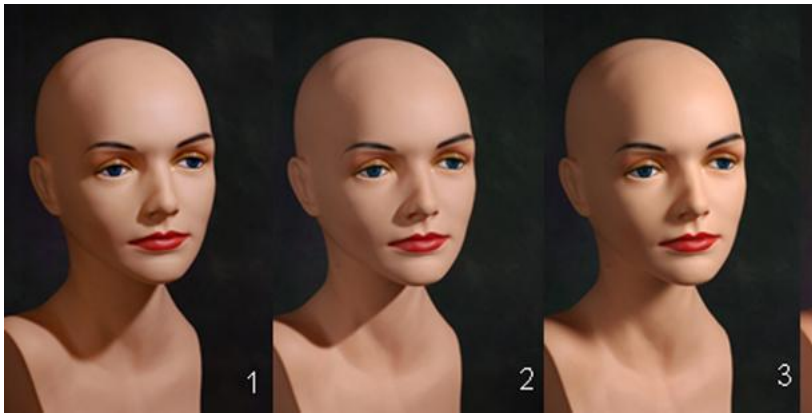
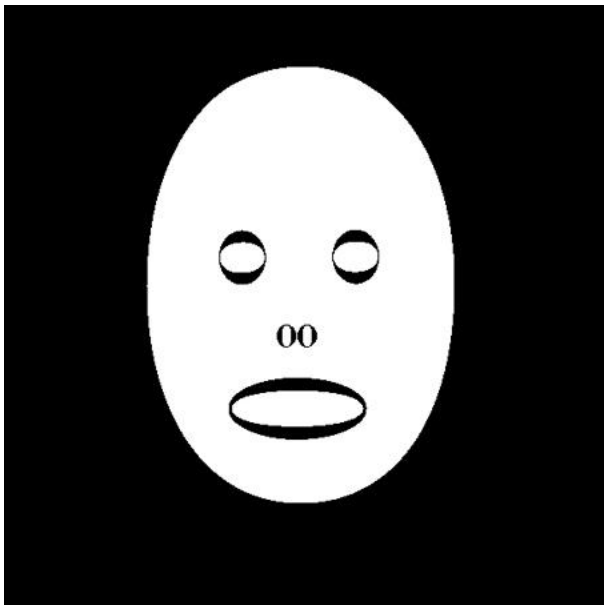


Can you tell me which is which?



Ratios

A ratio is the difference between two lights. We start with a fill light. A fill light should be shadowless illumination. Both sides of the face get the same amount of light. Lets say the value of the light is 1 (one).



If we add a key light to one side of the face at the same light level as the fill we will then have two units on the key side and only one unit on the fill side. Light adds up. So when the key and fill are at the same f/stop (intensity) the ratio is 2:1. 2:1 because there are two units of light on the key side (one from the key and one from the fill) and only one unit of light on the fill side (fill only).

Ok lets turn up the heat a little. We turn up the key so it now has one stop (twice) the light than the fill. Light still adds up. Two units of key adds up with one unit of fill and almost by magic, a 3:1 ratio! The trick is remembering that the key is twice as bright as the fill.

The example below was shot in my basement using a Nikon D70 camera with a 60mm micro lens, and two SB-800 strobes set on manual. For those who do not know Nikon the SB-800 is a little shoe mounted strobe. For the 2:1 ratio both strobes were set on 1/16th power and placed 24 inches from the mannequin. To get the other ratios I simply powered back the fill light by one stop each shot. Since there was less light falling on the subject I had to open up a tad for each shot following the 2:1. The strobes were fired by a Quantum radio set up.

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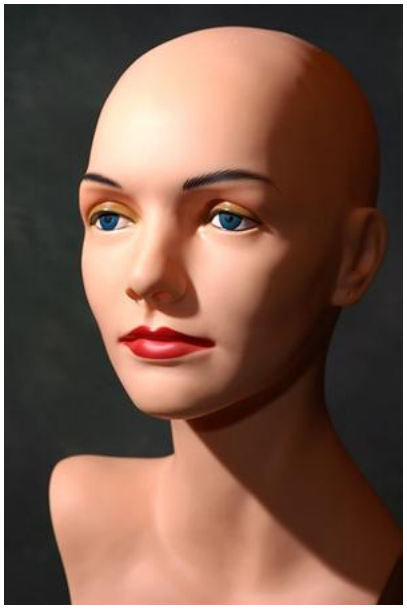
2:1

4:1

3:1

5:1



Broad v. Short
Ok back to portrait lighting. For the most part portraits are made with short lighting. Except for the very thin, long faces, short lighting is more flattering than broad. Neither Gurdy nor the camera moved at all, just the lights.

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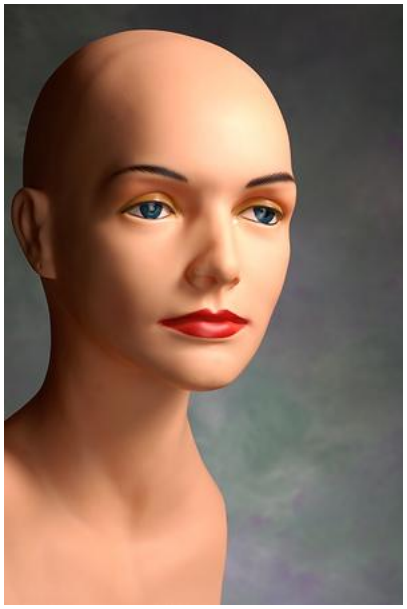
Broad Lighting

Short Lighting



Size of the Light

The shape of the shadow is not determined by the size of the light. The hardness of the shadow is. It is how the shadow transitions from light to dark. In the example below Gurdy was shot first with a bare bulb placed at 24" from her nose. The second shot was with a 32" umbrella also placed at 24" from her nose. The pattern is the same but notice how sharp the shadow is on bare bulb v. the umbrella. You can really see it on the shadow on her shoulder. What is harder in many rooms is to get a big light up high enough to create the pattern you want.

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The number one reason why most photographers fail at portrait lighting is they have the lights too low. Loops can be created with lights that are 15 to 45 degrees above the subjects head. A 45 degree angle is created when the light is as high above the subject as it is away from the subject. You can not place the light 10 feet away from your subject and get a loop pattern. Why? A seated subject is about 5 feet off the ground. Add that to the 10 feet necessary to get the pattern and now your light has to be 15 feet off the ground.

Solution. Simple, move the light much closer to your subject. A portrait light should be placed just outside of the frame of the picture. If the light is only 2 feet away then it only needs to be 2 feet above the subject to get patterns. It also means that you need to power the light down or use smaller, less powerful lights. A portrait set up only needs 50 W/s of power for 5 lights. The ratio shots were done

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with Nikon SB-800 strobes set on 1/16th power. At 2 feet away that still put me in at f/16. And the SB-800 is not all that powerful of a strobe.

What are the two things holding photographers back from great lighting?

Big soft boxes

Big umbrellas.

When it comes to lighting bigger is NOT better. Bigger is uncontrollable.

If you combine bigger lights with smaller studio space what do you get? No control at all.

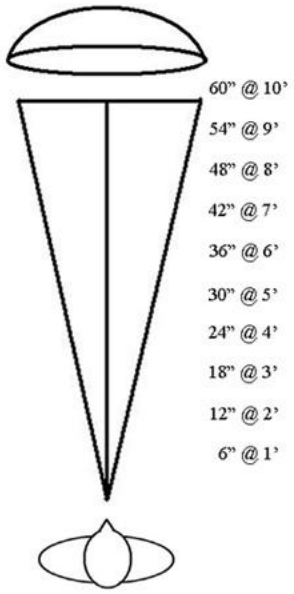
Not only that but big modifiers soak up all the modeling light. Now you have a big, soft light source you can not see because the modeling lights are too weak.

It's no wonder that we see such bad lighting these days. Everyone wants to use huge lights an no one has the space to move them in.

O.K. enough of a rant.

If you knew where to put them, you could carry a "studio" full of lights in a lunchbox. 5 Vivitar 285's would fit. Pop on some peanut slaves and you can fire them off with ease, all in the space of a couple of sandwiches.

The softness of a light is relative to it's size to the subject. It's size is determined by it's width and it's distance to the subject. A small light in close will be just a soft as a larger light farther away. The scale below demonstrates this. The number on the left is the light size and the right the distance in feet. You could use any combination below and the resulting softness would be just the same. A 12" light at 2' will look exactly like a 60" light at 10'



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Rick deLorme's Technique

This close up of my mannequin Gurdy was photographed using a technique that I stole from Rick Delorme. He had he used his Sunpak strobe bounced off of a simple reflector to light his subject. The reflector became the light. The reflector was in the correct position for a loop pattern. So I thought I’d give it a whirl. I have a homemade reflector made out of a 16” piece of black foamcore covered in crumpled up aluminum foil. I put a 20 degree honeycomb grid on my Metz 45CL-4 flash and aimed it at the reflector. The grid limits the spread of the flash’s beam. The grid also kept any direct light from the flash off of Gurdy’s bald head. The flash was placed just behind Gurdy’s head. (It is just out of the frame in the shot below)

I took what was a very small light source and made it very, very large. Even though the reflector is bright silver the light from it is very diffuse. That is solely because it is so close to my subject. Notice also where the reflector is in relation to Gurdy’s head, the bottom of the reflector is at her eye level. The light is coming from above and to the side of her. That’s where the light had to come from to get the loop pattern. On the Photogenic posing table in front of Gurdy is the 8” gold reflector I used to bounce some light back to the shadow side of her face. It was just inches from her and again just out of camera frame when I took the shot. I like the warmth it added to the shadow side.

What I loved about Rick's technique is how simple it is. Anyone with a reflector and a strobe can do this shot. We all have that gear. Nothing fancy. You could do the same thing on location by bouncing off of a

wall. So long as you know where the light needs to come from great lighting is so easy. And it doesn't have to cost much either. The reflector I made from stuff lying around the house. Here's a shot I made at one of Clay Blackmore weddings. It's the MOB and her sister watching the bride get her makeup on. They were a couple of feet away from a wall, just bounced the flash off of it, an easy candid.

Flash Key Outdoors--Overcast day

It was an overcast day here in the Washington, D.C area. I wanted to do some outdoor flash with my favorite model Gurdy. I took her out back to my deck and set up. The overcast was fine if I wanted to use a Butterfly pattern on her but I didn't. So I got a piece of black foamcore and placed it over her head. She now had perfect even, flat lighting on her, some would stop here but not me. The meter reading for Gurdy was 1/40th second at f/7.1 If I added a flash at f/7.1 placed in a place to give me loop lighting I would be happy. I would have a nice pattern and a 2:1 ratio. But light is cumulative. If you add the flash to existing light of equal value you will overexpose the highlight side and the shadow side would be too light as well. Solution, stop down one stop but not with aperture, that needs to stay at f/7.1 Stymied, never. Just stop down with the shutter. So with the flash set at f/7.1 and the camera set on 1/100th at f/7.1 I take the second shot. Nice but it could use a bit more ratio. Simple just stop down the shutter another stop. I would then have a 3:1 ratio, and that's what I did. Now if I were being a real techie I would have opened the f/stop by 1/3 stop, but I'm lazy.

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The down side to working outdoor flash key in this manner is the background. As you stop down for ratios you are also cutting down on the background exposure. This will all become a little more clear when we get a good sunny day to take Gurdy out and do flash key/flash fill in the sunshine.

No flash, just ambient light,

1/40 @f/7.1

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2:1 Ratio, Flash equal to fill

1/100 @ f/7.1

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3:1 ratio

1/200 @ f/7.1 (should have been f/6.3)

Lighting is all about balance. Maybe I've been around long enough to know when lights are in balance, I may have light meter eyeballs. If you have a digital camera just give it a try. Wink a little flash in to an outdoor picture and see what happens. If the flash is too strong it will be obvious on the screen. You can always use a flash meter. When using a flash meter outdoors be sure to set it to a high enough shutter speed so that it will only be reading the flash and not the ambient light. Whatever method you use the proof is in the pudding, does the shot look natural. For example a shot from my lens perspective thread. Gurdy was placed in the shade in front of a sun lit house. The natural light is coming from behind her. A strobe was used to light her from the front and matches the intensity of the sunlight on the house. I

used the sunny 16 rule for exposure. So when I set my flash to give my f/16 I knew it would match the background, and it did.

Feathering

Feathering is turning the light away from the subject slightly so the photographer is using the edge of their light beam rather than the middle of it. Many lights have a harder beam in the center and a softer one towards the outside. We want to use the softer side of the light. I won't go in to the physics of light here just give you an example. Look how the feathered image on the right is not as harsh as the unfleathered one on the left. Subtitle I know, but it plays a part.

Dynamic Range

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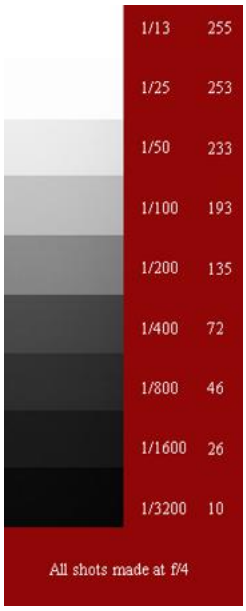
Dynamic range is the ability of a camera to record detail from white to black. It can be measured in stops. I was curious what the dynamic range was of my D70 camera, so I tested it. I set up a white matte board and lit it with a bare bulb. I set the exposure so that I got a single spike on my histogram in the center, it turned out to be 1/200 at f/4 at 1600 ISO. So that was my middle point so I shot in one stop increments from 1/13 to 1/6400. I made up a little step wedge from the images and I will post it below. The conclusion is my D70 has a 6.5 to 7.5 stop dynamic range depending on how liberal you are in interpreting the data. It still a stop and a half better than conventional wisdom says digital cameras are at only 5 stops. I philosophy has always been to test for myself.

Dynamic Range and Ratios are linked. The numbers on the right are Photoshop values.



A Test

For those who are still awake and paying attention here's a challenge, what do these three shots have in common besides Gurdy?

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It is the same background for all three shots only the light on the background changed for the three shots. How did I know to do this? Dynamic Range. For the white background I simply raised the light level so that the darkest part of my background was overexposed by 3 1/2 stops. To do that I simply watched my histogram. When I got a very thin line on the right side I knew that I was close to pure white, 1/3 more stop and I was there. I used a Nikon SB-800 on full power for the highkey. The midkey background was shot on 1/32 power on the SB-800. The near black backgound was easy, I just turned the SB-800 off.

The power of lighting is that you have total control. I can make that background any color I want and any tone. That is true no matter where you are. When you have control over your lights you have control over the tones you choose to put in to your photographs. Just because you bought a grey background does not mean you have to shoot it as a grey, it can go black, it can go white. Throw a gel over the light and it can go purple for that matter. It's all under your control.

Subtractive lighting.

O.k. subtractive lighting fans, here goes. If we start with a evenly lit subject we can create portrait lighting by subtracting light from part of the face. We do so by using black panels close to the subject.

So let’s start with a basic Winter day, overcast. A faint hint of a butterfly but not really, this one is fairly flat.

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Here's the starting shot

How about if we take a 24x36" black foam core panel and place it over the near side of Gurdy's head. We now have a diffuse Rembrandt pattern. It is diffuse because the sky is still very large compared to Gurdy even though we just cut off half of it with our overhead panel.

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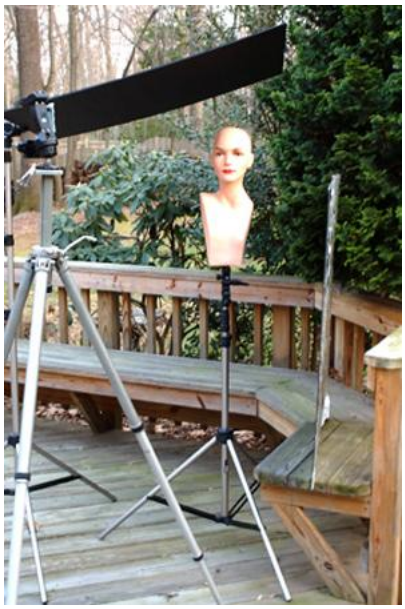

The second Shot

I want more ratio, so I need to subtract more light from the shadow side. Easy, I just add another panel.

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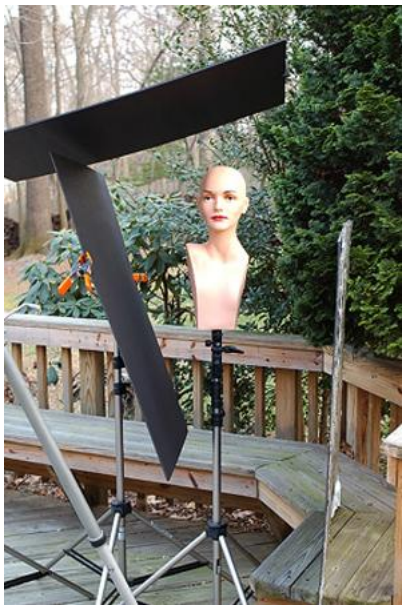

The final shot

Flash Key in Sunlight

Sunlight, enemy #1or friend. Sometimes one, sometimes the other. You can take portraits under full sun. Washington in Spring is gorgeous. Cherry trees are everywhere. Gurdy wanted a portrait under a backlit cherry tree. What Gurdy wants Gurdy gets. This is the set up. You won't find a more contrasty set up. The first thing to do was to use a black mount board to shade Gurdy's head from the blotchy light coming through the tree. Then she was flat lit. She needed a key light. I used a Nikon SB-800 (small shoe mounted flash) in a Photoflex extra-small lightbox. It was set on 1/8th power. At about 3 feet it matched the f/14 shining through the trees. The illumination on Gurdy's face now matched the light in the tree. The final step was to add some fill from a 24" reflector off to camera left. As usual I didn't meter

anything. Just added flash until I could just see it go off. That always works for me.

Here's a shot with the sunlight off of Gurdy but before flash was added.

This is the version with a short telephoto and flash

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And one with a wide angle lens to show more background, again with flash and reflector