

lighting ratios

W

hen using two light sources, the lights each have a different name applied to them. One is the main light and the other is the fill light. The main light does most of the lighting, hence the name main light. It is also referred to as a key light. The fill light is not as strong as the main light, and its function is to lighten the shadows in the areas that the main light does not reach. The terms “main” and “fill” don’t just describe studio lights, they can be used to describe any type of ambient light as well.

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In order to achieve the results we want in our portraits, it’s important to understand the way these two lights interact with each other. It’s the light meter that gives us the lowdown on all the sordid details of this relationship. By understanding the readings of the meter, we can predict the outcome of the shot before we even shoot.

The term usually used to describe the relationship between the lights is “lighting ratio.” This describes the difference in exposure between the highlight side of the subject and the shadow side of the subject and is usually expressed as a ratio (like 2:1, where the highlight side has one stop more light on it than the shadow side). I’ve always found it a little confusing to refer to ratios this way, though. Therefore, even though I know they are ratios, I prefer to think of



A light was placed behind and to the left of the broccoli. The dome of the light meter was pointed at the light from the top of the broccoli. This light metered f-11. Then, the meter was positioned in the shadow area, pointing toward the lens. This area metered f-2—five stops less than the light from behind. The camera was set to expose the shot at f-4.



A second light was added near the camera. This brought the shadow area up one stop brighter to f-2.8. The exposure on the camera for this shot remained at f-4.



The light near the camera was brought closer to the broccoli. Now, the shadow area read f-4. The exposure on the camera remained at f-4.

these light relationships in terms of f-stops. That's the approach we'll take here.

METERING FOR TWO OR MORE LIGHTS

To see the ratio between two lights, a different metering technique is used. Instead of pointing the meter toward the camera to get a reading, the meter is pointed toward each light. For precision, it is best to meter each light individually by turning off the power to all

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In this shot, an umbrella was placed above the camera and another was placed beneath the camera. The output of the top umbrella was set at a half-stop brighter than the bottom umbrella.

other lights. Then you know that you are reading only the output from that individual light and not any spill from the others. If all of the lights are connected to a single power pack and cannot be turned off individually, then do your best to block the light coming from the other sources or simply turn those lights away from the subject as you meter. This technique is only used to see the lighting



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The subject was lit with two lights: a main light from the upper right, and a fill light next to the camera. The main light metered two stops brighter than the fill light.

ratio of multiple lights and not to determine the final exposure. The final exposure is still determined by pointing the dome of the meter toward the camera, from either the highlight area (for film and digital) or by averaging the highlight and shadow (for negative film).

Putting It to Use:

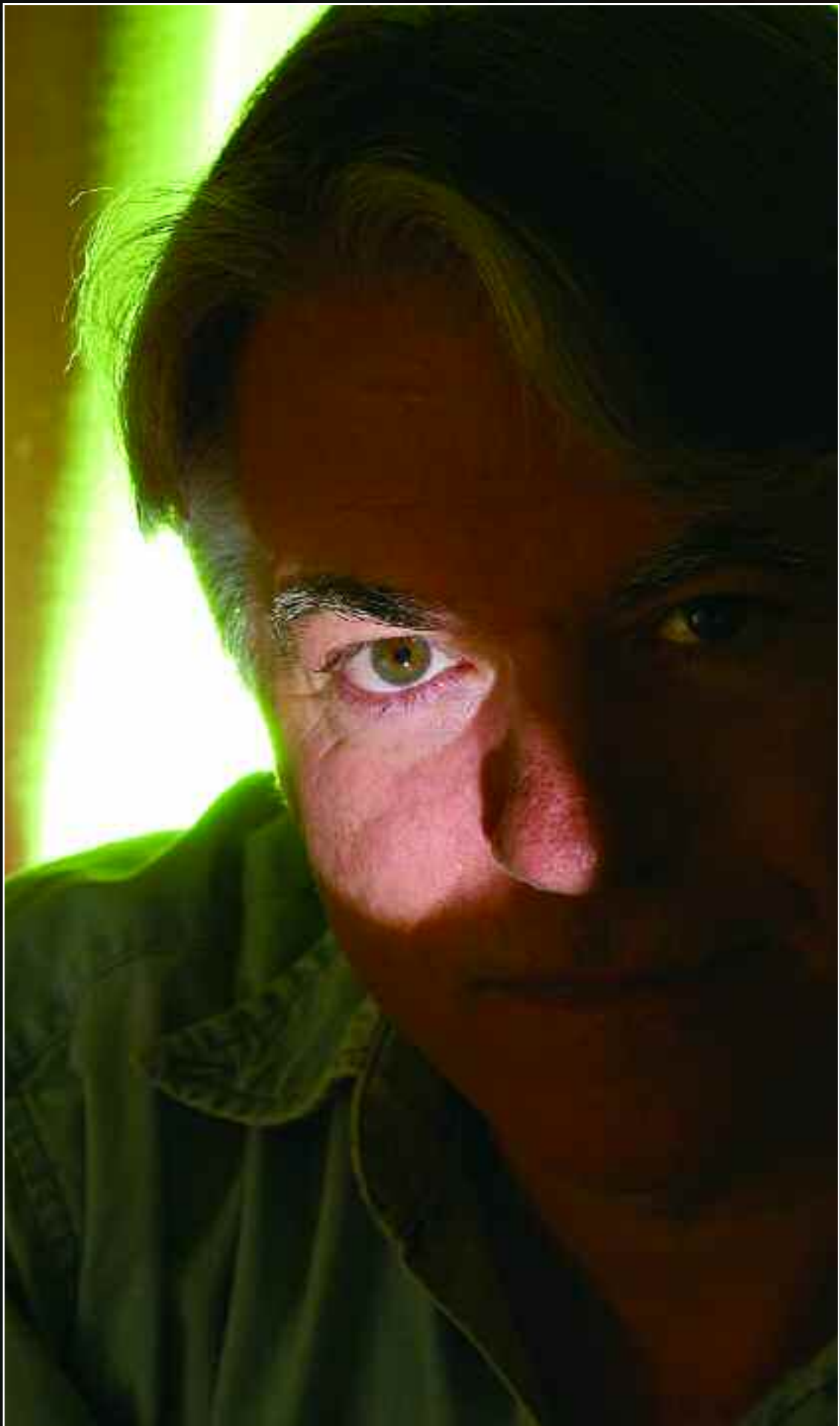
1. We can now use two lights to do some common lighting setups. The first is called glamour or beauty lighting. This setup works well for women. It is a flat, frontal lighting arrangement that minimizes wrinkles on the subject's face. Mount two strobe heads with either softboxes or umbrellas. One strobe is placed on a stand directly above the camera. Another strobe is placed below the camera. You can determine the best angle for the strobes by seeing how the modeling lights hit the subject's face. Meter each light separately to determine their ratio. Generally, this setup looks best when the top light is a half stop brighter than the bottom light. Experiment to find a ratio you like.
2. Another common setup is to place a main light off to one side of your subject at an angle you find agreeable. A second light placed near the camera (above, below, or to either side) will act as a fill light. Meter the main light to read one to two stops brighter than the fill. The effect will give a side-lit portrait with shadows that aren't too dark. Without the fill light, the shadows would go very dark.

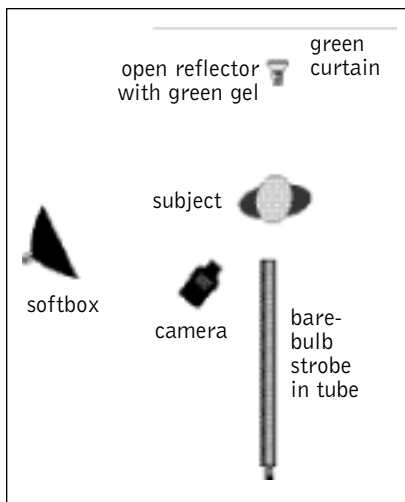
Determine the best angle for the strobes by seeing how the modeling lights hit the subject's face.

HOW MUCH FILL?

Keep in mind that film and digital capture do not see the world in quite the range of light and dark that our eyes do.

Before doing a shot, try squinting your eyes tightly. What you see when you do this more or less imitates the limited tonal range of film or digital. By squinting, we can see how slightly dark areas become very dark. If there is important detail in these areas, we will need to fill them in with light. It's as if the fill light is helping the film or digital to see the same as our eyes do.





FACING PAGE—This shot was done with three strobes. The background was a green velvet curtain that was lit from below with an open reflector on a strobe. A green gel was taped to this head. The folds of the curtain formed different tones as they reflected this strobe differently. A softbox was placed far to the left to act as a very subtle fill light. A bare-bulb strobe head mounted inside a long cylinder (the long tube that seamless background paper is shipped in) acted as the main light. This light was three stops brighter than the fill light and lit the subject's eye. The cylinder acted as a snoot to make the light source a six-inch diameter circle—the size of the opening of the cylinder. Without the softbox fill light, all areas not lit by the cylinder would have gone very dark. See diagram above.

Don't go overboard with the fill, though. Keeping the fill subtle gives a natural look to the photo, as if a second light weren't used at all. Too much fill can also make the shot flat and boring.

BACK LIGHTING

Back lighting means any light that comes from the rear of the subject. Depending on how it is used, it can also be called rim lighting or hair lighting.

The metering technique used to determine lighting ratios is particularly useful for measuring any light coming from the rear of the subject. It would be difficult to get an accurate reading for back lights if the meter was pointed toward the camera, of course.

TERMS TO KNOW

back light—Any light that comes from behind the person who is the subject of the image.

bare-bulb strobe—A strobe head that is not fitted with any modifier.

beauty light—A flat, frontal lighting arrangement that minimizes wrinkles on the subject's face

CTO gel—Color temperature orange gel. Used for warming the light in an image. For more on this, see chapter 5.

fill light—Light that is used to lighten the shadows created by the main light.

flag—Any device used to block light from hitting an area of the subject or set. For more on this, see chapter 5.

gel—Transparent material used over a light source to change its color. For more on this, see chapter 5.

glamour light—Same as beauty light.

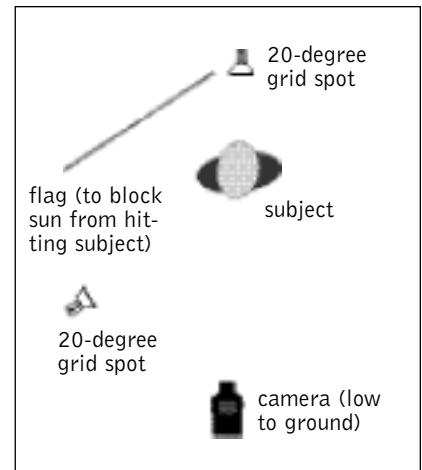
hair lighting—A back light used on the subject's hair to create highlights and enhance separation from the background.

lighting ratio—The difference in exposure between the highlight and shadow sides of the subject, expressed as a ratio.

main light—The principle light in a lighting setup. Creates the pattern of highlight and shadow in the image. Also called the key light.

rim light—The term for a back light when photographing objects instead of people.

snoot—A cylindrical accessory mounted on the light to create a spotlight effect.



This shot was done outdoors on a sunny day. A flag was set up to block sunlight from hitting the subject. The subject's face was lit with a strobe with a 20-degree grid attached. This light was positioned to the upper left of the camera. Behind the subject, another strobe with a 20-degree grid attached was pointed back at the camera. The subject partially blocked this strobe. The back light metered a stop brighter than the front light. A lot of exposures were made to get this shot, because the flare from the back light varied greatly as the subject and camera moved between exposures. If the back light was too apparent, then the flare would have been overwhelming. If the subject entirely blocked the back light, then there would have been no flare, only a rim light around him. See diagram above.

Therefore, it is best to point the meter at the back light to determine its value in relationship to the lighting on the front of the subject.

Putting It to Use:

1. Place a light behind your subject and facing the camera. Your subject will block the light from hitting the lens. Use a second light to illuminate the front of your subject. Start with the back light and front light metering at the same f-stop. This will create a distinct back light around the subject. Next, set the back light to two stops brighter than the front light. It will create a definite white light around the subject.

The contrast on the front of the subject begins to flatten out and the edges go bright white.

When the back light is set to four stops brighter than the front light, a flare effect is created, wrapping the back light around the subject. At this point, the contrast on the front of the subject begins to flatten out and the edges of the subject go bright white. This is completely acceptable, and it is used in fashion photography quite often. Just make sure you know that flare will occur and to what extent. Use the meter to determine the ratios you like.

The front of the model was lit with a small softbox with a $\frac{1}{4}$ CTO gel attached. This was placed up and to the right at a distance of four feet from her face. There was significant light falloff to her waist and legs. Another strobe with an open reflector was placed five feet behind her and pointed toward the camera. This light metered three stops brighter than the front softbox. The model's body blocked the greater part of the back light from directly hitting the lens, and the gauze material softened it.

