

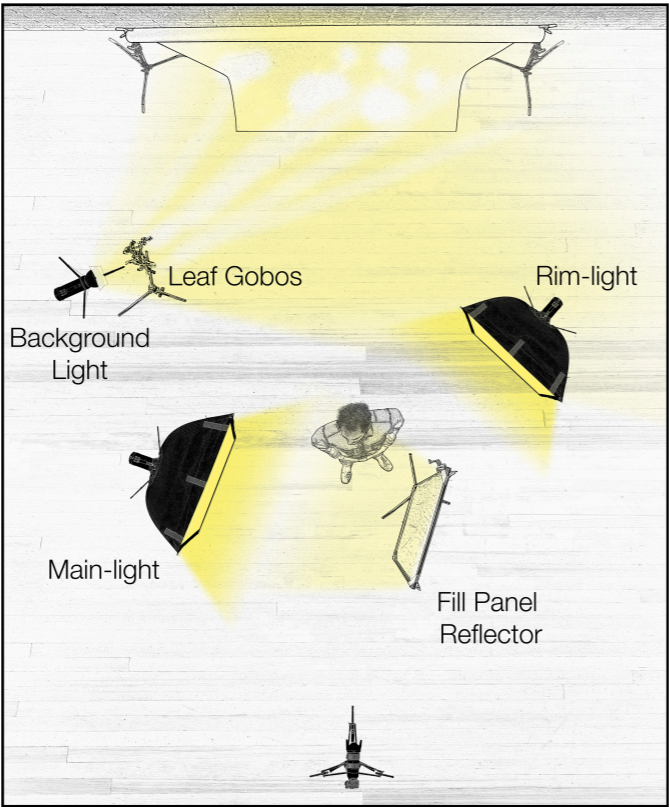
Contamination of things such as food, water or blood, is generally regarded as unhealthy. We can get contamination in photography too, but don't freak out and run for your hazmat suit every time you pick up your camera, it's visual contamination I'm speaking of – no one has ever died of visual contamination (that I know of), but it can cause a nasty dose of ennui. Now I've always loved playing around with light to create one-of-a-kind backgrounds, usually done on a plain white, grey, or black seamless paper or wall – it fascinates me how you can create a feeling of depth on a flat surface with just light! And it fascinates me how inexpensive it is – you don't need to buy painted backdrops or spend considerable time in post selecting subjects so that a digital background can be dropped in. But nothing can ruin a creatively lit backdrop faster than light contamination (at the speed of light to be exact), usually coming from the subject lights spilling onto the background, this is called Background Contamination. Case in point, take a look at the background behind my mentor, the late Dean Collins (see Image 001) photographed by me back in 1991 on medium-format B&W film (TMAX 100) – no digital then, everything had to be done in camera! The cloud-scape lighting effects behind Dean were created with a leafy branch from a tree or bush acting as a gobo – a gobo is a go-between (a light-blocking shadow-maker). This branch, with its array of little leaf gobos, is strategically placed – the sweet point being the perfect distance from the light source and the background surface (see Image 002). To create a cloudy backdrop like this one, a single light is pointed at the surface of the background. A leafy branch is slid into place between the light and the backdrop – I used a 3-metre white seamless for a background surface to project my lighting effects onto. Where a leaf blocks the light from the background, a shadow-shape of that leaf appears. You can control the shadow edge transfer (how fuzzy the shadows are) of the leaf shadows by changing the distance of the leaves from the white seamless. And why would you want to do that? It is these soft varying gradations from dark to light that create the illusion of depth on this flat background. Changing the distance of light-blocking objects, is one of the controls for Shadow Edge Transfer and it is called Obstruction Distance – in this image of Dean the leaves are the obstruction to the background. A good everyday example, (well if you have sun every day), is the shadow created by a lamp-post. This shadow, projected onto the ground from the post, will have a sharper edged shadow at the base where the post is closer to the ground and will have a softer edge shadow at the top where the post is further from the ground. So, the shadow edge is softer when the obstruction distance is greater and is harder when the distance is less.

There are three lighting controls used to manipulate the edge transfer on the background shadows on my portrait of Dean:

1. Distance of the leaves from the background.
2. Distance of the leaves from the light source, or you could say, the distance of the light source from the leaves.
3. Size of light source. The size of the background light source was 18cm in diameter – it was a strobe head sporting an 18cm parabolic reflector with a white translucent frosted lighting gel affixed to its front.

Confused? Here it is simply put:

- When the obstruction is closer to the background, we get a harder edged shadow.
- When the obstruction is further from the background, we get a softer edged shadow.
- When the light source is closer to the obstruction, we get a softer edged shadow.
- When the light source is further from the obstruction, we get a harder edged shadow.



As you can see from the above points, distance of the obstruction works the opposite way around from distance of the light source and it is the combination of these that will give you the results you want. Having said that, the last two are moot points really; if you move the obstruction closer to the background, they are automatically moving away from the light source and if you are moving the obstruction further from the background, then automatically it is moving closer to the light source. So really the first two points cover it all.

Background contamination was a big concern on this shoot of Dean; I had to be careful with light-spill on the white seamless behind him otherwise my carefully crafted clouds would lose the subtle gradations from light into shadow as well as their contrast – the darker bits would get filled in making them less bright, thus killing the contrast I so dearly yearned to enjoy in this image (Wow! How passionately stated is that?) In the end it was a matter of blocking or reducing light from other sources such as the subject lights from the background or working with the background far enough away from the subject so that the light-spill doesn't register on the background relative to the camera exposure. I usually meter the background with my light meter in reflective mode. I take these reflective meter readings directly off the background with my photographic lights turned off to make sure that the ambient light is at least 4½ f-stops or more below the camera setting. Next I turn on all photographic lighting, other than the background light(s), and meter again looking for at least a minus 4½. You can get away with 3 stops below camera setting (a minus 3) for the existing light and subject light striking the background, but it is just passable and not optimum. If it reads brighter than a minus 3 you will really start to lose the integrity of the lighting effects. To give me a fighting chance of avoiding subject light-spill contamination on



dave MONTIZAMBERT'S creating with light



Background Contamination

backdrops of portraits, I like to set up my background 3 metres behind the subject if the space allows, but 2 metres can suffice. With the backdrop further away, the light-spill from the subject lights has to travel further to hit the background, the more distance it travels the more spread out the photons are by the time they strike the background which gives us less light on the backdrop. A grey seamless, which absorbs more light than a white seamless and so returns less light, can help with this, but you will need more power out of the background light to create your lighting effects.

How you light your subject can really affect your cloud-like lighting effect. For example, a typical portrait lighting set-up has the fill light typically placed above the camera so that it lights the whole set and is usually adjusted so that it pumps a minus 2 (incident meter reading) amount of light onto the subject. This doesn't work so well with background lighting effects, unless you work with the background far away and/or with a darker than white backdrop. Whereas side lighting the main-light and using a fill reflector on the opposite side of subject, makes it really easy since these light sources are not pointed directly at the background (see Image 002). Also with side-light or even 45° main-light placement, feathering the light a little towards the camera and a little away from the background makes for way less background contamination. It also makes for a more pleasing light on the subject since the light is feathered away from the near/bright side of the face, putting comparatively more light on the face's centre and less on the side.

Lighting grids (honeycomb grids and soft grids) can make a big difference since they choke in the peripheral light-spill, allowing way less light on the background. This is assuming that these gridded subject lights are not pointed straight onto the background as frontal placed main-lights do. Using flags/gobos to block light-spill works well too, but they take more time and equipment (stand, boom arm and clamp) to set up, whereas lighting grids, quickly attach to the front of your light sources without any extra equipment.

To wrap this rant, here are a few more things that you need to know that are critical to creating a background like we see in my portrait of Dean Collins. Earlier I mentioned that I used a strobe head with a 18cm parabolic reflector with a white translucent frosted lighting gel affixed to its front; this not only turns the strobe head into a bigger source but it also turns it into a single light source rather than a multi-light source. Without the white gel your light source is the strobe tube plus the numerous reflections of this strobe tube imaging on the inside bowl of the strobe's parabolic reflector. Each of the reflections is a light source to the backdrop and they are small sources of illumination, relatively speaking. The end result is each shadow on the background has multiple shadow edges that are pretty hard edged. The feeling of depth on the cloudy background behind Dean is created by the different distances of the leaves; they do not all sit on the same plane – some were further (31cm) and some closer (15cm) to the light and so we get soft and softer edges on the various shadows projected onto seamless backdrop. It is the shadows' soft edges gradating from dark to light that creates the illusion of depth. This occurs because, when you lighten a tone it visually pulls forward, when you darken a tone it visually recedes. And finally, Depth of Field (DoF) affects how soft the shadow edges photograph on the background. You can create the most magnificent lighting effects only to find that they photograph as mush. Complete mush because you are shooting with not enough DoF and so the background photograph's out of focus, which looks nothing like what you saw with your own eyes. You need to see through the camera with the DoF preview activated or make a preliminary test shot. If you need to shoot with less DoF, then you will have to create shadow edges that are less soft since DoF created by the camera will soften them. These DoF screw-ups can be so disheartening that it may have you reaching for your hazmat suit, for they are definitely ennui contenders with background contamination!

Bio

Dave Montizambert lectures internationally on lighting, digital photography and Adobe Photoshop. He is also a published author having written two books on lighting and digital photography (www.montizambert.com) plus numerous magazine articles on these topics in North America, Europe, Russia and Asia. Dave also creates lighting and Photoshop tutorial DVDs for www.software-cinema.com & www.PhotoshopCAFE.com/video and authors 'Dave On Demand' (www.montizambert.com) lighting tutorial based photo-training. Dave is available for lectures and workshops in your area and can be reached through www.montizambert.com.

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