

Lens Talk

The Normal Lens
(Talk #1)

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The 'Normal' Lens

You may have heard the term before, but just what is a normal lens?

Most of us are familiar with 35mm cameras, and we are told that a 50mm lens is the 'normal' lens for this type of camera. When I first heard this, I thought it was so because this was the lens most commonly or normally supplied or sold with a camera. Now I understand that this fact may be true but it is not the reason it is called the normal lens for a 35mm camera.

I found a technical definition for a 'normal' lens that applies to a broad range of camera formats. It is quite simply stated as the diagonal of the film frame, or if you want something more complicated sounding then how about the square root of the sum of the squares of the sides. You may recognize this as Pythagoras's formula for a right triangle. For a 35mm camera, the true normal lens would be a 43mm lens. Standard convention has rounded this off to 45mm or 50mm, as a slightly longer lens gives a more appealing perspective view than going slightly shorter.

This formula gives an easy way to find a lens that will give a similar image across many different film formats. So if you have a 4x5 large format camera you would use a 6.5" or 160mm lens to get the same 'normal' view.

Okay, complicated math aside, just what does this 'normal' lens really mean. Another so called definition I have heard was that it gave us a view similar to the human eye. I misunderstood this for a long time. My eyes see a much wider field of view than a normal lens so how can this be?

Let's think about perspective and the look you get in the photograph from the use of different lenses. A normal lens gives you an image with a certain relationship between subjects that are near and far in your photograph. This is where the normal part comes from, things near and far have a similar relationship when viewed with your naked eye as when photographed with a 'normal' lens.



Caveat: These photos were taken with a point and shoot camera that has a 3x zoom from 6.3mm to 18.9mm . This is about 38 mm to 114mm when compared to 35mm format. This photo was taken at mid range of the available 3x zoom at 12.6mm or about 70mm in 35mm format.

Okay, now I want you to think about different lenses and the view you get with each. Let's simplify the range and use some extremes of the range. If you put a wide angle lens on your camera, say a 20mm lens, then you get more stuff in your photograph but everything is very small. Or you can 'feature' a subject in your image by moving in close and filling a larger part of the frame with your subject, but this makes everything else in the image very small by comparison. This is sometimes called an exaggerated perspective.



Notice that the stump fills the same amount of the image (I moved in closer to it) but here the bridges and mountains are tiny by comparison.

Now try a telephoto lens, say a zoom lens. Now everything is close up. So what can we do? We often move back from our subject so that we can still include our whole subject but now our background is large by comparison to our subject. This is often called a compressed perspective.



Okay I know the stump is on the other side but as I moved away from the stump to use the max zoom on my camera and still keep the stump the same size in the photo I had to move around a large concrete retaining wall, but I hope you still get the point. Notice how now the bridges and mountains are quite large in relation to the stump.

So now we have seen three different views, exaggerated perspective, compressed perspective and yes, 'normal' perspective. So there you have it, a normal lens as I see it.

Next 'lens talk' will be portrait lenses.

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