Better Query Saul: A Different Way to Bracket

I remember asking my brother why his camera would click 5 times every time he touched the shutter. His answer was that he always brackets all his shots. "Why do you bracket?" I asked. "Because I want to make sure I get the correct exposure!"

Bracketing is a procedure whereby the photographer takes multiple exposures of the same scene at different exposure values. For some cameras, bracketing is a menu option so that, if selected, you only have to press the shutter once and the camera will take multiple images. My Sony a7RII, for example, has an option in the menu for bracketing. I select the number of images and the difference in exposure value between the images. If I select 2.0EV 3 Images, and I have set my camera to an aperture of f4.0, shutter speed of 1/125 and ISO of 400, the camera will take the next shot at f4.0, 1/30 and ISO 400 – this will be the brighter exposure – and the last shot at f4.0, 1/500 and ISO 400 – the darker shot.[1] There are many reasons why a photographer would want to do this – to apply HDR techniques, not sure of the correct exposure, or simply exploring how the image would look over- and under-exposed. A photographer could try doing this manually by simply varying the shutter speed - assuming the camera is in the same position so that camera movement does not corrupt the results.

Notice that 'bracketing' in the example just described is accomplished by varying shutter speeds. Some camera models do not have this feature while others have only limited bracketing options in terms of the number of exposures and EV. Where this feature is available, the typical menu-driven option is to vary shutter speed.

Bracketing by shutter speed, as described by the parameters above, might create a problem. While a shutter speed of 1/125 might be sufficient to avoid motion blur, 1/30 may not. In the above example a 3.0 EV would lead to a 1/15 shutter speed and depending on the subject might lead to blurring. If you were bracketing a nighttime exposure, a motion problem would be even more likely to appear. If the 'correct' exposure called for a shutter speed of 1/15, 2.0 EVs brighter would require a 1 second exposure. Even if the subject were stationary, the nighttime sky may reflect motion.

If varying shutter speeds can lead to a bracketing problem, can you vary f-stops? Some camera models will allow you to set shutter priority and then, when using the bracketing feature, the aperture will adjust. The same 2.0 EV variations would result in an aperture of 2.0 and 8.0 for the brighter and darker exposures. With shutter speed constant, you would no longer have motion issues, but you would get

[1] The order in which the camera takes this multiple images can be set in your camera's menu in many cases.

very different depths of field – the background would be blurry at f 2.0 and sharp at f 8.0.[2]

A third, and in my mind a preferred option in many circumstances, would be to vary the ISO. In the above example, the brighter exposure would call for ISO 100 and the darker exposure, ISO 1600. While shutter speed bracketing can cause blurring, and aperture bracketing results in depth of field differences – with ISO the issue is noise. Noise in digital photographs is visual distortion – either the photo looks grainy or there is color distortion. Noise tends to get worse the higher the ISO setting and the darker is the image photographed.

There are programs, including a noise reduction slider in Lightroom, to handle digital noise, but none of the remedies is perfect.

How bad does noise have to be before it becomes an obvious problem? That depends on the camera. Sensors are getting better and better with the newest ones allowing ISO settings of over 100,000! Of course, shooting at ISO 100,000 would be extremely noisy. I have no problems shooting at ISO 6400 for my Sony.

Another issue with varying the ISO is a minimum ISO. Most cameras have a minimum of around 100. If that were the case, then the initial ISO setting would have to be ISO 400 in order to increase exposure by 2 EVs.

How do you set up and use ISO bracketing? Assuming this option is not available in the menu, you would first determine the 'correct' aperture and shutter speeds at some base ISO, e.g. ISO 400. Set ISO to Automatic. Most cameras will allow you to set minimum and maximum values for ISO. Set the minimum to the camera's minimum, e.g., ISO 100. I set the maximum value to ISO 6400 - you may not be comfortable with that. I would experiment and find a maximum value that you can live with. Then set the exposure mode to M for manual and set aperture and shutter speed as determined above. This would result in the 'correct' exposure. Now vary the exposure compensation by + and then - , 1 or 2 EVs. This should yield the over- and under- exposed exposures.

[2] Apertures could, of course, be changed manually if no bracketing option were available.