

How did I do this...

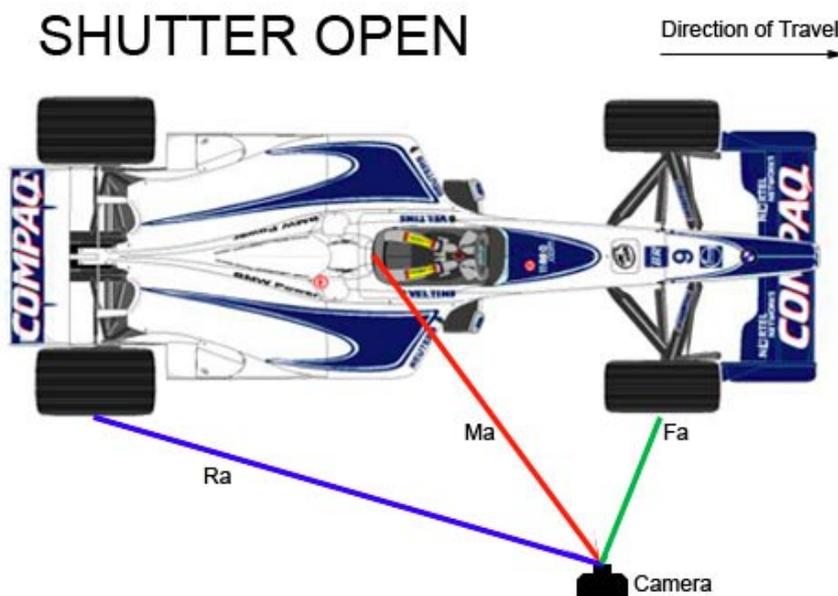


and how can you get the same effect?

Did I Photoshop it? No I didn't, well apart from some PP, the blur is straight from the camera as apparently the Laws of Physics has a lot to do with it.

The above image is a pretty standard pan taken at a slow shutter speed (1/25sec) and at close range (20mm lens) which exploits a phenomenon which is known in photography as the "Parallax Error" (or even the "Parallax Effect"), more commonly seen in macro or panoramic photography.

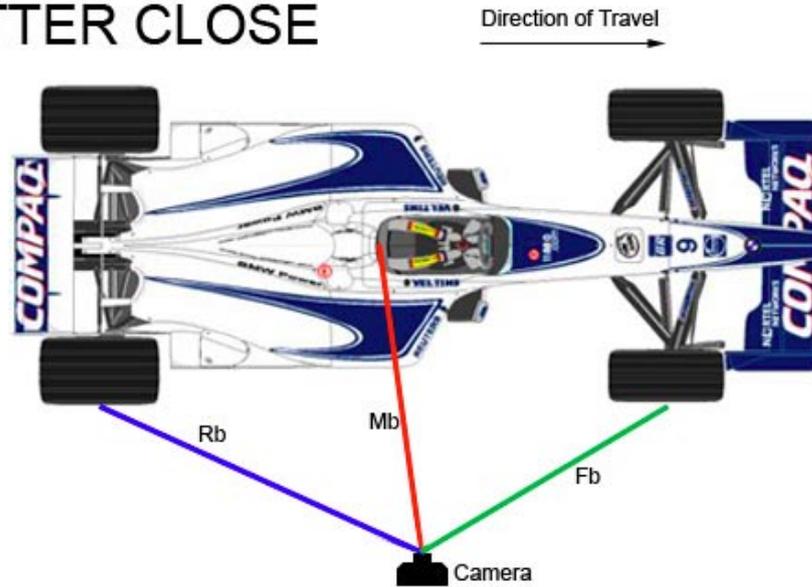
In simple terms, in this shot (and others following) some parts of the car are travelling faster in relation to my lens than others are. For the purpose of the following diagrams, imagine the camera is not panning but fixed to a tripod as it should help in understanding the phenomenon and how to use it to your advantage when you do pan with slow shutter speeds.



The camera shutter is opened when the car is in this position. Note the three lines (Ra, Ma, Fa) as each of these represents the distance of each part of the car in relation to the lens.

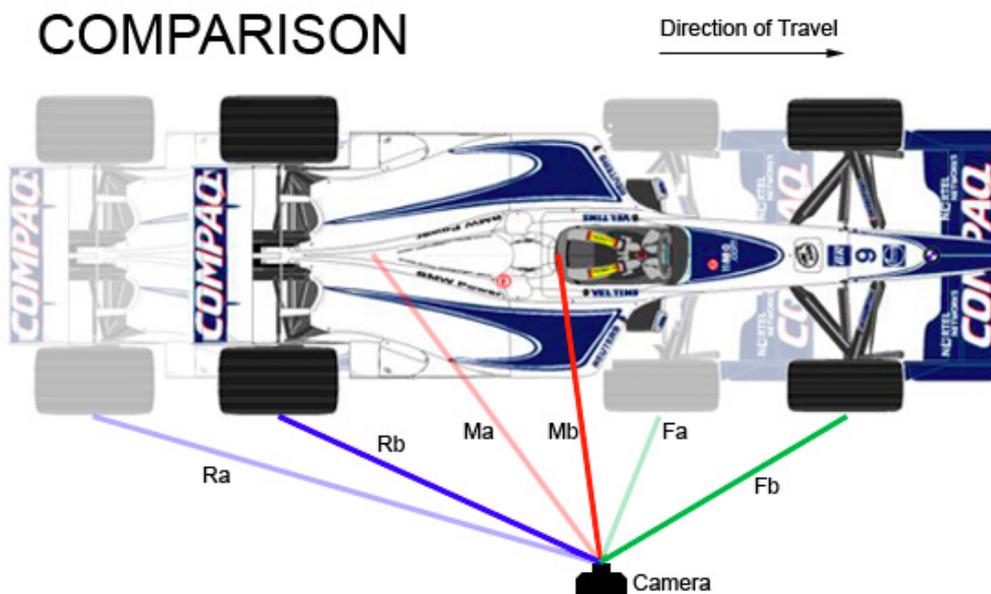
Now after the car moves a meter, we close the shutter and:

SHUTTER CLOSE



...we have three new lines where the parts of the car are in relation to the lens.

Now if we look at a comparison of the Shutter Open and Closed lines, we can see what is happening.



Ra = 2.87 Metres
Rb = 1.93
Ma = 2.10
Mb = 1.71
Fa = 0.88
Fb = 1.57

OK, so what's happening as the car moves?

As the car moves its one metre, the distance the rear wheel is from the lense changes from 2.87m to 1.93, a difference of 0.94m. The middle of the car starts at 2.10m from the lense and ends up at 1.71m, a difference of 0.39m. The front of the car starts at 0.88m from the lense and ends at 1.57m away, a difference of 0.69m.

OK, so the rear changes .94m, the middle only .39m and the front .69m.

Because the middle of the car moved less distance (in relation to our lense) than the front or rear, it will appear less blurred. Simple!

Now, if you panned the camera to keep the drivers helmet in the centre of your frame, you can gain further control and keep the helmet in focus. Adding a pan does change the distances quite a lot, but the principles you see above are still in effect.

This technique works best at fairly close range. The further away the car, the less the differences will be overall - hence less apparently 'selective' blur or focus.

While the above explanation does mention best results at close range and with wide lenses, similar results can be achieved using larger focal lengths and greater distance from the subject, such as:



(f22, 1/20sec, @191mm, ISO100)



(f20, 1/20sec, @363mm, ISO100)

Regards,

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(www.joc.id.au/sportfotos.htm)

Note: diagrams courtesy of Cliff Field (MotorSportMedia and Canon Digital Photography Forums)