Computer Science E-7
Exposing Digital Photography

Lecture 12: Artifacts
November 16, 2010

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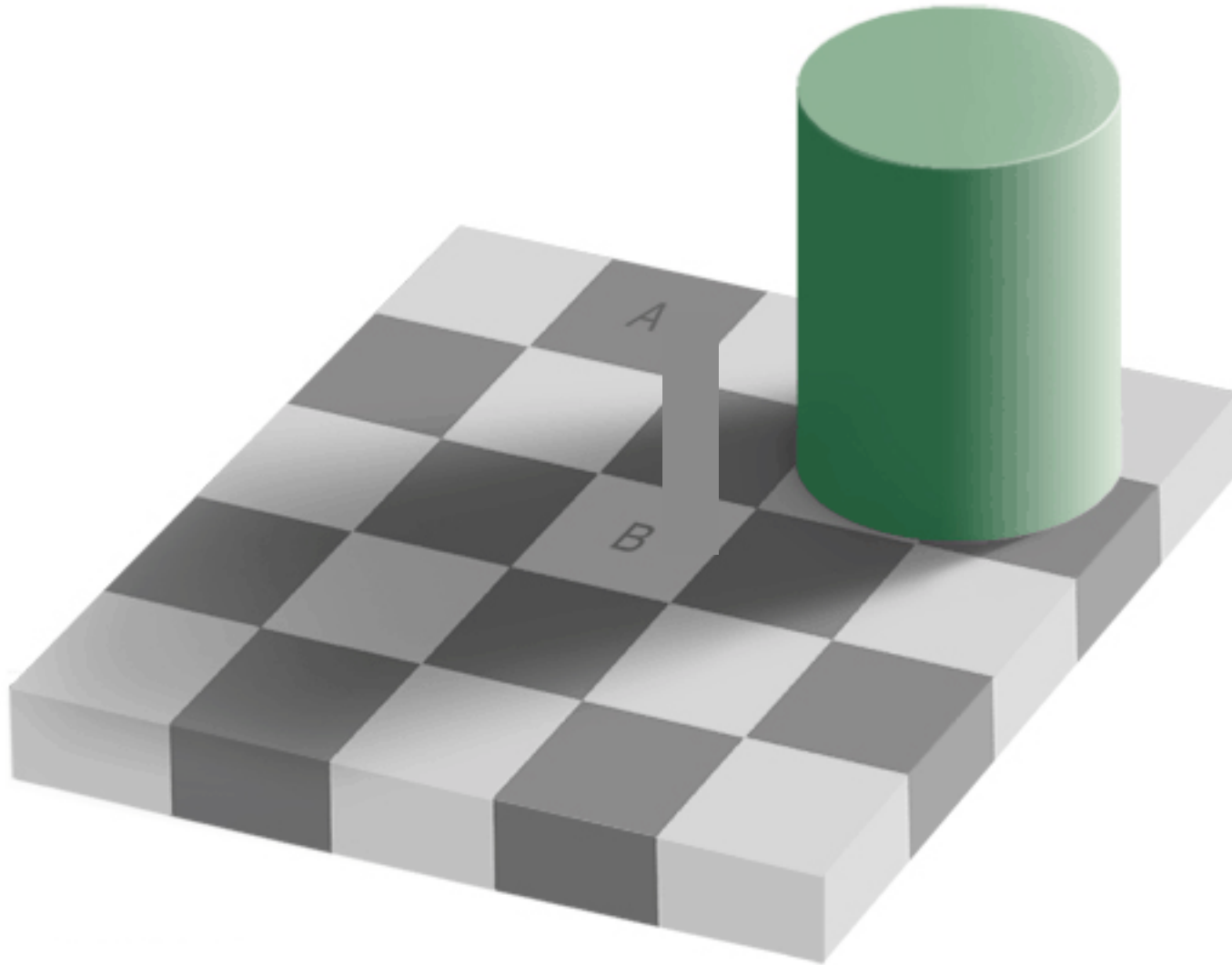


Image from http://en.wikipedia.org/wiki/Visible_spectrum

Review

The Eye

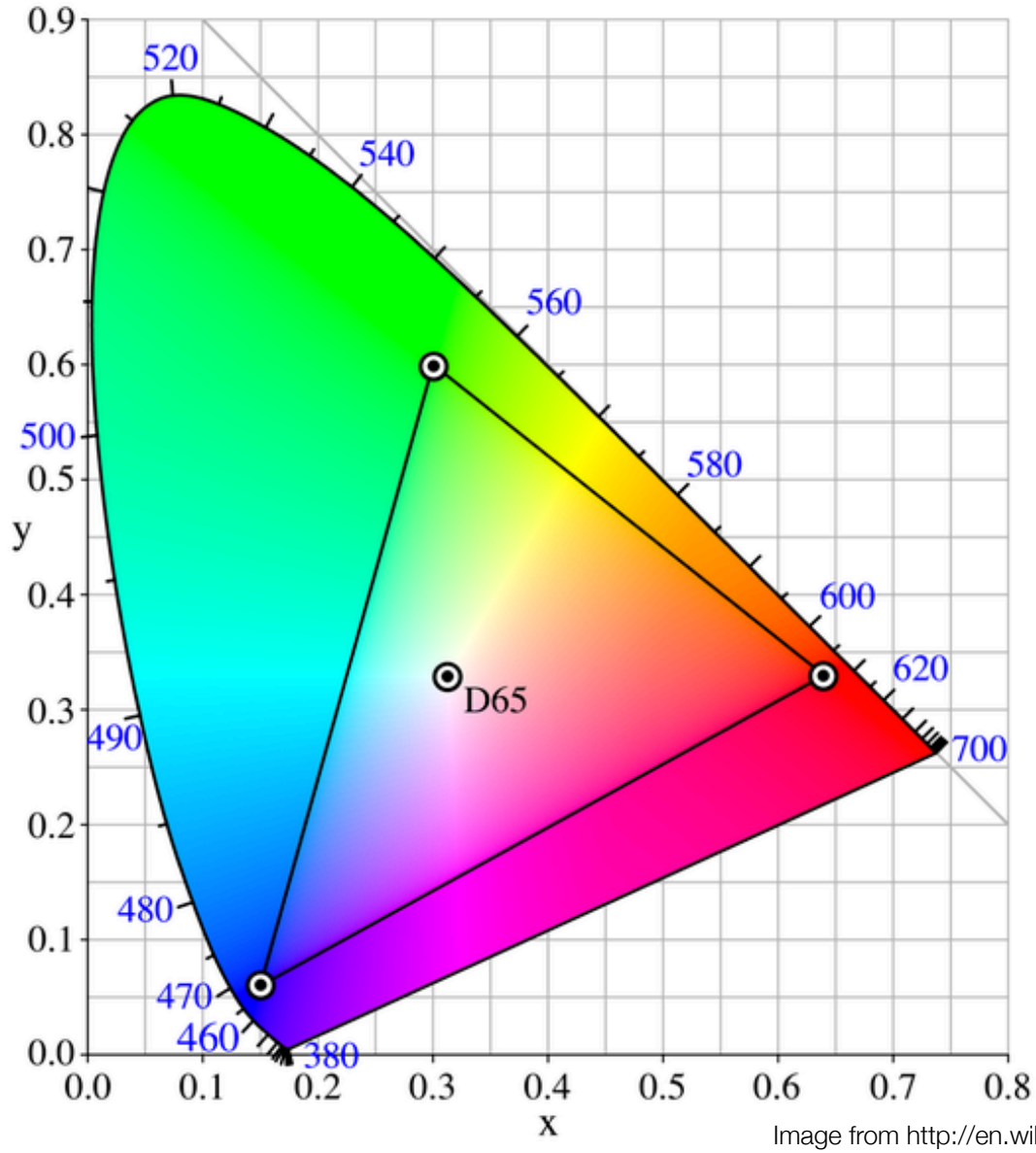


Image from http://en.wikipedia.org/wiki/SRGB_color_space

Review

sRGB

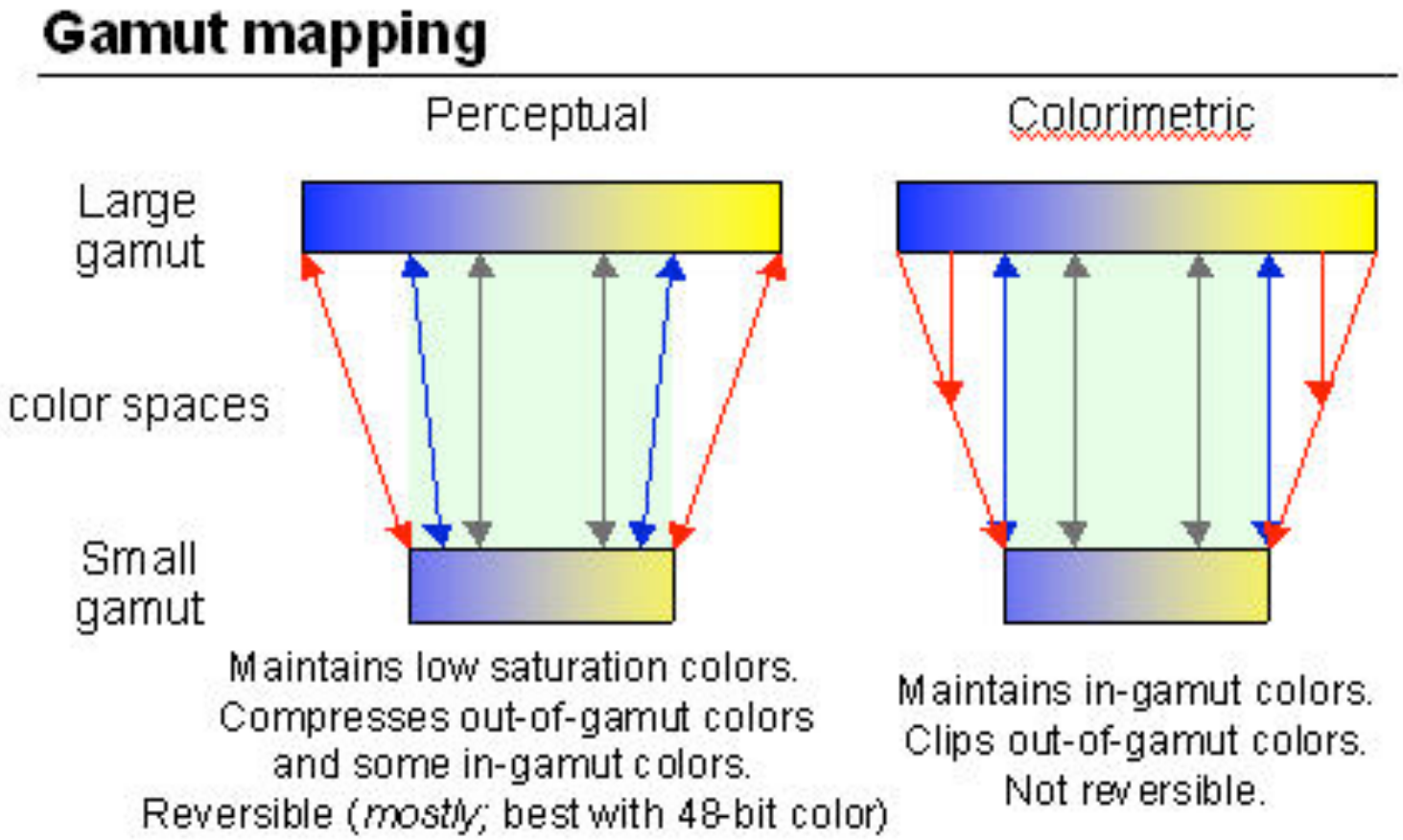


Image from http://www.normankoren.com/color_management.html

Image from http://www.normankoren.com/color_management_2A.html

Review

Monitor Profiling

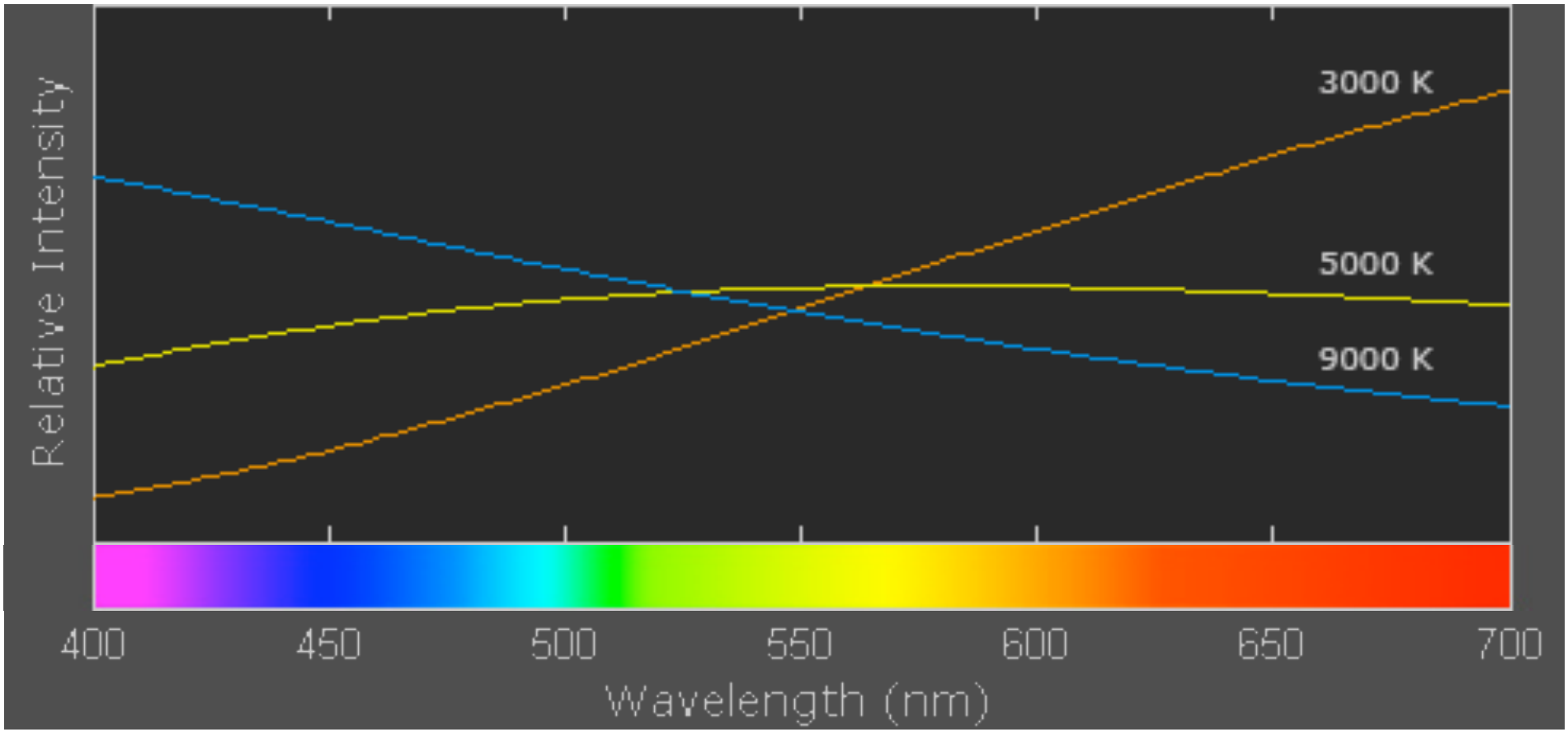
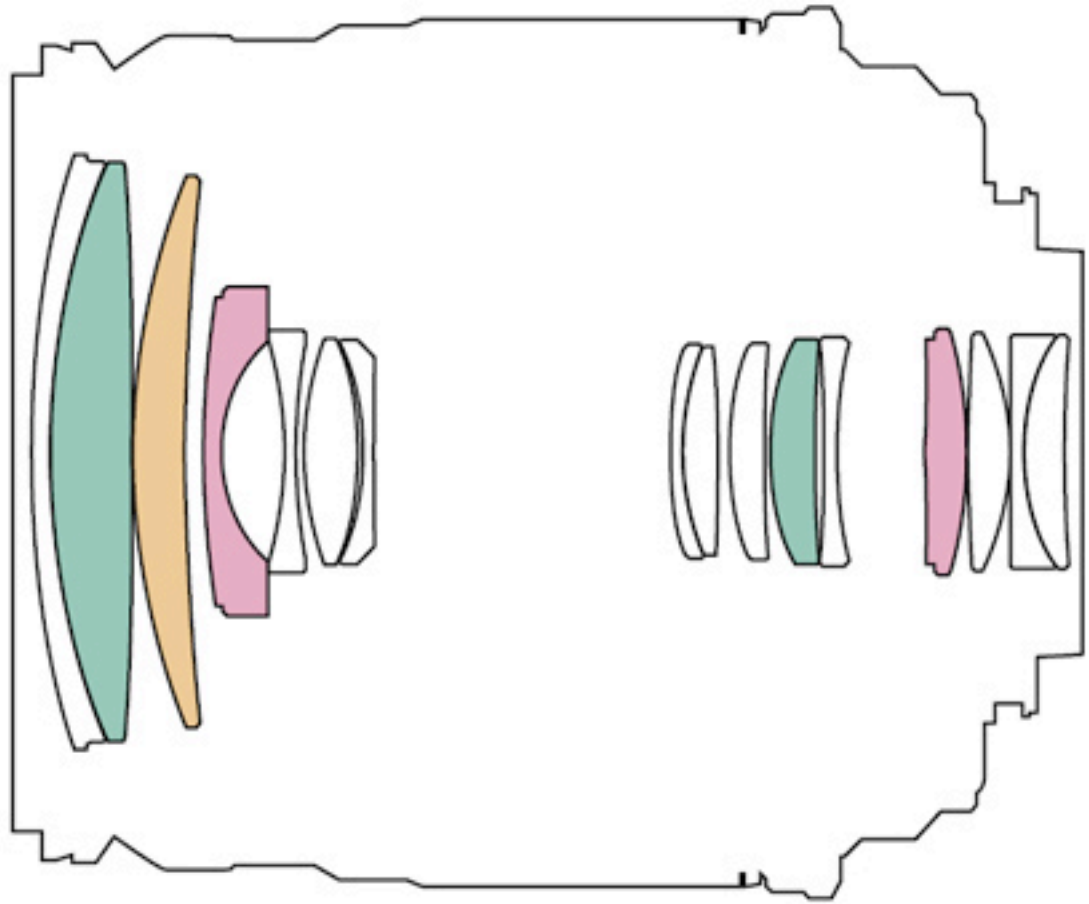


Image from http://www.cambridgeincolour.com/tutorials/white-balance.htm

Review

White Balance

	RAW	JPEG
Bit depth	10-, 12-, 14-bit	8-bit
Tonal Curve	Not applied	Applied
White Balance	Not set	Set
Compression	Lossless	Lossy
Portability	Nonstandard	Standard
Post-Processing	Required	Optional



Artifacts

Optical Aberrations

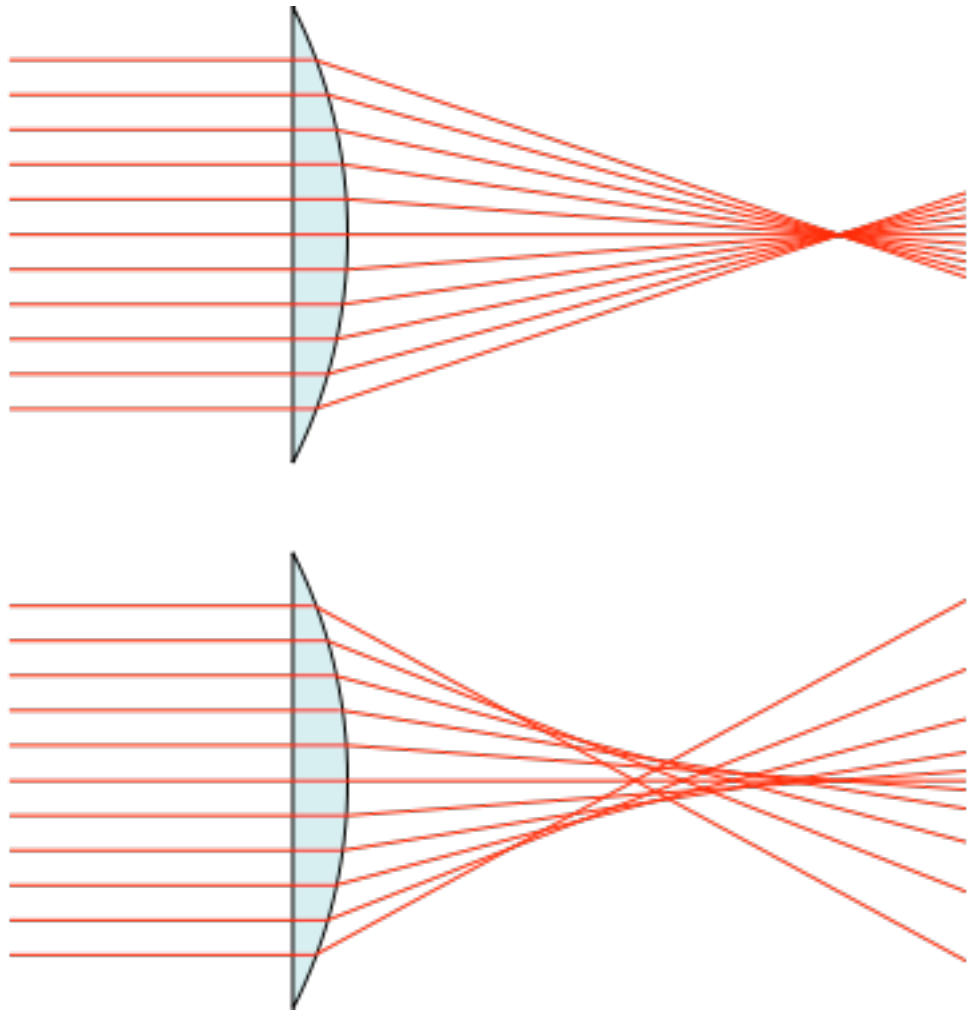


Image from http://en.wikipedia.org/wiki/Spherical_aberration

Optical Aberrations

Spherical Aberration

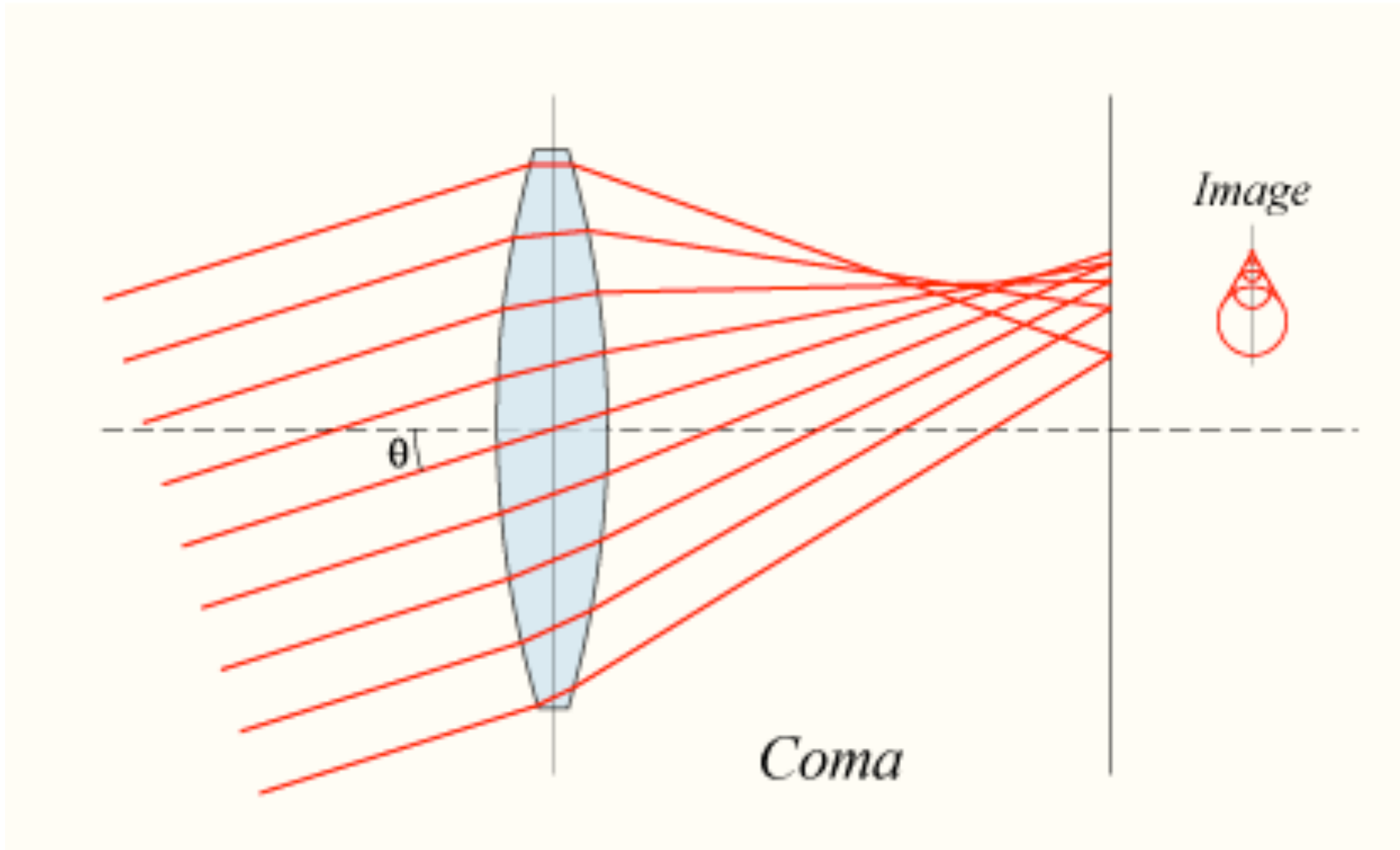


Image from http://en.wikipedia.org/wiki/Coma_%28optics%29

Optical Aberrations

Coma

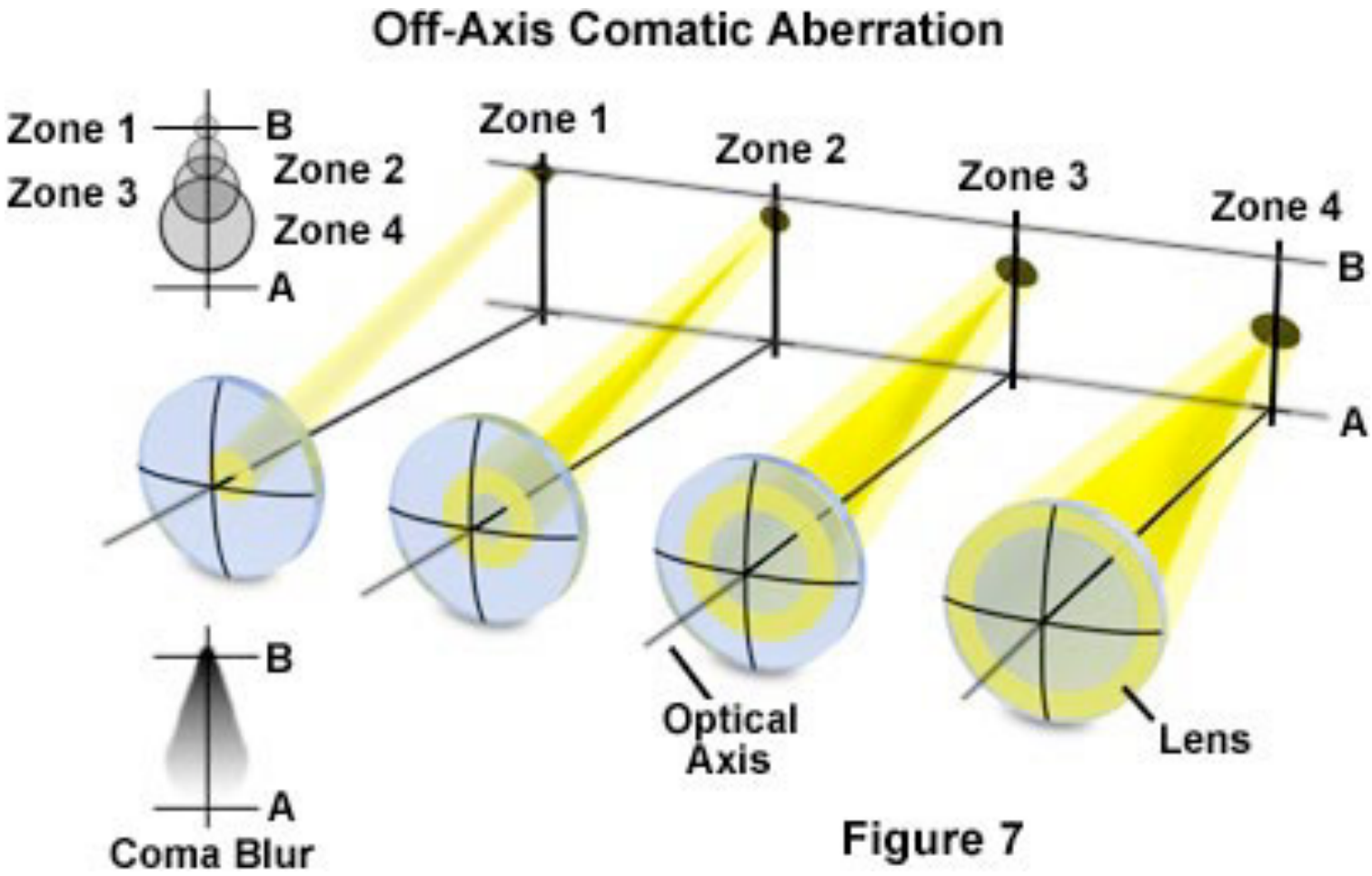
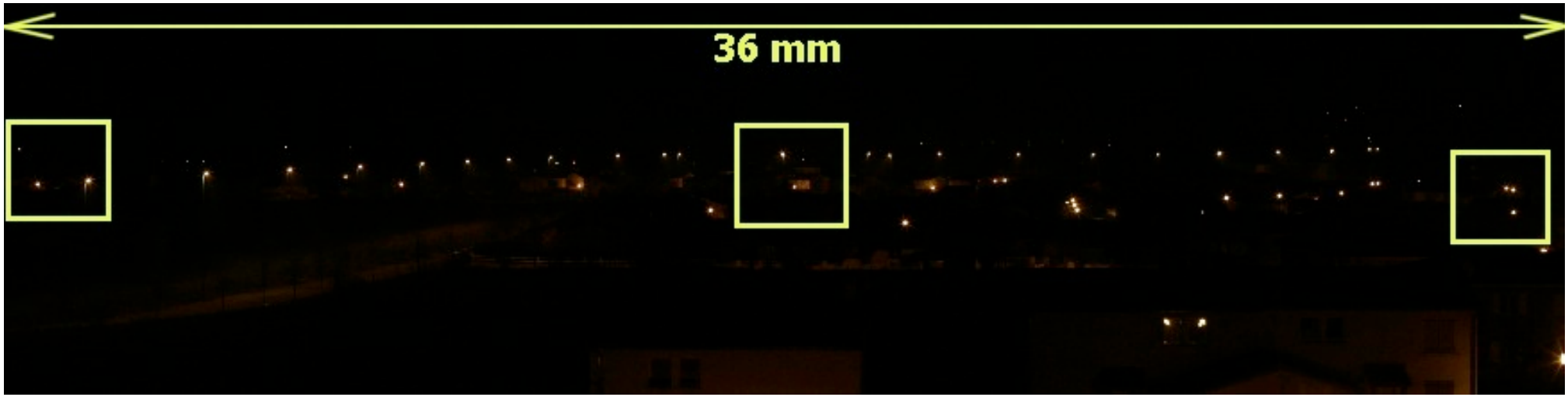


Image from http://www.olympusmicro.com/primer/anatomy/aberrations.html

Optical Aberrations

Coma



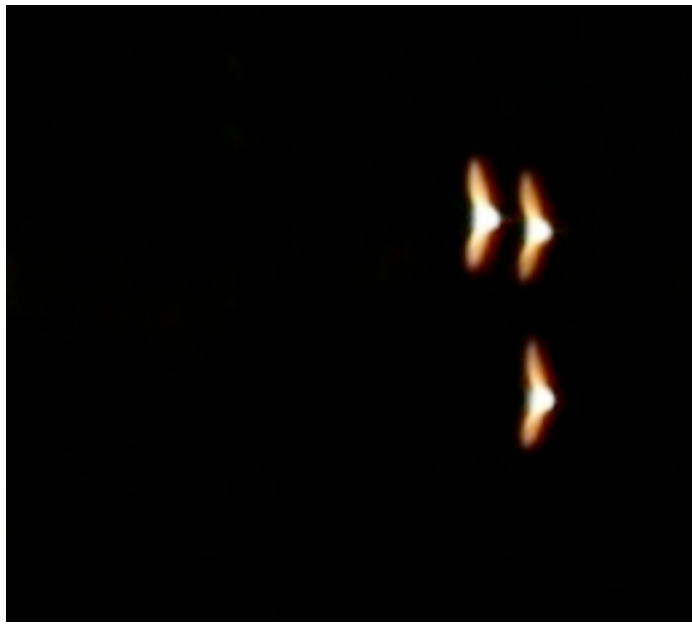


Image from http://www.astrosurf.com/buil/50mm/test_us.htm

Optical Aberrations

Coma

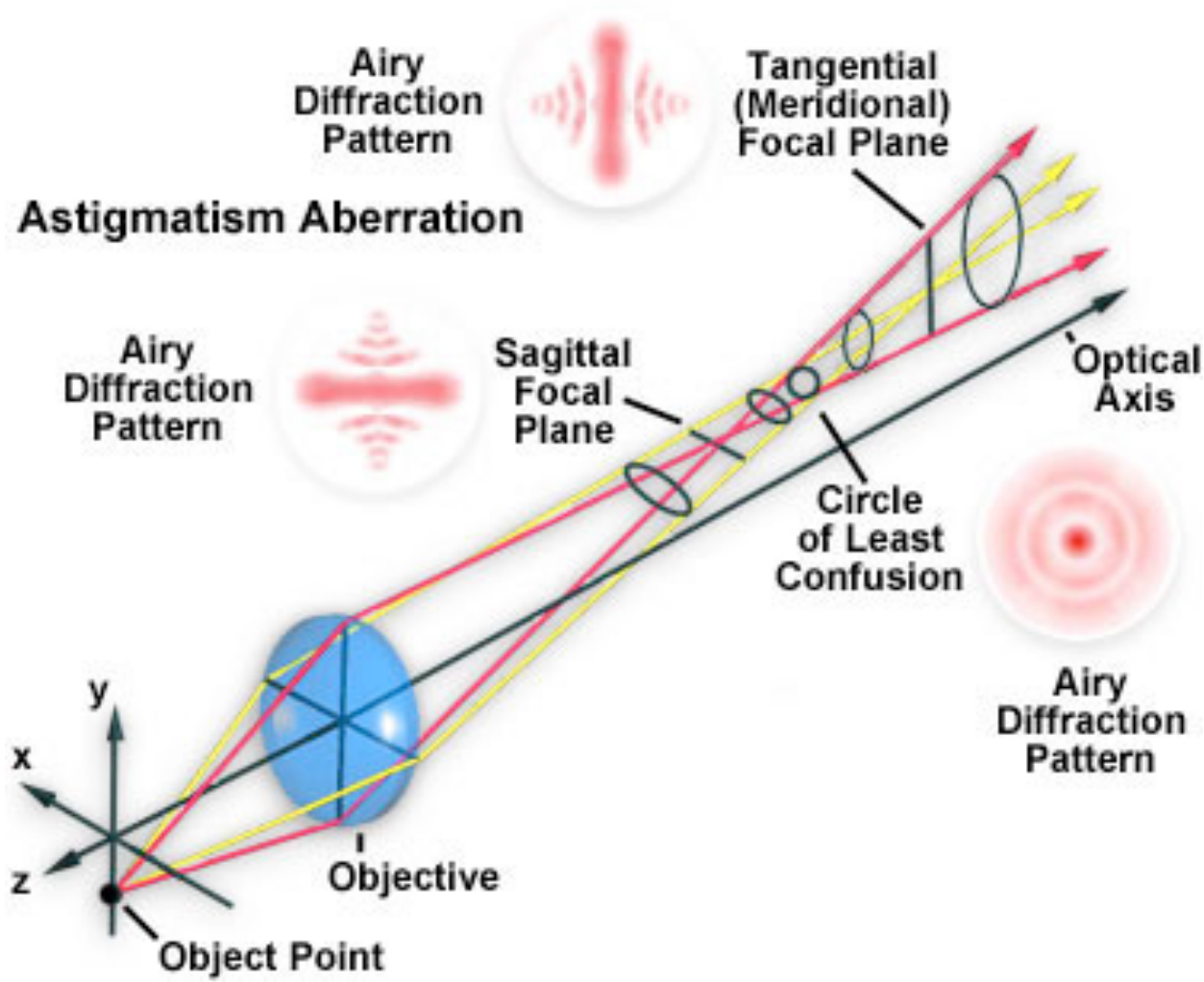


Image from http://www.olympusmicro.com/primer/anatomy/aberrations.html

Optical Aberrations

Astigmatism

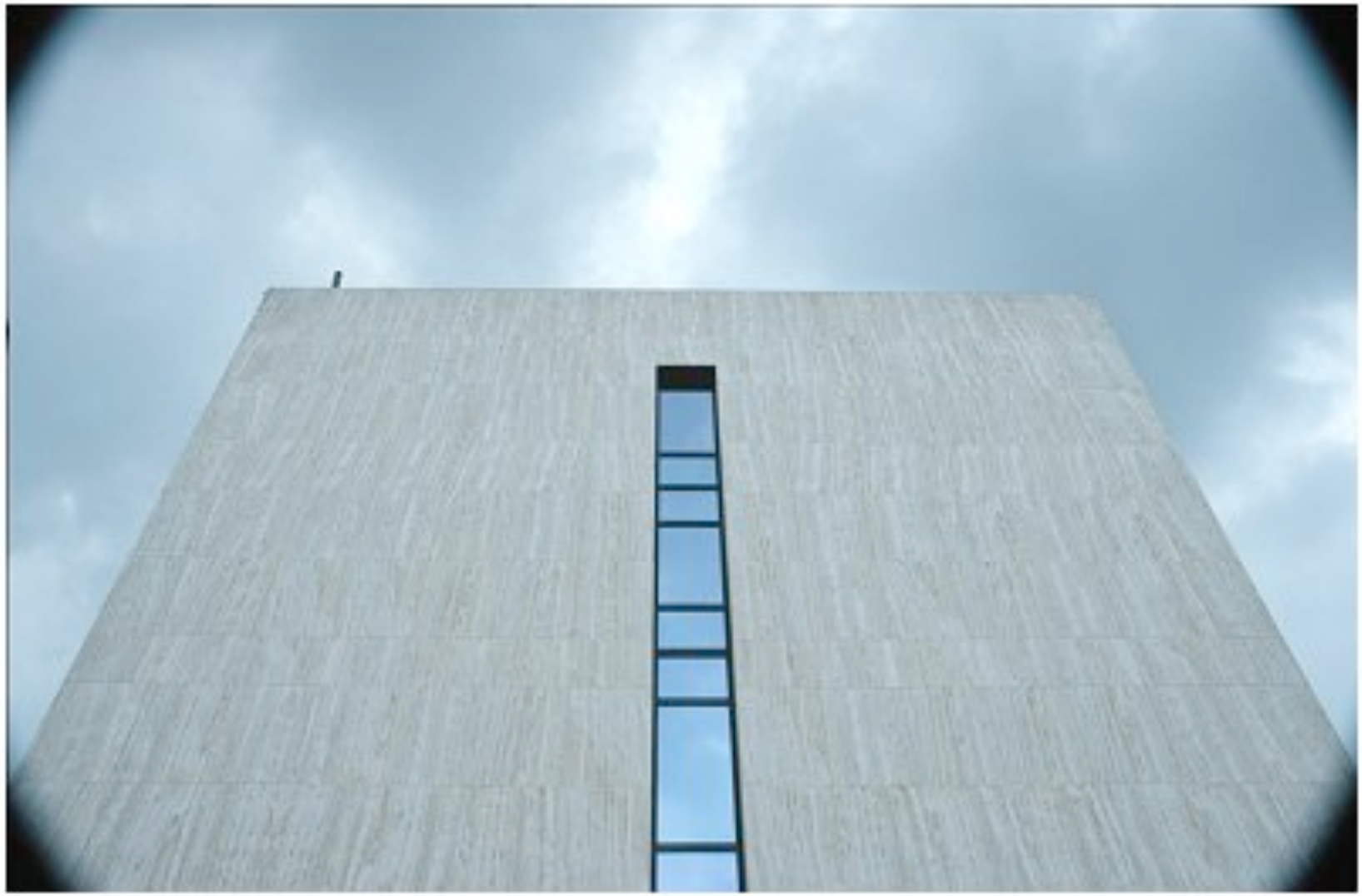


Image from http://www.vanwalree.com/optics/vignetting.html

Optical Aberrations

Vignette

Image from http://www.vanwalree.com/optics/vignetting.html

Optical Aberrations

Vignette

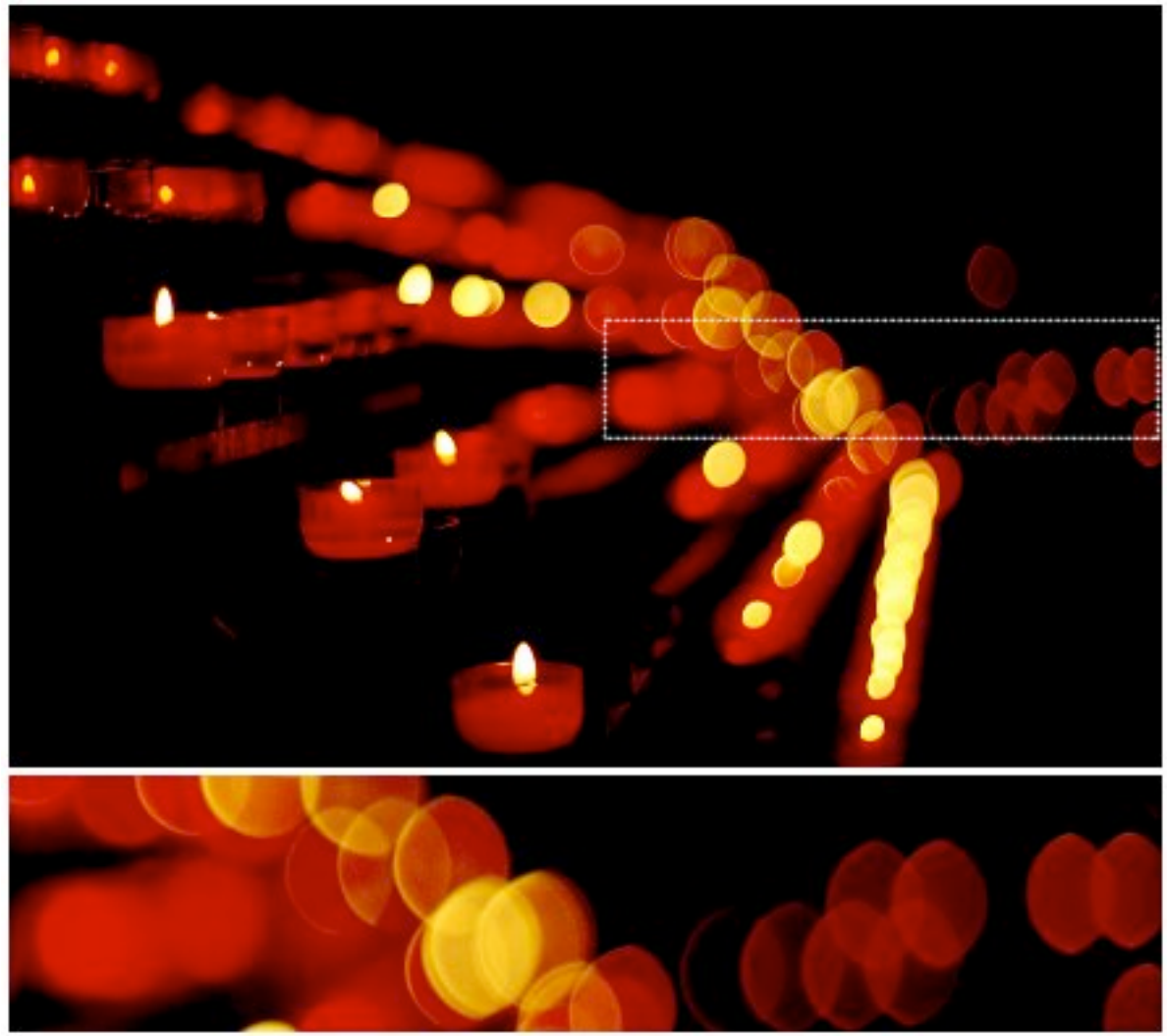


Image from http://www.vanwalree.com/optics/vignetting.html

Optical Aberrations

Optical Vignette

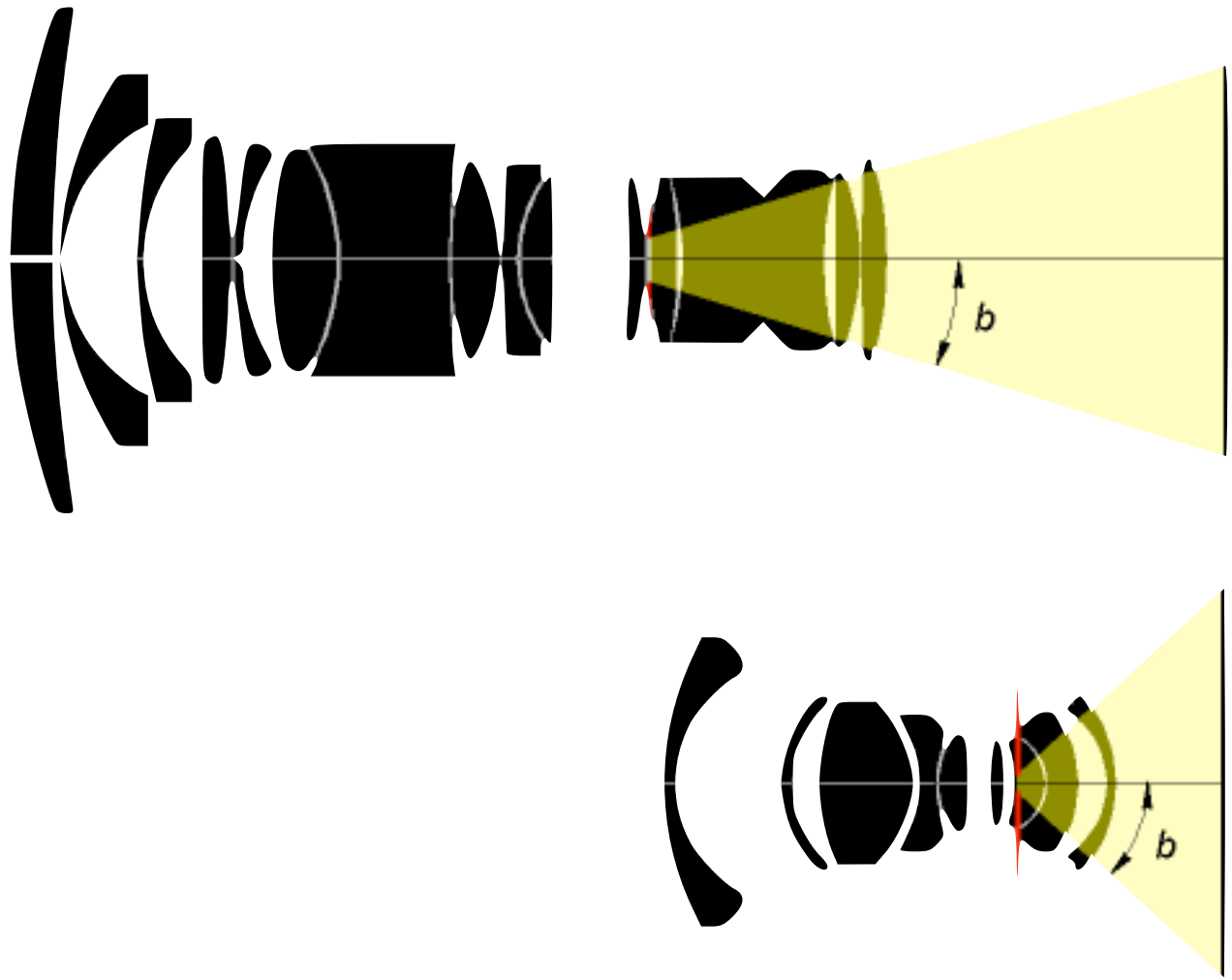


Image from http://www.vanwalree.com/optics/vignetting.html

Optical Aberrations

Natural Vignette

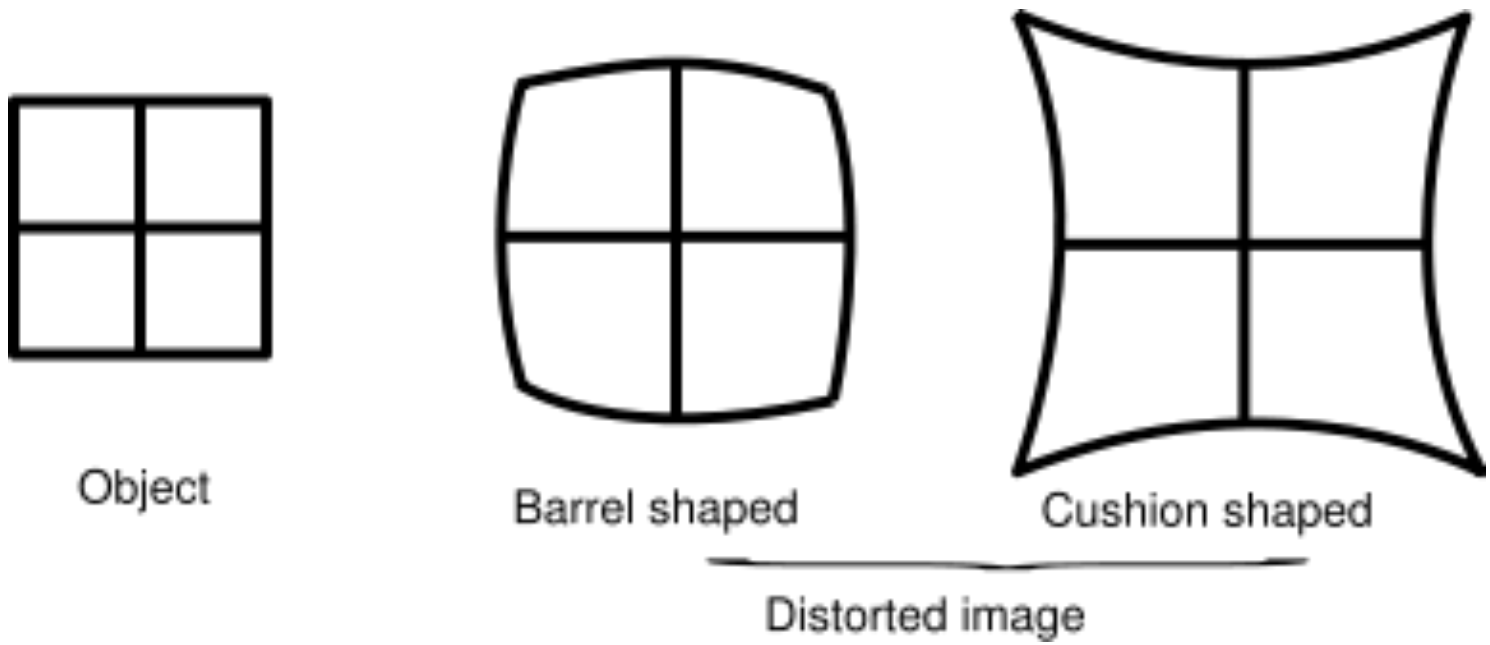


Image from http://www.vanwalree.com/optics/vignetting.html

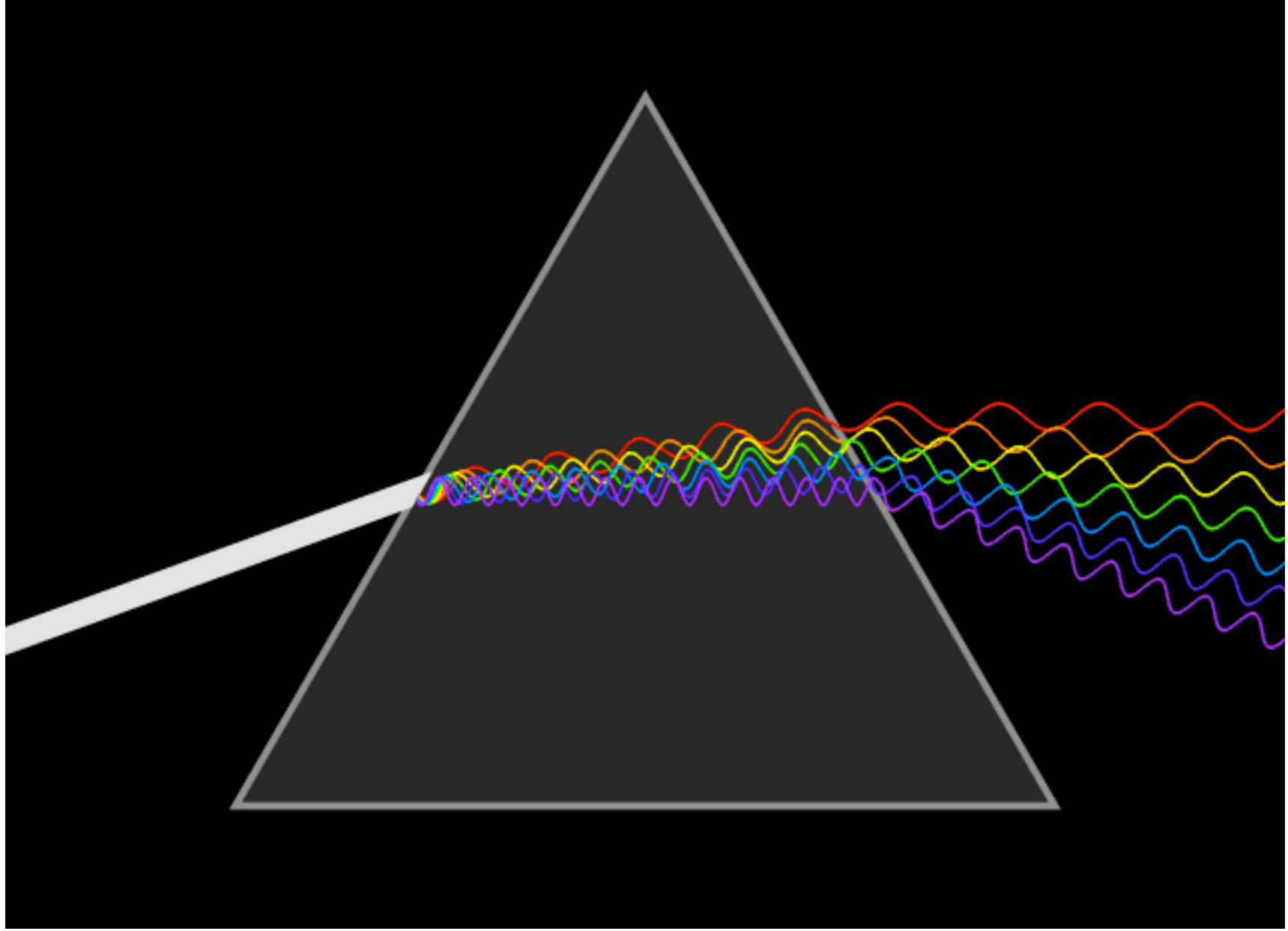
Optical Aberrations

Distortions

Images from http://www.dpreview.com/learn/?/Glossary/

Optical Aberrations

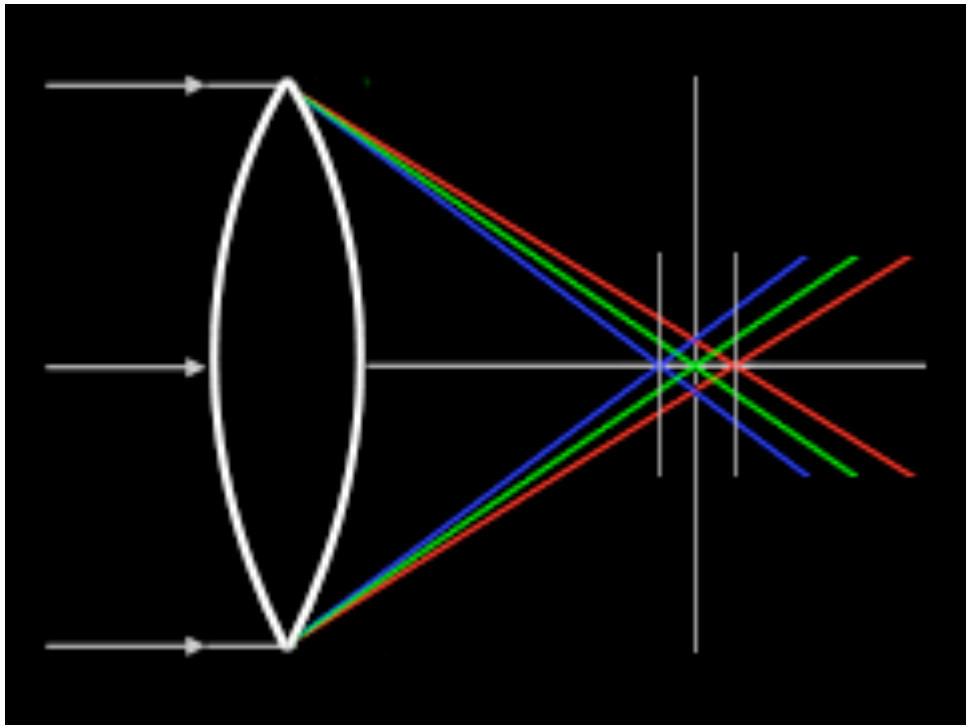
Distortions

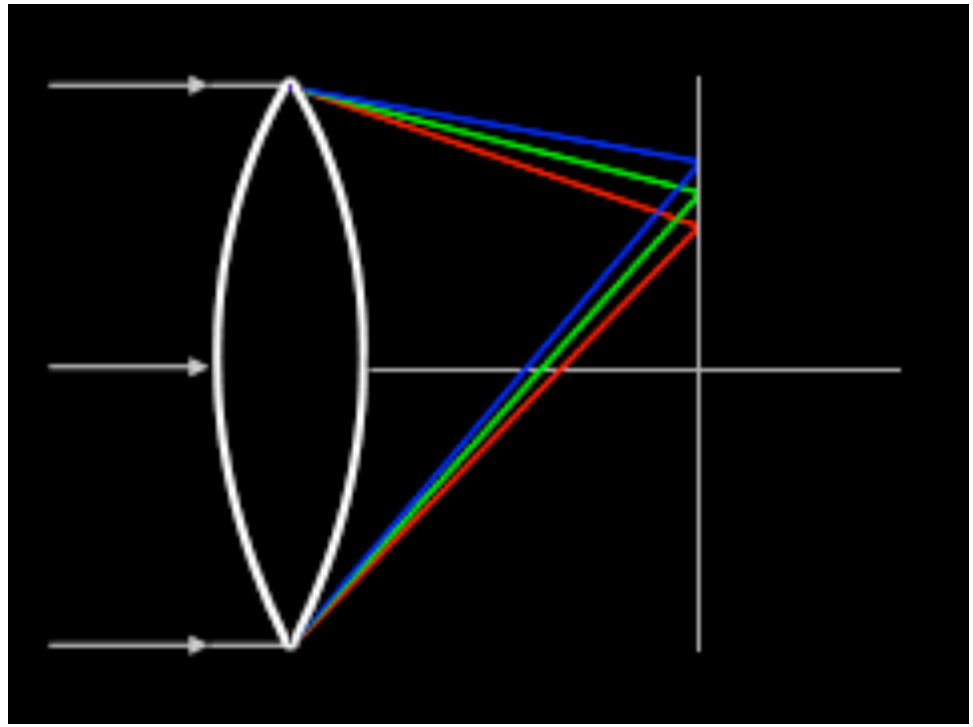


Animation from http://en.wikipedia.org/wiki/Prism_%28optics%29

Optical Artifacts

Refraction





Images from http://www.dpreview.com/learn/?/Glossary/Optical/chromatic_aberration_01.htm

Aberrations | Chromatic

Images from http://en.wikipedia.org/wiki/Chromatic_aberration

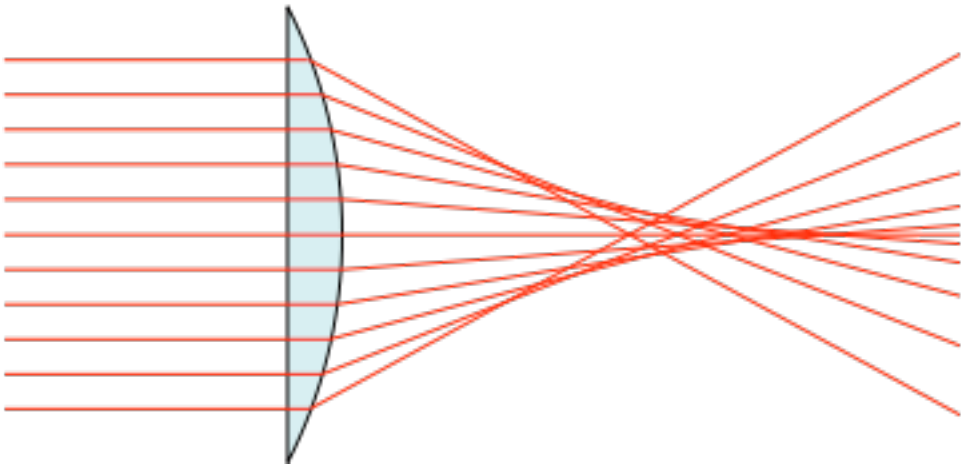
Aberrations

Chromatic

Image from http://en.wikipedia.org/wiki/Chromatic_aberration

Chromatic Aberrations

Fringing



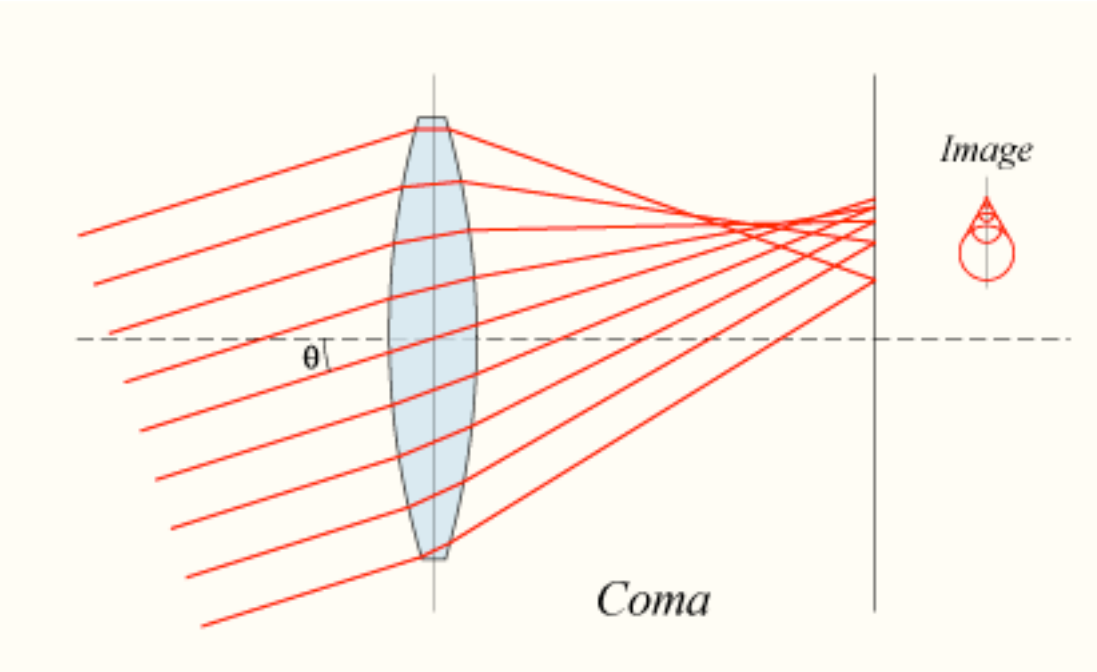


Image from http://en.wikipedia.org/wiki/Spherical_aberration

Optical Aberrations

Correcting?

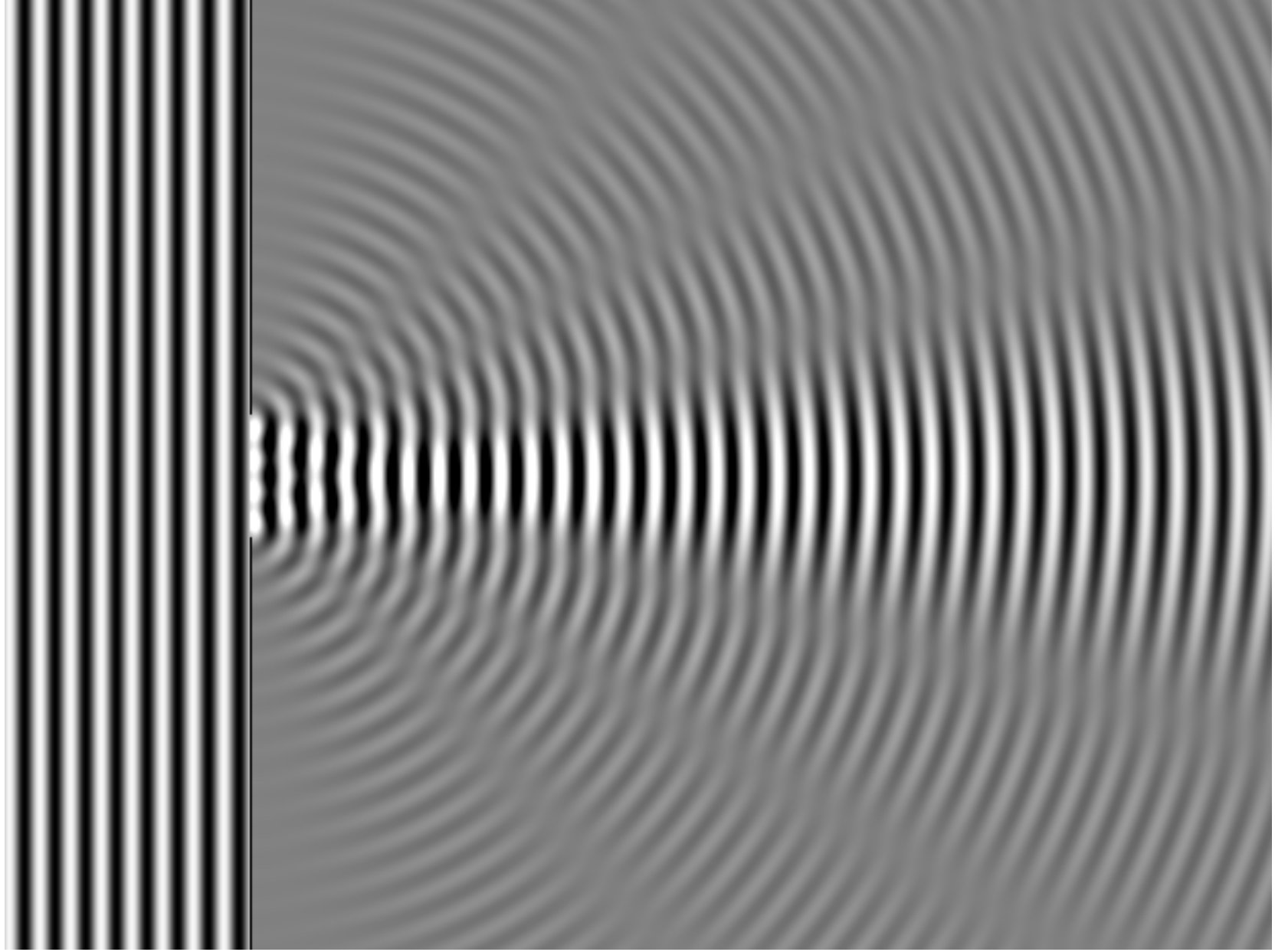


Image from http://en.wikipedia.org/wiki/Diffraction

Optical Artifacts

Diffraction

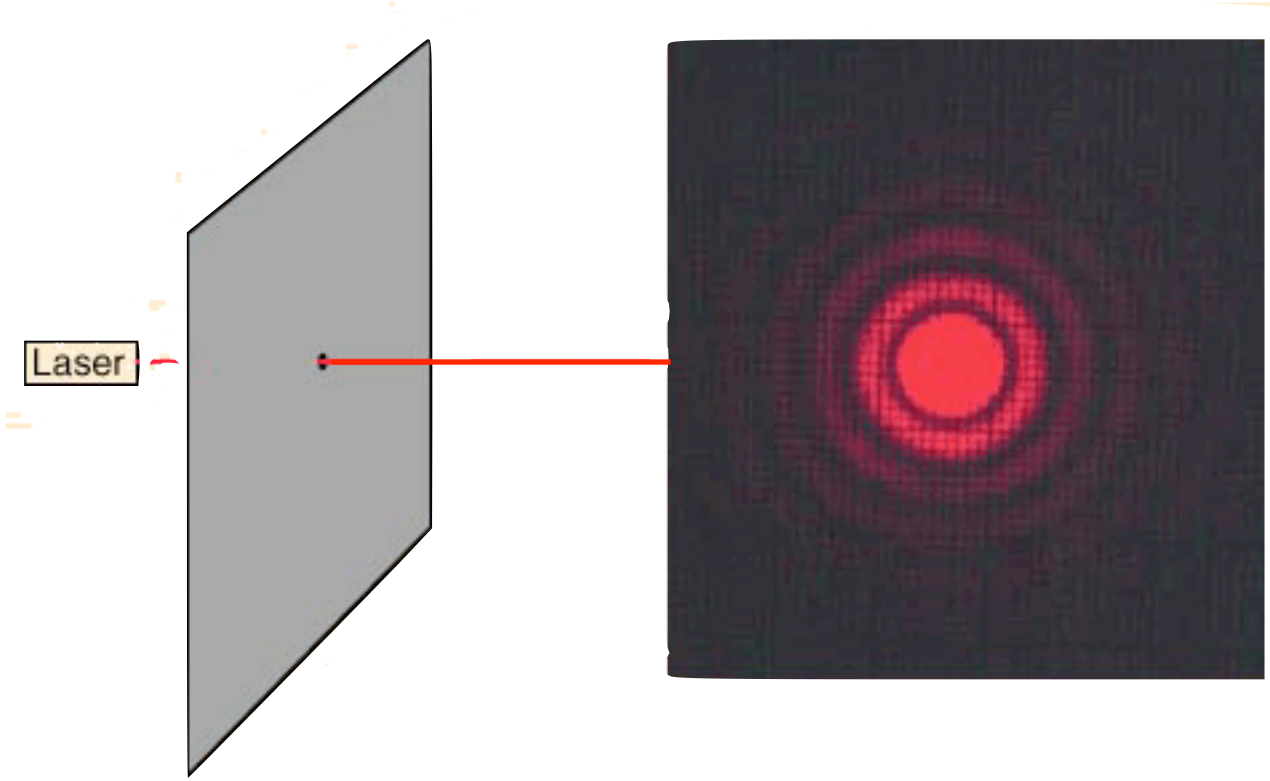


Image from http://en.wikipedia.org/wiki/Diffraction

Optical Artifacts

Diffraction

f/5.6

f/45

Image from http://www.luminous-landscape.com/tutorials/understanding-series/u-diffraction.shtml

Optical Artifacts

Diffraction

Image from Digital Photography Review, http://www.dpreview.com

Artifacts | Digital

Alias

Anti-Aliased

Image from http://www.dpreview.com/learn/?/Glossary/Digital_Imaging/Aliasing_01.htm

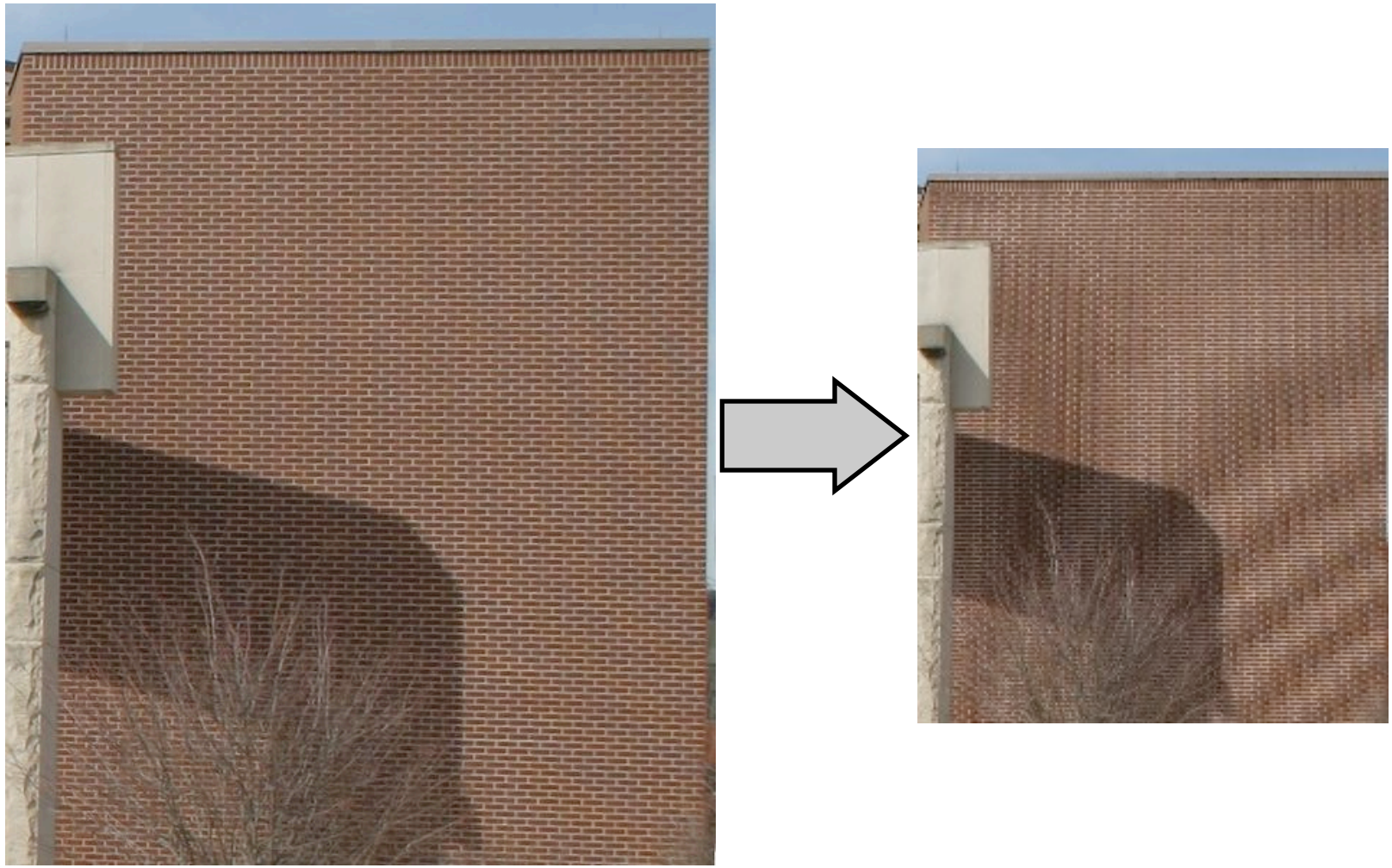


Image from http://en.wikipedia.org/wiki/Moiré_pattern

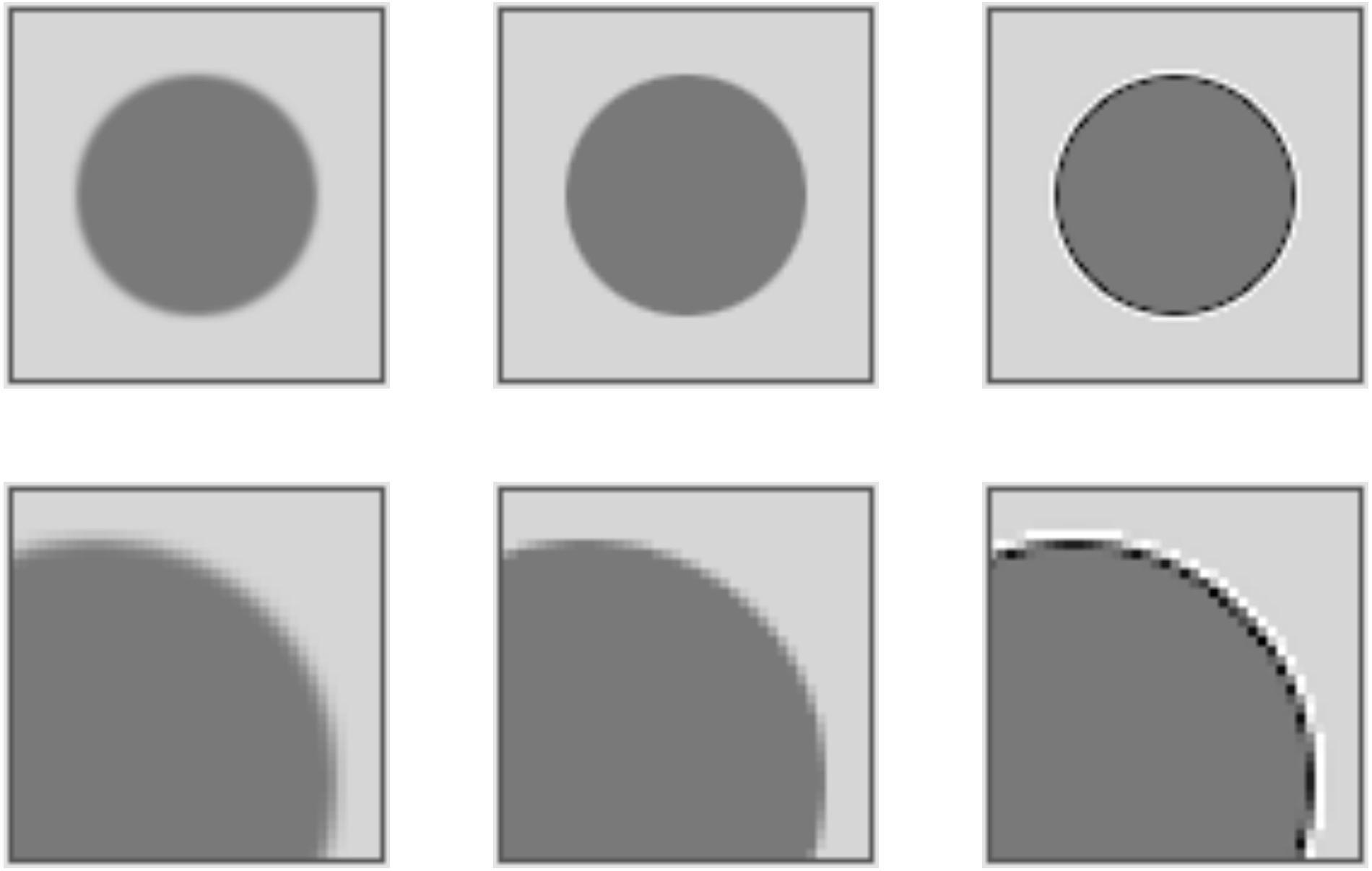
Digital Artifacts

Moiré

Images from http://www.ddisoftware.com/reviews/sd9-v-bayer/ and http://www.dpreview.com/learn/?/Glossary/Digital_Imaging/Moire_01.htm

Digital Artifacts

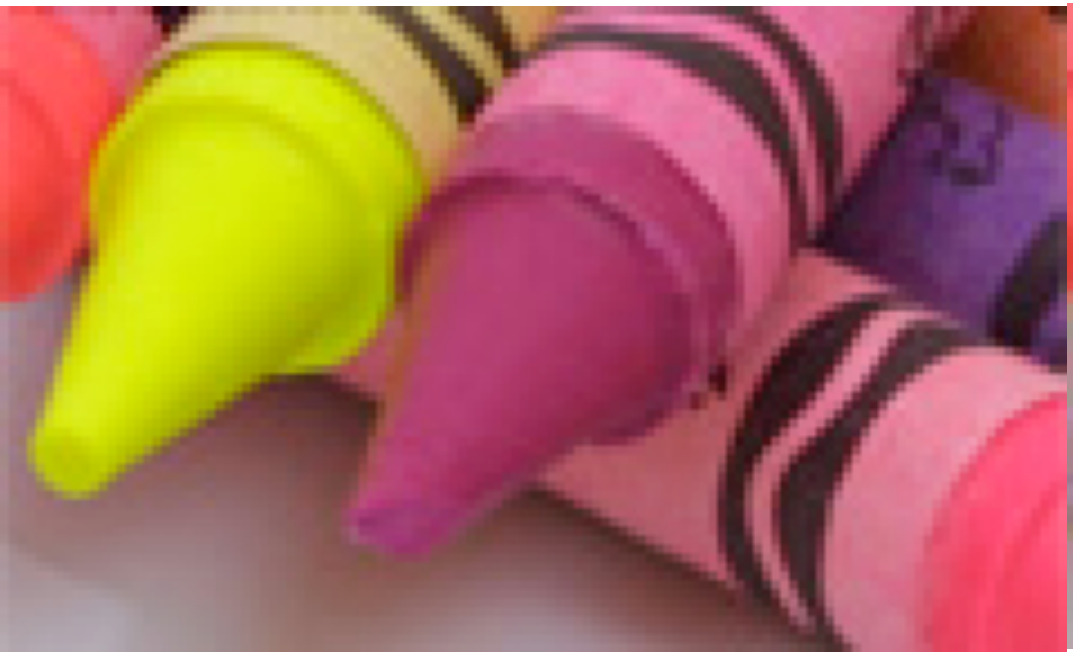
Moiré & Maze Patterns



Images from http://www.dpreview.com/learn/?/key=sharpening

Digital Artifacts

Sharpening Halos



100% Quality

10% Quality

Image from http://www.dpreview.com/learn/?/Glossary/Digital_Imaging/Aliasing_01.htm

Digital Artifacts

Compression Artifacts

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