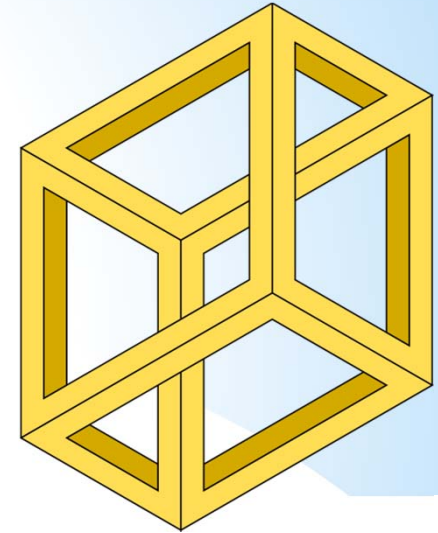
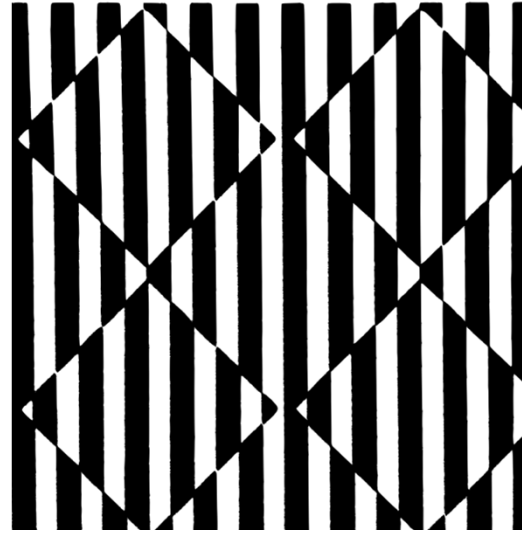
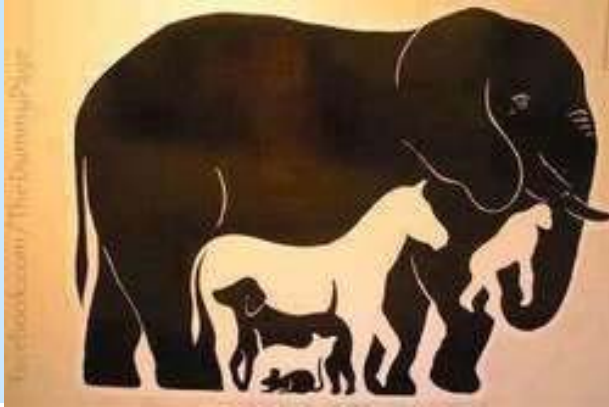




Math in OpArt

Presenter: Steven Zollinger
Assistant Professor at Snow College
steve.zollinger@snow.edu

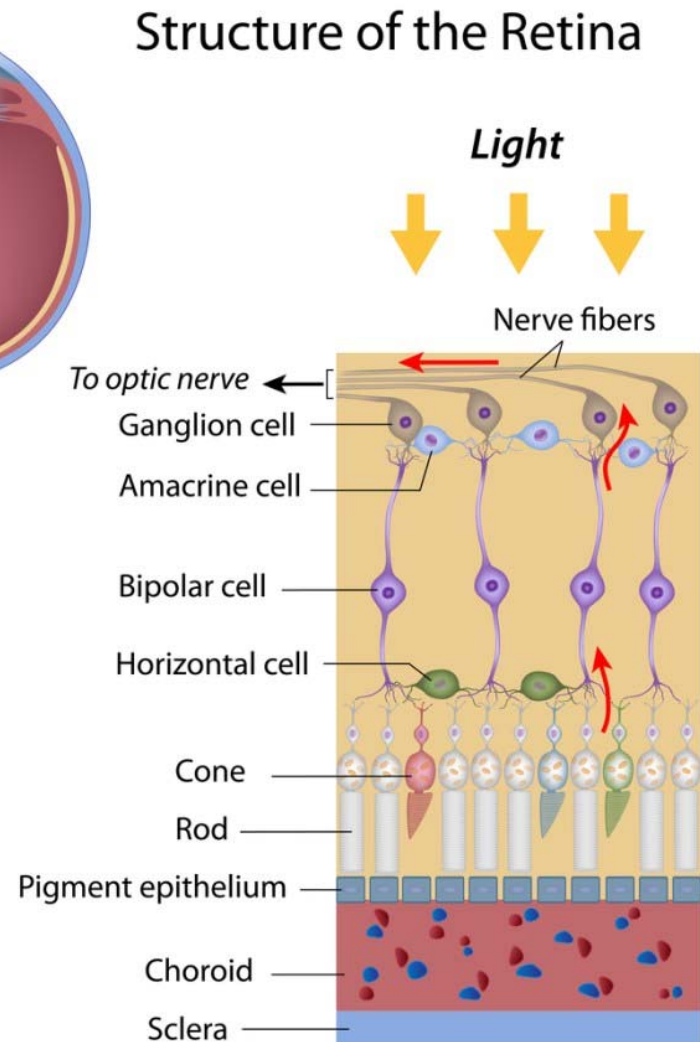
Optical Illusions

What are optical illusions?



Physiology of Sight

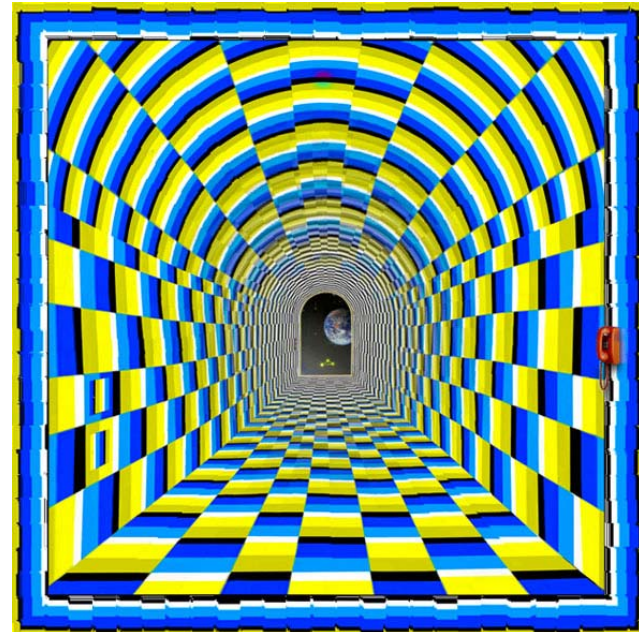
- **125 million** receptors (rods and cones)
- **1 million** ganglion cells
- Compression ratio of at least **125:1**



(Image from <http://discoveryeye.org/optic-nerve-visual-link-brain/>)

Basic Illusions

- Height-Width
- Interrupted Extent
- Depth
- Contour
- Contrast
- Equivocal



Basic Illusions

- Draw 2 or 3 pictures on your paper.

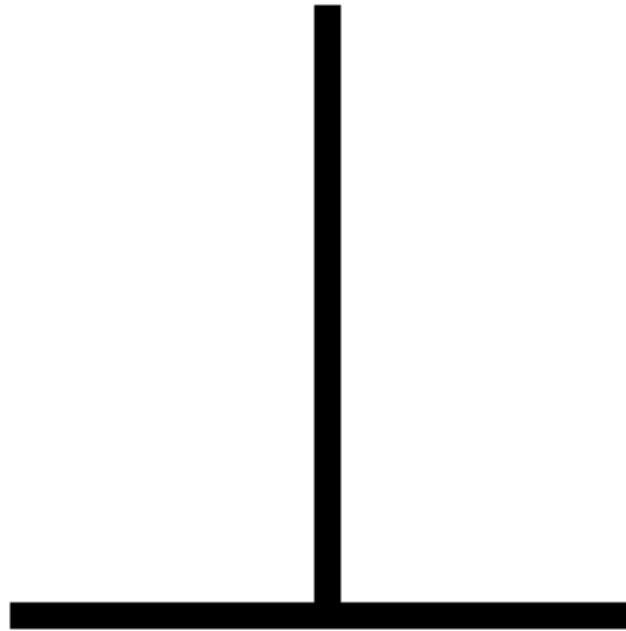
(Something simple but more than just a basic shape)

- You will add elements to these pictures to create some basic illusions.

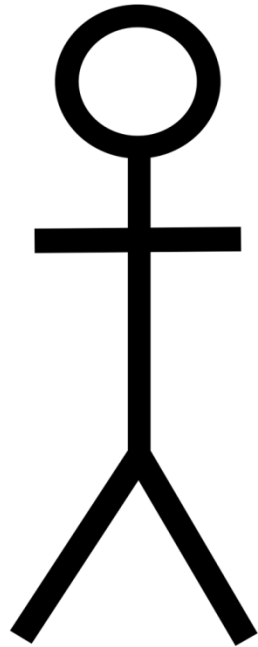
Height-Width



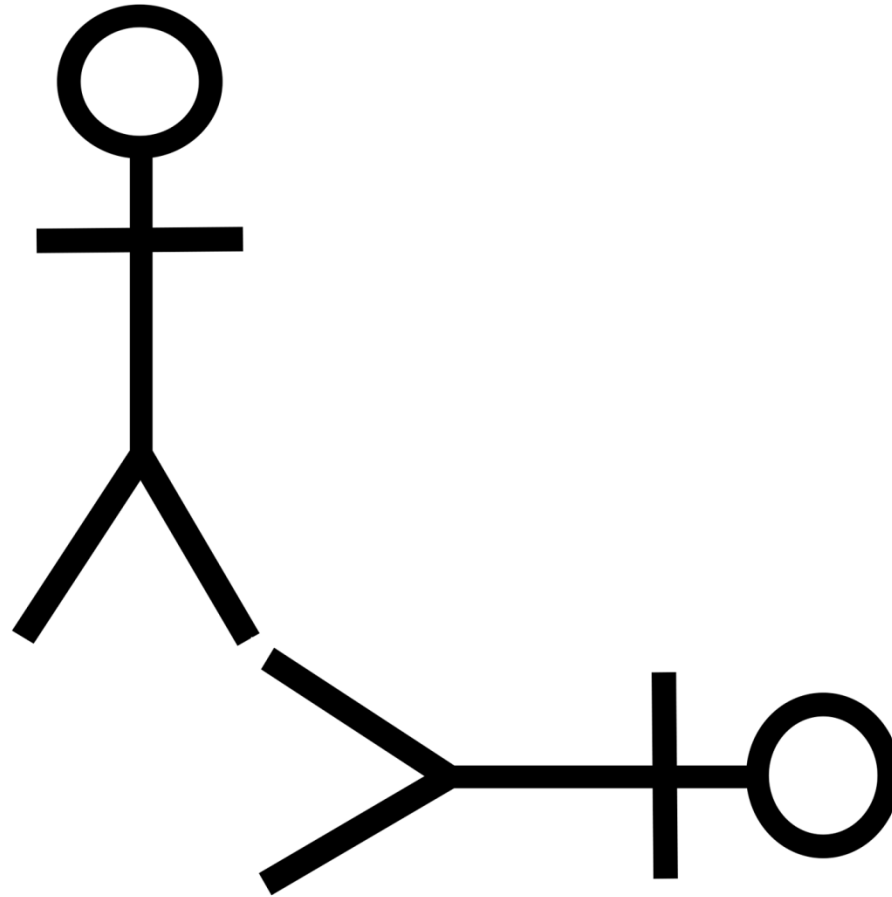
Height-Width



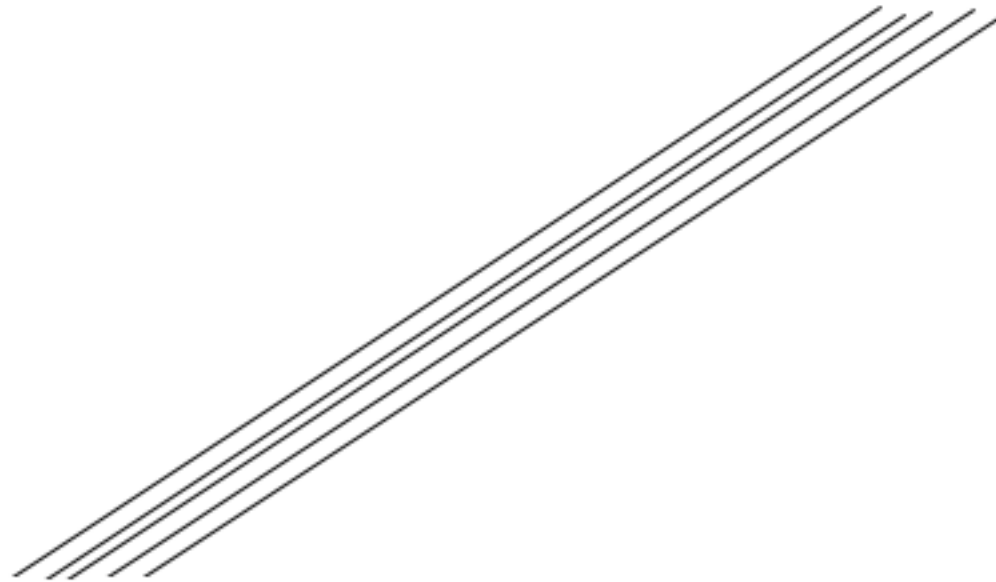
Height-Width



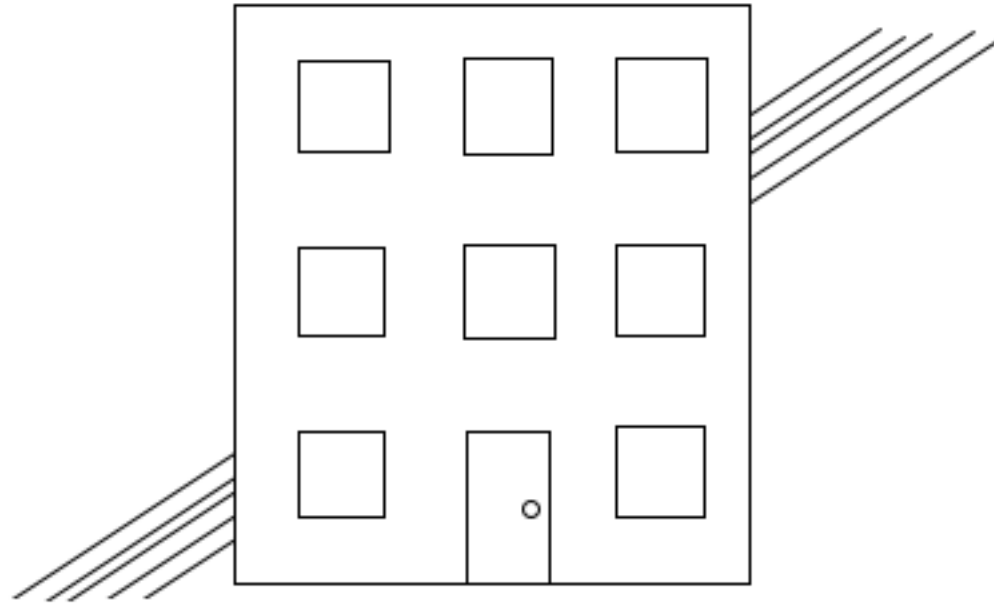
Height-Width



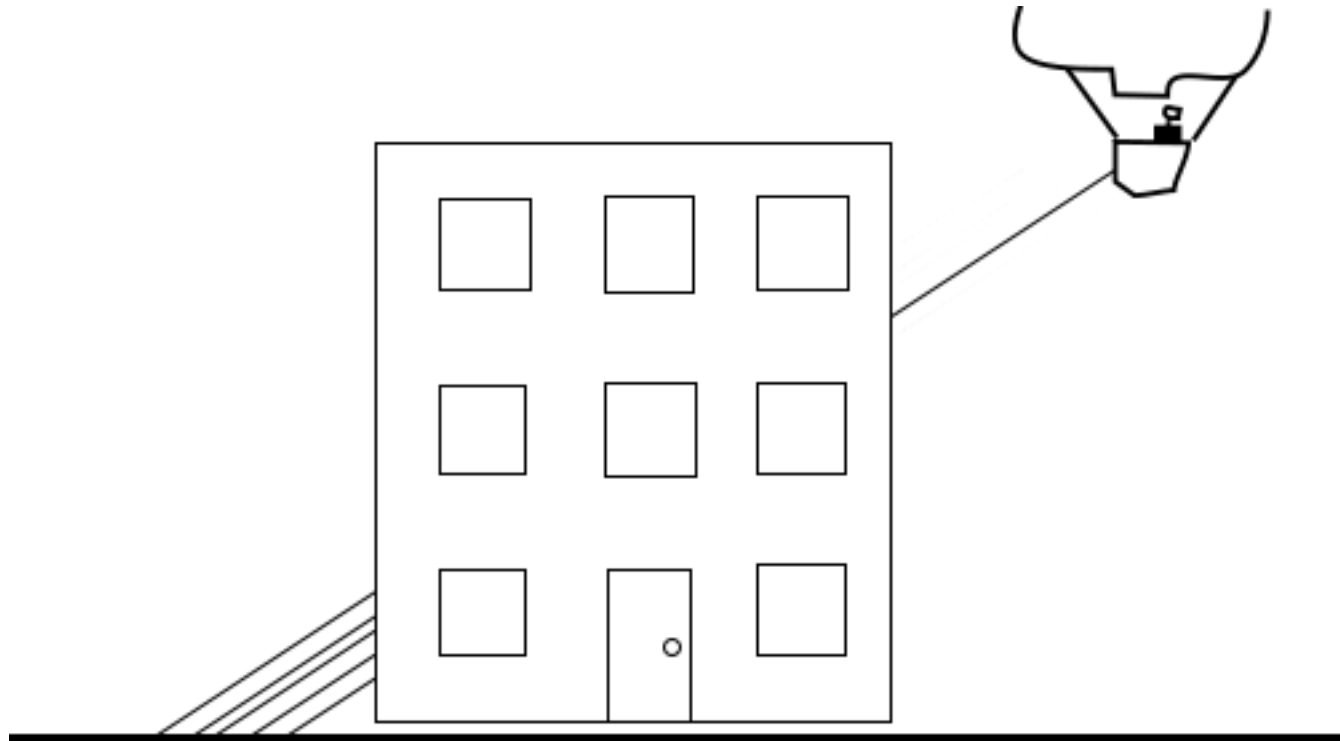
Interrupted Extent



Interrupted Extent



Interrupted Extent



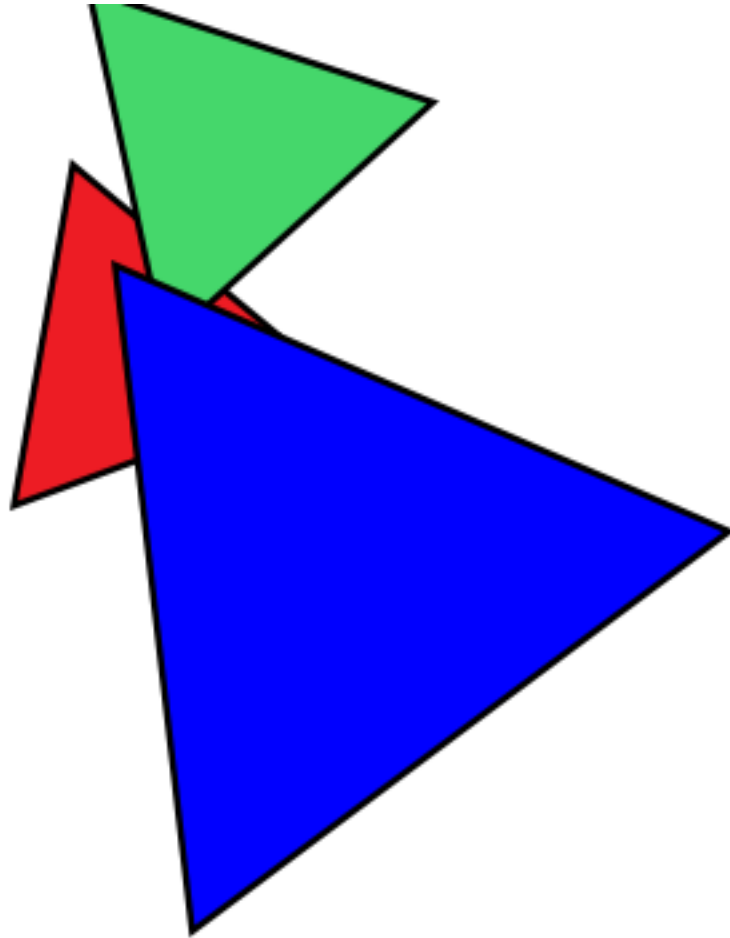
Depth



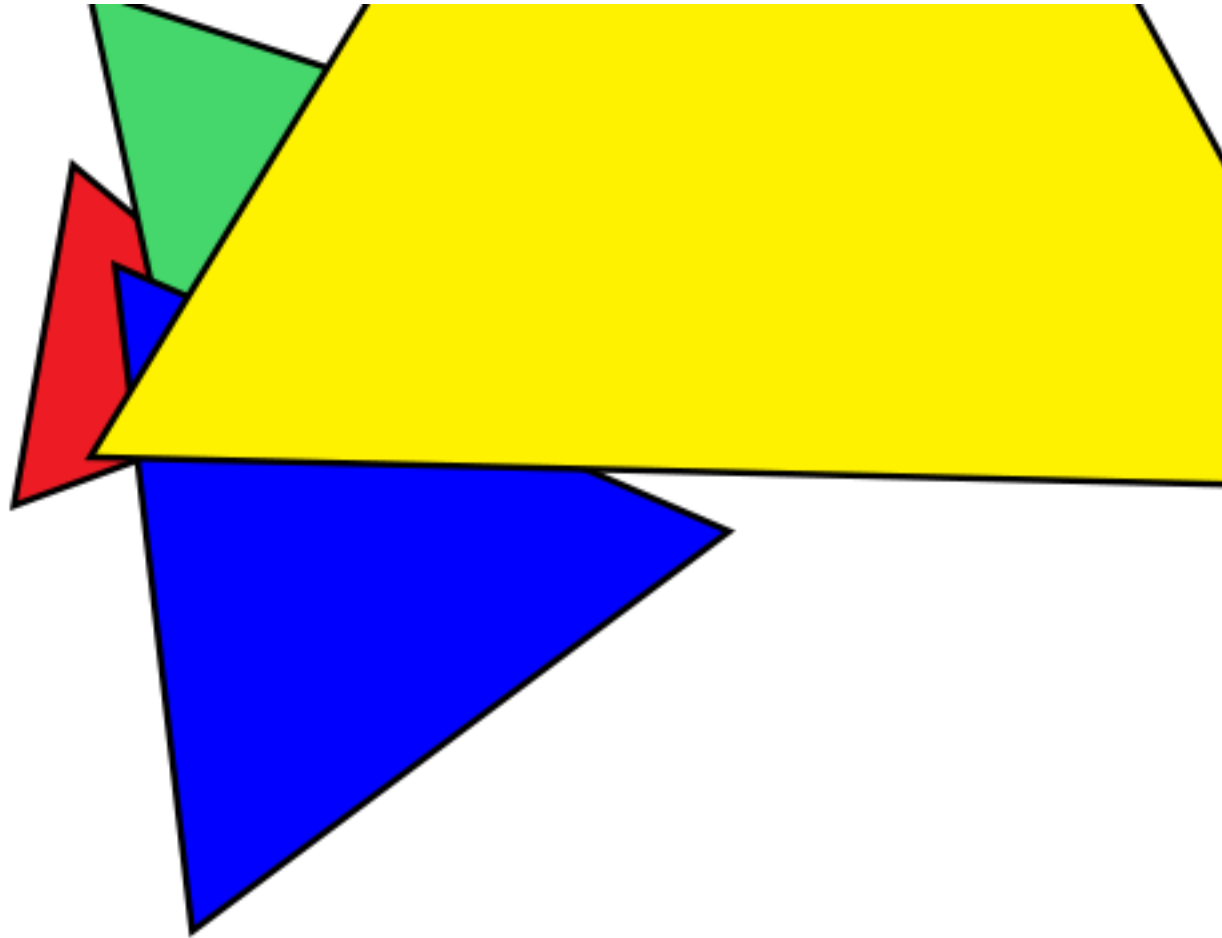
Depth



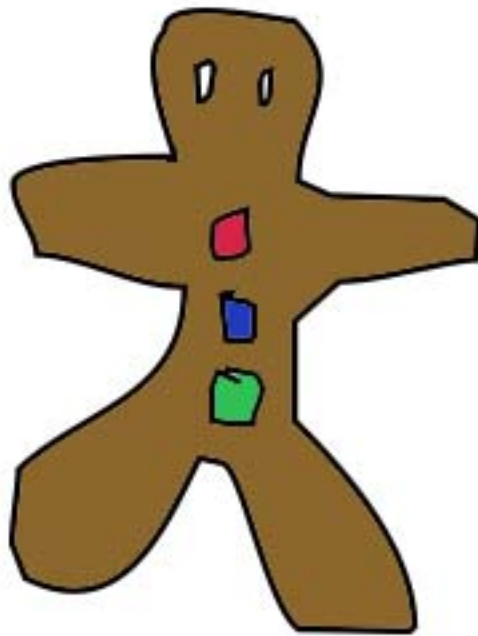
Depth



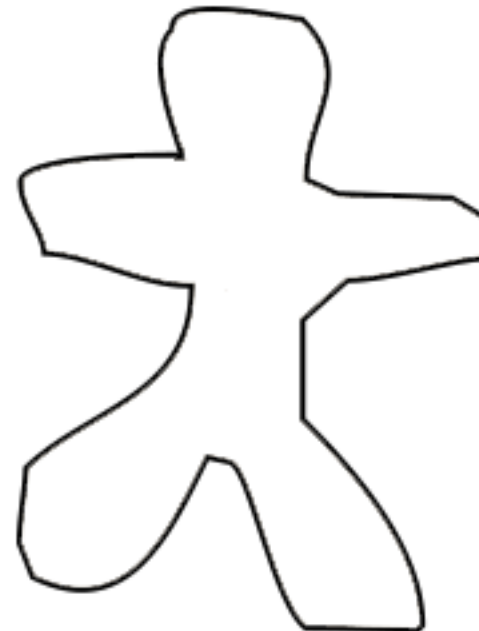
Depth



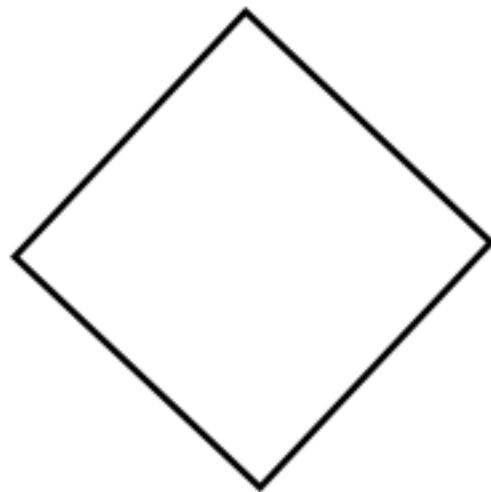
Contour



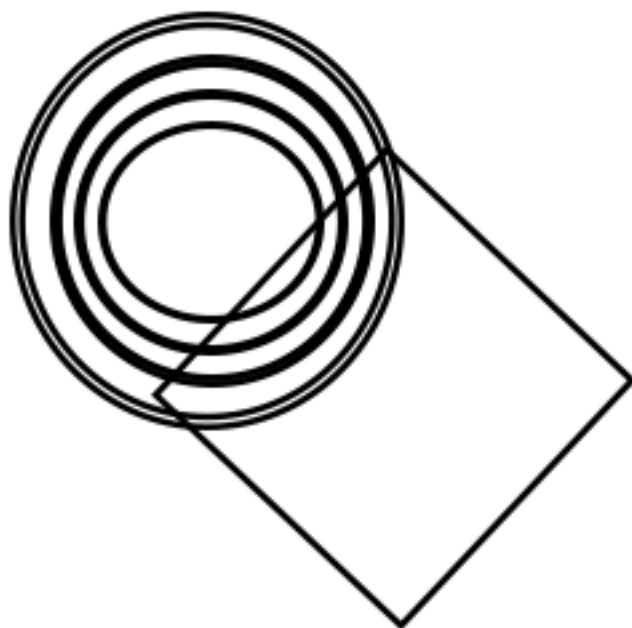
Contour



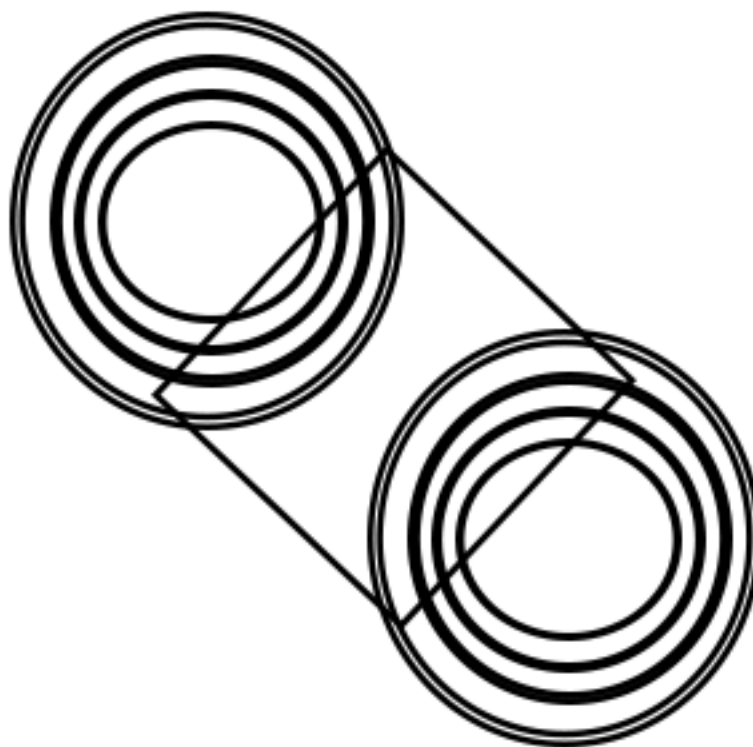
Contrast



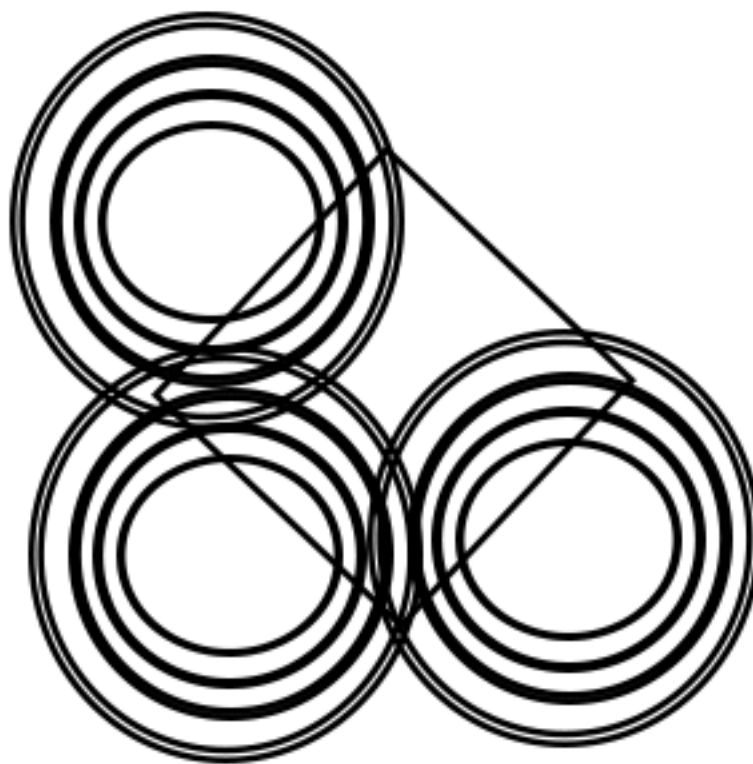
Contrast



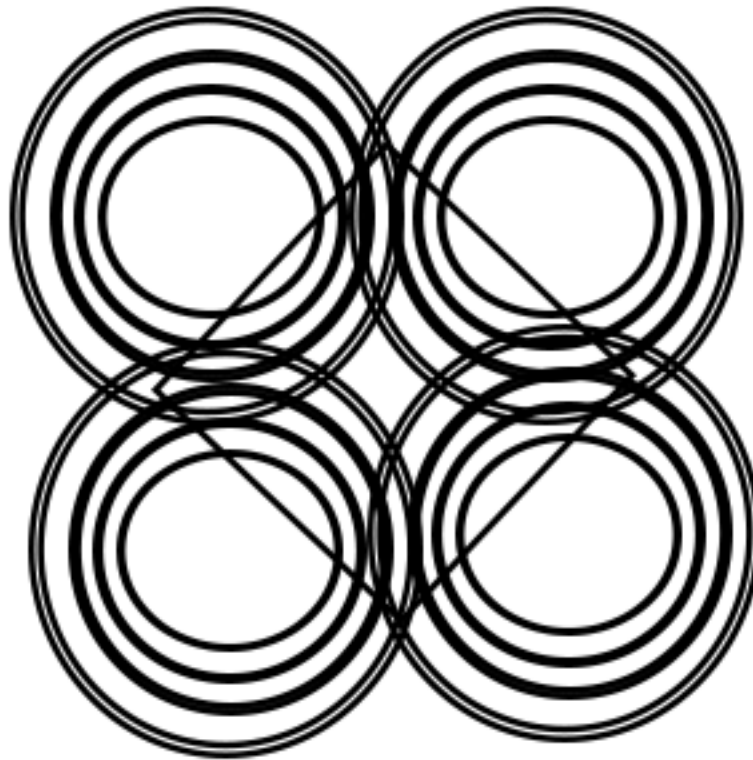
Contrast



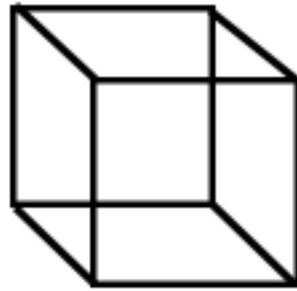
Contrast



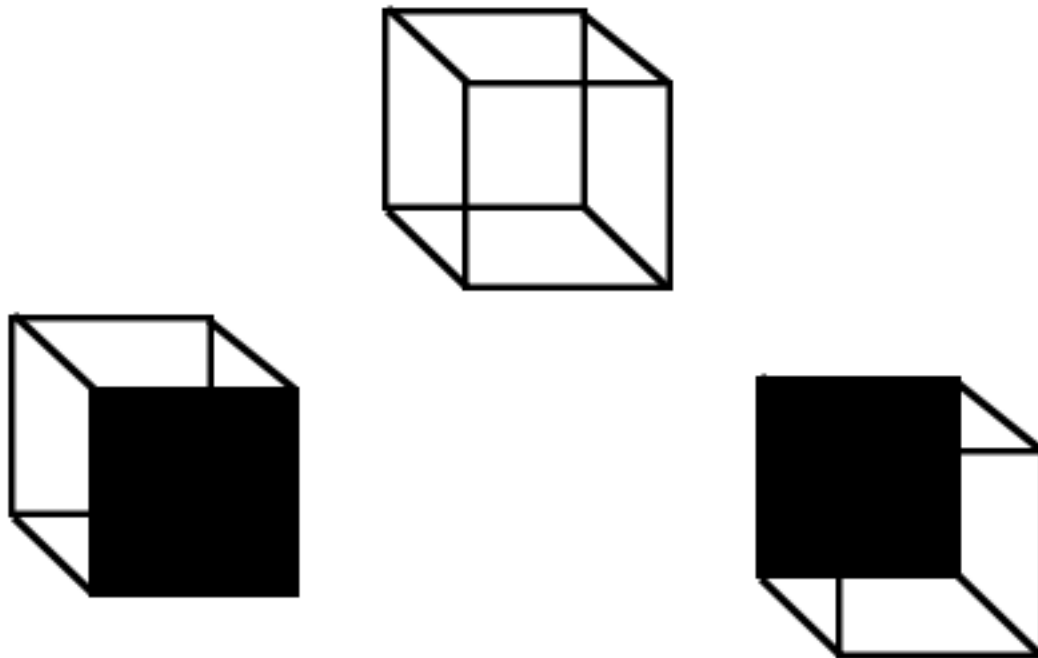
Contrast



Equivocal



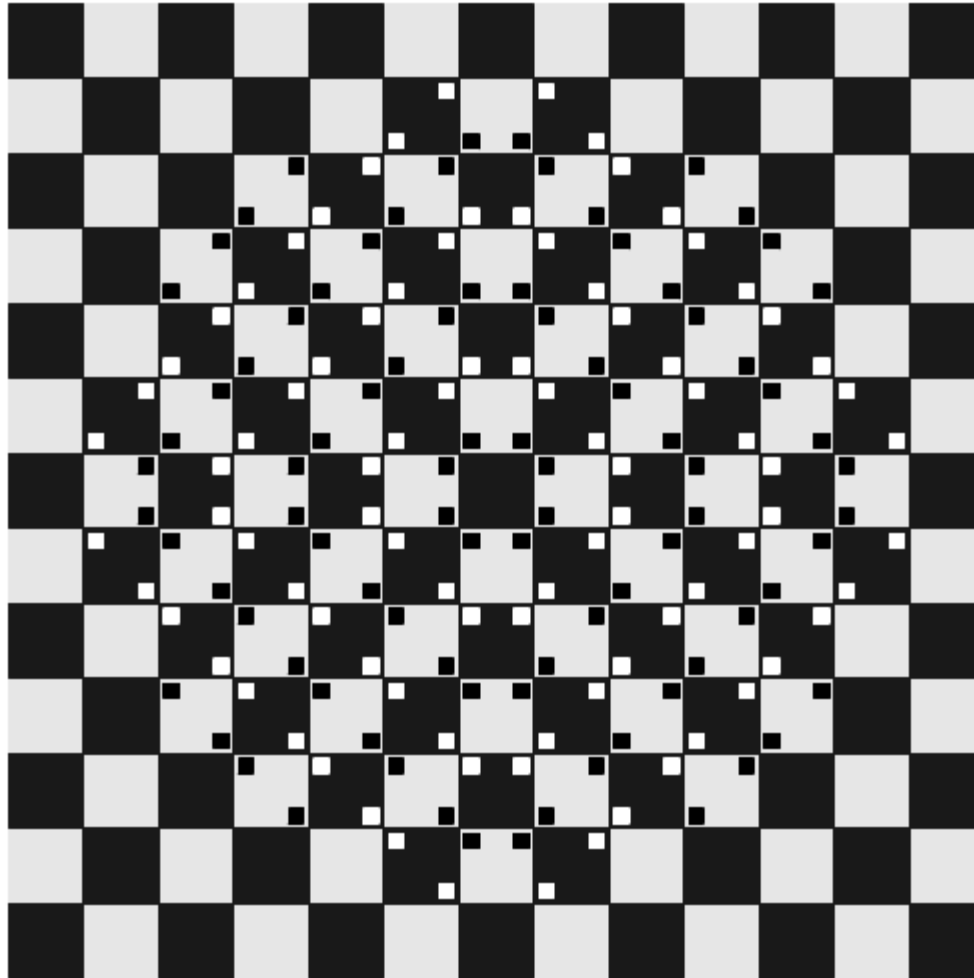
Equivocal



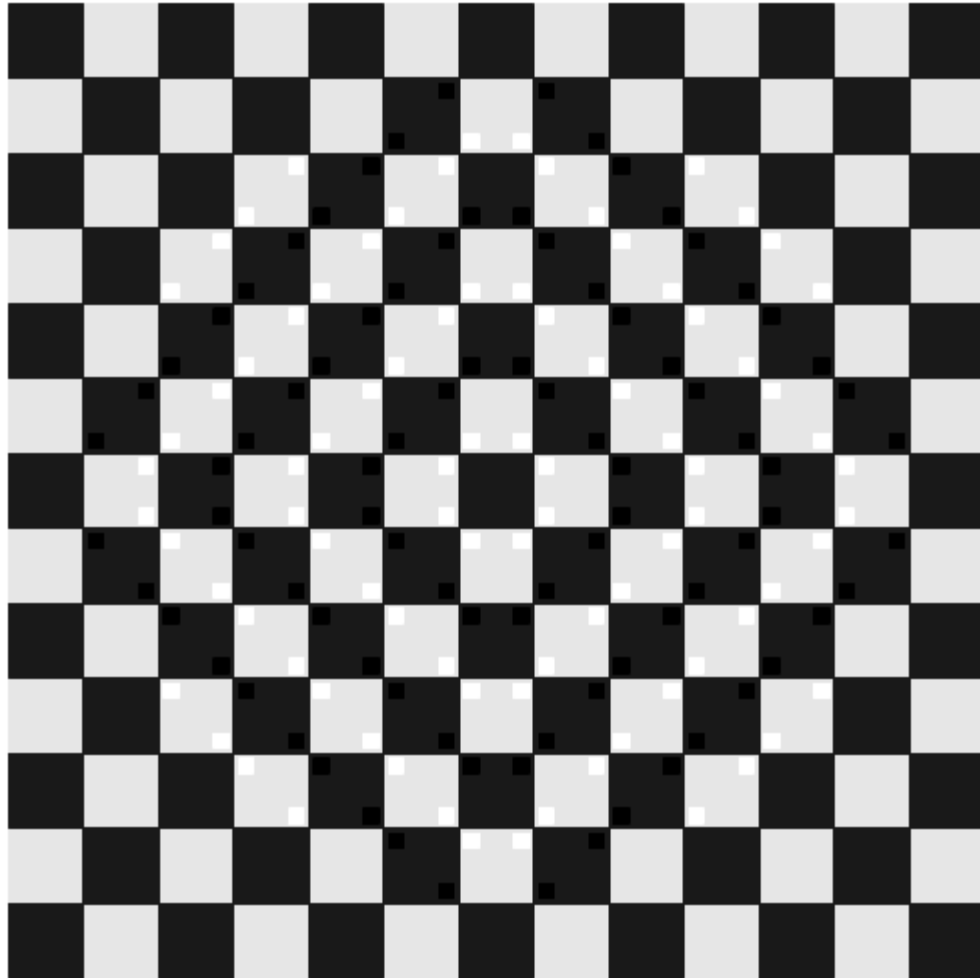
Which Illusion?

http://www.michaelbach.de/ot/geom_KitaokaBulge/index.html

Which Illusion?



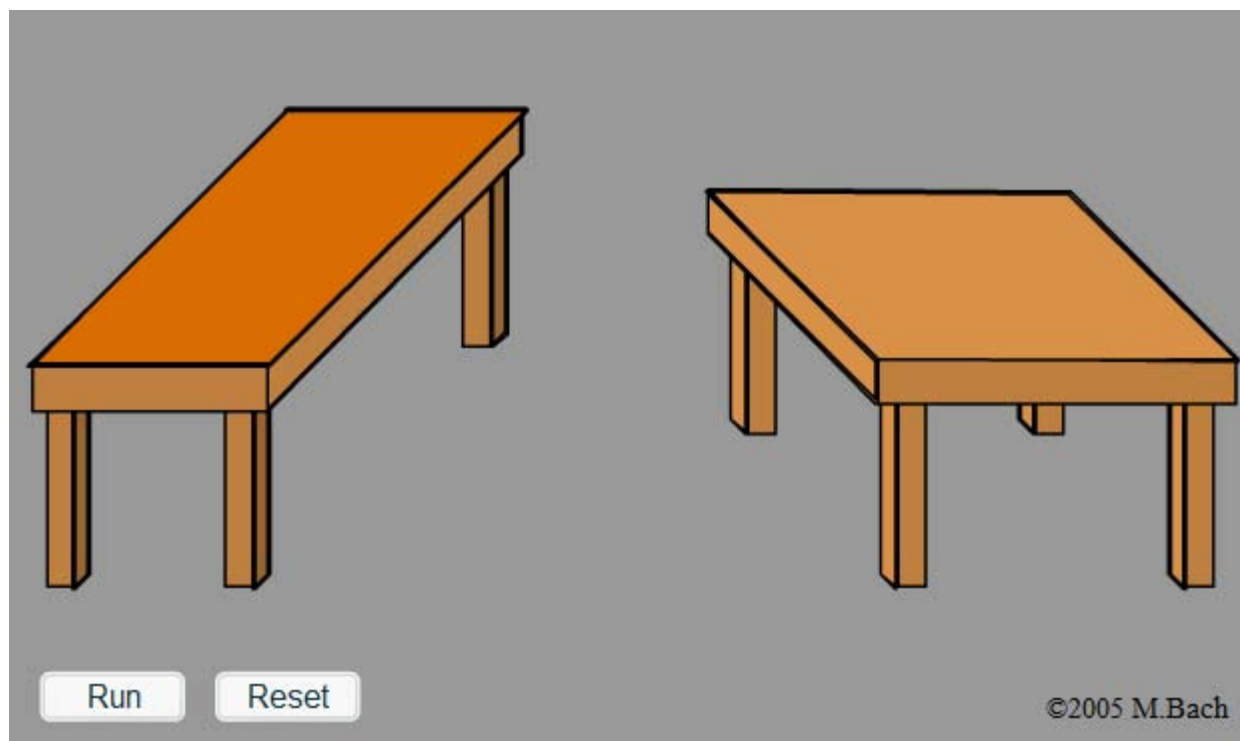
Which Illusion?



Which Illusion?

http://www.michaelbach.de/ot/size_shepardTables/index.html

Which Illusion?



Which Illusion?

<http://www.michaelbach.de/ot/cog-rotations/index.html>

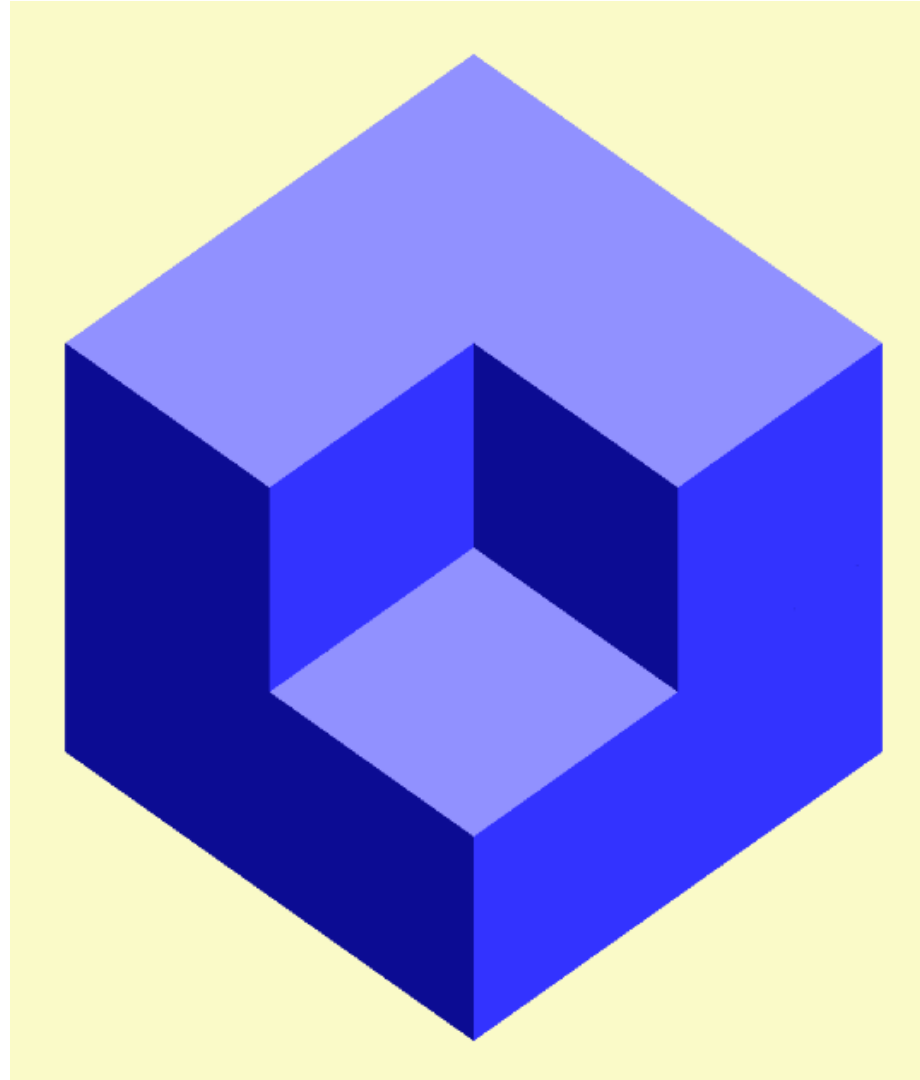
<http://www.michaelbach.de/ot/sze-missCornerCube/index.html>

http://www.michaelbach.de/ot/sze_silhouette/index.html

Which Illusion?



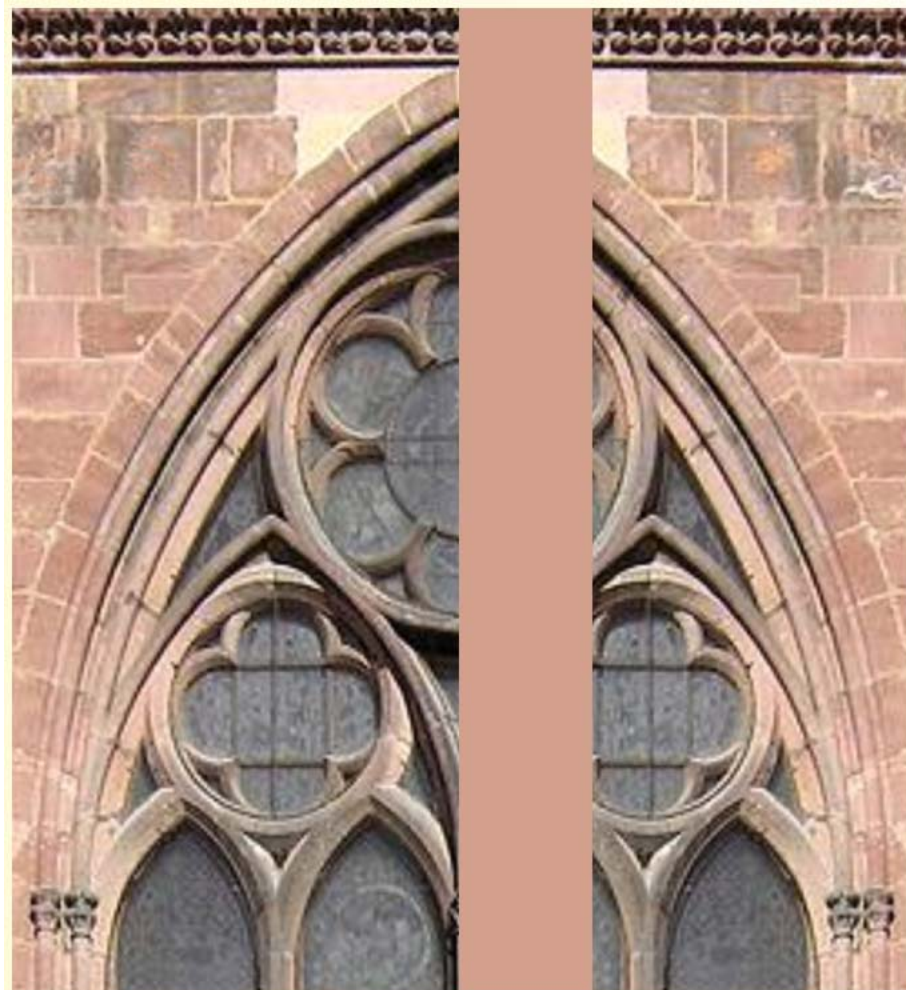
Which Illusion?



Which Illusion?

<http://www.michaelbach.de/ot/ang-arch/index.html>

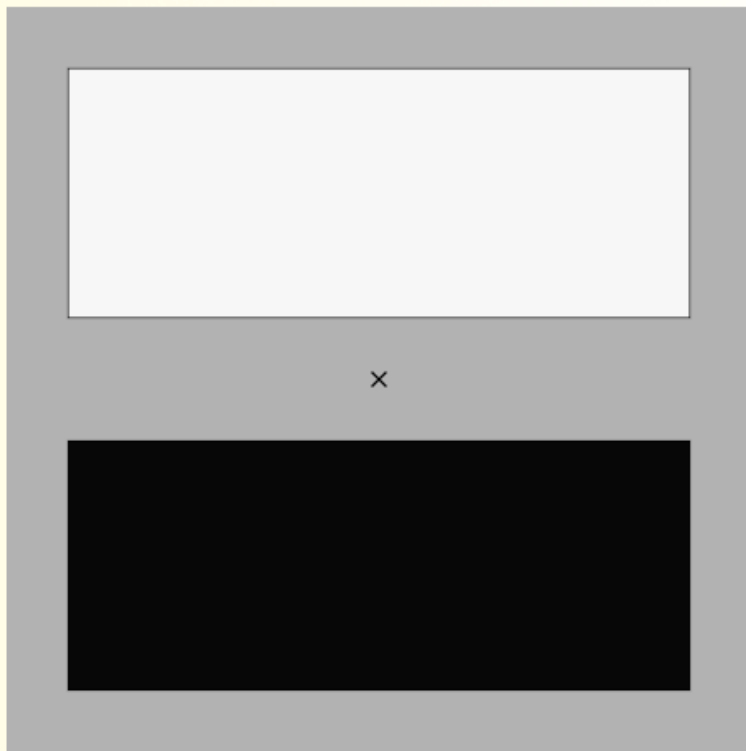
Which Illusion?



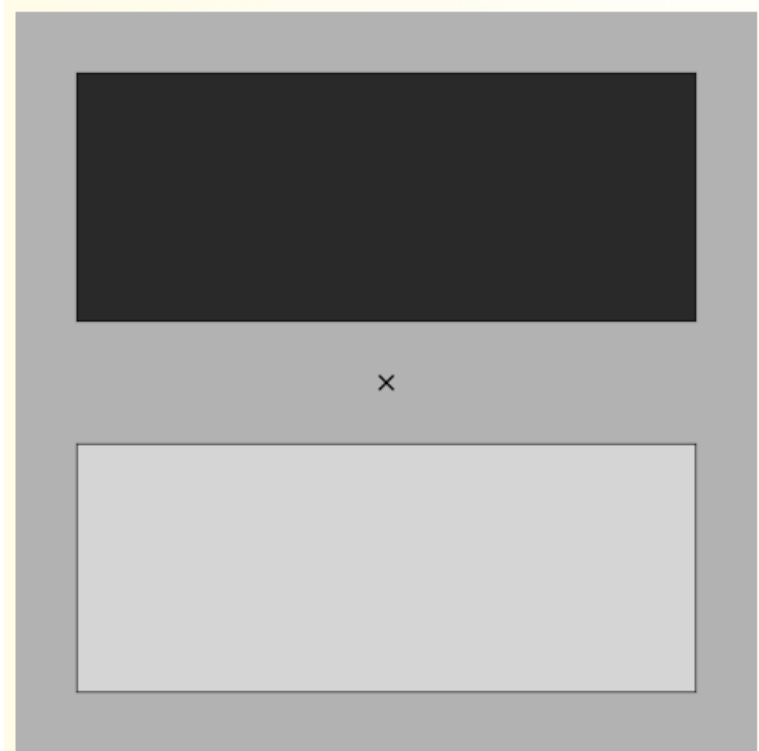
Which Illusion?

<http://www.michaelbach.de/ot/mot-rampAdapt/index.html>

Which Illusion?



1



Other Illusions

<http://www.michaelbach.de/ot/mot-adapt/index.html>

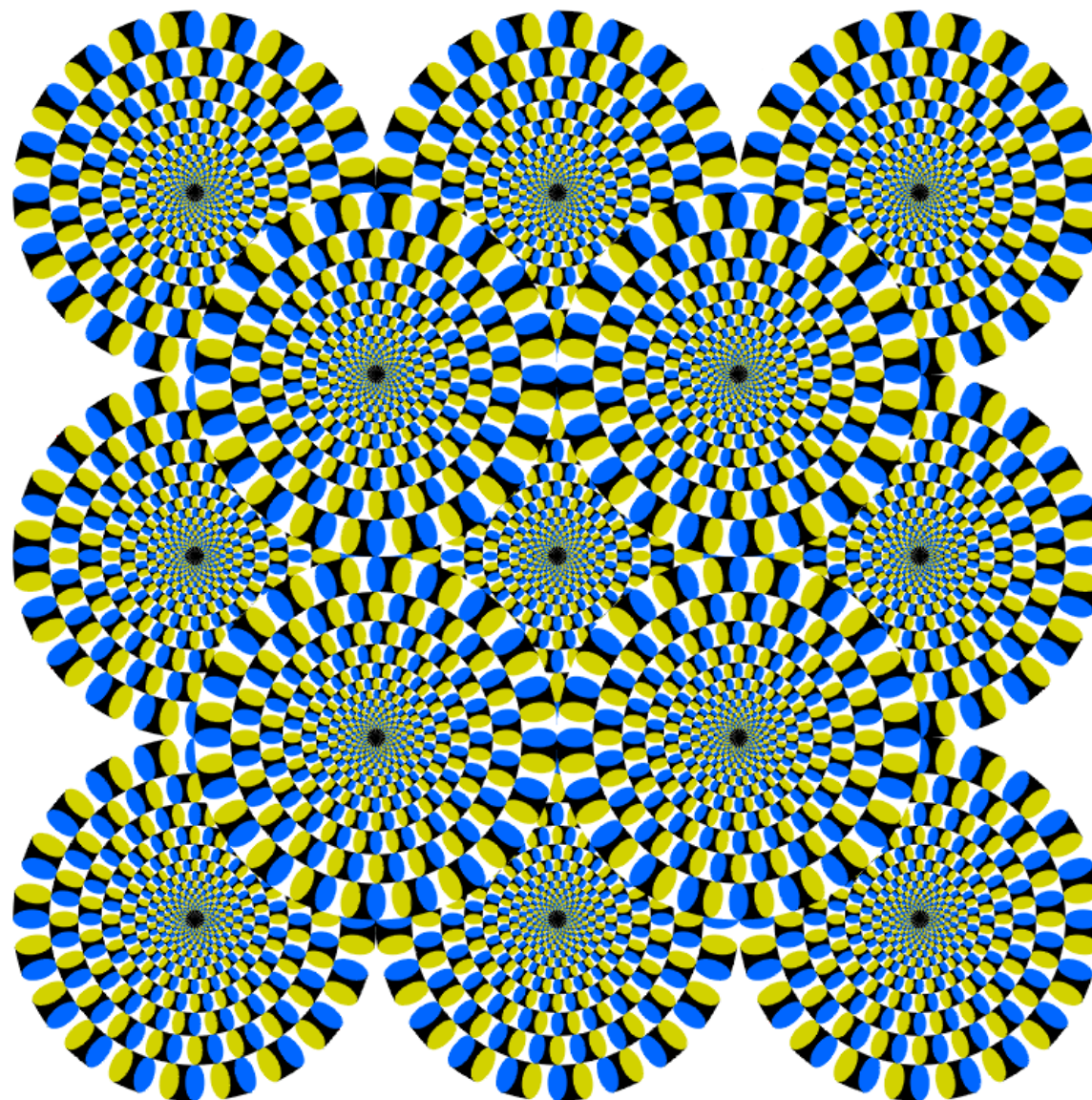
<http://www.michaelbach.de/ot/mot-snakes/index.html>

<http://www.michaelbach.de/ot/lum-adelsonCheckShadow/index.html>

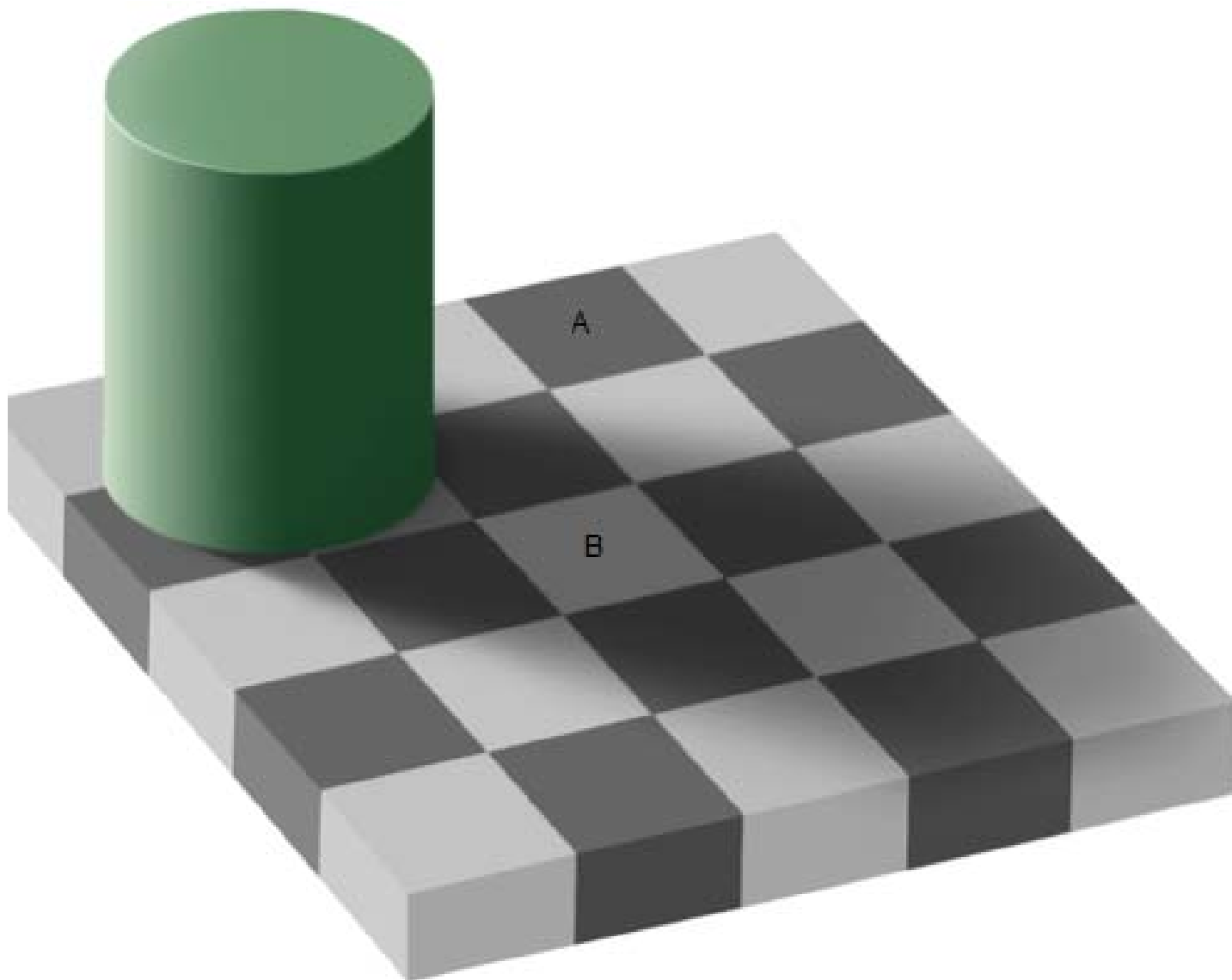
http://www.julianbeever.net/index.php?option=com_phocagallery&view=category&id=2:3d-illusions&Itemid=7

<http://www.michaelbach.de/ot/cog-impossHallucii/index.html>

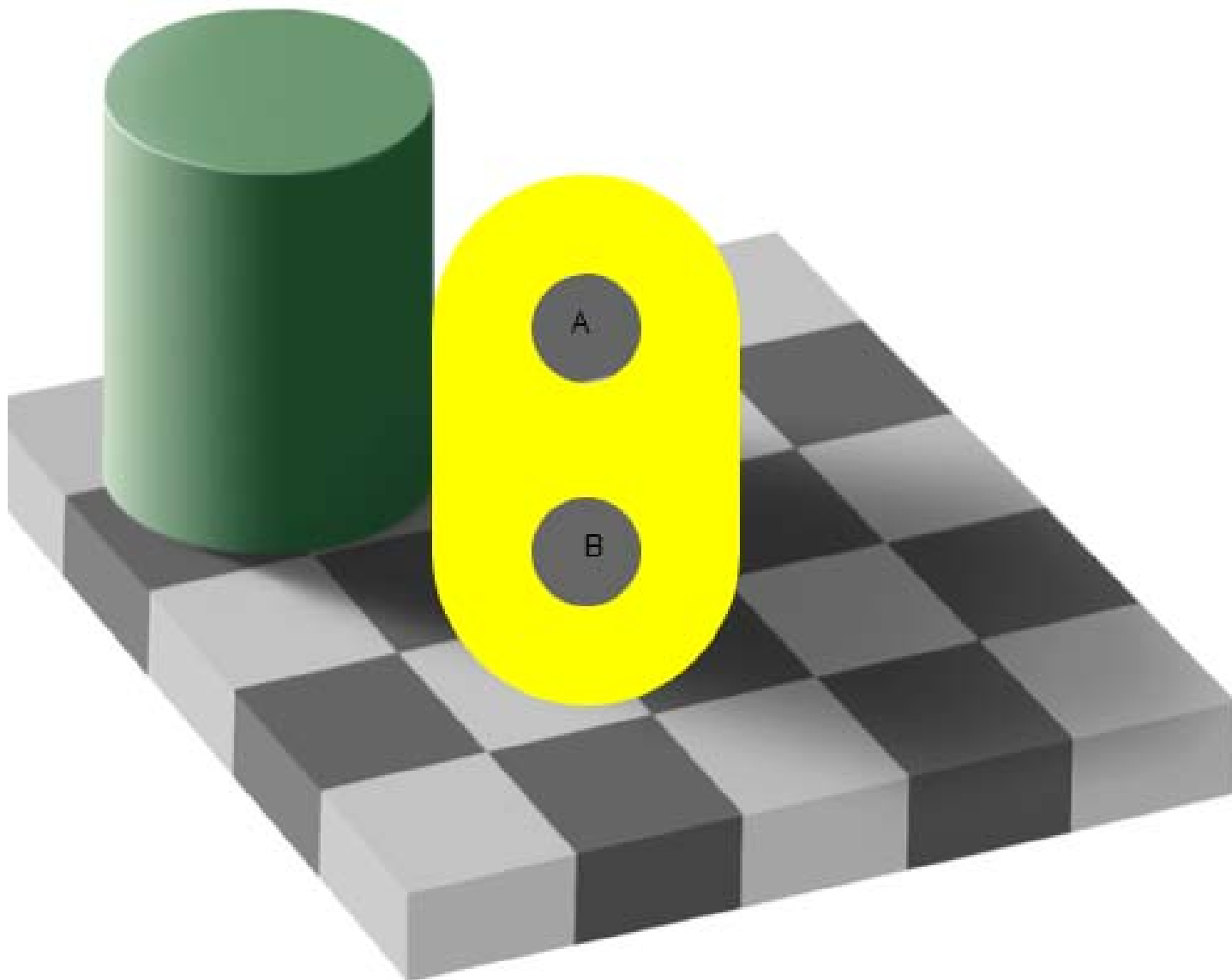
Other Illusions



Other Illusions



Other Illusions



Other Illusions



Other Illusions



Other Illusions



References

Optical Illusions & Visual Phenomena by Michael Bach

<http://www.michaelbach.de/ot/index.html>

The How and Why of Optical Illusions

<http://cs.brown.edu/~deus/courses/optical/Contrast2.htm>

Pavement Drawings – 3D Illusions

http://www.julianbeever.net/index.php?option=com_phocagallery&view=category&id=2:3d-illusions&Itemid=7

The Optic Nerve and Its Visual Link to the Brain

<http://discoveryeye.org/optic-nerve-visual-link-brain/>

Thanks!

The End?

